FUNCTIONAL SERVICING REPORT

DI POCE (INNISFIL) INC. DEVELOPMENT

PROPOSED RESIDENTIAL DEVELOPMENT

CITY OF BARRIE

PROJECT 4560 **DECEMBER 2018**

Revision	Description	Prepared		Approved	
		By	Date	By	Date
0.	Original Submission	M. Ventresca	Dec. 2018	K. Shahbikian	Dec. 2018

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1.0 Introduction

1.1 Study Objectives

This Functional Servicing Report (FSR) has been prepared in support of the DiPoce Inc. proposed residential and commercial development located within the City of Barrie. The subject site is located in the Barrie Annexed Lands, North of Salem Road, West of Essa Road, East of Country Road 27, and South of an existing residential area, as illustrated in **Figure 1-1**.

This FSR proposes a municipal servicing scheme that demonstrates the viability of stormwater management, sanitary servicing and water supply for the proposed development, with consideration for applicable municipal guidelines, policies, design criteria, and previous planning resolutions.

1.2 Background

The following documents were considered in preparing the proposed functional servicing strategy for the proposed development:

- *MECP Stormwater Management Planning and Design Manual* (March 2003);
- *NVCA Stormwater Technical Guide* (December 2013);
- *The City of Barrie Storm Drainage and Stormwater Management Policies and Design Guidelines* (December 2017);
- *The City of Barrie Sanitary Sewage Collection Policies and Design Guidelines* (October 2017);
- *The City of Barrie Water Transmission & Distribution Policies & Design Guidelines* (December 2017);
- *City of Barrie Master Plans for Wastewater Collection, Drainage and Stormwater, Water Storage and Distribution,* (all prepared by AMEC Environment and Infrastructure, October 2013);
- *City of Barrie Annexed Lands Natural Heritage Characterization Report* (Natural Resources Solutions Inc. & Dougan & Associates 2012);
- *City of Barrie Annexed Lands Natural Heritage System (NHS) Report* (NRSI 2012);

- *Subwatershed Impact Study (SIS) for Salem Annexed Lands* prepared by Schaeffers Consulting Engineers (December 2017);
- *Geotechnical Investigation Proposed Residential Development*, County Road 27, Barrie, prepared by GeoPro Consulting Limited (June 2018);

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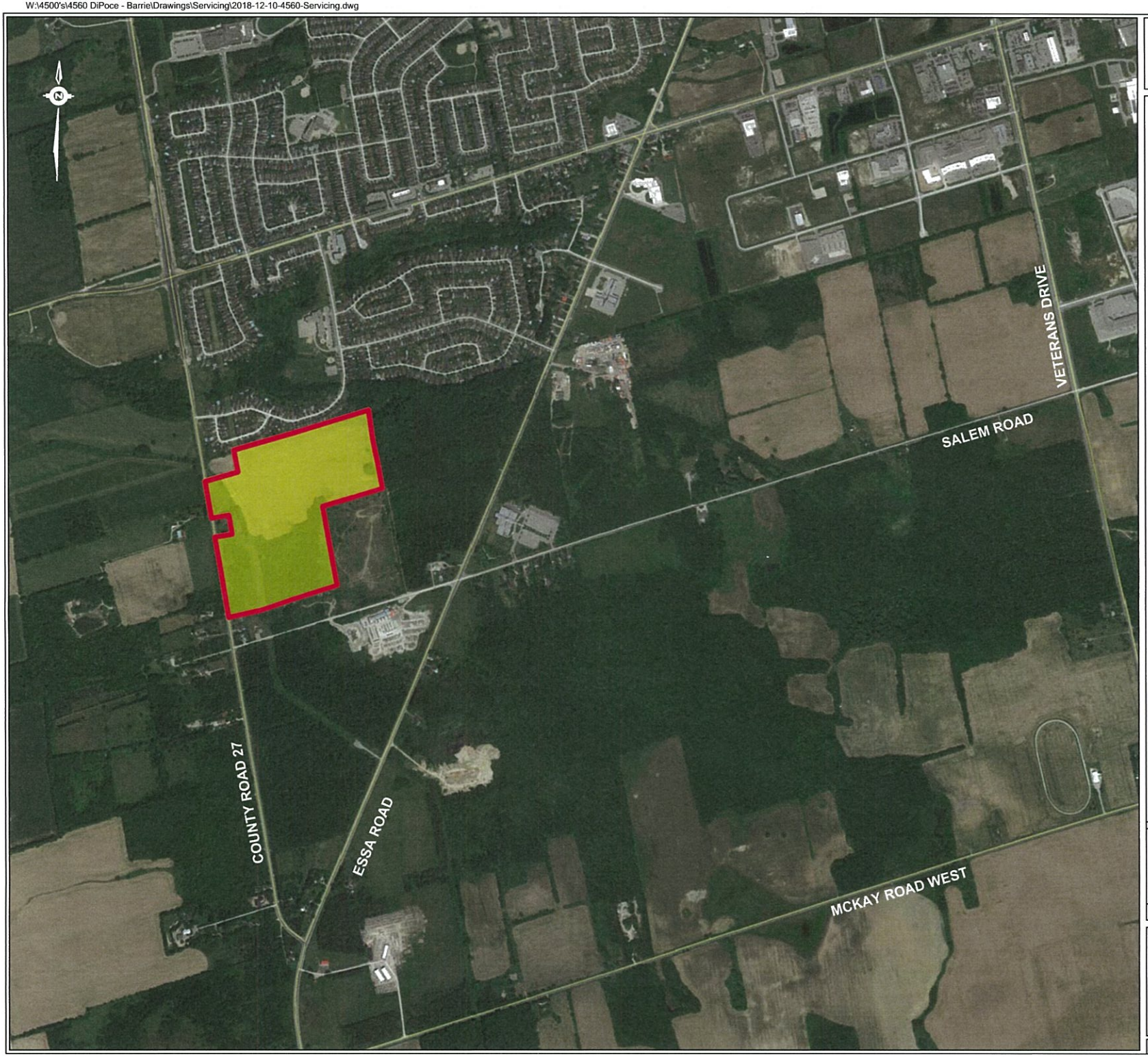

DI POCE (INNISFIL) INC.
CITY OF BARRIE

LEGEND

SUBJECT SITE

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FIGURE 1-1
LOCATION PLAN

2017-4560	DECEMBER 2018	SCALE: N.T.S.

1.3 Proposed Development Plan and Population

The proposed subdivision will contain townhouse units, medium density residential blocks, a school block, a park block, a commercial block and open space. **Table 1-1** below summarizes the proposed design populations. Medium density residential blocks (39-41) and commercial block (Block 42) along with the park (Block 45) and School (Block 43) will undergo separate site plan application process. The subject site development plan is illustrated in **Figure 1-2**.

Table 1-1: Summary of Design Population

Land Use	Units	Area (ha)	Population Density	Population
Townhouse (Including Future Townhouses)	199	5.07	2.571 persons/unit	512
Medium Density Residential	163*	3.46	47 units/hectare* 2.571 persons/unit	420
Commercial	-	0.28	115 persons/hectare	-
Total				**932**

**Calculated based on 'walk-up' apartments 26-53 units/hectare @ 2.571 as suggested by the City of Barrie's Planning Department.*

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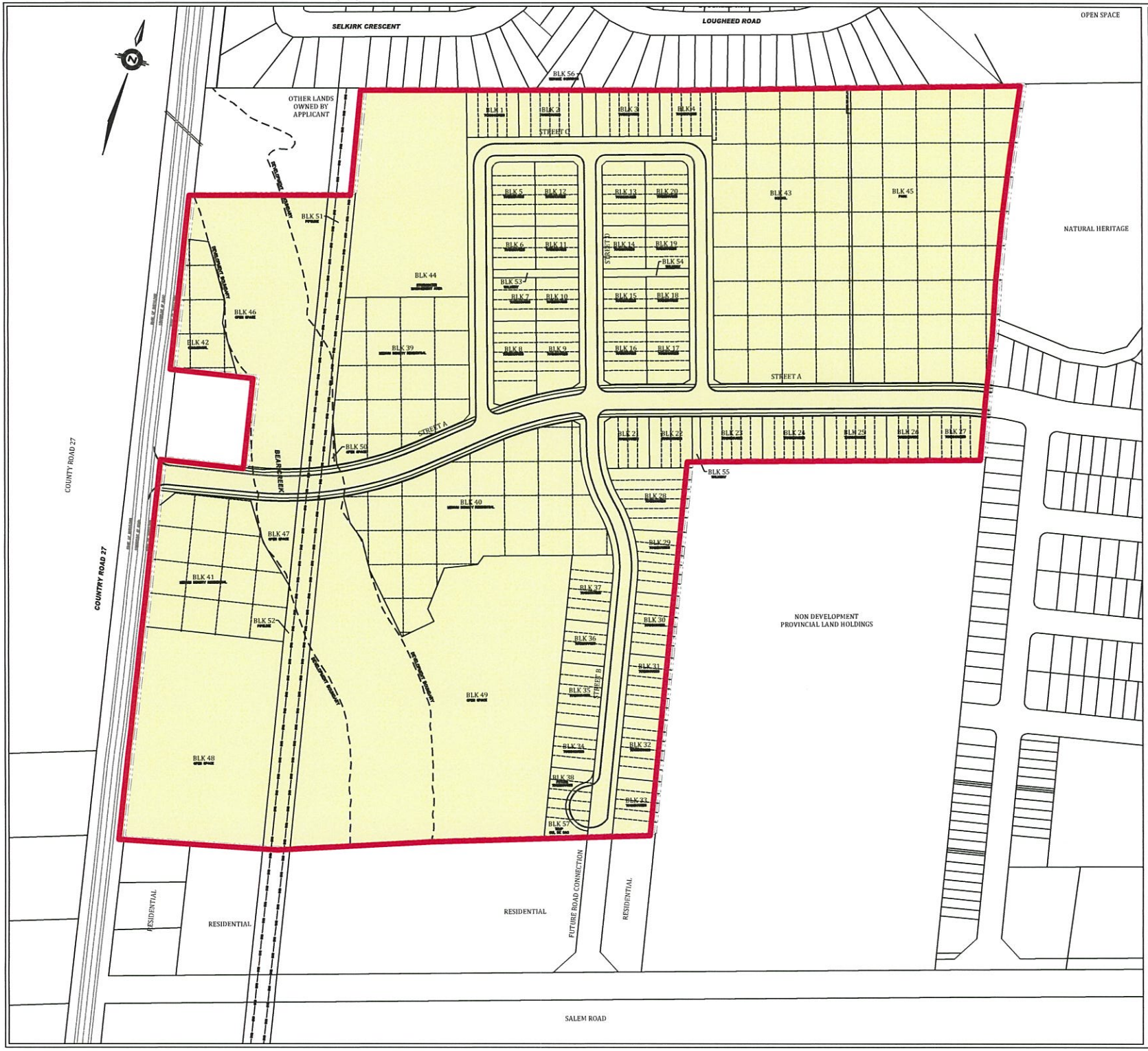

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FIGURE 1-2
DEVELOPMENT PLAN

2017-4560	DECEMBER 2018	SCALE: N.T.S.

2.0 Stormwater Management

The following sections provide details of the SWM plan for the proposed site. The proposed SWM plan is in general accordance with applicable provincial and municipal guidelines, and conservation authority criteria. The SWM Plan also conforms with the "Subwatershed Impact Study (SIS) for Salem Annexed Lands" prepared by Schaeffers Consulting Engineers (December 2017).

In the SIS, the subject site east of the Bear creek was considered to drain to the proposed SWM Pond H. Preliminary calculations for the pond sizing were completed as part of the SIS. Relevant excerpts from the SIS corresponding to the site are provided in **Appendix A** for reference.

2.1 Existing Conditions

The subject site is a tributary to the existing watercourse referred to as Bear Creek within the subject site. The main branch of Bear Creek originates south of the Salem road and continues to flow north west across the subject site. The topography is sloped towards the tributary of Bear Creek at slopes ranging from approximately 1.5% to 5%. The water course running through the site is identified as a natural heritage corridor. The pre-development drainage area is illustrated in **Figure 2-1**.

According to the Geotechnical Report prepared by GeoPro Consulting Ltd on June 01, 2018 (Refer to '**Appendix A**' for complete report), the predominant soil condition within the development limit is generally Sand to Silty Sand.

2.2 Design Criteria

Stormwater Management Design Criteria for the subject site follows the Ministry of the Environment, Conservation and Parks (MECP) Stormwater Management Planning and Design Manual dated 2003 (herein referred to as the MECP SWM Manual) for quality, quantity and erosion control.

Additional Design Criteria from the City of Barrie, the Nottawasaga Valley Conservation Authority, the Ministry of Natural Resources (MNR), and the Subwatershed Impact Study (SIS) for Salem Annexed Lands are incorporated into the design of the proposed development as discussed below.

- All storm sewers shall be designed to convey the 5-year storm event according to the Rational Formula:

Q = 2.78 CIA/1000, where

  - Q: flow rate in m3/s
  - C: runoff coefficient (dimensionless)
  - I: rainfall intensity in mm/hr
  - A: area in ha

The rainfall intensity shall be calculated in accordance with the "*Table 3.1: Barrie WPCC IDF Curve Parameters - Adjusted to Account for Climate Change"* and the following equation:

$I = A/(t + B)^C$

  - I = the rainfall intensity (mm/hr)
  - t = the storm duration (minutes)
  - A, B, C = function of the local intensity-duration frequency (IDF) data;

- For Medium Density Residential (⅒ to ¼ acre lot) total imperviousness 35% - 60% and directly connected imperviousness 20% - 45% (Table 7.6 of City Design Guidelines);
- Curve No. (AMC II) for residential area with Soil Group AB = 81 (Table 7.4 of City of Barrie Design Guidelines);
- **Quantity Control:** Post-development release rates are controlled to pre-development flows rates for return periods 2-year through 100-year. The most conservative of the following four (4) storm types for the 2-year -100-year events will be considered as the design event:
  - 4Hr Chicago;
  - SCS Type II-6Hr;
  - SCS Type II-12hr;
  - SCS Type II-24hr;

Please note that the storms were derived using the City of Barrie IDF curves and adjusted for climate change.

- **Quality Control**: Enhanced stormwater quality must be provided for the site through a treatment train approach (removal of 80% of TSS) (MECP SWM Planning and Design Manual, Table 3.2, Page 3-10);

- **Erosion Control:**
  - 5mm runoff retention on site is required for each of the site plan blocks (except Block 39 as it will drain to the SWM Pond H and erosion control will be provided at the pond);
  - **SWM Ponds**: Erosion control targets were established from the Drainage and SWM Master Plan (DSWMMP) presented in Table 4.4.15 of the DSWMMP (provided below). The SIS concluded that the erosion control volumes and release rates presented in the DSWMMP are more conservative. Therefore, these values were used to size the SWM pond erosion criteria. It is to note that BEA1 Reach from the table below will be used to calculate cumulative unitary storage rate and unitary discharge rate for erosion control.

Table 4.4.15: End-of-Pipe Stormwater Management Requirements[1,3]

Subwatershed	Reach	Outlet Node	Cumulative Unitary Storage Rate (m^3/imp. ha)				Unitary Discharge Rate (m^3/s/ha)			
			Erosion Control	Flood Control[2]			Erosion Control	Flood Control		
				5 Yr	25 Yr	100 Yr		5 Yr	25 Yr	100 Yr
Bear Creek	BEA1	9001	410	850	1000	1300	0.0012	0.007	0.013	0.030
	BEA2	9005	440	1030	1280	1580	0.0012	0.007	0.013	0.030
Thornton Creek	THO1	9024	430	920	1070	1420	0.0011	0.007	0.013	0.025
	THO2	9017	370	860	960	1310	0.0013	0.009	0.018	0.036
Lover's Creel	LOV2	9251	400	850	1050	1300	0.0011	0.010	0.020	0.050
	LOV4	9142	400	1000	1250	1400	0.0012	0.007	0.012	0.027
	LOV6	9201	400	900	1050	1350	0.0013	0.007	0.013	0.030
	LOV8	9350	460	1060	1310	1510	0.0012	0.007	0.012	0.027
Hewitts Creek	-	9140	450	900	1050	1300	0.0006	0.007	0.013	0.030
Sandy Cove Creek	SAN2	9284	310	760	835	1235	0.0010	0.010	0.020	0.040
	SAN3	9281	320	770	845	1245	0.0011	0.010	0.020	0.040

Note: [1] Water quality: Volumetric requirements for permanent pool storage are in addition to storage provided here and are to be provided in accordance with Ministry of the Environment Enhanced Level treatment.
[2] Includes erosion control volume
[3] Volumes do not include LID

- **Volume Control:** The NVCA Guideline does not have a requirement for volumetric control. However, during the completion of the SIS study, it was agreed that the SIS lands will recommend similar volumetric control to the Lake Simcoe Region Conservation Authority (LSRCA) Guidelines to the extent possible.
- **Phosphorus Loading:** Post-development phosphorous loads must match to pre-development levels. Best efforts are required to achieve a 20% reduction from pre-development levels in phosphorous loadings.
- **Water Balance:** The subject site is located in the WHPA-Q1 and Q2 region. Best efforts to

match annual post-development infiltration with pre-development volumes. Part of the site (South east corner) is located within the significant ground water recharge area.

2.3 Proposed Stormwater Management Plan

The site is proposed to have a dual drainage scheme consisting of a major and a minor system. The minor system will convey runoff from storms up to and including the 5-year event via underground sewers. Storm sewers will be designed as per City of Barrie design criteria.

In order to achieve the quality control criteria, the subject development is proposed to have a treatment train approach. A SWM pond referred to as SWM Pond H, is proposed at the North west corner of the subject site, east of the Bear Creek. The proposed 1.25 ha SWM Pond H will provide quality, quantity and erosion control for majority of the site. An infiltration bed is proposed in the southern component of the SWM Pond to provide volumetric control and to assist in meeting the water balance requirements along with additional quality control. It is proposed that catchments 202-204 provide their own volume control. Any where else, it is warranted to provide volume control for a 12.5 mm event. It is proposed to size the infiltration bed under the SWM Pond to achieve the greater of; the infiltration quality criteria for TSS removal, the pre-post water balance, and the volumetric control criteria, each of these stipulations will be detailed further in the relevant sections below. The post-development drainage areas and proposed storm servicing is illustrated schematically in **Figure 2-2** and **Figure 2-3**. The storm sewer will collect the runoff water from the ROW after passing through CB Shields, which are to be installed in all street CBs.

Table 2-1 presented below summarizes the post development drainage plan for the subject site. The imperviousness calculations for each block are presented in **Appendix B** for reference.

Note that there is a discussion regarding a potential development on the "Non-Development Provincial Land Holdings" to the south-east of the subject site. The condition where these lands remain undistributed will be referred to as the "interim condition", whilst the condition where the potential for development in this area is realized will be referred to as the "ultimate condition". It should be noted that in "ultimate condition", this area will have its own quality/quantity/erosion/volume control and will outlet to sewer which drains to SWM Pond H. The quantity control will be based on post to pre control criteria.

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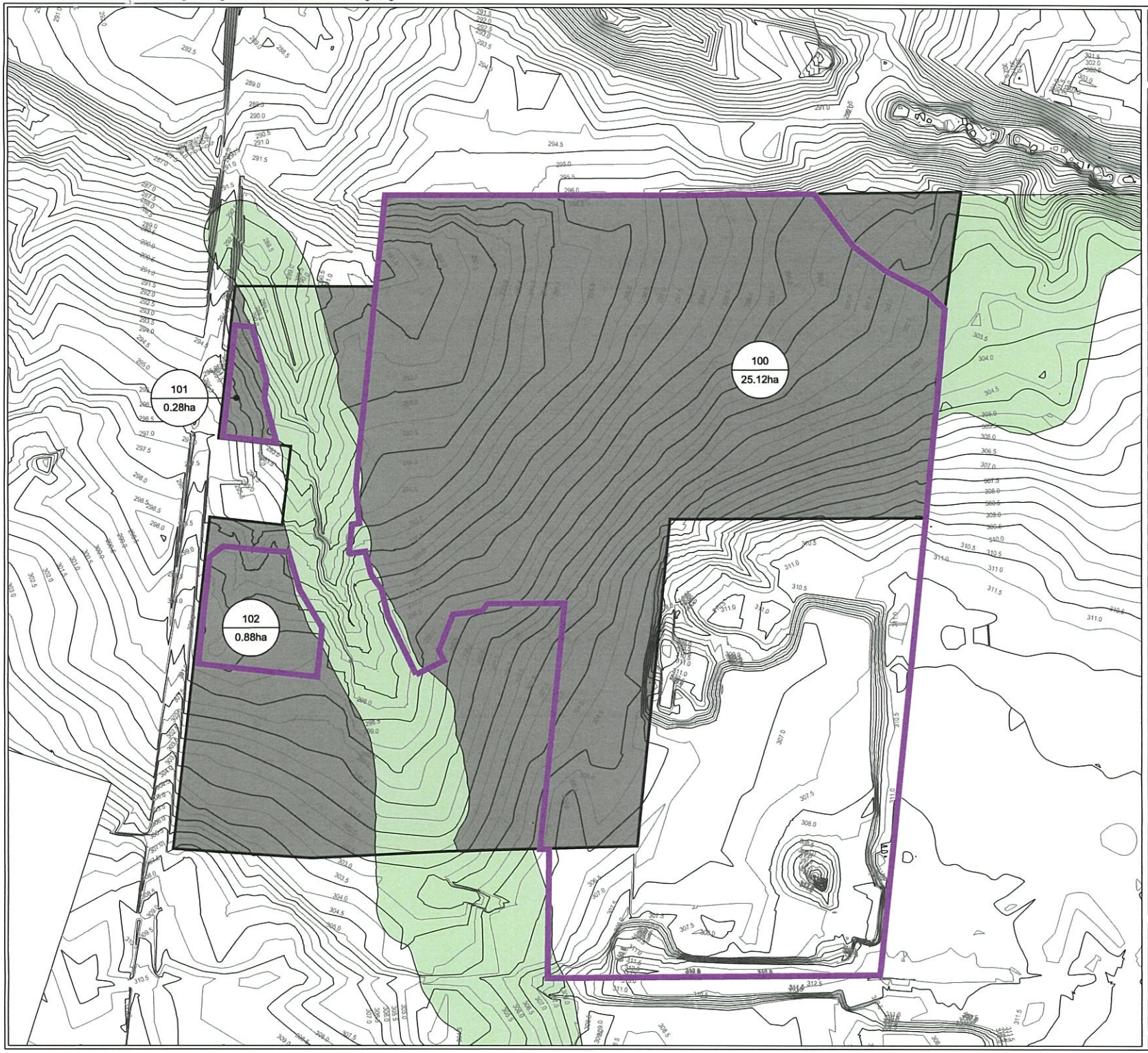

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- DI POCE SITE PLAN BOUNDARY AREA
- NATURAL HERITAGE SYSTEM
- PRE DEVELOPMENT CATCHMENTS

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FIGURE 2-1
PRE-DEVELOPMENT DRAINAGE AREAS

2017-4560	NOVEMBER 2018	SCALE: N.T.S.

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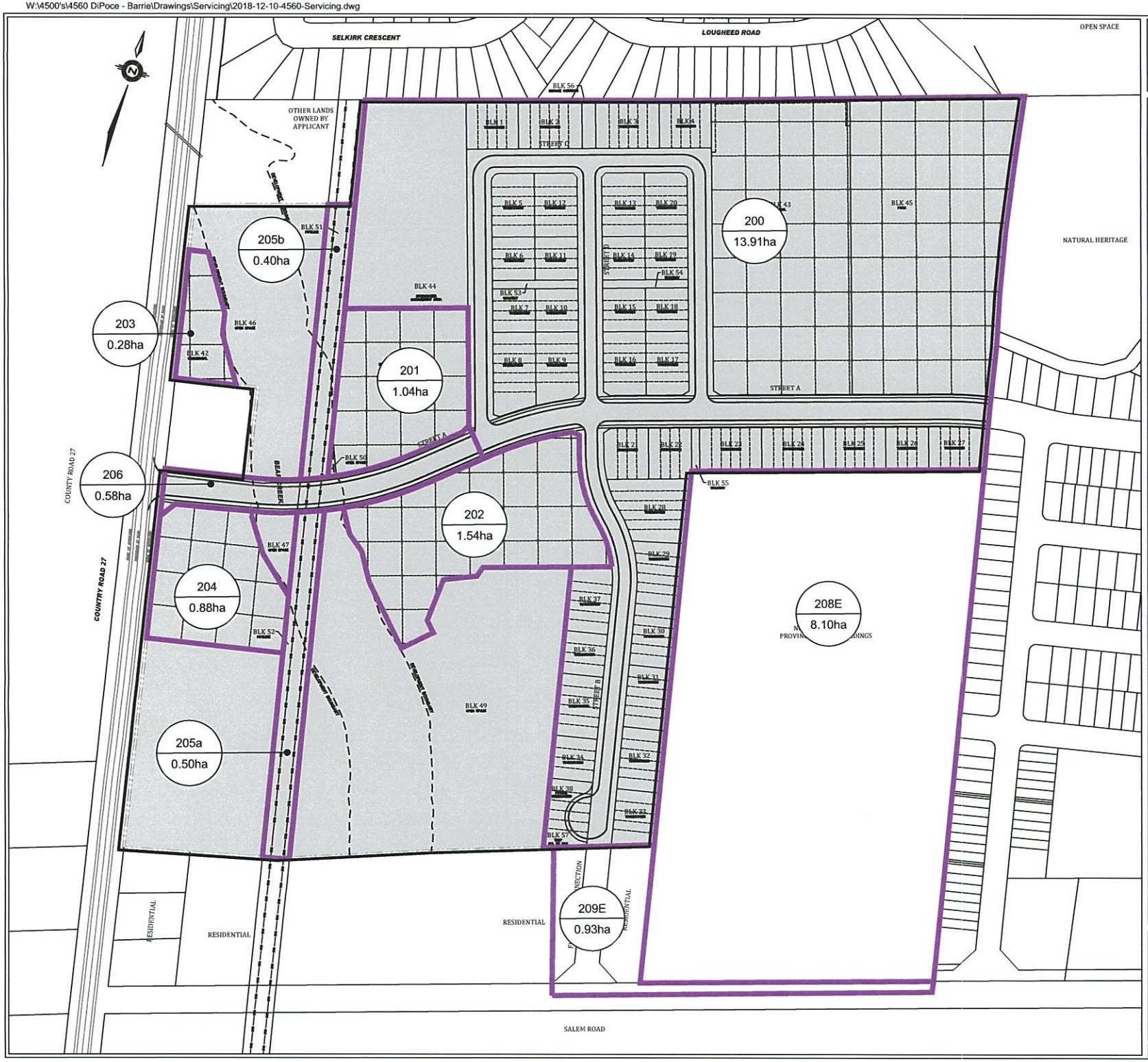

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- SUBJECT SITE
- DRAINAGE AREAS
- 208E / 8.10ha — ID / AREA IN HECTARES

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FIGURE 2-2
POST-DEVELOPMENT
DRAINAGE AREAS

2017-4560	DECEMBER 2018	SCALE: N.T.S.

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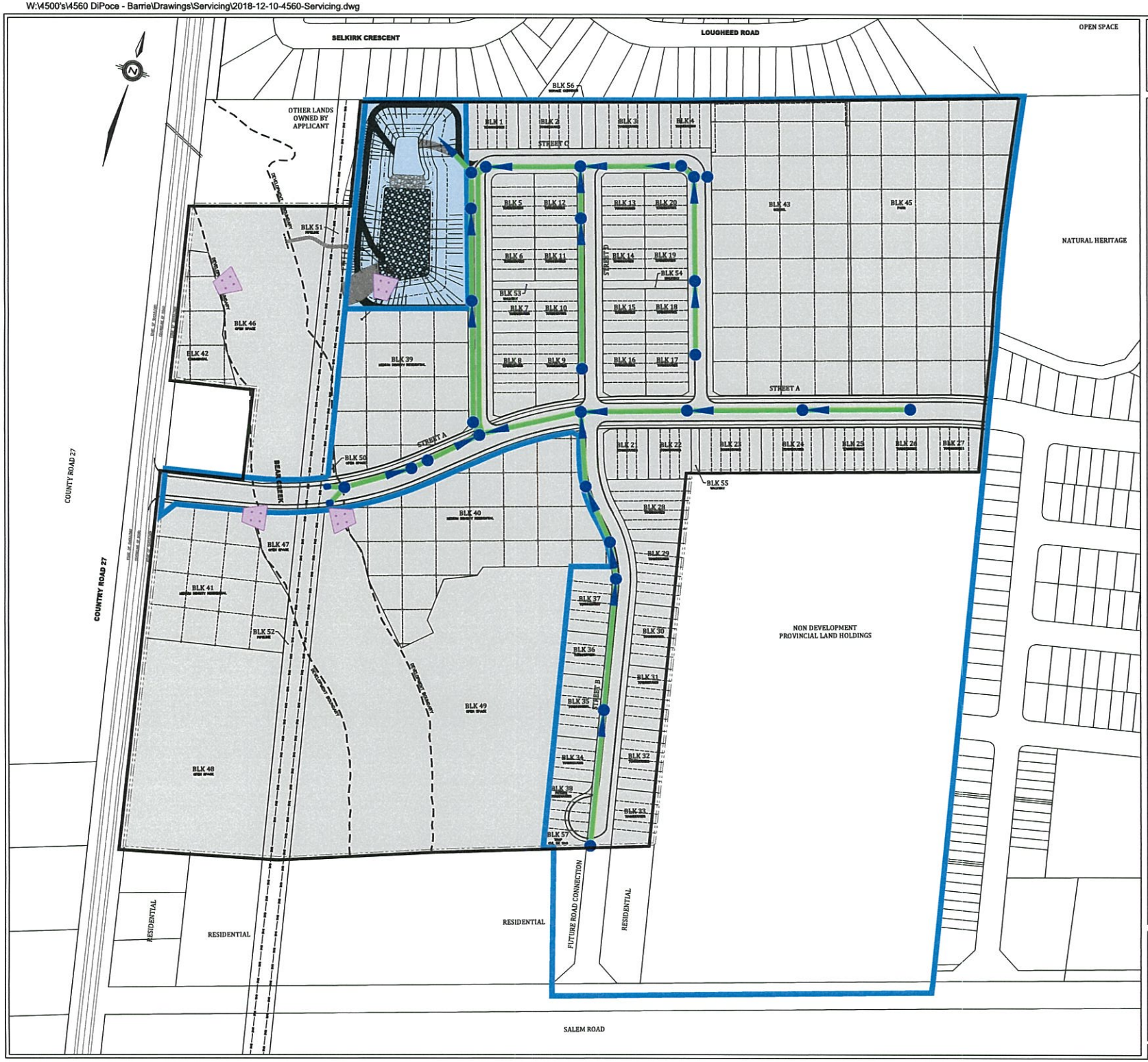
Michael Ventresca



DI POCE (INNISFIL) INC.
CITY OF BARRIE

LEGEND

- SUBJECT SITE
- PROPOSED STORM SEWERS
- PROPOSED SWM POND
- PROPOSED SWM POND H DRAINAGE AREA
- PROPOSED HEADWALL

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FIGURE 2-3
PROPOSED
STORM SERVICING

2017-4560	DECEMBER 2018	SCALE: N.T.S.

Table 2-1: Post- Development Catchment Area Summary

Catchment ID	Lots / Blocks	Area (ha)	Imperviousness (%)	Comment
200	01-38 43-45 53-57 ROW	13.91	58%	Area draining to the proposed SWM Pond H.
201	39	1.04	75%	Provide Quantity Control and headwall directly to the proposed SWM Pond H.
202	40	1.54	75%	Headwall directly to the Creek. Quantity, Quality and Erosion Control to be provided within the Block.
203	42	0.28	71%	Headwall directly to the Creek. Quantity, Quality and Erosion control to be provided within the Block.
204	41	0.88	75%	Headwall directly to the Creek. Quantity, Quality and Erosion control to be provided within the Block.
205a +205b	51+52	0.90	7%	TransCanada Corridor. Follows Existing Drainage Pattern. No Quantity and Quality control.
206	ROW	0.58	75%	Area Draining to the proposed SWM Pond H.
208 External	-	8.10	-	External Area Draining to the proposed SWM Pond H. At ultimate condition, this area will be serviced by its own pond and then drain to SWM Pond H.
209 External	-	0.93	50%	External Area Draining to the proposed SWM Pond H at interim condition.
Remaining Area of the subject site	Open Space – Undisturbed	6.69ha	-	Undisturbed Area. Existing drainage pattern remains, no control required.

2.4 Allowable Release Rates

Visual OTTHYMO v.5.0 (VO5) is used as the hydrologic modelling software for the subject site.

The parameters for the VO5 modelling were considered from the SIS study where preliminary sizing was completed for the proposed SWM Pond within the subject site. Parameters used in the VO5 model are presented in **Appendix B.** **Table 2-2** below presents the pre-development flows for Catchment 100 with a tributary area of 25.12 ha.

Table 2-2: Allowable Release Rates for Catchments east of the Bear Creek

Storm	24Hr SCS	12Hr SCS	6Hr SCS	4Hr Chicago
	Flow (m3/s)	Flow (m3/s)	Flow (m3/s)	Flow (m3/s)
2 Year	0.218	0.187	0.177	0.124
5 Year	0.415	0.360	0.360	0.239
10 Year	0.572	0.500	0.508	0.334
25 Year	0.796	0.699	0.724	0.473
50 Year	0.979	0.864	0.903	0.581
100 Year	1.173	1.037	1.094	0.705

The above-mentioned release rates were used in the post-development scenario in VO5 and the results from the model show that 24 Hr SCS generates the highest amount of required storage. Catchment 100, a tributary area of 25.12 ha, includes the post-development catchments 200, 201, 202, 208E and 209E. The allowable release rates for Catchment areas 200+201+206+208E+209E are prorated based on their total area (24.56 ha) as they are draining to the SWM Pond H. In addition, Catchment 201 is also proposed to release a maximum of the 100-yr pre-development level with a runoff coefficient (C) of 0.25 and a time of concentration (T_c) of 19 minutes to the SWM Pond. Rational Method and IDF curves prescribed by the City of Barrie were used to set the allowable release rate from this site. Calculations indicate that Catchment 201 will require to control the 100-year release rate on-site to 113.4 L/s and provide 450 m^3 storage on-site. The allowable release rate for Catchment 202 is prorated using the pre-development flow of Catchment 100. The allowable release rates are summarized in **Table 2-3** below.

Table 2-3: Allowable Release Rates for Catchments East of the Tributary of Bear Creek

Storm Event	Catchment 200+201+206+209E+208E				Catchment 202			
	24.56				1.54			
	24HR SCS	12HR SCS	6HR SCS	4HR CHIC	24HR SCS	12HR SCS	6HR SCS	4HR CHIC
2 Year	0.205	0.176	0.166	0.117	0.013	0.004	0.004	0.002
5 Year	0.391	0.339	0.338	0.225	0.024	0.008	0.008	0.005
10 Year	0.538	0.470	0.478	0.315	0.034	0.012	0.012	0.007
25 Year	0.749	0.658	0.681	0.445	0.047	0.017	0.018	0.010
50 Year	0.921	0.813	0.850	0.547	0.058	0.021	0.022	0.012
100 Year	1.104	0.976	1.029	0.663	0.069	0.025	0.027	0.015

The allowable release rates for catchments 203 and 204 were established based on the pre-development catchments 101 and 102, respectively **(Refer to Figure 2-1)**. The parameters considered in the VO5 modelling are presented in **Appendix B** for more information. **Table 2-4** below summarizes the allowable release rates for catchments 203 and 204.

Table 2-4: Allowable Release Rates for Catchments West of the Tributary of Bear Creek

Storm Event	Catchment 203				Catchment 204			
	0.28 ha				0.88 ha			
	24Hr SCS	12Hr SCS	6Hr SCS	4Hr Chicago	24Hr SCS	12Hr SCS	6Hr SCS	4Hr Chicago
	Flow (m^3/s)	Flow (m^3/s)	Flow (m^3/s)	Flow (m^3/s)	Flow (m^3/s)	Flow (m^3/s)	Flow (m^3/s)	Flow (m^3/s)
2 Year	0.005	0.004	0.004	0.002	0.011	0.009	0.008	0.004
5 Year	0.010	0.009	0.009	0.005	0.024	0.020	0.019	0.010
10 Year	0.014	0.013	0.013	0.007	0.034	0.028	0.029	0.015
25 Year	0.020	0.018	0.019	0.010	0.048	0.041	0.042	0.022
50 Year	0.025	0.022	0.023	0.013	0.061	0.052	0.054	0.028
100 Year	0.031	0.027	0.029	0.016	0.074	0.064	0.067	0.035

2.5 Erosion Control

Catchments 201 (Block 39), 202 (Block 40), 204 (Block 41) are proposed medium density residential areas and catchment 203 (Block 42) is a commercial area. It is proposed that catchments 202, 203 & 204 provide their own erosion control through the retention of 5 mm rain from any rainfall event on-site. The erosion control for the remaining of subject site will be provided at the proposed SWM Pond. Typically, it is proposed to detain the first 25 mm of rainfall for 24-48 hours within the pond to meet the erosion control criteria, however, as mentioned earlier in *Section 2.2*, erosion control targets were established as per the DSWMMP Table 4.4.15 as it presents a more conservative approach.

The erosion control volume required was calculated using the Bear Creek reach BEA1 at Outlet Node 9001 from the DSWMMP Table 4.4.15, the calculation was based on the area that drains to the SWM pond. The erosion control volume required at SWM Pond is ~ 4230 m^3 (4229.23 m^3)at an allowable peak release rate of ~ 0.0442 m^3/s (0.04421 m^3/s). Detailed calculations are attached in **Appendix B**, for reference.

2.6 Quantity Control

The quantity control for each catchment is provided through a combination of various best stormwater management practices (SWMPs). The following section describes the various SWMPs adapted to achieve quantity control.

2.6.1 Catchments Draining to SWM Pond H

A SWM Pond (SWM Pond H) is proposed to provide quantity control to the majority of the subject site which includes; catchments 200 + 206 + 208E+209E as well as the additional quantity control required for 201. As previously discussed, the proposed SWM pond is located on the North West corner of the subject site, east of the tributary of Bear Creek.

The allowable release rates established in **Section 2.4** above were used to determine the required active volume to be within the proposed SWM Pond H. Since the 24-Hr SCS generates the largest volume, it was used as the design storm to estimate the volume required within the SWM Pond. **Table 2-5** presented below summarizes the preliminary SWM Pond H design calculations in the interim condition (the external lands to the south-east undisturbed) while **Table 2-6** below

summarizes the SWM Pond H design requirements in the ultimate condition (the external lands developed).

Table 2-5: Interim Condition SWM Pond H Storage Requirements - 24 hr SCS

Storm	Allowable Release Rate	VO Output	VO Required Storage	Storage Provided
	Flow (m^3/s)	Flow (m^3/s)	Volume (m^3)	Volume (m^3)
2-Year	0.205	0.205	4,653	4,888
5-Year	0.391	0.391	6,220	6,390
10-Year	0.538	0.538	7,358	7,672
25-Year	0.749	0.749	8,808	9,025
50-Year	0.921	0.921	9,883	10,088
100-Year	1.104	1.103	10,928	11,570

Table 2-6: Ultimate SWM Pond H Storage Requirements - 24 hr SCS

Storm	Allowable Release Rate	VO Output	VO Required Storage	Storage Provided
	Flow (m^3/s)	Flow (m^3/s)	Volume (m^3)	Volume (m^3)
2-Year	0.205	0.204	4,608	4,888
5-Year	0.391	0.390	6,279	6,390
10-Year	0.538	0.538	7,427	7,672
25-Year	0.749	0.749	8,891	9,025
50-Year	0.921	0.920	9,994	10,088
100-Year	1.104	1.103	11,071	11,570

Table 2-6 above reveals that the ultimate condition will govern the SWM Pond H design, therefore the pond has been sized to provide quantity control for the ultimate condition, satisfying the interim as well.

2.6.2 Catchment 202

The allowable release rate for the 2-year to 100-year event for Catchment 202 was discussed in **Section 2.4.** Based on the target release rates, the 2-year to 100-year storage requirements were calculated in VO5. Pre-development quantity control in Catchment 202 (Block 40) is required to satisfy the target release rates and storage requirements presented in **Table 2-7.**

Table 2-7: SWM Storage Requirements-24 Hr SCS (Catchment 202)

Storm	Allowable Release Rate	VO Output	VO Required Storage
	Flow (m^3/s)	Flow (m^3/s)	Volume (m^3)
2-Year	0.013	0.013	438
5-Year	0.024	0.024	606
10-Year	0.034	0.034	715
25-Year	0.047	0.046	854
50-Year	0.058	0.057	955
100-Year	0.069	0.068	1,054

2.6.3 Catchments 203 + 204

The allowable release rates for catchments 203 + 204 were established in the **Table 2-4**. Based on the target release rates, the 2-year to 100-year storage volume requirements were calculated in VO5. Based on the modelling results, the 24hr SCS generated the largest volume requirements, therefore it was considered as the governing storm. Each block (Block 41 and 42) is required to satisfy the target release rates and storage requirements presented in **Table 2-8**.

Table 2-8: SWM Storage Requirements - 24 Hr SCS (Catchment 203, 204)

Storm	Catchment 203			Catchment 204		
	Allowable Release Rate	VO Output	VO Storage	Allowable Release Rate	VO Output	VO Storage
	Flow (m^3/s)	Flow (m^3/s)	Volume (m^3)	Flow (m^3/s)	Flow (m^3/s)	Volume (m^3)
2-Year	0.005	0.005	61	0.011	0.011	224
5-Year	0.010	0.010	83	0.024	0.024	304
10-Year	0.014	0.014	99	0.034	0.034	355
25-Year	0.020	0.020	118	0.048	0.048	422
50-Year	0.025	0.025	132	0.061	0.061	471
100-Year	0.031	0.031	145	0.074	0.074	520

2.7 Quality Control

Water quality control is to be provided for the subject site to achieve the required 80% TSS removal.

Catchments 201-204 are proposed to provide their own quality control. A combination of bioretention facilities like tree pits or infiltration chambers along with Oil Grit Separator (OGS) or Jelly Fish units can be used to achieve the required 80% TSS removal. Since, catchment 201 is proposed to discharge directly to the infiltration cell of the SWM Pond H via a headwall, it is proposed that the site use an OGS. A preliminary OGS unit was sized and it is proposed to use Stormceptor EFO8 (or an approved equivalent design) to achieve at least 80% TSS removal prior to draining to the SWM Pond. Please refer to **Appendix B** for the preliminary OGS sizing report. In addition, TSS removal can be achieved through infiltration at the infiltration cell of the pond. An in-depth review of the feasible LID techniques within each block is required during the site plan stage.

For the remaining parts of subdivision (15.42 ha) excluding the undeveloped areas, it is proposed to provide quality control via a treatment train approach - CB Shields, permanent pool, and on-site infiltration techniques. The flow from the proposed townhouses, school block, park block and from

the public right of way (ROW) is proposed to be treated via a treatment train approach. CB Shields are proposed along the ROW which help in retaining the sediments in the sump and providing 50% TSS removal (According to the ETV Certification). The flow from the storm sewers is then directed towards the forebay of the cell, which has been designed to provide 60% TSS removal. According to the calculations presented in **Appendix B**, it is required to provide a permanent pool volume of 571 m^3. The required and provided permanent pool volumes are summarized in **Table 2-9.**

Table 2-9: Permanent Pool Requirements at Forebay of SWM Pond H

Level of Protection	Basic
Drainage Area (Catchment 200+206+209E)	15.42 ha
Weighted Imperviousness	58%
Total Storage Volume Requirement	77 m^3/ha
Minimum Extended Detention Storage Volume Requirement	40 m^3/ha
Permanent Pool Requirement	37 m^3/ha
Required Permanent Pool Storage Volume	571 m^3
Provided Permanent Pool Storage Volume	1,235 m^3

Additional quality control is provided by the proposed infiltration bed within the SWM Pond in accordance with Table 3.2 of the MECP SWM Planning & Design Manual. Therefore, the combined efficiency of the treatment train approach is greater than required 80% TSS removal 80% {50% + 60% - (50%*60%)} and 98% {80% + 60% - (80%*60%)}. **Table 2-10** summarizes the required and provided infiltration volume at the infiltration cell of the SWM Pond H. Detailed calculations area attached in **Appendix B** for reference.

Table 2-10: Infiltration Volume Summary

Level of Protection	Basic
Drainage Area (Catchment 200+201+206+209E)	16.46 ha
Weighted Imperviousness	59%
Infiltration Rate	20 m^3/ha
Required Infiltration Volume	329 m^3
Provided Infiltration Volume	2,285 m^3

2.8 Volumetric Control

The NVCA Guideline does not have a requirement for volumetric control. However, during the

completion of the SIS study, it was agreed that the SIS lands will recommend similar volumetric control to the Lake Simcoe Region Conservation Authority (LSRCA) Guidelines to the extent possible. As previously discussed, due to land use constraints although desirable to provide a volumetric control for rain events of ≤25mm, it is warranted to provide volume control for ≤12.5 mm events. Therefore, for the subject site area, a volumetric retention volume of at least 1290 m^3 ("interim condition") (12.5mm * 42%imp * 24.56 ha * 10[{m^2/ha} / {m/mm}] = 1289.4 m^3) is required within SWM Pond H infiltration area. It is to note that the "interim condition" volume required governs the volumetric control design criteria. The required and provided volume at the infiltration cell is summarized in **Table 2-11.** Calculations are attached in **Appendix B.**

Drainage Area (Catchment 200+201+206+208E+209E)	24.56 ha
Weighted Imperviousness	42%
Required Infiltration Volume (Interim)	1,290 m^3
Required Infiltration Volume (Ultimate)	1,214 m^3
Provided Infiltration Volume	2,285 m^3

2.9 Water Balance

According to the Ontario MECP, the subject site is located in the Q1 and Q2 region. Parts of the south east of the subject site are located within the significant recharge area.

A water balance model was prepared for the site to assess the distribution of rainfall run-off and infiltration for the existing (pre-development) conditions and the post-development conditions. The Meteorological data was taken from Environment Canada-Barrie WPCC Station (1978-2006)

The water balance for the site was conducted using a mean annual precipitation of 933 mm. Infiltration factors were based on the MECP SWM Planning and Design Manual (dated 2003).

Based on the water balance calculations presented in **Appendix A**, the pre-development infiltration is 52,057m^3/year and the post-development infiltration is 28,351m^3/year. 23,706 m^3/year of deficit is required to be infiltrated at the post-development stage.

To satisfy the water balance requirements it is proposed that Blocks 39-42, 43 and 45 provide 5mm infiltration on site. Additional infiltration is proposed within the well cell of SWM Pond H. In

order to meet the water balance deficit, an annual rainfall depth of 153 mm/yr (resultant from rainfall events of ≤3.3mm) is required. As discussed in *Section 2.3*, the infiltration bed within the SWM Pond block is sized to provide the greater of; the quality control requirement (308 m^3), the volumetric control requirement (1289.4 m^3), and the water balance requirement (296 m^3). Based on the criteria stated above, the infiltration within SWM Pond H will be designed to satisfy the 12.5mm retention from the impervious area draining to the SWM Pond in accordance with the volumetric control section above (*Section 2.8*), far exceeding the water balance requirements. Note that the infiltration area within SWM Pond H has been designed to ensure a drawdown time below seventy-two (72) hours. An infiltration rate of 30mm/hr was taken in accordance with the Geotechnical Investigation done by GeoPro (June 2018), indicating the native soils at the proposed SWM Pond location & site as a whole were generally comprised of sand to silty sand (typical infiltration rates of ~40mm/hr, 30mm/hr taken as conservative design).

The above infiltration measures increase the post-development infiltration volume to 84,624m^3 which is a 63% increase in infiltration from the pre-development conditions. **Table 2-7** presented below summarizes the water balance calculations presented in **Appendix B**.

Table 2-11: Water Budget – Summary Table

Characteristics	Site				
	Pre-Development	Post-Development	Change (Pre to Post)	Post-development with mitigation	Change (pre to post with mitigation)
Inputs (Volumes)					
Precipitation (m^3/year)	240917	240917	0%	240917	0.0%
Total Inputs (m^3/year)	240917	240917	0%	240917	0.0%
Outputs (Volumes)					
Precipitation surplus (m^3/year)	86761	145990	68%	145990	68%
Net Surplus (m^3/year)	86761	145990	68%	145990	68%
Total Evapotranspiration (m^3/year)	154156	94927	-38%	94927	-38%
Total Infiltration (m^3/year)	52057	28351	-46%	84624	63%
Total Runoff (m^3/year)	34704	117640	239%	61367	77%
Total Outputs (m^3/year)	240917	240917	0%	240917	0%

2.10 Phosphorus Loading

NVCA Guidelines require a maximum allowable post-development phosphorus loading of 100% pre-development loading, and best efforts to an additional 20% reduction beyond this level. However, NVCA recognizes that in some circumstances, this 20% reduction cannot be achieved and therefore, NVCA requires that the TP load at post development stage, at least, matches with that of pre-development.

The NVCA Phosphorus Budget Tool was utilized to calculate both pre- and post-development phosphorus loading based on land use. A pre-development phosphorus load of 2.52 kg/yr and a post-development phosphorus load without BMP of 6.33 kg/yr was found. A post-development loading with BMPs was found to be 1.36 kg/yr. This indicates that the post-development loading with BMPs is 46% less than the pre-development phosphorus load. Refer to **Appendix B** for the NVCA Phosphorus Budget Tool- Development Export Summary.

A treatment train approach to reduce phosphorus is proposed in the post-development condition for Catchment area 200 and 206. This proposed treatment train was assessed for treatment efficiency while catchment area 201-204 draining to a single measure used recommended removal efficiencies provided by the NVCA Phosphorus Loading Development Tool. An overall treatment efficiency of 87.4% has been proposed through the application of CB shield settling (scour reduction and annual clean out), end-of-pipe-facility with a wet sediment forebay providing MOE Table 3.2 "Basic" quality treatment volume for wet pond as well as infiltration in the SWM pond. The treatment train Total Phosphorus (TP) removal efficiency has been calculated as follows:

- CB Shield @ 30% results in [100% x (1-0.3)] = 70% TP remaining;
- SWM Pond MOE Table 3.2 "Basic" @ 55% results in [70% x (1-0.55)] = 31.5% TP remaining;
- Infiltration in SWM Pond @ 60% results in [31.5% x (1-0.60)] = 12.6% TP remaining.

As mentioned above the assumed phosphorus remaining after the treatment train is approximately 12.6% resulting in a proposed removal of 87.4%. Refer to Sections 2.8.1 & 2.8.2 for additional justification on the selected treatment efficiency for each stage of the treatment train.

2.10.1 CB Shield Pre-treatment

CB Shields are proposed across the ROW to capture the flow from the front lawns and right of way area. According to the Field Monitoring Summary Sheet completed by CB Shield Inc. for 38 catch basins (20 equipped with CB Shield), the total phosphorus captured per CB Shield was about 0.083 kg/yr. Assuming an average area of 0.2 ha draining to each CB Shield. The total phosphorus captured is approximately 0.41 kg/yr/ha (0.083 kg/yr ÷ 0.2 ha). Comparing the 0.41kg/yr/ha to average phosphorus loading for a residential development – 1.29kg/yr/ha (MECP), it can be concluded that approximately 30% of phosphorus reduction is provided by the CB Shield.

2.10.2 Proposed SWM Pond H

As previously mentioned in Section 2.8, the proposed end-of-pipe facility provides a pond which includes a permanent pool quality volume based on MOE Table 3.2 Wet Pond Sizing for "Basic" treatment. The proposed facility provides a permanent pool excess of the volumetric sizing for a

"Basic" (60%) Total Suspended Solids removal efficiency. As per NVCA: Managing New Urban Development in Phosphorus-Sensitive Watersheds (Hutchinson Environmental Sciences Ltd), 63% phosphorus removal can be achieved if a proposed facility provides a permanent pool excess of the volumetric sizing for a "Enhanced" (80%) Total Suspended Solids removal efficiency. This relationship was prorated to calculate the phosphorus removal efficiency when a wet pond of "Basic" (60%) is provided and the calculation indicates that the wet pond can provides a 55% efficiency in phosphorus removal.

2.10.3 Infiltration in Proposed SWM Pond H

An infiltration bed is proposed in the SWM pond to provide additional quality control. This infiltration bed is sized to retain 12.5 mm from the impervious areas draining to the SWM Pond (~1289.4 m^3), greatly exceeding the MOE Table 3.2 criterion volume for TSS removal (~329m^3). As per NVCA: Managing New Urban Development in Phosphorus-Sensitive Watersheds (Hutchinson Environmental Sciences Ltd), 60% phosphorus removal can be achieved through infiltration.

2.11 Sediment Forebay Design

The sediment forebay is designed to ensure adequate sizing for the service area. The forebay length should be greater than or equal to the larger of the settling and dispersion lengths based on the MECP SWM Planning and Design Manual.

The forebay length is designed approximately to be at 39 m, which is greater than the required length of the 37 m. Detailed forebay sizing calculations area provided in **Appendix B** for reference.

3.0 Sanitary Servicing

The following sections demonstrate that the proposed development has been accommodated in the proposed master sanitary servicing plan. The sanitary design flow calculations have been prepared in accordance to the City of Barrie and Ministry of Environment Design Criteria.

3.1 Existing Sanitary Infrastructure

Currently no existing sanitary infrastructure is located within the subject site boundaries. The existing residential area north of the subject site has a sanitary network. There is a proposed 375mm sanitary pipe to extend from east of the subject site along the proposed 'Street 'A'' to connect to the existing sanitary infrastructure on Country Road 27, north-west of a subject site to service the future Bear Creek Ridge Development. Both of these sanitary conveyance networks transport waste water to the Holly Sanitary Pumping Station.

3.2 Design Criteria

The *"City of Barrie Sanitary Sewage Collection System Policies and Design Guidelines, 2012"* identified the following key design criteria:

- Design capacity not to exceed 85% full flow capacity;
- Population to be calculated based on 2.571 as suggested by the City of Barrie's Planning Department;
- Average daily domestic flow = 225 L/cap/day (excluding extraneous flows);
- Peak domestic sewage flows are to be calculated using the following formula:

  $Q_P = P \times q\ M/86400 + IA$, where;
  - Q_P = Peak domestic sewage flows (including extraneous flows in L/s)
  - P = Design population
  - q = Average daily per capita domestic flow in L/cap/day (exclusive of extraneous flows)
  - M = Peaking Factor
  - I = Peak extraneous (infiltration) flows in L/s/ha
  - A = Gross tributary area in hectares

- For the residential development the peaking factor shall be calculated based on the Harmon Formula:

  $M = 1 + 14/ (4+P^{0.5})$, where;

  - P = Population in thousands
  - M (maximum) = 4.0
  - M (minimum) = 2.0

- Infiltration allowance is 0.1 L/s/ha of gross area;
- Minimum average design flow 28m3/day/ha shall be used for commercial areas.

3.3 Proposed Sanitary Servicing

The proposed sanitary servicing plan can be seen in **Figure 3-1**. The subject site will connect proposed sanitary sewers to an existing sanitary manhole north of the subject site on Country Road 27 and to an existing manhole on Lougheed Road in the existing residential area. The sanitary sewers will convey waste to the Holly Sanitary Pumping Station, which according to the Barrie's Wastewater Collection Master Plan (WCMP), will require upgrades. The sanitary demand expected from the proposed residential and commercial development is summarized in **Table 3-1**.

Table 3-1: Sanitary Demand

Average Residential Demand (L/ s)	Residential Population (persons)	Harmon's Peaking Factor (M)*	Commercial Demand (L/ha/s)	Commercial Area (ha)	Infiltration (L/ha/s)	Total Area (ha)	Total Peak Flow (L/s)
2.427	932	3.82	0.32	0.28	0.10	25.82	**11.94**

**Based on Equivalent Population Method, $M = 1+14(4+P/1000)^{0.5}$)*

The sanitary demand presented in **Table 3-1** is calculated based on the "interim condition". However, if the catchment 208E (Non-Development Provincial Land Holdings) is developed in the future, the sanitary demand calculations need to be updated.

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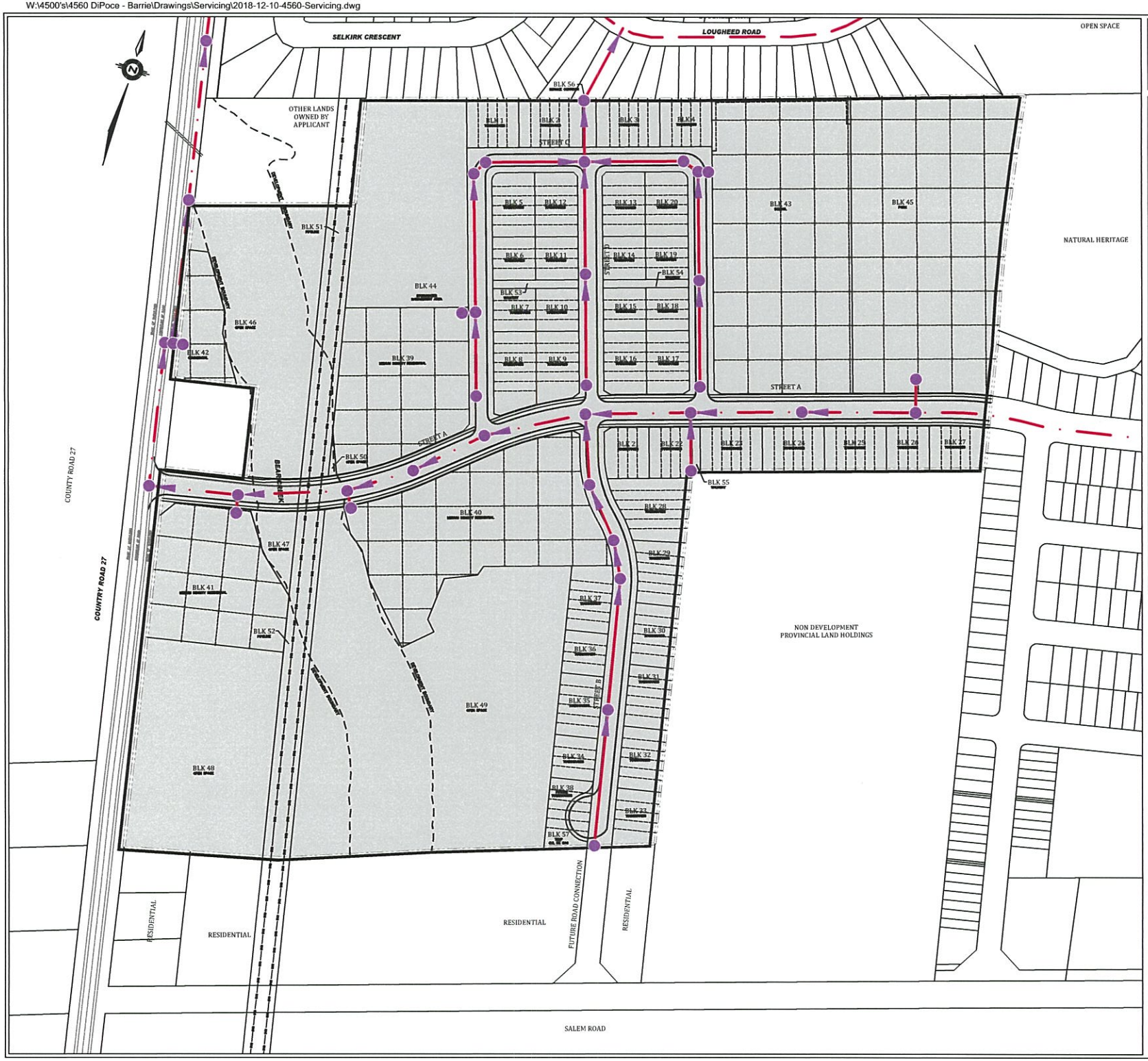

DI POCE (INNISFIL) INC.
CITY OF BARRIE

LEGEND

- SUBJECT SITE
- PROPOSED SANITARY SEWERS
- EXISTING SANITARY SEWERS
- PROPOSED SANITARY SEWERS BY OTHERS

SCHAEFFERS
CONSULTING ENGINEERS
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FIGURE 3-1
PROPOSED SANITARY SERVICING

2017-4560	DECEMBER 2018	SCALE: N.T.S.

4.0 Municipal Water Servicing

The following sections desaturate that the proposed water distribution plan can adequately supply potable drinking water to proposed development. The water distribution calculations have been prepared in accordance to the City of Barrie and Ministry of Environment Design Criteria.

4.1 Design Criteria

Watermains for the ultimate development shall be designed in accordance with the current City of Barrie Water Storage and Distribution Master Plan and are summarized as the following:

- The watermain size shall be determined by fire flow plus maximum day peak flow or peak hour demand, whichever is higher;
- Peaking factors determined by MECP guidelines;
- Fire flow testing is required for all development applications to establish and confirm boundary condition for the development and will provide the basis for the design proposal;
- The minimum flow for residential single family is 57 L/s, preferred 76 L/s. Site specific details were not available, therefore the minimum recommended fire flow for townhouses and medium density blocks of 150 L/s is used. Institutional and commercial fire flows are 200 L/s and 283 L/s, respectively. Fire flow needs to be delivered at the minimum of 140 kPa residual pressure;
- Minimum size of watermain is 150 mm diameter, except at the last hydrant on cul-de-sacs where the watermain can be 50 mm;
- The maximum velocity for watermains 300 mm diameter and larger, under normal operating conditions will not exceed 1.5 m/s, while during fire flow conditions, the maximum velocity will not exceed 3 m/s. In all cases, watermain diameters shall be such that a flushing velocity of 0.80 m/s can be achieved for cleaning and flushing procedures;
- Hazen-Williams formula used in computing watermain sizes with the following coefficients.

Pipe Diameter (mmØ)	Hazen-Williams Coefficient 'C'
150	100
200-300	110
350-600	120
Over 600	130

4.2 Existing Water Supply Infrastructure

The subject site is within the City of Barrie Pressure District 3 South (PD3S). There is currently no distribution system within the subject site. North of the subject site are two pump stations and the Mapleview reservoir storage facility that services the pre-annexation area.

The watermain trunks with potential to serve the subject site include;

- A 300mm diameter main running on County Road 27, plugged north of the subject site at Selkirk Crescent.
- A 400mm diameter main running on Essa Road.

4.3 Proposed Municipal Water Servicing

The proposed water servicing can be seen in **Figure 4-1**. The proposed 300mm watermain by Bear Creek Ridge Developments east of the subject site on Mabern Road will connect to the proposed 400mm watermain extension on Essa Road as well as the existing 300mm watermain on County Road 27. This proposed infrastructure will be used to service the subject site. The Salem Secondary proposed water supply network can be found in **Appendix A**. The subject site demands are summarized in **Table 4-1**. Detailed water demand breakdown is presented in **Appendix D**.

Table 4-1: Water Demands

Total Population (persons)	Residential Average Day Demand (L/person/day)	Average Daily Demand (L/s)	Institutional Area (ha)	Average Institutional Flow (m^3/ha/day)	Commercial Area (ha)
932	225	3.57	2.21	28	0.28
Average Commercial Flow (m^3/ha/day)	**Peak Hour Factor**	**Peak Hour Demand (L/s)**	**Max Day Factor**	**Max Day Demand (L/s)**	**Max Day Flow+Fire Flow (L/s)**
28	4.13	14.74	2.75	9.81	292.81

4.4 WaterCAD Analysis

Bentley® WaterCAD® CONNECT Edition (WaterCAD) was used to construct a watermain analysis model of the proposed site and the PD3S network. This model was used to determine the sizes of the watermains and if the fire flow requirements are satisfied with the proposed water supply system. The City of Barrie Water Model 2016 Maximum Day Demand model was provided by the City and was used as the base for the WaterCAD model. The boundary conditions in the model are the maximum and initial water levels in the Mapleview 3 reservoir, 350.15 and 348.65 meters above sea level, respectively. Average day demand, Peak Hour Demand, Maximum Day + Fire Flow and Minimum Hour Demand scenarios were tested in the model. All residential demands and fire flow requirements were calculated to be satisfied. Detailed watermain sizing and the analysis results are presented in **Appendix D,** for reference.

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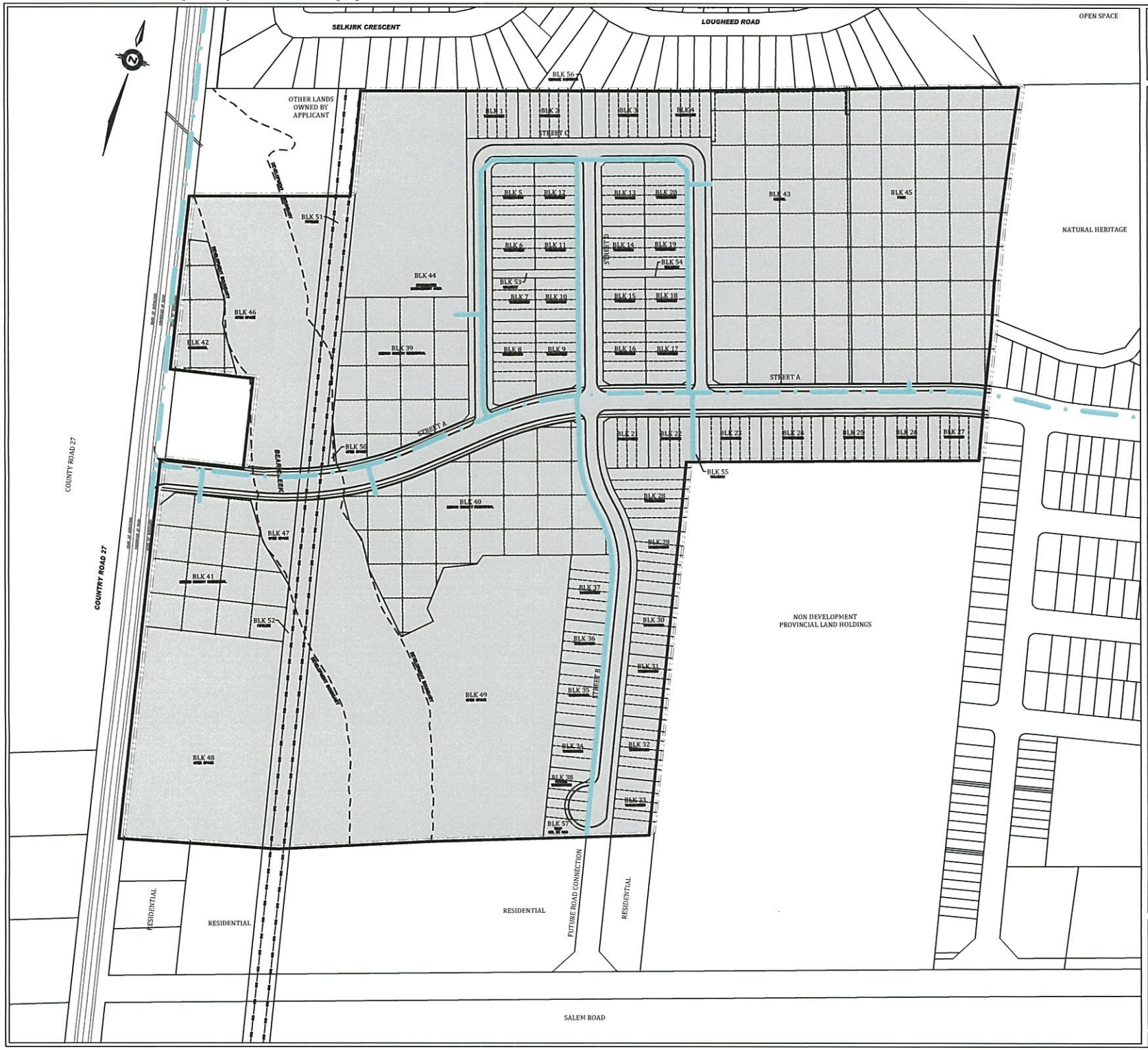

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- SUBJECT SITE
- PROPOSED WATERMAINS
- PROPOSED WATERMAINS BY OTHERS

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FIGURE 4-1
PROPOSED WATER SUPPLY SERVICING

2017-4560	DECEMBER 2018	SCALE: N.T.S.

5.0 SUMMARY

This Functional Servicing Report provides an overview of the proposed servicing plan for the DiPoce residential and commercial development located within the City of Barrie. This report demonstrates that stormwater, sanitary and water supply servicing are feasible and available for the proposed development. In summary, the Functional Servicing Report established the following:

Stormwater Servicing

A stormwater management pond (SWM Pond H) is proposed at the North west corner of the subject site, east of the Bear Creek to provide water quantity and quality, and erosion control for the majority of the site. An infiltration bed is proposed in the SWM pond to provide quality control, volumetric control and water balance requirements. Block 39 is proposed to use an OGS, to meet quality control criteria, prior to discharging to the infiltration cell of the SWM Pond H. Blocks 40-42 are proposed to provide their own quality, quantity and erosion control.

Sanitary Servicing

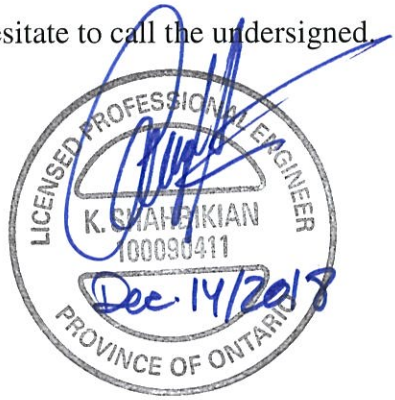
The subject site is proposed to be serviced by sanitary sewers which will be connected in two (2) locations, one to the sanitary sewer proposed by others along Mabern Road to be connected to the existing sanitary infrastructure on Country Road 27 north of the subject site and a second to an existing manhole on Lougheed Road in the existing residential area.

Water Supply Servicing

The site is not currently serviced with any water supply distribution system. Water supply for the subject site will be achieved via connections to the proposed 300mm watermain by the neighbouring eastern development on Mabern Road, which is to be connected to the proposed 400mm watermain extension on Essa Road, connecting it to the existing watermain on Essa Road, and the existing 300mm watermain on County Road 27, North-west of the subject site.

Should you have any questions or comments please do not hesitate to call the undersigned.
Respectfully Submitted,

SCHAEFFER & ASSOCIATES LTD.



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APPENDIX A: BACKGROUND INFORMATION

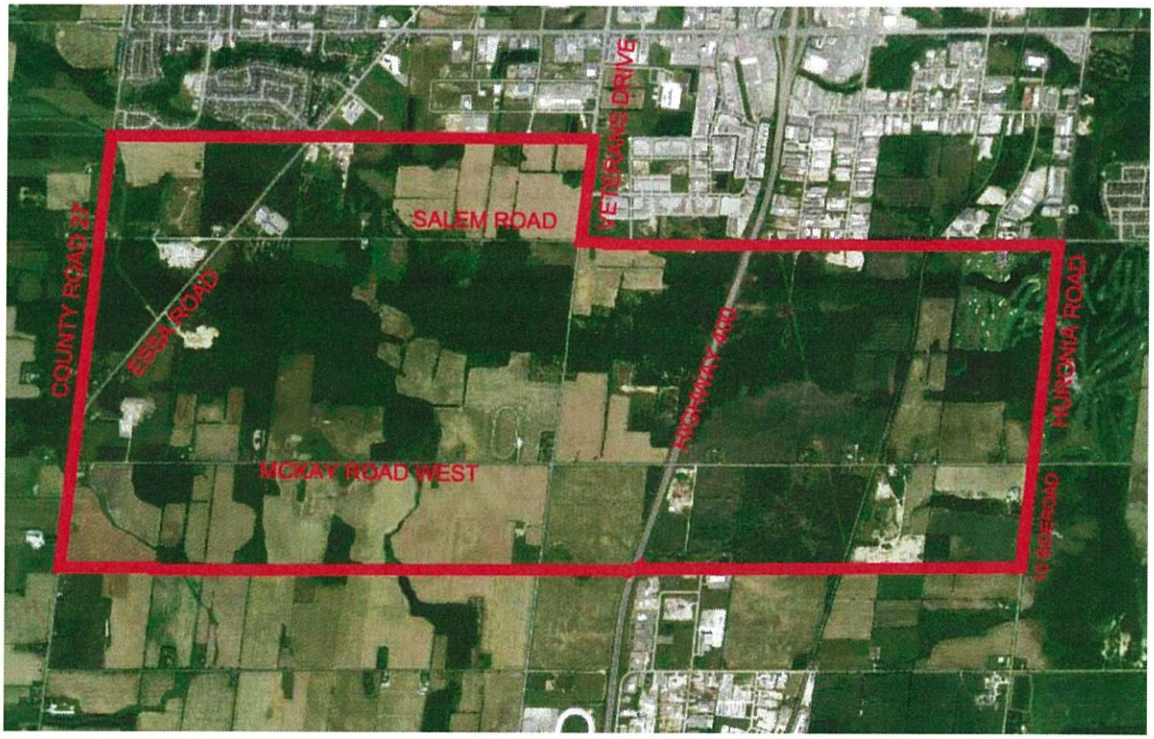
EXCERPTS FROM SIS

SUBWATERSHED IMPACT STUDY REPORT

SALEM ANNEXED LANDS

CITY OF BARRIE

PROJECT 4074 **DECEMBER 2017**



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KLM
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4.5 Surface Water Conditions

The study area is located within two watersheds, the LSRCA watershed and the NVCA watershed. The study area may be further divided within three subwatersheds, Thornton Creek to the south, Bear Creek to the west and Lovers Creek to the east (Figure 4.3). The watershed divide traverses the study area from north to south with the Thornton Creek and Bear Creek subwatersheds being located within the NVCA jurisdiction and the Lovers Creek subwatershed within the LSRCA jurisdiction (Figure 4.3).

4.5.1 Lovers Creek

There are two watercourses mapped within the Lovers Creek subwatershed within the study area. The main watercourse (north channel) is assumed to be the main branch of the Lovers Creek and, as noted above, originates in the central upland portion of the study area that is mapped as a wetland (Figure 4.3). From here flow is eastward towards the provincially significant Lovers Creek Swamp. The watercourse is mapped through the wetland to exit the study area at Highway 400 (Figure 4.3). Our site reconnaissance through the area indicated no defined watercourse or flow in the valley near Sideroad 5 (Veterans Drive), Figure 4.3. The second headwater drainage feature in the Lovers Creek subwatershed originates in the south east corner of the study area and drains eastward to cross under Highway 400. Flow in this drainage feature is monitored at SSF 4 (Figure 4.3). The data obtained for this location shows that during the spring thaw, melt waters accumulate in the low area in front of the culvert, however, no flow has been measured at SSF 4 during the monitoring period (Table C-5-1, Appendix C-5). After the spring thaw, the water in this location dries out. It is concluded that this headwater drainage feature is an ephemeral watercourse with a runoff conveyance function.

4.5.2 Bear Creek

The main branch of Bear Creek within the study area originates south of Salem Road from an area mapped as wetland (Figure 4.3). The Bear Creek tributary flows northwest

out of the wetland to cross Salem Road at SSF 5 where flow measurements are recorded. The branch continues to flow northwest and crosses Essa Road at SSF 6 where flow measurements are also monitored. After SSF 6, flow is in a westerly direction before the branch leaves the study area (Figure 4.3). It is noted that the wetland area that drains to Bear Creek straddles the NVCA/LSRCA watershed boundary and also appears to drain east towards Lovers Creek (Figure 4.3).

A second (western) tributary of Bear Creek originates in the northwest corner of the study area south of Salem Road near SSF 8 (Figure 4.3). From here the tributary flows in a northerly direction and exits the study area at County Road 27 where surface flow station SSF 7 is located. Flows were measured in the east and west ditches before they meet at the culvert and are reported as SSF 5 East and SSF 5 West (Table C-5-1, Appendix C-5). SSF 5 (combined) in Table C-5-1 (Appendix C-5) is a sum of the two flows. Monitoring indicates that the watercourse is intermittent with flows occurring in the spring ranging from 0.4 L/s to 6.9 L/s at SSF 5 (combined).

SSF 6 is located downstream of SSF 5 along Bear Creek at a large concrete culvert under Essa Road (Figure 4.3). Monitoring at this location recorded flows that ranged from 8.8 L/s to 1.8 L/s in the spring (April, May and June 2015). These data suggest that there may be some seasonal contributions of groundwater to sustain baseflow in this watercourse, although the station was dry in September and October 2015 (Table C-5-1, Appendix C-5). It is concluded that this drainage feature is intermittent.

Surface water monitoring station SSF 7 is located at County Road 27 along a tributary of Bear Creek (Figure 4.3). This tributary is a narrow vegetated channel that flows through agricultural fields. The tributary is located in a valley with an 18 m change of elevation from the start of the channel south of Salem Road to the monitoring station SS 7 at County Road 27 (Figure 4.3). Flows were recorded during the spring months ranging from 0.3 L/s to 9.7 L/s and the channel was dry July to October 2015 (Table C-5-1, Appendix C-5). A flow rate of 1.3 L/s was recorded in November 2015 at this station three days after a rain event. The flow data suggest that there may be some seasonal

With regard to the SWM ponds (A, B, C and M) proposed outside of the Salem limits, it should be noted that the landowner (DG Group) for that development also owns the adjacent lands located immediately south of the Study Area limits. The DG Group is directly engaged in communications with the Town of Innisfil regarding the proposed solution. Addressing the legal and planning issues is a lengthy collaborative process for all involved parties. Therefore, it will be formalized beyond the preparation of the SIS report.

Table 6.7: Summary of Proposed SWM Ponds – Lovers Creek

Parameter	Stormwater Management Facility				
	F	M	U	V	W
Drainage Area (ha)	33.99	57.85	24.69	20.72	39.02
Impervious Area (%)	60	82	90	90	90
Permanent Storage (m^3)	5,495	11,859	5,391	4,524	8,519
Extended Detention Storage (m^3)	8,600	21,000	10,300	8,650	16,300
100 Year Storm Storage (Required) (m^3)	19,900	39,000	20,500	14,300	26,800
Peak Extended Detention Flow (m^3/s)	0.061	0.104	0.044	0.037	0.070
Governing Storm	SCS 24hr	SCS 24hr	SCS 24hr	SCS 24hr	SCS 24hr
100 Year Target Release Rate (m^3/s)	0.838	1.259	0.719	0.489	0.921
Required SWM Pond Area (ha)	1.92(1)	8.25(1)	1.48(2)	1.24(2)	2.34(2)

(1) Denotes area is based on preliminary design drawing
(2) Denotes area is based on 6% of catchment area

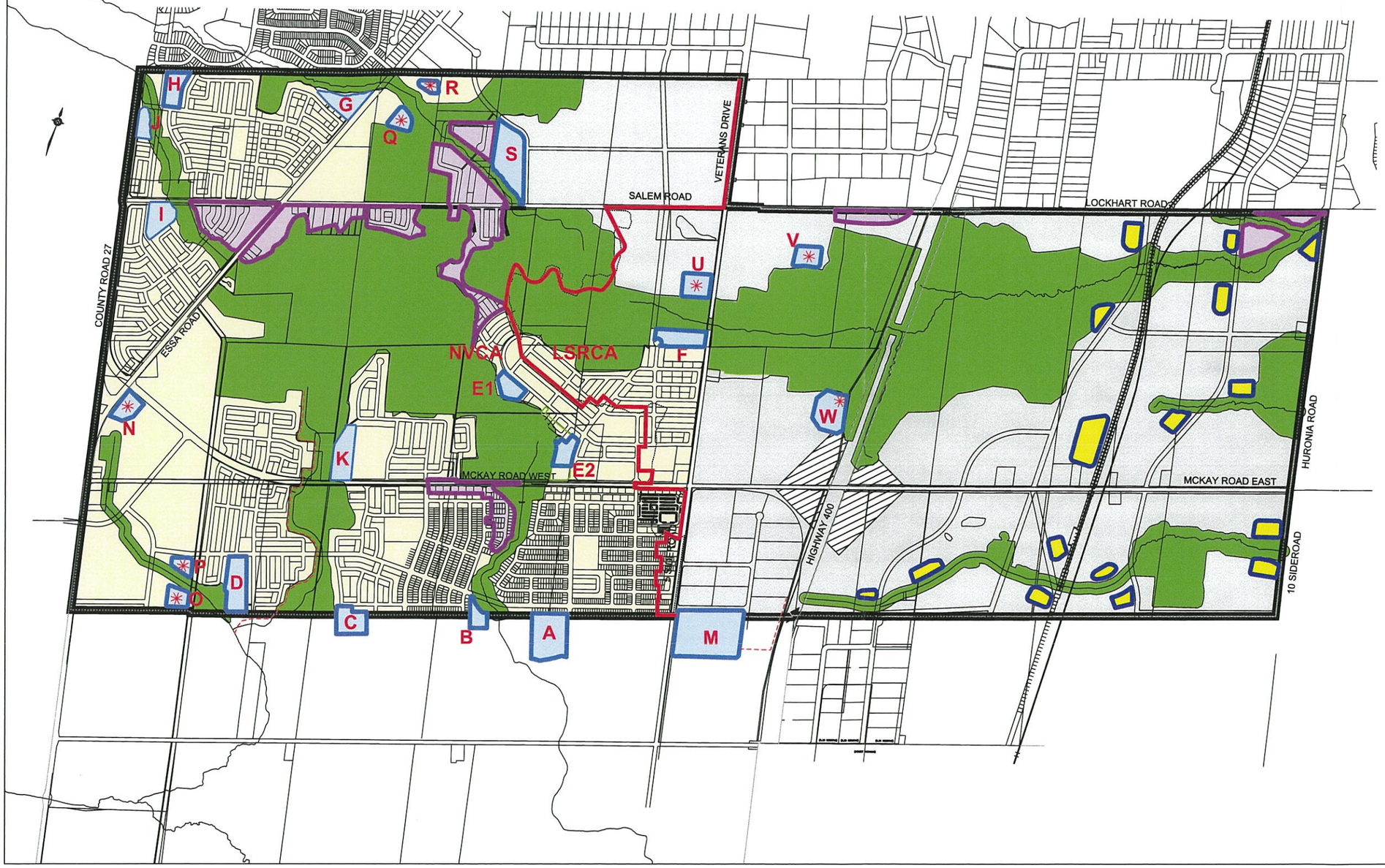
Table 6.8: Summary of Proposed SWM Ponds – Bear Creek

Parameter		Stormwater Management Facility					
	G	H	I	J	Q	R	S
Drainage Area (ha)	21.95	27.09	24.15	4.69	14.98	5.34	71.00
Impervious Area (%)	60	60	60	60	68	60	90
Permanent Storage (m^3)	3,549	4,380	3,904	758	2,701	863	15,502

Parameter		Stormwater Management Facility					
	G	H	I	J	Q	R	S
Extended Detention Storage (m^3)	5,800	6,660	6,200	1,200	4,750	1,410	29,600
100 Year Storm Storage (Required) (m^3)	12,000	11,300	14,800	2,300	9,100	2,600	60,000
Peak Extended Detention Flow (m^3/s)	0.040	0.049	0.043	0.008	0.027	0.010	0.128
Governing Storm	SCS 24hr	SCS 24hr	SCS 24hr	SCS 24hr	SCS 24hr	SCS 24hr	SCS 24hr
100 Year Target Release Rate (m^3/s)	1.017	1.188	0.437	0.357	0.776	0.403	1.984
Required SWM Block Area (ha)	1.54(1)	1.63(1)	1.62(1)	0.72(1)	0.90(2)	0.32(2)	3.12(1)

(1) Denotes area is based on preliminary design drawing
(2) Denotes area is based on 6% of catchment area

Phil Golfried



SALEM COMMUNITY DEVELOPMENT AREA
CITY OF BARRIE

LEGEND

- SECONDARY DEVELOPMENT PLAN BOUNDARY
- HIGHWAY / INTERCHANGE
- NATURAL HERITAGE SYSTEM
- RESIDENTIAL AREA (SUPPORTED BY SWM POND)
- INDUSTRIAL (SUPPORTED BY SWM POND)
- PROPOSD SWM FACILITY (PRELIMINARY DRAWINGS PROVIDED)
- POTENTIAL AREAS DRAINING TO LID
- CONCEPTUAL SWM FACILITY
- PROPOSED WATERSHED DIVIDE BOUNDARY BETWEEN NVCA & LSRCA
- ✳ CONCEPTUAL POND BLOCKS BASED ON 6% OF CATCHMENT AREA

NOTE:
SIZE AND LOCATION OF SWM PONDS TO BE CONFIRMED DURING DRAFT PLAN APPROVAL STAGE

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FIGURE 6.1
SWM POND & LID AREAS
SALEM SECONDARY PLAN - MASTER PLAN

2016-4074 | NOVEMBER 2017 | SCALE: N.T.S.

W:\4000s\4074 - Salem Secondary Plan\Drawings\SWM Ponds\2017-11-13-4074-SWM Pond Areas.dwg

The proposed catchment for Pond G is 21.96 ha in area and generally consists of a residential land use with a commercial block. Pond G has been sized to provide quality, quantity and erosion control.

Quantity control criteria was based on the pre-development target rates summarized in Table 6.8. Quality control is based on an Enhanced level of TSS removal (80%) as defined in the 2003 MOE Manual. The extended detention volume and release rate is based on Table 4.4.15 of the DSWMMP, which is considered conservative when compared to the MOE guidelines ($40m^3$/ha) and NVCA criteria (25 mm). It is proposed that the pond will discharge into Bear East via NHS lands. The outlet should be in general conformance with the standard detail provided in Appendix D-8. A summary of Pond G design features is provided in Table 6.8. Further details and preliminary drawings are provided in Appendix D.

6.8.9 SWM Pond H

SWM Pond H is located at the northwest corner of the subject property, adjacent the east side of Bear Creek West and south of existing residential dwellings. Pond H and its catchment area are located within the Bear Creek watershed and generally consistent with the DSWMMP. Figure 6.1 shows the location of Pond H.

The proposed catchment area is 27.10 ha in size and generally consists of a residential land use with a park block. Pond H has been sized to provide quantity control, quality control, and erosion control. Storage volumes are based on controlling post-development peak flows to pre-development levels. Quality control is based on the MOE SWMPD Manual for enhanced TSS removal. Erosion control is based on the extended detention volume and release rate requirements specified in Table 4.4.15 of the DSWMMP. Table 6.8 provides a summary of the storage requirements and additional details are provided in Appendix D, including preliminary design drawings.

The outlet for Pond H will discharge into Bear Creek West via NHS lands. The outfall should be in general conformity with standard detail provided in Appendix D.

GEOTECHNICAL INVESTIGATION

GeoPro Consulting Limited

Geotechnical-Hydrogeology-Environmental-Materials-Inspection

Phase One Environmental Site Assessment

Proposed Residential Development

East side of County Road 27 and north of Salem Road, City of Barrie, ON

Prepared For:

Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

GeoPro Project No.: 17-2099E
Report Date: December 5, 2018

Professional, Proficient, Proactive

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GeoPro CONSULTING LIMITED

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Limitations of The Report

1.0 EXECUTIVE SUMMARY

GeoPro Consulting Limited ("GeoPro") was retained by Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI (the "Client") to conduct a Phase One Environmental Site Assessment ("ESA") for the property located on the east side of County Road 27 and north of Salem Road, in the City of Barrie, Ontario (the" Site" or "Phase One Property").

The Site is currently vacant, and we understand that the Client intends to carry out a residential development consisting of 347 residential units including single dwellings and townhouses at the Site. The Phase One ESA was conducted generally following the procedures specified in Ontario Regulation 153/04 ("O. Reg. 153/04"), as amended, and was completed in support of the application of the proposed development. It should be noted that a record of site condition ("RSC") is not requested at this time. If filing a RSC with the Ministry of the Environment, Conservation and Parks ("MECP") is needed in the future, further consultation and/or work will be required.

The purpose of this Phase One ESA was to assess Potentially Contaminating Activities ("PCAs") that have occurred within Phase One Property boundaries, and on the properties within 250 m radius from the boundaries of it ("Phase One Study Area") and indicate the Areas of Potential Environmental Concerns ("APECs") at the Site to assess the need for further investigation in the form of a Phase Two ESA.

GeoPro conducted the site reconnaissance on April 23, 2018. The weather was sunny and the temperature was 13°C. The following findings provide a summary of the Phase One ESA based on review of readily available records, interviews with persons knowledgeable about the Site, and observations made during the site reconnaissance:

1) The Phase One Property consists of one (1) irregularly shaped parcel of land with a total area of about 270,000 m^2 (or 27.0 hectares).
2) Reportedly, the Phase One Property remains undeveloped, and the north portion of the Site has been a farmland since 1989.
3) The PCAs, APECs and contaminants of potential concern ("COPCs") that were found at the Site and are summarized in the table below.

APEC	Location of APEC	PCA Number	Location of PCA	COPCs	Media Potentially Impacted
APEC 1	North portion of the Site	#40	On-Site: Application of pesticide	Metals, OC-pesticides	Soil
APEC 2A	Northeast portion of Site where the fill pile presents	#30	On-Site: Northeast portion of Site where the fill pile presents	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil
APEC 2B	Northeast boundary of Site	#30	Off-Site: Lot 2 Con 11	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater
APEC 3	Southeast boundary of the Site	#58	Off-Site: South half of Lot 1 Con 11	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater

APEC 4A	Southwest corner of the Site	#28	Off-Site 7975 County Rd 27	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 4B	Center portion of south boundary of the Site	#28	Off-Site 500 Salem Rd	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 5A	Southeast corner of south portion of the Site	#12, #58, Other	Off-Site 4165 Salem Rd	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater
APEC 5B	Center portion of south boundary of the Site	Other	Off-Site 441 Salem Rd	PCB, PHCs, VOCs, PAHs, metals	Soil and groundwater

Note: PCAs described specifically for the Phase One Property with reference to the applicable item number in the Table of Potentially Contaminating Activities provided in Schedule D of *O.Reg.153/04* as amended, where applicable.

#12 – Concrete, cement and lime manufacturing

#28 - Gasoline and Associated Products Storage in Fixed Tanks

#30 – Importation of Fill Material of Unknown Quality

#40 – Pesticides manufacturing, processing, bulk storage and land-scale applications

#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners

PHCs – Petroleum Hydrocarbons
PCBs – Polychlorinated Biphenyl
PAHs – Polycyclic Aromatic Hydrocarbons
VOCs – Volatile Organic Compounds
OC-Pesticides- Organochlorine Pesticides

Based on the findings of the Phase One ESA, GeoPro offers the following recommendations.

1) Conduct a Phase Two ESA at the Site to characterize the subsurface soil and groundwater conditions at the Phase Two Property and assess areas of the Phase Two Property where contaminants may be present in soil or groundwater.
2) If filing a RSC with the Ministry of the Environment, Conservation and Parks (“MECP”) is needed in the future, further consultation and/or work will be required.

NOTE: This executive summary provides a brief overview of the study findings. It is not intended to substitute for the complete report, nor does it detail specific issues discussed within the report. This summary is not to be adopted in lieu of reading the complete report.

2.0 INTRODUCTION

GeoPro Consulting Limited ("GeoPro") was retained by Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI (the "Client") to conduct a Phase One Environmental Site Assessment ("ESA") for the property located on the east side of County Road 27 and north of Salem Road, in the City of Barrie, Ontario (the" Site" or "Phase One Property"). The approximate site location is shown on Drawing No. 1.

The Site is currently vacant, and we understand that the Client intends to carry out a residential development consisting of 347 residential units including single dwellings and townhouses at the Site. The Phase One ESA was conducted generally following the procedures specified in Ontario Regulation 153/04 ("O. Reg. 153/04"), as amended, and was completed in support of the application of the proposed development. It should be noted that a record of site condition ("RSC") is not requested at this time. If filing a RSC with the Ministry of the Environment, Conservation and Parks ("MECP") is needed in the future, further consultation and/or work will be required.

The purpose of this Phase One ESA was to assess Potentially Contaminating Activities ("PCAs") that have occurred within the Phase One Property boundaries, and on the properties within a 250 m radius from the boundaries of it ("Phase One Study Area") and indicate the Areas of Potential Environmental Concerns ("APECs") at the Site to assess the need for further investigation in the form of a Phase Two ESA.

2.1 Phase One Property Information

A copy of Conceptual Plan for the Phase One Property is provided in Appendix A. The information of the Phase One Property is provided in the table below.

Municipal Address	Not available		
Legal Description	• Part Lot 1 Concession 11, Township of Innisfil. • Part of the South Half of Lot 1, Concession 3, Township of Innisfil, City of Barrie, County of Simcoe (as per Concept Plan A-6 provided by the Client) • Part of the South Half of Lot 1, Concession 11, (Geographic Township of Innisfil), County of Simcoe: Parts 1, 2 and 3 Plan 51R-35542 (as per interview questionnaire)		
Parcel Identification Numbers ("PIN")	Not available		
Roll Number	434209001819000 (as per County of Simcoe Interactive map)		
Area	27.0 hectares (approximately 270,000 m^2)		
UTM (NAD 83)	Zone 17	601253.6 m East	4907931.03 m North
Owner Contact	Di Poce Management Inc.	N/A	
Client Contact	Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI	Mr. Nelson Lee Phone: 905-738-6100 ext. 284 Email: nlee@schaeffers.com	
Current Occupant(s)	No occupants (Vacant land)		
Current Zoning	Residential Area with Natural Heritage System (City of Barrie, Salem Secondary Plan, Schedule 8C – Land Use Plan, January 2017)		
Proposed Future Land Use	Residential Use		

3.0 SCOPE OF INVESTIGATION

The general scope of work for the Phase One ESA consisted of the following tasks:

- A data search and review for the Phase One Property and the neighbouring properties in the Phase One Study Area (including review of previous Phase I and Phase II ESA and/or other reports);
- Interviews with persons knowledgeable about the Site;
- Site reconnaissance;
- An assessment and evaluation of the information gathered; and
- Preparation of a report summarizing the findings of the Phase One ESA.

4.0 RECORDS REVIEW

4.1 Summary of General Record Review

GeoPro carried out a review of readily available records which included a review of available physical settings, current and historical information sources regarding the Site, including, but not limited to, aerial photographs, city directories, fire insurance plans ("FIPs"), ownership titles, historical environmental site assessment, site operating records, a regulatory data base search (i.e. MECP Freedom of Information ("FOI") and Technical Safety & Standard Authority ("TSSA") record), and the MECP water well records. Information sources and review findings are summarized in the tables below.

Phase One Study Area Determination

Default Phase One Study Area as per O. Reg. 153/04, as amended	Potentially Contaminating Properties Near or Adjacent to the Default Area	Selected Phase One Study Area
250 m from the property boundary	No properties with evidence of significantly environmental concerns were noted.	as per default Phase One Study Area

First Developed Use Determination

Record / Source	Review Findings
Historical Aerial Photographs	The Site remains undeveloped, and the north portion of the Site has been a farmland since 1989.
Interview	
Site Reconnaissance	

Fire Insurance Plans ("FIPs")

A review of the Fire Insurance Plan was carried out at Toronto Reference Library. The FIP of the City of Barrie dated 1971 was reviewed, but no record was found for the Site and the surrounding properties within a 250 m radius of the Phase One Property.

Chain of Title

No Chain of Title was provided by the Client for GeoPro to review. Based on the interview, the Phase One Property was owned by Equity Corp. and has been owned by the current owner since July 2007.

Previous Reports

The Phase One ESA was completed concurrently with a geotechnical investigation carried out by GeoPro at the Site. The results of the geotechnical investigation were summarized in the report entitled "Geotechnical Investigation, Proposed Residential Developments, County Road 27, Barrie, Ontario" dated June 1, 2018, prepared by GeoPro.

The intrusive investigation consisted of advancement of twenty-six (26) boreholes (BH1 to BH26) drilled to depths ranging from 3.7 to 15.3 m below the existing ground surface ("mBGS"), and installation of nine

(9) monitoring wells in the selected advanced boreholes. Fill materials consisting of organic sandy silt to organic silt, sandy silt, sand and silt, silty sand and gravelly sand were encountered in Boreholes BH4 and BH16 below the topsoil or granular base/subbase, and extended to the depths ranging from about 0.6 to 2.1 mBGS. No bedrock was encountered at the maximum drilled depth of approximately 15.3 mBGS. The measured groundwater levels ranged from 0.23 to 14.83 mBGS.

It should be noted that boreholes BH4 and BH16 are drilled outside the Phase One Property. Therefore, no fill material was encountered in the boreholes drilled at the Phase One Property.

City Directories

Record Years	Investigation Area	Review Findings
1963, 1980, 1994-95, 1996-97 and 1998-99	Phase One Property and the properties within the Phase One Study Area	No records were found to have environmental concerns

4.2 Environmental Source Information

4.2.1 Environmental Database Search

A records and regulatory agency databases review was completed through a database search carried out by Environmental Risk Information Services ("ERIS"). The ERIS report includes a search of federal, provincial and private database records for the Site and the surrounding properties within 250 m from the Phase One Property.

A summary of the findings in all the databases searched by ERIS is presented in following table.

Address	Database	Findings
South half of Lot 1, Concession 11, Innisfill, ON, L0L 1X0	WDS	Registered for MTO Holly Pit Landfill Site for waste disposal site.
	WDSH	Registered for closed landfill for municipal/domestic waste.
	ANDR	Registered for a waste disposal site.
4165 Salem Rd	GEN	Registered for Holcim (Canada) Inc. and CRH Canada Group Inc. Dufferin Concrete as waste generators for aliphatic solvents, waste oils, waste crankcase oils, lubricants, petroleum distillates, oil skimmings, sludges, light fuels and other specified inorganics; and Unilock Ltd as a waste generator of paint/pigment/coating residues, inorganic laboratory chemicals, waste oils, lubricants, organic laboratory chemicals and waste compressed gases.
	LIMO	Registered for Ministry of Transportation for a closed small landfill.
	NPRI	Registered for Dufferin Concrete for cement, concrete and ready-mix product manufacturing
441 Salem Rd	GEN	Registered for Unilock Ltd as a waste generator for petroleum distillates, acid waste-heavy metals, paint/pigment/coating residues, waste compressed gases including cylinders, polymeric resins, amines, waste oils, lubricants and waste crankcase oils.

ANDR – Anderson's Waste Disposal Site

GEN - Ontario Regulation 347 Waste Generators Summary
LIMO – Landfill Inventory Management Ontario
NPRI – National Pollutant Release Inventory
WDS - Waste Disposal Sites – MOE CA Inventory
WDSH - Waste Disposal Sites – MOE 1991 Historical Approval Inventory

Note: Only records which may have environmental concerns on the Phase One Property are listed for further assessment. A copy of the ERIS report is presented in Appendix C.

4.2.2 Summary of Regulatory Records Review

Regulatory records review included the MECP's FOI search and TSSA record search. A copy of the correspondences is included in Appendix D. A summary of the regulatory records review is provided in the tables below.

MECP FOI Search

Request Departments	Request Documents	Request Date	Result	Finding
MECP FOI and Privacy Office	Documented environmental concerns and citations pertaining to the Site	April 2, 2018	The response letter from MECP dated May 15, 2018 indicates that no records were found for the Site	No evidence of environmental concerns was noted.

TSSA Record Search

Request Departments	Request Documents	Request Date	Result	Finding
Technical Standards and Safety Authority	Records of storage tanks pertaining to the Site	March 29, 2018	An email reply dated April 2, 2018 from TSSA indicated that no records for fuel storage tanks were found on Site or on adjacent properties	No evidence of environmental concerns was noted.

4.3 Physical Setting Sources

A summary of information obtained in term of the physical settings of the Phase One Property and the Phase One Study Area is provided in the following tables.

4.3.1 Aerial Photographs

Aerial photographs were reviewed for a visual chronology of previous land uses on the Phase One Property and the properties within the Phase One Study Area.

Aerial photographs for the years 1954, 1989, 2002, 2008 and 2016 were obtained from the County of Simcoe Interactive Map. Copies of the aerial photographs are presented in Figures No. 1 to No. 5.

A summary of the observed features in the aerial photographs of the Phase One Property and Phase One Study Area are presented in the following table.

Year	Findings	
	Phase One Property	**Phase One Study Area**
1954	· Vacant or agricultural use lands · Bear Creek as labeled on Figure No. 1	· Vacant or agricultural use lands. · County Road 27 and Salem Road as labeled on Figure No. 1 · Bear Creek as labeled on Figure No. 1
1989	· Similar to 1954 Photograph · North portion of the Site was noted to be a farmland.	· More residential houses were noted
2002	· Similar to 1989 Photograph	· Residential development was noted on the north adjacent property of the Site. · A water pond was noted on the south adjacent property of the Site. · Selkirk Crescent, Lougheed Road and Columbia Road as labeled on Figure No. 3.
2008	Similar to 2002 Photograph	Similar to 2002 Photograph
2016	Similar to 2008 Photograph	Similar to 2008 Photograph

4.3.2 General Physical Settings

Physiography

Based on the data obtained from Ontario Geological Survey ("OGS") database, the physiography of the Site and the Phase One Study Area is summarized in the following table.

Record Source	Physiography Region	Physiography Areas
Online Physiography Map of Southern Ontario	Peterborough Drumlin Field	Till Plains (Drumlinized)

Quaternary Geology

Based on the data obtained from the OGS database, the quaternary geology of the Site and the Phase One Study Area is summarized in the following table.

Record Source	Deposit Types
Online Quaternary Geology Map of Ontario	Newmarket Till deposits consisting of sandy silt to silt matrix, moderate to high in matrix carbonate content, clast content moderate to high.

Bedrock Geology

Based on the data obtained from the OGS database, the bedrock geology of the Site and the Phase One Study Area is summarized in the following table.

Record Source	Geological Period	Bedrock Type	Bedrock Depth (mBGS)
Bedrock Geology Map of Ontario	Middle Ordovician	Limestone, dolostone, shale, arkose, sandstone	Approximately 152

Hydrology

Based on the data obtained from the database maintained by the local conservation authority, the hydrology in regard with the local watershed and open water body on the Site and the Phase One Study Area is summarized in the following table.

Watershed	Subwatershed	On-Site Open Water	Nearest Off-Site Open Water			
			Name	Distance from the Site	Flow Direction	Discharge Location
Nottawasaga Valley Watershed	Middle Nottawasaga River Reach	A tributary of Bear Creek flows from southeast to northwest in the west portion of the Site	A tributary of Bear Creek	100 m north	north-westerly	Nottawasaga River (11 km northwest of the Site)

Topography

Based on the data obtained from Canada Atlas – Toporama, the topography of the Site and the Phase One Study Area is summarized in the following table.

Record Source	Topography	Slope Direction	Elevation Range (mASL)	Note
Canada Atlas – Toporama	Relatively flat with gentle slope	Generally towards north: East side of the on-site Bear Creek towards northwest; West side of the on-site Bear Creek towards northeast.	320 - 280	Shown in Figure No. 6

mASL - meters above sea level

Inferred Shallow Groundwater Flow Direction

Controlling factors	Flow Direction	Discharge Location
Topography	Generally flows in a north direction: East side of the on-site Bear Creek flows northwest; West side of the on-site Bear Creek flows northeast.	A tributary of Bear Creek
Distribution of nearby open water body		

Water Bodies

Record Source	Review Findings
Ministry of Natural Resources and Forestry's Natural Heritage Map (Figure No.7)	A tributary of Bear Creek flows from southeast to northwest in the west portion of the Site; another tributary of Bear Creek is located about 100 m north of the Site.
City of Barrie - Salem Secondary Plan	
Oak Ridges Moraine Conservation Plan	
Niagara Escarpment Plan	

Areas of Natural Significance

Based on the data obtained from the database maintained by Ministry of Natural Resources and Forestry ("MNRF") and on the local official plan, assessment of areas of natural significance of the Site and the Phase One Study Area is made and summarized in the following table.

Areas of Natural Significance	Data Source	Findings or Comments on the Site and the Phase One Study Area
Provincial Park or Conservation Reserve	MNRF	Beyond the Phase One Property and Phase One Study Area
Areas of Natural Significance and Scientific Interest (ANSI)	MNRF	
Niagara Escarpment area	MNRF	
Oak Ridges Moraine area	MNRF	
Provincial Significant Wetland	MNRF	
Local environmentally sensitive area	Salem Secondary Plan City of Barrie (Schedule 8C, Land Use Plan)	Within a natural heritage system

Woods were noted in the south portion of the Phase One Study Area; a further study should be considered to evaluate the presence of area of natural significance in the neighboring properties.

Well Records

Based on the MECP Water Well Records database, a total of twelve (12) water wells were recorded on or near the Phase One Properties, of which seven (7) records are water supply wells. A summary of water well records is included in Appendix E and is presented in the following table.

Well Location	Well Type	Well Number
Phase One Property	Domestic	3
	Monitoring	1
Phase One Study Area	Domestic	4
	Industrial	1
	Monitoring	1
	Not used	1
	Unknown	1
	Total Well Records:	12

Based on the records, water was encountered at a depth of about 2.43 mBGS to 71.62 mBGS. No bedrock was encountered at the maximum recorded depth of 72.84 mBGS.

Wellhead Protection Area (WHPA)

Based on MECP Source Water Protection Information Atlas, the Site and the Phase One Study Area are not located within a WHPA. However, the Phase One Property and Study Area are located in a highly vulnerable aquifer zone.

4.4 Site Operating Records

No site operating records were provided by the Client for GeoPro to review.

5.0 INTERVIEW

A summary of the interview GeoPro completed is provided in the following table.

Item	Information
Date and Place of Interview	Questionnaire form completed on July 30, 2018
Interview Method	Completion of interview questionnaire form. A copy of the completed interview questionnaire form is included in Appendix F.
Person Interviewed	Rob Henry, a worker who has farmed the land for 15 years
Relevant Information Concerning PCAs	Round Up, an herbicide, has been used on Site "Roundup" (or Glyphosate is broad-spectrum systemic herbicide and crop desiccant) has been used/stored on site
Notes	Other relevant information obtained from the interview was also incorporated in this report.

6.0 SITE RECONNAISSANCE

The site reconnaissance consisted of a visual inspection of the Phase One Property and observation of the neighbouring properties using public access ways to observe the presence/absence of PCAs, water bodies and areas of natural significance.

Selected photographs taken during the site reconnaissance are provided in Appendix G.

6.1 General Conditions

General situations encountered during the site reconnaissance are summarized in the following table.

Item	Information
Date	April 23, 2018
Weather Conditions	13 °C, sunny
Length of Site Reconnaissance Time	3 hours
Impediments	No access to the woody area in the south portion of the Phase One Property.
Name and Qualifications of the Person Conducting the Site Reconnaissance	Maria Benitez, M.Eng, E.I.T. conducted the site reconnaissance. The Phase One ESA was supervised by David Liu, P.Eng, QP_{ESA}.

6.2 Specific Observations at the Phase One Property

The following table summarizes the specific observations made during the site reconnaissance at the Phase One Property.

Item	Observations
Entire Phase One Property	
Site Location	East side of County Road 27 and north of Salem Road, in the City of Barrie, Ontario.
Current Occupants	No occupants – Vacant land; North portion of the Site was noted to be a farm land
Storage Tanks	No underground storage tanks ("USTs") and above storage tanks ("ASTs") were observed at the Phase One Property on the day of site reconnaissance.
On-Site Wells	No monitoring wells were observed at the Site on the day of site reconnaissance.
Underground Utilities	Trans-Canada Corporation gas crossing the property from north to south was observed at the Site on the day of site reconnaissance.
Watercourse, Ditches and Standing Water	On the day of site reconnaissance, a CMP culvert crossing the roadway of county Road 27 was observed on the west boundary of the Site near the northwest corner of the Site, where a tributary of Bear Creek flowing in a northwest direction was observed.
Rail Spurs	No rail spurs were observed at the Site on the day of site reconnaissance.
Stressed Vegetation	No stressed vegetation was observed at the Site on the day of site reconnaissance.
Fill and Debris Material	One (1) fill pile was noted near the east boundary of the Site on the day of site reconnaissance.
On-site Buildings or Structures	
Buildings or Structures	No buildings or structures were observed at the Site on the day of site reconnaissance.
Additional Potential Environmental Concerns – Designated Substances	
PCB	No material containing PCB was observed at the Site on the day of site reconnaissance.
Lead-based Paints ("LBP")	No material containing LBP was observed at the Site on the day of site reconnaissance.

Item	Observations
Asbestos Containing Materials ("ACMs")	No material containing ACMs was observed at the Site on the day of site reconnaissance.
Urea Formaldehyde Foam Insulation ("UFFI")	No material containing UFFI was observed at the Site on the day of site reconnaissance.
Ozone Depleting Substances ("ODSs")	No material containing ODSs was observed at the Site on the day of site reconnaissance.
Mold or Microbial Contamination	No material containing mold or microbial contamination was observed at the Site on the day of site reconnaissance.
Radon	Based on the Radon Potential Map of Ontario, the Site is located in an area with elevated radon hazard.

6.3 Observation of Neighboring Properties

At the time of the site reconnaissance, observations were also conducted on the neighbouring properties via publicly accessible areas. The Site and surrounding land use plan is provided on Drawing No. 2. The specific observations of the neighbouring properties are summarized in the following table.

Item	Observations
Adjacent Land Uses	**North:** residential **South:** residential and agricultural or other use; further south: roadway of Salem Road **West:** residential; further west: roadway of County Road 27 **East:** agricultural or other use
Water Body	A tributary of Bear Creek was observed approximately 100 m north of the Phase One Property within the Phase One Study Area.
Areas of Natural Significance	Woods were noted in the south portion and northeast corner of the Phase One Study Area; a further study should be considered to evaluate the presence of an area(s) of natural significance in the neighboring properties in the Phase One Study Area.
Other Observations	• A concrete manufacturing plant was observed at 4165 Salem Road on the day of site reconnaissance. • Excavators machinery and standing water were observed on the southeast adjacent property (southeast corner of Lot 1 Con 11) on the day of site reconnaissance. • One (1) oil tank was observed at property 500 Salem Road, and another one (1) was observed at 7975 County Road 27 on the day of site reconnaissance. • One (1) potable water well was observed at 508 Salem Road on the day of site reconnaissance. • Fill piles were noted on the east adjacent property (Lot 2, Con 11) on the day of site reconnaissance.

7.0 REVIEW AND EVALUATION OF INFORMATION

7.1 Current and Past Uses

Based o the historical aerial photography and interview, the Site has been vacant since 1954, and the north portion of the Site has been a farmland since 1989. Based on the interview, the Phase One Property was owned by Equity Corp. and has been owned by the current owner since July 2007.

7.2 PCAs

Based on the information obtained, PCAs were found on the off-site properties within the Phase One Study Area. The PCAs are summarized in the following table and shown in Drawing No. 3.

PCA Number	Operations or Activities	PCA Contributing to Environmental Concern	
Location: On-Site			
#30	Fill material of known quality (as per site visit)	Yes	Reason: - Environmental quality of the fill materials should be assessed.
#40	North portion of the Site has been a farmland (as per aerial photographs, interview questionnaire and site visit)	Yes	Reason: - Impact due to historical application of pesticides should be assessed.
Location: Lot 2 Con 11 – east adjacent property of the Phase One Property			
#30	Fill material of known quality (as per site visit)	Yes	Reason: - Environmental quality of the fill materials should be assessed. - Adjacent property of the Site
Location: South half of Lot 1 Con 11 – southeast adjacent property of the Phase One Property			
#58	Operation of landfill site (as per ERIS report).	Yes	Reason: - Hydraulically up-gradient of the Site - Adjacent property
Location: 4165 Salem Road – about 189 m southeast of the Phase One Property			
#12	Concrete manufacturing (as per ERIS report).	Yes	Reason: - Hydraulically up- to trans- gradient of the Site
Other	Waste generation (as per ERIS report).		
#58	Historical operation of landfill site (as per ERIS report).		
Location: 441 Salem Road – located about 225 m southeast of the Phase One Property			
Other	Waste generation (as per ERIS report).	Yes	Reason: - Hydraulically up- to trans- gradient of the Site
Location: 500 Salem Road – located about 75 m south of the Phase One Property			
#28	Presence of an oil storage tank on the west side of the residential house (as per site visit)	Yes	Reason: - Hydraulically up- to trans- gradient of the Site - about 75 m near the Site
Location: 7975 County Road 27 – located about 35 m south of the Phase One Property			
#28	Presence of an oil storage tank in the north side of a residential house (as per site visit)	Yes	Reason: - Hydraulically up- to trans- gradient of the Site - about 75 m near the Site

Note: PCA numbers are in accordance with Table 2, Schedule D of O. Reg. 153/04.

#12 – Concrete, Cement and Lime Manufacturing

#28 Gasoline and Associated Products Storage in Foxed Tanks

#30 – Importation of Fill Material of Unknown Quality

#40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications

#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners.

7.3 APECs

Based on the above analyses of the indicated PCAs and associated environmental concerns, APECs were found in eight (8) areas on the Phase One Property. The APECs and associated PCAs and contaminants of potential concern ("COPCs") are shown in Drawing No. 3 and summarized in the following table.

APEC	Location of APEC	PCA Number	Location of PCA	COPCs	Media Potentially Impacted
APEC 1	North portion of the Site	#40	On-Site: Application of pesticide	Metals, OC-pesticides	Soil
APEC 2A	Northeast portion of Site where the fill pile presents	#30	On-Site: Northeast portion of Site where the fill pile presents	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil
APEC 2B	Northeast boundary of Site	#30	Off-Site: Lot 2 Con 11	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater
APEC 3	Southeast boundary of the Site	#58	Off-Site: South half of Lot 1 Con 11	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater
APEC 4A	Southwest corner of the Site	#28	Off-Site 7975 County Rd 27	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 4B	Center portion of south boundary of the Site	#28	Off-Site 500 Salem Rd	PHCs, VOCs, PAHs, metals	Soil and groundwater
APEC 5A	Southeast corner of south portion of the Site	#12, #58, Other	Off-Site 4165 Salem Rd	PCB, PHCs, VOCs, PAHs, metals, inorganics	Soil and groundwater
APEC 5B	Center portion of south boundary of the Site	Other	Off-Site 441 Salem Rd	PCB, PHCs, VOCs, PAHs, metals	Soil and groundwater

Note: PCAs described specifically for the Phase One Property with reference to the applicable item number in the Table of Potentially Contaminating Activities provided in Schedule D of *O.Reg.153/04* as amended, where applicable.

#12 – Concrete, cement and lime manufacturing

#28 – Gasoline and Associated Products Storage in Fixed Tanks

#30 – Importation of Fill Material of Unknown Quality

#40 – Pesticides manufacturing, processing, bulk storage and land-scale applications

#58 – Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners

PHCs – Petroleum Hydrocarbons

PCBs – Polychlorinated Biphenyl
PAHs – Polycyclic Aromatic Hydrocarbons
VOCs – Volatile Organic Compounds
OC-Pesticides - Organoclorine Pesticides

7.4 Phase One Conceptual Site Model (CSM)

A Phase One Conceptual Site Model ("CSM") was prepared to present a summary of the findings of the Phase One ESA, and consists of this text report with appendices, and the following drawings:

- Drawing No. 1 – Site Location Plan
- Drawing No. 2 – Phase One Property and Surrounding Land Use
- Drawing No. 3 – PCA and APEC Locations

8.0 CONCLUSIONS AND RECOMMENDATIONS

8.1 Conclusions

GeoPro conducted this Phase One ESA in general accordance with O. Reg. 153/04. Based on the findings of the Phase One ESA, PCAs were found on the Phase One Property as well as on the off-site properties within the Phase One Study Area. APECs were found to be present in eight (8) areas on the Phase One Property. The contaminants of potential concern include PHCs, PCBs, VOCs, PAHs, organochlorine-pesticides metals and inorganics in soil and/or groundwater.

8.2 Recommendations

Based on the findings of the Phase One ESA, GeoPro offers the following recommendations for your consideration.

1) Conduct a Phase Two ESA at the Site to characterize the subsurface soil and groundwater conditions at the Phase Two Property and assess areas of the Phase Two Property where contaminants may be present in soil or groundwater.
2) If filing a RSC with the Ministry of the Environment, Conservation and Parks (“MECP”) is needed in the future, further consultation and/or work will be required.

9.0 SIGNATURE

This report was conducted and supervised by David Liu, who is a Qualified Person with the MECP as defined under Ontario Regulation 153/04.

Kaiying Qiu is an assistant project manager with GeoPro. Ms. Qiu earned a Bachelor and Master of Science Degrees in Environmental and Earth Science from the University of Waterloo. She has been conducting Phase One and Two ESAs for GeoPro's clients since 2016.

David Liu is a principal engineer and geo-environmental specialist with GeoPro. Mr. Liu is a registered Professional Engineer with The Professional Engineers of Ontario and he has 26 years of experience in geo-environmental engineering.

We trust that the information contained in this report is complete within our terms of reference. If you have any questions or require further information, please do not hesitate to contact our office.

Sincerely,

GeoPro Consulting Limited
Geotechnical - Hydrogeology - Environmental - Materials Testing – Inspection

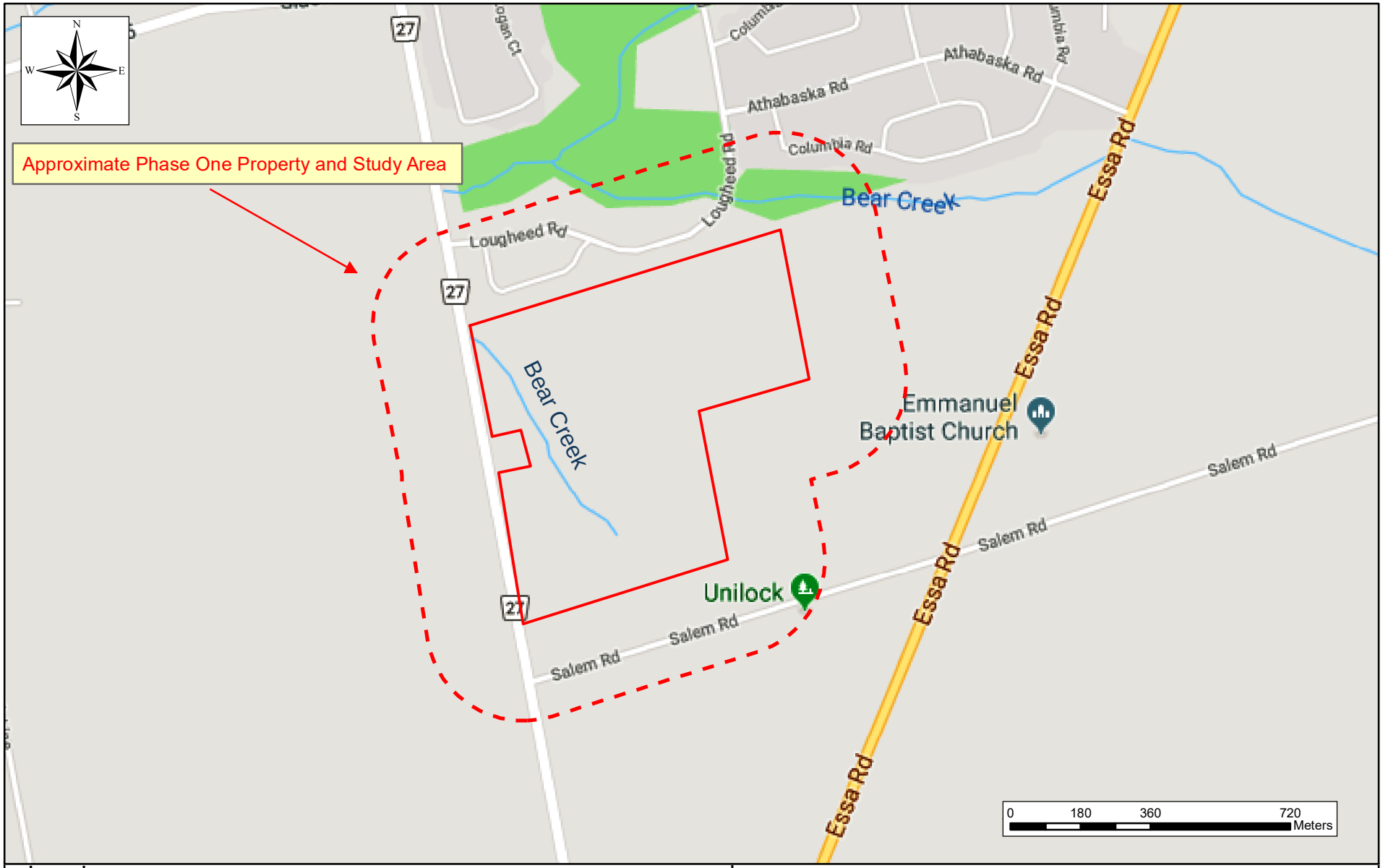
Draft
Kaiying Qiu, M.Sc.
Assistant Project Manager

Draft
David B. Liu, P.Eng., QP
Principal

10.0 REFERENCES

1. Ontario Regulation 153/04, as amended
2. Ministry of Environment, Conservation and Parks ("MECP") interactive database
3. MECP - Source Water Protection Information Atlas
4. Ministry of Natural Resources and Forestry interactive database
5. Ontario Geological Survey ("OGS") interactive database
6. The Atlas of Canada - Toporama
7. Google Maps
8. ArcGIS Basemap
9. County of Simcoe Interactive Maps
10. Technical Standards and Safety Authority
11. City of Barrie, Salem Secondary Plan, Schedule '8C' Land Use Plan, 2017
12. Nottawasaga Valley Conservation Authority Sub-Watersheds map

DRAWINGS



Legend

Phase One Property

Phase One Study Area

Map Source:
Google Maps

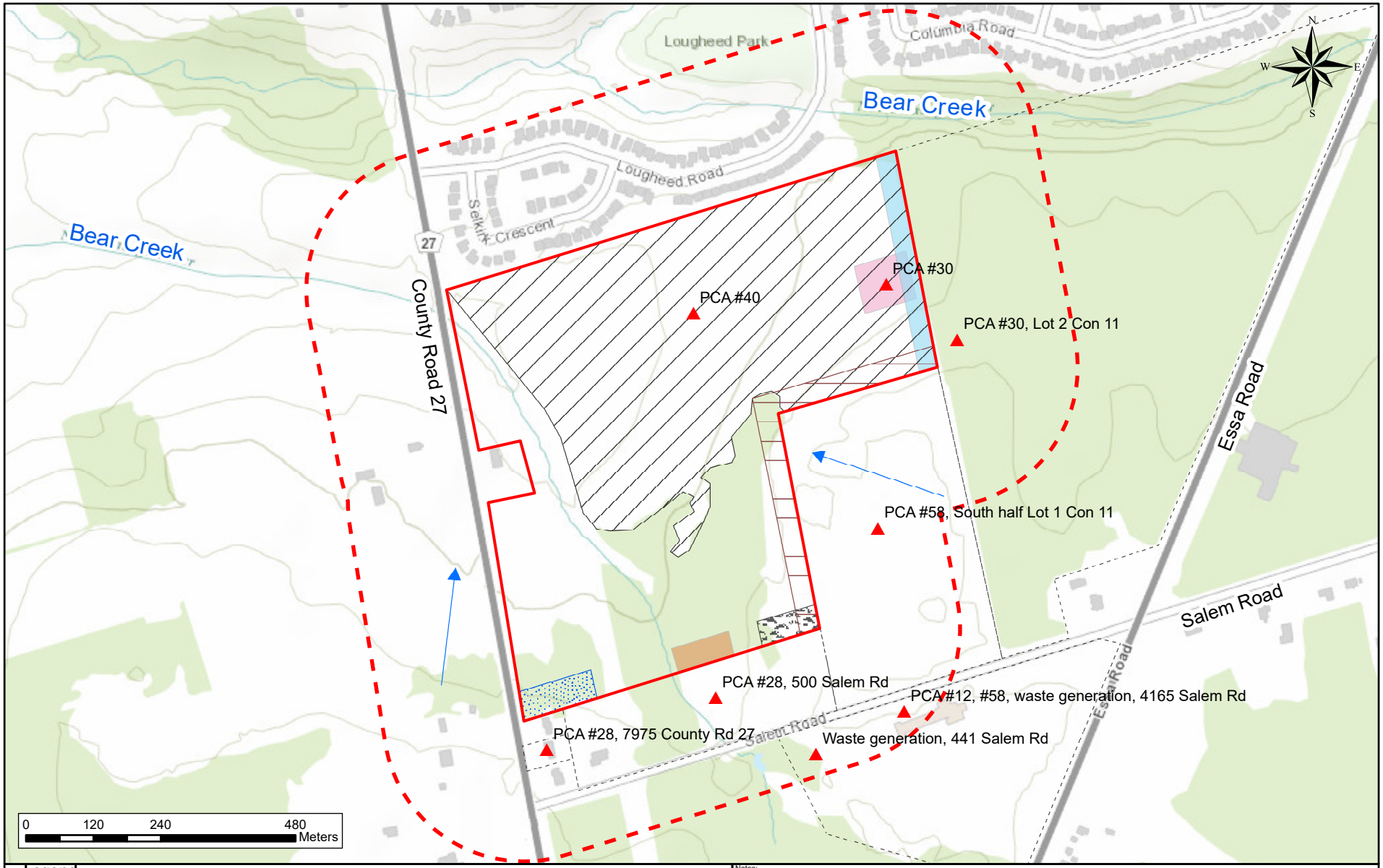
Prepared By: HA	Rev: KY	Approved: ky	Scale: As Shown	Project No.: 17-2099E	Drawing No.: 1	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Site Location Plan	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Rd 27 and North of Salem Road Barrie, ON		GeoPro Consulting Limited	

Legend

- Phase One Property
- Phase One Study Area
- Residential Use
- Commercial Use
- Agricultural/Other Use

Map Source:
ArcGIS Basemap

Prepared by: HA	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Drawing No.: 2	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Phase One Property and Surrounding Land Use	Project: Phase One Environmental Site Proposed Residential Development East Side of County Rd 27 and North of Salem Road, City of Barrie, ON	GeoPro Consulting Limited		



Legend

- Phase One Study Area
- Phase One Property
- Inferred Groundwater Flow Direction
- PCA Location
- #30 PCA Number
- APEC 1
- APEC 2A
- APEC 2B
- APEC 3
- APEC 4A
- APEC 4B/5B
- APEC 5A

Notes:
1. Map Source: ArcGIS Basemap
2. Definitions:
"COPCs" - Contaminants of Potential Concern
"APEC" - Area of Potential Environmental Concern
"PHCs" - Petroleum Hydrocarbons
"VOCs" - Volatile Organic Compounds
"PCB" - Polychlorinated Biphenyls
"PAH" - Polycyclic Aromatic Hydrocarbon
"OC-Pesticides" - Organochlorine Pesticides
3. Potentially Contaminating Activity ("PCA") numbers are in accordance with Table 2, Schedule D of O. Reg 153/04.
#12 - Concrete, Cement and Lime Manufacturing
#22 - Fertilizer manufacturing, processing and bulk storage
#28 - Gasoline and associated products storage in fixed tanks
#30 - Importation of fill material of unknown quality
#40 - Pesticides (including herbicide, fungicides and anti-fouling agents) manufacturing, processing, bulk storage and large-scale applications
#58 - Waste disposal and waste management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Drawing No.: 3	Original Size: Letter
Date: December 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: PCA and APEC Location	Project: Phase One Environmental Site Proposed Residential Development East Side of County Rd 27 and North of Salem Road, City of Barrie, ON		GeoPro Consulting Limited	

FIGURES

Legend

Phase One Property

Phase One Study Area

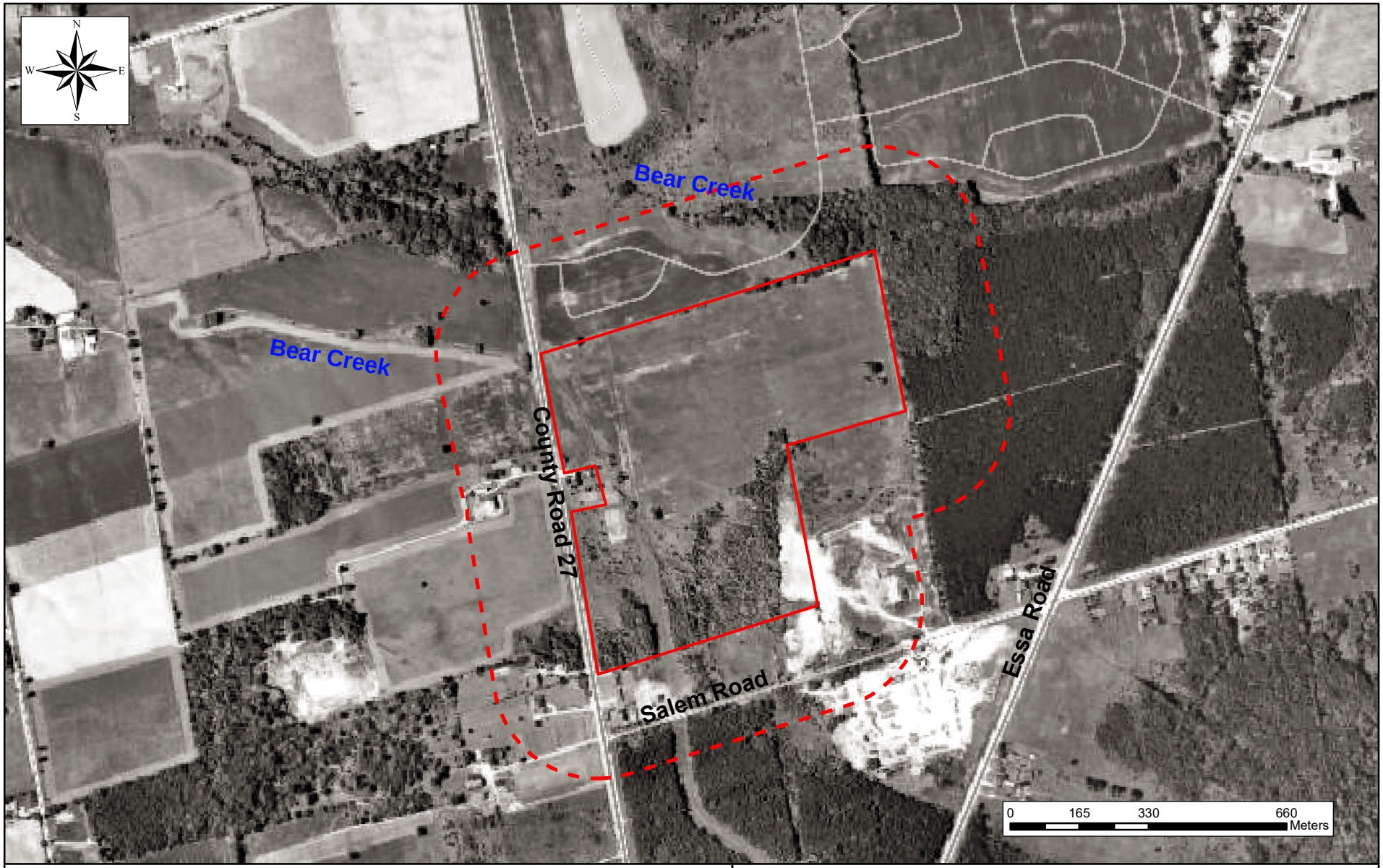
Salem Road Name of the newly developed roadway

Essa Road Name of existing roadway

Bear Creek Name of the watercourse

Map Source:
County of Simcoe Interactive Map

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Figure No.: 1	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Aerial Photograph - 1954	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Road 27 and north of Salem Road, City of Barrie, Ontario		GeoPro Consulting Limited	



Legend

Phase One Property

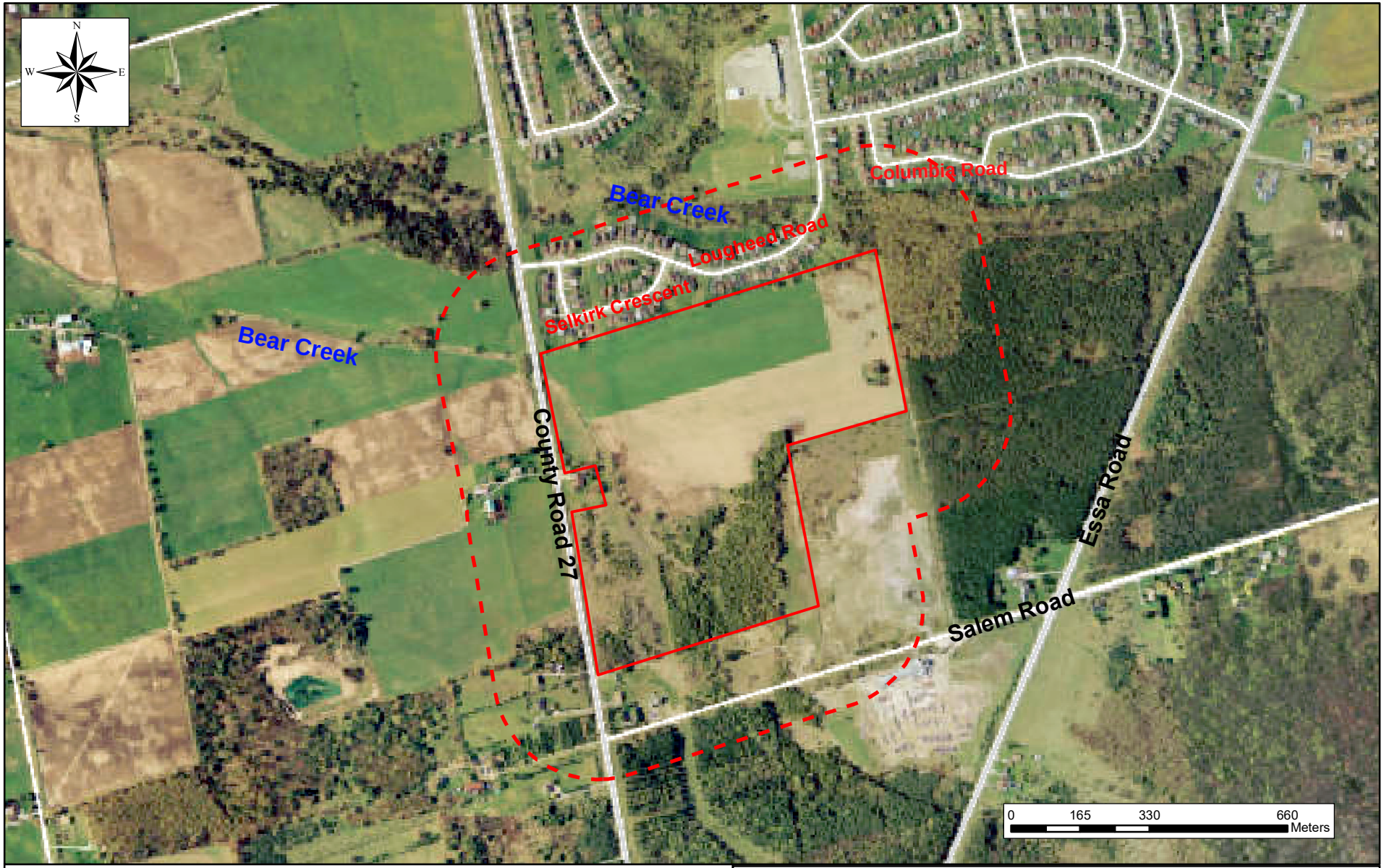
Phase One Study Area

Essa Road Name of existing roadway

Bear Creek Name of the watercourse

Map Source:
County of Simcoe Interactive Map

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Figure No.: 2	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Aerial Photograph - 1989	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Road 27 and north of Salem Road, City of Barrie, Ontario		GeoPro Consulting Limited	



Legend

Phase One Property

Phase One Study Area

Lougheed Rd Name of roadway newly developed

Essa Road Name of existing roadway

Bear Creek Name of the watercourse

Map Source:
County of Simcoe Interactive Map

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Figure No.: 3	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Aerial Photograph - 2002	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Road 27 and north of Salem Road, City of Barrie, Ontario		GeoPro Consulting Limited	

Legend

Phase One Property

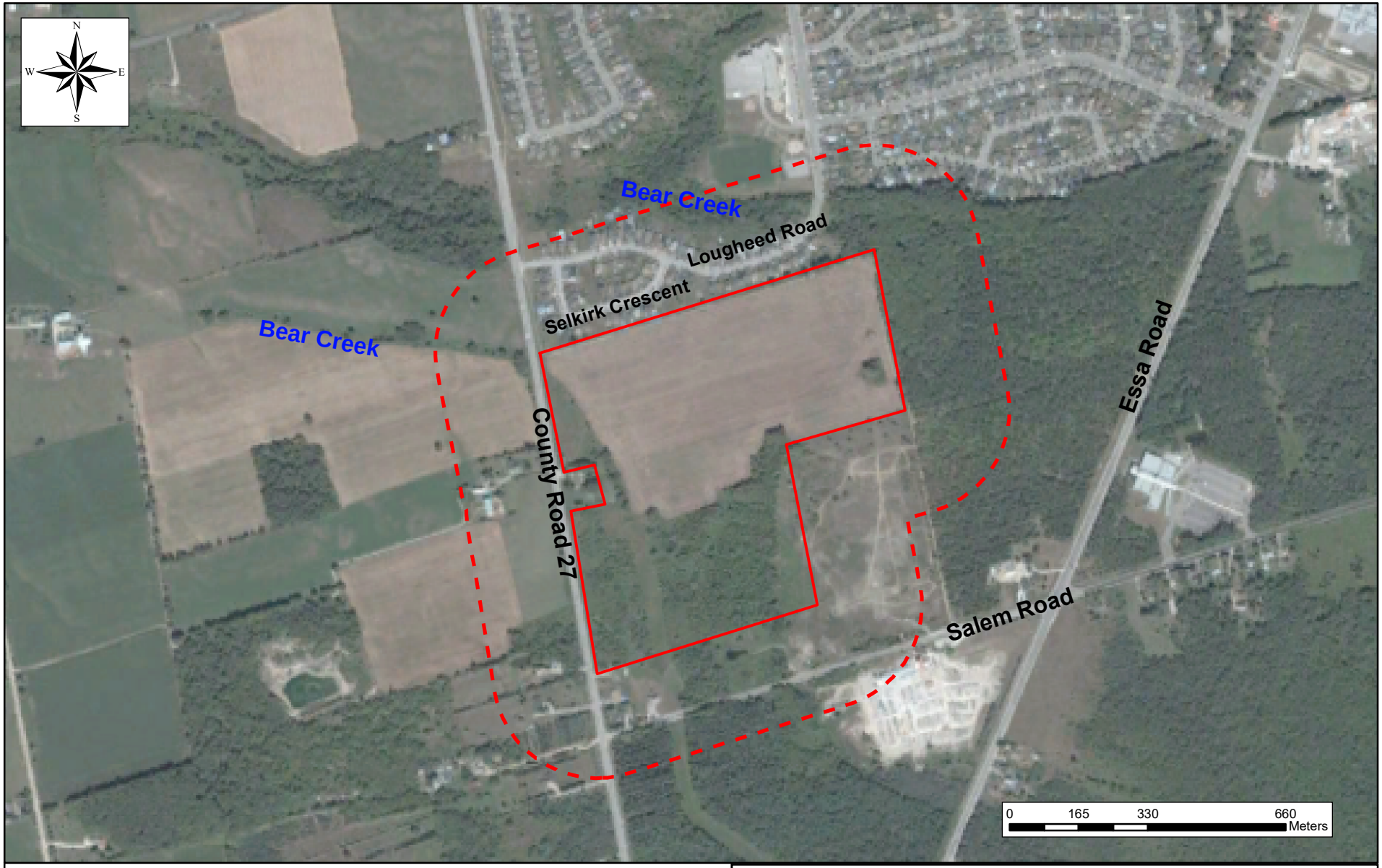
Phase One Study Area

Essa Road Name of existing roadway

Bear Creek Name of the watercourse

Map Source:
County of Simcoe Interactive Map

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Figure No.: 4	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Aerial Photograph - 2008	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Road 27 and north of Salem Road, City of Barrie, Ontario		GeoPro Consulting Limited	



Legend

Phase One Property

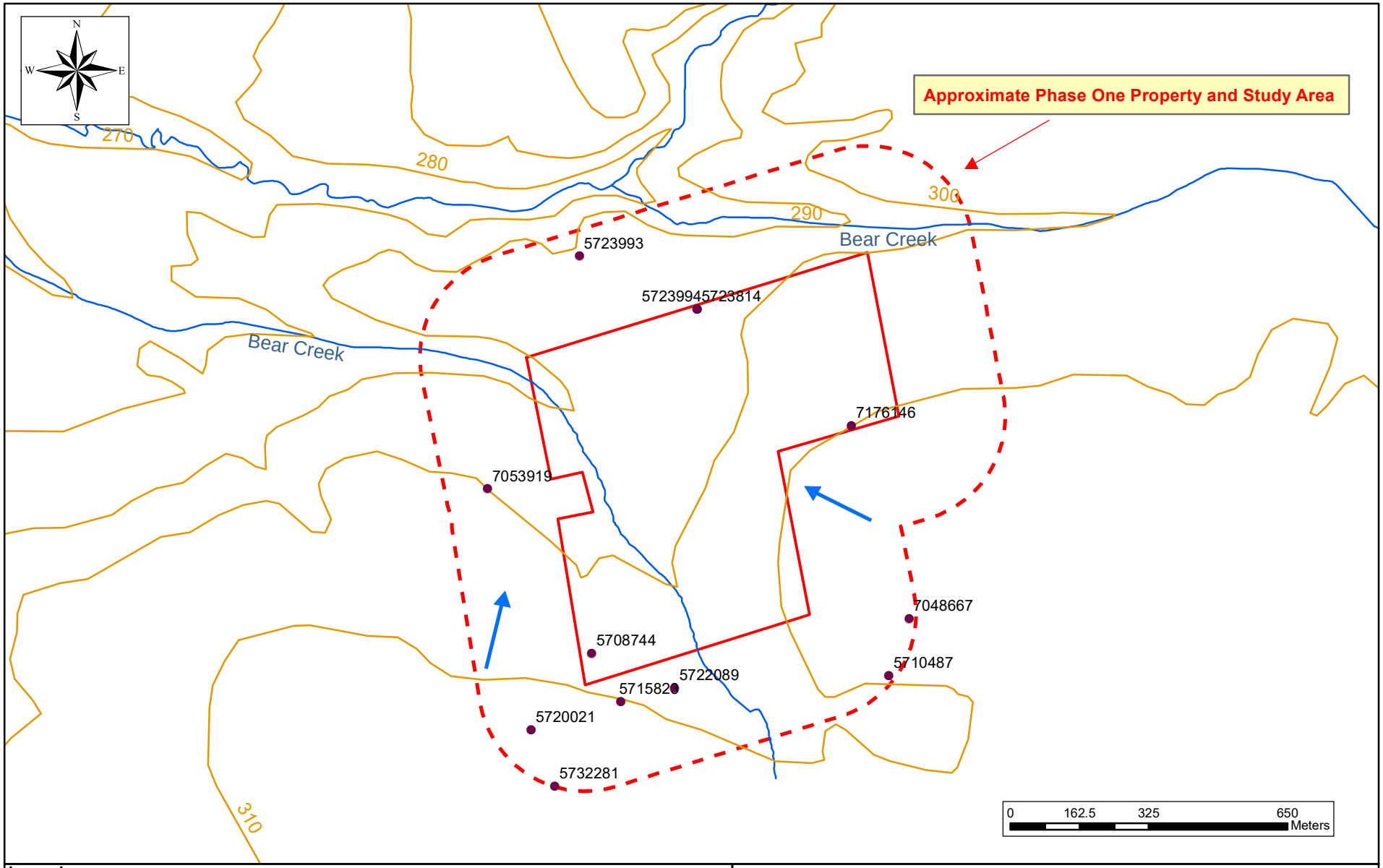
Phase One Study Area

Essa Road Name of existing roadway

Bear Creek Name of the watercourse

Map Source:
County of Simcoe Interactive Map

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Figure No.: 5	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Aerial Photograph - 2016	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Road 27 and north of Salem Road, City of Barrie, Ontario		GeoPro Consulting Limited	



Legend

Phase One Property
Phase One Study Area
MECP Well Record Location
Inferred Groundwater Flow Direction

Map Source:
Altas of Canada - Toporama

Prepared by: DS	Rev: KY	Approved: KY	Scale: As Shown	Project No.: 17-2099E	Figure No.: 6	Original Size: Letter
Date: April 2018	Client: Di Poce Management Inc. c/o Oksana Vialyk, BBA, AACI	Title: Topographical Map	Project: Phase One Environmental Site Assessment Proposed Residential Development East side of County Road 27 and north of Salem Road, City of Barrie, Ontario		GeoPro Consulting Limited	

Ministry of Natural Resources and Forestry

Make-a-Map: Natural Heritage Areas

Figure No. 7- Natural Heritage Map

Legend

- Assessment Parcel
- Woodland
- Conservation Reserve
- Provincial Park
- Natural Heritage System
- Ecoregion

Wetland

- Provincially Significant Wetland Evaluated
- Non - Provincially Significant Wetland Evaluated
- Unevaluated Wetland

Area of Natural Heritage & Scientific Interest (ANSI)

- Provincially Significant Life Science ANSI
- Provincially Significant Earth Science ANSI

Greenbelt Plan

- Boundary
- River Valley Connections

Land Use Designations

- Protected Countryside
- Towns and Villages
- Hamlets
- Urban River Valley
- Specialty Crop Area

Niagara Escarpment Plan (NEP)

- Boundary
- Parks and Open Space System

Land Use Designations

- Escarpment Natural Area
- Escarpment Protection Area
- Escarpment Rural Area
- Mineral Resource Extraction Area
- Escarpment Recreation Area
- Urban Area
- Minor Urban Centre

Oak Ridges Moraine Conservation Plan (ORM)

- Boundary

Land Use Designations

- Natural Core Area
- Natural Linkage Area
- Countryside Area
- Rural Settlement
- Palgrave Estates Residential Community
- Settlement Area

1.8 0 0.92 1.8 Kilometers

Scale: 1 : 36,111

This map should not be relied on as a precise indicator of routes or locations, nor as a guide to navigation. The Ontario Ministry of Natural Resources and Forestry(OMNRF) shall not be liable in any way for the use of, or reliance upon, this map or any information on this map.

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GTA 2005 / SWOOP 2006 / Simcoe-Muskoka-Dufferin © FirstBase Solutions, 2005 / 2006 / 2008

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APPENDIX A

CONCEPT PLAN 'A-6'

DIPOCE SUBDIVISION

Part of the South Half of Lot 1, Concession 3
Geographic Township of Innisfil
Formerly in the Town of InnsifPresently in the City of Barrie
County of Simcoe

LEGEND

- Corridor
- Floodline
- Wetland
- Archaeology Sites

10.8m (35ft) Singles	101 Lots	3.91ha
13.8m (45ft) Singles	80 Lots	3.84ha
6.8m (22ft) Townhouses	166 Units	3.85ha
Commercial		0.25ha
TOTAL	347 Units	11.85ha

Density: 22.9 units/ha (based on 15.12ha)

DATE August 30, 2017

SOURCES

J.D. Barnes - Plan of Survey - 02/12/07

SCALE

0 20 40 60 80 100
Metres

N:\Barrie\0853F\Drawings\Concept Plans\ConceptPlan_A-6_2017-09-15

MHBC PLANNING URBAN DESIGN & LANDSCAPE ARCHITECTURE
113 COLLIER STREET, BARRIE, ON, L4M 1H2
P: 705.728.0045 F: 705.728.2010 | WWW.MHBCPLAN.COM

APPENDIX B

GeoPro Consulting Limited

Geotechnical-Hydrogeology-Environmental-Materials-Inspection

Geotechnical Investigation

Proposed Residential Developments

County Road 27, Barrie, Ontario

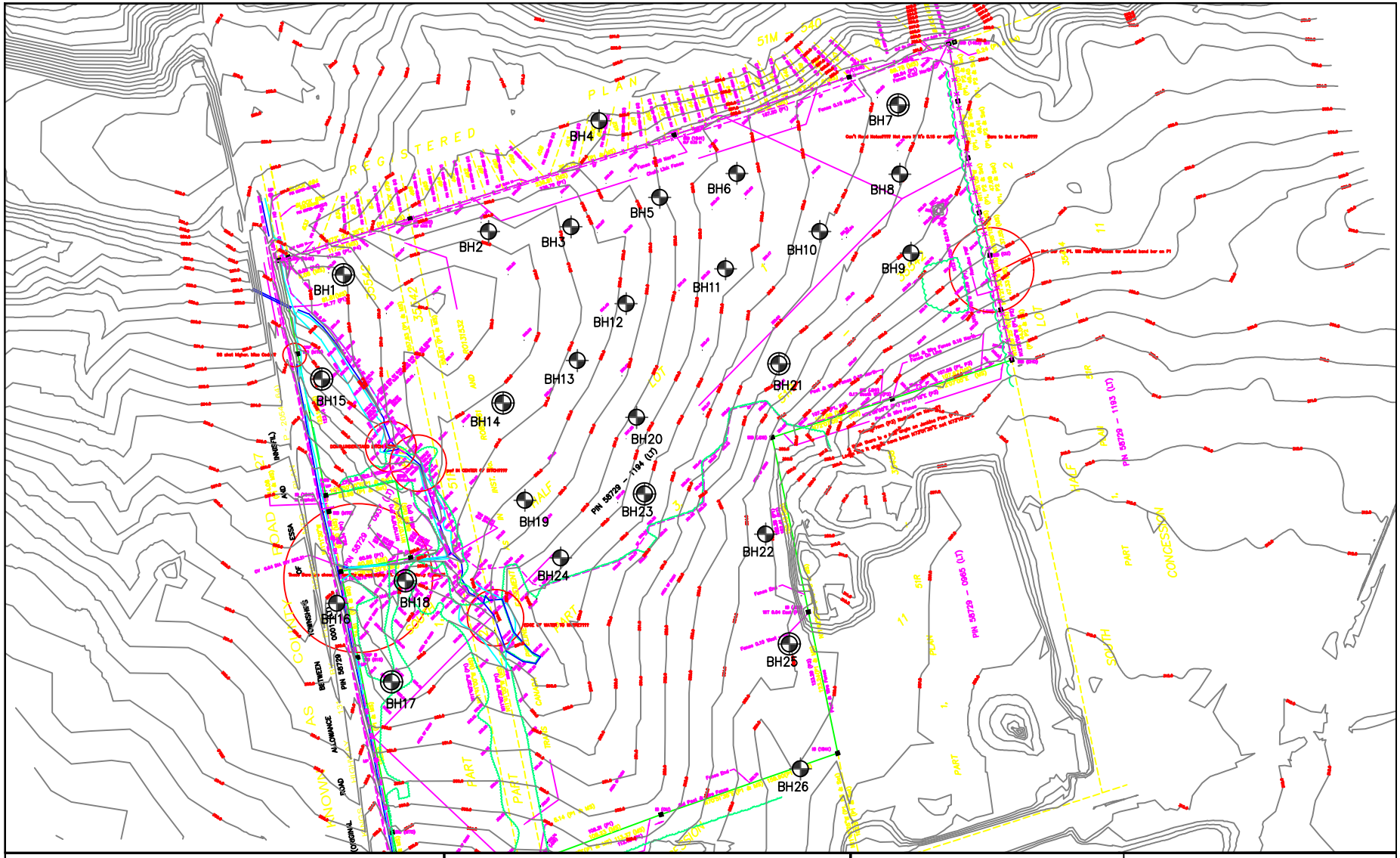
Prepared For:

Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

GeoPro Project No.: 17-2099GE

Report Date: June 1, 2018

DRAWINGS



Legend:

Borehole Location

Monitoring Well

Client: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI		Project No.: 17-2099GE	Drawing No.: 1
Drawn: WF	Approved: DL	Title: Borehole Location Plan	
Date: May, 2018	Scale: N.T.S	Project: Geotechnical Investigation Proposed Residential Developments County Road 27, Barrie, Ontario	
Original Size: Letter	Rev: DX	GeoPro Consulting Limited	

ENCLOSURES

Enclosure 1A: Notes on Sample Descriptions

1. Each soil stratum is described according to the *Modified Unified Soil Classification System*. The compactness condition of cohesionless soils (SPT) and the consistency of cohesive soils (undrained shear strength) are defined according to Canadian Foundation Engineering Manual, 4th Edition. Different soil classification systems may be used by others. Please note that a description of the soil stratums is based on visual and tactile examination of the samples augmented with field and laboratory test results, such as a grain size analysis and/or Atterberg Limits testing. Visual classification is not sufficiently accurate to provide exact grain sizing or precise differentiation between size classification systems.

2. Fill: Where fill is designated on the borehole log it is defined as indicated by the sample recovered during the boring process. The reader is cautioned that fills are heterogeneous in nature and variable in density or degree of compaction. The borehole description may therefore not be applicable as a general description of site fill materials. All fills should be expected to contain obstruction such as wood, large concrete pieces or subsurface basements, floors, tanks, etc., none of these may have been encountered in the boreholes. Since boreholes cannot accurately define the contents of the fill, test pits are recommended to provide supplementary information. Despite the use of test pits, the heterogeneous nature of fill will leave some ambiguity as to the exact composition of the fill. Most fills contain pockets, seams, or layers of organically contaminated soil. This organic material can result in the generation of methane gas and/or significant ongoing and future settlements. Fill at this site may have been monitored for the presence of methane gas and, if so, the results are given on the borehole logs. The monitoring process does not indicate the volume of gas that can be potentially generated nor does it pinpoint the source of the gas. These readings are to advise of the presence of gas only, and a detailed study is recommended for sites where any explosive gas/methane is detected. Some fill material may be contaminated by toxic/hazardous waste that renders it unacceptable for deposition in any but designated land fill sites; unless specifically stated the fill on this site has not been tested for contaminants that may be considered toxic or hazardous. This testing and a potential hazard study can be undertaken if requested. In most residential/commercial areas undergoing reconstruction, buried oil tanks are common and are generally not detected in a conventional preliminary geotechnical site investigation.

3. Till: The term till on the borehole logs indicates that the material originates from a geological process associated with glaciation. Because of this geological process the till must be considered heterogeneous in composition and as such may contain pockets and/or seams of material such as sand, gravel, silt or clay. Till often contains cobbles (60 to 200 mm) or boulders (over 200 mm). Contractors may therefore encounter cobbles and boulders during excavation, even if they are not indicated by the borings. It should be appreciated that normal sampling equipment cannot differentiate the size or type of any obstruction. Because of the horizontal and vertical variability of till, the sample description may be applicable to a very limited zone; caution is therefore essential when dealing with sensitive excavations or dewatering programs in till materials.

Enclosure 1B: Explanation of Terms Used in the Record of Boreholes

Sample Type

AS	Auger sample
BS	Block sample
CS	Chunk sample
DO	Drive open
DS	Dimension type sample
FS	Foil sample
NR	No recovery
RC	Rock core
SC	Soil core
SS	Spoon sample
SH	Shelby tube Sample
ST	Slotted tube
TO	Thin-walled, open
TP	Thin-walled, piston
WS	Wash sample

Penetration Resistance

Standard Penetration Resistance (SPT), N:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in) required to drive a 50 mm (2 in) drive open sampler for a distance of 300 mm (12 in).

PM – Samples advanced by manual pressure
WR – Samples advanced by weight of sampler and rod
WH – Samples advanced by static weight of hammer

Dynamic Cone Penetration Resistance, N_d:

The number of blows by a 63.5 kg (140 lb) hammer dropped 760 mm (30 in) to drive uncased a 50 mm (2 in) diameter, 60° cone attached to "A" size drill rods for a distance of 300 mm (12 in).

Piezo-Cone Penetration Test (CPT):

An electronic cone penetrometer with a 60 degree conical tip and a projected end area of 10 cm² pushed through ground at a penetration rate of 2 cm/s. Measurement of tip resistance (Q_t), porewater pressure (PWP) and friction along a sleeve are recorded electronically at 25 mm penetration intervals.

Textural Classification of Soils (ASTM D2487)

Classification	Particle Size
Boulders	> 300 mm
Cobbles	75 mm - 300 mm
Gravel	4.75 mm - 75 mm
Sand	0.075 mm – 4.75 mm
Silt	0.002 mm-0.075 mm
Clay	<0.002 mm(*)

(*) Canadian Foundation Engineering Manual (4th Edition)

Coarse Grain Soil Description (50% greater than 0.075 mm)

Terminology	Proportion
Trace	0-10%
Some	10-20%
Adjective (e.g. silty or sandy)	20-35%
And (e.g. sand and gravel)	> 35%

Soil Description

a) Cohesive Soils(*)

Consistency	Undrained Shear Strength (kPa)	SPT "N" Value
Very soft	<12	0-2
Soft	12-25	2-4
Firm	25-50	4-8
Stiff	50-100	8-15
Very stiff	100-200	15-30
Hard	>200	>30

(*) Hierarchy of Shear Strength prediction

1. Lab triaxial test
2. Field vane shear test
3. Lab. vane shear test
4. SPT "N" value
5. Pocket penetrometer

b) Cohesionless Soils

Compactness Condition (Formerly Relative Density)	SPT "N" Value
Very loose	<4
Loose	4-10
Compact	10-30
Dense	30-50
Very dense	>50

Soil Tests

w	Water content
w_p	Plastic limit
w_l	Liquid limit
C	Consolidation (oedometer) test
CID	Consolidated isotropically drained triaxial test
CIU	consolidated isotropically undrained triaxial test with porewater pressure measurement
D_R	Relative density (specific gravity, Gs)
DS	Direct shear test
ENV	Environmental/ chemical analysis
M	Sieve analysis for particle size
MH	Combined sieve and hydrometer (H) analysis
MPC	Modified proctor compaction test
SPC	Standard proctor compaction test
OC	Organic content test
U	Unconsolidated Undrained Triaxial Test
V	Field vane (LV-laboratory vane test)
γ	Unit weight

LOG OF BOREHOLE BH01

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: HR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-30

REF. NO.: 17-2099GE

ENCL. NO.: 2

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION
289.7						
0.0 / 289.4	**TOPSOIL:** (300 mm)					
0.3 / 289.0	**REWORKED SILTY SAND TO SAND AND SILT:** trace organics, trace rootlets, dark brown to brown, moist, loose	1	SS	4		
0.6	**SILTY SAND TO SAND AND SILT:** trace clay, trace gravel, organic stain, brown, wet, loose to compact	2	SS	8		289
1		3A	SS	18		
288.1		3B	SS			288
1.5 / 287.6	**SAND AND SILT:** trace clay, trace gravel, brown, moist to wet, compact				Bentonite	
2.1 / 287.1	**SAND:** some silt, trace gravel, containing cobbles and boulders, brown, moist, dense	4A	SS	36		
2.5	---auger grinding	4B	SS			287
3	**FINE SAND TO SILTY FINE SAND:** brown, moist to wet, dense to very dense	5	SS	69 / 280 mm	286.4/May 11	
285.6	--- layers of clayey silt till					286
4.0	**SILTY SAND:** trace to some gravel, trace clay, containing cobbles and boulders, brown, wet, very dense	6	SS	50 / 100 mm	Sand	285
5	--- containing cobbles and boulders				Screen	
6						284
283.4		7	SS	50 / 140 mm	Natural pack	
6.2	**END OF BOREHOLE**					

DYNAMIC PENETRATION TEST: SPT / Cone, blows/0.3m (20, 40, 60, 80)

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane (20, 40, 60, 80)

Plastic Limit (w_P) — Natural Moisture Content (w) — Liquid Limit (w_L)

WATER CONTENT (%) (10, 20, 30, 40)

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

Notes:
1) Water was encountered at a depth of 4.6 m below ground surface (mBGS) during drilling.
2) Borehole caved at a depth of 3.0 mBGS upon completion of drilling.
3) 51 mm dia. monitoring well was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	3.23

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH02

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-24

REF. NO.: 17-2099GE

ENCL. NO.: 3

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m
292.7 / 0.0	**TOPSOIL:** (310 mm)			
292.4 / 0.3	**REWORKED SAND AND SILT:** trace clay, trace gravel, trace organics, trace rootlets, dark brown, moist, loose to compact	1	SS	8
		2	SS	17
291.5 / 1.2	**NO SAMPLE RECOVERY:** likely sand and silt to silty sand	3	NR	30
290.7 / 2.1	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, layers/zones of sandy silt, containing cobbles and boulders, brown, moist, dense to very dense --- auger grinding	4	SS	49
		5	SS	39
		6	SS	62
287.2 / 5.6	**SAND:** trace to some silt, trace gravel, brown, moist, very dense	7	SS	50 / 150 mm
286.5 / 6.3	**END OF BOREHOLE** Note: 1) Borehole was open and dry upon completion of drilling.			

GROUND WATER

DYNAMIC PENETRATION TEST: ○ SPT, ≈ Cone, blows/0.3m (20, 40, 60, 80)

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane (20, 40, 60, 80)

Plastic Limit (w_P), Natural Moisture Content (w), Liquid Limit (w_L)

WATER CONTENT (%) (10, 20, 30, 40)

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
5	69	23	3

GROUNDWATER ELEVATIONS

Measurement: 1st ▽, 2nd ▼, 3rd ▼, 4th ▼

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH03

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer | DIAMETER: 155 mm

FIELD ENGINEER: RR | DATE: 2018-04-26

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 4

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	DYNAMIC PENETRATION TEST (SPT / Cone blows/0.3m) & SHEAR STRENGTH (kPa)	Plastic Limit w_P / Natural Moisture Content w / Liquid Limit w_L — WATER CONTENT (%)	UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
294.3									
0.0 / 294.1	**TOPSOIL:** (280 mm)								
0.3 / 293.7	**REWORKED SAND AND SILT:** trace clay, trace gravel, trace organics, trace rootlets, pockets of topsoil, brown, moist, loose	1	SS	4	294				
0.6	**SAND AND SILT:** trace to some gravel, trace clay, organic stain, containing cobbles and boulders, brown, moist to wet, loose to very dense	2	SS	10					3 41 48 8
1	---layers of sand	3	SS	50 / 150 mm	293	> >100			
292.4									
2 1.9	**SAND AND SILT TO SILTY SAND:** trace gravel, containing cobbles and boulders, brown, moist, very dense	4	SS	93 / 230 mm	292	> >100			
291.5									
3 2.8	**SAND:** some silt, trace gravel, layers of sandy silt, brown, moist, very dense	5	SS	50 / 80 mm	291	> >100			
290.4									
4 3.9	**GRAVELLY SAND:** some silt to silty, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense	6	SS	50 / 50 mm	290	> >100			
5									
289.0					289				
5.4	**SAND:** some silt, trace to some gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense								
6									
288.2									
6.2	~~---auger grinding~~ **END OF BOREHOLE**	7	SS	50 / 80 mm		> >100			

Note:
1) Borehole was open and dry upon completion of drilling.

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH04

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: HR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-30

REF. NO.: 17-2099GE

ENCL. NO.: 5

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
295.0						
0.0 / 294.7	**TOPSOIL:** (230 mm)					
0.2 / 294.4	**FILL:** sand and silt to silty sand, trace clay, trace gravel, containing red brick fragments, brown, moist, compact	1	SS	16		
0.6	**SILTY SAND TO SAND:** trace to some gravel, containing cobbles and boulders, brown, moist, compact to very dense	2	SS	29	294	
	--- auger grinding	3	SS	67		10 67 18 5
	--- auger grinding				293	
		4	SS	64		
	--- auger grinding	5	SS	50 / 50 mm	292	
291.1						
3.9	**SILTY FINE SAND:** pockets of sandy silt, containing cobbles and boulders, brown, moist, very dense				291	
	--- auger grinding	6	SS	50 / 100 mm	290	
289.5						
5.5	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, containing cobbles and boulders, brown, moist, very dense				289	
	--- auger grinding --- auger grinding	7	SS	50 / 130 mm		
288.0						
6.9	**SAND:** some gravel, trace to some silt, containing cobbles and boulders, brown, moist, very dense				288	
287.2		8	SS	50 / 100 mm		
7.7	**END OF BOREHOLE**					

Note:
1) Borehole caved at a depth of 4.1 m below ground surface (mBGS) upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20, 40, 60, 80

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane; 20, 40, 60, 80

Plastic Limit, Natural Moisture Content, Liquid Limit; w_P, w, w_L

WATER CONTENT (%): 10, 20, 30, 40

> >100

UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH05

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer | DIAMETER: 155 mm

FIELD ENGINEER: RR | DATE: 2018-04-26

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 6

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
296.3 / 0.0	**TOPSOIL:** (330 mm)				
295.9 / 0.3	**REWORKED FINE SAND AND SILT TO SILTY FINE SAND:** trace organics, trace rootlets, pockets of sandy silt, brown, moist, very loose	1	SS	3	296
295.7 / 0.6		2A	SS	4	
295.4 / 0.9	**REWORKED SAND AND SILT TO SANDY SILT:** trace to some clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, loose	2B	SS		
295.0 / 1.2	**SAND AND SILT:** trace clay, trace gravel, containing cobbles and boulders, brown, moist, loose	3	SS	35	295
294.2 / 2.1	**SAND:** trace to some gravel, layers/zones of sandy silt, containing cobbles and boulders, brown, moist, dense	4	SS	61	294
	SILTY SAND: trace to some gravel, layers/zones of sandy silt, seams of silt, layers of sand, containing cobbles and boulders, brown, moist, very dense	5	SS	75	293
	--- auger grinding				
292.2 / 4.0	**SAND:** some gravel, trace to some silt, brown, moist, very dense				292
	--- auger grinding	6	SS	50 / 130 mm	
290.8 / 5.5	**SAND AND SILT TO SILTY SAND:** trace gravel, containing cobbles and boulders, brown, moist, very dense				291
289.9 / 6.4	**END OF BOREHOLE**	7	SS	50 / 100 mm	290

Note:
1) Borehole was open and dry upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m (20, 40, 60, 80)

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane (20, 40, 60, 80)

Plastic Limit (w_P) | Natural Moisture Content (w) | Liquid Limit (w_L)

WATER CONTENT (%) (10, 20, 30, 40)

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; $\blacktriangle^{\varepsilon=3\%}$ Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH06

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-26

REF. NO.: 17-2099GE

ENCL. NO.: 7

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
298.6					
0.0 / 298.3	**TOPSOIL:** (245 mm)				
0.2	**REWORKED SAND AND SILT:** trace clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist to wet, very loose to compact	1	SS	2	
297.7		2A	SS	11	
0.8	**SAND AND SILT TO SILTY SAND:** trace to some clay, trace gravel, organic stain, containing cobbles and boulders, brown, moist, compact	2B	SS		
1		3	SS	11	298
296.5					
2.1	**SILTY SAND:** trace gravel, layers/zones of sand and silt, containing cobbles and boulders, brown, moist, very dense	4	SS	67	297
2					
3	--- auger grinding	5	SS	82	296
294.5					
4.0	**CLAYEY SILT:** some sand to sandy, trace gravel, zones/layers of silty sand, containing cobbles and boulders, brown, moist, hard				295
4	--- auger grinding	6	SS	49	294
5					
293.0					
5.6	**SAND TO SILTY SAND:** trace to some gravel, containing cobbles and boulders, brown, moist, very dense				293
6		7	SS	50 / 130 mm	
7	--- auger grinding				292
290.9		8	SS	50 / 80 mm	291
7.7	**END OF BOREHOLE**				

Note:
1) Borehole was open and dry upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20, 40, 60, 80

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane; 20, 40, 60, 80

Plastic Limit (w_P), Natural Moisture Content (w), Liquid Limit (w_L)

WATER CONTENT (%): 10, 20, 30, 40

>>100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
2	55	32	11

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH07

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 205 mm

DATE: 2018-04-25

REF. NO.: 17-2099GE

ENCL. NO.: 8

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
301.4 / 0.0	**TOPSOIL:** (360 mm)	1	SS	5	301	
301.0 / 0.4	**REWORKED SANDY SILT TO SAND AND SILT:** trace to some clay, trace gravel, trace organics, trace rootlets, layers of clayey silt, dark brown to brown, moist, loose	2	SS	11		
300.8 / 0.6	**CLAYEY SILT:** some sand, trace organics, brown, moist, stiff					
300.2 / 1.2	**SAND AND SILT:** trace clay, trace gravel, pockets of organics, brown, moist, loose	3	SS	6	300	
299.3 / 2.1	**SILTY SAND:** trace clay, trace gravel, layers of sand, containing cobbles and boulders, brown, moist, dense	4	SS	40	299	1 63 31 5
298.5 / 2.9	**FINE SAND AND SILT TO SILTY FINE SAND:** trace gravel, layers/zones of silt, brown, moist, dense to very dense	5	SS	34	298	
	--- auger grinding ---layers of clayey silt	6	SS	85 / 260 mm	297	
295.8 / 5.6	**SILTY SAND:** trace to some gravel, layers of sand and silt, containing cobbles and boulders, brown, moist, very dense	7	SS	50 / 150 mm	296	
294.4 / 6.9	--- auger grinding **SAND:** some silt, some gravel, containing cobbles and boulders, brown, moist, very dense	8	SS	50 / 130 mm	295	15 73 12
292.9 / 8.5	**FINE SAND:** trace to some silt, trace gravel, brown, moist, very dense	9	SS	50 / 80 mm	294	
					293	
					292	

Bentonite

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20 40 60 80

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80

WATER CONTENT (%): Plastic Limit w_P — Natural Moisture Content w — Liquid Limit w_L; 10 20 30 40

> >100

UNIT WT (kN/m³)

Continued Next Page

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES: $+^3$, $\times^3$: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH07

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 205 mm

DATE: 2018-04-25

REF. NO.: 17-2099GE

ENCL. NO.: 8

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION	DYNAMIC PENETRATION TEST (SPT / Cone, blows/0.3m) & SHEAR STRENGTH (kPa) (Unconfined, Quick Triaxial, Field Vane & Sensitivity, Penetrometer, Lab Vane)	Plastic Limit / Natural Moisture Content / Liquid Limit — WATER CONTENT (%)	UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
	FINE SAND: trace to some silt, trace gravel, brown, moist, very dense(Continued)					291				
11		10	SS	50 / 80 mm			> >100			
289.9						290				
11.5	**SAND AND SILTY SAND:** trace gravel, containing cobbles and boulders, brown, moist, very dense									
12		11	SS	50 / 80 mm		289	> >100			
13	--- auger grinding				Sand	288				
14		12	SS	50 / 50 mm			> >100			
					Screen	287				
15					286.6/May 11					
286.1		13	SS	50 / 80 mm	Natural Pack		> >100			
15.3	**END OF BOREHOLE**									

Note:
1) 51 mm dia. monitoring well was installed in borehole upon completion of drilling.

Water Level Reading
Date W. L Depth (mBGS)
May 11, 2018 14.83

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH08

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 9

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
301.8 / 0.0	**TOPSOIL:** (330 mm)				
301.5 / 0.3	**REWORKED SILTY SAND:** trace gravel, trace organics, trace rootlets, pockets of organic silt, brown, moist to wet, compact	1	SS	11	
301.2 / 0.6	**SILTY SAND:** trace gravel, organic stain, dark brown to brown, wet, loose to compact	2	SS	6	301
		3	SS	4	
299.4 / 2.4	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, brown, moist to wet, compact	4A	SS	29	300
		4B	SS		
298.9 / 2.9	**SAND:** trace to some silt, trace to some gravel, containing cobbles and boulders, brown, moist, compact to very dense	5	SS	43	299
	--- auger grinding	6	SS	97 / 260 mm	298
	---zones of silty sand	7	SS	24	297
294.0 / 7.9	**END OF BOREHOLE**	8	SS	50 / 80 mm	296
					295
					294

Notes:
1) Borehole was dry upon completion of drilling.
2) Borehole caved at depth of 7.3 m below ground surface (mBGS) upon completion of drilling.

DYNAMIC PENETRATION TEST
○ SPT ≳ Cone blows/0.3m
20 40 60 80

SHEAR STRENGTH (kPa)
● Unconfined ✕ Field Vane & Sensitivity
▲ Quick Triaxial ⊠ Penetrometer + Lab Vane
20 40 60 80

> >100

Plastic Limit / Natural Moisture Content / Liquid Limit
w_P w w_L
WATER CONTENT (%)
10 20 30 40

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
12	65	16	7

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH09

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 10

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
302.9 / 0.0	**TOPSOIL:** (330 mm)				
302.6 / 0.3	**REWORKED SILTY FINE SAND:** trace organics, trace rootlets, dark brown to brown, moist, loose	1	SS	4	
0.6	**SILTY SAND TO SANDY SILT:** trace organics, organic stain, brown, moist to wet, loose	2	SS	5	302
301.7 / 1.2	---zones of clayey silt				
	SILTY SAND: trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, compact to very dense	3	SS	20	
		4	SS	48	301
299.7 / 3.2	**SAND AND GRAVEL:** trace silt, containing cobbles and boulders, brown, moist, very dense	5A 5B	SS SS	50 / 100 mm	300
298.9 / 4.0	**SAND AND SILT TO SILTY SAND:** trace to some gravel, containing cobbles and boulders, brown, moist, very dense	6	SS	50 / 80 mm	299
					298
296.7 / 6.2	**END OF BOREHOLE**	7	SS	50 / 100 mm	297

Note:
1) Borehole caved at a depth of 5.0 m below ground surface (mBGS) upon completion of drilling.

DYNAMIC PENETRATION TEST
○ SPT ⇝ Cone blows/0.3m
20 40 60 80

SHEAR STRENGTH (kPa)
● Unconfined ✕ Field Vane & Sensitivity
▲ Quick Triaxial ⊠ Penetrometer + Lab Vane
20 40 60 80

Plastic Limit w_P — Natural Moisture Content w — Liquid Limit w_L

WATER CONTENT (%)
10 20 30 40

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
42	46	12	

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH10

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 11

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m
300.8 / 0.0	**TOPSOIL:** (310 mm)			
300.5 / 0.3	**REWORKED SAND AND SILT TO SILTY SAND:** trace organics, trace rootlets, dark brown to brown, moist to wet, very loose	1	SS	3
0.6	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, organic stain, dark brown to brown, moist to wet, very loose to compact	2	SS	2
299.3		3A	SS	11
1.5	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, pockets of sand, containing cobbles and boulders, brown, moist, compact	3B	SS	
298.8 / 2.1	**SAND:** some silt, trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense	4	SS	53
297.9 / 2.9	**SILTY SAND:** trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense	5	SS	80 / 280 mm
295.5 / 5.4	**SILTY FINE SAND:** trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense	6	SS	50 / 100 mm
294.5 / 6.4	**END OF BOREHOLE**	7	SS	50 / 100 mm

Notes:
1) Borehole was dry upon completion of drilling.
2) Borehole caved at a depth of 5.9 m below ground surface (mBGS) upon completion of drilling.

GROUND WATER

ELEVATION: 300, 299, 298, 297, 296, 295

DYNAMIC PENETRATION TEST
○ SPT ≳ Cone blows/0.3m
20 40 60 80

SHEAR STRENGTH (kPa)
● Unconfined ✕ Field Vane & Sensitivity
▲ Quick Triaxial ⊠ Penetrometer + Lab Vane
20 40 60 80

> >100 (at 298, 297, 295)

Natural Moisture Content
Plastic Limit w_P — w — Liquid Limit w_L
WATER CONTENT (%)
10 20 30 40

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:03

LOG OF BOREHOLE BH11

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 12

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
298.9					
0.0 / 298.6	**TOPSOIL:** (310 mm)				
0.3 / 298.3	**REWORKED SAND AND SILT:** trace clay, trace organics, trace rootlets, brown, moist, very loose	1	SS	2	
0.6 / 297.8	**SAND AND SILT:** trace to some clay, trace gravel, containing cobbles and boulders, brown, moist, loose	2A	SS	9	298
297.7		2B	SS		
1.2	**SAND:** trace to some silt, trace gravel, layers of sandy silt, brown, moist, loose	3	SS	51	
2	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense	4	SS	69	297
3		5	SS	82 / 280 mm	296
4					295
294.2	--- auger grinding	6A	SS	50 / 80 mm	
4.7	**SAND:** trace to some silt, trace gravel, brown, moist, very dense	6B	SS		294
5					
6					293
292.5		7	SS	50 / 130 mm	
6.4	**END OF BOREHOLE**				

Note:
1) Borehole caved at a depth of 5.2 m below ground surface (mBGS) upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m (20, 40, 60, 80)

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane (20, 40, 60, 80)

Plastic Limit (w_P), Natural Moisture Content (w), Liquid Limit (w_L)

WATER CONTENT (%) (10, 20, 30, 40)

> >100

UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	GR	SA	SI	CL
		4	65	24	7

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH12

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 13

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
295.3 / 0.0	**TOPSOIL:** (290 mm)						
295.0 / 0.3	**REWORKED SANDY SILT TO SAND AND SILT:** trace clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, loose	1	SS	4	295		
294.7 / 0.6	**SAND AND SILT:** trace clay, trace gravel, organic stain, brown, moist to wet, loose	2A	SS	4			
294.2 / 1.1	**SAND AND SILT:** trace clay, trace gravel, containing cobbles and boulders, brown, moist, loose	2B	SS				
1.2	**SAND:** some gravel, some silt, containing cobbles and boulders, brown, moist, dense	3	SS	47	294		15 74 11
293.2 / 2.1	**SILTY SAND:** trace gravel, layers/zones of sand and silt, brown, moist, very dense	4	SS	72	293		
292.4 / 2.9	**SILTY FINE SAND:** seams/pockets of silt, brown, moist, very dense	5	SS	60	292		
291.3 / 4.0	**SAND AND SILT TO SILTY SAND:** trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense	6	SS	77 / 260 mm	291		
	--- auger grinding						
	--- auger grinding	7	SS	50 / 140 mm	289		
287.6 / 7.8	--- containing cobbles and boulders	8	SS	50 / 130 mm	288		
	END OF BOREHOLE						

Note:
1) Borehole caved at a depth of 6.3 m below ground surface (mBGS) upon completion of drilling.

SOIL PROFILE | SAMPLES | GROUND WATER | DYNAMIC PENETRATION TEST (○ SPT, ≈ Cone, blows/0.3m; 20 40 60 80) | SHEAR STRENGTH (kPa) (● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane; 20 40 60 80) | Plastic Limit w_P | Natural Moisture Content w | Liquid Limit w_L | WATER CONTENT (%) (10 20 30 40) | UNIT WT (kN/m³) | REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity; ▲$^{\varepsilon=3\%}$ Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH13

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-24

REF. NO.: 17-2099GE

ENCL. NO.: 14

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
294.6					
294.5 0.0	**TOPSOIL:** (170 mm)				
0.2 / 294.0	**REWORKED SANDY SILT:** trace to some clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, very loose	1	SS	3	
0.6	**SAND AND SILT TO SANDY SILT:** some clay, trace gravel, sand pockets, containing cobbles and boulders, brown, moist, compact	2	SS	11	294
		3	SS	17	293
292.6					
2.1 / 291.7	**SAND AND SILT TO SILTY SAND:** trace gravel, containing cobbles and boulders, brown, moist, very dense	4	SS	64	292
2.9	**FINE SAND:** trace to some silt, trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense --- auger grinding	5	SS	59	291
290.6					
4.0 / 289.8	**SILTY FINE SAND:** trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense	6A	SS	69	290
4.9	**SAND AND SILT:** trace clay, trace gravel, containing cobbles and boulders, brown, moist, very dense	6B	SS		
289.1					
5.6	**SILTY SAND:** trace gravel, layers of sandy silt, containing cobbles and boulders, brown, moist, very dense				289
288.4		7	SS	50 / 140 mm	> >100
6.2	**END OF BOREHOLE**				

Note:
1) Borehole caved at a depth of 5.4 m below ground surface (mBGS) upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20 40 60 80

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80

Plastic Limit (w_P) | Natural Moisture Content (w) | Liquid Limit (w_L)

WATER CONTENT (%): 10 20 30 40

UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)	GR	SA	SI	CL
		1	39	42	18

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity; ▲ ε_f=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH14

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer | DIAMETER: 155 mm

FIELD ENGINEER: RR | DATE: 2018-04-24

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 15

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
293.3 / 0.0	**TOPSOIL:** (340 mm)	1	SS	3	293
293.0 / 0.3	**REWORKED SANDY SILT TO SAND AND SILT:** trace to some clay, trace gravel, trace organics, trace rootlets, dark brown, moist, very loose	2	SS	5	
292.7 / 0.6	**SAND AND SILT:** trace to some clay, trace gravel, trace rootlets, pockets of organics, organic stain, brown, wet, loose	3	SS	14	292
292.1 / 1.2	**SAND AND SILT TO SILTY SAND:** trace to some clay, trace gravel, pockets of sand, containing cobbles and boulders, moist to wet, compact to very dense	4	SS	14	291
		5	SS	12	290
		6	SS	70	289
		7	SS	50 / 150 mm	288
287.1 / 6.3	**END OF BOREHOLE**				

Bentonite

Sand

Screen

287.4/May 11

Natural pack

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20, 40, 60, 80

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane; 20, 40, 60, 80

Plastic Limit w_P | Natural Moisture Content w | Liquid Limit w_L

WATER CONTENT (%): 10, 20, 30, 40

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

Notes:
1) Water was encountered at a depth of 2.3 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 3.7 mBGS upon completion of drilling.
3) Borehole caved at a depth of 4.0 mBGS upon completion of drilling.
4) 51 mm dia. monitoring well was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	5.94

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH15

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer | DIAMETER: 155 mm

FIELD ENGINEER: HR | DATE: 2018-04-30

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 16

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
291.3					
0.0 / 291.0	**TOPSOIL:** (330 mm)	1	SS	2	291
0.3 / 290.7	**REWORKED SAND AND SILT:** trace clay, trace gravel, trace organics, trace rootlets, dark brown, wet, very loose	2	SS	9	
0.6 / 290.1	**SAND AND SILT:** trace clay, trace gravel, organic stain, brown, wet, loose	3	SS	7	290
1.2	**SAND AND SILT TO SILTY SAND:** trace to some clay, trace gravel, layers of silty sand, pockets of sand, brown, moist to wet, loose to very dense	4	SS	9	289
		5	SS	11	288
		6	SS	10	287
		7	SS	50 / 100 mm	286
285.0					285
6.4	**END OF BOREHOLE**				

289.8/May 11

Bentonite

Sand

Screen

Natural pack

Notes:
1) Water was encountered at a depth of 2.1 m below ground surface (mBGS) during drilling.
2) Borehole caved at a depth of 5.5 mBGS upon completion of drilling.
3) 51 mm dia. monitoring well was installed upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	1.51

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m (20, 40, 60, 80)

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane (20, 40, 60, 80)

Plastic Limit (w_P) | Natural Moisture Content (w) | Liquid Limit (w_L)

WATER CONTENT (%) (10, 20, 30, 40)

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
3	56	27	14

GROUNDWATER ELEVATIONS

Measurement: 1st ▽, 2nd ▼, 3rd ▼, 4th ▼

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH16

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: HR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-30

REF. NO.: 17-2099GE

ENCL. NO.: 17

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
299.0 / 0.0	**PAVED SHOULDER ASPHALT:** (60 mm)				
298.9 / 0.1	**GRANULAR BASE/SUBBASE:** (780 mm)	1	AS		
298.1 / 0.8	**FILL:** gravelly sand, trace silt, containing rock fragments, brown, moist, compact	2	SS	15	298
297.7 / 1.2	**FILL:** organic sandy silt to organic silt, trace clay, trace gravel, dark brown, wet, loose	3A	SS	6	
297.2 / 1.8	**FILL:** sandy silt to sand and silt, trace to some clay, trace organics, brown, wet, loose	3B	SS		297
296.8 / 2.1	**SAND AND SILT:** trace clay, trace gravel, brown to grey, wet, loose to compact	4	SS	7	
		5	SS	11	296
					295
	---grey	6	SS	29	294
					293
292.4 / 6.6	**END OF BOREHOLE**	7	SS	11	

Notes:
1) Water was encountered at a depth of 4.6 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 5.5 mBGS upon completion of drilling.
3) Borehole caved at a depth of 6.0 mBGS upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20 40 60 80

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80

Plastic Limit w_P | Natural Moisture Content w | Liquid Limit w_L

WATER CONTENT (%): 10 20 30 40

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180601-DC -DX.GPJ 2018-06-01 13:00

LOG OF BOREHOLE BH17

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Split Spoon | DIAMETER: 51 mm

FIELD ENGINEER: HR | DATE: 2018-05-02

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 18

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
298.4							
0.0 / 298.1	**TOPSOIL:** (320 mm)				298.2/May 11		
0.3 / 297.6	**REWORKED SANDY SILT:** some clay, trace to some organics, trace rootlets, brown, wet, very loose	1	SS	1		298	
0.8 / 296.9	**SILTY CLAY:** sandy, trace gravel, trace organics, organic stain, sand pockets, brown, wet, very soft to soft	2	SS	2	Bentonite	297	1 29 27 43
1.5 / 296.3	**SANDY SILT:** some clay, trace gravel, layers/seams of clayey silt, brown, wet, loose to compact	3	SS	10			
2.1 / 295.3	**CLAYEY SILT TO SILTY CLAY:** trace to some sand, trace gravel, seams of silty sand, layers of sandy silt, brown, wet, stiff	4	SS	9	Sand / Screen	296	
3.1 / 294.7	**SAND AND SILT:** trace clay, trace gravel, containing cobbles and boulders, brown to grey, moist to wet, compact	5	SS	27		295	
3.7	**END OF BOREHOLE**						

Notes:
1) Water was encountered at a depth of 0.8 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 0.2 mBGS upon completion of drilling.
3) 38 mm dia. monitoring was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	0.23

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20 40 60 80

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80

Plastic Limit (w_P) | Natural Moisture Content (w) | Liquid Limit (w_L)

WATER CONTENT (%): 10 20 30 40

UNIT WT (kN/m³)

GROUNDWATER ELEVATIONS

Measurement: 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH18

PROJECT: Geotechnical Investigation for Proposed Residential Developments
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI
PROJECT LOCATION: County Road 27, Barrie, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole Location Plan

DRILLING DATA
METHOD: Continuous Split Spoon
FIELD ENGINEER: RR
SAMPLE REVIEW: DX
CHECKED: DL
DIAMETER: 51 mm
DATE: 2018-05-01
REF. NO.: 17-2099GE
ENCL. NO.: 19

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
296.6 / 0.0	**TOPSOIL:** (300 mm)				
296.3 / 0.3	**REWORKED SAND AND SILT:** trace clay, trace gravel, brown, moist to wet, very loose	1	SS	2	
295.8 / 0.8	**SAND AND SILT:** trace clay, trace gravel, trace rootlets, layers/seams /pockets of sand, containing cobbles and boulders, brown, moist to wet, loose to compact	2	SS	6	296
		3	SS	8	295
		4	SS	9	294
		5	SS	17	
		6	SS	13	293
		7	SS	10	292
291.4 / 5.2	**NO SAMPLE RECOVERY:** likely silty sand	8	NR	19	291
290.7 / 5.9	**END OF BOREHOLE:**				

Notes:
1) Water was encountered at a depth of 2.3 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 3.5 mBGS upon completion of drilling.
3) Borehole caved at a depth of 5.3 mBGS upon completion.
4) 38 mm dia. monitoring was installed in borehole upon completion of drilling.

Water Level Reading
Date W. L Depth (mBGS)
May 11, 2018 1.20

GROUND WATER: 295.4/May 11
Bentonite
Sand
Screen
Natural pack

DYNAMIC PENETRATION TEST
○ SPT ≳ Cone blows/0.3m
20 40 60 80

SHEAR STRENGTH (kPa)
● Unconfined ✕ Field Vane & Sensitivity
▲ Quick Triaxial ⊠ Penetrometer + Lab Vane
20 40 60 80

Plastic Limit w_P | Natural Moisture Content w | Liquid Limit w_L
WATER CONTENT (%)
10 20 30 40

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+3, ×3: Numbers refer to Sensitivity
▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH19

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-24

REF. NO.: 17-2099GE

ENCL. NO.: 20

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m
295.3 / 0.0	**TOPSOIL:** (290 mm)			
295.0 / 0.3	**REWORKED FINE SAND AND SILT:** trace organics, trace rootlets, pockets of organics, dark brown to brown, moist, loose	1	SS	4
294.7 / 0.6	**CLAYEY SILT:** trace to some sand, trace organics, trace rootlets, zones of silty fine sand, organic stain, dark brown to brown, moist, soft to firm	2A	SS	4
294.4 / 0.9		2B	SS	
294.1 / 1.2	**SAND AND SILT:** trace to some clay, trace gravel, brown, moist to wet, loose	3	SS	9
293.3 / 2.1	**SANDY SILT TO SAND AND SILT:** trace to some clay, trace gravel, layers of clayey silt, containing cobbles and boulders, brown, moist to wet, loose	4	SS	17
292.4 / 2.9	**SAND AND SILT TILL:** trace clay, trace gravel, layers of sand and silt, containing cobbles and boulders, brown, moist, compact	5	SS	16
	SAND AND SILT: trace clay, trace gravel, containing cobbles and boulders, brown, moist, compact to very dense			
	--- auger grinding	6	SS	87 / 260 mm
289.8 / 5.6	**SILTY SAND:** trace gravel, containing cobbles and boulders, brown, moist, very dense	7	SS	50 / 150 mm
288.9 / 6.4	**END OF BOREHOLE**			

Note:
1) Borehole caved at a depth of 5.3 m below ground surface (mBGS) upon completion of drilling.

GROUND WATER

DYNAMIC PENETRATION TEST
○ SPT ≳ Cone blows/0.3m
20 40 60 80

SHEAR STRENGTH (kPa)
● Unconfined ✕ Field Vane & Sensitivity
▲ Quick Triaxial ⊠ Penetrometer + Lab Vane
20 40 60 80

Plastic Limit w_P | Natural Moisture Content w | Liquid Limit w_L

WATER CONTENT (%)
10 20 30 40

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)
GR SA SI CL

> >100

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+ 3, × 3: Numbers refer to Sensitivity
▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH20

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer | DIAMETER: 155 mm

FIELD ENGINEER: RR | DATE: 2018-04-24

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 21

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
297.3							
0.0 / 297.0	**TOPSOIL:** (280 mm)						
0.3 / 296.7	**REWORKED SANDY SILT TO SAND AND SILT:** trace clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, loose	1	SS	4	297		
0.6	**SAND AND SILT TO SILTY SAND:** trace to some clay, trace gravel, layers/pockets of sand, containing cobbles and boulders, brown, moist, compact to very dense ---auger grinding	2	SS	14			
		3	SS	64	296		
	---auger grinding	4	SS	82	295		1 59 28 12
		5	SS	93	294		
	--- auger grinding	6	SS	50 / 100 mm	293		
291.0		7	SS	50 / 150 mm	292		
6.3	**END OF BOREHOLE** Note: 1) Borehole caved at a depth of 5.6 m below ground surface (mBGS) upon completion of drilling.						

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20 40 60 80

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80

Plastic Limit (w_P) | Natural Moisture Content (w) | Liquid Limit (w_L)

WATER CONTENT (%): 10 20 30 40

GROUND WATER

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: + 3, × 3: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH21

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 22

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION	DYNAMIC PENETRATION TEST (SPT / Cone blows/0.3m) / SHEAR STRENGTH (kPa) (Unconfined, Quick Triaxial, Field Vane & Sensitivity, Penetrometer, Lab Vane)	WATER CONTENT (%) (Plastic Limit, Natural Moisture Content, Liquid Limit)	UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
302.0										
0.0 / 301.8	**TOPSOIL:** (240 mm)									
0.2 / 301.4	**REWORKED FINE SAND AND SILT TO SILTY FINE SAND:** trace clay, trace gravel, trace organics, trace rootlets, dark brown, wet, very loose	1	SS	2						
0.6 / 300.8	**SAND AND SILT:** trace clay, trace gravel, trace rootlets, organic stain, dark brown to brown, moist to wet, loose	2	SS	5		301				
1.2	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, pockets of sand, containing cobbles and boulders, brown, moist, very dense	3	SS	61						
299.1		4	SS	89		300				
2.9 / 298.6	**FINE SAND:** trace to some silt, trace gravel, brown, moist, very dense	5A	SS	87 / 280 mm		299	> >100			
3.5 / 298.0	**SANDY SILT:** trace clay, trace gravel, layers of silt, brown, moist, very dense	5B	SS		Bentonite					
4.0 / 296.5	**SAND AND SILT TO SILTY SAND:** trace gravel, containing cobbles and boulders, brown, moist, very dense --- auger grinding	6	SS	50 / 100 mm		298	> >100			
5.5 / 295.1	**SAND:** trace to some silt, trace gravel, brown, moist, very dense	7	SS	50 / 80 mm		297	> >100			
6.9 / 293.6	**SAND AND SILT TO SILTY SAND:** trace gravel, pockets of sand, containing cobbles and boulders, brown, moist, very dense	8	SS	50 / 50 mm	Sand Screen	296	> >100			
8.4 / 292.7	**SILTY FINE SAND:** brown, moist, very dense	9	SS	50 / 140 mm	Natural pack	295	> >100			
9.3	**END OF BOREHOLE** Notes: 1) Borehole caved at a depth of 7.9 m below ground surface (mBGS)					294				
						293				

Continued Next Page

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH21

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 22

SOIL PROFILE			SAMPLES			GROUND WATER	ELEVATION	DYNAMIC PENETRATION TEST / SHEAR STRENGTH (kPa)	Plastic Limit / Natural Moisture Content / Liquid Limit / WATER CONTENT (%)	UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m			○ SPT ≳ Cone blows/0.3m; 20 40 60 80; ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80	w_P w w_L; 10 20 30 40		GR SA SI CL
	upon completion of drilling. 2) 51 mm dia. monitoring was installed in borehole upon completion of drilling. Water Level Reading Date W. L Depth (mBGS) May 11, 2018 Dry										

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES + 3, × 3: Numbers refer to Sensitivity ▲ ε=3% Strain at Failure

LOG OF BOREHOLE BH22

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: HR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-30

REF. NO.: 17-2099GE

ENCL. NO.: 23

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m
305.1				
0.0 / 304.9	**TOPSOIL:** (230 mm)			
0.2	**FINE SAND:** trace to some silt, trace gravel, containing cobbles and boulders, brown, moist to wet, loose to dense	1	SS	8
		2	SS	40
		3	SS	36
303.0				
2.1	**SILTY FINE SAND:** brown, saturated, loose to compact	4	SS	10
302.2				
2.9	**FINE SAND:** trace to some silt, brown, saturated, compact	5	SS	15
301.1				
4.0	**SAND AND SILT:** trace to some clay, trace gravel, sand pockets, containing cobbles and boulders, brown, moist to wet, very dense	6	SS	59
299.5				
5.6	**SAND:** some silt, trace gravel, brown, wet, very dense	7	SS	50 / 100 mm
298.9				
6.2	**END OF BOREHOLE**			

Notes:
1) Water encountered at a depth of 0.3 m below ground surface (mBGS) during drilling.
2) Borehole caved at a depth of 0.6 mBGS upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20, 40, 60, 80

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane; 20, 40, 60, 80

ELEVATION: 305, 304, 303, 302, 301, 300, 299

Plastic Limit (w_P), Natural Moisture Content (w), Liquid Limit (w_L)

WATER CONTENT (%): 10, 20, 30, 40

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH23

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-24

REF. NO.: 17-2099GE

ENCL. NO.: 24

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
299.2					
0.0 / 298.9	**TOPSOIL:** (240 mm)	1A	SS	4	299
0.2 / 298.7	**REWORKED FINE SAND AND SILT:** trace organics, trace rootlets, dark brown, moist, loose	1B	SS		
0.6	**REWORKED SANDY SILT:** some clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, loose	2	SS	4	
1 / 298.0					298
1.2	**SANDY SILT:** some clay, trace organics, trace rootlets, organic stain, layers of sand, dark brown to brown, moist, loose	3	SS	17	
2 / 297.1	**SAND AND SILT:** trace clay, trace gravel, organic stain, brown, moist				
2.1	to wet, compact				297
	SAND AND SILT TO SILTY SAND: trace to some clay, trace gravel, sand pockets, containing cobbles and boulders, brown, moist to wet, dense to very dense	4	SS	44	
3		5	SS	53	296
4	---auger grinding				295
5		6	SS	50 / 150 mm	
293.7					294
5.5	**FINE SAND AND SILT TO SILTY FINE SAND:** trace gravel, containing cobbles and boulders, brown, wet, very dense				
6 / 293.0		7	SS	50 / 120 mm	293
6.2	**END OF BOREHOLE**				

Bentonite

297.0/May 11

Sand

Screen

Natural pack

DYNAMIC PENETRATION TEST
○ SPT ≳ Cone blows/0.3m
20 40 60 80

SHEAR STRENGTH (kPa)
● Unconfined ✕ Field Vane & Sensitivity
▲ Quick Triaxial ⊠ Penetrometer + Lab Vane
20 40 60 80

> >100

> >100

Plastic Limit w_P | Natural Moisture Content w | Liquid Limit w_L

WATER CONTENT (%)
10 20 30 40

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
4	64	21	11

Notes:
1) Water encountered at a depth of 3.1 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 3.7 mBGS upon completion of drilling.
3) Borehole caved at a depth of 5.9 mBGS upon completion of drilling.
4) 51 mm dia. monitoring was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	2.20

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
+3, ×3: Numbers refer to Sensitivity
▲ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH24

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: HR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-24

REF. NO.: 17-2099GE

ENCL. NO.: 25

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
297.5 / 0.0	**TOPSOIL:** (280 mm)				
297.2 / 0.3	**REWORKED FINE SAND AND SILT TO SILTY FINE SAND:** trace organics, trace rootlets, dark brown to brown, moist, loose	1	SS	5	
296.8 / 0.6	**CLAYEY SILT:** some sand to sandy, trace organics, trace rootlets, organic stain, dark brown to brown, moist, firm	2	SS	6	297
296.2 / 1.2	**SAND AND SILT:** trace clay, trace gravel, organic stain, brown, wet, loose	3	SS	9	
295.4 / 2.1	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, sand pockets, containing cobbles and boulders, brown, moist to wet, compact to very dense	4	SS	21	296
		5	SS	52	295
					294
	---auger grinding	6	SS	69	293
291.9 / 5.6	**FINE SAND AND SILT TO SILTY FINE SAND:** brown, wet, very dense	7	SS	69 / 290 mm	292
290.9 / 6.5	**END OF BOREHOLE**				291

Notes:
1) Water encountered at a depth of 4.6 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 5.2 mBGS upon completion of drilling.
3) Borehole caved at 5.8 mBGS upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20, 40, 60, 80

SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane; 20, 40, 60, 80

Plastic Limit, Natural Moisture Content, Liquid Limit; w_P, w, w_L

WATER CONTENT (%): 10, 20, 30, 40

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH25

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: HR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 205 mm

DATE: 2018-04-30

REF. NO.: 17-2099GE

ENCL. NO.: 26

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION	UNIT WT (kN/m³)	GR	SA	SI	CL
305.8											
0.0 / 305.6	**TOPSOIL:** (200 mm)										
0.2 / 305.2	**GRAVELLY SAND:** trace silt, containing cobbles and boulders, brown, moist to wet, compact	1	SS	12	305.4/May 11						
0.6	**SAND TO FINE SAND:** trace to some silt, trace gravel, brown, wet, compact	2	SS	24		305					
		3	SS	18				0	91		9
					Bentonite	304					
302.9		4	SS	23							
2.9	**FINE SAND TO SILTY FINE SAND:** brown, wet, compact	5	SS	22		303					
						302					
		6	SS	24	Sand / Screen	301					
						300					
299.3		7	SS	12	Natural pack						
6.6	**END OF BOREHOLE**										

Notes:
1) Water encountered at a depth of 0.3 m below ground surface (mBGS) during drilling.
2) 51 mm dia. monitoring was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	0.48

DYNAMIC PENETRATION TEST: ○ SPT ≳ Cone blows/0.3m (20, 40, 60, 80)

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane (20, 40, 60, 80)

Plastic Limit (w_P) — Natural Moisture Content (w) — Liquid Limit (w_L)

WATER CONTENT (%): 10, 20, 30, 40

REMARKS AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

GROUNDWATER ELEVATIONS

Measurement: 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

LOG OF BOREHOLE BH26

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer | DIAMETER: 155 mm

FIELD ENGINEER: HR | DATE: 2018-04-30

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 27

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
306.5 / 0.0	**TOPSOIL:** (300 mm)				
306.2 / 0.3	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, trace to some organics, trace rootlets, layers of peats, dark brown, moist, compact	1	SS	14	306
305.9 / 0.6	**FINE SAND:** trace to some silt, trace gravel, brown, wet, compact to very dense	2	SS	33	
		3	SS	18	305
		4	SS	37	304
		5	SS	54	303
301.8 / 4.7	**SILTY SAND TILL TO SAND AND SILT TILL:** some clay to clayey, trace gravel, layers of clayey silt, zones/layers of sand and silt, containing cobbles and boulders, brown, moist to wet, dense to very dense	6A / 6B	SS / SS	47	302
		7	SS	57	301
300.0 / 6.6	**END OF BOREHOLE**				300

Notes:
1) Water encountered at a depth of 0.6 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 0.7 mBGS upon completion of drilling.
3) Borehole caved at a depth of 0.7 mBGS upon completion of drilling.

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20 40 60 80

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80

Natural Moisture Content: Plastic Limit w_P — w — Liquid Limit w_L

WATER CONTENT (%): 10 20 30 40

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
2	50	27	21

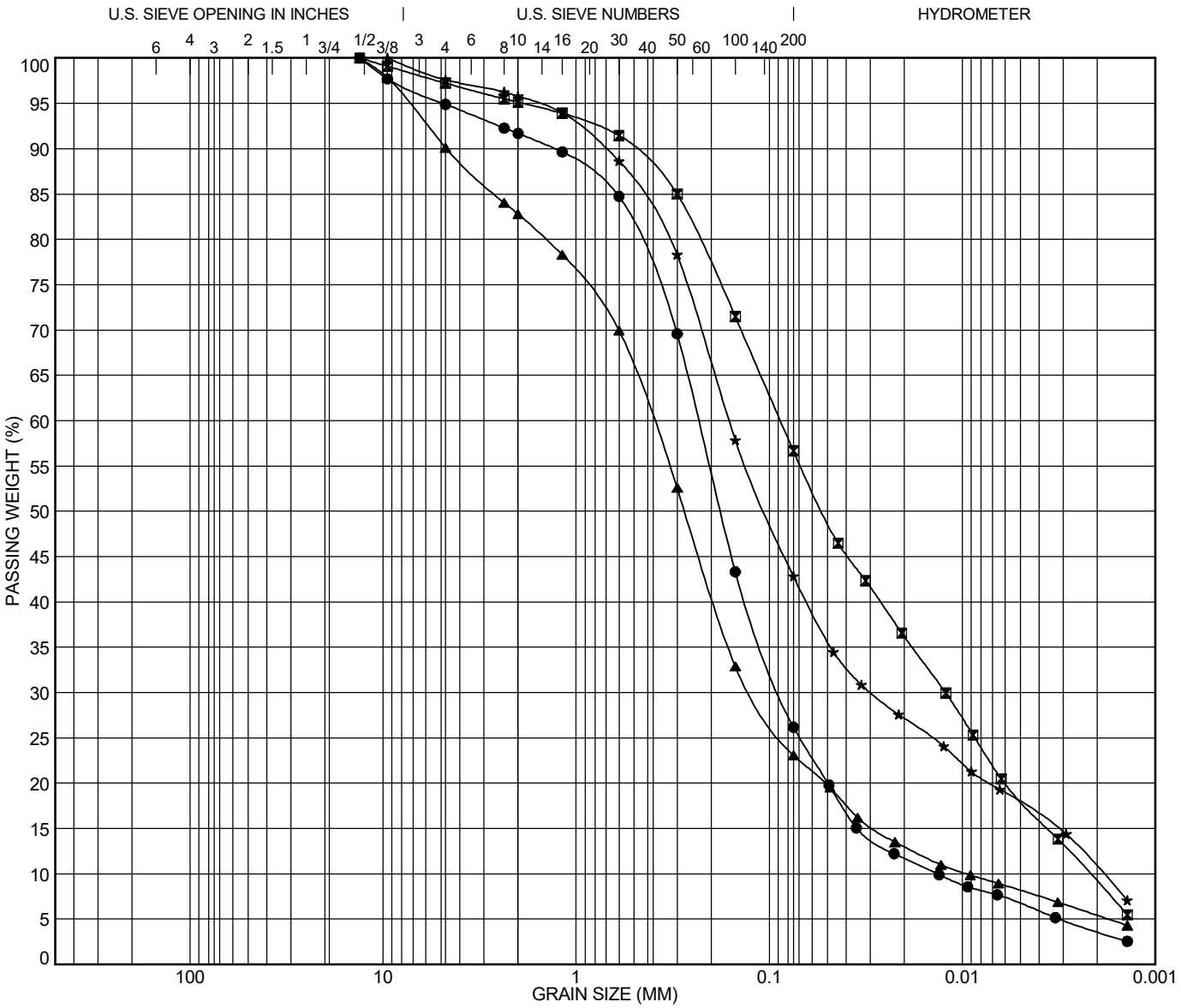
GROUNDWATER ELEVATIONS

Measurement: 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180529-DC -DX.GPJ 2018-05-29 17:04

FIGURES



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

	Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	BH02	SS5	3.05					2.43	17.20
⊠	BH03	SS2	0.61					0.78	40.03
▲	BH04	SS3	1.22					3.91	42.36
★	BH06	SS3	1.22					2.93	86.12

	Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	BH02	SS5	3.05	13.2	0.233	0.088	0.014	5.1	68.7	22.5	3.6
⊠	BH03	SS2	0.61	13.2	0.088	0.012	0.002	2.8	40.6	47.6	9.1
▲	BH04	SS3	1.22	13.2	0.403	0.122	0.01	9.9	67.0	17.7	5.4
★	BH06	SS3	1.22	9.5	0.161	0.03	0.002	2.4	54.8	32.2	10.7

GeoPro CONSULTING LIMITED
Unit 57, 40 Vogell Road, Richmond Hill, Ontario L4B 3N6
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office@geoproconsulting.ca www.geoproconsulting.ca

GRAIN SIZE DISTRIBUTION

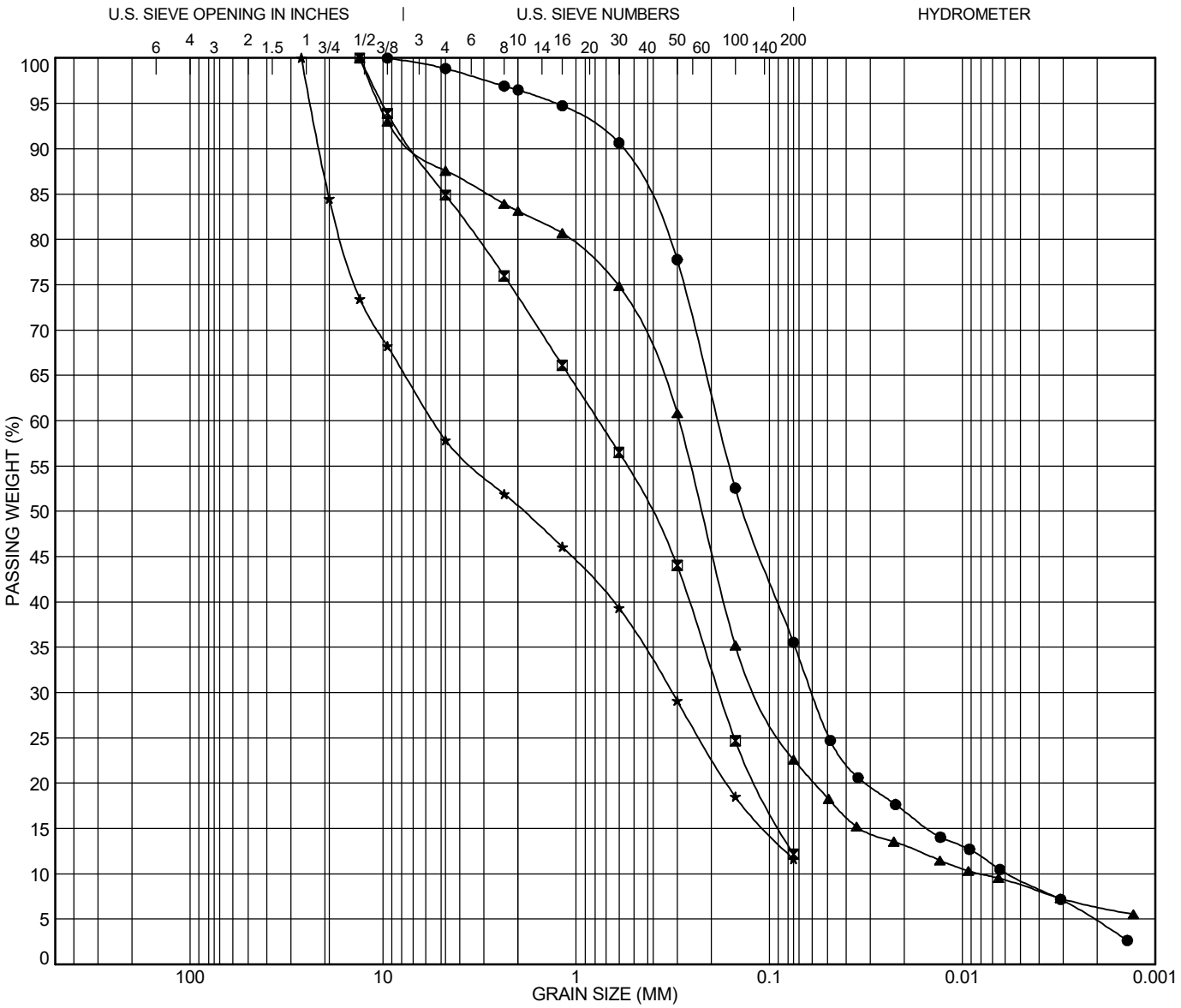
PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE | SAMPLED ON: 2018-04-26

FIGURE NO.: 1 | TESTED ON: 2018-05-15

11 - GEOPRO_GRAIN_SIZE GEOPRO 17-2099 BH LOG PROJECT DATA 20180518-DC-WF-DC-LAB.GPJ 2018-05-18 16:44



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

	Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	BH07	SS4	2.29					3.38	31.91
⊠	BH07	SS8	7.62					0.64	11.54
▲	BH08	SS5	3.05					5.33	36.13
★	BH09	SS5B	3.20					0.29	86.23

	Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	BH07	SS4	2.29	9.5	0.184	0.06	0.006	1.2	63.3	30.9	4.7
⊠	BH07	SS8	7.62	13.2	0.768	0.181		15.1	72.7	12.2	
▲	BH08	SS5	3.05	13.2	0.293	0.113	0.008	12.4	65.0	16.2	6.4
★	BH09	SS5B	3.20	26.5	5.487	0.319		42.2	46.2	11.6	

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GRAIN SIZE DISTRIBUTION

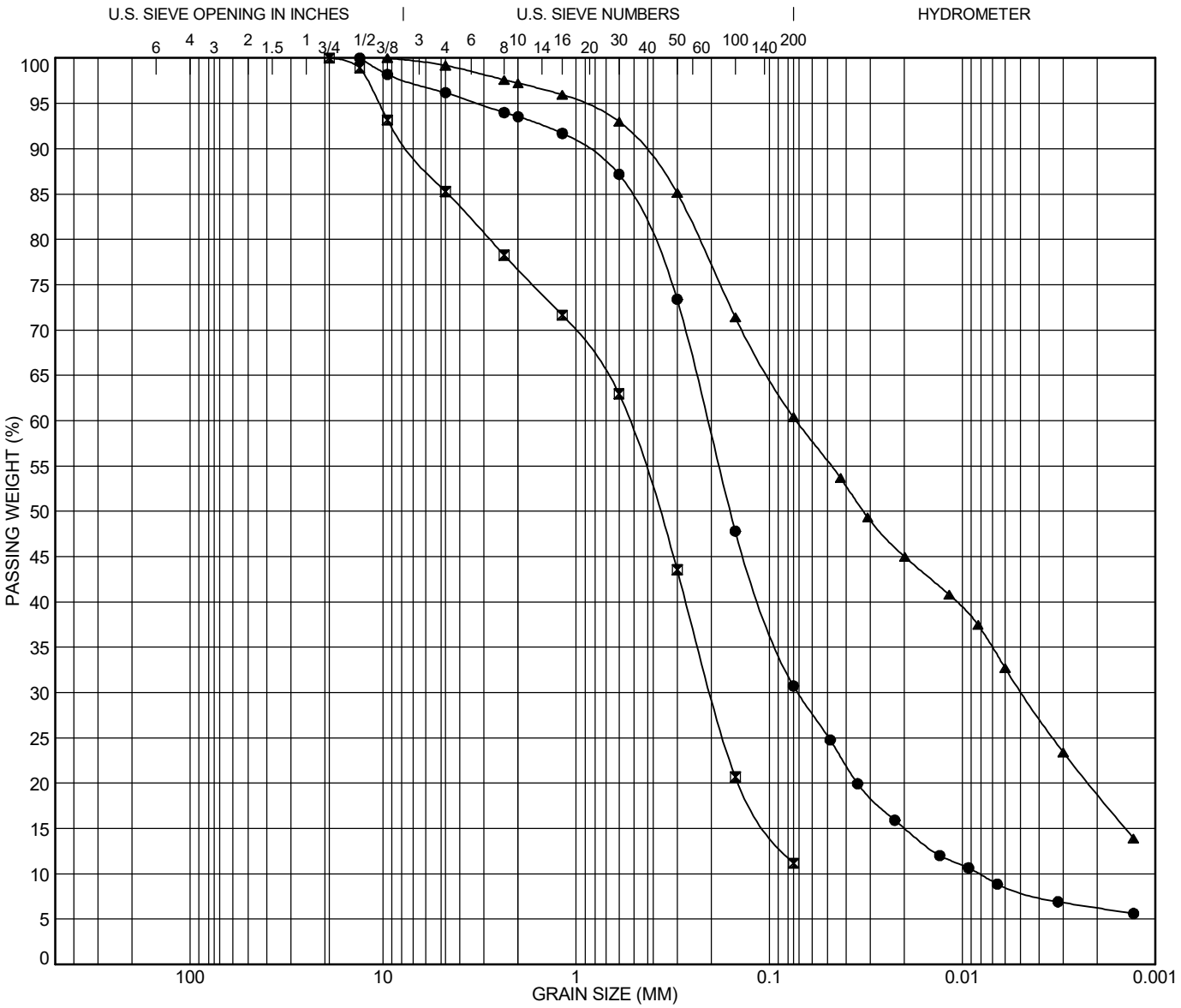
PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE | SAMPLED ON: 2018-04-23

FIGURE NO.: 2 | TESTED ON: 2018-05-15

11 - GEOPRO_GRAIN_SIZE GEOPRO 17-2099 BH LOG PROJECT DATA 20180518-DC-WF-DC-LAB.GPJ 2018-05-18 16:45



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

	Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	**BH11**	**SS3**	**1.22**					**2.94**	**25.41**
⊠	**BH12**	**SS3**	**1.22**					**1.06**	**7.84**
▲	**BH13**	**SS2**	**0.61**						

	Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	**BH11**	**SS3**	**1.22**	**13.2**	**0.209**	**0.071**	**0.008**	**3.8**	**65.4**	**24.5**	**6.2**
⊠	**BH12**	**SS3**	**1.22**	**19**	**0.54**	**0.199**		**14.7**	**74.1**	**11.2**	
▲	**BH13**	**SS2**	**0.61**	**9.5**	**0.073**	**0.005**		**0.8**	**38.8**	**41.6**	**18.8**

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GRAIN SIZE DISTRIBUTION

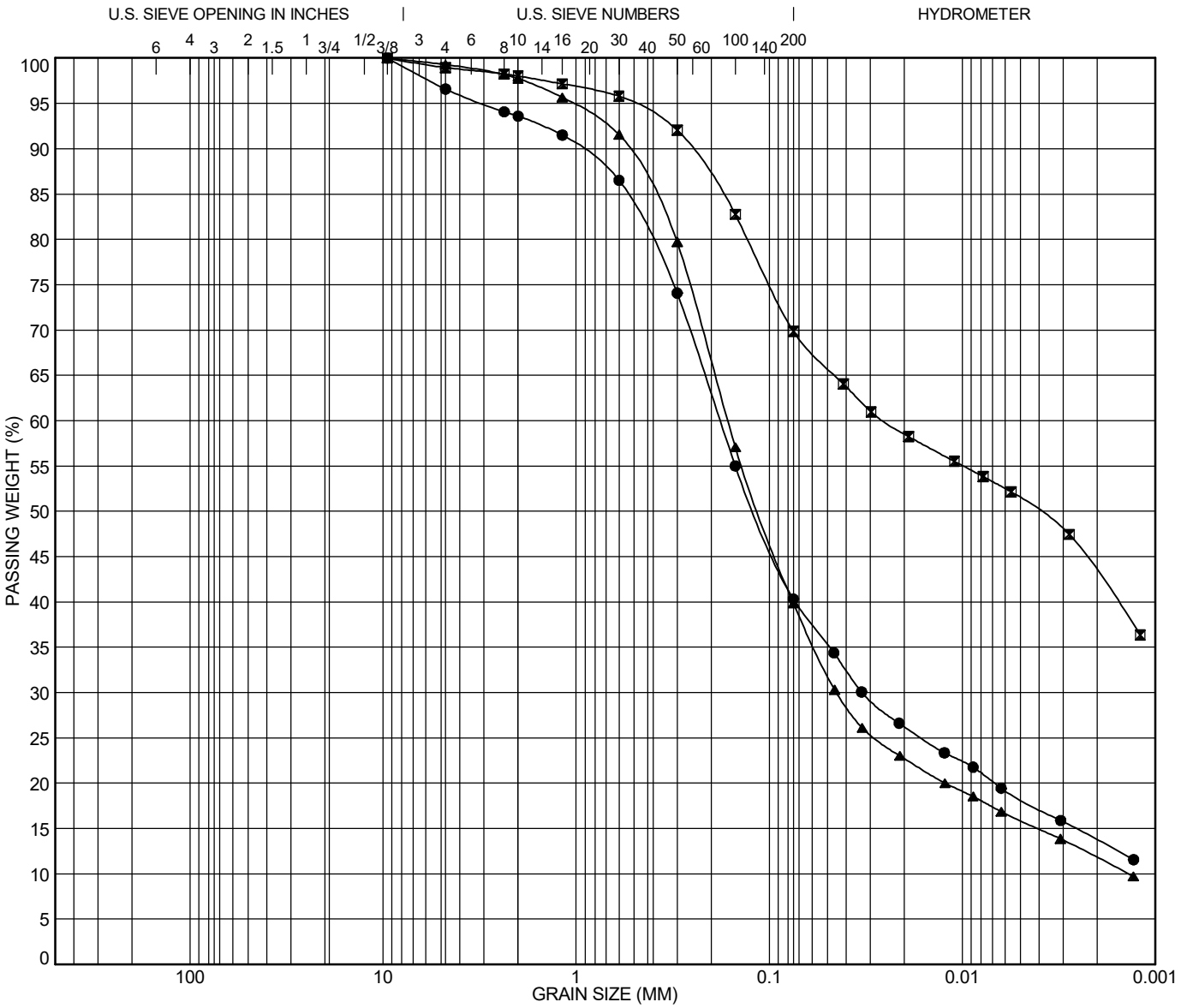
PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE | SAMPLED ON: 2018-04-24

FIGURE NO.: 3 | TESTED ON: 2018-05-15

11 - GEOPRO_GRAIN_SIZE GEOPRO 17-2099 BH LOG PROJECT DATA 20180518-DC-WF-DC-LAB.GPJ 2018-05-18 16:47



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

	Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	BH15	SS4	2.29						
⊠	BH17	SS2	0.76						
▲	BH20	SS4	2.29					8.85	118.54

	Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	BH15	SS4	2.29	9.5	0.18	0.033		3.4	56.3	26.6	13.7
⊠	BH17	SS2	0.76	9.5	0.025			1.0	29.1	26.8	43.0
▲	BH20	SS4	2.29	9.5	0.164	0.045	0.001	0.7	59.4	28.1	11.8

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GRAIN SIZE DISTRIBUTION

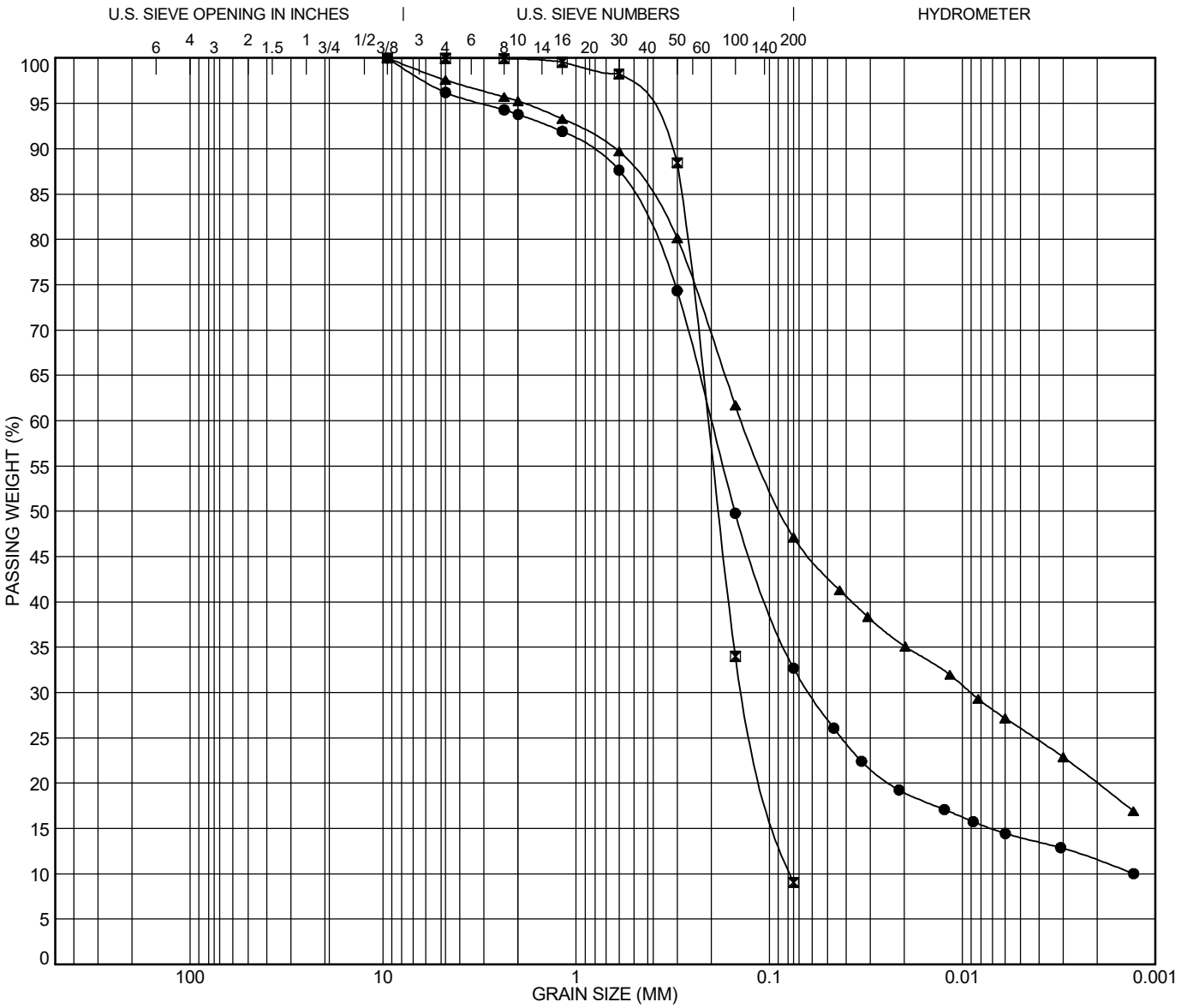
PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE | SAMPLED ON: 2018-04-24

FIGURE NO.: 4 | TESTED ON: 2018-05-15

11 - GEOPRO_GRAIN_SIZE GEOPRO 17-2099 BH LOG PROJECT DATA 20180518-DC-WF-DC-LAB.GPJ 2018-05-18 16:48



COBBLES	GRAVEL		SAND			SILT	CLAY
	coarse	fine	coarse	medium	fine		

	Specimen Identification			Classification	LL	PL	PI	Cc	Cu
●	BH23	SS6	4.57						
⊠	BH25	SS3	1.22					1.12	2.71
▲	BH26	SS6B	4.70						

	Specimen Identification			D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	BH23	SS6	4.57	9.5	0.2	0.062		3.8	63.5	21.3	11.4
⊠	BH25	SS3	1.22	9.5	0.209	0.134	0.077	0.0	90.9	9.0	
▲	BH26	SS6B	4.70	9.5	0.138	0.009		2.4	50.5	27.2	20.0

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GRAIN SIZE DISTRIBUTION

PROJECT: Proposed Phase One Environmental Site Assessment (ESA) and Geotechnical Investigation

LOCATION: County Road 27, Barrie

PROJECT NO.: 17-2099GE | SAMPLED ON: 2018-04-30

FIGURE NO.: 5 | TESTED ON: 2018-05-15

11 - GEOPRO_GRAIN_SIZE GEOPRO 17-2099 BH LOG PROJECT DATA 20180518-DC-WF-DC-LAB.GPJ 2018-05-18 16:49

APPENDIX C

ENVIRONMENTAL RISK INFORMATION SERVICES

DATABASE REPORT

Project Property:	*17-2099* *County Rd 27 And Salem Rd* *Barrie ON*
Project No:	
Report Type:	*Quote - Custom-Build Your Own Report*
Order No:	*20180329061*
Requested by:	*GeoPro Consulting Limited*
Date Completed:	*April 4, 2018*

Environmental Risk Information Services
A division of Glacier Media Inc.
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Executive Summary

Property Information:

Project Property: *17-2099*
County Rd 27 And Salem Rd Barrie ON

Project No:

Order Information:

Order No: *20180329061*
Date Requested: *March 29, 2018*
Requested by: *GeoPro Consulting Limited*
Report Type: *Quote - Custom-Build Your Own Report*

Historical/Products:

Executive Summary: Report Summary

Database	Name	Searched	Project Property	Boundary to 0.25km	Total
AAGR	*Abandoned Aggregate Inventory*	Y	0	0	0
AGR	*Aggregate Inventory*	Y	0	0	0
AMIS	*Abandoned Mine Information System*	Y	0	0	0
ANDR	*Anderson's Waste Disposal Sites*	Y	0	1	1
AUWR	*Automobile Wrecking & Supplies*	Y	0	0	0
BORE	*Borehole*	Y	0	4	4
CA	*Certificates of Approval*	Y	0	3	3
CFOT	*Commercial Fuel Oil Tanks*	Y	0	0	0
CHEM	*Chemical Register*	Y	0	0	0
CNG	*Compressed Natural Gas Stations*	Y	0	0	0
COAL	*Inventory of Coal Gasification Plants and Coal Tar Sites*	Y	0	0	0
CONV	*Compliance and Convictions*	Y	0	0	0
CPU	*Certificates of Property Use*	Y	0	0	0
DRL	*Drill Hole Database*	Y	0	0	0
EASR	*Environmental Activity and Sector Registry*	Y	0	0	0
EBR	*Environmental Registry*	Y	0	1	1
ECA	*Environmental Compliance Approval*	Y	0	2	2
EEM	*Environmental Effects Monitoring*	Y	0	0	0
EHS	*ERIS Historical Searches*	Y	0	1	1
EIIS	*Environmental Issues Inventory System*	Y	0	0	0
EMHE	*Emergency Management Historical Event*	Y	0	0	0
EXP	*List of TSSA Expired Facilities*	Y	0	0	0
FCON	*Federal Convictions*	Y	0	0	0
FCS	*Contaminated Sites on Federal Land*	Y	0	0	0
FOFT	*Fisheries & Oceans Fuel Tanks*	Y	0	0	0
FST	*Fuel Storage Tank*	Y	0	0	0
FSTH	*Fuel Storage Tank - Historic*	Y	0	0	0
GEN	*Ontario Regulation 347 Waste Generators Summary*	Y	0	13	13
GHG	*Greenhouse Gas Emissions from Large Facilities*	Y	0	0	0
HINC	*TSSA Historic Incidents*	Y	0	0	0
IAFT	*Indian & Northern Affairs Fuel Tanks*	Y	0	0	0
INC	*TSSA Incidents*	Y	0	0	0
LIMO	*Landfill Inventory Management Ontario*	Y	0	1	1
MINE	*Canadian Mine Locations*	Y	0	0	0
MNR	*Mineral Occurrences*	Y	0	0	0
NATE	*National Analysis of Trends in Emergencies System (NATES)*	Y	0	0	0

Database	Name	Searched	Project Property	Boundary to 0.25km	Total
NCPL	Non-Compliance Reports	Y	0	0	0
NDFT	National Defense & Canadian Forces Fuel Tanks	Y	0	0	0
NDSP	National Defense & Canadian Forces Spills	Y	0	0	0
NDWD	National Defence & Canadian Forces Waste Disposal Sites	Y	0	0	0
NEBI	National Energy Board Pipeline Incidents	Y	0	0	0
NEBW	National Energy Board Wells	Y	0	0	0
NEES	National Environmental Emergencies System (NEES)	Y	0	0	0
NPCB	National PCB Inventory	Y	0	0	0
NPRI	National Pollutant Release Inventory	Y	0	4	4
OGW	Oil and Gas Wells	Y	0	0	0
OOGW	Ontario Oil and Gas Wells	Y	0	0	0
OPCB	Inventory of PCB Storage Sites	Y	0	0	0
ORD	Orders	Y	0	0	0
PAP	Canadian Pulp and Paper	Y	0	0	0
PCFT	Parks Canada Fuel Storage Tanks	Y	0	0	0
PES	Pesticide Register	Y	0	0	0
PINC	TSSA Pipeline Incidents	Y	0	0	0
PRT	Private and Retail Fuel Storage Tanks	Y	0	0	0
PTTW	Permit to Take Water	Y	0	0	0
REC	Ontario Regulation 347 Waste Receivers Summary	Y	0	0	0
RSC	Record of Site Condition	Y	0	0	0
RST	Retail Fuel Storage Tanks	Y	0	0	0
SCT	Scott's Manufacturing Directory	Y	0	0	0
SPL	Ontario Spills	Y	0	1	1
SRDS	Wastewater Discharger Registration Database	Y	0	0	0
TANK	Anderson's Storage Tanks	Y	0	0	0
TCFT	Transport Canada Fuel Storage Tanks	Y	0	0	0
VAR	TSSA Variances for Abandonment of Underground Storage Tanks	Y	0	0	0
WDS	Waste Disposal Sites - MOE CA Inventory	Y	0	1	1
WDSH	Waste Disposal Sites - MOE 1991 Historical Approval Inventory	Y	0	1	1
WWIS	Water Well Information System	Y	4	11	15
	Total:		4	44	48

Executive Summary: Site Report Summary - Project Property

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev diff (m)	Page Number
1	WWIS		lot 1 con 11 ON	-/0.0	-1.02	17
1	WWIS		lot 1 con 11 ON	-/0.0	-1.02	20
2	WWIS		lot 1 con 11 Innisfil ON	-/0.0	13.98	23
3	WWIS		lot 1 con 11 ON	-/0.0	7.25	25

Executive Summary: Site Report Summary - Surrounding Properties

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
4	WWIS		lot 1 con 11 ON	SSW/50.3	10.95	28
5	WWIS		lot 1 con 11 ON	S/52.6	8.52	30
6	WDS	MTO HOLLY PIT LANDFILL SITE	INNISFILL ON	SE/74.1	14.95	33
6	WDSH		PT 1 S1/2 11 INNISFIL ON	SE/74.1	14.95	34
7	ANDR	Innisfil Con 11 Dump	Stroud ON L0L 2M0	SE/89.2	14.98	34
8	CA	BARRIE DEVELOPMENT CORPORATION	SELKIRK CRES/LOUGHEED RD. BARRIE CITY ON	NNW/91.2	-5.97	35
8	CA	BARRIE DEVELOPMENT CORPORATION	SELKIRK CRES/LOUGHEED RD. BARRIE CITY ON	NNW/91.2	-5.97	35
9	WWIS		lot 24 con 11 ESSA ON	W/104.2	1.00	36
10	EHS		Country Side Drive & Mcvean Dr Brampton ON	N/109.4	-12.06	37
11	WWIS		lot 23 con 11 ON	SSW/119.6	14.95	37
12	SPL	The Corporation of the City of Barrie	24 Lougheed Road Barrie ON	NNW/122.4	-7.81	41
13	WWIS		lot 1 con 11 ON	NNW/134.4	-6.54	41
14	WWIS		lot 1 con 10 ON	SE/164.7	14.95	44
15	WWIS		Innisfil ON	SE/167.1	14.95	46
16	WWIS		lot 23 con 11 ON	SSW/183.0	14.67	49
17	EBR	Holcim (Canada) Inc.	4165 Salem Road West Innisfil ON L9S 3K9	SE/189.0	14.95	53
17	GEN	Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON L9S 3K9	SE/189.0	14.95	53
17	GEN	UNILOCK LTD	4165 SALEM ROAD INNISFIL ON L9S 3K9	SE/189.0	14.95	54
17	GEN	Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON L9S 3K9	SE/189.0	14.95	54
18	WWIS		Innisfil ON	SSE/208.5	13.95	55
19	WWIS		lot 2 con 11 ON	N/219.4	-12.21	57
20	GEN	Unilock Ltd	441 Salem Rd. Barrie ON L9J 0S8	SE/225.1	14.95	60
20	GEN	Unilock Ltd	441 Salem Rd. Barrie ON L9J 0S8	SE/225.1	14.95	61

Map Key	DB	Company/Site Name	Address	Dir/Dist (m)	Elev Diff (m)	Page Number
20	GEN	Unilock Ltd	441 Salem Rd. Barrie ON L9J 0S8	SE/225.1	14.95	61
20	GEN	Unilock Ltd	441 Salem Rd. Barrie ON L9J 0S8	SE/225.1	14.95	62
21	BORE		ON	NW/232.1	-19.05	62
22	BORE		ON	NW/233.7	-19.05	63
23	CA	BARRIE DEVELOPMENT CORPORATION	COLUMBIA RD.S./ATHABASKA RD. BARRIE CITY ON	NNE/242.0	3.31	63
24	WWIS		lot 2 con 10 ON	SE/242.0	14.95	63
25	ECA	Holcim (Canada) Inc.	4165 Salem Road West Innisfil Town ON L9S 3K9	SE/242.6	14.95	66
26	BORE		ON	NW/243.9	-19.02	67
27	BORE		ON	NW/244.2	-19.05	67
28	ECA	Holcim (Canada) Inc.	4165 Salem Rd W Innisfil ON L4K 5X6	SE/249.4	14.95	67
28	GEN	CRH Canada Group Inc.	4165 Salem Rd. Innisfil ON L4M4S7	SE/249.4	14.95	68
28	GEN	CRH Canada Group Inc. Dufferin Concrete	4165 Salem Rd. Innisfil ON L4M4S7	SE/249.4	14.95	68
28	GEN	CRH Canada Group Inc.	4165 Salem Rd. Innisfil ON L4M4S7	SE/249.4	14.95	69
28	GEN	Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON L4M4S7	SE/249.4	14.95	69
28	GEN	Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON	SE/249.4	14.95	70
28	GEN	Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON L9S 3K9	SE/249.4	14.95	70
28	LIMO	Ministry of Transportation	4165 Salem Road; South 1/2 of Lot 1, Concession 11 Town of Innisfil ON	SE/249.4	14.95	71
28	NPRI	DUFFERIN CONCRETE	4165 Salem Road Innisfil ON L9S3L1	SE/249.4	14.95	71
28	NPRI	Dufferin Concrete	4165 West Salem Rd. Innisfil ON L4M4S7	SE/249.4	14.95	72
28	NPRI	DUFFERIN CONCRETE	4165 Salem Road Innisfil ON L9S3L1	SE/249.4	14.95	73
28	NPRI	Dufferin Concrete a Division of CRH Canada Group Inc.	4165 Salem Road Innisfil ON L9S3L1	SE/249.4	14.95	73

Executive Summary: Summary By Data Source

ANDR - Anderson's Waste Disposal Sites

A search of the ANDR database, dated 1860s-Present has found that there are 1 ANDR site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Innisfil Con 11 Dump	Stroud ON L0L 2M0	89.2	7

BORE - Borehole

A search of the BORE database, dated 1875-Jul 2014 has found that there are 4 BORE site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	ON	232.1	21
	ON	233.7	22
	ON	243.9	26
	ON	244.2	27

CA - Certificates of Approval

A search of the CA database, dated 1985-Oct 30, 2011* has found that there are 3 CA site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
BARRIE DEVELOPMENT CORPORATION	SELKIRK CRES/LOUGHEED RD. BARRIE CITY ON	91.2	8
BARRIE DEVELOPMENT CORPORATION	SELKIRK CRES/LOUGHEED RD. BARRIE CITY ON	91.2	8
BARRIE DEVELOPMENT CORPORATION	COLUMBIA RD.S./ATHABASKA RD. BARRIE CITY ON	242.0	23

EBR - Environmental Registry

A search of the EBR database, dated 1994-Oct 2017 has found that there are 1 EBR site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Holcim (Canada) Inc.	4165 Salem Road West Innisfil ON L9S 3K9	189.0	17

ECA - Environmental Compliance Approval

A search of the ECA database, dated Oct 2011-Jan 31, 2018 has found that there are 2 ECA site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Holcim (Canada) Inc.	4165 Salem Road West Innisfil Town ON L9S 3K9	242.6	25
Holcim (Canada) Inc.	4165 Salem Rd W Innisfil ON L4K 5X6	249.4	28

EHS - ERIS Historical Searches

A search of the EHS database, dated 1999-Feb 28, 2018 has found that there are 1 EHS site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	Country Side Drive & Mcvean Dr Brampton ON	109.4	10

GEN - Ontario Regulation 347 Waste Generators Summary

A search of the GEN database, dated 1986-December 31, 2017 has found that there are 13 GEN site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON L9S 3K9	189.0	17
Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON L9S 3K9	189.0	17
UNILOCK LTD	4165 SALEM ROAD INNISFIL ON L9S 3K9	189.0	17
Unilock Ltd	441 Salem Rd. Barrie ON L9J 0S8	225.1	20
Unilock Ltd	441 Salem Rd. Barrie ON L9J 0S8	225.1	20
Unilock Ltd	441 Salem Rd. Barrie ON L9J 0S8	225.1	20
Unilock Ltd	441 Salem Rd. Barrie ON L9J 0S8	225.1	20
CRH Canada Group Inc.	4165 Salem Rd. Innisfil ON L4M4S7	249.4	28

Site	Address	Distance (m)	Map Key
Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON L4M4S7	249.4	28
CRH Canada Group Inc.	4165 Salem Rd. Innisfil ON L4M4S7	249.4	28
Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON	249.4	28
Holcim (Canada) Inc.	4165 Salem Rd. Innisfil ON L9S 3K9	249.4	28
CRH Canada Group Inc. Dufferin Concrete	4165 Salem Rd. Innisfil ON L4M4S7	249.4	28

LIMO - Landfill Inventory Management Ontario

A search of the LIMO database, dated Dec 31, 2013 has found that there are 1 LIMO site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Ministry of Transportation	4165 Salem Road; South 1/2 of Lot 1, Concession 11 Town of Innisfil ON	249.4	28

NPRI - National Pollutant Release Inventory

A search of the NPRI database, dated 1993-May 2017 has found that there are 4 NPRI site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
Dufferin Concrete	4165 West Salem Rd. Innisfil ON L4M4S7	249.4	28
DUFFERIN CONCRETE	4165 Salem Road Innisfil ON L9S3L1	249.4	28
Dufferin Concrete a Division of CRH Canada Group Inc.	4165 Salem Road Innisfil ON L9S3L1	249.4	28
DUFFERIN CONCRETE	4165 Salem Road Innisfil ON L9S3L1	249.4	28

SPL - Ontario Spills

A search of the SPL database, dated 1988-Sep 2017 has found that there are 1 SPL site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
The Corporation of the City of Barrie	24 Lougheed Road Barrie ON	122.4	12

WDS - Waste Disposal Sites - MOE CA Inventory

A search of the WDS database, dated Oct 2011-Jan 31, 2018 has found that there are 1 WDS site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
MTO HOLLY PIT LANDFILL SITE	INNISFILL ON	74.1	6

WDSH - Waste Disposal Sites - MOE 1991 Historical Approval Inventory

A search of the WDSH database, dated Up to Oct 1990* has found that there are 1 WDSH site(s) within approximately 0.25 kilometers of the project property.

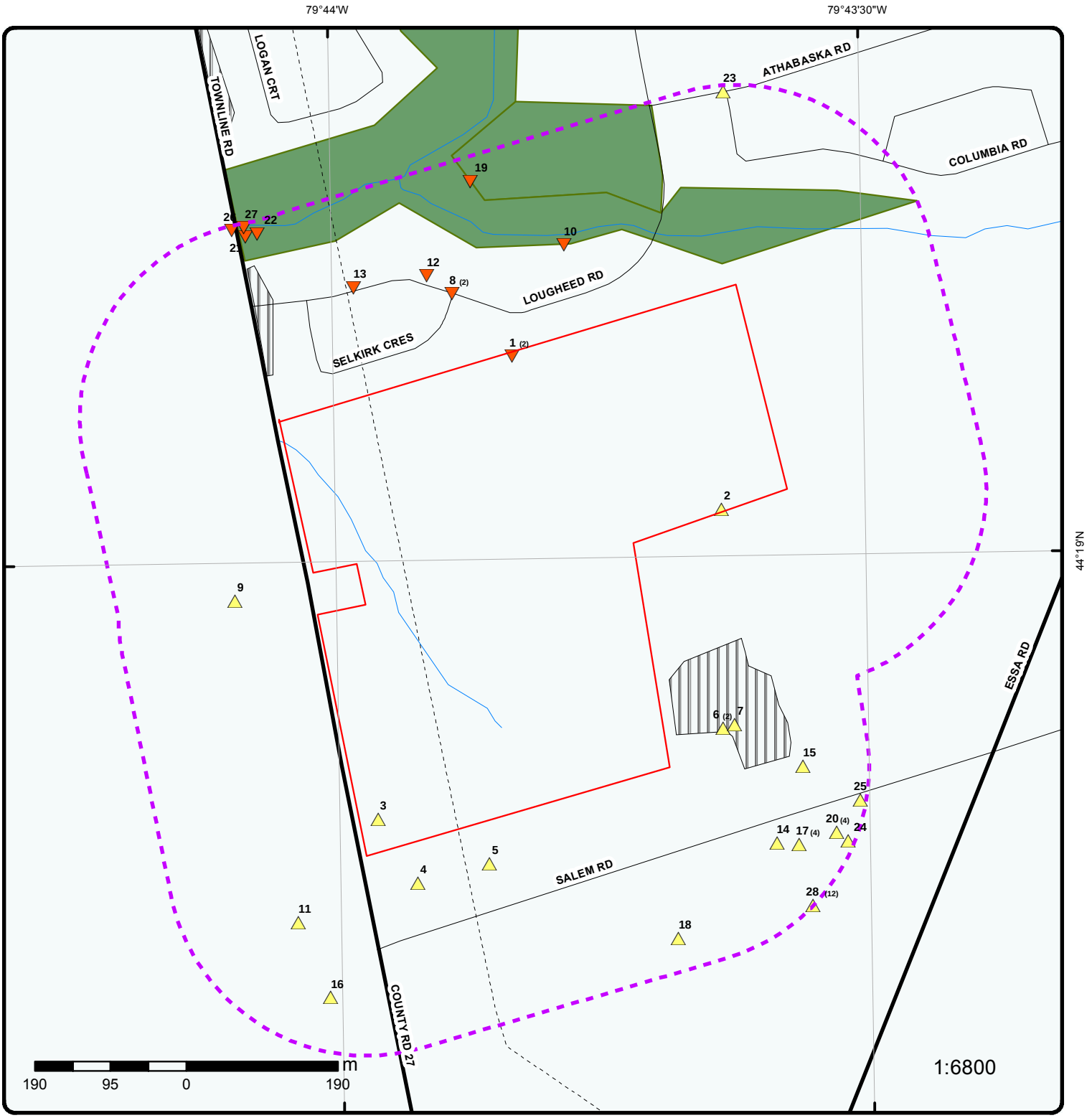
Site	Address	Distance (m)	Map Key
	PT 1 S1/2 11 INNISFIL ON	74.1	6

WWIS - Water Well Information System

A search of the WWIS database, dated Mar 31, 2017 has found that there are 15 WWIS site(s) within approximately 0.25 kilometers of the project property.

Site	Address	Distance (m)	Map Key
	lot 1 con 11 ON	0.0	1
	lot 1 con 11 ON	0.0	1
	lot 1 con 11 Innisfil ON	0.0	2
	lot 1 con 11 ON	0.0	3
	lot 1 con 11 ON	50.3	4
	lot 1 con 11 ON	52.6	5
	lot 24 con 11 ESSA ON	104.2	9
	lot 23 con 11 ON	119.6	11
	lot 1 con 11 ON	134.4	13
	lot 1 con 10 ON	164.7	14
	Innisfil ON	167.1	15
	lot 23 con 11 ON	183.0	16
	Innisfil ON	208.5	18

Site	Address	Distance (m)	Map Key
	lot 2 con 11 ON	219.4	19
	lot 2 con 10 ON	242.0	24



Map : 0.25 Kilometer Radius

Order No: 20180329061

Address: County Rd 27 And Salem Rd, Barrie, ON

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

- Project Property
- Buffer Outline
- Eris Sites with Higher Elevation
- Eris Sites with Same Elevation
- Eris Sites with Lower Elevation
- Eris Sites with Unknown Elevation
- Expressway
- Principal Highway
- Secondary Highway
- Major Road
- Local road
- Trail
- Proposed Road
- Ferry Route/Ice Road
- Industrial and Resource - Regions
- Main Line
- Sidetrack
- Transit Line
- Abandoned Line
- National Park
- Provincial or Territorial Park
- Other Park
- Golf Course or Driving Range
- Park or Sports Field
- Other Recreation Area

Source: © 2015 DMTI Spatial Inc.

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79°43'30"W

44°19'30"N

Aerial (2016)

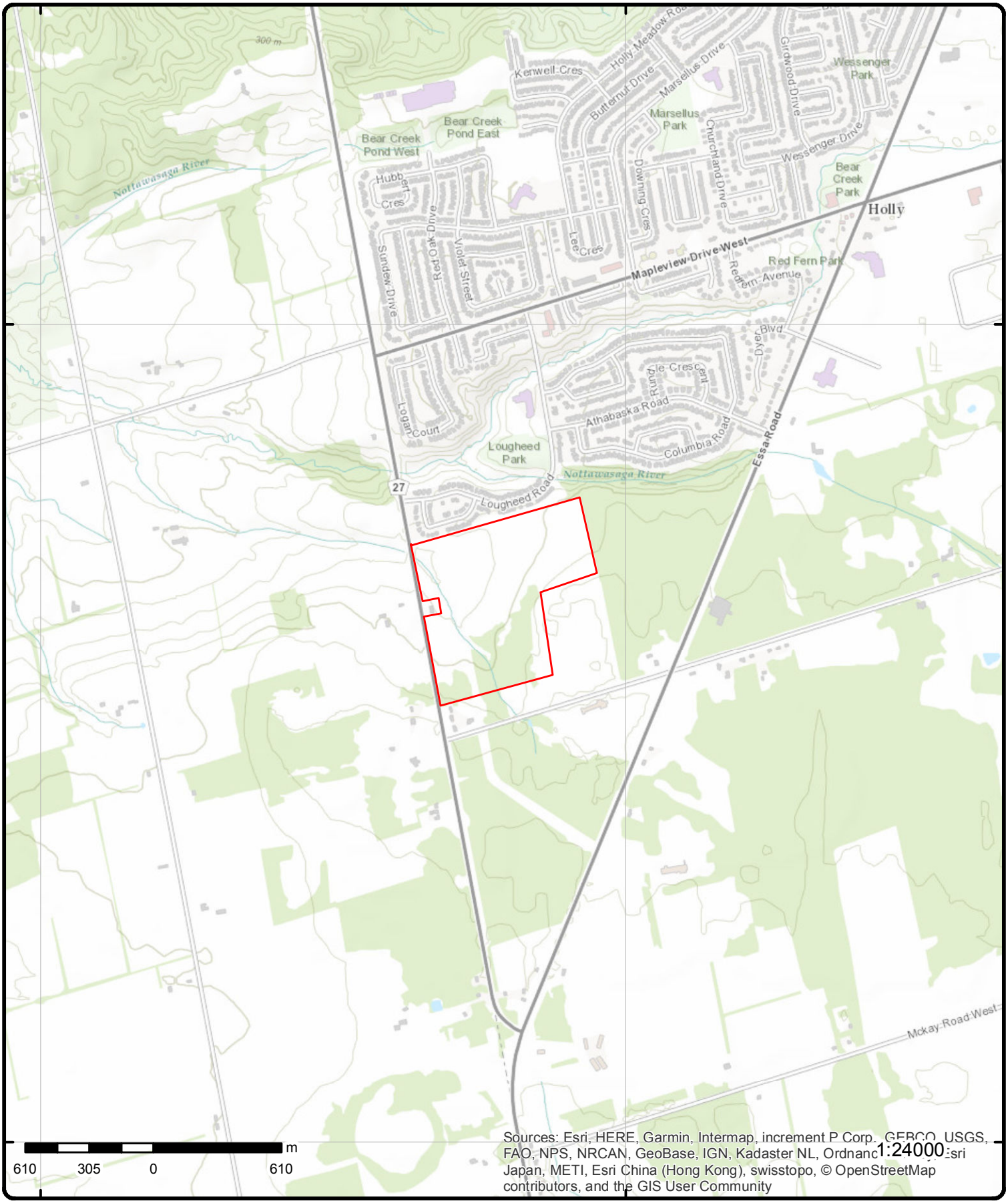
Address: County Rd 27 And Salem Rd, Barrie, ON

Source: ESRI World Imagery

Order No: 20180329061

ERIS
ENVIRONMENTAL RISK INFORMATION SERVICES

© ERIS Information Limited Partnership



Topographic Map

Address: County Rd 27 And Salem Rd, Barrie, ON

Source: ESRI World Topographic Map

Order No: 20180329061

ERIS ENVIRONMENTAL RISK INFORMATION SERVICES

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Detail Report

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
1	1 of 2	-/0.0	294.9 / -1.02	lot 1 con 11 ON	WWIS

Well ID: 5723994
Construction Date:
Primary Water Use: Domestic
Sec. Water Use:
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No: 29976
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 10/11/1988
Selected Flag: 1
Abandonment Rec:
Contractor: 2662
Form Version: 1
Owner:
Street Name:
County: SIMCOE
Municipality: INNISFIL TOWNSHIP
Site Info:
Lot: 001
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10401604
DP2BR:
Code OB: o
Code OB Desc: Overburden
Open Hole:
Elevation: 294.558288
Elevrc:
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Spatial Status:
Cluster Kind:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: lot
Org CS:
Date Completed: 9/1/1988

Overburden and Bedrock Materials Interval

Formation ID: 932358012
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2:
Other Materials:
Mat3:

Other Materials:
Formation Top Depth: 0.00
Formation End Depth: 18.00
Formation End Depth UOM: ft

Formation ID: 932358013
Layer: 2
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 81
Other Materials: SANDY
Mat3:
Other Materials:
Formation Top Depth: 18.00
Formation End Depth: 120.00
Formation End Depth UOM: ft

Formation ID: 932358014
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 68
Other Materials: DRY
Mat3:
Other Materials:
Formation Top Depth: 120.00
Formation End Depth: 190.00
Formation End Depth UOM: ft

Formation ID: 932358015
Layer: 4
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 81
Other Materials: SANDY
Mat3: 91
Other Materials: WATER-BEARING
Formation Top Depth: 190.00
Formation End Depth: 235.00
Formation End Depth UOM: ft

Formation ID: 932358016
Layer: 5
Color: 2
General Color: GREY
Mat1: 28
Most Common Material: SAND
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 235.00
Formation End Depth: 239.00
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933189156

Layer:	1
Plug From:	0.00
Plug To:	60.00
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965723994
Method Construction Code:	4
Method Construction:	Rotary (Air)
Other Method Construction:	

Pipe Information

Pipe ID:	10950174
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930654390
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	235.00
Casing Diameter:	6.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933373881
Layer:	1
Slot:	008
Screen Top Depth:	236.00
Screen End Depth:	239.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.00

Results of Well Yield Testing

Pump Test ID:	995723994
Pump Set At:	
Static Level:	107.00
Final Level After Pumping:	225.00
Recommended Pump Depth:	225.00
Pumping Rate:	10.00
Flowing Rate:	
Recommended Pump Rate:	8.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	3
Pumping Duration MIN:	15
Flowing:	N

Draw Down & Recovery

Pump Test Detail ID:	934307865
Test Type:	Draw Down
Test Duration:	15
Test Level:	225.00
Test Level UOM:	ft

Pump Test Detail ID:	935098567
Test Type:	Draw Down
Test Duration:	60
Test Level:	225.00
Test Level UOM:	ft

Water Details

Water ID:	933883829
Layer:	1
Kind Code:	5
Kind:	Not stated
Water Found Depth:	235.00
Water Found Depth UOM:	ft

---

1 ***2 of 2*** ***-/0.0*** ***294.9 / -1.02*** ***lot 1 con 11 ON*** ***WWIS***

Well ID:	5723814	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	9/20/1988
Sec. Water Use:		***Selected Flag:***	1
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	2662
Casing Material:		***Form Version:***	1
Audit No:	29977	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	SIMCOE
Elevation (m):		***Municipality:***	INNISFIL TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	11
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10401424	***Spatial Status:***	
DP2BR:		***Cluster Kind:***	
Code OB:	o	***UTMRC:***	9
Code OB Desc:	Overburden	***UTMRC Desc:***	unknown UTM
Open Hole:		***Location Method:***	lot
Elevation:	294.558288	***Org CS:***	
Elevrc:		***Date Completed:***	8/30/1988
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			

Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID:	932357236
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	14.00
Formation End Depth UOM:	ft

Formation ID:	932357237
Layer:	2
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	81
Other Materials:	SANDY
Mat3:	
Other Materials:	
Formation Top Depth:	14.00
Formation End Depth:	90.00
Formation End Depth UOM:	ft

Formation ID:	932357238
Layer:	3
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	68
Other Materials:	DRY
Mat3:	
Other Materials:	
Formation Top Depth:	90.00
Formation End Depth:	170.00
Formation End Depth UOM:	ft

Formation ID:	932357239
Layer:	4
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	81
Other Materials:	SANDY
Mat3:	
Other Materials:	
Formation Top Depth:	170.00
Formation End Depth:	238.00
Formation End Depth UOM:	ft

Annular Space/Abandonment

Sealing Record

Plug ID:	933189080
Layer:	1
Plug From:	0.00
Plug To:	60.00
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965723814
Method Construction Code:	4
Method Construction:	Rotary (Air)
Other Method Construction:	

Pipe Information

Pipe ID:	10949994
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930654164
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	235.00
Casing Diameter:	6.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933373802
Layer:	1
Slot:	010
Screen Top Depth:	235.00
Screen End Depth:	239.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.00

Results of Well Yield Testing

Pump Test ID:	995723814
Pump Set At:	
Static Level:	108.00
Final Level After Pumping:	225.00
Recommended Pump Depth:	225.00
Pumping Rate:	10.00
Flowing Rate:	
Recommended Pump Rate:	8.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1

Pumping Duration HR:	4
Pumping Duration MIN:	0
Flowing:	N

Draw Down & Recovery

Pump Test Detail ID:	934307312
Test Type:	Draw Down
Test Duration:	15
Test Level:	225.00
Test Level UOM:	ft

Pump Test Detail ID:	935098444
Test Type:	Draw Down
Test Duration:	60
Test Level:	225.00
Test Level UOM:	ft

Water Details

Water ID:	933883640
Layer:	1
Kind Code:	5
Kind:	Not stated
Water Found Depth:	234.00
Water Found Depth UOM:	ft

---

2 | ***1 of 1*** | ***-/0.0*** | ***309.9 / 13.98*** | ***lot 1 con 11 Innisfil ON*** | ***WWIS***

Well ID:	7176146	**Data Entry Status:**	
Construction Date:		**Data Src:**	
Primary Water Use:	Monitoring	**Date Received:**	2/1/2012
Sec. Water Use:		**Selected Flag:**	1
Final Well Status:	Observation Wells	**Abandonment Rec:**	
Water Type:		**Contractor:**	7190
Casing Material:		**Form Version:**	7
Audit No:	Z133895	**Owner:**	
Tag:	A076094	**Street Name:**	4154 SALEM RD.
Construction Method:		**County:**	SIMCOE
Elevation (m):		**Municipality:**	INNISFIL TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	1003641599	**Spatial Status:**	
DP2BR:		**Cluster Kind:**	
Code OB:		**UTMRC:**	4
Code OB Desc:		**UTMRC Desc:**	margin of error : 30 m - 100 m
Open Hole:		**Location Method:**	wwr
Elevation:	309.676452	**Org CS:**	UTM83
Elevrc:		**Date Completed:**	10/19/2011
Remarks:			

Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 1004041324
Layer: 1
Color: 6
General Color: BROWN
Mat1: 08
Most Common Material: FINE SAND
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 0.00
Formation End Depth: 15.00
Formation End Depth UOM: ft

Formation ID: 1004041325
Layer: 2
Color: 2
General Color: GREY
Mat1: 08
Most Common Material: FINE SAND
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 15.00
Formation End Depth: 25.00
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1004041332
Layer: 1
Plug From: 10.00
Plug To: 0.00
Plug Depth UOM: ft

Plug ID: 1004041333
Layer: 2
Plug From: 13.00
Plug To: 10.00
Plug Depth UOM: ft

Plug ID: 1004041334
Layer: 3
Plug From: 25.00
Plug To: 13.00
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1004041331

Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 1004041323
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1004041328
Layer: 1
Material: 5
Open Hole or Material: PLASTIC
Depth From: 15.00
Depth To: 25.00
Casing Diameter: 2.00
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1004041329
Layer: 1
Slot: .01
Screen Top Depth: 25.00
Screen End Depth: 15.00
Screen Material: 5
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 2.00

Water Details

Water ID: 1004041327
Layer: 1
Kind Code: 8
Kind: Untested
Water Found Depth: 13.00
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1004041326
Diameter: 8.00
Depth From: 25.00
Depth To: 0.00
Hole Depth UOM: ft
Hole Diameter UOM: inch

3	1 of 1	-/0.0	303.2 / 7.25	lot 1 con 11 ON	WWIS

Well ID: 5708744
Construction Date:
Primary Water Use: Domestic
Sec. Water Use: 0
Final Well Status: Water Supply

Data Entry Status:
Data Src: 1
Date Received: 4/13/1972
Selected Flag: 1
Abandonment Rec:

Water Type:		**Contractor:**	1204
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	SIMCOE
Elevation (m):		**Municipality:**	INNISFIL TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10386573	**Spatial Status:**	
DP2BR:		**Cluster Kind:**	
Code OB:	o	**UTMRC:**	4
Code OB Desc:	Overburden	**UTMRC Desc:**	margin of error : 30 m - 100 m
Open Hole:		**Location Method:**	p4
Elevation:	304.231994	**Org CS:**	
Elevrc:		**Date Completed:**	1/28/1972
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932291150
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	01
Most Common Material:	FILL
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	4.00
Formation End Depth UOM:	ft

Formation ID:	932291151
Layer:	2
Color:	2
General Color:	GREY
Mat1:	06
Most Common Material:	SILT
Mat2:	28
Other Materials:	SAND
Mat3:	
Other Materials:	
Formation Top Depth:	4.00
Formation End Depth:	30.00
Formation End Depth UOM:	ft

Formation ID:	932291152
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	30.00
Formation End Depth:	49.00
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965708744
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10935143
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930635982
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	49.00
Casing Diameter:	5.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	995708744
Pump Set At:	
Static Level:	12.00
Final Level After Pumping:	36.00
Recommended Pump Depth:	47.00
Pumping Rate:	2.00
Flowing Rate:	
Recommended Pump Rate:	2.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	6
Pumping Duration MIN:	0
Flowing:	N

Draw Down & Recovery

Pump Test Detail ID:	934289623
Test Type:	Recovery
Test Duration:	15
Test Level:	29.00
Test Level UOM:	ft

Pump Test Detail ID:	934565955
Test Type:	Recovery
Test Duration:	30
Test Level:	24.00
Test Level UOM:	ft

Pump Test Detail ID:	934816150
Test Type:	Recovery
Test Duration:	45
Test Level:	20.00
Test Level UOM:	ft

Pump Test Detail ID:	935082457
Test Type:	Recovery
Test Duration:	60
Test Level:	14.00
Test Level UOM:	ft

Water Details

Water ID:	933868359
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	49.00
Water Found Depth UOM:	ft

---

4 **1 of 1** **SSW/50.3** **306.9 / 10.95** **lot 1 con 11 ON** **WWIS**

Well ID:	5715823	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	1/31/1979
Sec. Water Use:	0	**Selected Flag:**	1
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	4608
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	SIMCOE
Elevation (m):		**Municipality:**	INNISFIL TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10393530	**Spatial Status:**	
DP2BR:		**Cluster Kind:**	
Code OB:	o	**UTMRC:**	5

Code OB Desc:	Overburden	***UTMRC Desc:***	margin of error : 100 m - 300 m
Open Hole:		***Location Method:***	p5
Elevation:	306.703308	***Org CS:***	
Elevrc:		***Date Completed:***	5/6/1978
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932321901
Layer:	1
Color:	
General Color:	
Mat1:	28
Most Common Material:	SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	17.00
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965715823
Method Construction Code:	6
Method Construction:	Boring
Other Method Construction:	

Pipe Information

Pipe ID:	10942100
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930644072
Layer:	1
Material:	3
Open Hole or Material:	CONCRETE
Depth From:	
Depth To:	17.00
Casing Diameter:	30.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	995715823
Pump Set At:	
Static Level:	9.00
Final Level After Pumping:	

Recommended Pump Depth:	14.00
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	3.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	2
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	N

Water Details

Water ID:	933875705
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	8.00
Water Found Depth UOM:	ft

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5 | ***1 of 1*** | ***S/52.6*** | ***304.4 / 8.52*** | ***lot 1 con 11 ON*** | ***WWIS***

Well ID:	5722089	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:		**Date Received:**	9/2/1987
Sec. Water Use:		**Selected Flag:**	1
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	2514
Casing Material:		**Form Version:**	1
Audit No:	06628	**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	SIMCOE
Elevation (m):		**Municipality:**	INNISFIL TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	11
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10399712	**Spatial Status:**	
DP2BR:		**Cluster Kind:**	
Code OB:	o	**UTMRC:**	5
Code OB Desc:	Overburden	**UTMRC Desc:**	margin of error : 100 m - 300 m
Open Hole:		**Location Method:**	gis
Elevation:	304.987121	**Org CS:**	
Elevrc:		**Date Completed:**	4/14/1987
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932349289
Layer:	1
Color:	8
General Color:	BLACK
Mat1:	02
Most Common Material:	TOPSOIL
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	1.00
Formation End Depth UOM:	ft

Formation ID:	932349290
Layer:	2
Color:	5
General Color:	YELLOW
Mat1:	28
Most Common Material:	SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	1.00
Formation End Depth:	15.00
Formation End Depth UOM:	ft

Formation ID:	932349291
Layer:	3
Color:	5
General Color:	YELLOW
Mat1:	28
Most Common Material:	SAND
Mat2:	05
Other Materials:	CLAY
Mat3:	74
Other Materials:	LAYERED
Formation Top Depth:	15.00
Formation End Depth:	55.00
Formation End Depth UOM:	ft

Formation ID:	932349292
Layer:	4
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	12
Other Materials:	STONES
Mat3:	
Other Materials:	
Formation Top Depth:	55.00
Formation End Depth:	105.00
Formation End Depth UOM:	ft

Formation ID:	932349293
Layer:	5
Color:	5
General Color:	YELLOW
Mat1:	28
Most Common Material:	SAND

Mat2:	05
Other Materials:	CLAY
Mat3:	
Other Materials:	
Formation Top Depth:	105.00
Formation End Depth:	155.00
Formation End Depth UOM:	ft
Formation ID:	932349294
Layer:	6
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	28
Other Materials:	SAND
Mat3:	
Other Materials:	
Formation Top Depth:	155.00
Formation End Depth:	175.00
Formation End Depth UOM:	ft
Formation ID:	932349295
Layer:	7
Color:	5
General Color:	YELLOW
Mat1:	28
Most Common Material:	SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	175.00
Formation End Depth:	180.00
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965722089
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	10948282
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930651979
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	158.00
Casing Diameter:	6.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Casing ID:	930651980
Layer:	2
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	177.00
Casing Diameter:	5.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933372883
Layer:	1
Slot:	010
Screen Top Depth:	177.00
Screen End Depth:	180.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.00

Results of Well Yield Testing

Pump Test ID:	995722089
Pump Set At:	
Static Level:	104.00
Final Level After Pumping:	160.00
Recommended Pump Depth:	170.00
Pumping Rate:	9.00
Flowing Rate:	
Recommended Pump Rate:	8.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	2
Pumping Duration HR:	
Pumping Duration MIN:	
Flowing:	N

Draw Down & Recovery

Pump Test Detail ID:	935093604
Test Type:	Draw Down
Test Duration:	60
Test Level:	160.00
Test Level UOM:	ft

Water Details

Water ID:	933881892
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	175.00
Water Found Depth UOM:	ft

6	***1 of 2***	***SE/74.1***	***310.9 / 14.95***	***MTO HOLLY PIT LANDFILL SITE***	***WDS***
				INNISFILL ON	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Certificate No:	A252204	**Facility Type:**	Landfill
Mob Unit Cert No:		**Site Concession:**	11
EBR Registry No:		**Site Region/County:**	SIMCOE
Status:	Held up pending more information from applicant	**Total Area (ha):**	0
Application Status:		**Landfill Cap (m^3):**	0
Issue Date:	12/31/1999	**Landfill Ctrl Type:**	
Input Date:	9/23/99	**Est Closure Date:**	
Date Received:	5/17/99	**Transfer Area (ha):**	0
Record Type:		**Transfer Cap (m^3):**	0
Project Type:		**Transfer Cert No:**	
Approval Type:		**Inciner. Area (ha):**	0
SWP Area Name:		**Inciner. Cap (t):**	0
MOE District:		**Process Area (m^3):**	0
Latitude:		**Process Cap (m^3/d):**	0
Longitude:		**Process Vol (m^3):**	0
Link Source:		**Process Feed (m^3):**	0
Proponent:	MTO HOLLY PIT LANDFILL SITE	**Mobile Units:**	
Prop Address:	LOT 1 CONCESSION 11	**Mobile Description:**	
Prop City:	ONTARIO, INNISFILL	**Mobile Capacity:**	0
Prop Postal:	L0L-1X0	**Serial Link:**	252204
Prop Phone:		**District Office:**	Barrie
Proponent County/District:			
Site Lot:	SOUTH 1/2 LOT 1		
Full Address:			
Landfill Monitoring:			
Waste Type:			
Waste Type Other:	No		
Waste Class:			
Waste Class Code:			
Project Description:			
Municipalities Served:			
Site Closing Description:			
Approval Description:			
Waste Description:			
Other Approvals/Permits:			
PDF URL:			

6	*2 of 2*	*SE/74.1*	*310.9 / 14.95*	***PT 1 S1/2 11 INNISFIL ON***	***WDSH***

Site No.:	A252204
Region:	CENTRAL
County:	SIMCOE
Concession:	11
Lot:	PT 1 S1/2
Easting::	601500
Northing::	4907400
Zone::	17
Date Closed:	1980/9/1
Status::	CLOSED
Classification::	A4 - POTENTIAL HUMAN IMPACT-RURAL MUNICIPAL/DOMESTIC WASTE - CLOSED <10 YRS
%CommericialWste::	n/a
%DomesticWste Rec::	n/a
%LiquidWste Rec::	n/a
%HazardousWste Rec::	n/a
%Non-haz.Wste Rec::	n/a
%Sewage/Sludge Rec::	n/a
%Other Wste Rec::	n/a

7	*1 of 1*	*SE/89.2*	*310.9 / 14.98*	***Innisfil Con 11 Dump***	***ANDR***

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
				Stroud ON L0L 2M0	

Legal Description: Innisfil Con 11 Lot 1s pt
Location Description:
Municipality: Innisfil Township
Current Municipality: Innisfil Town
RM: Simcoe County
Facility: Dump
Date Active: 1970s-80s
Date Begun:
Date Complete: Sep 1 1980
Area (Ha):
Landfill Type:
Group Name:
Operated By:
Serial: MOEE a252204
NTS: 31D05
Diameter (m):

Historical Summary:

Innisfil Con 11 Landfill Listed in Ontario Ministry of the Environment [1994] Waste disposal site inventory, [Toronto]: Ontario Environment, 1994., i, 196 pp., maps, ISBN 0772984093

Waste Type:
UTM X Nad 27: 601500
UTM Y Nad 27: 4907400
UTM Zone: 17

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
8	*1 of 2*	*NNW/91.2*	*289.9 / -5.97*	***BARRIE DEVELOPMENT CORPORATION*** ***SELKIRK CRES/LOUGHEED RD.*** ***BARRIE CITY ON***	***CA***

Certificate #: 3-1092-96-
Application Year: 96
Issue Date: 9/24/1996
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
8	*2 of 2*	*NNW/91.2*	*289.9 / -5.97*	***BARRIE DEVELOPMENT CORPORATION*** ***SELKIRK CRES/LOUGHEED RD.*** ***BARRIE CITY ON***	***CA***

Certificate #: 7-0891-96-
Application Year: 96
Issue Date: 9/24/1996
Approval Type: Municipal water
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::

Contaminants::
Emission Control::

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9 | ***1 of 1*** | ***W/104.2*** | ***296.9 / 1.00*** | ***lot 24 con 11 ESSA ON*** | ***WWIS***

Well ID:	7053919	***Data Entry Status:***	
Construction Date:		***Data Src:***	
Primary Water Use:	Not Used	***Date Received:***	12/18/2007
Sec. Water Use:		***Selected Flag:***	1
Final Well Status:	Abandoned-Other	***Abandonment Rec:***	Yes
Water Type:		***Contractor:***	5528
Casing Material:		***Form Version:***	3
Audit No:	Z48268	***Owner:***	
Tag:		***Street Name:***	7816 LTYC RD 27
Construction Method:		***County:***	SIMCOE
Elevation (m):		***Municipality:***	ESSA TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	024
Well Depth:		***Concession:***	11
Overburden/Bedrock:		***Concession Name:***	
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	23053919	***Spatial Status:***	
DP2BR:		***Cluster Kind:***	
Code OB:		***UTMRC:***	3
Code OB Desc:		***UTMRC Desc:***	margin of error : 10 - 30 m
Open Hole:		***Location Method:***	wwr
Elevation:	298.094451	***Org CS:***	UTM83
Elevrc:		***Date Completed:***	11/14/2007
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Annular Space/Abandonment Sealing Record

Plug ID:	44008468
Layer:	1
Plug From:	0.00
Plug To:	5.40
Plug Depth UOM:	m

Method of Construction & Well Use

Method Construction ID:	25953919
Method Construction Code:	B
Method Construction:	Other Method
Other Method Construction:	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Pipe Information

Pipe ID: 29053919
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 42253919
Layer: 2
Material: 3
Open Hole or Material: CONCRETE
Depth From: 0.00
Depth To: 5.40
Casing Diameter: 90.00
Casing Diameter UOM: cm
Casing Depth UOM: m

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10 | ***1 of 1*** | ***N/109.4*** | ***283.9 / -12.06*** | ***Country Side Drive & Mcvean Dr Brampton ON*** | ***EHS***

Order ID: 203879
Order No: 20120315043
Customer ID: 87867
Company ID: 41325
Status: C
Report Code: 4CAN
Report Type: Custom Report
Report Date: 3/27/2012
Report Requested by: Soil Engineers Ltd.
Nearest Intersection:
Previous Site Name:
Additional Info Ordered:

Date Received: 3/15/2012 4:53:53 PM
Lot/Building Size:
Municipality: Peel
Client Prov/State: ON
Search Radius (km): 0.25
Large Radius: 0.25
X: -79.729683
Y: 44.320201

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11 | ***1 of 1*** | ***SSW/119.6*** | ***310.9 / 14.95*** | ***lot 23 con 11 ON*** | ***WWIS***

Well ID: 5720021
Construction Date:
Primary Water Use: Domestic
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 8/16/1985
Selected Flag: 1
Abandonment Rec:
Contractor: 3660
Form Version: 1
Owner:
Street Name:
County: SIMCOE
Municipality: ESSA TOWNSHIP
Site Info:
Lot: 023
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10397650
Spatial Status:

DP2BR:		**Cluster Kind:**	
Code OB:	o	**UTMRC:**	5
Code OB Desc:	Overburden	**UTMRC Desc:**	margin of error : 100 m - 300 m
Open Hole:		**Location Method:**	p5
Elevation:	311.052246	**Org CS:**	
Elevrc:		**Date Completed:**	5/17/1985
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932340341
Layer:	1
Color:	8
General Color:	BLACK
Mat1:	02
Most Common Material:	TOPSOIL
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	1.00
Formation End Depth UOM:	ft

Formation ID:	932340342
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	1.00
Formation End Depth:	10.00
Formation End Depth UOM:	ft

Formation ID:	932340343
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	28
Other Materials:	SAND
Mat3:	
Other Materials:	
Formation Top Depth:	10.00
Formation End Depth:	55.00
Formation End Depth UOM:	ft

Formation ID:	932340344
Layer:	4
Color:	3
General Color:	BLUE
Mat1:	05
Most Common Material:	CLAY

Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	55.00
Formation End Depth:	96.00
Formation End Depth UOM:	ft

Formation ID:	932340345
Layer:	5
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	96.00
Formation End Depth:	144.00
Formation End Depth UOM:	ft

Formation ID:	932340346
Layer:	6
Color:	
General Color:	
Mat1:	09
Most Common Material:	MEDIUM SAND
Mat2:	91
Other Materials:	WATER-BEARING
Mat3:	
Other Materials:	
Formation Top Depth:	144.00
Formation End Depth:	151.00
Formation End Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965720021
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10946220
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930649233
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	147.00
Casing Diameter:	5.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933371908
Layer:	1
Slot:	008
Screen Top Depth:	147.00
Screen End Depth:	150.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	5.00

Results of Well Yield Testing

Pump Test ID:	995720021
Pump Set At:	
Static Level:	122.00
Final Level After Pumping:	125.00
Recommended Pump Depth:	125.00
Pumping Rate:	10.00
Flowing Rate:	
Recommended Pump Rate:	10.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	2
Pumping Duration HR:	2
Pumping Duration MIN:	0
Flowing:	N

Draw Down & Recovery

Pump Test Detail ID:	934305082
Test Type:	Recovery
Test Duration:	15
Test Level:	122.00
Test Level UOM:	ft

Pump Test Detail ID:	934570761
Test Type:	Recovery
Test Duration:	30
Test Level:	122.00
Test Level UOM:	ft

Pump Test Detail ID:	934829968
Test Type:	Recovery
Test Duration:	45
Test Level:	122.00
Test Level UOM:	ft

Pump Test Detail ID:	935087507
Test Type:	Recovery
Test Duration:	60
Test Level:	122.00
Test Level UOM:	ft

Water Details

Water ID:	933879792
Layer:	1
Kind Code:	1

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

Kind: FRESH
Water Found Depth: 144.00
Water Found Depth UOM: ft

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12 | **1 of 1** | **NNW/122.4** | **288.1 / -7.81** | **The Corporation of the City of Barrie**
24 Lougheed Road
Barrie ON | **SPL**

Ref No: 0367-A2LLK5
Contaminant Name: TRANSFORMER OIL (N.O.S.)
Contaminant Code: 15
Contaminant Limit 1:
Contam Limit Freq 1:
Contaminant UN No 1:
Contaminant Qty: 3 L
Material Group:
MOE Reported Dt: 9/22/2015
Health/Env Conseq:
Incident Dt: 9/22/2015
Incident Cause:
Incident Event:
Incident Reason: Equipment Failure
Incident Summary: Powerstream transformer: Leaking to ground

Sector Type: Miscellaneous Communal
Source Type:
Receiving Medium:
Receiving Env:
Environment Impact:
Nature of Impact:
SAC Action Class: Land Spills
Year:
Site Address: 24 Lougheed Road
Site Conc:
Site Lot:
Site County/District:
Site Municipality: Barrie
Site Postal Code:

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13 | **1 of 1** | **NNW/134.4** | **289.4 / -6.54** | **lot 1 con 11**
ON | **WWIS**

Well ID: 5723993
Construction Date:
Primary Water Use: Domestic
Sec. Water Use:
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No: 29982
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 10/11/1988
Selected Flag: 1
Abandonment Rec:
Contractor: 2662
Form Version: 1
Owner:
Street Name:
County: SIMCOE
Municipality: INNISFIL TOWNSHIP
Site Info:
Lot: 001
Concession: 11
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10401603
DP2BR:
Code OB: o
Code OB Desc: Overburden
Open Hole:
Elevation: 288.915039
Elevrc:
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:

Spatial Status:
Cluster Kind:
UTMRC: 5
UTMRC Desc: margin of error : 100 m - 300 m
Location Method: gis
Org CS:
Date Completed: 9/7/1988

Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID:	932358008
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	49.00
Formation End Depth UOM:	ft

Formation ID:	932358009
Layer:	2
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	49.00
Formation End Depth:	91.00
Formation End Depth UOM:	ft

Formation ID:	932358010
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	81
Other Materials:	SANDY
Mat3:	
Other Materials:	
Formation Top Depth:	91.00
Formation End Depth:	145.00
Formation End Depth UOM:	ft

Formation ID:	932358011
Layer:	4
Color:	2
General Color:	GREY
Mat1:	28
Most Common Material:	SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	145.00
Formation End Depth:	150.00
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	933189155
Layer:	1
Plug From:	0.00
Plug To:	60.00
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965723993
Method Construction Code:	4
Method Construction:	Rotary (Air)
Other Method Construction:	

Pipe Information

Pipe ID:	10950173
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930654389
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	146.00
Casing Diameter:	6.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933373880
Layer:	1
Slot:	010
Screen Top Depth:	146.00
Screen End Depth:	150.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.00

Results of Well Yield Testing

Pump Test ID:	995723993
Pump Set At:	
Static Level:	60.00
Final Level After Pumping:	140.00
Recommended Pump Depth:	140.00
Pumping Rate:	10.00
Flowing Rate:	
Recommended Pump Rate:	10.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	3

Pumping Duration MIN:	20
Flowing:	N

Draw Down & Recovery

Pump Test Detail ID:	934307864
Test Type:	Draw Down
Test Duration:	15
Test Level:	140.00
Test Level UOM:	ft

Pump Test Detail ID:	935098566
Test Type:	Draw Down
Test Duration:	60
Test Level:	140.00
Test Level UOM:	ft

Water Details

Water ID:	933883828
Layer:	1
Kind Code:	5
Kind:	Not stated
Water Found Depth:	145.00
Water Found Depth UOM:	ft

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14 | ***1 of 1*** | ***SE/164.7*** | ***310.9 / 14.95*** | ***lot 1 con 10 ON*** | ***WWIS***

Well ID:	5710487	**Data Entry Status:**	
Construction Date:		**Data Src:**	1
Primary Water Use:	Domestic	**Date Received:**	12/27/1973
Sec. Water Use:	0	**Selected Flag:**	1
Final Well Status:	Water Supply	**Abandonment Rec:**	
Water Type:		**Contractor:**	4608
Casing Material:		**Form Version:**	1
Audit No:		**Owner:**	
Tag:		**Street Name:**	
Construction Method:		**County:**	SIMCOE
Elevation (m):		**Municipality:**	INNISFIL TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	001
Well Depth:		**Concession:**	10
Overburden/Bedrock:		**Concession Name:**	CON
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10388303	**Spatial Status:**	
DP2BR:		**Cluster Kind:**	
Code OB:	o	**UTMRC:**	5
Code OB Desc:	Overburden	**UTMRC Desc:**	margin of error : 100 m - 300 m
Open Hole:		**Location Method:**	p5
Elevation:	310.385528	**Org CS:**	
Elevrc:		**Date Completed:**	10/7/1973
Remarks:			
Elevrc Desc:			
Location Source Date:			

Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Overburden and Bedrock Materials Interval

Formation ID: 932298405
Layer: 1
Color:
General Color:
Mat1: 02
Most Common Material: TOPSOIL
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 0.00
Formation End Depth: 1.00
Formation End Depth UOM: ft

Formation ID: 932298406
Layer: 2
Color:
General Color:
Mat1: 28
Most Common Material: SAND
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 1.00
Formation End Depth: 5.00
Formation End Depth UOM: ft

Formation ID: 932298407
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 5.00
Formation End Depth: 28.00
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 965710487
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 10936873
Casing No: 1
Comment:

Alt Name:

Construction Record - Casing

Casing ID:	930637928
Layer:	1
Material:	3
Open Hole or Material:	CONCRETE
Depth From:	
Depth To:	28.00
Casing Diameter:	30.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Results of Well Yield Testing

Pump Test ID:	995710487
Pump Set At:	
Static Level:	13.00
Final Level After Pumping:	
Recommended Pump Depth:	26.00
Pumping Rate:	
Flowing Rate:	
Recommended Pump Rate:	2.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	
Water State After Test:	
Pumping Test Method:	
Pumping Duration HR:	0
Pumping Duration MIN:	30
Flowing:	N

Water Details

Water ID:	933870336
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	15.00
Water Found Depth UOM:	ft

---

15 ***1 of 1*** ***SE/167.1*** ***310.9 / 14.95*** ***Innisfil ON*** ***WWIS***

Well ID:	7048667	***Data Entry Status:***	
Construction Date:		***Data Src:***	
Primary Water Use:	Monitoring	***Date Received:***	8/28/2007
Sec. Water Use:		***Selected Flag:***	1
Final Well Status:	Observation Wells	***Abandonment Rec:***	
Water Type:		***Contractor:***	6809
Casing Material:		***Form Version:***	4
Audit No:	Z63332	***Owner:***	
Tag:	A059618	***Street Name:***	SALEM ROAD
Construction Method:		***County:***	SIMCOE
Elevation (m):		***Municipality:***	INNISFIL TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	
Well Depth:		***Concession:***	
Overburden/Bedrock:		***Concession Name:***	
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	

Flowing (Y/N):
Flow Rate:
Clear/Cloudy:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 23048667
DP2BR:
Code OB:
Code OB Desc:
Open Hole:
Elevation: 308.993927
Elevrc:
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:
Spatial Status:
Cluster Kind:
UTMRC: 3
UTMRC Desc: margin of error : 10 - 30 m
Location Method: wwr
Org CS: UTM83
Date Completed: 8/2/2007

Overburden and Bedrock Materials Interval

Formation ID: 1000030548
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 11
Other Materials: GRAVEL
Mat3:
Other Materials:
Formation Top Depth: 0.00
Formation End Depth: 45.00
Formation End Depth UOM: ft

Formation ID: 1000030549
Layer: 2
Color: 2
General Color: GREY
Mat1: 28
Most Common Material: SAND
Mat2: 06
Other Materials: SILT
Mat3: 66
Other Materials: DENSE
Formation Top Depth: 45.00
Formation End Depth: 80.00
Formation End Depth UOM: ft

Formation ID: 1000030550
Layer: 3
Color: 2
General Color: GREY
Mat1: 06
Most Common Material: SILT
Mat2: 05
Other Materials: CLAY
Mat3:
Other Materials:
Formation Top Depth: 80.00
Formation End Depth: 84.00

Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 1000030552
Layer: 1
Plug From: 0.00
Plug To: 10.00
Plug Depth UOM: ft

Plug ID: 1000030553
Layer: 2
Plug From: 10.00
Plug To: 70.00
Plug Depth UOM: ft

Plug ID: 1000030554
Layer: 3
Plug From: 70.00
Plug To: 72.00
Plug Depth UOM: ft

Plug ID: 1000030555
Layer: 4
Plug From: 72.00
Plug To: 82.00
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 1000030560
Method Construction Code: 6
Method Construction: Boring
Other Method Construction:

Pipe Information

Pipe ID: 1000030546
Casing No: 0
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 1000030557
Layer:
Material: 5
Open Hole or Material: PLASTIC
Depth From:
Depth To: 74.00
Casing Diameter: 2.00
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 1000030558
Layer:
Slot:
Screen Top Depth:

Screen End Depth:
Screen Material: 5
Screen Depth UOM:
Screen Diameter UOM:
Screen Diameter:

Results of Well Yield Testing

Pump Test ID: 1000030547
Pump Set At:
Static Level:
Final Level After Pumping:
Recommended Pump Depth:
Pumping Rate:
Flowing Rate:
Recommended Pump Rate:
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 0
Water State After Test:
Pumping Test Method: 0
Pumping Duration HR:
Pumping Duration MIN:
Flowing:

Water Details

Water ID: 1000030556
Layer: 1
Kind Code:
Kind:
Water Found Depth:
Water Found Depth UOM: ft

Hole Diameter

Hole ID: 1000030551
Diameter: 8.25
Depth From:
Depth To: 84.00
Hole Depth UOM: ft
Hole Diameter UOM: inch

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16 | ***1 of 1*** | ***SSW/183.0*** | ***310.6 / 14.67*** | ***lot 23 con 11 ON*** | ***WWIS***

Well ID: 5732281
Construction Date:
Primary Water Use: Domestic
Sec. Water Use:
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No: 160505
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:

Data Entry Status:
Data Src: 1
Date Received: 7/25/1996
Selected Flag: 1
Abandonment Rec:
Contractor: 2431
Form Version: 1
Owner:
Street Name:
County: SIMCOE
Municipality: ESSA TOWNSHIP
Site Info:
Lot: 023
Concession: 11
Concession Name: CON
Easting NAD83:

Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID:	10409814	***Spatial Status:***	
DP2BR:		***Cluster Kind:***	
Code OB:	o	***UTMRC:***	5
Code OB Desc:	Overburden	***UTMRC Desc:***	margin of error : 100 m - 300 m
Open Hole:		***Location Method:***	gis
Elevation:	310.587463	***Org CS:***	
Elevrc:		***Date Completed:***	5/18/1995
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932398180
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	08
Most Common Material:	FINE SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	7.00
Formation End Depth UOM:	ft

Formation ID:	932398181
Layer:	2
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	84
Other Materials:	SILTY
Mat3:	11
Other Materials:	GRAVEL
Formation Top Depth:	7.00
Formation End Depth:	31.00
Formation End Depth UOM:	ft

Formation ID:	932398182
Layer:	3
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	34
Other Materials:	TILL
Mat3:	
Other Materials:	
Formation Top Depth:	31.00

Formation End Depth: 136.00
Formation End Depth UOM: ft

Formation ID: 932398183
Layer: 4
Color: 6
General Color: BROWN
Mat1: 08
Most Common Material: FINE SAND
Mat2: 09
Other Materials: MEDIUM SAND
Mat3:
Other Materials:
Formation Top Depth: 136.00
Formation End Depth: 147.00
Formation End Depth UOM: ft

Formation ID: 932398184
Layer: 5
Color: 6
General Color: BROWN
Mat1: 08
Most Common Material: FINE SAND
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 147.00
Formation End Depth: 160.00
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933194866
Layer: 1
Plug From: 0.00
Plug To: 12.00
Plug Depth UOM: ft

Plug ID: 933194867
Layer: 2
Plug From: 12.00
Plug To: 132.00
Plug Depth UOM: ft

Plug ID: 933194868
Layer: 3
Plug From: 0.00
Plug To: 140.00
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 965732281
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 10958384

Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930664496
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 142.00
Casing Diameter: 6.00
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 933378516
Layer: 1
Slot: 016
Screen Top Depth: 143.00
Screen End Depth: 147.00
Screen Material:
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 5.00

Results of Well Yield Testing

Pump Test ID: 995732281
Pump Set At:
Static Level: 122.00
Final Level After Pumping:
Recommended Pump Depth: 140.00
Pumping Rate: 15.00
Flowing Rate:
Recommended Pump Rate: 10.00
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN: 30
Flowing: N

Draw Down & Recovery

Pump Test Detail ID: 934307100
Test Type: Recovery
Test Duration: 15
Test Level: 125.00
Test Level UOM: ft

Pump Test Detail ID: 934582408
Test Type: Recovery
Test Duration: 30
Test Level: 123.00
Test Level UOM: ft

Pump Test Detail ID: 934839194

Test Type:	Recovery
Test Duration:	45
Test Level:	122.00
Test Level UOM:	ft
Pump Test Detail ID:	935097311
Test Type:	Recovery
Test Duration:	60
Test Level:	122.00
Test Level UOM:	ft

Water Details

Water ID:	933892365
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	143.00
Water Found Depth UOM:	ft

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17 ***1 of 4*** ***SE/189.0*** ***310.9 / 14.95*** ***Holcim (Canada) Inc.***
4165 Salem Road West
Innisfil ON L9S 3K9 ***EBR***

EBR Registry No.:	010-7535
Ministry Ref. No.:	4657-7UNQQ4
Year:	2009
Proposal Date:	August 11, 2009
Notice Date:	
Notice Type:	Instrument Proposal
Proponent Address:	2300 Steeles avenue West Concord Ontario Canada L4K 5X6
Instrument Type:	(EPA s. 9) - Approval for discharge into the natural environment other than water (i.e. Air)
Location:	4165 Salem Road West Innisfil, County of Simcoe, L9S 3K9
Location Other:	

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17 ***2 of 4*** ***SE/189.0*** ***310.9 / 14.95*** ***Holcim (Canada) Inc.***
4165 Salem Rd.
Innisfil ON L9S 3K9 ***GEN***

Generator No.:	ON5112908	**PO Box No.:**	
Status:		**Country:**	
Approval Years:	2010	**Choice of Contact:**	
Contam. Facility:		**Co Admin:**	
MHSW Facility:		**Phone No. Admin:**	
SIC Code:	327320		
SIC Description:	Ready-Mix Concrete Manufacturing		

--Details--

Waste Code:	212
Waste Description:	ALIPHATIC SOLVENTS
Waste Code:	252
Waste Description:	WASTE OILS & LUBRICANTS
Waste Code:	213
Waste Description:	PETROLEUM DISTILLATES
Waste Code:	251
Waste Description:	OIL SKIMMINGS & SLUDGES
Waste Code:	146
Waste Description:	OTHER SPECIFIED INORGANICS

Waste Code: 221
Waste Description: LIGHT FUELS

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17 **3 of 4** **SE/189.0** **310.9 / 14.95** **UNILOCK LTD** **GEN**
4165 SALEM ROAD
INNISFIL ON L9S 3K9

Generator No.: ON3441608
Status:
Approval Years: 05
Contam. Facility:
MHSW Facility:
SIC Code: 327330
SIC Description: Concrete Pipe Brick and Block Manufacturing

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 145
Waste Description: PAINT/PIGMENT/COATING RESIDUES

Waste Code: 148
Waste Description: INORGANIC LABORATORY CHEMICALS

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 263
Waste Description: ORGANIC LABORATORY CHEMICALS

Waste Code: 331
Waste Description: WASTE COMPRESSED GASES

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17 **4 of 4** **SE/189.0** **310.9 / 14.95** **Holcim (Canada) Inc.** **GEN**
4165 Salem Rd.
Innisfil ON L9S 3K9

Generator No.: ON5112908
Status:
Approval Years: 2011
Contam. Facility:
MHSW Facility:
SIC Code: 327320
SIC Description: Ready-Mix Concrete Manufacturing

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 221
Waste Description: LIGHT FUELS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 146

Waste Description: OTHER SPECIFIED INORGANICS

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18 | **1 of 1** | **SSE/208.5** | **309.9 / 13.95** | **Innisfil ON** | **WWIS**

Well ID:	7176147	**Data Entry Status:**	
Construction Date:		**Data Src:**	
Primary Water Use:	Monitoring	**Date Received:**	2/1/2012
Sec. Water Use:		**Selected Flag:**	1
Final Well Status:	Observation Wells	**Abandonment Rec:**	
Water Type:		**Contractor:**	7190
Casing Material:		**Form Version:**	7
Audit No:	Z133800	**Owner:**	
Tag:	A076132	**Street Name:**	4285 SALEM RD.
Construction Method:		**County:**	SIMCOE
Elevation (m):		**Municipality:**	INNISFIL TOWNSHIP
Elevation Reliability:		**Site Info:**	
Depth to Bedrock:		**Lot:**	
Well Depth:		**Concession:**	
Overburden/Bedrock:		**Concession Name:**	
Pump Rate:		**Easting NAD83:**	
Static Water Level:		**Northing NAD83:**	
Flowing (Y/N):		**Zone:**	
Flow Rate:		**UTM Reliability:**	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	1003645245	**Spatial Status:**	
DP2BR:		**Cluster Kind:**	
Code OB:		**UTMRC:**	4
Code OB Desc:		**UTMRC Desc:**	margin of error : 30 m - 100 m
Open Hole:		**Location Method:**	wwr
Elevation:	309.317291	**Org CS:**	UTM83
Elevrc:		**Date Completed:**	10/18/2011
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	1004041346
Layer:	1
Color:	6
General Color:	BROWN
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Other Materials:	GRAVEL
Mat3:	66
Other Materials:	DENSE
Formation Top Depth:	0.00
Formation End Depth:	15.00
Formation End Depth UOM:	ft

Annular Space/Abandonment

Sealing Record

Plug ID:	1004041353
Layer:	1
Plug From:	2.00
Plug To:	0.00
Plug Depth UOM:	ft

Plug ID:	1004041354
Layer:	2
Plug From:	15.00
Plug To:	2.00
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	1004041352
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	1004041345
Casing No:	0
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	1004041349
Layer:	1
Material:	5
Open Hole or Material:	PLASTIC
Depth From:	15.00
Depth To:	-2.50
Casing Diameter:	2.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	1004041350
Layer:	1
Slot:	.01
Screen Top Depth:	15.00
Screen End Depth:	5.00
Screen Material:	5
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	2.00

Water Details

Water ID:	1004041348
Layer:	1
Kind Code:	8
Kind:	Untested
Water Found Depth:	2.00
Water Found Depth UOM:	ft

Hole Diameter

Hole ID:	1004041347
Diameter:	65.00
Depth From:	15.00
Depth To:	0.00
Hole Depth UOM:	ft
Hole Diameter UOM:	inch

---

19 | ***1 of 1*** | ***N/219.4*** | ***283.7 / -12.21*** | ***lot 2 con 11 ON*** | ***WWIS***

Well ID:	5731942	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	11/2/1995
Sec. Water Use:		***Selected Flag:***	1
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	1583
Casing Material:		***Form Version:***	1
Audit No:	140621	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	SIMCOE
Elevation (m):		***Municipality:***	INNISFIL TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	002
Well Depth:		***Concession:***	11
Overburden/Bedrock:		***Concession Name:***	CON
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10409475	***Spatial Status:***	
DP2BR:		***Cluster Kind:***	
Code OB:	o	***UTMRC:***	5
Code OB Desc:	Overburden	***UTMRC Desc:***	margin of error : 100 m - 300 m
Open Hole:		***Location Method:***	gis
Elevation:	286.594177	***Org CS:***	
Elevrc:		***Date Completed:***	6/12/1995
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932396439
Layer:	1
Color:	
General Color:	
Mat1:	01
Most Common Material:	FILL
Mat2:	05
Other Materials:	CLAY
Mat3:	

Other Materials:
Formation Top Depth: 0.00
Formation End Depth: 6.00
Formation End Depth UOM: ft

Formation ID: 932396440
Layer: 2
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 6.00
Formation End Depth: 12.00
Formation End Depth UOM: ft

Formation ID: 932396441
Layer: 3
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 05
Other Materials: CLAY
Mat3: 85
Other Materials: SOFT
Formation Top Depth: 12.00
Formation End Depth: 49.00
Formation End Depth UOM: ft

Formation ID: 932396442
Layer: 4
Color:
General Color:
Mat1: 08
Most Common Material: FINE SAND
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 49.00
Formation End Depth: 100.00
Formation End Depth UOM: ft

Formation ID: 932396443
Layer: 5
Color: 6
General Color: BROWN
Mat1: 08
Most Common Material: FINE SAND
Mat2: 63
Other Materials: COARSE-GRAINED
Mat3:
Other Materials:
Formation Top Depth: 100.00
Formation End Depth: 124.00
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933194532

Layer:	1
Plug From:	0.00
Plug To:	20.00
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965731942
Method Construction Code:	1
Method Construction:	Cable Tool
Other Method Construction:	

Pipe Information

Pipe ID:	10958045
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930664061
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	99.00
Casing Diameter:	6.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Casing ID:	930664062
Layer:	2
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	99.00
Casing Diameter:	5.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933378327
Layer:	1
Slot:	014
Screen Top Depth:	99.00
Screen End Depth:	103.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.00

Results of Well Yield Testing

Pump Test ID:	995731942
Pump Set At:	
Static Level:	72.00
Final Level After Pumping:	85.00
Recommended Pump Depth:	5.00
Pumping Rate:	12.00

Flowing Rate:
Recommended Pump Rate: 10.00
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 2
Pumping Duration HR: 2
Pumping Duration MIN: 0
Flowing: N

Draw Down & Recovery

Pump Test Detail ID: 934305993
Test Type: Recovery
Test Duration: 15
Test Level: 72.00
Test Level UOM: ft

Pump Test Detail ID: 934581304
Test Type: Recovery
Test Duration: 30
Test Level: 72.00
Test Level UOM: ft

Pump Test Detail ID: 934838515
Test Type: Recovery
Test Duration: 45
Test Level: 72.00
Test Level UOM: ft

Pump Test Detail ID: 935096632
Test Type: Recovery
Test Duration: 60
Test Level: 72.00
Test Level UOM: ft

Water Details

Water ID: 933892015
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 123.00
Water Found Depth UOM: ft

---

20 | ***1 of 4*** | ***SE/225.1*** | ***310.9 / 14.95*** | ***Unilock Ltd***
441 Salem Rd.
Barrie ON L9J 0S8 | ***GEN***

Generator No.: ON4653547
Status:
Approval Years: 2014
Contam. Facility: No
MHSW Facility: No
SIC Code: 444190
SIC Description: OTHER BUILDING MATERIAL DEALERS

PO Box No.:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Jamie Connor
Phone No. Admin: 705-721-7800 Ext.227

--Details--
Waste Code: 112
Waste Description: ACID WASTE - HEAVY METALS

Waste Code: 145
Waste Description: PAINT/PIGMENT/COATING RESIDUES

Waste Code: 331
Waste Description: WASTE COMPRESSED GASES

Waste Code: 232
Waste Description: POLYMERIC RESINS

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

---

20 ***2 of 4*** ***SE/225.1*** ***310.9 / 14.95*** ***Unilock Ltd*** ***GEN***
441 Salem Rd.
Barrie ON L9J 0S8

Generator No.:	ON4653547	***PO Box No.:***	
Status:		***Country:***	Canada
Approval Years:	2016	***Choice of Contact:***	CO_ADMIN
Contam. Facility:	No	***Co Admin:***	Jamie Connor
MHSW Facility:	No	***Phone No. Admin:***	705-721-7800 Ext.227
SIC Code:	444190		
SIC Description:	OTHER BUILDING MATERIAL DEALERS		

--Details--
Waste Code: 232
Waste Description: POLYMERIC RESINS

Waste Code: 268
Waste Description: AMINES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 145
Waste Description: PAINT/PIGMENT/COATING RESIDUES

Waste Code: 112
Waste Description: ACID WASTE - HEAVY METALS

Waste Code: 331
Waste Description: WASTE COMPRESSED GASES

---

20 ***3 of 4*** ***SE/225.1*** ***310.9 / 14.95*** ***Unilock Ltd*** ***GEN***
441 Salem Rd.
Barrie ON L9J 0S8

Generator No.:	ON4653547	***PO Box No.:***	
Status:	Registered	***Country:***	Canada
Approval Years:	As of Dec 2017	***Choice of Contact:***	
Contam. Facility:		***Co Admin:***	
MHSW Facility:		***Phone No. Admin:***	
SIC Code:			
SIC Description:			

--Details--
Waste Code: 252 L
Waste Description: Waste crankcase oils and lubricants

Waste Code: 232 L
Waste Description: Polymeric resins

Waste Code: 268 C
Waste Description: Amines

Waste Code: 112 C
Waste Description: Acid solutions - containing heavy metals

Waste Code: 331 I
Waste Description: Waste compressed gases including cylinders

Waste Code: 145 H
Waste Description: Wastes from the use of pigments, coatings and paints

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20 | **4 of 4** | **SE/225.1** | **310.9 / 14.95** | **Unilock Ltd**
441 Salem Rd.
Barrie ON L9J 0S8 | **GEN**

Generator No.: ON4653547
Status:
Approval Years: 2015
Contam. Facility: No
MHSW Facility: No
SIC Code: 444190
SIC Description: OTHER BUILDING MATERIAL DEALERS

PO Box No.:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Jamie Connor
Phone No. Admin: 705-721-7800 Ext.227

--Details--
Waste Code: 232
Waste Description: POLYMERIC RESINS

Waste Code: 145
Waste Description: PAINT/PIGMENT/COATING RESIDUES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 331
Waste Description: WASTE COMPRESSED GASES

Waste Code: 112
Waste Description: ACID WASTE - HEAVY METALS

---

21 | **1 of 1** | **NW/232.1** | **276.9 / -19.05** | **ON** | **BORE**

Borehole ID: 871065
Use: Geotechnical/Geological Investigation
Drill Method:: Hand auger
Easting:: 600898
Location Accuracy::
Elev. Reliability Note::
Total Depth m:: 4.6
Township:: INNISFIL
Lot::
Completion Date:: 15-JUL-1963
Primary Water Use::

Type: Borehole
Status:: Decommissioned
UTM Zone:: 17
Northing:: 4908232
Orig. Ground Elev m:: -999.9
DEM Ground Elev m:: 280
Primary Name::
Concession::
Municipality:
Static Water Level:: -999.9
Sec. Water Use::

--Details--
Stratum ID: 7029696
Bottom Depth(m): 4.6

Top Depth(m): 0.0
Stratum Desc: Soft to hard clayey silt with fine to coarse sand.

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
22	1 of 1	NW/233.7	276.9 / -19.05	ON	BORE

Borehole ID: 871066
Use: Geotechnical/Geological Investigation
Drill Method:: Hand auger
Easting:: 600913
Location Accuracy::
Elev. Reliability Note::
Total Depth m:: 3.5
Township:: INNISFIL
Lot:: LOT 1
Completion Date:: 17-JUL-1963
Primary Water Use::
Type: Borehole
Status:: Decommissioned
UTM Zone:: 17
Northing:: 4908236
Orig. Ground Elev m:: -999.9
DEM Ground Elev m:: 279
Primary Name::
Concession:: CON 11
Municipality:
Static Water Level:: -999.9
Sec. Water Use::

--Details--

Stratum ID: 7029697
Bottom Depth(m): 3.5
Top Depth(m): 0.0
Stratum Desc: Soft to hard partially frozen clayey silt with fine to coarse sand.

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
23	1 of 1	NNE/242.0	299.2 / 3.31	BARRIE DEVELOPMENT CORPORATION COLUMBIA RD.S./ATHABASKA RD. BARRIE CITY ON	CA

Certificate #: 3-0103-96-
Application Year: 96
Issue Date: 4/1/1996
Approval Type: Municipal sewage
Status: Approved
Application Type:
Client Name::
Client Address::
Client City::
Client Postal Code::
Project Description::
Contaminants::
Emission Control::

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
24	1 of 1	SE/242.0	310.9 / 14.95	lot 2 con 10 ON	WWIS

Well ID: 5715880
Construction Date:
Primary Water Use: Industrial
Sec. Water Use: 0
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No:
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Data Entry Status:
Data Src: 1
Date Received: 4/5/1979
Selected Flag: 1
Abandonment Rec:
Contractor: 4816
Form Version: 1
Owner:
Street Name:
County: SIMCOE
Municipality: INNISFIL TOWNSHIP
Site Info:
Lot: 002
Concession: 10
Concession Name: CON
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Clear/Cloudy:

Bore Hole Information

Bore Hole ID:	10393585	***Spatial Status:***	
DP2BR:		***Cluster Kind:***	
Code OB:	o	***UTMRC:***	5
Code OB Desc:	Overburden	***UTMRC Desc:***	margin of error : 100 m - 300 m
Open Hole:		***Location Method:***	p5
Elevation:	310.529296	***Org CS:***	
Elevrc:		***Date Completed:***	1/31/1979
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932322118
Layer:	1
Color:	
General Color:	
Mat1:	28
Most Common Material:	SAND
Mat2:	11
Other Materials:	GRAVEL
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	4.00
Formation End Depth UOM:	ft

Formation ID:	932322119
Layer:	2
Color:	
General Color:	
Mat1:	09
Most Common Material:	MEDIUM SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	4.00
Formation End Depth:	15.00
Formation End Depth UOM:	ft

Formation ID:	932322120
Layer:	3
Color:	
General Color:	
Mat1:	05
Most Common Material:	CLAY
Mat2:	11
Other Materials:	GRAVEL
Mat3:	28
Other Materials:	SAND
Formation Top Depth:	15.00
Formation End Depth:	52.00
Formation End Depth UOM:	ft

Formation ID:	932322121
Layer:	4
Color:	2
General Color:	GREY
Mat1:	05
Most Common Material:	CLAY
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	52.00
Formation End Depth:	99.00
Formation End Depth UOM:	ft

Formation ID:	932322122
Layer:	5
Color:	
General Color:	
Mat1:	08
Most Common Material:	FINE SAND
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	99.00
Formation End Depth:	139.00
Formation End Depth UOM:	ft

Formation ID:	932322123
Layer:	6
Color:	
General Color:	
Mat1:	08
Most Common Material:	FINE SAND
Mat2:	06
Other Materials:	SILT
Mat3:	
Other Materials:	
Formation Top Depth:	139.00
Formation End Depth:	155.00
Formation End Depth UOM:	ft

Annular Space/Abandonment Sealing Record

Plug ID:	933187555
Layer:	1
Plug From:	139.00
Plug To:	155.00
Plug Depth UOM:	ft

Method of Construction & Well Use

Method Construction ID:	965715880
Method Construction Code:	2
Method Construction:	Rotary (Convent.)
Other Method Construction:	

Pipe Information

Pipe ID:	10942155
Casing No:	1

Comment:
Alt Name:

Construction Record - Casing

Casing ID:	930644146
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	134.00
Casing Diameter:	6.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933369897
Layer:	1
Slot:	018
Screen Top Depth:	131.00
Screen End Depth:	136.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.00

Results of Well Yield Testing

Pump Test ID:	995715880
Pump Set At:	
Static Level:	109.00
Final Level After Pumping:	
Recommended Pump Depth:	130.00
Pumping Rate:	5.00
Flowing Rate:	
Recommended Pump Rate:	5.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	3
Pumping Duration MIN:	0
Flowing:	N

Water Details

Water ID:	933875768
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	130.00
Water Found Depth UOM:	ft

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
25	1 of 1	SE/242.6	310.9 / 14.95	***Holcim (Canada) Inc.*** ***4165 Salem Road West*** ***Innisfil Town ON L9S 3K9***	ECA

Approval No:	4495-9FUQDY	***MOE District:***	
Approval Type:		***SWP Area Name:***	
Status:	Approved	***Address:***	

Approval Date:	05-FEB-14	**City:**	Innisfil Town
Record Type:		**Longitude:**	-79.725000000000008526512829121202230453491210937 5
Project Type:	Air/Noise	**Latitude:**	44.313888888888882888750231359153985977172851562 5
Link Source:			
Full Address:	4165 Salem Road West Innisfil Town, County of Simcoe L9S 3K9		
Full PDF Link:			

26 | ***1 of 1*** | ***NW/243.9*** | ***276.9 / -19.02*** | ***ON*** | ***BORE***

Borehole ID:	871063	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	Decommissioned
Drill Method::	Hand auger	**UTM Zone::**	17
Easting::	600881	**Northing::**	4908241
Location Accuracy::		**Orig. Ground Elev m::**	-999.9
Elev. Reliability Note::		**DEM Ground Elev m::**	278
Total Depth m::	4.3	**Primary Name::**	
Township::	ESSA	**Concession::**	CON 11
Lot::	LOT 25	**Municipality:**	
Completion Date::	16-JUL-1963	**Static Water Level::**	-999.9
Primary Water Use::		**Sec. Water Use::**	

--Details--

Stratum ID:	7029694	**Top Depth(m):**	0.0
Bottom Depth(m):	4.3	**Stratum Desc:**	Soft to firm partially frozen, clayey silt with fine to coarse sand.

27 | ***1 of 1*** | ***NW/244.2*** | ***276.9 / -19.05*** | ***ON*** | ***BORE***

Borehole ID:	871064	**Type:**	Borehole
Use:	Geotechnical/Geological Investigation	**Status::**	Decommissioned
Drill Method::	Hand auger	**UTM Zone::**	17
Easting::	600896	**Northing::**	4908244
Location Accuracy::		**Orig. Ground Elev m::**	-999.9
Elev. Reliability Note::		**DEM Ground Elev m::**	277
Total Depth m::	4.6	**Primary Name::**	
Township::	INNISFIL	**Concession::**	
Lot::		**Municipality:**	
Completion Date::	15-JUL-1963	**Static Water Level::**	-999.9
Primary Water Use::		**Sec. Water Use::**	

--Details--

Stratum ID:	7029695	**Top Depth(m):**	0.0
Bottom Depth(m):	4.6	**Stratum Desc:**	Very soft to hard, partially frozen, clayey silt with fine to coarse sand.

28 | ***1 of 12*** | ***SE/249.4*** | ***310.9 / 14.95*** | ***Holcim (Canada) Inc. 4165 Salem Rd W Innisfil ON L4K 5X6*** | ***ECA***

Approval No:	4495-9FUQDY	**MOE District:**	Barrie
Approval Type:	ECA-AIR	**SWP Area Name:**	Nottawasaga Valley
Status:	Approved	**Address:**	4165 Salem Rd W
Approval Date:	2014-02-05	**City:**	Innisfil
Record Type:	ECA	**Longitude:**	-79.72511

Project Type: AIR
Link Source: IDS
Full Address:
Full PDF Link: https://www.accessenvironment.ene.gov.on.ca/instruments/4657-7UNQQ4-14.pdf
Latitude: 44.314022

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28 ***2 of 12*** ***SE/249.4*** ***310.9 / 14.95*** ***GEN***

CRH Canada Group Inc.
4165 Salem Rd.
Innisfil ON L4M4S7

Generator No.: ON5112908
Status:
Approval Years: 2016
Contam. Facility: No
MHSW Facility: No
SIC Code: 327320
SIC Description: READY-MIX CONCRETE MANUFACTURING

PO Box No.:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Elizabeth Lopes
Phone No. Admin: 416 671 5137 Ext.

--Details--

Waste Code: 221
Waste Description: LIGHT FUELS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

---

28 ***3 of 12*** ***SE/249.4*** ***310.9 / 14.95*** ***GEN***

CRH Canada Group Inc. Dufferin Concrete
4165 Salem Rd.
Innisfil ON L4M4S7

Generator No.: ON5112908
Status: Registered
Approval Years: As of Dec 2017
Contam. Facility:
MHSW Facility:
SIC Code:
SIC Description:

PO Box No.:
Country: Canada
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--

Waste Code: 251 L
Waste Description: Waste oils/sludges (petroleum based)

Waste Code: 212 L
Waste Description: Aliphatic solvents and residues

Waste Code: 252 L
Waste Description: Waste crankcase oils and lubricants

Waste Code: 213 L
Waste Description: Petroleum distillates

Waste Code: 146 L
Waste Description: Other specified inorganic sludges, slurries or solids

---

28 **4 of 12** **SE/249.4** **310.9 / 14.95** **CRH Canada Group Inc.** **GEN**
4165 Salem Rd.
Innisfil ON L4M4S7

Generator No.: ON5112908
Status:
Approval Years: 2015
Contam. Facility: No
MHSW Facility: No
SIC Code: 327320
SIC Description: READY-MIX CONCRETE MANUFACTURING

PO Box No.:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Elizabeth Lopes
Phone No. Admin: 416 671 5137 Ext.

--Details--
Waste Code: 221
Waste Description: LIGHT FUELS

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

---

28 **5 of 12** **SE/249.4** **310.9 / 14.95** **Holcim (Canada) Inc.** **GEN**
4165 Salem Rd.
Innisfil ON L4M4S7

Generator No.: ON5112908
Status:
Approval Years: 2014
Contam. Facility: No
MHSW Facility: No
SIC Code: 327320
SIC Description: READY-MIX CONCRETE MANUFACTURING

PO Box No.:
Country: Canada
Choice of Contact: CO_ADMIN
Co Admin: Maria Topalovic
Phone No. Admin: 905 532 3232 Ext.

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 221
Waste Description: LIGHT FUELS

---

28 **6 of 12** **SE/249.4** **310.9 / 14.95** **Holcim (Canada) Inc.**
4165 Salem Rd.
Innisfil ON **GEN**

Generator No.: ON5112908
Status:
Approval Years: 2013
Contam. Facility:
MHSW Facility:
SIC Code: 327320
SIC Description: READY-MIX CONCRETE MANUFACTURING

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 221
Waste Description: LIGHT FUELS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

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28 **7 of 12** **SE/249.4** **310.9 / 14.95** **Holcim (Canada) Inc.**
4165 Salem Rd.
Innisfil ON L9S 3K9 **GEN**

Generator No.: ON5112908
Status:
Approval Years: 2012
Contam. Facility:
MHSW Facility:
SIC Code: 327320
SIC Description: Ready-Mix Concrete Manufacturing

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 252

Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 221
Waste Description: LIGHT FUELS

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28 **8 of 12** **SE/249.4** **310.9 / 14.95** **LIMO**

Ministry of Transportation
4165 Salem Road; South 1/2 of Lot 1, Concession 11
Town of Innisfil ON

C of A No:	A252204	**Site County:**	Simcoe
C of A Issue Date:	5/31/1973	**MOE Region:**	Central
C of A Issued to:		**MOE District:**	Barrie
Operation Status:	Closed	**Easting:**	
Landfill Type:		**Northing:**	
Total Site Area:		**Latitude:**	
Footprint:		**Longitude:**	
Tot Apprvd Capac:		**UTM Zone:**	
Tot Aprv Cp Unit:		**Data Source:**	small landfills
Fill Rate:		**Cntm Attn Zn:**	
Fill Rate Unit:		**Grndwtr Mntr:**	
Est Remain Cap:		**Surf Wtr Mntr:**	
ERC Volume Unit:		**Lst Rprting Yr:**	
ERC Methodology:		**Fin Assrnce:**	
ERC Dt Last Det:		**Nat Attnuatn:**	
Total Waste Rec:		**Liners:**	
TWR Unit:		**Cvr Material:**	
TWR Methodology:			
Site Name:	Ministry of Transportation Holly Landfill		
Air Emmis Monitor:			
Leachate Off-Site:			
Leachate On Site:			
Landfill Gas Manag (P):			
Landfill Gas Manag (F):			
Landfill Gas Manag (E):			
Req Col Lndfll Gas:			
Lndfll Gas Cllcted:			
Lndfll Gas Mntr:			
Service Area:			
Approved Waste Type:			

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28 **9 of 12** **SE/249.4** **310.9 / 14.95** **NPRI**

DUFFERIN CONCRETE
4165 Salem Road
Innisfil ON L9S3L1

NPRI ID:	500131	**Org ID:**	102166
Other ID:		**Submit Date:**	5/25/2015
No Other ID:		**Last Modified:**	9/1/2015 3:09:32 PM
Track ID:	134528	**Contact ID:**	
Report ID:	54147	**Cont Type:**	
Report Type:	DNMC	**Contact Title:**	
Rpt Type ID:	2	**Cont First Name:**	
Report Year:	2014	**Cont Last Name:**	
Not-Current Rpt?:	No	**Contact Position:**	
Yr of Last Filed Rpt:		**Contact Fax:**	
Fac ID:	233015	**Contact Ph.:**	
Fac Name:	Dufferin Concrete, Innisfil Plant	**Cont Area Code:**	
Fac Address1:	4165 Salem Road	**Contact Tel.:**	
Fac Address2:		**Contact Ext.:**	
Fac Postal Zip:	L9S3L1	**Cont Fax Area Cde:**	
Facility Lat:	44.31429	**Contact Fax:**	
Facility Long:	-79.72364	**Contact Email:**	

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB

DLS (Last Filed Rpt):		**Latitude:**	
Facility DLS:		**Longitude:**	
Datum:		**UTM Zone:**	
Facility Cmnts:		**UTM Northing:**	
URL:		**UTM Easting:**	
No of Empl.:		**Waste Streams:**	
Parent Co.:		**No Streams:**	
No Parent Co.:		**Waste Off Sites:**	
Pollut Prev Cmnts:		**No Off Sites:**	
Stacks:		**Shutdown:**	
No of Stacks:		**No of Shutdown:**	
Canadian SIC Code (2 digit):			
Canadian SIC Code:			
SIC Code Description:			
American SIC Code:			
NAICS Code (2 digit):	32		
NAICS 2 Description:	Manufacturing		
NAICS Code (4 digit):	3273		
NAICS 4 Description:	Cement and concrete product manufacturing		
NAICS Code (6 digit):	327320		
NAICS 6 Description:	Ready-mix concrete manufacturing		

28	10 of 12	SE/249.4	310.9 / 14.95	**Dufferin Concrete** **4165 West Salem Rd.** **Innisfil ON L4M4S7**	NPRI

NPRI ID:	8800000024	**Org ID:**	
Other ID:	*	**Submit Date:**	
No Other ID:		**Last Modified:**	
Track ID:		**Contact ID:**	
Report ID:		**Cont Type:**	
Report Type:		**Contact Title:**	
Rpt Type ID:		**Cont First Name:**	
Report Year:	2009	**Cont Last Name:**	
Not-Current Rpt?:		**Contact Position:**	
Yr of Last Filed Rpt:		**Contact Fax:**	
Fac ID:		**Contact Ph.:**	
Fac Name:	Innisfil Plant	**Cont Area Code:**	
Fac Address1:		**Contact Tel.:**	
Fac Address2:		**Contact Ext.:**	
Fac Postal Zip:		**Cont Fax Area Cde:**	
Facility Lat:		**Contact Fax:**	
Facility Long:		**Contact Email:**	
DLS (Last Filed Rpt):		**Latitude:**	
Facility DLS:		**Longitude:**	
Datum:		**UTM Zone:**	
Facility Cmnts:	No	**UTM Northing:**	
URL:		**UTM Easting:**	
No of Empl.:	0	**Waste Streams:**	No
Parent Co.:	*	**No Streams:**	
No Parent Co.:		**Waste Off Sites:**	No
Pollut Prev Cmnts:	No	**No Off Sites:**	
Stacks:	No	**Shutdown:**	No
No of Stacks:		**No of Shutdown:**	
Canadian SIC Code (2 digit):			
Canadian SIC Code:			
SIC Code Description:			
American SIC Code:			
NAICS Code (2 digit):			
NAICS 2 Description:			
NAICS Code (4 digit):			
NAICS 4 Description:			
NAICS Code (6 digit):			
NAICS 6 Description:			

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
28	11 of 12	SE/249.4	310.9 / 14.95	DUFFERIN CONCRETE 4165 Salem Road Innisfil ON L9S3L1	NPRI

NPRI ID:	500131	**Org ID:**	102166
Other ID:		**Submit Date:**	5/29/2014
No Other ID:		**Last Modified:**	7/24/2015 11:40:22 AM
Track ID:	118440	**Contact ID:**	
Report ID:	37676	**Cont Type:**	
Report Type:	DNMC	**Contact Title:**	
Rpt Type ID:	2	**Cont First Name:**	
Report Year:	2013	**Cont Last Name:**	
Not-Current Rpt?:	Yes	**Contact Position:**	
Yr of Last Filed Rpt:		**Contact Fax:**	
Fac ID:	233015	**Contact Ph.:**	
Fac Name:	Dufferin Concrete, Innisfil Plant	**Cont Area Code:**	
Fac Address1:	4165 Salem Road	**Contact Tel.:**	
Fac Address2:		**Contact Ext.:**	
Fac Postal Zip:	L9S3L1	**Cont Fax Area Cde:**	
Facility Lat:	44.31429	**Contact Fax:**	
Facility Long:	-79.72364	**Contact Email:**	
DLS (Last Filed Rpt):		**Latitude:**	
Facility DLS:		**Longitude:**	
Datum:		**UTM Zone:**	
Facility Cmnts:		**UTM Northing:**	
URL:		**UTM Easting:**	
No of Empl.:		**Waste Streams:**	
Parent Co.:		**No Streams:**	
No Parent Co.:		**Waste Off Sites:**	
Pollut Prev Cmnts:		**No Off Sites:**	
Stacks:		**Shutdown:**	
No of Stacks:		**No of Shutdown:**	
Canadian SIC Code (2 digit):			
Canadian SIC Code:			
SIC Code Description:			
American SIC Code:			
NAICS Code (2 digit):	32		
NAICS 2 Description:	Manufacturing		
NAICS Code (4 digit):	3273		
NAICS 4 Description:	Cement and concrete product manufacturing		
NAICS Code (6 digit):	327320		
NAICS 6 Description:	Ready-mix concrete manufacturing		

Map Key	Number of Records	Direction/ Distance (m)	Elev/Diff (m)	Site	DB
28	12 of 12	SE/249.4	310.9 / 14.95	Dufferin Concrete a Division of CRH Canada Group Inc. 4165 Salem Road Innisfil ON L9S3L1	NPRI

NPRI ID:	500131	**Org ID:**	105857
Other ID:		**Submit Date:**	5/26/2016
No Other ID:		**Last Modified:**	11/18/2016 8:28:05 AM
Track ID:	138653	**Contact ID:**	
Report ID:	72598	**Cont Type:**	
Report Type:	DNMC	**Contact Title:**	
Rpt Type ID:	2	**Cont First Name:**	
Report Year:	2015	**Cont Last Name:**	
Not-Current Rpt?:	No	**Contact Position:**	
Yr of Last Filed Rpt:		**Contact Fax:**	
Fac ID:	233015	**Contact Ph.:**	
Fac Name:	Dufferin Concrete, Innisfil Plant	**Cont Area Code:**	
Fac Address1:	4165 Salem Road	**Contact Tel.:**	
Fac Address2:		**Contact Ext.:**	
Fac Postal Zip:	L9S3L1	**Cont Fax Area Cde:**	
Facility Lat:	44.31429	**Contact Fax:**	

Facility Long:	-79.72364	***Contact Email:***	
DLS (Last Filed Rpt):		***Latitude:***	
Facility DLS:		***Longitude:***	
Datum:		***UTM Zone:***	
Facility Cmnts:		***UTM Northing:***	
URL:		***UTM Easting:***	
No of Empl.:		***Waste Streams:***	
Parent Co.:		***No Streams:***	
No Parent Co.:		***Waste Off Sites:***	
Pollut Prev Cmnts:		***No Off Sites:***	
Stacks:		***Shutdown:***	
No of Stacks:		***No of Shutdown:***	
Canadian SIC Code (2 digit):			
Canadian SIC Code:			
SIC Code Description:			
American SIC Code:			
NAICS Code (2 digit):	32		
NAICS 2 Description:	Manufacturing		
NAICS Code (4 digit):	3273		
NAICS 4 Description:	Cement and concrete product manufacturing		
NAICS Code (6 digit):	327320		
NAICS 6 Description:	Ready-mix concrete manufacturing		

Unplottable Summary

Total: 34 Unplottable sites

DB	Company Name/Site Name	Address	City	Postal
AAGR		Lot 25 Con 11	Innisfil ON	
CA	KALLEN PROPERTIES INC.	COUNTY RD. #27, PT.LOT 15/C-11	ESSA TWP. ON	
CA	KALLEN PROPERTIES INC.	COUNTY RD. #27,PT.LOT 15/C-11	ESSA TWP. ON	
GEN	CRH Canada Group Inc.	Bowman, St	Innisfil ON	L9S 0E9
GEN	CRH Canada Group Inc.	Bowman, St	Innisfil ON	L9S 0E9
GEN	Carillion Canada Inc.	Simcoe County Rd 27 Springwater Township	Simcoe ON	
GEN	TWD Roads Management Inc.	Simcoe County Rd 27 Springwater Township	Simcoe ON	
GEN	TWD Roads Management Inc.	Simcoe County Rd 27 Springwater Township	Simcoe ON	L4N 9B7
GEN	TWD Roads Management Inc.	Simcoe County Rd 27 Springwater Township	Simcoe ON	L4N 9B7
GEN	TWD Roads Management Inc.	Simcoe County Rd 27 Springwater Township	Simcoe ON	
GEN	Carillion Canada Inc.	Simcoe County Rd 27 Springwater Township	Simcoe ON	L4N 9B7
GEN	TWD Roads Management Inc.	Simcoe County Rd 27 Springwater Township	Simcoe ON	
GEN	UNILOCK LTD.	NORTH 1/2 OF LOT1,CON10 INNISFIL TWP C/O RR #5	BARRIE ON	L4M 4S7
GEN	UNILOCK LTD.	NORTH 1/2 OF LOT1,CON10 INNISFIL TWP	INNISFIL TWP. ON	L4M 4S7
GEN	UNILOCK LTD. 39-139	NORTH 1/2 OF LOT1,CON10 INNISFIL TWP C/O RR #5	BARRIE ON	L4M 4S7
GEN	UNILOCK LIMITED	NORTH 1/2 OF LOT 1, CONCESSION 10	INNISFIL TWP. ON	L4M 4S7
GEN	MINISTRY OF TRANSPORTATION	MTO CENTRAL REGION MULTIPLE GENERATING LOCATIONS	GTA/NIAGARA /DURHAM AREA ON	

GEN	MINISTRY OF TRANSPORTATION	MTO CENTRAL REGION MULTIPLE GENERATING LOCATIONS	GTA/NIAGARA /DURHAM AREA ON	MULTIPL
GEN	MINISTRY OF TRANSPORTATION	MTO CENTRAL REGION MULTIPLE GENERATING LOCATIONS	GTA/NIAGARA /DURHAM AREA ON	MULTIPL
GEN	MINISTRY OF TRANSPORTATION	MTO CENTRAL REGION MULTIPLE GENERATING LOCATIONS	GTA/NIAGARA /DURHAM AREA ON	MULTIPL
LIMO	Ministry of Transportation	South 1/2 of Lot 15, Concession 6	Town of Innisfil ON	
PTTW	St. Joseph Natural Clear Springwater Inc	Lot 2	Town of Innisfil ON	
PTTW	Saputo Cheese Ltd.	Lot 2	Town of Innisfil ON	
SPL	SERVICE STATION	CO-OP PETROLEUM, HWY. 27, 1 BLOCK NORTH OF HIGHWAY 89 (N.O.S.)	INNISFIL TOWN ON	
SPL	TRANSPORT TRUCK	COUNTY ROAD # 27, ABOUT 4 MILES NORTH OF COOKSTOWN. MOTOR VEHICLE (OPERATING FLUID)	INNISFIL TOWN ON	
SPL		HWY 27 SOUTH OF 89<UNOFFICIAL>	Innisfil ON	
SPL	SANDY COVE ACRES	LOT 25, CONC 10 & 11. SANITARY SEWER, LOT 25,CONC 10 & 11. INNISFIL TWP	INNISFIL TOWN ON	
SPL	SANDY COVE ACRES	LOT 25,CONC 10 & 11 SANITARY SEWER, LOT 25,CONC 10 & 11. INNISFIL TWP	INNISFIL TOWN ON	
SPL	MINISTRY OF TRANSPORTATION	MOT SAND CAMP	INNISFIL TOWN ON	
WWIS		lot 25	ON	
WWIS		lot 1 con 11	ON	
WWIS		lot 25	ON	
WWIS		lot 1	ON	
WWIS		lot 2	ON	

Unplottable Report

Site:
Lot 25 Con 11 Innisfil ON

Database: ***AAGR***

Type:	Pit
Region/County:	Simcoe
Township:	Innisfil
Concession::	11
Lot::	25
Size (ha)::	3
Landuse::	
Comments::	

Site: ***KALLEN PROPERTIES INC.***
COUNTY RD. #27, PT.LOT 15/C-11 ESSA TWP. ON

Database: ***CA***

Certificate #:	3-0117-99-
Application Year:	99
Issue Date:	4/15/1999
Approval Type:	Municipal sewage
Status:	Approved
Application Type:	
Client Name::	
Client Address::	
Client City::	
Client Postal Code::	
Project Description::	
Contaminants::	
Emission Control::	

Site: ***KALLEN PROPERTIES INC.***
COUNTY RD. #27,PT.LOT 15/C-11 ESSA TWP. ON

Database: ***CA***

Certificate #:	7-0060-99-
Application Year:	99
Issue Date:	4/15/1999
Approval Type:	Municipal water
Status:	Approved
Application Type:	
Client Name::	
Client Address::	
Client City::	
Client Postal Code::	
Project Description::	
Contaminants::	
Emission Control::	

Site: ***CRH Canada Group Inc.***
Bowman, St Innisfil ON L9S 0E9

Database: ***GEN***

Generator No.:	ON4853703	***PO Box No.:***	
Status:		***Country:***	Canada
Approval Years:	2015	***Choice of Contact:***	CO_OFFICIAL
Contam. Facility:	No	***Co Admin:***	
MHSW Facility:	No	***Phone No. Admin:***	
SIC Code:	324121, 237310		

SIC Description: ASPHALT PAVING MIXTURE AND BLOCK MANUFACTURING, HIGHWAY, STREET AND BRIDGE CONSTRUCTION

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 241
Waste Description: HALOGENATED SOLVENTS

Site: ***CRH Canada Group Inc.***
Bowman, St Innisfil ON L9S 0E9

Database: ***GEN***

Generator No.: ON4853703
Status:
Approval Years: 2016
Contam. Facility: No
MHSW Facility: No
SIC Code: 324121, 237310
SIC Description: ASPHALT PAVING MIXTURE AND BLOCK MANUFACTURING, HIGHWAY, STREET AND BRIDGE CONSTRUCTION

PO Box No.:
Country: Canada
Choice of Contact: CO_OFFICIAL
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 241
Waste Description: HALOGENATED SOLVENTS

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Site: ***Carillion Canada Inc.***
Simcoe County Rd 27 Springwater Township Simcoe ON

Database: ***GEN***

Generator No.: ON5217921
Status:
Approval Years: 2013
Contam. Facility:
MHSW Facility:
SIC Code: 488490
SIC Description: OTHER SUPPORT ACTIVITIES FOR ROAD TRANSPORTATION

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Site: ***TWD Roads Management Inc.***
Simcoe County Rd 27 Springwater Township Simcoe ON

Database: ***GEN***

Generator No.: ON5217921
Status:
Approval Years: 2011
Contam. Facility:
MHSW Facility:
SIC Code: 488490
SIC Description: Other Support Activities for Road Transportation

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Site: ***TWD Roads Management Inc.***
Simcoe County Rd 27 Springwater Township Simcoe ON L4N 9B7

Database: ***GEN***

Generator No.: ON5217921
Status:
Approval Years: 05,06,07,08
Contam. Facility:
MHSW Facility:
SIC Code: 488490
SIC Description: Other Support Activities for Road Transportation

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Site: ***TWD Roads Management Inc.***
Simcoe County Rd 27 Springwater Township Simcoe ON L4N 9B7

Database: ***GEN***

Generator No.: ON5217921
Status:
Approval Years: 04,07,08
Contam. Facility:
MHSW Facility:
SIC Code: 488490
SIC Description: Other Support Activities for Road Transportation

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

Site: ***TWD Roads Management Inc.***
Simcoe County Rd 27 Springwater Township Simcoe ON

Database: ***GEN***

Generator No.: ON5217921
Status:
Approval Years: 2010
Contam. Facility:
MHSW Facility:
SIC Code: 488490
SIC Description: Other Support Activities for Road Transportation

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Site: ***Carillion Canada Inc.***
Simcoe County Rd 27 Springwater Township Simcoe ON L4N 9B7

Database: ***GEN***

Generator No.: ON5217921
Status:
Approval Years: 2012
Contam. Facility:
MHSW Facility:
SIC Code: 488490
SIC Description: Other Support Activities for Road Transportation

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Site: ***TWD Roads Management Inc.***
Simcoe County Rd 27 Springwater Township Simcoe ON

Database: ***GEN***

Generator No.: ON5217921
Status:
Approval Years: 2009
Contam. Facility:
MHSW Facility:
SIC Code: 488490
SIC Description: Other Support Activities for Road Transportation

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Site: ***UNILOCK LTD.***
NORTH 1/2 OF LOT1,CON10 INNISFIL TWP C/O RR #5 BARRIE ON L4M 4S7

Database: ***GEN***

Generator No.: ON0689000
Status:
Approval Years: 86,87,88,89,90
Contam. Facility:
MHSW Facility:
SIC Code: 3542
SIC Description: STRUCTURAL CONCRETE

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Site: ***UNILOCK LTD.***
NORTH 1/2 OF LOT1,CON10 INNISFIL TWP INNISFIL TWP. ON L4M 4S7

Database: ***GEN***

Generator No.: ON0689000
Status:
Approval Years: 92,93,97,98
Contam. Facility:
MHSW Facility:
SIC Code: 3542
SIC Description: STRUCTURAL CONCRETE

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Site: ***UNILOCK LTD.*** ***39-139***
NORTH 1/2 OF LOT1,CON10 INNISFIL TWP C/O RR #5 BARRIE ON L4M 4S7

Database: ***GEN***

Generator No.: ON0689000
Status:
Approval Years: 94,95,96
Contam. Facility:
MHSW Facility:
SIC Code: 3542
SIC Description: STRUCTURAL CONCRETE

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Site: ***UNILOCK LIMITED***
NORTH 1/2 OF LOT 1, CONCESSION 10 INNISFIL TWP. ON L4M 4S7

Database: ***GEN***

Generator No.: ON0689000
Status:
Approval Years: 99,00,01
Contam. Facility:
MHSW Facility:
SIC Code: 3542
SIC Description: STRUCTURAL CONCRETE

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Site: ***MINISTRY OF TRANSPORTATION***
MTO CENTRAL REGION MULTIPLE GENERATING LOCATIONS GTA/NIAGARA /DURHAM AREA ON

Database: ***GEN***

Generator No.: ON0124208
Status:
Approval Years: 2013
Contam. Facility:
MHSW Facility:
SIC Code: 912910
SIC Description: OTHER PROVINCIAL AND TERRITORIAL PUBLIC ADMINISTRATION

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 331
Waste Description: WASTE COMPRESSED GASES

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 211
Waste Description: AROMATIC SOLVENTS

Waste Code: 262
Waste Description: DETERGENTS/SOAPS

Waste Code: 241
Waste Description: HALOGENATED SOLVENTS

Waste Code: 122
Waste Description: ALKALINE WASTES - OTHER METALS

Waste Code: 145
Waste Description: PAINT/PIGMENT/COATING RESIDUES

Waste Code: 263
Waste Description: ORGANIC LABORATORY CHEMICALS

Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 222
Waste Description: HEAVY FUELS

Waste Code: 232
Waste Description: POLYMERIC RESINS

Waste Code: 243
Waste Description: PCBS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code: 221
Waste Description: LIGHT FUELS

Waste Code: 112
Waste Description: ACID WASTE - HEAVY METALS

Waste Code: 133
Waste Description: BRINES, CHLOR-ALKALI WASTES

Waste Code: 113
Waste Description: ACID WASTE - OTHER METALS

Waste Code: 148
Waste Description: INORGANIC LABORATORY CHEMICALS

Site: ***MINISTRY OF TRANSPORTATION***
MTO CENTRAL REGION MULTIPLE GENERATING LOCATIONS GTA/NIAGARA /DURHAM AREA ON MULTIPL

Database: ***GEN***

Generator No.: ON0124208
Status:
Approval Years: 2010
Contam. Facility:
MHSW Facility:
SIC Code: 912910
SIC Description: Other Provincial and Territorial Public Administration

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--

Waste Code: 112
Waste Description: ACID WASTE - HEAVY METALS

Waste Code: 331
Waste Description: WASTE COMPRESSED GASES

Waste Code: 262
Waste Description: DETERGENTS/SOAPS

Waste Code: 113
Waste Description: ACID WASTE - OTHER METALS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 241
Waste Description: HALOGENATED SOLVENTS

Waste Code: 263
Waste Description: ORGANIC LABORATORY CHEMICALS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code: 232
Waste Description: POLYMERIC RESINS

Waste Code: 243
Waste Description: PCBS

Waste Code: 222
Waste Description: HEAVY FUELS

Waste Code: 148
Waste Description: INORGANIC LABORATORY CHEMICALS

Waste Code: 122
Waste Description: ALKALINE WASTES - OTHER METALS

Waste Code: 133
Waste Description: BRINES, CHLOR-ALKALI WASTES

Waste Code: 145
Waste Description: PAINT/PIGMENT/COATING RESIDUES

Waste Code: 211
Waste Description: AROMATIC SOLVENTS

Waste Code: 221
Waste Description: LIGHT FUELS

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Site: ***MINISTRY OF TRANSPORTATION***
MTO CENTRAL REGION MULTIPLE GENERATING LOCATIONS GTA/NIAGARA /DURHAM AREA ON MULTIPL

Database: ***GEN***

Generator No.: ON0124208
Status:
Approval Years: 2011
Contam. Facility:
MHSW Facility:
SIC Code: 912910
SIC Description: Other Provincial and Territorial Public Administration

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 148
Waste Description: INORGANIC LABORATORY CHEMICALS

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code: 112
Waste Description: ACID WASTE - HEAVY METALS

Waste Code: 222
Waste Description: HEAVY FUELS

Waste Code: 251
Waste Description: OIL SKIMMINGS & SLUDGES

Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 221
Waste Description: LIGHT FUELS

Waste Code: 122
Waste Description: ALKALINE WASTES - OTHER METALS

Waste Code: 243
Waste Description: PCBS

Waste Code: 113
Waste Description: ACID WASTE - OTHER METALS

Waste Code: 213
Waste Description: PETROLEUM DISTILLATES

Waste Code: 263
Waste Description: ORGANIC LABORATORY CHEMICALS

Waste Code: 241
Waste Description: HALOGENATED SOLVENTS

Waste Code: 331
Waste Description: WASTE COMPRESSED GASES

Waste Code: 262
Waste Description: DETERGENTS/SOAPS

Waste Code: 145
Waste Description: PAINT/PIGMENT/COATING RESIDUES

Waste Code: 133
Waste Description: BRINES, CHLOR-ALKALI WASTES

Waste Code: 232
Waste Description: POLYMERIC RESINS

Waste Code: 212
Waste Description: ALIPHATIC SOLVENTS

Waste Code: 211
Waste Description: AROMATIC SOLVENTS

Site: ***MINISTRY OF TRANSPORTATION***
MTO CENTRAL REGION MULTIPLE GENERATING LOCATIONS GTA/NIAGARA /DURHAM AREA ON MULTIPL

Database: ***GEN***

Generator No.: ON0124208
Status:
Approval Years: 2012
Contam. Facility:
MHSW Facility:
SIC Code: 912910
SIC Description: Other Provincial and Territorial Public Administration

PO Box No.:
Country:
Choice of Contact:
Co Admin:
Phone No. Admin:

--Details--
Waste Code: 252
Waste Description: WASTE OILS & LUBRICANTS

Waste Code: 146
Waste Description: OTHER SPECIFIED INORGANICS

Waste Code:	262
Waste Description:	DETERGENTS/SOAPS
Waste Code:	212
Waste Description:	ALIPHATIC SOLVENTS
Waste Code:	222
Waste Description:	HEAVY FUELS
Waste Code:	243
Waste Description:	PCBS
Waste Code:	148
Waste Description:	INORGANIC LABORATORY CHEMICALS
Waste Code:	263
Waste Description:	ORGANIC LABORATORY CHEMICALS
Waste Code:	122
Waste Description:	ALKALINE WASTES - OTHER METALS
Waste Code:	331
Waste Description:	WASTE COMPRESSED GASES
Waste Code:	213
Waste Description:	PETROLEUM DISTILLATES
Waste Code:	145
Waste Description:	PAINT/PIGMENT/COATING RESIDUES
Waste Code:	241
Waste Description:	HALOGENATED SOLVENTS
Waste Code:	211
Waste Description:	AROMATIC SOLVENTS
Waste Code:	232
Waste Description:	POLYMERIC RESINS
Waste Code:	251
Waste Description:	OIL SKIMMINGS & SLUDGES
Waste Code:	112
Waste Description:	ACID WASTE - HEAVY METALS
Waste Code:	221
Waste Description:	LIGHT FUELS
Waste Code:	133
Waste Description:	BRINES, CHLOR-ALKALI WASTES
Waste Code:	113
Waste Description:	ACID WASTE - OTHER METALS

Site: ***Ministry of Transportation***
South 1/2 of Lot 15, Concession 6 Town of Innisfil ON

Database: ***LIMO***

C of A No:	A252203	***Site County:***	Simcoe
C of A Issue Date:	5/31/1973	***MOE Region:***	Central
C of A Issued to:		***MOE District:***	Barrie
Operation Status:	Closed	***Easting:***	
Landfill Type:		***Northing:***	
Total Site Area:		***Latitude:***	
Footprint:		***Longitude:***	
Tot Apprvd Capac:		***UTM Zone:***	
Tot Aprv Cp Unit:		***Data Source:***	small landfills
Fill Rate:		***Cntm Attn Zn:***	

Fill Rate Unit:		***Grndwtr Mntr:***	
Est Remain Cap:		***Surf Wtr Mntr:***	
ERC Volume Unit:		***Lst Rprting Yr:***	
ERC Methodology:		***Fin Assrnce:***	
ERC Dt Last Det:		***Nat Attnuatn:***	
Total Waste Rec:		***Liners:***	
TWR Unit:		***Cvr Material:***	
TWR Methodology:			
Site Name:	Ministry of Transportation Innisfil Roadside Landfill		
Air Emmis Monitor:			
Leachate Off-Site:			
Leachate On Site:			
Landfill Gas Manag (P):			
Landfill Gas Manag (F):			
Landfill Gas Manag (E):			
Req Col Lndfll Gas:			
Lndfll Gas Cllcted:			
Lndfll Gas Mntr:			
Service Area:			
Approved Waste Type:			

Site: ***St. Joseph Natural Clear Springwater Inc***
Lot 2 Town of Innisfil ON

Database: ***PTTW***

EBR Registry No.:	IA9E1311
Ministry Ref. No.:	
Year:	1999
Proposal Date:	
Notice Date:	
Notice Type:	Instrument
Proponent Address:	St. Joseph Natural Clear Springwater Inc.219 Rosemount Ave.,Toronto, Ontario, M6H 2H2
Instrument Type:	OWRA s. 34 - Permit to take water
Location:	Town of Innisfil
Location Other:	Lot 2, Concession 10

Site: ***Saputo Cheese Ltd.***
Lot 2 Town of Innisfil ON

Database: ***PTTW***

EBR Registry No.:	IA8E1369
Ministry Ref. No.:	
Year:	1998
Proposal Date:	10/5/98
Notice Date:	
Notice Type:	Instrument
Proponent Address:	Saputo Cheese Ltd.R.R. # 1,Cookstown, Ontario, L0L 1L0
Instrument Type:	OWRA s. 34 - Permit to take water
Location:	Town of Innisfil
Location Other:	Lot 2, Concession 4

Site: ***SERVICE STATION***
CO-OP PETROLEUM, HWY. 27, 1 BLOCK NORTH OF HIGHWAY 89 (N.O.S.) INNISFIL TOWN ON

Database: ***SPL***

Ref No:	76667	***Sector Type:***	
Contaminant Name:		***Source Type:***	
Contaminant Code:		***Receiving Medium:***	LAND
Contaminant Limit 1:		***Receiving Env:***	
Contam Limit Freq 1:		***Environment Impact:***	CONFIRMED
Contaminant UN No 1:		***Nature of Impact:***	Soil contamination
Contaminant Qty:		***SAC Action Class:***	
Material Group:		***Year:***	
MOE Reported Dt:	9/23/1992	***Site Address:***	
Health/Env Conseq:		***Site Conc:***	
Incident Dt:	9/23/1992	***Site Lot:***	
Incident Cause:	UNKNOWN	***Site County/District:***	

Incident Event:		***Site Municipality:***	70409
Incident Reason:	UNKNOWN	***Site Postal Code:***	
Incident Summary:	CO-OP PETROLEUM - 200 CU. YRDS SOIL CONTAMINATED WITH FUEL.		

Site: ***TRANSPORT TRUCK***
COUNTY ROAD # 27, ABOUT 4 MILES NORTH OF COOKSTOWN. MOTOR VEHICLE (OPERATING FLUID) INNISFIL TOWN ON

Database: ***SPL***

Ref No:	162782	***Sector Type:***	
Contaminant Name:		***Source Type:***	
Contaminant Code:		***Receiving Medium:***	LAND
Contaminant Limit 1:		***Receiving Env:***	
Contam Limit Freq 1:		***Environment Impact:***	POSSIBLE
Contaminant UN No 1:		***Nature of Impact:***	Soil contamination
Contaminant Qty:		***SAC Action Class:***	
Material Group:		***Year:***	
MOE Reported Dt:	12/9/1998	***Site Address:***	
Health/Env Conseq:		***Site Conc:***	
Incident Dt:	12/9/1998	***Site Lot:***	
Incident Cause:	OTHER TRANSPORTATION ACCIDENT	***Site County/District:***	
Incident Event:		***Site Municipality:***	70409
Incident Reason:	OTHER	***Site Postal Code:***	
Incident Summary:	GIBSON TRANSPORT- 150 L DIESEL TO DITCH, CONTAINED, CLEANING.		

Site:
HWY 27 SOUTH OF 89<UNOFFICIAL> Innisfil ON

Database: ***SPL***

Ref No:	1067-5SBQA9	***Sector Type:***	Transport Truck
Contaminant Name:	HYDRAULIC OIL	***Source Type:***	
Contaminant Code:	15	***Receiving Medium:***	Water
Contaminant Limit 1:		***Receiving Env:***	
Contam Limit Freq 1:		***Environment Impact:***	Possible
Contaminant UN No 1:		***Nature of Impact:***	Surface Water Pollution
Contaminant Qty:	91 L	***SAC Action Class:***	Spills
Material Group:	Oil	***Year:***	
MOE Reported Dt:	10/14/2003	***Site Address:***	
Health/Env Conseq:		***Site Conc:***	
Incident Dt:	10/14/2003	***Site Lot:***	
Incident Cause:	Other Transport Accident	***Site County/District:***	
Incident Event:		***Site Municipality:***	Innisfil
Incident Reason:	Unknown - Reason not determined	***Site Postal Code:***	
Incident Summary:	Hwy 27 Innisfil - hydraulic oil spill		

Site: ***SANDY COVE ACRES***
LOT 25, CONC 10 & 11. SANITARY SEWER, LOT 25,CONC 10 & 11. INNISFIL TWP INNISFIL TOWN ON

Database: ***SPL***

Ref No:	109631	***Sector Type:***	
Contaminant Name:		***Source Type:***	
Contaminant Code:		***Receiving Medium:***	LAND
Contaminant Limit 1:		***Receiving Env:***	
Contam Limit Freq 1:		***Environment Impact:***	POSSIBLE
Contaminant UN No 1:		***Nature of Impact:***	Soil contamination
Contaminant Qty:		***SAC Action Class:***	
Material Group:		***Year:***	
MOE Reported Dt:	1/30/1995	***Site Address:***	
Health/Env Conseq:		***Site Conc:***	
Incident Dt:	1/30/1995	***Site Lot:***	
Incident Cause:	CONTAINER OVERFLOW	***Site County/District:***	
Incident Event:		***Site Municipality:***	70409
Incident Reason:	EQUIPMENT FAILURE	***Site Postal Code:***	
Incident Summary:	SANDY COVE ACRES- MANHOLEOVERFLOW, SMALL QUANTITY		

OF SEWAGE ONTO GROUND.

Site: ***SANDY COVE ACRES***
LOT 25,CONC 10 & 11 SANITARY SEWER, LOT 25,CONC 10 & 11. INNISFIL TWP INNISFIL TOWN ON

Database: ***SPL***

Ref No:	131743	***Sector Type:***	
Contaminant Name:		***Source Type:***	
Contaminant Code:		***Receiving Medium:***	LAND
Contaminant Limit 1:		***Receiving Env:***	
Contam Limit Freq 1:		***Environment Impact:***	NOT ANTICIPATED
Contaminant UN No 1:		***Nature of Impact:***	
Contaminant Qty:		***SAC Action Class:***	
Material Group:		***Year:***	
MOE Reported Dt:	9/12/1996	***Site Address:***	
Health/Env Conseq:		***Site Conc:***	
Incident Dt:	9/12/1996	***Site Lot:***	
Incident Cause:	PIPE/HOSE LEAK	***Site County/District:***	
Incident Event:		***Site Municipality:***	70409
Incident Reason:	UNKNOWN	***Site Postal Code:***	
Incident Summary:	SANDY COVE ACRES-25 L RAWSEWAGE TO LAWN,BLOCKED LINE,LINE CLEARED.		

Site: ***MINISTRY OF TRANSPORTATION***
MOT SAND CAMP INNISFIL TOWN ON

Database: ***SPL***

Ref No:	28507	***Sector Type:***	
Contaminant Name:		***Source Type:***	
Contaminant Code:		***Receiving Medium:***	LAND
Contaminant Limit 1:		***Receiving Env:***	
Contam Limit Freq 1:		***Environment Impact:***	
Contaminant UN No 1:		***Nature of Impact:***	
Contaminant Qty:		***SAC Action Class:***	
Material Group:		***Year:***	
MOE Reported Dt:	11/30/1989	***Site Address:***	
Health/Env Conseq:		***Site Conc:***	
Incident Dt:	11/30/1989	***Site Lot:***	
Incident Cause:	UNKNOWN	***Site County/District:***	
Incident Event:		***Site Municipality:***	70409
Incident Reason:	UNKNOWN	***Site Postal Code:***	
Incident Summary:	BACKENTRY-MOT-50-500 L DIESEL FUEL SPILLED. CLEANED.		

Site:
lot 25 ON

Database: ***WWIS***

Well ID:	5724081	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	11/2/1988
Sec. Water Use:		***Selected Flag:***	1
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	2514
Casing Material:		***Form Version:***	1
Audit No:	41270	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	SIMCOE
Elevation (m):		***Municipality:***	INNISFIL TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	025
Well Depth:		***Concession:***	
Overburden/Bedrock:		***Concession Name:***	
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	

Clear/Cloudy:

Bore Hole Information

Bore Hole ID: 10401686
DP2BR: 254
Code OB: r
Code OB Desc: Bedrock
Open Hole:
Elevation:
Elevrc:
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Spatial Status:
Cluster Kind:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na
Org CS:
Date Completed: 8/24/1988

Overburden and Bedrock Materials Interval

Formation ID: 932358370
Layer: 1
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 0.00
Formation End Depth: 201.00
Formation End Depth UOM: ft

Formation ID: 932358371
Layer: 2
Color: 2
General Color: GREY
Mat1: 28
Most Common Material: SAND
Mat2: 11
Other Materials: GRAVEL
Mat3: 05
Other Materials: CLAY
Formation Top Depth: 201.00
Formation End Depth: 208.00
Formation End Depth UOM: ft

Formation ID: 932358372
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 208.00
Formation End Depth: 254.00
Formation End Depth UOM: ft

Formation ID: 932358373
Layer: 4
Color: 2

General Color: GREY
Mat1: 15
Most Common Material: LIMESTONE
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 254.00
Formation End Depth: 260.00
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933189214
Layer: 1
Plug From: 15.00
Plug To: 20.00
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 965724081
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 10950256
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930654488
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 201.00
Casing Diameter: 6.00
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 933373929
Layer: 1
Slot: 010
Screen Top Depth: 201.00
Screen End Depth: 207.00
Screen Material:
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 6.00

Results of Well Yield Testing

Pump Test ID: 995724081
Pump Set At:
Static Level: 5.00

Final Level After Pumping:	195.00
Recommended Pump Depth:	195.00
Pumping Rate:	5.00
Flowing Rate:	
Recommended Pump Rate:	4.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	10
Pumping Duration MIN:	30
Flowing:	N

Water Details

Water ID:	933883913
Layer:	1
Kind Code:	1
Kind:	FRESH
Water Found Depth:	201.00
Water Found Depth UOM:	ft

Site:
lot 1 con 11 ON

Database:
WWIS

Well ID:	5740408	***Data Entry Status:***	
Construction Date:		***Data Src:***	
Primary Water Use:	Domestic	***Date Received:***	12/23/2005
Sec. Water Use:		***Selected Flag:***	1
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	7074
Casing Material:		***Form Version:***	3
Audit No:	Z24618	***Owner:***	
Tag:	A023925	***Street Name:***	1107 CREUMERY RD
Construction Method:		***County:***	SIMCOE
Elevation (m):		***Municipality:***	57000
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	001
Well Depth:		***Concession:***	11
Overburden/Bedrock:		***Concession Name:***	
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	11325904	***Spatial Status:***	
DP2BR:		***Cluster Kind:***	
Code OB:	o	***UTMRC:***	
Code OB Desc:	Overburden	***UTMRC Desc:***	
Open Hole:		***Location Method:***	na
Elevation:		***Org CS:***	
Elevrc:		***Date Completed:***	11/5/2005
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID: 933030939
Layer: 1
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 28
Other Materials: SAND
Mat3: 12
Other Materials: STONES
Formation Top Depth: 0.00
Formation End Depth: 10.00
Formation End Depth UOM: ft

Formation ID: 933030940
Layer: 2
Color: 6
General Color: BROWN
Mat1: 10
Most Common Material: COARSE SAND
Mat2: 12
Other Materials: STONES
Mat3:
Other Materials:
Formation Top Depth: 10.00
Formation End Depth: 74.00
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933283920
Layer: 1
Plug From: 0.00
Plug To: 26.00
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 965740408
Method Construction Code: 2
Method Construction: Rotary (Convent.)
Other Method Construction:

Pipe Information

Pipe ID: 11340759
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930870119
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From: 0.00
Depth To: 60.00
Casing Diameter: 6.25
Casing Diameter UOM: inch
Casing Depth UOM: ft

Casing ID: 930870120
Layer: 2
Material: 1
Open Hole or Material: STEEL
Depth From: 56.00
Depth To: 67.00
Casing Diameter: 5.00
Casing Diameter UOM: inch
Casing Depth UOM: ft

Construction Record - Screen

Screen ID: 933416165
Layer: 1
Slot: 16
Screen Top Depth: 67.00
Screen End Depth: 74.00
Screen Material: 1
Screen Depth UOM: ft
Screen Diameter UOM: inch
Screen Diameter: 5.00

Results of Well Yield Testing

Pump Test ID: 11352339
Pump Set At: 60.00
Static Level: 39.00
Final Level After Pumping: 50.00
Recommended Pump Depth: 65.00
Pumping Rate: 10.00
Flowing Rate:
Recommended Pump Rate: 10.00
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2
Pumping Duration MIN:
Flowing:

Draw Down & Recovery

Pump Test Detail ID: 11512870
Test Type: Draw Down
Test Duration: 1
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512860
Test Type: Recovery
Test Duration: 1
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512879
Test Type: Draw Down
Test Duration: 2
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512878
Test Type: Recovery
Test Duration: 2
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512876
Test Type: Draw Down
Test Duration: 3
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512875
Test Type: Recovery
Test Duration: 3
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512874
Test Type: Draw Down
Test Duration: 4
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512873
Test Type: Recovery
Test Duration: 4
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512871
Test Type: Recovery
Test Duration: 5
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512872
Test Type: Draw Down
Test Duration: 5
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512869
Test Type: Draw Down
Test Duration: 10
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512867
Test Type: Recovery
Test Duration: 10
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512862
Test Type: Draw Down
Test Duration: 15
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512854
Test Type: Recovery
Test Duration: 15
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512855
Test Type: Draw Down
Test Duration: 20
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512856
Test Type: Recovery

Test Duration: 20
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512857
Test Type: Draw Down
Test Duration: 25
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512858
Test Type: Recovery
Test Duration: 25
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512868
Test Type: Recovery
Test Duration: 30
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512866
Test Type: Draw Down
Test Duration: 30
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512864
Test Type: Recovery
Test Duration: 40
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512863
Test Type: Draw Down
Test Duration: 40
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512865
Test Type: Draw Down
Test Duration: 50
Test Level: 50.00
Test Level UOM: ft

Pump Test Detail ID: 11512859
Test Type: Recovery
Test Duration: 50
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512877
Test Type: Recovery
Test Duration: 60
Test Level: 39.00
Test Level UOM: ft

Pump Test Detail ID: 11512861
Test Type: Draw Down
Test Duration: 60
Test Level: 50.00
Test Level UOM: ft

Water Details

Water ID: 934069205
Layer: 1

Kind Code:	1
Kind:	FRESH
Water Found Depth:	74.00
Water Found Depth UOM:	ft

Site:
lot 25 ON

Database:
WWIS

Well ID:	5723596	***Data Entry Status:***	
Construction Date:		***Data Src:***	1
Primary Water Use:	Domestic	***Date Received:***	8/22/1988
Sec. Water Use:		***Selected Flag:***	1
Final Well Status:	Water Supply	***Abandonment Rec:***	
Water Type:		***Contractor:***	2513
Casing Material:		***Form Version:***	1
Audit No:	34468	***Owner:***	
Tag:		***Street Name:***	
Construction Method:		***County:***	SIMCOE
Elevation (m):		***Municipality:***	INNISFIL TOWNSHIP
Elevation Reliability:		***Site Info:***	
Depth to Bedrock:		***Lot:***	025
Well Depth:		***Concession:***	
Overburden/Bedrock:		***Concession Name:***	
Pump Rate:		***Easting NAD83:***	
Static Water Level:		***Northing NAD83:***	
Flowing (Y/N):		***Zone:***	
Flow Rate:		***UTM Reliability:***	
Clear/Cloudy:			

Bore Hole Information

Bore Hole ID:	10401206	***Spatial Status:***	
DP2BR:	185	***Cluster Kind:***	
Code OB:	r	***UTMRC:***	9
Code OB Desc:	Bedrock	***UTMRC Desc:***	unknown UTM
Open Hole:		***Location Method:***	na
Elevation:		***Org CS:***	
Elevrc:		***Date Completed:***	7/18/1988
Remarks:			
Elevrc Desc:			
Location Source Date:			
Improvement Location Source:			
Improvement Location Method:			
Source Revision Comment:			
Supplier Comment:			

Overburden and Bedrock Materials Interval

Formation ID:	932356178
Layer:	1
Color:	
General Color:	
Mat1:	02
Most Common Material:	TOPSOIL
Mat2:	
Other Materials:	
Mat3:	
Other Materials:	
Formation Top Depth:	0.00
Formation End Depth:	1.00
Formation End Depth UOM:	ft

Formation ID:	932356179
Layer:	2
Color:	6

General Color: BROWN
Mat1: 05
Most Common Material: CLAY
Mat2: 28
Other Materials: SAND
Mat3:
Other Materials:
Formation Top Depth: 1.00
Formation End Depth: 9.00
Formation End Depth UOM: ft

Formation ID: 932356180
Layer: 3
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2: 28
Other Materials: SAND
Mat3: 13
Other Materials: BOULDERS
Formation Top Depth: 9.00
Formation End Depth: 185.00
Formation End Depth UOM: ft

Formation ID: 932356181
Layer: 4
Color:
General Color:
Mat1: 18
Most Common Material: SANDSTONE
Mat2: 10
Other Materials: COARSE SAND
Mat3:
Other Materials:
Formation Top Depth: 185.00
Formation End Depth: 188.00
Formation End Depth UOM: ft

Annular Space/Abandonment Sealing Record

Plug ID: 933188934
Layer: 1
Plug From: 0.00
Plug To: 7.00
Plug Depth UOM: ft

Plug ID: 933188935
Layer: 2
Plug From: 7.00
Plug To: 10.00
Plug Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 965723596
Method Construction Code: 1
Method Construction: Cable Tool
Other Method Construction:

Pipe Information

Pipe ID: 10949776
Casing No: 1

Comment:
Alt Name:

Construction Record - Casing

Casing ID:	930653876
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	185.00
Casing Diameter:	6.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933373669
Layer:	1
Slot:	018
Screen Top Depth:	185.00
Screen End Depth:	188.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.00

Results of Well Yield Testing

Pump Test ID:	995723596
Pump Set At:	
Static Level:	3.00
Final Level After Pumping:	127.00
Recommended Pump Depth:	130.00
Pumping Rate:	10.00
Flowing Rate:	
Recommended Pump Rate:	10.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	2
Pumping Duration HR:	1
Pumping Duration MIN:	30
Flowing:	N

Draw Down & Recovery

Pump Test Detail ID:	934306759
Test Type:	Draw Down
Test Duration:	15
Test Level:	127.00
Test Level UOM:	ft

Pump Test Detail ID:	934582471
Test Type:	Draw Down
Test Duration:	30
Test Level:	127.00
Test Level UOM:	ft

Pump Test Detail ID:	934839872
Test Type:	Draw Down
Test Duration:	45
Test Level:	127.00
Test Level UOM:	ft

Pump Test Detail ID: 935097903
Test Type: Draw Down
Test Duration: 60
Test Level: 127.00
Test Level UOM: ft

Water Details

Water ID: 933883419
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 185.00
Water Found Depth UOM: ft

Site:
lot 1 ON

Database:
WWIS

Well ID: 5729535
Construction Date:
Primary Water Use: Domestic
Sec. Water Use:
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No: 121820
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 9/9/1992
Selected Flag: 1
Abandonment Rec:
Contractor: 5224
Form Version: 1
Owner:
Street Name:
County: SIMCOE
Municipality: INDIAN RESERVE RAMA 32
Site Info:
Lot: 001
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10407106
DP2BR:
Code OB: o
Code OB Desc: Overburden
Open Hole:
Elevation:
Elevrc:
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

Spatial Status:
Cluster Kind:
UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na
Org CS:
Date Completed: 8/17/1992

Overburden and Bedrock Materials Interval

Formation ID: 932384344
Layer: 1
Color: 6
General Color: BROWN
Mat1: 05
Most Common Material: CLAY

Mat2: 13
Other Materials: BOULDERS
Mat3:
Other Materials:
Formation Top Depth: 0.00
Formation End Depth: 30.00
Formation End Depth UOM: ft

Formation ID: 932384345
Layer: 2
Color: 6
General Color: BROWN
Mat1: 11
Most Common Material: GRAVEL
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 30.00
Formation End Depth: 40.00
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 965729535
Method Construction Code: 5
Method Construction: Air Percussion
Other Method Construction:

Pipe Information

Pipe ID: 10955676
Casing No: 1
Comment:
Alt Name:

Construction Record - Casing

Casing ID: 930661181
Layer: 1
Material: 1
Open Hole or Material: STEEL
Depth From:
Depth To: 40.00
Casing Diameter: 6.00
Casing Diameter UOM: inch
Casing Depth UOM: ft

Results of Well Yield Testing

Pump Test ID: 995729535
Pump Set At:
Static Level: 19.00
Final Level After Pumping: 40.00
Recommended Pump Depth: 39.00
Pumping Rate: 3.00
Flowing Rate:
Recommended Pump Rate: 3.00
Levels UOM: ft
Rate UOM: GPM
Water State After Test Code: 1
Water State After Test: CLEAR
Pumping Test Method: 1
Pumping Duration HR: 2

Pumping Duration MIN: 0
Flowing: N

Draw Down & Recovery

Pump Test Detail ID: 934306508
Test Type:
Test Duration: 15
Test Level: 19.00
Test Level UOM: ft

Pump Test Detail ID: 934582264
Test Type:
Test Duration: 30
Test Level: 19.00
Test Level UOM: ft

Pump Test Detail ID: 934839504
Test Type:
Test Duration: 45
Test Level: 19.00
Test Level UOM: ft

Pump Test Detail ID: 935097621
Test Type:
Test Duration: 60
Test Level: 19.00
Test Level UOM: ft

Water Details

Water ID: 933889612
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 40.00
Water Found Depth UOM: ft

Site:
lot 2 ON

Database: ***WWIS***

Well ID: 5733892
Construction Date:
Primary Water Use: Domestic
Sec. Water Use:
Final Well Status: Water Supply
Water Type:
Casing Material:
Audit No: 125256
Tag:
Construction Method:
Elevation (m):
Elevation Reliability:
Depth to Bedrock:
Well Depth:
Overburden/Bedrock:
Pump Rate:
Static Water Level:
Flowing (Y/N):
Flow Rate:
Clear/Cloudy:

Data Entry Status:
Data Src: 1
Date Received: 12/8/1998
Selected Flag: 1
Abandonment Rec:
Contractor: 1312
Form Version: 1
Owner:
Street Name:
County: SIMCOE
Municipality: INNISFIL TOWNSHIP
Site Info:
Lot: 002
Concession:
Concession Name:
Easting NAD83:
Northing NAD83:
Zone:
UTM Reliability:

Bore Hole Information

Bore Hole ID: 10411424
DP2BR:

Spatial Status:
Cluster Kind:

Code OB: o
Code OB Desc: Overburden
Open Hole:
Elevation:
Elevrc:
Remarks:
Elevrc Desc:
Location Source Date:
Improvement Location Source:
Improvement Location Method:
Source Revision Comment:
Supplier Comment:

UTMRC: 9
UTMRC Desc: unknown UTM
Location Method: na
Org CS:
Date Completed: 7/1/1998

Overburden and Bedrock Materials Interval

Formation ID: 932406073
Layer: 1
Color: 6
General Color: BROWN
Mat1: 28
Most Common Material: SAND
Mat2: 12
Other Materials: STONES
Mat3:
Other Materials:
Formation Top Depth: 0.00
Formation End Depth: 18.00
Formation End Depth UOM: ft

Formation ID: 932406074
Layer: 2
Color: 2
General Color: GREY
Mat1: 05
Most Common Material: CLAY
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 18.00
Formation End Depth: 60.00
Formation End Depth UOM: ft

Formation ID: 932406075
Layer: 3
Color: 2
General Color: GREY
Mat1: 28
Most Common Material: SAND
Mat2:
Other Materials:
Mat3:
Other Materials:
Formation Top Depth: 60.00
Formation End Depth: 70.00
Formation End Depth UOM: ft

Method of Construction & Well Use

Method Construction ID: 965733892
Method Construction Code: 5
Method Construction: Air Percussion
Other Method Construction:

Pipe Information

Pipe ID:	10959994
Casing No:	1
Comment:	
Alt Name:	

Construction Record - Casing

Casing ID:	930666551
Layer:	1
Material:	1
Open Hole or Material:	STEEL
Depth From:	
Depth To:	67.00
Casing Diameter:	6.00
Casing Diameter UOM:	inch
Casing Depth UOM:	ft

Construction Record - Screen

Screen ID:	933379513
Layer:	1
Slot:	006
Screen Top Depth:	67.00
Screen End Depth:	70.00
Screen Material:	
Screen Depth UOM:	ft
Screen Diameter UOM:	inch
Screen Diameter:	6.00

Results of Well Yield Testing

Pump Test ID:	995733892
Pump Set At:	
Static Level:	12.00
Final Level After Pumping:	50.00
Recommended Pump Depth:	55.00
Pumping Rate:	10.00
Flowing Rate:	
Recommended Pump Rate:	10.00
Levels UOM:	ft
Rate UOM:	GPM
Water State After Test Code:	1
Water State After Test:	CLEAR
Pumping Test Method:	1
Pumping Duration HR:	1
Pumping Duration MIN:	
Flowing:	N

Draw Down & Recovery

Pump Test Detail ID:	934321627
Test Type:	Draw Down
Test Duration:	15
Test Level:	12.00
Test Level UOM:	ft

Pump Test Detail ID:	934578674
Test Type:	Draw Down
Test Duration:	30
Test Level:	12.00
Test Level UOM:	ft

Pump Test Detail ID:	934844217

Test Type: Draw Down
Test Duration: 45
Test Level: 12.00
Test Level UOM: ft

Pump Test Detail ID: 935102791
Test Type: Draw Down
Test Duration: 60
Test Level: 12.00
Test Level UOM: ft

Water Details

Water ID: 933894038
Layer: 1
Kind Code: 1
Kind: FRESH
Water Found Depth: 67.00
Water Found Depth UOM: ft

Appendix: Database Descriptions

Environmental Risk Information Services (ERIS) can search the following databases. The extent of historical information varies with each database and current information is determined by what is publicly available to ERIS at the time of update. ***Note:*** *Databases denoted with " * " indicates that the database will no longer be updated. See the individual database description for more information.*

Abandoned Aggregate Inventory: Provincial AAGR

The MAAP Program maintains a database of abandoned pits and quarries. Please note that the database is only referenced by lot and concession and city/town location. The database provides information regarding the location, type, size, land use, status and general comments.*

Government Publication Date: Sept 2002*

Aggregate Inventory: Provincial AGR

The Ontario Ministry of Natural Resources maintains a database of all active pits and quarries. The database provides information regarding the registered owner/operator, location name, operation type, approval type, and maximum annual tonnage.

Government Publication Date: Up to Sep 2017

Abandoned Mine Information System: Provincial AMIS

The Abandoned Mines Information System contains data on known abandoned and inactive mines located on both Crown and privately held lands. The information was provided by the Ministry of Northern Development and Mines (MNDM), with the following disclaimer: "the database provided has been compiled from various sources, and the Ministry of Northern Development and Mines makes no representation and takes no responsibility that such information is accurate, current or complete". Reported information includes official mine name, status, background information, mine start/end date, primary commodity, mine features, hazards and remediation.

Government Publication Date: 1800-Nov 2016

Anderson's Waste Disposal Sites: Private ANDR

The information provided in this database was collected by examining various historical documents which aimed to characterize the likely position of former waste disposal sites from 1860 to present. The research initiative behind the creation of this database was to identify those sites that are missing from the Ontario MOE Waste Disposal Site Inventory, as well as to provide revisions and corrections to the positions and descriptions of sites currently listed in the MOE inventory. In addition to historic waste disposal facilities, the database also identifies certain auto wreckers and scrap yards that have been extrapolated from documentary sources. Please note that the data is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1860s-Present

Automobile Wrecking & Supplies: Private AUWR

This database provides an inventory of known locations that are involved in the scrap metal, automobile wrecking/recycling, and automobile parts & supplies industry. Information is provided on the company name, location and business type.

Government Publication Date: 1999-Jan 31, 2018

Borehole: Provincial BORE

A borehole is the generalized term for any narrow shaft drilled in the ground, either vertically or horizontally. The information here includes geotechnical investigations or environmental site assessments, mineral exploration, or as a pilot hole for installing piers or underground utilities. Information is from many sources such as the Ministry of Transportation (MTO) boreholes from engineering reports and projects from the 1950 to 1990's in Southern Ontario. Boreholes from the Ontario Geological Survey (OGS) including The Urban Geology Analysis Information System (UGAIS) and the York Peel Durham Toronto (YPDT) database of the Conservation Authority Moraine Coalition. This database will include fields such as location, stratigraphy, depth, elevation, year drilled, etc. For all water well data or oil and gas well data for Ontario please refer to WWIS and OOGW.

Government Publication Date: 1875-Jul 2014

Certificates of Approval: Provincial CA

This database contains the following types of approvals: Air & Noise, Industrial Sewage, Municipal & Private Sewage, Waste Management Systems and Renewable Energy Approvals. The MOE in Ontario states that any facility that releases emissions to the atmosphere, discharges contaminants to ground or surface water, provides potable water supplies, or stores, transports or disposes of waste, must have a Certificate of Approval before it can operate lawfully. Fields include approval number, business name, address, approval date, approval type and status. This database will no longer be updated, as CofA's have been replaced by either Environmental Activity and Sector Registry (EASR) or Environmental Compliance Approval (ECA). Please refer to those individual databases for any information after Oct.31, 2011.

Government Publication Date: 1985-Oct 30, 2011*

Commercial Fuel Oil Tanks: Provincial CFOT

Since May 2002, Ontario developed a new act where it became mandatory for fuel oil tanks to be registered with Technical Standards & Safety Authority (TSSA). This data would include all commercial underground fuel oil tanks in Ontario with fields such as location, registration number, tank material, age of tank and tank size.

Government Publication Date: Feb 28, 2017

Chemical Register: Private CHEM

This database includes information from both a one time study conducted in 1992 and private source and is a listing of facilities that manufacture or distribute chemicals. The production of these chemical substances may involve one or more chemical reactions and/or chemical separation processes (i.e. fractionation, solvent extraction, crystallization, etc.).

Government Publication Date: 1999-Jan 31, 2018

Compressed Natural Gas Stations: Private CNG

Canada has a network of public access compressed natural gas (CNG) refuelling stations. These stations dispense natural gas in compressed form at 3,000 pounds per square inch (psi), the pressure which is allowed within the current Canadian codes and standards. The majority of natural gas refuelling is located at existing retail gasoline that have a separate refuelling island for natural gas. This list of stations is made available by the Canadian Natural Gas Vehicle Alliance.

Government Publication Date: Dec 31, 2012

Inventory of Coal Gasification Plants and Coal Tar Sites: Provincial COAL

This inventory includes both the "Inventory of Coal Gasification Plant Waste Sites in Ontario-April 1987" and the Inventory of Industrial Sites Producing or Using Coal Tar and Related Tars in Ontario-November 1988) collected by the MOE. It identifies industrial sites that produced and continue to produce or use coal tar and other related tars. Detailed information is available and includes: facility type, size, land use, information on adjoining properties, soil condition, site operators/occupants, site description, potential environmental impacts and historic maps available. This was a one-time inventory.*

Government Publication Date: Apr 1987 and Nov 1988*

Compliance and Convictions: Provincial CONV

This database summarizes the fines and convictions handed down by the Ontario courts beginning in 1989. Companies and individuals named here have been found guilty of environmental offenses in Ontario courts of law.

Government Publication Date: 1989-Nov 2017

Certificates of Property Use: Provincial CPU

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all CPU's on the registry such as (EPA s. 168.6) - Certificate of Property Use.

Government Publication Date: 1994-Oct 2017

Drill Hole Database: Provincial DRL

The Ontario Drill Hole Database contains information on more than 113,000 percussion, overburden, sonic and diamond drill holes from assessment files on record with the department of Mines and Minerals. Please note that limited data is available for southern Ontario, as it was the last area to be completed. The database was created when surveys submitted to the Ministry were converted in the Assessment File Research Image Database (AFRI) project. However, the degree of accuracy (coordinates) as to the exact location of drill holes is dependent upon the source document submitted to the MNDM. Levels of accuracy used to locate holes are: centering on the mining claim; a sketch of the mining claim; a 1:50,000 map; a detailed company map; or from submitted a "Report of Work".

Government Publication Date: 1886-Nov 30, 2017

Environmental Activity and Sector Registry: Provincial EASR

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. The EASR allows businesses to register certain activities with the ministry, rather than apply for an approval. The registry is available for common systems and processes, to which preset rules of operation can be applied. The EASR is currently available for: heating systems, standby power systems and automotive refinishing. Businesses whose activities aren't subject to the EASR may apply for an ECA (Environmental Compliance Approval), Please see our ECA database.

Government Publication Date: Oct 2011-Jan 31, 2018

Environmental Registry: Provincial EBR

The Environmental Registry lists proposals, decisions and exceptions regarding policies, Acts, instruments, or regulations that could significantly affect the environment. Through the Registry, thirteen provincial ministries notify the public of upcoming proposals and invite their comments. For example, if a local business is requesting a permit, license, or certificate of approval to release substances into the air or water; these are notified on the registry. Data includes: Approval for discharge into the natural environment other than water (i.e. Air) - EPA s. 9, Approval for sewage works - OWRA s. 53(1), and EPA s. 27 - Approval for a waste disposal site. For information regarding Permit to Take Water (PTTW), Certificate of Property Use (CPU) and (ORD) Orders please refer to those individual databases.

Government Publication Date: 1994-Oct 2017

Environmental Compliance Approval: Provincial ECA

On October 31, 2011, a smarter, faster environmental approvals system came into effect in Ontario. In the past, a business had to apply for multiple approvals (known as certificates of approval) for individual processes and pieces of equipment. Today, a business either registers itself, or applies for a single approval, depending on the types of activities it conducts. Businesses whose activities aren't subject to the EASR may apply for an ECA. A single ECA addresses all of a business's emissions, discharges and wastes. Separate approvals for air, noise and waste are no longer required. This database will also include Renewable Energy Approvals. For certificates of approval prior to Nov 1st, 2011, please refer to the CA database. For all Waste Disposal Sites please refer to the WDS database.

Government Publication Date: Oct 2011-Jan 31, 2018

Environmental Effects Monitoring: Federal EEM

The Environmental Effects Monitoring program assesses the effects of effluent from industrial or other sources on fish, fish habitat and human usage of fisheries resources. Since 1992, pulp and paper mills have been required to conduct EEM studies under the Pulp and Paper Effluent Regulations. This database provides information on the mill name, geographical location and sub-lethal toxicity data.

Government Publication Date: 1992-2007*

ERIS Historical Searches: Private EHS

ERIS has compiled a database of all environmental risk reports completed since March 1999. Available fields for this database include: site location, date of report, type of report, and search radius. As per all other databases, the ERIS database can be referenced on both the map and "Statistical Profile" page.

Government Publication Date: 1999-Feb 28, 2018

Environmental Issues Inventory System: Federal EIIS

The Environmental Issues Inventory System was developed through the implementation of the Environmental Issues and Remediation Plan. This plan was established to determine the location and severity of contaminated sites on inhabited First Nation reserves, and where necessary, to remediate those that posed a risk to health and safety; and to prevent future environmental problems. The EIIS provides information on the reserve under investigation, inventory number, name of site, environmental issue, site action (Remediation, Site Assessment), and date investigation completed.

Government Publication Date: 1992-2001*

Emergency Management Historical Event: Provincial EMHE

List of locations of historical occurrences of emergency events, including those assigned to the Ministry of Natural Resources by Order-In-Council (OIC) under the Emergency Management and Civil Protection Act, as well as events where MNR provided requested emergency response assistance. Many of these events will have involved community evacuations, significant structural loss, and/or involvement of MNR emergency response staff. These events fall into one of ten (10) type categories: Dam Failure; Drought / Low Water; Erosion; Flood; Forest Fire; Soil and Bedrock Instability; Petroleum Resource Center Event, EMO Requested Assistance, Continuity of Operations Event, Other Requested Assistance. EMHE record details are reproduced by ERIS under License with the Ontario Ministry of Natural Resources © Queen's Printer for Ontario, 2017.

Government Publication Date: Dec 31, 2016

List of TSSA Expired Facilities: Provincial EXP

List of facilities with removed tanks which were once registered with the Fuels Safety Program of the Technical Standards and Safety Authority (TSSA). Includes private fuel outlets, bulk plants, fuel oil tanks, gasoline stations, marinas, propane filling stations, liquid fuel tanks, piping systems, etc. Tanks which have been removed automatically fall under the expired facilities inventory held by TSSA.

Government Publication Date: Feb 28, 2017

Federal Convictions: Federal FCON

Environment Canada maintains a database referred to as the "Environmental Registry" that details prosecutions under the Canadian Environmental Protection Act (CEPA) and the Fisheries Act (FA). Information is provided on the company name, location, charge date, offence and penalty.

Government Publication Date: 1988-Jun 2007*

Contaminated Sites on Federal Land: Federal FCS

The Federal Contaminated Sites Inventory includes information on known federal contaminated sites under the custodianship of departments, agencies and consolidated Crown corporations as well as those that are being or have been investigated to determine whether they have contamination arising from past use that could pose a risk to human health or the environment. The inventory also includes non-federal contaminated sites for which the Government of Canada has accepted some or all financial responsibility. It does not include sites where contamination has been caused by, and which are under the control of, enterprise Crown corporations, private individuals, firms or other levels of government.

Government Publication Date: Jun 2000-Dec 2017

Fisheries & Oceans Fuel Tanks: Federal FOFT

Fisheries & Oceans Canada maintains an inventory of aboveground & underground fuel storage tanks located on Fisheries & Oceans property or controlled by DFO. Our inventory provides information on the site name, location, tank owner, tank operator, facility type, storage tank location, tank contents & capacity, and date of tank installation.

Government Publication Date: 1964-Sep 2017

Fuel Storage Tank: Provincial FST

The Technical Standards & Safety Authority (TSSA), under the Technical Standards & Safety Act of 2000 maintains a database of registered private and retail fuel storage tanks in Ontario with fields such as location, tank status, license date, tank type, tank capacity, fuel type, installation year and facility type.

Government Publication Date: Feb 28, 2017

Fuel Storage Tank - Historic: Provincial FSTH

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks. Public records of private fuel storage tanks are only available since the registration became effective in September 1989. This information is now collected by the Technical Standards and Safety Authority.

Government Publication Date: Pre-Jan 2010*

Ontario Regulation 347 Waste Generators Summary: Provincial GEN

Regulation 347 of the Ontario EPA defines a waste generation site as any site, equipment and/or operation involved in the production, collection, handling and/or storage of regulated wastes. A generator of regulated waste is required to register the waste generation site and each waste produced, collected, handled, or stored at the site. This database contains the registration number, company name and address of registered generators including the types of hazardous wastes generated. It includes data on waste generating facilities such as: drycleaners, waste treatment and disposal facilities, machine shops, electric power distribution etc. This information is a summary of all years from 1986 including the most currently available data. Some records may contain, within the company name, the phrase "See & Use..." followed by a series of letters and numbers. This occurs when one company is amalgamated with or taken over by another registered company. The number listed as "See & Use", refers to the new ownership and the other identification number refers to the original ownership. This phrase serves as a link between the 2 companies until operations have been fully transferred.

Government Publication Date: 1986-December 31, 2017

Greenhouse Gas Emissions from Large Facilities: Federal GHG

List of greenhouse gas emissions from large facilities made available by Environment Canada. Greenhouse gas emissions in kilotonnes of carbon dioxide equivalents (kt CO2 eq).

Government Publication Date: 2013-Dec 2015

TSSA Historic Incidents: Provincial HINC

This database will cover all incidences recorded by TSSA with their older system, before they moved to their new management system. TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. The TSSA works to protect the public, the environment and property from fuel-related hazards such as spills, fires and explosions. This database will include spills and leaks from pipelines, diesel, fuel oil, gasoline, natural gas, propane and hydrogen recorded by the TSSA.

Government Publication Date: 2006-June 2009*

Indian & Northern Affairs Fuel Tanks: Federal IAFT

The Department of Indian & Northern Affairs Canada (INAC) maintains an inventory of aboveground & underground fuel storage tanks located on both federal and crown land. Our inventory provides information on the reserve name, location, facility type, site/facility name, tank type, material & ID number, tank contents & capacity, and date of tank installation.

Government Publication Date: 1950-Aug 2003*

TSSA Incidents: Provincial INC

TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. Includes incidents from fuel-related hazards such as spills, fires and explosions. This database will include spills and leaks from diesel, fuel oil, gasoline, natural gas, propane and hydrogen recorded by the TSSA.

Government Publication Date: Feb 28, 2017

Landfill Inventory Management Ontario: Provincial LIMO

The Landfill Inventory Management Ontario (LIMO) database is updated every year, as the ministry compiles new and updated information. The inventory will include small and large landfills. Additionally, each year the ministry will request operators of the larger landfills complete a landfill data collection form that will be used to update LIMO and will include the following information from the previous operating year. This will include additional information such as estimated amount of total waste received, landfill capacity, estimated total remaining landfill capacity, fill rates, engineering designs, reporting and monitoring details, size of location, service area, approved waste types, leachate of site treatment, contaminant attenuation zone and more. The small landfills will include information such as site owner, site location and certificate of approval # and status.

Government Publication Date: Dec 31, 2013

Canadian Mine Locations: Private MINE

This information is collected from the Canadian & American Mines Handbook. The Mines database is a national database that provides over 290 listings on mines (listed as public companies) dealing primarily with precious metals and hard rocks. Listed are mines that are currently in operation, closed, suspended, or are still being developed (advanced projects). Their locations are provided as geographic coordinates (x, y and/or longitude, latitude). As of 2002, data pertaining to Canadian smelters and refineries has been appended to this database.

Government Publication Date: 1998-2009*

Mineral Occurrences: Provincial MNR

In the early 70's, the Ministry of Northern Development and Mines created an inventory of approximately 19,000 mineral occurrences in Ontario, in regard to metallic and industrial minerals, as well as some information on building stones and aggregate deposits. Please note that the "Horizontal Positional Accuracy" is approximately +/- 200 m. Many reference elements for each record were derived from field sketches using pace or chain/tape measurements against claim posts or topographic features in the area. The primary limiting factor for the level of positional accuracy is the scale of the source material. The testing of horizontal accuracy of the source materials was accomplished by comparing the plan metric (X and Y) coordinates of that point with the coordinates of the same point as defined from a source of higher accuracy.

Government Publication Date: 1846-Feb 2017

National Analysis of Trends in Emergencies System (NATES): Federal NATE

In 1974 Environment Canada established the National Analysis of Trends in Emergencies System (NATES) database, for the voluntary reporting of significant spill incidents. The data was to be used to assist in directing the work of the emergencies program. NATES ran from 1974 to 1994. Extensive information is available within this database including company names, place where the spill occurred, date of spill, cause, reason and source of spill, damage incurred, and amount, concentration, and volume of materials released.

Government Publication Date: 1974-1994*

Non-Compliance Reports: Provincial NCPL

The Ministry of the Environment provides information about non-compliant discharges of contaminants to air and water that exceed legal allowable limits, from regulated industrial and municipal facilities. A reported non-compliance failure may be in regard to a Control Order, Certificate of Approval, Sectoral Regulation or specific regulation/act.

Government Publication Date: Dec 31, 2016

National Defense & Canadian Forces Fuel Tanks: Federal NDFT

The Department of National Defense and the Canadian Forces maintains an inventory of all aboveground & underground fuel storage tanks located on DND lands. Our inventory provides information on the base name, location, tank type & capacity, tank contents, tank class, date of tank installation, date tank last used, and status of tank as of May 2001. This database will no longer be updated due to the new National Security protocols which have prohibited any release of this database.

Government Publication Date: Up to May 2001*

National Defense & Canadian Forces Spills: Federal NDSP

The Department of National Defense and the Canadian Forces maintains an inventory of spills to land and water. All spill sites have been classified under the "Transportation of Dangerous Goods Act - 1992". Our inventory provides information on the facility name, location, spill ID #, spill date, type of spill, as well as the quantity of substance spilled & recovered.

Government Publication Date: Mar 1999-Aug 2010

National Defence & Canadian Forces Waste Disposal Sites: Federal NDWD

The Department of National Defence and the Canadian Forces maintains an inventory of waste disposal sites located on DND lands. Where available, our inventory provides information on the base name, location, type of waste received, area of site, depth of site, year site opened/closed and status.

Government Publication Date: 2001-Apr 2007*

National Energy Board Pipeline Incidents: Federal NEBI

Locations of pipeline incidents from 2008 to present, made available by the National Energy Board (NEB). Includes incidents reported under the Onshore Pipeline Regulations and the Processing Plant Regulations related to pipelines under federal jurisdiction, does not include incident data related to pipelines under provincial or territorial jurisdiction.

Government Publication Date: 2008-Dec 31, 2017

National Energy Board Wells: Federal NEBW

The NEBW database contains information on onshore & offshore oil and gas wells that are outside provincial jurisdiction(s) and are thereby regulated by the National Energy Board. Data is provided regarding the operator, well name, well ID No./UWI, status, classification, well depth, spud and release date.

Government Publication Date: 1920-Feb 2003*

National Environmental Emergencies System (NEES): Federal NEES

In 2000, the Emergencies program implemented NEES, a reporting system for spills of hazardous substances. For the most part, this system only captured data from the Atlantic Provinces, some from Quebec and Ontario and a portion from British Columbia. Data for Alberta, Saskatchewan, Manitoba and the Territories was not captured. However, NEES is also a repository for previous Environment Canada spill datasets. NEES is composed of the historic datasets ' or Trends ' which dates from approximately 1974 to present. NEES Trends is a compilation of historic databases, which were merged and includes data from NATES (National Analysis of Trends in Emergencies System), ARTS (Atlantic Regional Trends System), and NEES. In 2001, the Emergencies Program determined that variations in reporting regimes and requirements between federal and provincial agencies made national spill reporting and trend analysis difficult to achieve. As a consequence, the department has focused efforts on capturing data on spills of substances which fall under its legislative authority only (CEPA and FA). As such, the NEES database will be decommissioned in December 2004.

Government Publication Date: 1974-2003*

National PCB Inventory: Federal NPCB

Environment Canada's National PCB inventory includes information on in-use PCB containing equipment in Canada including federal, provincial and private facilities. Federal out-of-service PCB containing equipment and PCB waste owned by the federal government or by federally regulated industries such as airlines, railway companies, broadcasting companies, telephone and telecommunications companies, pipeline companies, etc. are also listed. Although it is not Environment Canada's mandate to collect data on non-federal PCB waste, the National PCB inventory includes some information on provincial and private PCB waste and storage sites. Some addresses provided may be Head Office addresses and are not necessarily the location of where the waste is being used or stored.

Government Publication Date: 1988-2008*

National Pollutant Release Inventory: Federal NPRI

Environment Canada has defined the National Pollutant Release Inventory ("NPRI") as a federal government initiative designed to collect comprehensive national data regarding releases to air, water, or land, and waste transfers for recycling for more than 300 listed substances.

Government Publication Date: 1993-May 2017

Oil and Gas Wells: Private OGW

The Nickle's Energy Group (publisher of the Daily Oil Bulletin) collects information on drilling activity including operator and well statistics. The well information database includes name, location, class, status and depth. The main Nickle's database is updated on a daily basis, however, this database is updated on a monthly basis. More information is available at www.nickles.com.

Government Publication Date: 1988-December 31, 2017

Ontario Oil and Gas Wells: Provincial OOGW

In 1998, the MNR handed over to the Ontario Oil, Gas and Salt Resources Corporation, the responsibility of maintaining a database of oil and gas wells drilled in Ontario. The OGSR Library has over 20,000+ wells in their database. Information available for all wells in the ERIS database include well owner/operator, location, permit issue date, and well cap date, license No., status, depth and the primary target (rock unit) of the well being drilled. All geology/stratigraphy table information, plus all water table information is also provide for each well record.

Government Publication Date: 1800-Oct 2017

Inventory of PCB Storage Sites: Provincial OPCB

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of PCB storage sites within the province. Ontario Regulation 11/82 (Waste Management - PCB) and Regulation 347 (Generator Waste Management) under the Ontario EPA requires the registration of inactive PCB storage equipment and/or disposal sites of PCB waste with the Ontario Ministry of Environment. This database contains information on: 1) waste quantities; 2) major and minor sites storing liquid or solid waste; and 3) a waste storage inventory.

Government Publication Date: 1987-Oct 2004; 2012-Dec 2013

Orders: Provincial ORD

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all Orders on the registry such as (EPA s. 17) - Order for remedial work, (EPA s. 18) - Order for preventative measures, (EPA s. 43) - Order for removal of waste and restoration of site, (EPA s. 44) - Order for conformity with Act for waste disposal sites, (EPA s. 136) - Order for performance of environmental measures.

Government Publication Date: 1994-Oct 2017

Canadian Pulp and Paper: Private PAP

This information is part of the Pulp and Paper Canada Directory. The Directory provides a comprehensive listing of the locations of pulp and paper mills and the products that they produce.

Government Publication Date: 1999, 2002, 2004, 2005, 2009

Parks Canada Fuel Storage Tanks: Federal PCFT

Canadian Heritage maintains an inventory of known fuel storage tanks operated by Parks Canada, in both National Parks and at National Historic Sites. The database details information on site name, location, tank install/removal date, capacity, fuel type, facility type, tank design and owner/operator.

Government Publication Date: 1920-Jan 2005*

Pesticide Register: Provincial PES

The Ontario Ministry of the Environment and Climate Change maintains a database of licensed operators and vendors of registered pesticides.

Government Publication Date: 1988-Aug 2017

TSSA Pipeline Incidents: Provincial PINC

TSSA's Fuels Safety Program administers the Technical Standards & Safety Act 2000, providing fuel-related safety services associated with the safe transportation, storage, handling and use of fuels such as gasoline, diesel, propane, natural gas and hydrogen. Under this Act, TSSA regulates fuel suppliers, storage facilities, transport trucks, pipelines, contractors and equipment or appliances that use fuels. This database will include spills, strike and leaks from recorded by the TSSA.

Government Publication Date: Feb 28, 2017

Private and Retail Fuel Storage Tanks: Provincial PRT

The Fuels Safety Branch of the Ontario Ministry of Consumer and Commercial Relations maintained a database of all registered private fuel storage tanks and licensed retail fuel outlets. This database includes an inventory of locations that have gasoline, oil, waste oil, natural gas and/or propane storage tanks on their property. The MCCR no longer collects this information. This information is now collected by the Technical Standards and Safety Authority (TSSA).

Government Publication Date: 1989-1996*

Permit to Take Water: Provincial PTTW

This is a subset taken from Ontario's Environmental Registry (EBR) database. It will include all PTTW's on the registry such as OWRA s. 34 - Permit to take water.

Government Publication Date: 1994-Oct 2017

Ontario Regulation 347 Waste Receivers Summary: Provincial REC

Part V of the Ontario Environmental Protection Act ("EPA") regulates the disposal of regulated waste through an operating waste management system or a waste disposal site operated or used pursuant to the terms and conditions of a Certificate of Approval or a Provisional Certificate of Approval. Regulation 347 of the Ontario EPA defines a waste receiving site as any site or facility to which waste is transferred by a waste carrier. A receiver of regulated waste is required to register the waste receiving facility. This database represents registered receivers of regulated wastes, identified by registration number, company name and address, and includes receivers of waste such as: landfills, incinerators, transfer stations, PCB storage sites, sludge farms and water pollution control plants. This information is a summary of all years from 1986 including the most currently available data.

Government Publication Date: 1986-2016

Record of Site Condition: Provincial RSC

The Record of Site Condition (RSC) is part of the Ministry of the Environment's Brownfields Environmental Site Registry. Protection from environmental cleanup orders for property owners is contingent upon documentation known as a record of site condition (RSC) being filed in the Environmental Site Registry. In order to file an RSC, the property must have been properly assessed and shown to meet the soil, sediment and groundwater standards appropriate for the use (such as residential) proposed to take place on the property. The Record of Site Condition Regulation (O. Reg. 153/04) details requirements related to site assessment and clean up.
RSCs filed after July 1, 2011 will also be included as part of the new (O.Reg. 511/09).

Government Publication Date: 1997-Sept 2001, Oct 2004-Nov 2017

Retail Fuel Storage Tanks: Private RST

This database includes an inventory of retail fuel outlet locations (including marinas) that have on their property gasoline, oil, waste oil, natural gas and / or propane storage tanks.

Government Publication Date: 1999-Jan 31, 2018

Scott's Manufacturing Directory: Private SCT

Scott's Directories is a data bank containing information on over 200,000 manufacturers across Canada. Even though Scott's listings are voluntary, it is the most comprehensive database of Canadian manufacturers available. Information concerning a company's address, plant size, and main products are included in this database.

Government Publication Date: 1992-Mar 2011*

Ontario Spills: Provincial SPL

This database identifies information such as location (approximate), type and quantity of contaminant, date of spill, environmental impact, cause, nature of impact, etc. Information from 1988-2002 was part of the ORIS (Occurrence Reporting Information System). The SAC (Spills Action Centre) handles all spills reported in Ontario. Regulations for spills in Ontario are part of the MOE's Environmental Protection Act, Part X.

Government Publication Date: 1988-Sep 2017

Wastewater Discharger Registration Database: Provincial SRDS

Information under this heading is combination of the following 2 programs. The Municipal/Industrial Strategy for Abatement (MISA) division of the Ontario Ministry of Environment maintained a database of all direct dischargers of toxic pollutants within nine sectors including: Electric Power Generation; Mining; Petroleum Refining; Organic Chemicals; Inorganic Chemicals; Pulp & Paper; Metal Casting; Iron & Steel; and Quarries. All sampling information is now collected and stored within the Sample Result Data Store (SRDS).

Government Publication Date: 1990-Dec 31, 2016

Anderson's Storage Tanks: Private TANK

The information provided in this database was collected by examining various historical documents, which identified the location of former storage tanks, containing substances such as fuel, water, gas, oil, and other various types of miscellaneous products. Information is available in regard to business operating at tank site, tank location, permit year, permit & installation type, no. of tanks installed & configuration and tank capacity. Data contained within this database pertains only to the city of Toronto and is not warranted to be complete, exhaustive or authoritative. The information was collected for research purposes only.

Government Publication Date: 1915-1953*

Transport Canada Fuel Storage Tanks: Federal TCFT

List of fuel storage tanks currently or previously owned or operated by Transport Canada. This inventory also includes tanks on The Pickering Lands, which refers to 7,530 hectares (18,600 acres) of land in Pickering, Markham, and Uxbridge owned by the Government of Canada since 1972; properties on this land has been leased by the government since 1975, and falls under the Site Management Policy of Transport Canada, but is administered by Public Works and Government Services Canada. This inventory provides information on the site name, location, tank age, capacity and fuel type.

Government Publication Date: 1970-Aug 2017

TSSA Variances for Abandonment of Underground Storage Tanks: Provincial VAR

List of variances granted for abandoned tanks. Under the Technical Standards and Safety Authority (TSSA) Liquid Fuels Handling Code and Fuel Oil Code, all underground storage tanks must be removed within two years of disuse. If removal of a tank is not feasible, an application may be sought for a variance from this code requirement.

Government Publication Date: Feb 28, 2017

Waste Disposal Sites - MOE CA Inventory: Provincial WDS

The Ontario Ministry of Environment, Waste Management Branch, maintains an inventory of known open (active or inactive) and closed disposal sites in the Province of Ontario. Active sites maintain a Certificate of Approval, are approved to receive and are receiving waste. Inactive sites maintain Certificate(s) of Approval but are not receiving waste. Closed sites are not receiving waste. The data contained within this database was compiled from the MOE's Certificate of Approval database. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number. All new Environmental Compliance Approvals handed out after Oct 31, 2011 for Waste Disposal Sites will still be found in this database.

Government Publication Date: Oct 2011-Jan 31, 2018

Waste Disposal Sites - MOE 1991 Historical Approval Inventory: Provincial WDSH

In June 1991, the Ontario Ministry of Environment, Waste Management Branch, published the "June 1991 Waste Disposal Site Inventory", of all known active and closed waste disposal sites as of October 30st, 1990. For each "active" site as of October 31st 1990, information is provided on site location, site/CA number, waste type, site status and site classification. For each "closed" site as of October 31st 1990, information is provided on site location, site/CA number, closure date and site classification. Locations of these sites may be cross-referenced to the Anderson database described under ERIS's Private Source Database section, by the CA number.

Government Publication Date: Up to Oct 1990*

Water Well Information System: Provincial WWIS

This database describes locations and characteristics of water wells found within Ontario in accordance with Regulation 903. It includes such information as coordinates, construction date, well depth, primary and secondary use, pump rate, static water level, well status, etc. Also included are detailed stratigraphy information, approximate depth to bedrock and the approximate depth to the water table.

Government Publication Date: Mar 31, 2017

Definitions

Database Descriptions: This section provides a detailed explanation for each database including: source, information available, time coverage, and acronyms used. They are listed in alphabetic order.

Detail Report: This is the section of the report which provides the most detail for each individual record. Records are summarized by location, starting with the project property followed by records in closest proximity.

Distance: The distance value is the distance between plotted points, not necessarily the distance between the sites' boundaries. All values are an approximation.

Direction: The direction value is the compass direction of the site in respect to the project property and/or center point of the report.

Elevation: The elevation value is taken from the location at which the records for the site address have been plotted. All values are an approximation. Source: Google Elevation API.

Executive Summary: This portion of the report is divided into 3 sections:

'Report Summary'- Displays a chart indicating how many records fall on the project property and, within the report search radii.

'Site Report Summary'-Project Property'- This section lists all the records which fall on the project property. For more details, see the 'Detail Report' section.

'Site Report Summary-Surrounding Properties'- This section summarizes all records on adjacent properties, listing them in order of proximity from the project property. For more details, see the 'Detail Report' section.

Map Key: The map key number is assigned according to closest proximity from the project property. Map Key numbers always start at #1. The project property will always have a map key of '1' if records are available. If there is a number in brackets beside the main number, this will indicate the number of records on that specific property. If there is no number in brackets, there is only one record for that property.

The symbol and colour used indicates 'elevation': the red inverted triangle will dictate 'ERIS Sites with Lower Elevation', the yellow triangle will dictate 'ERIS Sites with Higher Elevation' and the orange square will dictate 'ERIS Sites with Same Elevation.'

Unplottables: These are records that could not be mapped due to various reasons, including limited geographic information. These records may or may not be in your study area, and are included as reference.

APPENDIX D

Ministry of the Environment
Freedom of Information and Protection of Privacy Office
40 St. Clair Avenue West, 12th Floor
Toronto, ON M4V 1M2
Tel: 416-314-4075
Fax: 416-314-4285

Ontario

Use this form to request records that are in the Ministry's files on environmental concerns related to properties. Please refer to the guide on the completion and use of this form. Our fax no. is 416- 314-4285.

Requester Data			**For Ministry Use Only**	
Name, Title, Company Name and Mailing Address of Requester Maria Benitez GeoPro Consulting Limited Unit 57, 40 Vogell Road, Richmond Hill, ON L4B 3N6 Email Address: geotech@geoproconsulting.ca			FOI Request No.	Date Request Received
			Fee Paid ☐ CHQ ☒ VISA/MC/AMEX ☐ CASH/MONEY ORDER	
Tel:905-237-8336 Fax: 905-248-3699	Your Project/ Reference No. 17-2099GE	Signature of Requester	☐ CNR ☐ ER ☐ NOR ☐ SWR ☐ WCR ☐ IEB ☐ EAA ☐ EMR ☐ SCB ☐ SDW	

Request Parameters

Municipal Address/Lot, Concession, Geographic Township **(Municipal address mandatory for cities, towns or regions)**

8001 Simcoe County Road 27, Barrie, ON (Lot Number 1 Concession Number 11 Township Innisfil)

Present Property Owner(s) and Date(s) of Ownership

Previous Property Owner(s) and Date(s) of Ownership

Present/Previous Tenant(s) (if applicable)

Search Parameters Files older than 2 years may require $60.00 retrieval cost. There is no guarantee that records responsive to your request will be located.	**Specify Year(s) Requested**
Environmental concerns (General correspondence, occurrence reports, abatement)	All years
Orders	All years
Spills	All years
Investigations/prosecutions ▸ ***Owner and tenant information must be provided***	All years
Waste Generator number/classes	All years

Certificates of Approval ▸ Proponent information must be provided and Certificates of Approval number(s) (if known). 1985 and prior records are searched manually. **Search fees in excess of $300.00** may be incurred, depending on the types and years of records to be searched. **If supporting documents are also required, mark SD box.**

		SD	**Specify Year(s) Requested**
Air - *emissions*		X	All years
Renewable Energy		X	All years
Water - *mains, treatment, ground level, standpipes & elevated storage, pumping stations (local & booster)*		X	All years
Sewage - *sanitary, storm, treatment, stormwater, leachate & leachate treatment & sewage pump stations*		X	All years
Waste water - *industrial discharge*		X	All years
Waste sites - *disposal, landfill sites, transfer stations, processing sites, incinerator sites*		X	All years
Waste systems	- *haulers: sewage, non-hazardous & hazardous waste, mobile waste processing units, PCB destruction*	X	All years

Ministry of the Environment and Climate Change

Freedom of Information and Protection of Privacy Office

12th Floor
40 St. Clair Avenue West
Toronto ON M4V 1M2
Tel: (416) 314-4075
Fax: (416) 314-4285

Ministère de l'Environnement et de l'Action en matière de changement climatique

Bureau de l'accès à l'information et de la protection de la vie privée

12e étage
40, avenue St. Clair ouest
Toronto ON M4V 1M2
Tél. : (416) 314-4075
Téléc.: (416) 314-4285

Ontario

April 16, 2018

Maria Benitez
GeoPro Consulting Limited
40 Vogell Road, Unit 57
Richmond Hill, ON L4B 3N6

Dear Maria Benitez:

RE: ***Freedom of Information and Protection of Privacy Act* Request**
Our File # A-2018-02492, Your Reference 17-2099GE

The Ministry is in receipt of your request made pursuant to the *Freedom of Information and Protection of Privacy Act* and has received your payment in the amount of $5.00 (non-refundable application fee), along with your $30.00 deposit.

The search is being conducted on the following: 8001 Simcoe County Road 27, Barrie. If there is any discrepancy please contact us immediately.

You may expect a reply or additional communication as your request is processed. For your information, the Ministry charges for search, copying and preparation time.

If you have any questions regarding this matter, please contact Jennifer Lee at jennifer.lee7@ontario.ca.

Yours truly,

ORIGINAL SIGNED BY

Janet Dadufalza
FOI Manager

Ministry of the Environment and Climate Change

Freedom of Information and Protection of Privacy Office

12th Floor
40 St. Clair Avenue West
Toronto ON M4V 1M2
Tel: (416) 314-4075
Fax: (416) 314-4285

Ministère de l'Environnement et de l'Action en matière de changement climatique

Bureau de l'accès à l'information et de la protection de la vie privée

12e étage
40, avenue St. Clair ouest
Toronto ON M4V 1M2
Tél. : (416) 314-4075
Téléc.: (416) 314-4285

Ontario

May 15, 2018

Maria Benitez
GeoPro Consulting Limited
40 Vogell Road, Unit 57
Richmond Hill, ON L4B 3N6

Dear Maria Benitez:

RE: ***Freedom of Information and Protection of Privacy Act*** **Request**
Our File # A-2018-02492, Your Reference 17-2099GE

This letter is in response to your request made pursuant to the *Freedom of Information and Protection of Privacy Act* relating to 8001 Simcoe County Road 27, Barrie.

After a thorough search through the files of the Ministry's Barrie District Office, Investigations and Enforcement Branch, Environmental Monitoring and Reporting Branch, Sector Compliance Branch and Safe Drinking Water Branch, no records were located responsive to your request. To provide you with this response and in accordance with Section 57 of the *Freedom of Information and Protection of Privacy Act*, the fee owed is $30.00 for 1 hour of search time @ $30.00 per hour. **We have applied the $30.00 for this request from your initial payment.**

To conduct a search through the files of the Environmental Assessment and Permissions Branch requires an additional 8 hours. If you would like us to search for Environmental Compliance Approvals/Certificates of Approval at the Environmental Assessment and Permissions Branch (EAPB), please forward to me at the above address payment by money order or cheque (made payable to the "Minister of Finance (FOI)") or by credit card in the amount of $240.00. **As EAPB may have filed approval records by the proponent of the approval (current/former property owner/tenants of the property) rather than the site address, you will be required to provide all current/former property owner/tenant names for the search years you requested in your application when submitting payment for this search.** Please note that there is no guarantee any records will be located responsive to your request. Credit card forms are available on the Ministry's website http://www.ontario.ca/environment-and-energy/freedom-information-request-form. Please note, a request for records must usually be answered within 30 calendar days, however Section 27 allows for time extensions under certain circumstances. If you choose to have the search conducted at the Environmental Assessment and Permissions Branch, the time for answering your request will be extended for an additional 30 days.

When remitting payment please quote our file number or attach a copy of this letter.

You may request a review of my decision by contacting the Information and Privacy Commissioner/Ontario, 2 Bloor Street East, Suite 1400, Toronto, ON M4W 1A8 (800-387-0073 or 416-326-3333). Please note that there is a $25.00 fee and you only have 30 days from receipt of this letter to request a review.

If you have any questions regarding this matter, please contact Biraveena Pathmasiri at Biraveena.Pathmasiri4@ontario.ca.

Yours truly,

Janet Dadufalza
FOI Manager

GeoPro CONSULTING LIMITED

Geotech Group <geotech@geoproconsulting.ca>

TSSA record search for ten (10) properties around 8001 County Rd 27, Barrie, ON (Lot 1 Con 11 Township Innisfil) P17-2099GE

Geotech Group <geotech@geoproconsulting.ca> Thu, Mar 29, 2018 at 3:20 PM
To: publicinformationservices@tssa.org, Kaiying Qiu <kai@geoproconsulting.ca>, Hannal Lei <hannahl@geoproconsulting.ca>, Sally Liu <sally@geoproconsulting.ca>

Good afternoon,

Could you please conduct a search for any record for:

1) 8001 County Road 27, Barrie (Lot 1 Cos 11 Township Innisfil)

2) 8029 County Rd 27, Barrie (Lot 1 Con 11 Township Innisfil)

3) 7983 Simcoe County Rd 27, Barrie, ON L9J

4) **500 Salem Road, Barrie** (Lot 1 Con 11 Township Innisfil)

5) 450 Salem Road, Barrie (Lot 2 Con 11 Township Innisfil)

6) 851 Salem Road, Barrie (Lot 2 Con 11 Township Innisfil)

7) 7816 Simcoe County Rd 27, Barrie, ON L9J

8) 7752 Simcoe County Rd 27, Barrie, ON L9J

9) 24 Selkirk Crescent, Barrie, ON L4N 8G3

10) 71 Lougheed Rd, Barrie, ON L4N 8G1

Thank you,

Best regards,

Maria B.

***GeoPro* Consulting Limited**

T: (905) 237 8336 F: (905) 248 3699
geotech@geoproconsulting.ca

Material Testing & Inspection Hotline: (416) 655 1008

Professional, Proficient, Proactive

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GeoPro CONSULTING LIMITED

Geotech Group <geotech@geoproconsulting.ca>

TSSA record search for ten (10) properties around 8001 County Rd 27, Barrie, ON (Lot 1 Con 11 Township Innisfil) P17-2099GE

Public Information Services <publicinformationservices@tssa.org> Mon, Apr 2, 2018 at 7:56 AM
To: Geotech Group <geotech@geoproconsulting.ca>

Hello ,

Thank you for your inquiry.

We have no record in our database of any fuel storage tanks at the subject address (addresses).

For a further search in our archives please complete our release of public information form found at https://www.tssa.org/en/about-tssa/release-of-public-information.aspx?_mid_=392 and email the completed form to publicinformationservices@tssa.org or through mail along with a fee of $56.50 (including HST) per location. The fee is payable with credit card (Visa or MasterCard) or with a Cheque made payable to TSSA.

Although TSSA believes the information provided pursuant to your request is accurate, please note that TSSA does not warrant this information in any way whatsoever.

Thank you and have a great day,

Sherees

From: Geotech Group [mailto:geotech@geoproconsulting.ca]
Sent: March 29, 2018 4:06 PM
To: Public Information Services <publicinformationservices@tssa.org>
Subject: Re: TSSA record search for ten (10) properties around 8001 County Rd 27, Barrie, ON (Lot 1 Con 11 Township Innisfil) P17-2099GE

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[Quoted text hidden]

APPENDIX E

Water Well Records

Tuesday, April 17, 2018

12:38:38 PM

TOWNSHIP CON LOT	UTM	DATE CNTR	CASING DIA	WATER	PUMP TEST	WELL USE	SCREEN	WELL	FORMATION
ESSA TOWNSHIP 11 024	17 600885 4907776 W	2007/11 5528	35.4			NU		7053919 (Z48268) A	
ESSA TOWNSHIP CON 11 023	17 600964 4907373 W	1985/05 3660	5	FR 0144	122/125/10/2:0	DO	0147 3	5720021 ()	BLCK LOAM 0001 BRWN SAND 0010 GREY CLAY SAND 0055 BLUE CLAY 0096 BRWN SAND 0144 MSND WBRG 0151
INNISFIL TOWNSHIP	17 601597 4907569 W	2007/08 6809	2		///:	MO		7048667 (Z63332) A059618	BRWN SAND GRVL 0045 GREY SAND SILT DNSE 0080 GREY SILT CLAY 0084
INNISFIL TOWNSHIP CON 10 001	17 601564 4907473 W	1973/10 4608	30	FR 0015	13///0:30	DO		5710487 ()	LOAM 0001 SAND 0005 GREY CLAY 0028
INNISFIL TOWNSHIP CON 10 002	17 601664 4907473 W	1979/01 4816	6	FR 0130	109//5/3:0	IN	0131 5	5715880 ()	SAND GRVL 0004 MSND 0015 CLAY GRVL SAND 0052 GREY CLAY 0099 FSND 0139 FSND SILT 0155
INNISFIL TOWNSHIP CON 11 001	17 601495 4907891 W	2011/10 7190	2	UT 0013		MO	0025 10	7176146 (Z133895) A076094	BRWN FSND 0015 GREY FSND 0025
INNISFIL TOWNSHIP CON 11 001	17 601232 4908083 L	1988/09 2662	6	UK 0235	107/225/10/3:15	DO	0236 3	5723994 (29976)	BRWN SAND 0018 GREY CLAY SNDY 0120 BRWN SAND DRY 0190 GREY CLAY SNDY WBRG 0235 GREY SAND 0239
INNISFIL TOWNSHIP CON 11 001	17 601033 4908169 W	1988/09 2662	6	UK 0145	60/140/10/3:20	DO	0146 4	5723993 (29982)	BRWN CLAY 0049 BRWN SAND 0091 GREY CLAY SNDY 0145 GREY SAND 0150
INNISFIL TOWNSHIP CON 11 001	17 601232 4908083 L	1988/08 2662	6	UK 0234	108/225/10/4:0	DO	0235 4	5723814 (29977)	BRWN SAND 0014 GREY CLAY SNDY 0090 BRWN SAND DRY 0170 GREY CLAY SNDY 0238
INNISFIL TOWNSHIP CON 11 001	17 601204 4907447 W	1987/04 2514	6 5	FR 0175	104/160/9/:		0177 3	5722089 (06628)	BLCK LOAM 0001 YLLW SAND 0015 YLLW SAND CLAY LYRD 0055 GREY CLAY STNS 0105 YLLW SAND CLAY 0155 GREY CLAY SAND 0175 YLLW SAND 0180
INNISFIL TOWNSHIP CON 11 001	17 601114 4907423 W	1978/05 4608	30	FR 0008	9///:	DO		5715823 ()	SAND 0017
INNISFIL TOWNSHIP CON 11 001	17 601064 4907503 W	1972/01 1204	5	FR 0049	12/36/2/6:0	DO		5708744 ()	BRWN FILL 0004 GREY SILT SAND 0030 GREY CLAY 0049

Notes:
UTM: UTM in Zone, Easting, Northing and Datum is NAD83; L: UTM estimated from Centroid of Lot; W: UTM not from Lot Centroid
DATE CNTR: Date Work Completedand Well Contractor Licence Number
CASING DIA: .Casing diameter in inches
WATER: Unit of Depth in Fee. See Table 4 for Meaning of Code

PUMP TEST: Static Water Level in Feet / Water Level After Pumping in Feet / Pump Test Rate in GPM / Pump Test Duration in Hour : Minutes
WELL USE: See Table 3 for Meaning of Code
SCREEN: Screen Depth and Length in feet
WELL: WEL (AUDIT #) Well Tag . A: Abandonment; P: Partial Data Entry Only
FORMATION: See Table 1 and 2 for Meaning of Code

1. Core Material and Descriptive terms

Code	Description	Code	Description	Code	Description	Code	Description	Code	Description
BLDR	BOULDERS	FCRD	FRACTURED	IRFM	IRON FORMATION	PORS	POROUS	SOFT	SOFT
BSLT	BASALT	FGRD	FINE-GRAINED	LIMY	LIMY	PRDG	PREVIOUSLY DUG	SPST	SOAPSTONE
CGRD	COARSE-GRAINED	FGVL	FINE GRAVEL	LMSN	LIMESTONE	PRDR	PREV. DRILLED	STKY	STICKY
CGVL	COARSE GRAVEL	FILL	FILL	LOAM	TOPSOIL	QRTZ	QUARTZITE	STNS	STONES
CHRT	CHERT	FLDS	FELDSPAR	LOOS	LOOSE	QSND	QUICKSAND	STNY	STONEY
CLAY	CLAY	FLNT	FLINT	LTCL	LIGHT-COLOURED	QTZ	QUARTZ	THIK	THICK
CLN	CLEAN	FOSS	FOSILIFEROUS	LYRD	LAYERED	ROCK	ROCK	THIN	THIN
CLYY	CLAYEY	FSND	FINE SAND	MARL	MARL	SAND	SAND	TILL	TILL
CMTD	CEMENTED	GNIS	GNEISS	MGRD	MEDIUM-GRAINED	SHLE	SHALE	UNKN	UNKNOWN TYPE
CONG	CONGLOMERATE	GRNT	GRANITE	MGVL	MEDIUM GRAVEL	SHLY	SHALY	VERY	VERY
CRYS	CRYSTALLINE	GRSN	GREENSTONE	MRBL	MARBLE	SHRP	SHARP	WBRG	WATER-BEARING
CSND	COARSE SAND	GRVL	GRAVEL	MSND	MEDIUM SAND	SHST	SCHIST	WDFR	WOOD FRAGMENTS
DKCL	DARK-COLOURED	GRWK	GREYWACKE	MUCK	MUCK	SILT	SILT	WTHD	WEATHERED
DLMT	DOLOMITE	GVLY	GRAVELLY	OBDN	OVERBURDEN	SLTE	SLATE		
DNSE	DENSE	GYPS	GYPSUM	PCKD	PACKED	SLTY	SILTY		
DRTY	DIRTY	HARD	HARD	PEAT	PEAT	SNDS	SANDSTONE		
DRY	DRY	HPAN	HARDPAN	PGVL	PEA GRAVEL	SNDY	SANDYOAPSTONE		

2. Core Color

Code	Description
WHIT	WHITE
GREY	GREY
BLUE	BLUE
GREN	GREEN
YLLW	YELLOW
BRWN	BROWN
RED	RED
BLCK	BLACK
BLGY	BLUE-GREY

3. Well Use

Code	Description	Code	Description
DO	Domestic	OT	Other
ST	Livestock	TH	Test Hole
IR	Irrigation	DE	Dewatering
IN	Industrial	MO	Monitoring
CO	Commercial	MT	Monitoring TestHole
MN	Municipal		
PS	Public		
AC	Cooling And A/C		
NU	Not Used		

4. Water Detail

Code	Description	Code	Description
FR	Fresh	GS	Gas
SA	Salty	IR	Iron
SU	Sulphur		
MN	Mineral		
UK	Unknown		

APPENDIX F

GeoPro Consulting Limited

Geotechnical-Hydrogeology-Environmental-Materials-Inspection

PHASE ONE ENVIRONMENTAL SITE ASSESSMENT
INTERVIEW QUESTIONNAIRE

Date: July 30, 2018

Site Location/Address: Part of the South Half of Lot 1, Concession 11 (Geographic Township of Innisfil), County of Simcoe; Parts 1, 2, and 3 Plan 51R-35542

Personnel Interviewed: Rob Henry

Contact Information
Email:
Phone Number:

- Years of working/living on the site: Farming the land for 15 years

- Briefly describe the site and site operations:

Size of the Property: +/- 27 hectares

Size of Footing Area: Not applicable.

Year of Building(s) constructed: Not applicable.

Nature of the business: Agricultural crop farming.

Current Property Owner, and date of ownership: Di Poce (Innisfil) Inc. (July 31, 2007)

Previous Property Owner: Equity Corp.

Current/Previous tenants: Not applicable.

- What is the property land use?

Current: Agricultural crop cultivation.

Future/Proposed: Residential development.

- Any chemicals were used or stored on site? Where? Round Up

- Do you know any chemical spills that occurred on the property? If yes, what chemicals were involved? where and when did it (they) happen? How were they cleaned up?

NONE

- How is waste water handled/stored/disposed on site? through city sanitary sewer system?

Natural infiltration and overland flow.

- Were there any landfills/dumps/soil fill on site?

No.

- How are the solid wastes disposed of and where?

Not applicable.

- Are/were there any underground or above ground storage tanks on the property? If yes, where?

No

- Are/were there any fluid-filled transformers or other electrical equipment on the property? Where? Any reports available for PCB content tested?

No

- Are/were there any water wells located on site? where?

No

- What is the source of drinking water?

Not applicable.

- What is the heating/air conditioning system for the building(s)?

Not applicable.

- Are you aware of any lead paint, asbestos or urea foam insulation using for the building(s)?

Not applicable.

- Are/were there any equipment maintenance/manufacturing/processing activities occurring on site?

No.

- Are /were there any hazardous wastes generated on site? Do you have a waste generator number?

No.

- Are you aware of any fires that happened on the property?

No.

- Are/were there any environmental issues/problems relating to the site, such as civic, criminal, or administrative proceedings or fines?

No.

- Have there been any occupational health and safety inspections conducted by regulatory agencies? Any findings?

No.

- Are there any building /site drawings available for review?

No existing buildings exist. Proposed development concept plans are available.

- Do you know any geotechnical or environmental investigations taking place on the site? any reports available for review?

D-4 Landfill Impact Assessment (2010).

- Do you have other contacts who you think can provide more information on the property?

No

APPENDIX G

Phase One Property

Photo 1. View of the north boundary of the Phase One Property (looking northeast).

Photo 2. View of southwest boundary of the Phase One Property (looking southwest).

Photo 3. View of wood area at the Phase One Property (looking south).

Photo 4. View of east side of the Phase One Property (looking northeast).

Photo 5. View of northeast side of the Phase One Property (looking northeast).

Photo 6. Overview of southeast side of the Phase One Property (looking southeast).

Photo 7. View of area with fill material in the east boundary of the Phase One Property (looking east).

Photo 8. View of a pile of fill material on the east side of the Phase One Property (looking northwest).

Photo 9. View of creek located in the west side of the Phase One Property.

Photo 10. View from the north boundary of the Site (looking west). The arrow indicates the location of the culvert observed.

Photo 11. View of the culvert located in the northwest side of the Phase One Property.

Photo 12. View of an excavation at the west side of the Phase One Property.

Photo 13. View the yellow flags showing the gas pipeline from Trans Canada Corporation that crosses the Phase One Property from north to south.

Photo 14. View of the southwest boundary of the Phase One Property (looking northeast).

Phase One Study Area

Photo 15. View of the north adjacent properties to the Phase One Property. Residential houses along Selkirk Crescent and Lougheed Road (looking southeast).

Photo 16. View of the south adjacent property to the Phase One Property. Residential house at 500 Salem Road (looking northwest).

Photo 17. View of the west adjacent property to the Phase One Property. Residential house at 8029 County Road 27 (looking southeast).

Photo 18. View of the west adjacent properties to the Phase One Property. Properties for agricultural or other use (looking west).

Photo 19. View of the east adjacent properties to the Phase One Property. Property for agricultural or other use (looking east).

Photo 20. View of concrete plant locate in the southeast portion of the Phase One Study Area at 4165 Salem Road (looking southeast).

Photo 21. View vacant land, which used to be a landfill in the southeast portion of the Phase One Study Area at Lot 1 Con 11 (looking north).

Photo 22. View of the oil storage tank located in the south portion of the Phase One Study Area at 500 Salem Road (looking north).

Photo 23. View of the oil storage tank located in the southwest portion of the Phase One Study Area at 7975 County Road 27 (looking southeast).

Photo 24. View of the water well located in the south portion of the Phase One Study Area at 508 Salem Road (looking north).

Photo 25. View of Bear Creek located in the north portion of the Phase One Study Area (looking south).

LIMITATIONS TO THE REPORT

This report has been prepared in accordance with local generally accepted professional practices and procedures at the time of the assessment within the scope of Phase One Environmental Site Assessments under O. Reg. 153/04 as amended and is subject to the terms, conditions and limitations set out in our approved proposal prepared based on our understanding of the project requirements. As such, the assessment does not include any sampling or testing for potential contaminants such as asbestos, PCBs, radon gas, or airborne pollutants, etc.

This report utilizes scientific principles, professional judgement and subjective interpretations. This report herein comprises a statement of professional opinion based on visual observations, interviews and readily available documents only and the reader is advised that not all conditions that affect environmental compliance can be revealed by visual observations, interviews and readily searched documents.

Moreover, in the event that GeoPro has been granted authorization to use data and/or information obtained from previous third party investigation reports prepared by other consultants we make no warranty as to its accuracy or completeness and understand it to be factual and correct. As such, GeoPro does not guarantee the accuracy of said data prepared by others.

This report has been prepared for the exclusive use of the client and may not be relied upon by any third party without GeoPro's express written authorization. Unless otherwise agreed in writing by GeoPro Consulting Limited, it shall not be used to express or imply warranty as to any other purposes. No portion of this report shall be used as a separate entity, it is written to be read in its entirety.

The material in this report reflects our best judgment based on the information readily available to GeoPro Consulting Limited at the time of preparing this report. Any uses which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. GeoPro accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report unless we are specifically advised of and participate in such action, in which case our responsibility will be as agreed to at that time.

The information provided in this report may not be sufficient to obtain approval for disposal of excess soil or materials generated during construction. Occupancy use, codes, rules, and procedures change rapidly with time in the environmental engineering field and the reader is advised to update the findings and recommendations on a regular basis.

HYDROGEOLOGICAL INVESTIGATION

Table 1
Groundwater Elevations

Well Name	Well Depth (mbgs)	Ground Surface Elevation (masl)*	17-May-2018		28-Jun-2018		27-Jul-2018		14-Aug-2018	
			Water Level (mbgs)	Water Elevation (masl)	Water Level (mbgs)	Water Elevation (masl)	Water Level (mbgs)	Water Elevation (masl)	Water Level (mbgs)	Water Elevation (masl)
DP-BH7	**14.79**	**301.40**	14.42	286.98	14.26	287.14	14.47	286.93	14.63	286.77
DP-BH14	**6.05**	**293.30**	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DP-BH18	**4.10**	**296.60**	1.26	295.34	1.96	294.64	2.51	294.09	2.56	294.04
DP-BH121	**8.94**	**302.00**	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DP-BH23	**6.08**	**299.20**	2.35	296.85	3.83	295.37	4.42	294.78	4.60	294.60
DP-BH120	**7.50**	**291.90**	0.78	291.12	1.59	290.31	2.46	289.44	2.58	289.32
DP-BH122	**9.81**	**299.70**	9.39	290.31	9.62	290.08	9.71	289.99	9.73	289.98
DP-BH123	**13.59**	**305.50**	13.50	292.00	13.51	291.99	13.51	291.99	13.51	291.99
DP-BH129	**4.51**	**290.60**	3.32	287.28	3.86	286.74	4.33	286.27	4.33	286.27
MW3s	**6.04**	**305.50**	Dry	Dry	5.00	300.50	5.18	300.32	5.29	300.21
MW3d	**7.47**	**305.50**	4.73	300.77	5.02	300.48	5.19	300.31	5.30	300.20
DP-PZ1s	**1.24**	**297.50**	-0.03	297.53	0.23	297.27	0.54	296.96	0.29	297.21
DP-PZ1d	**1.85**	**297.50**	0.02	297.48	0.32	297.18	0.33	297.17	0.36	297.14

Notes

"-" denotes data unavailable

mbgs - meters below ground surface

masl - metres above sea level

*** Ground elevations taken from geotechnical reports (GeoPro 2018, Terraprobe 2018)**

Table 1
Groundwater Elevations

Well Name	Well Depth (mbgs)	Ground Surface Elevation (masl)*	27-Sep-2018		24-Oct-2018	
			Water Level (mbgs)	Water Elevation (masl)	Water Level (mbgs)	Water Elevation (masl)
DP-BH7	**14.79**	**301.40**	Dry	Dry	Dry	Dry
DP-BH14	**6.05**	**293.30**	Dry	Dry	Dry	Dry
DP-BH18	**4.10**	**296.60**	2.49	294.11	1.78	294.82
DP-BH121	**8.94**	**302.00**	Dry	Dry	Dry	Dry
DP-BH23	**6.08**	**299.20**	4.74	294.46	4.67	294.53
DP-BH120	**7.50**	**291.90**	2.68	289.22	2.54	289.36
DP-BH122	**9.81**	**299.70**	9.75	289.95	9.76	289.94
DP-BH123	**13.59**	**305.50**	13.51	291.99	13.52	291.98
DP-BH129	**4.51**	**290.60**	4.34	286.26	4.34	286.26
MW3s	**6.04**	**305.50**	5.47	300.03	Dry	Dry
MW3d	**7.47**	**305.50**	5.54	299.96	5.78	299.72
DP-PZ1s	**1.24**	**297.50**	0.25	297.25	0.03	297.47
DP-PZ1d	**1.85**	**297.50**	0.25	297.25	0.12	297.38

Notes
"-" denotes data unavailable
mbgs - meters below ground surface
masl - metres above sea level
*** Ground elevations taken from geotechnical reports**

LEGEND

- SUBJECT LANDS
- WATERCOURSE
- MONITORING WELL (GEOPRO CONSULTING, 2018)
- MONITORING WELL (TERRAPROBE, 2011)
- MONITORING WELL (TERRAPROBE, 2018)
- DRIVE POINT PIEZOMETER (RJB 2018)

N

0 60 120 180 240

Metres

BURNSIDE

Client / Report

DI POCE MANAGEMENT INC,
BARRIE, ONTARIO

HYDROGEOLOGICAL ASSESSMENT

Figure Title

MONITORING LOCATIONS

Drawn	Checked	Date	Figure No.
SK	SC	SEPTEMBER 2018	-
Scale		Project No.	
1:3,000		300041886	

File Name: 041886 Monitoring Locations.dwg Date Plotted: August 31, 2018 - 2:08 PM

LOG OF BOREHOLE BH07

PROJECT: Geotechnical Investigation for Proposed Residential Developments
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI
PROJECT LOCATION: County Road 27, Barrie, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole Location Plan

DRILLING DATA
METHOD: Continuous Flight Auger - Auto Hammer
FIELD ENGINEER: RR
SAMPLE REVIEW: DX
CHECKED: DL
DIAMETER: 205 mm
DATE: 2018-04-25
REF. NO.: 17-2099GE
ENCL. NO.: 8

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION	REMARKS AND GRAIN SIZE DISTRIBUTION (%) GR SA SI CL
301.4 / 0.0	**TOPSOIL:** (360 mm)					
301.0 / 0.4	**REWORKED SANDY SILT TO SAND AND SILT:** trace to some clay, trace gravel, trace organics, trace rootlets, layers of clayey silt, dark brown to brown, moist, loose	1	SS	5	301	
300.8 / 0.6	**CLAYEY SILT:** some sand, trace organics, brown, moist, stiff	2	SS	11		
300.2 / 1.2	**SAND AND SILT:** trace clay, trace gravel, pockets of organics, brown, moist, loose	3	SS	6	300	
299.3 / 2.1	**SILTY SAND:** trace clay, trace gravel, layers of sand, containing cobbles and boulders, brown, moist, dense	4	SS	40	299	1 63 31 5
298.5 / 2.9	**FINE SAND AND SILT TO SILTY FINE SAND:** trace gravel, layers/zones of silt, brown, moist, dense to very dense	5	SS	34	298	
	--- auger grinding ---layers of clayey silt	6	SS	85 / 260 mm	297	
295.8 / 5.6	**SILTY SAND:** trace to some gravel, layers of sand and silt, containing cobbles and boulders, brown, moist, very dense	7	SS	50 / 150 mm	296	
294.4 / 6.9	--- auger grinding **SAND:** some silt, some gravel, containing cobbles and boulders, brown, moist, very dense	8	SS	50 / 130 mm	295	15 73 12
292.9 / 8.5	**FINE SAND:** trace to some silt, trace gravel, brown, moist, very dense	9	SS	50 / 80 mm	294	
					293	
					292	

Bentonite

DYNAMIC PENETRATION TEST
○ SPT ≳ Cone blows/0.3m
SHEAR STRENGTH (kPa)
● Unconfined ✕ Field Vane & Sensitivity
▲ Quick Triaxial ⊠ Penetrometer + Lab Vane
WATER CONTENT (%)
Plastic Limit w_P — Natural Moisture Content w — Liquid Limit w_L

UNIT WT (kN/m³)

> >100

Continued Next Page

GROUNDWATER ELEVATIONS
Measurement 1st 2nd 3rd 4th

GRAPH NOTES
$+^{3}$, $\times^{3}$: Numbers refer to Sensitivity
▲ ε=3% Strain at Failure

Draft

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180523-DC -DX.GPJ 2018-05-23 18:40

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 205 mm

DATE: 2018-04-25

REF. NO.: 17-2099GE

ENCL. NO.: 8

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
11	**FINE SAND:** trace to some silt, trace gravel, brown, moist, very dense(Continued)	10	SS	50 / 80 mm	291
289.9					
11.5	**SAND AND SILT TO SILTY SAND:** trace gravel, containing cobbles and boulders, brown, moist, very dense	11	SS	50 / 80 mm	290
12					
13	--- auger grinding				289
		12	SS	50 / 50 mm	288
14					287
15					
286.1		13	SS	50 / 80 mm	
15.3	**END OF BOREHOLE**				

Sand

Screen

286.6/May 11

Natural Pack

Note:
1) 51 mm dia. monitoring well was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	14.83

DYNAMIC PENETRATION TEST: ○ SPT, ≳ Cone, blows/0.3m; 20 40 60 80

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80

WATER CONTENT (%): Plastic Limit w_P — Natural Moisture Content w — Liquid Limit w_L; 10 20 30 40

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR SA SI CL

Draft

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

LOG OF BOREHOLE BH14

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer | DIAMETER: 155 mm

FIELD ENGINEER: RR | DATE: 2018-04-24

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 15

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	ELEVATION
293.3 / 0.0	**TOPSOIL:** (340 mm)				
293.0 / 0.3	**REWORKED SANDY SILT TO SAND AND SILT:** trace to some clay, trace gravel, trace organics, trace rootlets, dark brown, moist, very loose	1	SS	3	293
292.7 / 0.6	**SAND AND SILT:** trace to some clay, trace gravel, trace rootlets, pockets of organics, organic stain, brown, wet, loose	2	SS	5	
292.1 / 1.2	**SAND AND SILT TO SILTY SAND:** trace to some clay, trace gravel, pockets of sand, containing cobbles and boulders, moist to wet, compact to very dense	3	SS	14	292
		4	SS	14	291
		5	SS	12	290
		6	SS	70	289
		7	SS	50 / 150 mm	288
287.1 / 6.3	**END OF BOREHOLE**				

Bentonite

Sand

Screen

287.4/May 11

Natural pack

> >100

Notes:
1) Water was encountered at a depth of 2.3 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 3.7 mBGS upon completion of drilling.
3) Borehole caved at a depth of 4.0 mBGS upon completion of drilling.
4) 51 mm dia. monitoring well was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	5.94

DYNAMIC PENETRATION TEST: ○ SPT, ≈ Cone, blows/0.3m; SHEAR STRENGTH (kPa): ● Unconfined, ✕ Field Vane & Sensitivity, ▲ Quick Triaxial, ⊠ Penetrometer, + Lab Vane

WATER CONTENT (%): Plastic Limit (w_P), Natural Moisture Content (w), Liquid Limit (w_L)

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%): GR SA SI CL

GROUNDWATER ELEVATIONS

Measurement: 1st, 2nd, 3rd, 4th

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

Draft

LOG OF BOREHOLE BH18

PROJECT: Geotechnical Investigation for Proposed Residential Developments
CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI
PROJECT LOCATION: County Road 27, Barrie, Ontario
DATUM: Geodetic
BH LOCATION: See Borehole Location Plan

DRILLING DATA
METHOD: Continuous Split Spoon
FIELD ENGINEER: RR
SAMPLE REVIEW: DX
CHECKED: DL
DIAMETER: 51 mm
DATE: 2018-05-01
REF. NO.: 17-2099GE
ENCL. NO.: 19

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION
296.6 / 0.0	**TOPSOIL:** (300 mm)					
296.3 / 0.3	**REWORKED SAND AND SILT:** trace clay, trace gravel, brown, moist to wet, very loose	1	SS	2		
295.8 / 0.8	**SAND AND SILT:** trace clay, trace gravel, trace rootlets, layers/seams /pockets of sand, containing cobbles and boulders, brown, moist to wet, loose to compact	2	SS	6	295.4/May 11	296
		3	SS	8	Bentonite	295
		4	SS	9		294
		5	SS	17		293
		6	SS	13	Sand	
		7	SS	10	Screen	292
291.4 / 5.2	**NO SAMPLE RECOVERY:** likely silty sand	8	NR	19	Natural pack	291
290.7 / 5.9	**END OF BOREHOLE:**					

Notes:
1) Water was encountered at a depth of 2.3 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 3.5 mBGS upon completion of drilling.
3) Borehole caved at a depth of 5.3 mBGS upon completion.
4) 38 mm dia. monitoring was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	1.20

DYNAMIC PENETRATION TEST: ○ SPT ≳ Cone blows/0.3m (20 40 60 80)
SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane (20 40 60 80)
Plastic Limit w_P | Natural Moisture Content w | Liquid Limit w_L
WATER CONTENT (%) (10 20 30 40)
UNIT WT (kN/m³)
REMARKS AND GRAIN SIZE DISTRIBUTION (%) — GR SA SI CL

GROUNDWATER ELEVATIONS
Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

Draft

LOG OF BOREHOLE BH21

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 22

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m	GROUND WATER	ELEVATION	DYNAMIC PENETRATION TEST (SPT / Cone blows/0.3m)	SHEAR STRENGTH (kPa)	WATER CONTENT (%)	UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
302.0											GR SA SI CL
0.0 / 301.8	**TOPSOIL:** (240 mm)										
0.2 / 301.4	**REWORKED FINE SAND AND SILT TO SILTY FINE SAND:** trace clay, trace gravel, trace organics, trace rootlets, dark brown, wet, very loose	1	SS	2							
0.6 / 300.8	**SAND AND SILT:** trace clay, trace gravel, trace rootlets, organic stain, dark brown to brown, moist to wet, loose	2	SS	5		301					
1.2	**SAND AND SILT TO SILTY SAND:** trace clay, trace gravel, pockets of sand, containing cobbles and boulders, brown, moist, very dense	3	SS	61							
		4	SS	89		300					
299.1											
2.9 / 298.6	**FINE SAND:** trace to some silt, trace gravel, brown, moist, very dense	5A	SS	87 / 280 mm	Bentonite	299	> >100				
3.5 / 298.0	**SANDY SILT:** trace clay, trace gravel, layers of silt, brown, moist, very dense	5B	SS								
4.0	**SAND AND SILT TO SILTY SAND:** trace gravel, containing cobbles and boulders, brown, moist, very dense	6	SS	50 / 100 mm		298	> >100				
296.5	--- auger grinding					297					
5.5	**SAND:** trace to some silt, trace gravel, brown, moist, very dense	7	SS	50 / 80 mm		296	> >100				
295.1											
6.9	**SAND AND SILT TO SILTY SAND:** trace gravel, pockets of sand, containing cobbles and boulders, brown, moist, very dense	8	SS	50 / 50 mm	Sand / Screen	295	> >100				
293.6						294					
8.4	**SILTY FINE SAND:** brown, moist, very dense										
292.7		9	SS	50 / 140 mm	Natural pack	293	> >100				
9.3	**END OF BOREHOLE**										

Notes:
1) Borehole caved at a depth of 7.9 m below ground surface (mBGS)

Continued Next Page

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +3, ×3: Numbers refer to Sensitivity; ▲ε=3%: Strain at Failure

Draft

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180523-DC -DX.GPJ 2018-05-23 18:40

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer

FIELD ENGINEER: RR

SAMPLE REVIEW: DX

CHECKED: DL

DIAMETER: 155 mm

DATE: 2018-04-23

REF. NO.: 17-2099GE

ENCL. NO.: 22

SOIL PROFILE			SAMPLES			GROUND WATER	ELEVATION	DYNAMIC PENETRATION TEST / SHEAR STRENGTH (kPa)	Plastic Limit / Natural Moisture Content / Liquid Limit / WATER CONTENT (%)	UNIT WT (kN/m³)	REMARKS AND GRAIN SIZE DISTRIBUTION (%)
ELEV / DEPTH (m)	DESCRIPTION	STRATA PLOT	NUMBER	TYPE	"N" BLOWS/0.3m			○ SPT, ≈ Cone, blows/0.3m; 20 40 60 80; ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane; 20 40 60 80	w_P w w_L; 10 20 30 40		GR SA SI CL
	upon completion of drilling. 2) 51 mm dia. monitoring was installed in borehole upon completion of drilling. Water Level Reading Date W. L Depth (mBGS) May 11, 2018 Dry										

Draft

GROUNDWATER ELEVATIONS

Measurement 1st ▽ 2nd ▼ 3rd ▼ 4th ▼

GRAPH NOTES: $+^{3}$, $\times^{3}$: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

LOG OF BOREHOLE BH23

PROJECT: Geotechnical Investigation for Proposed Residential Developments

CLIENT: Di Poce Management Inc. c/o Oksana Vialykh, BBA, AACI

PROJECT LOCATION: County Road 27, Barrie, Ontario

DATUM: Geodetic

BH LOCATION: See Borehole Location Plan

DRILLING DATA

METHOD: Continuous Flight Auger - Auto Hammer | DIAMETER: 155 mm

FIELD ENGINEER: RR | DATE: 2018-04-24

SAMPLE REVIEW: DX | REF. NO.: 17-2099GE

CHECKED: DL | ENCL. NO.: 24

ELEV / DEPTH (m)	DESCRIPTION	NUMBER	TYPE	"N" BLOWS/0.3m
299.2 / 0.0	**TOPSOIL:** (240 mm)			
298.9 / 0.2	**REWORKED FINE SAND AND SILT:** trace organics, trace rootlets, dark brown, moist, loose	1A	SS	4
298.7 / 0.4		1B	SS	
298.6 / 0.6	**REWORKED SANDY SILT:** some clay, trace gravel, trace organics, trace rootlets, dark brown to brown, moist, loose	2	SS	4
298.0 / 1.2	**SANDY SILT:** some clay, trace organics, trace rootlets, organic stain, layers of sand, dark brown to brown, moist, loose	3	SS	17
297.1 / 2.1	**SAND AND SILT:** trace clay, trace gravel, organic stain, brown, moist to wet, compact			
	SAND AND SILT TO SILTY SAND: trace to some clay, trace gravel, sand pockets, containing cobbles and boulders, brown, moist to wet, dense to very dense	4	SS	44
		5	SS	53
	---auger grinding	6	SS	50 / 150 mm
293.7 / 5.5	**FINE SAND AND SILT TO SILTY FINE SAND:** trace gravel, containing cobbles and boulders, brown, wet, very dense			
293.0 / 6.2	**END OF BOREHOLE**	7	SS	50 / 120 mm

Bentonite

297.0/May 11

Sand

Screen

DYNAMIC PENETRATION TEST: ○ SPT ≳ Cone blows/0.3m (20 40 60 80)

SHEAR STRENGTH (kPa): ● Unconfined ✕ Field Vane & Sensitivity ▲ Quick Triaxial ⊠ Penetrometer + Lab Vane (20 40 60 80)

Plastic Limit w_P | Natural Moisture Content w | Liquid Limit w_L

WATER CONTENT (%) (10 20 30 40)

> >100

UNIT WT (kN/m³)

REMARKS AND GRAIN SIZE DISTRIBUTION (%)

GR	SA	SI	CL
4	64	21	11

Notes:
1) Water encountered at a depth of 3.1 m below ground surface (mBGS) during drilling.
2) Water was at a depth of 3.7 mBGS upon completion of drilling.
3) Borehole caved at a depth of 5.9 mBGS upon completion of drilling.
4) 51 mm dia. monitoring was installed in borehole upon completion of drilling.

Water Level Reading

Date	W. L Depth (mBGS)
May 11, 2018	2.20

GROUNDWATER ELEVATIONS

Measurement 1st 2nd 3rd 4th

GRAPH NOTES: +³, ×³: Numbers refer to Sensitivity; ▲ ε=3% Strain at Failure

Draft

01 - GEOPRO SOIL LOG GEOPRO 17-2099 BH LOG PROJECT DATA 20180523-DC -DX.GPJ 2018-05-23 18:40

LOG OF BH 120

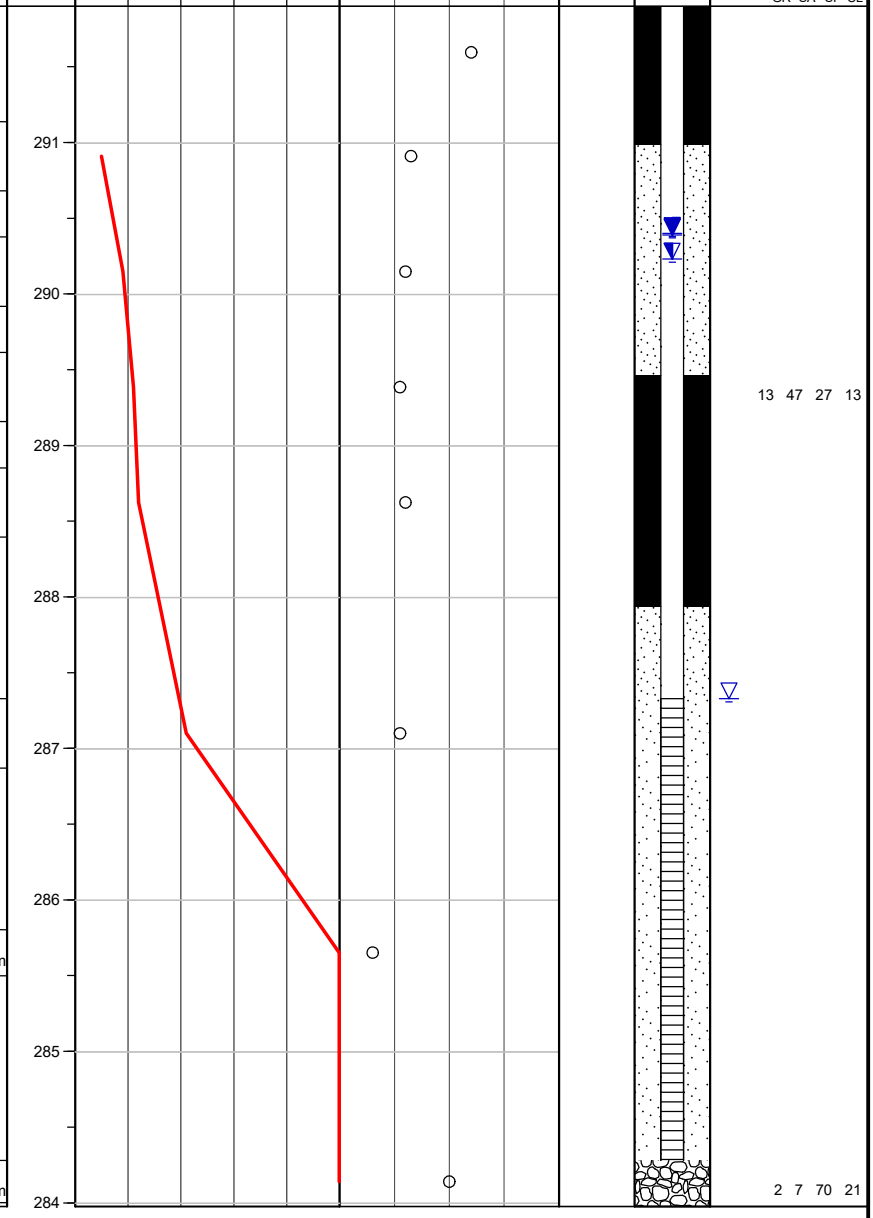
Terraprobe

Project No.	: 3-17-0047-03	Client	: PRATT DEVELOPMENT INC.	Originated by	: BH
Date started	: January 24, 2018	Project	: BEAR CREEK RIDGE	Compiled by	: BH
Sheet No.	: 1 of 1	Location	: Barrie	Checked by	: SO

Position : *Dipoce Property* Elevation Datum : Geodetic

Rig type : CME 55, track-mounted Drilling Method : Hollow stem augers

Depth Scale (m)	Elev / Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value
0	**291.9**	**GROUND SURFACE**				
	291.6 / 0.3	280mm **TOPSOIL**		1	AS	
		FILL, silty sand and sandy silt, trace gravel, trace clay, loose, brown, moist to wet		2	SS	5
1				3	SS	9
2	289.9 / 2.0	**SILTY SAND**, some gravel, some clay, compact to very dense, brown, moist to wet (GLACIAL TILL)		4	SS	11
3				5	SS	12
4		...wet seams between 3.7m to 4.6m.		6	SS	21
5						
6				7	SS	50 / 150mm
7	284.3 / 7.6					
	284.0 / 7.9	**CLAYEY SILT**, trace sand, trace gravel, very dense, brown, moist (GLACIAL TILL)		8	SS	50 / 125mm



END OF BOREHOLE

Unstabilized water level measured at 4.6 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed. 3.0m screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 15, 2018	1.7	290.2
Feb 20, 2018	1.5	290.4
Feb 22, 2018	1.5	290.4

file: 3170047 bh.gpj

LOG OF BH 122

Terraprobe

Project No.	: 3-17-0047-03	Client	: PRATT DEVELOPMENT INC.	Originated by	: BH
Date started	: January 29, 2018	Project	: BEAR CREEK RIDGE	Compiled by	: BH
Sheet No.	: 1 of 1	Location	: Barrie	Checked by	: SO

Position : *Dipoce Property* Elevation Datum : Geodetic

Rig type : CME 55, track-mounted Drilling Method : Hollow stem augers

Depth (m)	Elev Depth (m)	Description	Graphic Log	Sample Number	Sample Type	SPT 'N' Value
0	299.7	**GROUND SURFACE**				
	299.4	300mm **TOPSOIL**				
	0.3	**FILL**, silty sand, trace gravel, trace organic to 0.6m, loose, brown, moist		1	AS	
1				2	SS	6
				3	SS	5
2	297.7					
	2.0	**SAND**, trace silt, trace gravel, dense to very dense, brown, moist		4	SS	30
3				5	SS	50 / 150mm
4						
				6	SS	50 / 150mm
	294.8					
5	4.9	**SILTY SAND**, trace clay, trace gravel, cobble and boulder inclusions, very dense, brown, moist (GLACIAL TILL)		7	SS	50 / 150mm
6						
				8	SS	50 / 75mm
7						
8						
				9	SS	50 / 100mm
9						
	290.1					
	9.6	**SAND AND SILT**, trace clay, very dense, greyish brown, wet		10	SS	50 / 100mm
10	289.5					
	10.2	**END OF BOREHOLE**				

Elevation Scale (m): 299, 298, 297, 296, 295, 294, 293, 292, 291, 290

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) Natural Water Content (MC) Liquid Limit (LL) 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT)

GR SA SI CL

2 91 7 0

0 52 45 3

Unstabilized water level measured at 9.8 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed. 3.0m screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 15, 2018	dry	n/a
Feb 20, 2018	dry	n/a
Feb 22, 2018	dry	n/a

file: 3170047 bh.gpj

LOG OF BH 123

Terraprobe

Project No. : 3-17-0047-03	Client : PRATT DEVELOPMENT INC.	Originated by : BH
Date started : January 30, 2018	Project : BEAR CREEK RIDGE	Compiled by : BH
Sheet No. : 1 of 1	Location : Barrie	Checked by : SO

Position : *Dipoce Property* Elevation Datum : Geodetic

Rig type : CME 55, track-mounted Drilling Method : Hollow stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value	Elevation Scale (m)	Lab Data and Comments (GR SA SI CL)
0	309.3	**GROUND SURFACE**					309	
		200mm **TOPSOIL**		1	AS			
		FILL, sand, trace to some silt, trace organics, loose, brown, moist						
1	308.1			2	SS	7	308	
	1.2	**SAND**, trace to some silt, trace to some gravel, dense to very dense, brown, moist to wet		3	SS	40		
2				4	SS	50 / 125mm	307	
3				5	SS	50 / 150mm	306	
4							305	
5				6	SS	32	304	
6	303.2							
	6.1	**SILTY CLAY**, some sand, trace gravel, stiff, greyish brown, moist to wet		7	SS	8	303	4 19 34 43
7	301.7						302	
	7.6	**SAND**, trace to some silt, very dense, brown, wet		8	SS	82		
8							301	
9	300.2							
	9.1	**SILTY SAND**, trace gravel, trace clay, very dense, brown, moist (GLACIAL TILL)		9	SS	50 / 150mm	300	
10	298.6						299	
	10.7	**SAND**, some silt, trace gravel, very dense, brown, moist		10	SS	50 / 125mm		
11							298	
12	297.1						297	
	12.2	**SILT AND SAND**, some clay, trace gravel, very dense, brown, wet to moist (GLACIAL TILL)		11	SS	50 / 125mm		4 40 44 12
13	295.4						296	
	13.9	**END OF BOREHOLE**		12	SS	50 / 125mm		

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) Natural Water Content (MC) Liquid Limit (LL) — 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Unstabilized water level measured at 9.8 m below ground surface upon completion of drilling.

50 mm dia. monitoring well installed.
3.0m screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 15, 2018	13.5	295.8
Feb 20, 2018	13.4	295.9
Feb 22, 2018	13.4	295.9

file: 3170047 bh.gpj

Terraprobe

LOG OF BH 129

Project No. : 3-17-0047-03 | Client : PRATT DEVELOPMENT INC. | Originated by : BH

Date started : January 24, 2018 | Project : BEAR CREEK RIDGE | Compiled by : BH

Sheet No. : 1 of 1 | Location : Barrie | Checked by : SO

Position : *Dipoce Property* | Elevation Datum : Geodetic

Rig type : CME 55, track-mounted | Drilling Method : Hollow stem augers

Depth Scale (m)	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value
0	**290.6**	**GROUND SURFACE**				
	290.4	250mm **TOPSOIL**				
	0.2	**FILL**, silty sand and sandy silt, trace gravel, trace clay, trace organics to 0.6m, loose to compact, brown, moist to wet		1	AS	
1				2	SS	11
2				3	SS	13
				4	SS	9
3				5	SS	12
	287.1					
	3.5	**SILTY SAND**, trace gravel, trace clay, very dense, brown, wet to moist (GLACIAL TILL)		6	SS	85
4						
5						
6				7	SS	50 / 150mm
7						
8	282.5			8	SS	57
	8.1					

Elevation Scale (m): 290, 289, 288, 287, 286, 285, 284, 283

Penetration Test Values (Blows / 0.3m): Dynamic Cone 10 20 30 40

Undrained Shear Strength (kPa): Unconfined, Pocket Penetrometer, Field Vane, Lab Vane — 40 80 120 160

Moisture / Plasticity: Plastic Limit (PL) | Natural Water Content (MC) | Liquid Limit (LL) — 10 20 30

Headspace Vapour (ppm)

Instrument Details

Unstabilized Water Level

Lab Data and Comments

GRAIN SIZE DISTRIBUTION (%) (MIT) GR SA SI CL

END OF BOREHOLE

Borehole was dry upon completion of drilling.

50 mm dia. monitoring well installed.
3.0m screen installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 15, 2018	5.5	285.1
Feb 20, 2018	5.4	285.2
Feb 22, 2018	5.4	285.2

file: 3170047 bh.gpj

Terraprobe

LOG OF BOREHOLE ..MW3..

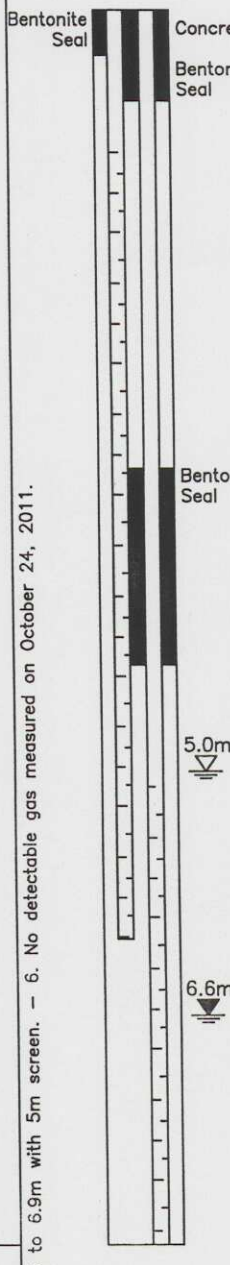
PROJECT NAME: Annex Lands, Barrie
PROJECT No.: 33-11-7130
CLIENT: Pratt Development
BORING DATE: October 19, 2011
LOCATION: Barrie, Ontario
ELEVATION DATUM:

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

DEPTH SCALE IN METRES	DESCRIPTION	STRATA PLOT	ELEV. / DEPTH (m)	NUMBER	TYPE	"N" VALUE
0	GROUND SURFACE					
	150mm – Topsoil		0.0	1	AS	
	Orange to Brown, Compact to Dense, Moist to Wet					
1	SAND, fine to medium, trace to some gravel, trace to some silt			2	SS	5
2				3	SS	12
				4	SS	55
3				5	SS	50/150mm
4						
5				6	SS	61
6						
	Grey, Compact, Wet		6.4	7	SS	25
7	SAND & SILT					
	Brown, Very Dense, Wet		7.1			
	SAND, fine, some silt			8	SS	50/150mm
8	End of Borehole		8.1			
9						

PENETRATION RESISTANCE PLOT: 20 40 60 80
SHEAR STRENGTH kPa: nat.V – +, rem.V – ⊕, Q – ●, U – ○; 20 40 60 80
WATER CONTENT (%): P, 10 20 30

INSTALLATION INFORMATION



5. gas probe well depth to 6.9m with 5m screen. – 6. No detectable gas measured on October 24, 2011.

1. Borehole caved at 5.5m during drilling. – 2. Water level noted at 5.0m upon completion of drilling.
3. Schedule 40, 50mm diameter monitoring well installed with 3m screen tip at 8.1m. – 4. Water level measured on October 24, 2011 at 6.6m.

Table 1
Groundwater Elevations

Well Name	Well Depth (mbgs)	Ground Surface Elevation (masl)*	17-May-2018		28-Jun-2018		27-Jul-2018		14-Aug-2018	
			Water Level (mbgs)	Water Elevation (masl)	Water Level (mbgs)	Water Elevation (masl)	Water Level (mbgs)	Water Elevation (masl)	Water Level (mbgs)	Water Elevation (masl)
DP-BH7	**14.79**	**301.40**	14.42	286.98	14.26	287.14	14.47	286.93	14.63	286.77
DP-BH14	**6.05**	**293.30**	5.98	287.32	Dry	Dry	Dry	Dry	Dry	Dry
DP-BH18	**4.10**	**296.60**	1.26	295.34	1.96	294.64	2.51	294.09	2.56	294.04
DP-BH21	**9.85**	**302.00**	9.43	292.57	9.66	292.34	9.75	292.25	Dry	Dry
DP-BH23	**6.08**	**299.20**	2.35	296.85	3.83	295.37	4.42	294.78	4.60	294.60
DP-BH120	**7.50**	**291.90**	0.78	291.12	1.59	290.31	2.46	289.44	2.58	289.32
DP-BH122	**8.89**	**299.70**	Dry	Dry	-	-	Dry	Dry	Dry	Dry
DP-BH123	**13.59**	**309.30**	Dry	Dry	Dry	Dry	Dry	Dry	Dry	Dry
DP-BH129	**4.51**	**290.60**	3.32	287.28	3.86	286.74	4.33	286.27	4.33	286.27
MW3s	**6.04**	**306.00**	Dry	Dry	5.00	301.00	5.18	300.82	5.29	300.71
MW3d	**7.47**	**306.00**	4.73	301.27	5.02	300.98	5.19	300.81	5.30	300.70
DP-PZ1s	**1.24**	**298.00**	-0.03	298.03	0.23	297.77	0.54	297.46	0.29	297.71
DP-PZ1d	**1.85**	**298.00**	0.02	297.98	0.32	297.68	0.33	297.67	0.36	297.64

Notes
"-" denotes data unavailable
mbgs - meters below ground surface
masl - metres above sea level
*** Ground elevations taken from geotechnical reports (GeoPro 2018, Terraprobe 2018)**
"red text" denotes ground elevations estimated from google earth

FIELD MONITORING SUMMARY SHEET — CB SHIELD INC.

233 Cross Avenue, Suite 302
Oakville, ON L6J 2W9, Canada
(T) 647-271-5272
info@cbshield.com

City of Barrie – Field Monitoring Study

Study Outline in brief:

- CB Shields installed in October 2015
- 20 catch basins outfitted with CB Shields in an existing residential area
- 18 control (non-shielded) catch basins located across the street/nearby

After approximately 18 months following installation, sediment depths were measured (on May 7th, 2017) in all 38 catch basins using a standardized three measurement system and specialized level measurement tool. None of the catch basins appeared to have been disturbed or cleaned since the last monitoring nor since original installation of CB Shields.

Sediment samples were taken at 16 of the catch basins (8 CB Shield protected and 8 unshielded control cb's) and tested for total phosphorus. Samples were tested by Maxxam Analytics in Mississauga.

Catch basins were picked at random, with a rationale that the 20 shielded + 18 control cb's are numerous enough to allow differences in catchment characteristics to be effectively averaged.

Significant Monitoring Observations

A significant base load of sediment from winter sanding was observed at most catch basins, including at roadway gutters and within sediment samples taken from shielded and unshielded catch basins. The heavy baseload may have the effect of skewing results slightly, as the relatively large particle size distribution of the winter sand allows unshielded catch basins to more readily accumulate sediment.

Four of the catch basins outfitted with CB Shields were completely full of sediment and need to be cleaned. Monitoring results will have been skewed by their inability to continue capturing sediment. No control catch basins were found to be full.

Summary of Results:

- Despite the heavy winter sanding baseload, CB Shield protected catch basins had on average 60% more sediment than the unshielded cb's.
- CB Shield protected catch basins captured 75% more total phosphorus (TP) than the control cb's, as the TP concentration in the CB Shield protected catch basins was approximately 10% higher than in the controls.
- Total phosphorus by weight captured by the 20 CB Shield protected catch basins was 2.5 kg.

Note: Total phosphorus capture per CB Shield protected catch basin was seen to be approximately 83 grams per year. Given these preliminary numbers hold, a rough order of magnitude quantification indicates that capturing a tonne of phosphorus per year would require installation of approximately 12,000 CB Shields.

APPENDIX B: STORMWATER MANAGEMENT CALCULATIONS

TIMP & XIMP CALCULATIONS

DiPoce Subdivision
Post-Development Drainage Areas & Runoff Coefficients

Catchment 200 + 206 -(Requires Quality Control)	Area (ha)	Runoff Coeff	Impervious	A*R	A*Imp	Ximp	A*Ximp	
ROW-18m	1.81	0.72	0.75	1.31	1.35	0.75	1.35	Calculated based on Barrie Citeria
ROW-24m	1.49	0.73	0.75	1.08	1.12	0.75	1.12	Calculated based on Barrie Citeria
7 m Lots: Townhouse Front Yards	0.98	0.55	0.50	0.54	0.49	0.50	0.49	Calculated based on typical lot layout
SWM Pond	1.25	0.55	0.50	0.69	0.62	0.50	0.62	
Paths	0.09	0.90	1.00	0.09	0.09	1.50	0.14	Measured in Autocad
School	2.21	0.70	0.71	1.55	1.58	0.71	1.58	Based on IMP suggested by Planner
Park	2.48	0.25	0.07	0.62	0.18	0.07	0.18	Based on Barrie and NVCA criteria
Service corridor	0.04	0.25	0.07	0.01	0.00	0.07	0.00	Based on Draft plan Area
Subtotal	**10.34**	**0.57**	**0.53**	**5.87**	**5.44**	**0.53**	**5.48**	
Catchment 101-(No Quality Control Required)	**Area (ha)**	**Runoff Coeff**	**Impervious**	**A*R**	**A*Imp**	**Ximp**	**A*Ximp**	
7m Lots: Rooftops and backyards	4.15	0.71	0.73	2.94	3.01	0.73	3.01	Calculated based on typical lot layout
Total Area	**14.49**	**0.61**	**0.58**	**8.8101**	**8.4454**	**0.59**	**8.4927**	
	Area (ha)	**Runoff Coeff**	**Impervious**	**A*R**	**A*Imp**	**Ximp**	**A*Ximp**	
External Area (Catchment 209E)	0.93	0.55	0.50	0.51	0.47	0.50	0.47	Assumed 50% Imperviousness
	15.42	**0.60**	**0.58**	**9.32**	**8.91**	**0.58**	**8.96**	
Catchment 202-Onsite Quality Control	**Area (ha)**	**Runoff Coeff**	**Impervious**	**A*R**	**A*Imp**	**Ximp**	**A*Ximp**	
Medium Density - Block 40	1.54	0.725	0.75	1.12	1.16	0.75	1.16	Based on IMP suggested by Planner
Catchment 201-Onsite Quality Control	**Area (ha)**	**Runoff Coeff**	**Impervious**	**A*R**	**A*Imp**	**Ximp**	**A*Ximp**	
Medium Density - Block 39	1.04	0.73	0.75	0.75	0.78	0.75	0.78	Based on IMP suggested by Planner
Catchment 204- Site plans on other side of channel	**Area (ha)**	**Runoff Coeff**	**Impervious**	**A*R**	**A*Imp**	**Ximp**	**A*Ximp**	
Medium Density - Block 41	0.88	0.73	0.75	0.64	0.66	0.75	0.66	Based on IMP suggested by Planner
Catchment 203- Site plans on other side of channel	**Area (ha)**	**Runoff Coeff**	**Impervious**	**A*R**	**A*Imp**	**Ximp**	**A*Ximp**	
Commercial - Block 42	0.28	0.70	0.71	0.20	0.20	0.71	0.20	Based on Barrie Design Criteria
Catchment 106-Undeveloped Lands	**Area (ha)**	**Runoff Coeff**	**Impervious**	**A*R**	**A*Imp**	**Ximp**	**A*Ximp**	
Pipeline corridor	0.90	0.25	0.07	0.23	0.06	0.07	0.06	Based on Draft plan Area
Open space	6.69	0.25	0.07	1.67	0.48	0.07	0.48	Based on Draft plan Area
Total Site Area	**25.82**	**0.52**	**0.46**	**13.41**	**11.78**	**0.46**	**11.83**	

TIME OF CONCENTRATION CALCULATIONS

PROJECT NO.: 4560
PROJECT NAME: DiPoche Residential Development
LOCATION: City of Barrie
DATE: Nov-18

SCHAEFFERS
CONSULTING ENGINEERS

Table 1: Existing Catchment Area Drainage Characteristics

Catchment	Area	Hydrologic Soil Group	Curve Number (SIS Study)	Initial Abstraction (SIS)	Watershed Slope, S_w	Overland Flow Length, L	Runoff Coefficient, C	Velocity (Uplands)	Time of Concentration, t_c (Airport)	Time of Concentration (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak, tp = 0.67tc (Upland)
	(ha)			*(mm)*	*(%)*	*(m)*		*m/s*	minutes	minutes	minutes	minutes	(hrs)	(hrs)
100	25.81	AB	53	5.00	1.8	746.5810	0.25	0.36	62.4	34.3	41.8	23.0	0.70	0.38

Catchment	Area	Hydrologic Soil Group	Curve Number (NVCA Table 10.1)	Initial Abstraction (SCS/NVCA	Watershed Slope, S_w	Overland Flow Length, L	Runoff Coefficient, C	Velocity (Uplands)	Time of Concentration, t_c	Time of Concentration (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak, tp = 0.67tc (Upland)
	(ha)			*(mm)*	*(%)*	*(m)*		*m/s*	minutes	minutes	minutes	minutes	(hrs)	(hrs)
101	0.28	AB	51 (Meadows - AB)	8.00	7.0	46.3	0.25	0.40	9.9	1.9	6.6	1.3	0.11	0.02
102	0.88	AB	46 (Woods - AB)	10.00	3.7	110.5	0.25	0.30	18.9	6.1	12.7	4.1	0.21	0.07

Please note that the Time to Peak for catchment 101 was considered based on minimum time of concentration of 10min (Time to Peak =0.17hr) which is considered more conservative

PROJECT NO.: 4560
PROJECT NAME: DiPoce Inc.
LOCATION: City of Barrie
DATE: Nov-18

SCHAEFFERS
CONSULTING ENGINEERS

Table 2: Watershed Slope Calculations

Catchment	Number of Divisions of Equal Length	Equal Lengths *(m)*	Upstream Elevation *(mAMSL)*	Downstream Elevation *(mAMSL)*	Slope *(m/m)*	Slope to the power of -0.5 *(m/m)*	Sum of Length *(m)*	Sum of Slope to the power of -0.5	Watershed Slope, Sw *(%)*
101	1	15.4	296.5	295.4	0.071	3.7	46.3	11.3	7.0
	2	15.4	295.4	294.4	0.065	3.9			
	3	15.4	294.4	293.25	0.075	3.7			
102	1	22.1	299.6	298.8	0.036	5.3	110.5	26.0	3.7
	2	22.1	298.8	298	0.036	5.3			
	3	22.1	298	297.1	0.041	5.0			
	4	22.1	297.1	296.4	0.032	5.6			
	5	22.1	296.4	295.5	0.041	5.0			

Notes:

1. The watershed slope is calculated using the Equivalent Slope Method using the Ministry of Transportation (MTO, 1997) Drainage Manual guidelines in Chapter 8 (page 27). The Equalivent Slope Method equation is provided below.

PROJECT NO.: 4560
PROJECT NAME: DiPoche Residential Development
LOCATION: City of Barrie
DATE: Nov-18

SCHAEFFERS
CONSULTING ENGINEERS

Table 1: Existing Catchment Area Drainage Characteristics

Catchment	Area	Hydrologic Soil Group	Curve Number (SIS Study)	Initial Abstraction (SIS)	Watershed Slope, S_w	Overland Flow Length, L	Runoff Coefficient, C	Velocity (Uplands)	Time of Concentration, t_c (Airport)	Time of Concentration (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak, tp = 0.67tc (Upland)
	(ha)			*(mm)*	*(%)*	*(m)*		*m/s*	minutes	minutes	minutes	minutes	(hrs)	(hrs)
100	25.12	AB	53	5.00	1.8	746.5810	0.25	0.36	62.4	34.3	41.8	23.0	0.70	0.38

Catchment	Area	Hydrologic Soil Group	Curve Number (NVCA Table 10.1)	Initial Abstraction (CRCA /NVCA	Watershed Slope, S_w	Overland Flow Length, L	Runoff Coefficient, C	Velocity (Uplands)	Time of Concentration, t_c	Time of Concentration	Time to Peak, tp = 0.67tc (Airport)	Time to Peak (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak, tp = 0.67tc (Upland)
	(ha)			*(mm)*	*(%)*	*(m)*		*m/s*	minutes	minutes	minutes	minutes	(hrs)	(hrs)
101	0.28	AB	51 (Meadows - AB)	8.00	7.0	46.3	0.25	0.40	9.9	1.9	6.6	1.3	0.11	0.02
102	0.88	AB	46 (Woods - AB)	10.00	3.7	110.5	0.25	0.30	18.9	6.1	12.7	4.1	0.21	0.07

Please note that the Time to Peak for catchment 101 was considered based on minimum time of concentration of 10min (Time to Peak =0.17hr) which is considered more conservative

PROJECT NO.: 4560
PROJECT NAME: DiPoche Residential Development
LOCATION: City of Barrie
DATE: Nov-18

SCHAEFFERS
CONSULTING ENGINEERS

Table 1: Existing Catchment Area Drainage Characteristics

Catchment	Area	Hydrologic Soil Group	Curve Number (SIS Study)	Initial Abstraction (SIS)	Watershed Slope, S_w	Overland Flow Length, L	Runoff Coefficient, C	Velocity (Uplands)	Time of Concentration, t_c (Airport)	Time of Concentration (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak, tp = 0.67tc (Upland)
	(ha)			*(mm)*	*(%)*	*(m)*		*m/s*	minutes	minutes	minutes	minutes	(hrs)	(hrs)
100	25.12	AB	53	5.00	1.8	746.5810	0.25	0.36	62.4	34.3	41.8	23.0	0.70	0.38

Catchment	Area	Hydrologic Soil Group	Curve Number (SIS Study)	Initial Abstraction (SIS)	Watershed Slope, S_w	Overland Flow Length, L	Runoff Coefficient, C	Velocity (Uplands)	Time of Concentration, t_c (Airport)	Time of Concentration (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak (Upland)	Time to Peak, tp = 0.67tc (Airport)	Time to Peak, tp = 0.67tc (Upland)
	(ha)			*(mm)*	*(%)*	*(m)*		*m/s*	minutes	minutes	minutes	minutes	(hrs)	(hrs)
208E	8.10	AB	53	5.00	1.4	438.3906	0.25	0.32	52.4	23.2	35.1	15.5	0.59	0.26

PROJECT NO.: 4560
PROJECT NAME: DiPoce Inc.
LOCATION: City of Barrie
DATE: Nov-18

SCHAEFFERS
CONSULTING ENGINEERS

Table 2: Watershed Slope Calculations

Catchment	Number of Divisions of Equal Length	Equal Lengths *(m)*	Upstream Elevation *(mAMSL)*	Downstream Elevation *(mAMSL)*	Slope *(m/m)*	Slope to the power of -0.5 *(m/m)*	Sum of Length *(m)*	Sum of Slope to the power of -0.5	Watershed Slope, Sw *(%)*
100	1	74.7	309	307.75	0.017	7.7	722.5	76.1	1.8
	2	74.7	307.75	307	0.010	10.0			
	3	74.7	307	306.75	0.003	17.3			
	4	74.7	306.75	305	0.023	6.5			
	5	74.7	305	303.5	0.020	7.1			
	6	74.7	303.5	299.75	0.050	4.5			
	7	74.7	299.75	295.9	0.052	4.4			
	8	74.7	295.9	293.75	0.029	5.9			
	9	74.7	293.75	292.25	0.020	7.1			
	10	74.7	292.25	290	0.030	5.8			
208E	1	219.2	309	306.25	0.013	8.9	438.4	17.1	1.4
	2	219.2	306.25	303	0.015	8.2			

EROSION CONTROL CALCULATIONS

PROJECT NO.: 4560
PROJECT NAME: DiPoce (Innisfil) Development
LOCATION: City of Barrie

SCHAEFFERS
CONSULTING ENGINEERS

Area Draining to SWM Pond- TIMP Calculations for Erosion Control

Catchments	Area (ha)	Runoff Coefficient (c)	TIMP
Catchment 200+206+209E	15.42	0.60	58%
Catchment 201	1.04	0.73	75.00%
Catchment 208E	8.1	0.25	7%
Total	**24.56**	**0.46**	**41.9%**

Printed 13-Dec-18

PROJECT NO.: 4560
PROJECT NAME: DiPoce (Innisfil) Inc. Development
LOCATION: City of Barrie

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Erosion Control Discharge Rate and Storage Requirement Calculations

Table 4.4.15: End-of-Pipe Stormwater Management Requirements[1,3]

Subwatershed	Reach	Outlet Node	Cumulative Unitary Storage Rate (m^3/imp. ha)				Unitary Discharge Rate (m^3/s/ha)			
			Erosion Control	Flood Control[2]			Erosion Control	Flood Control		
				5 Yr	25 Yr	100 Yr		5 Yr	25 Yr	100 Yr
Bear Creek	BEA1	9001	410	850	1000	1300	0.0012	0.007	0.013	0.030
	BEA2	9005	440	1030	1280	1580	0.0012	0.007	0.013	0.030
Thornton Creek	THO1	9024	430	920	1070	1420	0.0011	0.007	0.013	0.025
	THO2	9017	370	860	960	1310	0.0013	0.009	0.018	0.036
Lover's Creel	LOV2	9251	400	850	1050	1300	0.0011	0.010	0.020	0.050
	LOV4	9142	400	1000	1250	1400	0.0012	0.007	0.012	0.027
	LOV6	9201	400	900	1050	1350	0.0013	0.007	0.013	0.030
	LOV8	9350	460	1060	1310	1510	0.0012	0.007	0.012	0.027
Hewitts Creek	-	9140	450	900	1050	1300	0.0006	0.007	0.013	0.030
Sandy Cove Creek	SAN2	9284	310	760	835	1235	0.0010	0.010	0.020	0.040
	SAN3	9281	320	770	845	1245	0.0011	0.010	0.020	0.040

Note: [1] Water quality: Volumetric requirements for permanent pool storage are in addition to storage provided here and are to be provided in accordance with Ministry of the Environment Enhanced Level treatment.
[2] Includes erosion control volume
[3] Volumes do not include LID

Catchment 200+206+209E+201	16.46	ha	
Catchment 208E	8.1		
Total	**24.56**	ha	
Total Impervious Area (42%)	10.3152	ha	[24.56x0.42]
Cumulative Unitary Storage (From 4.4.15)	**4229.23**	**m^3**	[410x10.3152]
Unitary Discharge Rate (From 4.4.15)	0.02947	m^3/s	[0.0012x24.56]
Peak Outflow	**0.04421**	**m^3/s**	[0.02947x1.5]

Printed 13-Dec-18

ALLOWABLE RELEASE RATE CALCULATIONS

Project No.: 4560
Project Name: Di Poce (Innisfil) Inc. Development
Location: City of Barrie

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SUBJECT SITE CONDITIONS

A= 1.04 ha
R= 0.25

tc = 19 min
and Q = RAIN (where Q is in L/s, and N=2.778

Return Frequency	Intensity	Runoff Coeffcient	Q	
			L/s	cms
2	$I = 678.085 \times (T+4.699)^{-0.781}$	0.25	40.9 L/s	0.041 cms
	56.67 mm/h			
5	$I = 853.608 \times (T+4.699)^{-0.766}$	0.25	54.0 L/s	0.054 cms
	74.82 mm/h			
10	$I = 975.865 \times (T+4.699)^{-0.760}$	0.25	63.0 L/s	0.063 cms
	87.19 mm/h			
25	$I = 114.275 \times (T+4.922)^{-0.757}$	$R_{25} = 1.1 \times R_5$	81.6 L/s	0.082 cms
	102.67 mm/h	0.28		
50	$I = 1236.152x (T+4.699)^{-0.751}$	$R_{50} = 1.2 \times R_5$	98.5 L/s	0.098 cms
	113.64 mm/h	0.30		
100	$I = 1426.408 \times (T+5.273)^{-0.759}$	$R_{100} = 1.25 \times R_5$	113.4 L/s	0.113 cms
	125.57 mm/h	0.31		

Allowable Release Rate Calculations

PROJECT NO.: 4560
PROJECT NAME: DiPoce (Innisfil) Development
LOCATION: City of Barrie

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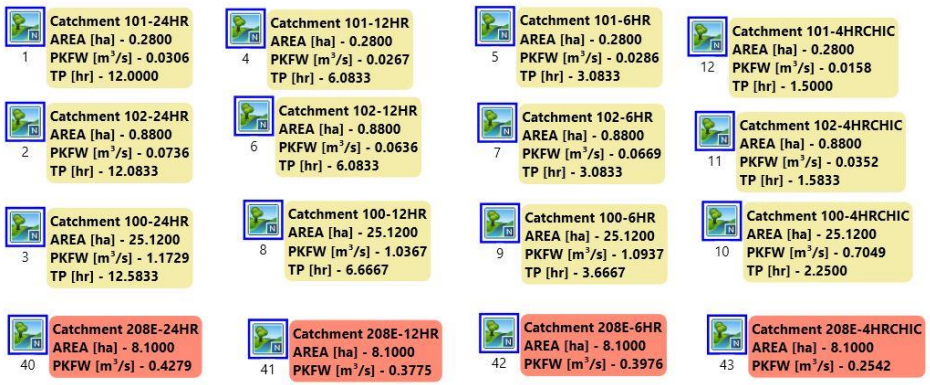
Storm Event	Pre-development Flows (m^3/s)												Allowable Release Rate to Thornton Creek (Node-9001) (24-HR-SCS)
	100				101				102				
	24Hr SCS	12Hr SCS	6Hr SCS	4Hr Chicago	24Hr SCS	12Hr SCS	6Hr SCS	4Hr Chicago	24Hr SCS	12Hr SCS	6Hr SCS	4Hr Chicago	
2 Year	0.218	0.187	0.177	0.124	0.005	0.004	0.004	0.002	0.011	0.004	0.004	0.002	0.234
5 Year	0.415	0.360	0.360	0.239	0.010	0.009	0.009	0.005	0.023	0.009	0.009	0.005	0.449
10 Year	0.572	0.500	0.508	0.334	0.014	0.013	0.013	0.007	0.034	0.013	0.013	0.007	0.620
25 Year	0.796	0.699	0.724	0.473	0.020	0.018	0.019	0.010	0.048	0.018	0.019	0.010	0.864
50 Year	0.979	0.864	0.903	0.581	0.025	0.022	0.023	0.013	0.061	0.022	0.023	0.013	1.064
100 Year	1.173	1.037	1.094	0.705	0.031	0.027	0.029	0.016	0.074	0.027	0.029	0.016	1.277

Storm Event	Pre-development Flows (m^3/s)			
	Catchment 208E for (Ultimate Condition VO5 model)			
	24Hr SCS	12Hr SCS	6Hr SCS	4Hr Chicago
2 Year	0.079	0.068	0.064	0.045
5 Year	0.151	0.131	0.131	0.086
10 Year	0.208	0.182	0.185	0.120
25 Year	0.290	0.254	0.264	0.170
50 Year	0.357	0.314	0.328	0.209
100 Year	0.428	0.378	0.398	0.254

Storm Event	Catchment 200+206+209E+208E				Catchment 202			
	24.56				1.54			
	24HR SCS	12HR SCS	6HR SCS	4HR CHIC	24HR SCS	12HR SCS	6HR SCS	4HR CHIC
2 Year	0.205	0.176	0.166	0.117	0.013	0.004	0.004	0.002
5 Year	0.391	0.339	0.338	0.225	0.024	0.008	0.008	0.005
10 Year	0.538	0.470	0.478	0.315	0.034	0.012	0.012	0.007
25 Year	0.749	0.658	0.681	0.445	0.047	0.017	0.018	0.010
50 Year	0.921	0.813	0.850	0.547	0.058	0.021	0.022	0.012
100 Year	1.104	0.976	1.029	0.663	0.069	0.025	0.027	0.015

Printed 13-Dec-18

VO5 MODEL



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Visual OTTHYMO™ Schematic
PRE-DEVELOPMENT RELEASE RATE

Job #: 2017-4560 | **Date: DECEMBER 2018**

PRE-DEVELOPMENT FLOWS

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================================================================================
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       V    V   I    SSSSS  U   U    A    L
       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: 12-15-2018                          TIME: 09:08:11

USER:


COMMENTS: _____________________________________________________

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| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
      0.50    0.55 |  6.50    1.10 | 12.50    7.92 | 18.50    0.99
      0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
      1.00    0.55 |  7.00    1.10 | 13.00    4.07 | 19.00    0.99
      1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
      1.50    0.55 |  7.50    1.10 | 13.50    0.77 | 19.50    0.99
      1.75    0.55 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
      2.00    0.99 |  8.00    1.10 | 14.00    4.51 | 20.00    0.99
      2.25    0.72 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
      2.50    0.71 |  8.50    1.48 | 14.50    1.65 | 20.50    0.66
      2.75    0.72 |  8.75    1.49 | 14.75    1.65 | 20.75    0.66
      3.00    0.71 |  9.00    1.49 | 15.00    1.65 | 21.00    0.66
```

3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB			
NASHYD (0001)	Area (ha)= 0.28	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.00	# 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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.005 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 7.562
TOTAL RAINFALL (mm)= 55.000
RUNOFF COEFFICIENT = 0.137

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\a3457ff2
Ptotal= 55.00 mm	Comments: SCS II 24H_2YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.55	6.25	1.10	12.25	7.92	18.25	0.99
0.50	0.55	6.50	1.10	12.50	7.92	18.50	0.99
0.75	0.55	6.75	1.10	12.75	4.07	18.75	0.99
1.00	0.55	7.00	1.10	13.00	4.07	19.00	0.99
1.25	0.55	7.25	1.10	13.25	0.77	19.25	0.99
1.50	0.55	7.50	1.10	13.50	0.77	19.50	0.99
1.75	0.55	7.75	1.10	13.75	4.51	19.75	0.99
2.00	0.99	8.00	1.10	14.00	4.51	20.00	0.99
2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66

4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB			
NASHYD (0002)	Area (ha)= 0.88	Curve Number (CN)= 46.0	
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.21		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 5.891
TOTAL RAINFALL (mm)= 55.000
RUNOFF COEFFICIENT = 0.107

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\a3457ff2
Ptotal= 55.00 mm	Comments: SCS II 24H_2YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.55	6.25	1.10	12.25	7.92	18.25	0.99
0.50	0.55	6.50	1.10	12.50	7.92	18.50	0.99
0.75	0.55	6.75	1.10	12.75	4.07	18.75	0.99
1.00	0.55	7.00	1.10	13.00	4.07	19.00	0.99
1.25	0.55	7.25	1.10	13.25	0.77	19.25	0.99
1.50	0.55	7.50	1.10	13.50	0.77	19.50	0.99
1.75	0.55	7.75	1.10	13.75	4.51	19.75	0.99
2.00	0.99	8.00	1.10	14.00	4.51	20.00	0.99
2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66

4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB			
NASHYD (0003)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.218 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 8.964
TOTAL RAINFALL (mm)= 55.000
RUNOFF COEFFICIENT = 0.163

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\f78e34d8
Ptotal= 46.70 mm	Comments: SCS II 12H_2YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.17	3.25	1.87	6.25	8.41	9.25	1.63
0.50	1.17	3.50	1.87	6.50	8.41	9.50	1.63
0.75	1.17	3.75	1.87	6.75	3.74	9.75	1.63
1.00	1.17	4.00	1.87	7.00	3.74	10.00	1.63
1.25	1.17	4.25	2.80	7.25	2.80	10.25	0.93
1.50	1.17	4.50	2.80	7.50	2.80	10.50	0.93
1.75	1.17	4.75	3.74	7.75	2.80	10.75	0.93
2.00	1.17	5.00	3.74	8.00	2.80	11.00	0.93
2.25	1.40	5.25	5.60	8.25	1.63	11.25	0.93
2.50	1.40	5.50	5.60	8.50	1.63	11.50	0.93
2.75	1.40	5.75	22.42	8.75	1.63	11.75	0.93
3.00	1.40	6.00	61.64	9.00	1.63	12.00	0.93

CALIB			
NASHYD (0004)	Area (ha)= 0.28	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.00	# 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	3.083	1.87	6.083	8.41	9.08	1.63
0.167	1.17	3.167	1.87	6.167	8.41	9.17	1.63
0.250	1.17	3.250	1.87	6.250	8.41	9.25	1.63
0.333	1.17	3.333	1.87	6.333	8.41	9.33	1.63
0.417	1.17	3.417	1.87	6.417	8.41	9.42	1.63
0.500	1.17	3.500	1.87	6.500	8.41	9.50	1.63
0.583	1.17	3.583	1.87	6.583	3.74	9.58	1.63
0.667	1.17	3.667	1.87	6.667	3.74	9.67	1.63
0.750	1.17	3.750	1.87	6.750	3.74	9.75	1.63
0.833	1.17	3.833	1.87	6.833	3.74	9.83	1.63
0.917	1.17	3.917	1.87	6.917	3.74	9.92	1.63
1.000	1.17	4.000	1.87	7.000	3.74	10.00	1.63
1.083	1.17	4.083	2.80	7.083	2.80	10.08	0.93
1.167	1.17	4.167	2.80	7.167	2.80	10.17	0.93
1.250	1.17	4.250	2.80	7.250	2.80	10.25	0.93
1.333	1.17	4.333	2.80	7.333	2.80	10.33	0.93
1.417	1.17	4.417	2.80	7.417	2.80	10.42	0.93
1.500	1.17	4.500	2.80	7.500	2.80	10.50	0.93
1.583	1.17	4.583	3.74	7.583	2.80	10.58	0.93
1.667	1.17	4.667	3.74	7.667	2.80	10.67	0.93
1.750	1.17	4.750	3.74	7.750	2.80	10.75	0.93
1.833	1.17	4.833	3.74	7.833	2.80	10.83	0.93
1.917	1.17	4.917	3.74	7.917	2.80	10.92	0.93
2.000	1.17	5.000	3.74	8.000	2.80	11.00	0.93
2.083	1.40	5.083	5.60	8.083	1.63	11.08	0.93
2.167	1.40	5.167	5.60	8.167	1.63	11.17	0.93
2.250	1.40	5.250	5.60	8.250	1.63	11.25	0.93
2.333	1.40	5.333	5.60	8.333	1.63	11.33	0.93
2.417	1.40	5.417	5.60	8.417	1.63	11.42	0.93
2.500	1.40	5.500	5.60	8.500	1.63	11.50	0.93
2.583	1.40	5.583	22.42	8.583	1.63	11.58	0.93
2.667	1.40	5.667	22.42	8.667	1.63	11.67	0.93
2.750	1.40	5.750	22.42	8.750	1.63	11.75	0.93
2.833	1.40	5.833	61.64	8.833	1.63	11.83	0.93
2.917	1.40	5.917	61.64	8.917	1.63	11.92	0.93
3.000	1.40	6.000	61.64	9.000	1.63	12.00	0.93

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 6.083
RUNOFF VOLUME (mm)= 5.276
TOTAL RAINFALL (mm)= 46.700
RUNOFF COEFFICIENT = 0.113

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\8096a049
Ptotal= 42.30 mm	Comments: SCS II 6H_2YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.69	1.75	4.23	3.25	9.31	4.75	2.54
0.50	1.69	2.00	4.23	3.50	9.31	5.00	2.54
0.75	2.54	2.25	5.08	3.75	4.23	5.25	1.69
1.00	2.54	2.50	5.08	4.00	4.23	5.50	1.69
1.25	2.54	2.75	25.38	4.25	3.38	5.75	1.69
1.50	2.54	3.00	65.99	4.50	3.38	6.00	1.69

CALIB	
NASHYD (0005)	Area (ha)= 0.28 Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.00 # 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	1.69	1.583	4.23	3.083	9.31	4.58	2.54
0.167	1.69	1.667	4.23	3.167	9.31	4.67	2.54
0.250	1.69	1.750	4.23	3.250	9.31	4.75	2.54
0.333	1.69	1.833	4.23	3.333	9.31	4.83	2.54
0.417	1.69	1.917	4.23	3.417	9.31	4.92	2.54
0.500	1.69	2.000	4.23	3.500	9.31	5.00	2.54
0.583	2.54	2.083	5.08	3.583	4.23	5.08	1.69
0.667	2.54	2.167	5.08	3.667	4.23	5.17	1.69
0.750	2.54	2.250	5.08	3.750	4.23	5.25	1.69
0.833	2.54	2.333	5.08	3.833	4.23	5.33	1.69
0.917	2.54	2.417	5.08	3.917	4.23	5.42	1.69
1.000	2.54	2.500	5.08	4.000	4.23	5.50	1.69
1.083	2.54	2.583	25.38	4.083	3.38	5.58	1.69
1.167	2.54	2.667	25.38	4.167	3.38	5.67	1.69
1.250	2.54	2.750	25.38	4.250	3.38	5.75	1.69
1.333	2.54	2.833	65.99	4.333	3.38	5.83	1.69
1.417	2.54	2.917	65.99	4.417	3.38	5.92	1.69
1.500	2.54	3.000	65.99	4.500	3.38	6.00	1.69

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 4.210
TOTAL RAINFALL (mm)= 42.300
RUNOFF COEFFICIENT = 0.100

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\f78e34d8
Ptotal= 46.70 mm	Comments: SCS II 12H_2YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.17	3.25	1.87	6.25	8.41	9.25	1.63
0.50	1.17	3.50	1.87	6.50	8.41	9.50	1.63
0.75	1.17	3.75	1.87	6.75	3.74	9.75	1.63
1.00	1.17	4.00	1.87	7.00	3.74	10.00	1.63
1.25	1.17	4.25	2.80	7.25	2.80	10.25	0.93
1.50	1.17	4.50	2.80	7.50	2.80	10.50	0.93
1.75	1.17	4.75	3.74	7.75	2.80	10.75	0.93
2.00	1.17	5.00	3.74	8.00	2.80	11.00	0.93
2.25	1.40	5.25	5.60	8.25	1.63	11.25	0.93
2.50	1.40	5.50	5.60	8.50	1.63	11.50	0.93
2.75	1.40	5.75	22.42	8.75	1.63	11.75	0.93

3.00	1.40	6.00	61.64	9.00	1.63	12.00	0.93

CALIB							
NASHYD (0006)	Area (ha)= 0.88	Curve Number (CN)= 46.0					
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.21						

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.17	3.083	1.87	6.083	8.41	9.08	1.63
0.167	1.17	3.167	1.87	6.167	8.41	9.17	1.63
0.250	1.17	3.250	1.87	6.250	8.41	9.25	1.63
0.333	1.17	3.333	1.87	6.333	8.41	9.33	1.63
0.417	1.17	3.417	1.87	6.417	8.41	9.42	1.63
0.500	1.17	3.500	1.87	6.500	8.41	9.50	1.63
0.583	1.17	3.583	1.87	6.583	3.74	9.58	1.63
0.667	1.17	3.667	1.87	6.667	3.74	9.67	1.63
0.750	1.17	3.750	1.87	6.750	3.74	9.75	1.63
0.833	1.17	3.833	1.87	6.833	3.74	9.83	1.63
0.917	1.17	3.917	1.87	6.917	3.74	9.92	1.63
1.000	1.17	4.000	1.87	7.000	3.74	10.00	1.63
1.083	1.17	4.083	2.80	7.083	2.80	10.08	0.93
1.167	1.17	4.167	2.80	7.167	2.80	10.17	0.93
1.250	1.17	4.250	2.80	7.250	2.80	10.25	0.93
1.333	1.17	4.333	2.80	7.333	2.80	10.33	0.93
1.417	1.17	4.417	2.80	7.417	2.80	10.42	0.93
1.500	1.17	4.500	2.80	7.500	2.80	10.50	0.93
1.583	1.17	4.583	3.74	7.583	2.80	10.58	0.93
1.667	1.17	4.667	3.74	7.667	2.80	10.67	0.93
1.750	1.17	4.750	3.74	7.750	2.80	10.75	0.93
1.833	1.17	4.833	3.74	7.833	2.80	10.83	0.93
1.917	1.17	4.917	3.74	7.917	2.80	10.92	0.93
2.000	1.17	5.000	3.74	8.000	2.80	11.00	0.93
2.083	1.40	5.083	5.60	8.083	1.63	11.08	0.93
2.167	1.40	5.167	5.60	8.167	1.63	11.17	0.93
2.250	1.40	5.250	5.60	8.250	1.63	11.25	0.93
2.333	1.40	5.333	5.60	8.333	1.63	11.33	0.93
2.417	1.40	5.417	5.60	8.417	1.63	11.42	0.93
2.500	1.40	5.500	5.60	8.500	1.63	11.50	0.93
2.583	1.40	5.583	22.42	8.583	1.63	11.58	0.93
2.667	1.40	5.667	22.42	8.667	1.63	11.67	0.93
2.750	1.40	5.750	22.42	8.750	1.63	11.75	0.93
2.833	1.40	5.833	61.64	8.833	1.63	11.83	0.93
2.917	1.40	5.917	61.64	8.917	1.63	11.92	0.93
3.000	1.40	6.000	61.64	9.000	1.63	12.00	0.93

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 6.083
RUNOFF VOLUME (mm)= 4.015
TOTAL RAINFALL (mm)= 46.700
RUNOFF COEFFICIENT = 0.086

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\8096a049
Ptotal= 42.30 mm	Comments: SCS II 6H_2YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.69	1.75	4.23	3.25	9.31	4.75	2.54
0.50	1.69	2.00	4.23	3.50	9.31	5.00	2.54
0.75	2.54	2.25	5.08	3.75	4.23	5.25	1.69
1.00	2.54	2.50	5.08	4.00	4.23	5.50	1.69
1.25	2.54	2.75	25.38	4.25	3.38	5.75	1.69
1.50	2.54	3.00	65.99	4.50	3.38	6.00	1.69

CALIB							
NASHYD (0007)	Area (ha)= 0.88	Curve Number (CN)= 46.0					
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00					
	U.H. Tp(hrs)= 0.21						

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.69	1.583	4.23	3.083	9.31	4.58	2.54
0.167	1.69	1.667	4.23	3.167	9.31	4.67	2.54
0.250	1.69	1.750	4.23	3.250	9.31	4.75	2.54
0.333	1.69	1.833	4.23	3.333	9.31	4.83	2.54
0.417	1.69	1.917	4.23	3.417	9.31	4.92	2.54
0.500	1.69	2.000	4.23	3.500	9.31	5.00	2.54
0.583	2.54	2.083	5.08	3.583	4.23	5.08	1.69
0.667	2.54	2.167	5.08	3.667	4.23	5.17	1.69
0.750	2.54	2.250	5.08	3.750	4.23	5.25	1.69
0.833	2.54	2.333	5.08	3.833	4.23	5.33	1.69
0.917	2.54	2.417	5.08	3.917	4.23	5.42	1.69
1.000	2.54	2.500	5.08	4.000	4.23	5.50	1.69
1.083	2.54	2.583	25.38	4.083	3.38	5.58	1.69
1.167	2.54	2.667	25.38	4.167	3.38	5.67	1.69
1.250	2.54	2.750	25.38	4.250	3.38	5.75	1.69
1.333	2.54	2.833	65.99	4.333	3.38	5.83	1.69
1.417	2.54	2.917	65.99	4.417	3.38	5.92	1.69
1.500	2.54	3.000	65.99	4.500	3.38	6.00	1.69

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.008 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 3.151
TOTAL RAINFALL (mm)= 42.300
RUNOFF COEFFICIENT = 0.075

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\f78e34d8
Ptotal= 46.70 mm	Comments: SCS II 12H_2YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.17	3.25	1.87	6.25	8.41	9.25	1.63

0.50	1.17	3.50	1.87	6.50	8.41	9.50	1.63
0.75	1.17	3.75	1.87	6.75	3.74	9.75	1.63
1.00	1.17	4.00	1.87	7.00	3.74	10.00	1.63
1.25	1.17	4.25	2.80	7.25	2.80	10.25	0.93
1.50	1.17	4.50	2.80	7.50	2.80	10.50	0.93
1.75	1.17	4.75	3.74	7.75	2.80	10.75	0.93
2.00	1.17	5.00	3.74	8.00	2.80	11.00	0.93
2.25	1.40	5.25	5.60	8.25	1.63	11.25	0.93
2.50	1.40	5.50	5.60	8.50	1.63	11.50	0.93
2.75	1.40	5.75	22.42	8.75	1.63	11.75	0.93
3.00	1.40	6.00	61.64	9.00	1.63	12.00	0.93

CALIB			
NASHYD (0008)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	3.083	1.87	6.083	8.41	9.08	1.63
0.167	1.17	3.167	1.87	6.167	8.41	9.17	1.63
0.250	1.17	3.250	1.87	6.250	8.41	9.25	1.63
0.333	1.17	3.333	1.87	6.333	8.41	9.33	1.63
0.417	1.17	3.417	1.87	6.417	8.41	9.42	1.63
0.500	1.17	3.500	1.87	6.500	8.41	9.50	1.63
0.583	1.17	3.583	1.87	6.583	3.74	9.58	1.63
0.667	1.17	3.667	1.87	6.667	3.74	9.67	1.63
0.750	1.17	3.750	1.87	6.750	3.74	9.75	1.63
0.833	1.17	3.833	1.87	6.833	3.74	9.83	1.63
0.917	1.17	3.917	1.87	6.917	3.74	9.92	1.63
1.000	1.17	4.000	1.87	7.000	3.74	10.00	1.63
1.083	1.17	4.083	2.80	7.083	2.80	10.08	0.93
1.167	1.17	4.167	2.80	7.167	2.80	10.17	0.93
1.250	1.17	4.250	2.80	7.250	2.80	10.25	0.93
1.333	1.17	4.333	2.80	7.333	2.80	10.33	0.93
1.417	1.17	4.417	2.80	7.417	2.80	10.42	0.93
1.500	1.17	4.500	2.80	7.500	2.80	10.50	0.93
1.583	1.17	4.583	3.74	7.583	2.80	10.58	0.93
1.667	1.17	4.667	3.74	7.667	2.80	10.67	0.93
1.750	1.17	4.750	3.74	7.750	2.80	10.75	0.93
1.833	1.17	4.833	3.74	7.833	2.80	10.83	0.93
1.917	1.17	4.917	3.74	7.917	2.80	10.92	0.93
2.000	1.17	5.000	3.74	8.000	2.80	11.00	0.93
2.083	1.40	5.083	5.60	8.083	1.63	11.08	0.93
2.167	1.40	5.167	5.60	8.167	1.63	11.17	0.93
2.250	1.40	5.250	5.60	8.250	1.63	11.25	0.93
2.333	1.40	5.333	5.60	8.333	1.63	11.33	0.93
2.417	1.40	5.417	5.60	8.417	1.63	11.42	0.93
2.500	1.40	5.500	5.60	8.500	1.63	11.50	0.93
2.583	1.40	5.583	22.42	8.583	1.63	11.58	0.93
2.667	1.40	5.667	22.42	8.667	1.63	11.67	0.93
2.750	1.40	5.750	22.42	8.750	1.63	11.75	0.93
2.833	1.40	5.833	61.64	8.833	1.63	11.83	0.93
2.917	1.40	5.917	61.64	8.917	1.63	11.92	0.93
3.000	1.40	6.000	61.64	9.000	1.63	12.00	0.93

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.187 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 6.426
TOTAL RAINFALL (mm)= 46.700
RUNOFF COEFFICIENT = 0.138

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\8096a049
Ptotal= 42.30 mm	Comments: SCS II 6H_2YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.69	1.75	4.23	3.25	9.31	4.75	2.54
0.50	1.69	2.00	4.23	3.50	9.31	5.00	2.54
0.75	2.54	2.25	5.08	3.75	4.23	5.25	1.69
1.00	2.54	2.50	5.08	4.00	4.23	5.50	1.69
1.25	2.54	2.75	25.38	4.25	3.38	5.75	1.69
1.50	2.54	3.00	65.99	4.50	3.38	6.00	1.69

CALIB			
NASHYD (0009)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	1.69	1.583	4.23	3.083	9.31	4.58	2.54
0.167	1.69	1.667	4.23	3.167	9.31	4.67	2.54
0.250	1.69	1.750	4.23	3.250	9.31	4.75	2.54
0.333	1.69	1.833	4.23	3.333	9.31	4.83	2.54
0.417	1.69	1.917	4.23	3.417	9.31	4.92	2.54
0.500	1.69	2.000	4.23	3.500	9.31	5.00	2.54
0.583	2.54	2.083	5.08	3.583	4.23	5.08	1.69
0.667	2.54	2.167	5.08	3.667	4.23	5.17	1.69
0.750	2.54	2.250	5.08	3.750	4.23	5.25	1.69
0.833	2.54	2.333	5.08	3.833	4.23	5.33	1.69
0.917	2.54	2.417	5.08	3.917	4.23	5.42	1.69
1.000	2.54	2.500	5.08	4.000	4.23	5.50	1.69
1.083	2.54	2.583	25.38	4.083	3.38	5.58	1.69
1.167	2.54	2.667	25.38	4.167	3.38	5.67	1.69
1.250	2.54	2.750	25.38	4.250	3.38	5.75	1.69
1.333	2.54	2.833	65.99	4.333	3.38	5.83	1.69
1.417	2.54	2.917	65.99	4.417	3.38	5.92	1.69
1.500	2.54	3.000	65.99	4.500	3.38	6.00	1.69

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.177 (i)
TIME TO PEAK (hrs)= 3.750
RUNOFF VOLUME (mm)= 5.227
TOTAL RAINFALL (mm)= 42.300
RUNOFF COEFFICIENT = 0.124

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

CHICAGO STORM	IDF curve parameters: A= 678.085

```
| Ptotal= 36.96 mm |                          B=   4.699
--------------------                          C=   0.781
                      used in:   INTENSITY =  A / (t + B)^C

                      Duration of storm  =  4.00 hrs
                      Storm time step    = 10.00 min
                      Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.47	1.17	18.78	2.17	5.73	3.17	2.93
0.33	2.82	1.33	83.11	2.33	4.89	3.33	2.72
0.50	3.31	1.50	24.57	2.50	4.28	3.50	2.55
0.67	4.05	1.67	13.01	2.67	3.82	3.67	2.39
0.83	5.30	1.83	9.01	2.83	3.46	3.83	2.26
1.00	7.98	2.00	6.97	3.00	3.17	4.00	2.15

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--------------------
| CALIB            |
| NASHYD   (  0010)|   Area    (ha)=  25.12   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.70

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.47	1.083	18.78	2.083	5.73	3.08	2.93
0.167	2.47	1.167	18.78	2.167	5.73	3.17	2.93
0.250	2.82	1.250	83.11	2.250	4.89	3.25	2.72
0.333	2.82	1.333	83.11	2.333	4.89	3.33	2.72
0.417	3.31	1.417	24.57	2.417	4.28	3.42	2.55
0.500	3.31	1.500	24.57	2.500	4.28	3.50	2.55
0.583	4.05	1.583	13.01	2.583	3.82	3.58	2.39
0.667	4.05	1.667	13.01	2.667	3.82	3.67	2.39
0.750	5.30	1.750	9.01	2.750	3.46	3.75	2.26
0.833	5.30	1.833	9.01	2.833	3.46	3.83	2.26
0.917	7.98	1.917	6.97	2.917	3.17	3.92	2.15
1.000	7.98	2.000	6.97	3.000	3.17	4.00	2.15

```
    Unit Hyd Qpeak  (cms)=   1.371

    PEAK FLOW       (cms)=   0.124 (i)
    TIME TO PEAK    (hrs)=   2.250
    RUNOFF VOLUME    (mm)=   3.915
    TOTAL RAINFALL   (mm)=  36.955
    RUNOFF COEFFICIENT   =   0.106

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
--------------------                          C=   0.781
                      used in:   INTENSITY =  A / (t + B)^C

                      Duration of storm  =  4.00 hrs
                      Storm time step    = 10.00 min
                      Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.47	1.17	18.78	2.17	5.73	3.17	2.93
0.33	2.82	1.33	83.11	2.33	4.89	3.33	2.72
0.50	3.31	1.50	24.57	2.50	4.28	3.50	2.55
0.67	4.05	1.67	13.01	2.67	3.82	3.67	2.39
0.83	5.30	1.83	9.01	2.83	3.46	3.83	2.26
1.00	7.98	2.00	6.97	3.00	3.17	4.00	2.15

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--------------------
| CALIB            |
| NASHYD   (  0011)|   Area    (ha)=   0.88   Curve Number   (CN)= 46.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.47	1.083	18.78	2.083	5.73	3.08	2.93
0.167	2.47	1.167	18.78	2.167	5.73	3.17	2.93
0.250	2.82	1.250	83.11	2.250	4.89	3.25	2.72
0.333	2.82	1.333	83.11	2.333	4.89	3.33	2.72
0.417	3.31	1.417	24.57	2.417	4.28	3.42	2.55
0.500	3.31	1.500	24.57	2.500	4.28	3.50	2.55
0.583	4.05	1.583	13.01	2.583	3.82	3.58	2.39
0.667	4.05	1.667	13.01	2.667	3.82	3.67	2.39
0.750	5.30	1.750	9.01	2.750	3.46	3.75	2.26
0.833	5.30	1.833	9.01	2.833	3.46	3.83	2.26
0.917	7.98	1.917	6.97	2.917	3.17	3.92	2.15
1.000	7.98	2.000	6.97	3.000	3.17	4.00	2.15

```
    Unit Hyd Qpeak  (cms)=   0.160

    PEAK FLOW       (cms)=   0.004 (i)
    TIME TO PEAK    (hrs)=   1.583
    RUNOFF VOLUME    (mm)=   2.231
    TOTAL RAINFALL   (mm)=  36.955
    RUNOFF COEFFICIENT   =   0.060

    (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
--------------------                          C=   0.781
                      used in:   INTENSITY =  A / (t + B)^C

                      Duration of storm  =  4.00 hrs
                      Storm time step    = 10.00 min
                      Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.47	1.17	18.78	2.17	5.73	3.17	2.93
0.33	2.82	1.33	83.11	2.33	4.89	3.33	2.72
0.50	3.31	1.50	24.57	2.50	4.28	3.50	2.55
0.67	4.05	1.67	13.01	2.67	3.82	3.67	2.39
0.83	5.30	1.83	9.01	2.83	3.46	3.83	2.26
1.00	7.98	2.00	6.97	3.00	3.17	4.00	2.15

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| CALIB            |
| NASHYD   (  0012)|   Area    (ha)=   0.28   Curve Number   (CN)= 51.0
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|ID= 1 DT= 5.0 min | Ia (mm)= 8.00 # 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	2.47	1.083	18.78	2.083	5.73	3.08	2.93
0.167	2.47	1.167	18.78	2.167	5.73	3.17	2.93
0.250	2.82	1.250	83.11	2.250	4.89	3.25	2.72
0.333	2.82	1.333	83.11	2.333	4.89	3.33	2.72
0.417	3.31	1.417	24.57	2.417	4.28	3.42	2.55
0.500	3.31	1.500	24.57	2.500	4.28	3.50	2.55
0.583	4.05	1.583	13.01	2.583	3.82	3.58	2.39
0.667	4.05	1.667	13.01	2.667	3.82	3.67	2.39
0.750	5.30	1.750	9.01	2.750	3.46	3.75	2.26
0.833	5.30	1.833	9.01	2.833	3.46	3.83	2.26
0.917	7.98	1.917	6.97	2.917	3.17	3.92	2.15
1.000	7.98	2.000	6.97	3.000	3.17	4.00	2.15

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.002 (i)
TIME TO PEAK (hrs)= 1.500
RUNOFF VOLUME (mm)= 3.059
TOTAL RAINFALL (mm)= 36.955
RUNOFF COEFFICIENT = 0.083

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\a3457ff2
Ptotal= 55.00 mm	Comments: SCS II 24H_2YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.55	6.25	1.10	12.25	7.92	18.25	0.99
0.50	0.55	6.50	1.10	12.50	7.92	18.50	0.99
0.75	0.55	6.75	1.10	12.75	4.07	18.75	0.99
1.00	0.55	7.00	1.10	13.00	4.07	19.00	0.99
1.25	0.55	7.25	1.10	13.25	0.77	19.25	0.99
1.50	0.55	7.50	1.10	13.50	0.77	19.50	0.99
1.75	0.55	7.75	1.10	13.75	4.51	19.75	0.99
2.00	0.99	8.00	1.10	14.00	4.51	20.00	0.99
2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB	NASHYD (0040)	ID= 1 DT= 5.0 min

Area (ha)= 8.10 Curve Number (CN)= 52.6
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.59

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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66

4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 8.964
TOTAL RAINFALL (mm)= 55.000
RUNOFF COEFFICIENT = 0.163

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\f78e34d8
Ptotal= 46.70 mm	Comments: SCS II 12H_2YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.17	3.25	1.87	6.25	8.41	9.25	1.63
0.50	1.17	3.50	1.87	6.50	8.41	9.50	1.63
0.75	1.17	3.75	1.87	6.75	3.74	9.75	1.63
1.00	1.17	4.00	1.87	7.00	3.74	10.00	1.63
1.25	1.17	4.25	2.80	7.25	2.80	10.25	0.93
1.50	1.17	4.50	2.80	7.50	2.80	10.50	0.93
1.75	1.17	4.75	3.74	7.75	2.80	10.75	0.93
2.00	1.17	5.00	3.74	8.00	2.80	11.00	0.93
2.25	1.40	5.25	5.60	8.25	1.63	11.25	0.93
2.50	1.40	5.50	5.60	8.50	1.63	11.50	0.93
2.75	1.40	5.75	22.42	8.75	1.63	11.75	0.93
3.00	1.40	6.00	61.64	9.00	1.63	12.00	0.93

CALIB	
NASHYD (0041)	Area (ha)= 8.10 Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.59

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	3.083	1.87	6.083	8.41	9.08	1.63
0.167	1.17	3.167	1.87	6.167	8.41	9.17	1.63
0.250	1.17	3.250	1.87	6.250	8.41	9.25	1.63
0.333	1.17	3.333	1.87	6.333	8.41	9.33	1.63
0.417	1.17	3.417	1.87	6.417	8.41	9.42	1.63
0.500	1.17	3.500	1.87	6.500	8.41	9.50	1.63
0.583	1.17	3.583	1.87	6.583	3.74	9.58	1.63
0.667	1.17	3.667	1.87	6.667	3.74	9.67	1.63
0.750	1.17	3.750	1.87	6.750	3.74	9.75	1.63
0.833	1.17	3.833	1.87	6.833	3.74	9.83	1.63
0.917	1.17	3.917	1.87	6.917	3.74	9.92	1.63
1.000	1.17	4.000	1.87	7.000	3.74	10.00	1.63
1.083	1.17	4.083	2.80	7.083	2.80	10.08	0.93
1.167	1.17	4.167	2.80	7.167	2.80	10.17	0.93
1.250	1.17	4.250	2.80	7.250	2.80	10.25	0.93
1.333	1.17	4.333	2.80	7.333	2.80	10.33	0.93
1.417	1.17	4.417	2.80	7.417	2.80	10.42	0.93
1.500	1.17	4.500	2.80	7.500	2.80	10.50	0.93
1.583	1.17	4.583	3.74	7.583	2.80	10.58	0.93
1.667	1.17	4.667	3.74	7.667	2.80	10.67	0.93
1.750	1.17	4.750	3.74	7.750	2.80	10.75	0.93
1.833	1.17	4.833	3.74	7.833	2.80	10.83	0.93
1.917	1.17	4.917	3.74	7.917	2.80	10.92	0.93
2.000	1.17	5.000	3.74	8.000	2.80	11.00	0.93
2.083	1.40	5.083	5.60	8.083	1.63	11.08	0.93
2.167	1.40	5.167	5.60	8.167	1.63	11.17	0.93
2.250	1.40	5.250	5.60	8.250	1.63	11.25	0.93
2.333	1.40	5.333	5.60	8.333	1.63	11.33	0.93
2.417	1.40	5.417	5.60	8.417	1.63	11.42	0.93
2.500	1.40	5.500	5.60	8.500	1.63	11.50	0.93
2.583	1.40	5.583	22.42	8.583	1.63	11.58	0.93
2.667	1.40	5.667	22.42	8.667	1.63	11.67	0.93
2.750	1.40	5.750	22.42	8.750	1.63	11.75	0.93
2.833	1.40	5.833	61.64	8.833	1.63	11.83	0.93
2.917	1.40	5.917	61.64	8.917	1.63	11.92	0.93
3.000	1.40	6.000	61.64	9.000	1.63	12.00	0.93

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.068 (i)
TIME TO PEAK (hrs)= 6.583
RUNOFF VOLUME (mm)= 6.426
TOTAL RAINFALL (mm)= 46.700
RUNOFF COEFFICIENT = 0.138

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\8096a049
Ptotal= 42.30 mm	Comments: SCS II 6H_2YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.69	1.75	4.23	3.25	9.31	4.75	2.54
0.50	1.69	2.00	4.23	3.50	9.31	5.00	2.54
0.75	2.54	2.25	5.08	3.75	4.23	5.25	1.69
1.00	2.54	2.50	5.08	4.00	4.23	5.50	1.69
1.25	2.54	2.75	25.38	4.25	3.38	5.75	1.69
1.50	2.54	3.00	65.99	4.50	3.38	6.00	1.69

CALIB

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| NASHYD   (  0042)|   Area     (ha)=   8.10   Curve Number    (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.59

        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	1.69	1.583	4.23	3.083	9.31	4.58	2.54
0.167	1.69	1.667	4.23	3.167	9.31	4.67	2.54
0.250	1.69	1.750	4.23	3.250	9.31	4.75	2.54
0.333	1.69	1.833	4.23	3.333	9.31	4.83	2.54
0.417	1.69	1.917	4.23	3.417	9.31	4.92	2.54
0.500	1.69	2.000	4.23	3.500	9.31	5.00	2.54
0.583	2.54	2.083	5.08	3.583	4.23	5.08	1.69
0.667	2.54	2.167	5.08	3.667	4.23	5.17	1.69
0.750	2.54	2.250	5.08	3.750	4.23	5.25	1.69
0.833	2.54	2.333	5.08	3.833	4.23	5.33	1.69
0.917	2.54	2.417	5.08	3.917	4.23	5.42	1.69
1.000	2.54	2.500	5.08	4.000	4.23	5.50	1.69
1.083	2.54	2.583	25.38	4.083	3.38	5.58	1.69
1.167	2.54	2.667	25.38	4.167	3.38	5.67	1.69
1.250	2.54	2.750	25.38	4.250	3.38	5.75	1.69
1.333	2.54	2.833	65.99	4.333	3.38	5.83	1.69
1.417	2.54	2.917	65.99	4.417	3.38	5.92	1.69
1.500	2.54	3.000	65.99	4.500	3.38	6.00	1.69

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     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.064 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=   5.226
     TOTAL RAINFALL   (mm)=  42.300
     RUNOFF COEFFICIENT   =   0.124

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

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| CHICAGO STORM    |    IDF curve parameters: A= 678.085
| Ptotal= 36.96 mm |                          B=   4.699
--------------------                          C=   0.781
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.47	1.17	18.78	2.17	5.73	3.17	2.93
0.33	2.82	1.33	83.11	2.33	4.89	3.33	2.72
0.50	3.31	1.50	24.57	2.50	4.28	3.50	2.55
0.67	4.05	1.67	13.01	2.67	3.82	3.67	2.39
0.83	5.30	1.83	9.01	2.83	3.46	3.83	2.26
1.00	7.98	2.00	6.97	3.00	3.17	4.00	2.15

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| CALIB            |
| NASHYD   (  0043)|   Area     (ha)=   8.10   Curve Number    (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.59

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.47	1.083	18.78	2.083	5.73	3.08	2.93
0.167	2.47	1.167	18.78	2.167	5.73	3.17	2.93
0.250	2.82	1.250	83.11	2.250	4.89	3.25	2.72
0.333	2.82	1.333	83.11	2.333	4.89	3.33	2.72
0.417	3.31	1.417	24.57	2.417	4.28	3.42	2.55
0.500	3.31	1.500	24.57	2.500	4.28	3.50	2.55
0.583	4.05	1.583	13.01	2.583	3.82	3.58	2.39
0.667	4.05	1.667	13.01	2.667	3.82	3.67	2.39
0.750	5.30	1.750	9.01	2.750	3.46	3.75	2.26
0.833	5.30	1.833	9.01	2.833	3.46	3.83	2.26
0.917	7.98	1.917	6.97	2.917	3.17	3.92	2.15
1.000	7.98	2.000	6.97	3.000	3.17	4.00	2.15

```
     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.045 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=   3.914
     TOTAL RAINFALL   (mm)=  36.955
     RUNOFF COEFFICIENT   =   0.106

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

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       V    V   I    SSSSS  U   U    A    L
       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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\50337ad0-cad0-43ba-be23-2a8919a2ff33\scen
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a266-6b877f48bd3e\50337ad0-cad0-43ba-be23-2a8919a2ff33\scen

DATE: 12-15-2018                          TIME: 09:08:10

USER:
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COMMENTS: _____

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  **********************************************
  ** SIMULATION : Run 02                       **
  **********************************************
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MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\efbc61a7
Ptotal= 76.00 mm	Comments: SCS II 24H_5YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB			
NASHYD (0001)	Area (ha)= 0.28	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.00	# 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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 14.765

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     TOTAL RAINFALL   (mm)=  76.000
     RUNOFF COEFFICIENT   =   0.194

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\efbc61a7
| Ptotal= 76.00 mm |    Comments: SCS II 24H_5YR
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                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

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| CALIB            |
| NASHYD   (  0002)|   Area    (ha)=   0.88   Curve Number   (CN)= 46.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

        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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

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Unit Hyd Qpeak  (cms)=   0.160

PEAK FLOW       (cms)=   0.023 (i)
TIME TO PEAK    (hrs)=  12.083
RUNOFF VOLUME    (mm)=  11.942
TOTAL RAINFALL   (mm)=  76.000
RUNOFF COEFFICIENT   =   0.157
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(i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\efbc61a7
Ptotal= 76.00 mm	Comments: SCS II 24H_5YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB			
NASHYD (0003)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.415 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 16.809
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.221

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

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| MASS STORM        |    Filename: C:\Users\ssoumik\AppD
|                   |              ata\Local\Temp\
|                   |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\1a9544a4
| Ptotal= 64.30 mm  |    Comments: SCS II 12H_5YR
---------------------

                       Duration of storm    = 12.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.61	3.25	2.57	6.25	11.57	9.25	2.25
0.50	1.61	3.50	2.57	6.50	11.57	9.50	2.25
0.75	1.61	3.75	2.57	6.75	5.14	9.75	2.25
1.00	1.61	4.00	2.57	7.00	5.14	10.00	2.25
1.25	1.61	4.25	3.86	7.25	3.86	10.25	1.29
1.50	1.61	4.50	3.86	7.50	3.86	10.50	1.29
1.75	1.61	4.75	5.14	7.75	3.86	10.75	1.29
2.00	1.61	5.00	5.14	8.00	3.86	11.00	1.29
2.25	1.93	5.25	7.72	8.25	2.25	11.25	1.29
2.50	1.93	5.50	7.72	8.50	2.25	11.50	1.29
2.75	1.93	5.75	30.86	8.75	2.25	11.75	1.29
3.00	1.93	6.00	84.88	9.00	2.25	12.00	1.29

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---------------------
| CALIB             |
| NASHYD   (  0004)|   Area    (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # 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	1.61	3.083	2.57	6.083	11.57	9.08	2.25
0.167	1.61	3.167	2.57	6.167	11.57	9.17	2.25
0.250	1.61	3.250	2.57	6.250	11.57	9.25	2.25
0.333	1.61	3.333	2.57	6.333	11.57	9.33	2.25
0.417	1.61	3.417	2.57	6.417	11.57	9.42	2.25
0.500	1.61	3.500	2.57	6.500	11.57	9.50	2.25
0.583	1.61	3.583	2.57	6.583	5.14	9.58	2.25
0.667	1.61	3.667	2.57	6.667	5.14	9.67	2.25
0.750	1.61	3.750	2.57	6.750	5.14	9.75	2.25
0.833	1.61	3.833	2.57	6.833	5.14	9.83	2.25
0.917	1.61	3.917	2.57	6.917	5.14	9.92	2.25
1.000	1.61	4.000	2.57	7.000	5.14	10.00	2.25
1.083	1.61	4.083	3.86	7.083	3.86	10.08	1.29
1.167	1.61	4.167	3.86	7.167	3.86	10.17	1.29
1.250	1.61	4.250	3.86	7.250	3.86	10.25	1.29
1.333	1.61	4.333	3.86	7.333	3.86	10.33	1.29
1.417	1.61	4.417	3.86	7.417	3.86	10.42	1.29
1.500	1.61	4.500	3.86	7.500	3.86	10.50	1.29
1.583	1.61	4.583	5.14	7.583	3.86	10.58	1.29
1.667	1.61	4.667	5.14	7.667	3.86	10.67	1.29
1.750	1.61	4.750	5.14	7.750	3.86	10.75	1.29
1.833	1.61	4.833	5.14	7.833	3.86	10.83	1.29
1.917	1.61	4.917	5.14	7.917	3.86	10.92	1.29
2.000	1.61	5.000	5.14	8.000	3.86	11.00	1.29
2.083	1.93	5.083	7.72	8.083	2.25	11.08	1.29
2.167	1.93	5.167	7.72	8.167	2.25	11.17	1.29
2.250	1.93	5.250	7.72	8.250	2.25	11.25	1.29
2.333	1.93	5.333	7.72	8.333	2.25	11.33	1.29
2.417	1.93	5.417	7.72	8.417	2.25	11.42	1.29
2.500	1.93	5.500	7.72	8.500	2.25	11.50	1.29
2.583	1.93	5.583	30.86	8.583	2.25	11.58	1.29
2.667	1.93	5.667	30.86	8.667	2.25	11.67	1.29
2.750	1.93	5.750	30.86	8.750	2.25	11.75	1.29
2.833	1.93	5.833	84.88	8.833	2.25	11.83	1.29
2.917	1.93	5.917	84.88	8.917	2.25	11.92	1.29
3.000	1.93	6.000	84.87	9.000	2.25	12.00	1.29

```
     Unit Hyd Qpeak  (cms)=   0.063

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   6.083
     RUNOFF VOLUME    (mm)=  10.514
     TOTAL RAINFALL   (mm)=  64.300
     RUNOFF COEFFICIENT   =   0.164

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

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| MASS STORM        |    Filename: C:\Users\ssoumik\AppD
|                   |              ata\Local\Temp\
|                   |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\2eedf936
| Ptotal= 59.50 mm  |    Comments: SCS II 6H_5YR
---------------------

                       Duration of storm    =  6.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.38	1.75	5.95	3.25	13.09	4.75	3.57
0.50	2.38	2.00	5.95	3.50	13.09	5.00	3.57
0.75	3.57	2.25	7.14	3.75	5.95	5.25	2.38
1.00	3.57	2.50	7.14	4.00	5.95	5.50	2.38
1.25	3.57	2.75	35.70	4.25	4.76	5.75	2.38
1.50	3.57	3.00	92.82	4.50	4.76	6.00	2.38

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---------------------
| CALIB             |
| NASHYD   (  0005)|   Area    (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # 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	2.38	1.583	5.95	3.083	13.09	4.58	3.57
0.167	2.38	1.667	5.95	3.167	13.09	4.67	3.57
0.250	2.38	1.750	5.95	3.250	13.09	4.75	3.57
0.333	2.38	1.833	5.95	3.333	13.09	4.83	3.57
0.417	2.38	1.917	5.95	3.417	13.09	4.92	3.57
0.500	2.38	2.000	5.95	3.500	13.09	5.00	3.57
0.583	3.57	2.083	7.14	3.583	5.95	5.08	2.38
0.667	3.57	2.167	7.14	3.667	5.95	5.17	2.38
0.750	3.57	2.250	7.14	3.750	5.95	5.25	2.38
0.833	3.57	2.333	7.14	3.833	5.95	5.33	2.38
0.917	3.57	2.417	7.14	3.917	5.95	5.42	2.38
1.000	3.57	2.500	7.14	4.000	5.95	5.50	2.38
1.083	3.57	2.583	35.70	4.083	4.76	5.58	2.38
1.167	3.57	2.667	35.70	4.167	4.76	5.67	2.38
1.250	3.57	2.750	35.70	4.250	4.76	5.75	2.38
1.333	3.57	2.833	92.82	4.333	4.76	5.83	2.38
1.417	3.57	2.917	92.82	4.417	4.76	5.92	2.38
1.500	3.57	3.000	92.82	4.500	4.76	6.00	2.38

```
     Unit Hyd Qpeak  (cms)=   0.063
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```
     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   3.083
     RUNOFF VOLUME    (mm)=   8.941
     TOTAL RAINFALL   (mm)=  59.500
     RUNOFF COEFFICIENT   =   0.150

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\1a9544a4
Ptotal= 64.30 mm	Comments: SCS II 12H_5YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.61	3.25	2.57	6.25	11.57	9.25	2.25
0.50	1.61	3.50	2.57	6.50	11.57	9.50	2.25
0.75	1.61	3.75	2.57	6.75	5.14	9.75	2.25
1.00	1.61	4.00	2.57	7.00	5.14	10.00	2.25
1.25	1.61	4.25	3.86	7.25	3.86	10.25	1.29
1.50	1.61	4.50	3.86	7.50	3.86	10.50	1.29
1.75	1.61	4.75	5.14	7.75	3.86	10.75	1.29
2.00	1.61	5.00	5.14	8.00	3.86	11.00	1.29
2.25	1.93	5.25	7.72	8.25	2.25	11.25	1.29
2.50	1.93	5.50	7.72	8.50	2.25	11.50	1.29
2.75	1.93	5.75	30.86	8.75	2.25	11.75	1.29
3.00	1.93	6.00	84.88	9.00	2.25	12.00	1.29

CALIB NASHYD (0006)	Area (ha)= 0.88	Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.61	3.083	2.57	6.083	11.57	9.08	2.25
0.167	1.61	3.167	2.57	6.167	11.57	9.17	2.25
0.250	1.61	3.250	2.57	6.250	11.57	9.25	2.25
0.333	1.61	3.333	2.57	6.333	11.57	9.33	2.25
0.417	1.61	3.417	2.57	6.417	11.57	9.42	2.25
0.500	1.61	3.500	2.57	6.500	11.57	9.50	2.25
0.583	1.61	3.583	2.57	6.583	5.14	9.58	2.25
0.667	1.61	3.667	2.57	6.667	5.14	9.67	2.25
0.750	1.61	3.750	2.57	6.750	5.14	9.75	2.25
0.833	1.61	3.833	2.57	6.833	5.14	9.83	2.25
0.917	1.61	3.917	2.57	6.917	5.14	9.92	2.25
1.000	1.61	4.000	2.57	7.000	5.14	10.00	2.25
1.083	1.61	4.083	3.86	7.083	3.86	10.08	1.29
1.167	1.61	4.167	3.86	7.167	3.86	10.17	1.29
1.250	1.61	4.250	3.86	7.250	3.86	10.25	1.29
1.333	1.61	4.333	3.86	7.333	3.86	10.33	1.29
1.417	1.61	4.417	3.86	7.417	3.86	10.42	1.29
1.500	1.61	4.500	3.86	7.500	3.86	10.50	1.29
1.583	1.61	4.583	5.14	7.583	3.86	10.58	1.29
1.667	1.61	4.667	5.14	7.667	3.86	10.67	1.29
1.750	1.61	4.750	5.14	7.750	3.86	10.75	1.29
1.833	1.61	4.833	5.14	7.833	3.86	10.83	1.29
1.917	1.61	4.917	5.14	7.917	3.86	10.92	1.29
2.000	1.61	5.000	5.14	8.000	3.86	11.00	1.29
2.083	1.93	5.083	7.72	8.083	2.25	11.08	1.29
2.167	1.93	5.167	7.72	8.167	2.25	11.17	1.29
2.250	1.93	5.250	7.72	8.250	2.25	11.25	1.29
2.333	1.93	5.333	7.72	8.333	2.25	11.33	1.29
2.417	1.93	5.417	7.72	8.417	2.25	11.42	1.29
2.500	1.93	5.500	7.72	8.500	2.25	11.50	1.29
2.583	1.93	5.583	30.86	8.583	2.25	11.58	1.29
2.667	1.93	5.667	30.86	8.667	2.25	11.67	1.29
2.750	1.93	5.750	30.86	8.750	2.25	11.75	1.29
2.833	1.93	5.833	84.88	8.833	2.25	11.83	1.29
2.917	1.93	5.917	84.88	8.917	2.25	11.92	1.29
3.000	1.93	6.000	84.87	9.000	2.25	12.00	1.29

```
     Unit Hyd Qpeak  (cms)=   0.160

     PEAK FLOW       (cms)=   0.020 (i)
     TIME TO PEAK    (hrs)=   6.083
     RUNOFF VOLUME    (mm)=   8.351
     TOTAL RAINFALL   (mm)=  64.300
     RUNOFF COEFFICIENT   =   0.130

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\2eedf936
Ptotal= 59.50 mm	Comments: SCS II 6H_5YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.38	1.75	5.95	3.25	13.09	4.75	3.57
0.50	2.38	2.00	5.95	3.50	13.09	5.00	3.57
0.75	3.57	2.25	7.14	3.75	5.95	5.25	2.38
1.00	3.57	2.50	7.14	4.00	5.95	5.50	2.38
1.25	3.57	2.75	35.70	4.25	4.76	5.75	2.38
1.50	3.57	3.00	92.82	4.50	4.76	6.00	2.38

CALIB NASHYD (0007)	Area (ha)= 0.88	Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.38	1.583	5.95	3.083	13.09	4.58	3.57
0.167	2.38	1.667	5.95	3.167	13.09	4.67	3.57
0.250	2.38	1.750	5.95	3.250	13.09	4.75	3.57
0.333	2.38	1.833	5.95	3.333	13.09	4.83	3.57
0.417	2.38	1.917	5.95	3.417	13.09	4.92	3.57
0.500	2.38	2.000	5.95	3.500	13.09	5.00	3.57
0.583	3.57	2.083	7.14	3.583	5.95	5.08	2.38
0.667	3.57	2.167	7.14	3.667	5.95	5.17	2.38
0.750	3.57	2.250	7.14	3.750	5.95	5.25	2.38
0.833	3.57	2.333	7.14	3.833	5.95	5.33	2.38

0.917	3.57	2.417	7.14	3.917	5.95	5.42	2.38
1.000	3.57	2.500	7.14	4.000	5.95	5.50	2.38
1.083	3.57	2.583	35.70	4.083	4.76	5.58	2.38
1.167	3.57	2.667	35.70	4.167	4.76	5.67	2.38
1.250	3.57	2.750	35.70	4.250	4.76	5.75	2.38
1.333	3.57	2.833	92.82	4.333	4.76	5.83	2.38
1.417	3.57	2.917	92.82	4.417	4.76	5.92	2.38
1.500	3.57	3.000	92.82	4.500	4.76	6.00	2.38

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 7.036
TOTAL RAINFALL (mm)= 59.500
RUNOFF COEFFICIENT = 0.118

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\1a9544a4
Ptotal= 64.30 mm	Comments: SCS II 12H_5YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.61	3.25	2.57	6.25	11.57	9.25	2.25
0.50	1.61	3.50	2.57	6.50	11.57	9.50	2.25
0.75	1.61	3.75	2.57	6.75	5.14	9.75	2.25
1.00	1.61	4.00	2.57	7.00	5.14	10.00	2.25
1.25	1.61	4.25	3.86	7.25	3.86	10.25	1.29
1.50	1.61	4.50	3.86	7.50	3.86	10.50	1.29
1.75	1.61	4.75	5.14	7.75	3.86	10.75	1.29
2.00	1.61	5.00	5.14	8.00	3.86	11.00	1.29
2.25	1.93	5.25	7.72	8.25	2.25	11.25	1.29
2.50	1.93	5.50	7.72	8.50	2.25	11.50	1.29
2.75	1.93	5.75	30.86	8.75	2.25	11.75	1.29
3.00	1.93	6.00	84.88	9.00	2.25	12.00	1.29

CALIB			
NASHYD (0008)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	1.61	3.083	2.57	6.083	11.57	9.08	2.25
0.167	1.61	3.167	2.57	6.167	11.57	9.17	2.25
0.250	1.61	3.250	2.57	6.250	11.57	9.25	2.25
0.333	1.61	3.333	2.57	6.333	11.57	9.33	2.25
0.417	1.61	3.417	2.57	6.417	11.57	9.42	2.25
0.500	1.61	3.500	2.57	6.500	11.57	9.50	2.25
0.583	1.61	3.583	2.57	6.583	5.14	9.58	2.25
0.667	1.61	3.667	2.57	6.667	5.14	9.67	2.25
0.750	1.61	3.750	2.57	6.750	5.14	9.75	2.25
0.833	1.61	3.833	2.57	6.833	5.14	9.83	2.25
0.917	1.61	3.917	2.57	6.917	5.14	9.92	2.25
1.000	1.61	4.000	2.57	7.000	5.14	10.00	2.25
1.083	1.61	4.083	3.86	7.083	3.86	10.08	1.29
1.167	1.61	4.167	3.86	7.167	3.86	10.17	1.29
1.250	1.61	4.250	3.86	7.250	3.86	10.25	1.29
1.333	1.61	4.333	3.86	7.333	3.86	10.33	1.29
1.417	1.61	4.417	3.86	7.417	3.86	10.42	1.29
1.500	1.61	4.500	3.86	7.500	3.86	10.50	1.29
1.583	1.61	4.583	5.14	7.583	3.86	10.58	1.29
1.667	1.61	4.667	5.14	7.667	3.86	10.67	1.29
1.750	1.61	4.750	5.14	7.750	3.86	10.75	1.29
1.833	1.61	4.833	5.14	7.833	3.86	10.83	1.29
1.917	1.61	4.917	5.14	7.917	3.86	10.92	1.29
2.000	1.61	5.000	5.14	8.000	3.86	11.00	1.29
2.083	1.93	5.083	7.72	8.083	2.25	11.08	1.29
2.167	1.93	5.167	7.72	8.167	2.25	11.17	1.29
2.250	1.93	5.250	7.72	8.250	2.25	11.25	1.29
2.333	1.93	5.333	7.72	8.333	2.25	11.33	1.29
2.417	1.93	5.417	7.72	8.417	2.25	11.42	1.29
2.500	1.93	5.500	7.72	8.500	2.25	11.50	1.29
2.583	1.93	5.583	30.86	8.583	2.25	11.58	1.29
2.667	1.93	5.667	30.86	8.667	2.25	11.67	1.29
2.750	1.93	5.750	30.86	8.750	2.25	11.75	1.29
2.833	1.93	5.833	84.88	8.833	2.25	11.83	1.29
2.917	1.93	5.917	84.88	8.917	2.25	11.92	1.29
3.000	1.93	6.000	84.87	9.000	2.25	12.00	1.29

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.360 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 12.202
TOTAL RAINFALL (mm)= 64.300
RUNOFF COEFFICIENT = 0.190

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\2eedf936
Ptotal= 59.50 mm	Comments: SCS II 6H_5YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.38	1.75	5.95	3.25	13.09	4.75	3.57
0.50	2.38	2.00	5.95	3.50	13.09	5.00	3.57
0.75	3.57	2.25	7.14	3.75	5.95	5.25	2.38
1.00	3.57	2.50	7.14	4.00	5.95	5.50	2.38
1.25	3.57	2.75	35.70	4.25	4.76	5.75	2.38
1.50	3.57	3.00	92.82	4.50	4.76	6.00	2.38

CALIB			
NASHYD (0009)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	2.38	1.583	5.95	3.083	13.09	4.58	3.57
0.167	2.38	1.667	5.95	3.167	13.09	4.67	3.57
0.250	2.38	1.750	5.95	3.250	13.09	4.75	3.57
0.333	2.38	1.833	5.95	3.333	13.09	4.83	3.57
0.417	2.38	1.917	5.95	3.417	13.09	4.92	3.57
0.500	2.38	2.000	5.95	3.500	13.09	5.00	3.57
0.583	3.57	2.083	7.14	3.583	5.95	5.08	2.38
0.667	3.57	2.167	7.14	3.667	5.95	5.17	2.38
0.750	3.57	2.250	7.14	3.750	5.95	5.25	2.38
0.833	3.57	2.333	7.14	3.833	5.95	5.33	2.38
0.917	3.57	2.417	7.14	3.917	5.95	5.42	2.38
1.000	3.57	2.500	7.14	4.000	5.95	5.50	2.38
1.083	3.57	2.583	35.70	4.083	4.76	5.58	2.38
1.167	3.57	2.667	35.70	4.167	4.76	5.67	2.38
1.250	3.57	2.750	35.70	4.250	4.76	5.75	2.38
1.333	3.57	2.833	92.82	4.333	4.76	5.83	2.38
1.417	3.57	2.917	92.82	4.417	4.76	5.92	2.38
1.500	3.57	3.000	92.82	4.500	4.76	6.00	2.38

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.360 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 10.481
TOTAL RAINFALL (mm)= 59.500
RUNOFF COEFFICIENT = 0.176

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

CHICAGO STORM	IDF curve parameters: A= 853.608
Ptotal= 50.52 mm	B= 4.699
	C= 0.766

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

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	3.57	1.17	25.64	2.17	8.12	3.17	4.22
0.33	4.07	1.33	108.92	2.33	6.96	3.33	3.93
0.50	4.76	1.50	33.31	2.50	6.12	3.50	3.68
0.67	5.79	1.67	17.99	2.67	5.48	3.67	3.47
0.83	7.53	1.83	12.60	2.83	4.97	3.83	3.28
1.00	11.20	2.00	9.82	3.00	4.56	4.00	3.12

CALIB	
NASHYD (0010)	Area (ha)= 25.12 Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.70

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	3.57	1.083	25.64	2.083	8.12	3.08	4.22
0.167	3.57	1.167	25.64	2.167	8.12	3.17	4.22
0.250	4.07	1.250	108.92	2.250	6.96	3.25	3.93
0.333	4.07	1.333	108.92	2.333	6.96	3.33	3.93
0.417	4.76	1.417	33.31	2.417	6.12	3.42	3.68
0.500	4.76	1.500	33.31	2.500	6.12	3.50	3.68
0.583	5.79	1.583	17.99	2.583	5.48	3.58	3.47
0.667	5.79	1.667	17.99	2.667	5.48	3.67	3.47
0.750	7.53	1.750	12.60	2.750	4.97	3.75	3.28
0.833	7.53	1.833	12.60	2.833	4.97	3.83	3.28
0.917	11.20	1.917	9.82	2.917	4.56	3.92	3.12
1.000	11.20	2.000	9.82	3.000	4.56	4.00	3.12

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.239 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 7.551
TOTAL RAINFALL (mm)= 50.521
RUNOFF COEFFICIENT = 0.149

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

CHICAGO STORM	IDF curve parameters: A= 853.608
Ptotal= 50.52 mm	B= 4.699
	C= 0.766

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

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	3.57	1.17	25.64	2.17	8.12	3.17	4.22
0.33	4.07	1.33	108.92	2.33	6.96	3.33	3.93
0.50	4.76	1.50	33.31	2.50	6.12	3.50	3.68
0.67	5.79	1.67	17.99	2.67	5.48	3.67	3.47
0.83	7.53	1.83	12.60	2.83	4.97	3.83	3.28
1.00	11.20	2.00	9.82	3.00	4.56	4.00	3.12

CALIB	
NASHYD (0011)	Area (ha)= 0.88 Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)= 10.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.57	1.083	25.64	2.083	8.12	3.08	4.22
0.167	3.57	1.167	25.64	2.167	8.12	3.17	4.22
0.250	4.07	1.250	108.92	2.250	6.96	3.25	3.93
0.333	4.07	1.333	108.92	2.333	6.96	3.33	3.93
0.417	4.76	1.417	33.31	2.417	6.12	3.42	3.68
0.500	4.76	1.500	33.31	2.500	6.12	3.50	3.68
0.583	5.79	1.583	17.99	2.583	5.48	3.58	3.47
0.667	5.79	1.667	17.99	2.667	5.48	3.67	3.47
0.750	7.53	1.750	12.60	2.750	4.97	3.75	3.28
0.833	7.53	1.833	12.60	2.833	4.97	3.83	3.28
0.917	11.20	1.917	9.82	2.917	4.56	3.92	3.12
1.000	11.20	2.000	9.82	3.000	4.56	4.00	3.12

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.010 (i)

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     TIME TO PEAK     (hrs)=   1.583
     RUNOFF VOLUME     (mm)=   4.840
     TOTAL RAINFALL    (mm)=  50.521
     RUNOFF COEFFICIENT   =   0.096

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

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| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
                0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
                0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
                0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
                0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
                1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12


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| CALIB            |
| NASHYD   (  0012)|   Area     (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   8.00   # 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    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
               0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
               0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
               0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
               0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
               0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
               0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
               0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
               0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
               0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
               0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
               1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Unit Hyd Qpeak  (cms)=   0.063

     PEAK FLOW       (cms)=   0.005 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=   6.286
     TOTAL RAINFALL   (mm)=  50.521
     RUNOFF COEFFICIENT   =   0.124

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\efbc61a7
| Ptotal= 76.00 mm |    Comments: SCS II 24H_5YR
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                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.76 |  6.25    1.52 | 12.25   10.94 | 18.25    1.37
                0.50    0.76 |  6.50    1.52 | 12.50   10.94 | 18.50    1.37
                0.75    0.76 |  6.75    1.52 | 12.75    5.62 | 18.75    1.37
                1.00    0.76 |  7.00    1.52 | 13.00    5.62 | 19.00    1.37
                1.25    0.76 |  7.25    1.52 | 13.25    1.06 | 19.25    1.37
                1.50    0.76 |  7.50    1.52 | 13.50    1.06 | 19.50    1.37
                1.75    0.76 |  7.75    1.52 | 13.75    6.23 | 19.75    1.37
                2.00    1.37 |  8.00    1.52 | 14.00    6.23 | 20.00    1.37
                2.25    0.99 |  8.25    2.05 | 14.25    2.28 | 20.25    0.91
                2.50    0.99 |  8.50    2.05 | 14.50    2.28 | 20.50    0.91
                2.75    0.99 |  8.75    2.05 | 14.75    2.28 | 20.75    0.91
                3.00    0.99 |  9.00    2.05 | 15.00    2.28 | 21.00    0.91
                3.25    0.99 |  9.25    2.43 | 15.25    2.28 | 21.25    0.91
                3.50    0.99 |  9.50    2.43 | 15.50    2.28 | 21.50    0.91
                3.75    0.99 |  9.75    2.74 | 15.75    2.28 | 21.75    0.91
                4.00    0.99 | 10.00    2.74 | 16.00    2.28 | 22.00    0.91
                4.25    1.22 | 10.25    3.50 | 16.25    1.37 | 22.25    0.91
                4.50    1.22 | 10.50    3.50 | 16.50    1.37 | 22.50    0.91
                4.75    1.22 | 10.75    4.71 | 16.75    1.37 | 22.75    0.91
                5.00    1.22 | 11.00    4.71 | 17.00    1.37 | 23.00    0.91
                5.25    1.22 | 11.25    7.30 | 17.25    1.37 | 23.25    0.91
                5.50    1.22 | 11.50    7.30 | 17.50    1.37 | 23.50    0.91
                5.75    1.22 | 11.75   31.62 | 17.75    1.37 | 23.75    0.91
                6.00    1.22 | 12.00   83.90 | 18.00    1.37 | 24.00    0.91

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| CALIB            |
| NASHYD   (  0040)|   Area     (ha)=   8.10   Curve Number    (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

        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    0.76 | 6.083    1.52 |12.083   10.95 | 18.08    1.37
               0.167    0.76 | 6.167    1.52 |12.167   10.94 | 18.17    1.37
               0.250    0.76 | 6.250    1.52 |12.250   10.94 | 18.25    1.37
               0.333    0.76 | 6.333    1.52 |12.333   10.94 | 18.33    1.37
               0.417    0.76 | 6.417    1.52 |12.417   10.94 | 18.42    1.37
               0.500    0.76 | 6.500    1.52 |12.500   10.94 | 18.50    1.37
               0.583    0.76 | 6.583    1.52 |12.583    5.62 | 18.58    1.37
               0.667    0.76 | 6.667    1.52 |12.667    5.62 | 18.67    1.37
               0.750    0.76 | 6.750    1.52 |12.750    5.62 | 18.75    1.37
               0.833    0.76 | 6.833    1.52 |12.833    5.62 | 18.83    1.37
               0.917    0.76 | 6.917    1.52 |12.917    5.62 | 18.92    1.37
               1.000    0.76 | 7.000    1.52 |13.000    5.62 | 19.00    1.37
               1.083    0.76 | 7.083    1.52 |13.083    1.06 | 19.08    1.37
               1.167    0.76 | 7.167    1.52 |13.167    1.06 | 19.17    1.37
               1.250    0.76 | 7.250    1.52 |13.250    1.06 | 19.25    1.37
               1.333    0.76 | 7.333    1.52 |13.333    1.06 | 19.33    1.37
               1.417    0.76 | 7.417    1.52 |13.417    1.06 | 19.42    1.37
               1.500    0.76 | 7.500    1.52 |13.500    1.06 | 19.50    1.37
               1.583    0.76 | 7.583    1.52 |13.583    6.23 | 19.58    1.37
               1.667    0.76 | 7.667    1.52 |13.667    6.23 | 19.67    1.37
               1.750    0.76 | 7.750    1.52 |13.750    6.23 | 19.75    1.37
               1.833    1.37 | 7.833    1.52 |13.833    6.23 | 19.83    1.37
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1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.151 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 16.809
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.221

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\1a9544a4
Ptotal= 64.30 mm	Comments: SCS II 12H_5YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.61	3.25	2.57	6.25	11.57	9.25	2.25
0.50	1.61	3.50	2.57	6.50	11.57	9.50	2.25
0.75	1.61	3.75	2.57	6.75	5.14	9.75	2.25
1.00	1.61	4.00	2.57	7.00	5.14	10.00	2.25
1.25	1.61	4.25	3.86	7.25	3.86	10.25	1.29
1.50	1.61	4.50	3.86	7.50	3.86	10.50	1.29
1.75	1.61	4.75	5.14	7.75	3.86	10.75	1.29
2.00	1.61	5.00	5.14	8.00	3.86	11.00	1.29
2.25	1.93	5.25	7.72	8.25	2.25	11.25	1.29
2.50	1.93	5.50	7.72	8.50	2.25	11.50	1.29
2.75	1.93	5.75	30.86	8.75	2.25	11.75	1.29
3.00	1.93	6.00	84.88	9.00	2.25	12.00	1.29

CALIB			
NASHYD (0041)	Area (ha)= 8.10	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.59		

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	1.61	3.083	2.57	6.083	11.57	9.08	2.25
0.167	1.61	3.167	2.57	6.167	11.57	9.17	2.25
0.250	1.61	3.250	2.57	6.250	11.57	9.25	2.25
0.333	1.61	3.333	2.57	6.333	11.57	9.33	2.25
0.417	1.61	3.417	2.57	6.417	11.57	9.42	2.25
0.500	1.61	3.500	2.57	6.500	11.57	9.50	2.25
0.583	1.61	3.583	2.57	6.583	5.14	9.58	2.25
0.667	1.61	3.667	2.57	6.667	5.14	9.67	2.25
0.750	1.61	3.750	2.57	6.750	5.14	9.75	2.25
0.833	1.61	3.833	2.57	6.833	5.14	9.83	2.25
0.917	1.61	3.917	2.57	6.917	5.14	9.92	2.25
1.000	1.61	4.000	2.57	7.000	5.14	10.00	2.25
1.083	1.61	4.083	3.86	7.083	3.86	10.08	1.29
1.167	1.61	4.167	3.86	7.167	3.86	10.17	1.29
1.250	1.61	4.250	3.86	7.250	3.86	10.25	1.29
1.333	1.61	4.333	3.86	7.333	3.86	10.33	1.29
1.417	1.61	4.417	3.86	7.417	3.86	10.42	1.29
1.500	1.61	4.500	3.86	7.500	3.86	10.50	1.29
1.583	1.61	4.583	5.14	7.583	3.86	10.58	1.29
1.667	1.61	4.667	5.14	7.667	3.86	10.67	1.29
1.750	1.61	4.750	5.14	7.750	3.86	10.75	1.29
1.833	1.61	4.833	5.14	7.833	3.86	10.83	1.29
1.917	1.61	4.917	5.14	7.917	3.86	10.92	1.29
2.000	1.61	5.000	5.14	8.000	3.86	11.00	1.29
2.083	1.93	5.083	7.72	8.083	2.25	11.08	1.29
2.167	1.93	5.167	7.72	8.167	2.25	11.17	1.29
2.250	1.93	5.250	7.72	8.250	2.25	11.25	1.29
2.333	1.93	5.333	7.72	8.333	2.25	11.33	1.29
2.417	1.93	5.417	7.72	8.417	2.25	11.42	1.29
2.500	1.93	5.500	7.72	8.500	2.25	11.50	1.29
2.583	1.93	5.583	30.86	8.583	2.25	11.58	1.29
2.667	1.93	5.667	30.86	8.667	2.25	11.67	1.29
2.750	1.93	5.750	30.86	8.750	2.25	11.75	1.29
2.833	1.93	5.833	84.88	8.833	2.25	11.83	1.29
2.917	1.93	5.917	84.88	8.917	2.25	11.92	1.29
3.000	1.93	6.000	84.87	9.000	2.25	12.00	1.29

```
     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.131 (i)
     TIME TO PEAK    (hrs)=   6.500
     RUNOFF VOLUME    (mm)=  12.201
     TOTAL RAINFALL   (mm)=  64.300
     RUNOFF COEFFICIENT   =   0.190

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\2eedf936
| Ptotal= 59.50 mm |    Comments: SCS II 6H_5YR
--------------------
                       Duration of storm    =  6.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    2.38 |  1.75    5.95 |  3.25   13.09 |  4.75    3.57
                0.50    2.38 |  2.00    5.95 |  3.50   13.09 |  5.00    3.57
                0.75    3.57 |  2.25    7.14 |  3.75    5.95 |  5.25    2.38
                1.00    3.57 |  2.50    7.14 |  4.00    5.95 |  5.50    2.38
                1.25    3.57 |  2.75   35.70 |  4.25    4.76 |  5.75    2.38
                1.50    3.57 |  3.00   92.82 |  4.50    4.76 |  6.00    2.38

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--------------------
| CALIB            |
| NASHYD   (  0042)|   Area     (ha)=   8.10   Curve Number    (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

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

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.38 | 1.583    5.95 | 3.083   13.09 |  4.58    3.57
               0.167    2.38 | 1.667    5.95 | 3.167   13.09 |  4.67    3.57
               0.250    2.38 | 1.750    5.95 | 3.250   13.09 |  4.75    3.57
               0.333    2.38 | 1.833    5.95 | 3.333   13.09 |  4.83    3.57
               0.417    2.38 | 1.917    5.95 | 3.417   13.09 |  4.92    3.57
               0.500    2.38 | 2.000    5.95 | 3.500   13.09 |  5.00    3.57
               0.583    3.57 | 2.083    7.14 | 3.583    5.95 |  5.08    2.38
               0.667    3.57 | 2.167    7.14 | 3.667    5.95 |  5.17    2.38
               0.750    3.57 | 2.250    7.14 | 3.750    5.95 |  5.25    2.38
               0.833    3.57 | 2.333    7.14 | 3.833    5.95 |  5.33    2.38
               0.917    3.57 | 2.417    7.14 | 3.917    5.95 |  5.42    2.38
               1.000    3.57 | 2.500    7.14 | 4.000    5.95 |  5.50    2.38
               1.083    3.57 | 2.583   35.70 | 4.083    4.76 |  5.58    2.38
               1.167    3.57 | 2.667   35.70 | 4.167    4.76 |  5.67    2.38
               1.250    3.57 | 2.750   35.70 | 4.250    4.76 |  5.75    2.38
               1.333    3.57 | 2.833   92.82 | 4.333    4.76 |  5.83    2.38
               1.417    3.57 | 2.917   92.82 | 4.417    4.76 |  5.92    2.38
               1.500    3.57 | 3.000   92.82 | 4.500    4.76 |  6.00    2.38

     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.131 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  10.481
     TOTAL RAINFALL   (mm)=  59.500
     RUNOFF COEFFICIENT   =   0.176

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 853.608
| Ptotal= 50.52 mm |                          B=   4.699
--------------------                          C=   0.766
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    3.57 |  1.17   25.64 |  2.17    8.12 |  3.17    4.22
                0.33    4.07 |  1.33  108.92 |  2.33    6.96 |  3.33    3.93
                0.50    4.76 |  1.50   33.31 |  2.50    6.12 |  3.50    3.68
                0.67    5.79 |  1.67   17.99 |  2.67    5.48 |  3.67    3.47
                0.83    7.53 |  1.83   12.60 |  2.83    4.97 |  3.83    3.28
                1.00   11.20 |  2.00    9.82 |  3.00    4.56 |  4.00    3.12

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--------------------
| CALIB            |
| NASHYD   (  0043)|   Area     (ha)=   8.10   Curve Number    (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

        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    3.57 | 1.083   25.64 | 2.083    8.12 |  3.08    4.22
               0.167    3.57 | 1.167   25.64 | 2.167    8.12 |  3.17    4.22
               0.250    4.07 | 1.250  108.92 | 2.250    6.96 |  3.25    3.93
               0.333    4.07 | 1.333  108.92 | 2.333    6.96 |  3.33    3.93
               0.417    4.76 | 1.417   33.31 | 2.417    6.12 |  3.42    3.68
               0.500    4.76 | 1.500   33.31 | 2.500    6.12 |  3.50    3.68
               0.583    5.79 | 1.583   17.99 | 2.583    5.48 |  3.58    3.47
               0.667    5.79 | 1.667   17.99 | 2.667    5.48 |  3.67    3.47
               0.750    7.53 | 1.750   12.60 | 2.750    4.97 |  3.75    3.28
               0.833    7.53 | 1.833   12.60 | 2.833    4.97 |  3.83    3.28
               0.917   11.20 | 1.917    9.82 | 2.917    4.56 |  3.92    3.12
               1.000   11.20 | 2.000    9.82 | 3.000    4.56 |  4.00    3.12

     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.086 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=   7.551
     TOTAL RAINFALL   (mm)=  50.521
     RUNOFF COEFFICIENT   =   0.149

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

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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
         V V    I      SS   U   U  A   A  L
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        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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\a6498d89-d15d-466b-a9ac-30f45183bf88\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\a6498d89-d15d-466b-a9ac-30f45183bf88\scen


DATE: 12-15-2018                          TIME: 09:08:10

USER:



COMMENTS: _____________________________________________________________
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  ***********************************************
  ** SIMULATION : Run 03                       **
  ***********************************************

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\a719fc83
| Ptotal= 89.90 mm |    Comments: SCS II 24H_10YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

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--------------------
| CALIB            |
| NASHYD   (  0001)|   Area     (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   8.00   # 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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08

4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.014 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 20.504
TOTAL RAINFALL (mm)= 89.900
RUNOFF COEFFICIENT = 0.228

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\a719fc83
Ptotal= 89.90 mm	Comments: SCS II 24H_10YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB	Area (ha)= 0.88	Curve Number (CN)= 46.0
NASHYD (0002) ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08

4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 16.859
TOTAL RAINFALL (mm)= 89.900
RUNOFF COEFFICIENT = 0.188

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

MASS STORM	Filename: C:\Users\ssoumik\AppD ata\Local\Temp\ 1ee55f52-15a5-43d4-8e3e-37fe53d20538\a719fc83
Ptotal= 89.90 mm	Comments: SCS II 24H_10YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB			
NASHYD (0003)	Area (ha)= 25.12	Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.70	

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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08

4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.572 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 22.971
TOTAL RAINFALL (mm)= 89.900
RUNOFF COEFFICIENT = 0.256

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

MASS STORM	Filename: C:\Users\ssoumik\AppD ata\Local\Temp\ 1ee55f52-15a5-43d4-8e3e-37fe53d20538\2450d259
Ptotal= 76.00 mm	Comments: SCS II 12H_10YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.90	3.25	3.04	6.25	13.68	9.25	2.66
0.50	1.90	3.50	3.04	6.50	13.68	9.50	2.66
0.75	1.90	3.75	3.04	6.75	6.08	9.75	2.66
1.00	1.90	4.00	3.04	7.00	6.08	10.00	2.66
1.25	1.90	4.25	4.56	7.25	4.56	10.25	1.52
1.50	1.90	4.50	4.56	7.50	4.56	10.50	1.52
1.75	1.90	4.75	6.08	7.75	4.56	10.75	1.52
2.00	1.90	5.00	6.08	8.00	4.56	11.00	1.52
2.25	2.28	5.25	9.12	8.25	2.66	11.25	1.52
2.50	2.28	5.50	9.12	8.50	2.66	11.50	1.52
2.75	2.28	5.75	36.48	8.75	2.66	11.75	1.52
3.00	2.28	6.00	100.32	9.00	2.66	12.00	1.52

CALIB	
NASHYD (0004)	Area (ha)= 0.28 Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.00 # 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	1.90	3.083	3.04	6.083	13.68	9.08	2.66
0.167	1.90	3.167	3.04	6.167	13.68	9.17	2.66
0.250	1.90	3.250	3.04	6.250	13.68	9.25	2.66
0.333	1.90	3.333	3.04	6.333	13.68	9.33	2.66
0.417	1.90	3.417	3.04	6.417	13.68	9.42	2.66
0.500	1.90	3.500	3.04	6.500	13.68	9.50	2.66
0.583	1.90	3.583	3.04	6.583	6.08	9.58	2.66
0.667	1.90	3.667	3.04	6.667	6.08	9.67	2.66
0.750	1.90	3.750	3.04	6.750	6.08	9.75	2.66
0.833	1.90	3.833	3.04	6.833	6.08	9.83	2.66
0.917	1.90	3.917	3.04	6.917	6.08	9.92	2.66
1.000	1.90	4.000	3.04	7.000	6.08	10.00	2.66
1.083	1.90	4.083	4.56	7.083	4.56	10.08	1.52
1.167	1.90	4.167	4.56	7.167	4.56	10.17	1.52
1.250	1.90	4.250	4.56	7.250	4.56	10.25	1.52
1.333	1.90	4.333	4.56	7.333	4.56	10.33	1.52
1.417	1.90	4.417	4.56	7.417	4.56	10.42	1.52
1.500	1.90	4.500	4.56	7.500	4.56	10.50	1.52
1.583	1.90	4.583	6.08	7.583	4.56	10.58	1.52
1.667	1.90	4.667	6.08	7.667	4.56	10.67	1.52
1.750	1.90	4.750	6.08	7.750	4.56	10.75	1.52
1.833	1.90	4.833	6.08	7.833	4.56	10.83	1.52
1.917	1.90	4.917	6.08	7.917	4.56	10.92	1.52
2.000	1.90	5.000	6.08	8.000	4.56	11.00	1.52
2.083	2.28	5.083	9.12	8.083	2.66	11.08	1.52
2.167	2.28	5.167	9.12	8.167	2.66	11.17	1.52
2.250	2.28	5.250	9.12	8.250	2.66	11.25	1.52
2.333	2.28	5.333	9.12	8.333	2.66	11.33	1.52
2.417	2.28	5.417	9.12	8.417	2.66	11.42	1.52
2.500	2.28	5.500	9.12	8.500	2.66	11.50	1.52
2.583	2.28	5.583	36.48	8.583	2.66	11.58	1.52
2.667	2.28	5.667	36.48	8.667	2.66	11.67	1.52
2.750	2.28	5.750	36.48	8.750	2.66	11.75	1.52
2.833	2.28	5.833	100.32	8.833	2.66	11.83	1.52
2.917	2.28	5.917	100.32	8.917	2.66	11.92	1.52
3.000	2.28	6.000	100.32	9.000	2.66	12.00	1.52

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 6.083
RUNOFF VOLUME (mm)= 14.765
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.194

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

MASS STORM	Filename: C:\Users\ssoumik\AppD ata\Local\Temp\ 1ee55f52-15a5-43d4-8e3e-37fe53d20538\118845a2
Ptotal= 70.80 mm	Comments: SCS II 6H_10YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.83	1.75	7.08	3.25	15.58	4.75	4.25
0.50	2.83	2.00	7.08	3.50	15.58	5.00	4.25
0.75	4.25	2.25	8.50	3.75	7.08	5.25	2.83
1.00	4.25	2.50	8.50	4.00	7.08	5.50	2.83
1.25	4.25	2.75	42.48	4.25	5.66	5.75	2.83
1.50	4.25	3.00	110.45	4.50	5.66	6.00	2.83

CALIB	
NASHYD (0005)	Area (ha)= 0.28 Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.00 # 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	2.83	1.583	7.08	3.083	15.58	4.58	4.25
0.167	2.83	1.667	7.08	3.167	15.58	4.67	4.25
0.250	2.83	1.750	7.08	3.250	15.58	4.75	4.25
0.333	2.83	1.833	7.08	3.333	15.58	4.83	4.25
0.417	2.83	1.917	7.08	3.417	15.58	4.92	4.25
0.500	2.83	2.000	7.08	3.500	15.58	5.00	4.25
0.583	4.25	2.083	8.50	3.583	7.08	5.08	2.83
0.667	4.25	2.167	8.50	3.667	7.08	5.17	2.83
0.750	4.25	2.250	8.50	3.750	7.08	5.25	2.83
0.833	4.25	2.333	8.50	3.833	7.08	5.33	2.83
0.917	4.25	2.417	8.50	3.917	7.08	5.42	2.83
1.000	4.25	2.500	8.50	4.000	7.08	5.50	2.83
1.083	4.25	2.583	42.48	4.083	5.66	5.58	2.83
1.167	4.25	2.667	42.48	4.167	5.66	5.67	2.83
1.250	4.25	2.750	42.48	4.250	5.66	5.75	2.83
1.333	4.25	2.833	110.45	4.333	5.66	5.83	2.83
1.417	4.25	2.917	110.45	4.417	5.66	5.92	2.83
1.500	4.25	3.000	110.45	4.500	5.66	6.00	2.83

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.013 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 12.806
TOTAL RAINFALL (mm)= 70.800
RUNOFF COEFFICIENT = 0.181

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\2450d259
Ptotal= 76.00 mm	Comments: SCS II 12H_10YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.90	3.25	3.04	6.25	13.68	9.25	2.66
0.50	1.90	3.50	3.04	6.50	13.68	9.50	2.66
0.75	1.90	3.75	3.04	6.75	6.08	9.75	2.66
1.00	1.90	4.00	3.04	7.00	6.08	10.00	2.66
1.25	1.90	4.25	4.56	7.25	4.56	10.25	1.52
1.50	1.90	4.50	4.56	7.50	4.56	10.50	1.52
1.75	1.90	4.75	6.08	7.75	4.56	10.75	1.52
2.00	1.90	5.00	6.08	8.00	4.56	11.00	1.52
2.25	2.28	5.25	9.12	8.25	2.66	11.25	1.52
2.50	2.28	5.50	9.12	8.50	2.66	11.50	1.52
2.75	2.28	5.75	36.48	8.75	2.66	11.75	1.52
3.00	2.28	6.00	100.32	9.00	2.66	12.00	1.52

CALIB			
NASHYD (0006)	Area (ha)= 0.88	Curve Number (CN)= 46.0	
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.21		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.90	3.083	3.04	6.083	13.68	9.08	2.66
0.167	1.90	3.167	3.04	6.167	13.68	9.17	2.66
0.250	1.90	3.250	3.04	6.250	13.68	9.25	2.66
0.333	1.90	3.333	3.04	6.333	13.68	9.33	2.66
0.417	1.90	3.417	3.04	6.417	13.68	9.42	2.66
0.500	1.90	3.500	3.04	6.500	13.68	9.50	2.66
0.583	1.90	3.583	3.04	6.583	6.08	9.58	2.66
0.667	1.90	3.667	3.04	6.667	6.08	9.67	2.66
0.750	1.90	3.750	3.04	6.750	6.08	9.75	2.66
0.833	1.90	3.833	3.04	6.833	6.08	9.83	2.66
0.917	1.90	3.917	3.04	6.917	6.08	9.92	2.66
1.000	1.90	4.000	3.04	7.000	6.08	10.00	2.66
1.083	1.90	4.083	4.56	7.083	4.56	10.08	1.52
1.167	1.90	4.167	4.56	7.167	4.56	10.17	1.52
1.250	1.90	4.250	4.56	7.250	4.56	10.25	1.52
1.333	1.90	4.333	4.56	7.333	4.56	10.33	1.52
1.417	1.90	4.417	4.56	7.417	4.56	10.42	1.52
1.500	1.90	4.500	4.56	7.500	4.56	10.50	1.52
1.583	1.90	4.583	6.08	7.583	4.56	10.58	1.52
1.667	1.90	4.667	6.08	7.667	4.56	10.67	1.52
1.750	1.90	4.750	6.08	7.750	4.56	10.75	1.52
1.833	1.90	4.833	6.08	7.833	4.56	10.83	1.52
1.917	1.90	4.917	6.08	7.917	4.56	10.92	1.52
2.000	1.90	5.000	6.08	8.000	4.56	11.00	1.52
2.083	2.28	5.083	9.12	8.083	2.66	11.08	1.52
2.167	2.28	5.167	9.12	8.167	2.66	11.17	1.52
2.250	2.28	5.250	9.12	8.250	2.66	11.25	1.52
2.333	2.28	5.333	9.12	8.333	2.66	11.33	1.52
2.417	2.28	5.417	9.12	8.417	2.66	11.42	1.52
2.500	2.28	5.500	9.12	8.500	2.66	11.50	1.52
2.583	2.28	5.583	36.48	8.583	2.66	11.58	1.52
2.667	2.28	5.667	36.48	8.667	2.66	11.67	1.52
2.750	2.28	5.750	36.48	8.750	2.66	11.75	1.52
2.833	2.28	5.833	100.32	8.833	2.66	11.83	1.52
2.917	2.28	5.917	100.32	8.917	2.66	11.92	1.52
3.000	2.28	6.000	100.32	9.000	2.66	12.00	1.52

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 6.083
RUNOFF VOLUME (mm)= 11.942
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.157

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\118845a2
Ptotal= 70.80 mm	Comments: SCS II 6H_10YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.83	1.75	7.08	3.25	15.58	4.75	4.25
0.50	2.83	2.00	7.08	3.50	15.58	5.00	4.25
0.75	4.25	2.25	8.50	3.75	7.08	5.25	2.83

1.00	4.25	2.50	8.50	4.00	7.08	5.50	2.83
1.25	4.25	2.75	42.48	4.25	5.66	5.75	2.83
1.50	4.25	3.00	110.45	4.50	5.66	6.00	2.83

CALIB			
NASHYD (0007)	Area (ha)= 0.88	Curve Number (CN)= 46.0	
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.21		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.83	1.583	7.08	3.083	15.58	4.58	4.25
0.167	2.83	1.667	7.08	3.167	15.58	4.67	4.25
0.250	2.83	1.750	7.08	3.250	15.58	4.75	4.25
0.333	2.83	1.833	7.08	3.333	15.58	4.83	4.25
0.417	2.83	1.917	7.08	3.417	15.58	4.92	4.25
0.500	2.83	2.000	7.08	3.500	15.58	5.00	4.25
0.583	4.25	2.083	8.50	3.583	7.08	5.08	2.83
0.667	4.25	2.167	8.50	3.667	7.08	5.17	2.83
0.750	4.25	2.250	8.50	3.750	7.08	5.25	2.83
0.833	4.25	2.333	8.50	3.833	7.08	5.33	2.83
0.917	4.25	2.417	8.50	3.917	7.08	5.42	2.83
1.000	4.25	2.500	8.50	4.000	7.08	5.50	2.83
1.083	4.25	2.583	42.48	4.083	5.66	5.58	2.83
1.167	4.25	2.667	42.48	4.167	5.66	5.67	2.83
1.250	4.25	2.750	42.48	4.250	5.66	5.75	2.83
1.333	4.25	2.833	110.45	4.333	5.66	5.83	2.83
1.417	4.25	2.917	110.45	4.417	5.66	5.92	2.83
1.500	4.25	3.000	110.45	4.500	5.66	6.00	2.83

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 10.281
TOTAL RAINFALL (mm)= 70.800
RUNOFF COEFFICIENT = 0.145

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

MASS STORM	Filename: C:\Users\ssoumik\AppD
	ata\Local\Temp\
	1ee55f52-15a5-43d4-8e3e-37fe53d20538\2450d259
Ptotal= 76.00 mm	Comments: SCS II 12H_10YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.90	3.25	3.04	6.25	13.68	9.25	2.66
0.50	1.90	3.50	3.04	6.50	13.68	9.50	2.66
0.75	1.90	3.75	3.04	6.75	6.08	9.75	2.66
1.00	1.90	4.00	3.04	7.00	6.08	10.00	2.66
1.25	1.90	4.25	4.56	7.25	4.56	10.25	1.52
1.50	1.90	4.50	4.56	7.50	4.56	10.50	1.52
1.75	1.90	4.75	6.08	7.75	4.56	10.75	1.52
2.00	1.90	5.00	6.08	8.00	4.56	11.00	1.52
2.25	2.28	5.25	9.12	8.25	2.66	11.25	1.52
2.50	2.28	5.50	9.12	8.50	2.66	11.50	1.52
2.75	2.28	5.75	36.48	8.75	2.66	11.75	1.52
3.00	2.28	6.00	100.32	9.00	2.66	12.00	1.52

CALIB			
NASHYD (0008)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	1.90	3.083	3.04	6.083	13.68	9.08	2.66
0.167	1.90	3.167	3.04	6.167	13.68	9.17	2.66
0.250	1.90	3.250	3.04	6.250	13.68	9.25	2.66
0.333	1.90	3.333	3.04	6.333	13.68	9.33	2.66
0.417	1.90	3.417	3.04	6.417	13.68	9.42	2.66
0.500	1.90	3.500	3.04	6.500	13.68	9.50	2.66
0.583	1.90	3.583	3.04	6.583	6.08	9.58	2.66
0.667	1.90	3.667	3.04	6.667	6.08	9.67	2.66
0.750	1.90	3.750	3.04	6.750	6.08	9.75	2.66
0.833	1.90	3.833	3.04	6.833	6.08	9.83	2.66
0.917	1.90	3.917	3.04	6.917	6.08	9.92	2.66
1.000	1.90	4.000	3.04	7.000	6.08	10.00	2.66
1.083	1.90	4.083	4.56	7.083	4.56	10.08	1.52
1.167	1.90	4.167	4.56	7.167	4.56	10.17	1.52
1.250	1.90	4.250	4.56	7.250	4.56	10.25	1.52
1.333	1.90	4.333	4.56	7.333	4.56	10.33	1.52
1.417	1.90	4.417	4.56	7.417	4.56	10.42	1.52
1.500	1.90	4.500	4.56	7.500	4.56	10.50	1.52
1.583	1.90	4.583	6.08	7.583	4.56	10.58	1.52
1.667	1.90	4.667	6.08	7.667	4.56	10.67	1.52
1.750	1.90	4.750	6.08	7.750	4.56	10.75	1.52
1.833	1.90	4.833	6.08	7.833	4.56	10.83	1.52
1.917	1.90	4.917	6.08	7.917	4.56	10.92	1.52
2.000	1.90	5.000	6.08	8.000	4.56	11.00	1.52
2.083	2.28	5.083	9.12	8.083	2.66	11.08	1.52
2.167	2.28	5.167	9.12	8.167	2.66	11.17	1.52
2.250	2.28	5.250	9.12	8.250	2.66	11.25	1.52
2.333	2.28	5.333	9.12	8.333	2.66	11.33	1.52
2.417	2.28	5.417	9.12	8.417	2.66	11.42	1.52
2.500	2.28	5.500	9.12	8.500	2.66	11.50	1.52
2.583	2.28	5.583	36.48	8.583	2.66	11.58	1.52
2.667	2.28	5.667	36.48	8.667	2.66	11.67	1.52
2.750	2.28	5.750	36.48	8.750	2.66	11.75	1.52
2.833	2.28	5.833	100.32	8.833	2.66	11.83	1.52
2.917	2.28	5.917	100.32	8.917	2.66	11.92	1.52
3.000	2.28	6.000	100.32	9.000	2.66	12.00	1.52

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.500 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 16.809
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.221

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

MASS STORM	Filename: C:\Users\ssoumik\AppD
	ata\Local\Temp\
	1ee55f52-15a5-43d4-8e3e-37fe53d20538\118845a2

```
| Ptotal= 70.80 mm |    Comments: SCS II 6H_10YR
--------------------
                       Duration of storm    =  6.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    2.83 |  1.75    7.08 |  3.25   15.58 |  4.75    4.25
                0.50    2.83 |  2.00    7.08 |  3.50   15.58 |  5.00    4.25
                0.75    4.25 |  2.25    8.50 |  3.75    7.08 |  5.25    2.83
                1.00    4.25 |  2.50    8.50 |  4.00    7.08 |  5.50    2.83
                1.25    4.25 |  2.75   42.48 |  4.25    5.66 |  5.75    2.83
                1.50    4.25 |  3.00  110.45 |  4.50    5.66 |  6.00    2.83

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0009)|   Area    (ha)=  25.12   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.70

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


                            ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.83 | 1.583    7.08 | 3.083   15.58 |  4.58    4.25
               0.167    2.83 | 1.667    7.08 | 3.167   15.58 |  4.67    4.25
               0.250    2.83 | 1.750    7.08 | 3.250   15.58 |  4.75    4.25
               0.333    2.83 | 1.833    7.08 | 3.333   15.58 |  4.83    4.25
               0.417    2.83 | 1.917    7.08 | 3.417   15.58 |  4.92    4.25
               0.500    2.83 | 2.000    7.08 | 3.500   15.58 |  5.00    4.25
               0.583    4.25 | 2.083    8.50 | 3.583    7.08 |  5.08    2.83
               0.667    4.25 | 2.167    8.50 | 3.667    7.08 |  5.17    2.83
               0.750    4.25 | 2.250    8.50 | 3.750    7.08 |  5.25    2.83
               0.833    4.25 | 2.333    8.50 | 3.833    7.08 |  5.33    2.83
               0.917    4.25 | 2.417    8.50 | 3.917    7.08 |  5.42    2.83
               1.000    4.25 | 2.500    8.50 | 4.000    7.08 |  5.50    2.83
               1.083    4.25 | 2.583   42.48 | 4.083    5.66 |  5.58    2.83
               1.167    4.25 | 2.667   42.48 | 4.167    5.66 |  5.67    2.83
               1.250    4.25 | 2.750   42.48 | 4.250    5.66 |  5.75    2.83
               1.333    4.25 | 2.833  110.45 | 4.333    5.66 |  5.83    2.83
               1.417    4.25 | 2.917  110.45 | 4.417    5.66 |  5.92    2.83
               1.500    4.25 | 3.000  110.45 | 4.500    5.66 |  6.00    2.83

     Unit Hyd Qpeak  (cms)=   1.371

     PEAK FLOW       (cms)=   0.508 (i)
     TIME TO PEAK    (hrs)=   3.667
     RUNOFF VOLUME    (mm)=  14.692
     TOTAL RAINFALL   (mm)=  70.800
     RUNOFF COEFFICIENT   =   0.208

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77

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--------------------
| CALIB            |
| NASHYD   (  0010)|   Area    (ha)=  25.12   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.70

        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    4.32 | 1.083   30.27 | 2.083    9.72 |  3.08    5.09
               0.167    4.32 | 1.167   30.27 | 2.167    9.72 |  3.17    5.09
               0.250    4.91 | 1.250  126.55 | 2.250    8.35 |  3.25    4.74
               0.333    4.91 | 1.333  126.55 | 2.333    8.35 |  3.33    4.74
               0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
               0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
               0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
               0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
               0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
               0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
               0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
               1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Unit Hyd Qpeak  (cms)=   1.371

     PEAK FLOW       (cms)=   0.334 (i)
     TIME TO PEAK    (hrs)=   2.250
     RUNOFF VOLUME    (mm)=  10.549
     TOTAL RAINFALL   (mm)=  59.695
     RUNOFF COEFFICIENT   =   0.177

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    4.32 |  1.17   30.27 |  2.17    9.72 |  3.17    5.09
                0.33    4.91 |  1.33  126.55 |  2.33    8.35 |  3.33    4.74
                0.50    5.73 |  1.50   39.22 |  2.50    7.35 |  3.50    4.45
                0.67    6.96 |  1.67   21.35 |  2.67    6.59 |  3.67    4.19
                0.83    9.03 |  1.83   15.01 |  2.83    5.99 |  3.83    3.97
                1.00   13.36 |  2.00   11.74 |  3.00    5.50 |  4.00    3.77

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| CALIB            |
| NASHYD   (  0011)|   Area     (ha)=   0.88   Curve Number    (CN)= 46.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.32	1.083	30.27	2.083	9.72	3.08	5.09
0.167	4.32	1.167	30.27	2.167	9.72	3.17	5.09
0.250	4.91	1.250	126.55	2.250	8.35	3.25	4.74
0.333	4.91	1.333	126.55	2.333	8.35	3.33	4.74
0.417	5.73	1.417	39.22	2.417	7.35	3.42	4.45
0.500	5.73	1.500	39.22	2.500	7.35	3.50	4.45
0.583	6.96	1.583	21.35	2.583	6.59	3.58	4.19
0.667	6.96	1.667	21.35	2.667	6.59	3.67	4.19
0.750	9.03	1.750	15.01	2.750	5.99	3.75	3.97
0.833	9.03	1.833	15.01	2.833	5.99	3.83	3.97
0.917	13.36	1.917	11.74	2.917	5.50	3.92	3.77
1.000	13.36	2.000	11.74	3.000	5.50	4.00	3.77

```
    Unit Hyd Qpeak  (cms)=   0.160

    PEAK FLOW       (cms)=   0.015 (i)
    TIME TO PEAK    (hrs)=   1.583
    RUNOFF VOLUME    (mm)=   7.087
    TOTAL RAINFALL   (mm)=  59.695
    RUNOFF COEFFICIENT   =   0.119

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 975.865
| Ptotal= 59.69 mm |                          B=   4.699
--------------------                          C=   0.760
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	4.32	1.17	30.27	2.17	9.72	3.17	5.09
0.33	4.91	1.33	126.55	2.33	8.35	3.33	4.74
0.50	5.73	1.50	39.22	2.50	7.35	3.50	4.45
0.67	6.96	1.67	21.35	2.67	6.59	3.67	4.19
0.83	9.03	1.83	15.01	2.83	5.99	3.83	3.97
1.00	13.36	2.00	11.74	3.00	5.50	4.00	3.77

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--------------------
| CALIB            |
| NASHYD   (  0012)|   Area     (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   8.00   # 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	4.32	1.083	30.27	2.083	9.72	3.08	5.09
0.167	4.32	1.167	30.27	2.167	9.72	3.17	5.09
0.250	4.91	1.250	126.55	2.250	8.35	3.25	4.74
0.333	4.91	1.333	126.55	2.333	8.35	3.33	4.74
0.417	5.73	1.417	39.22	2.417	7.35	3.42	4.45
0.500	5.73	1.500	39.22	2.500	7.35	3.50	4.45
0.583	6.96	1.583	21.35	2.583	6.59	3.58	4.19
0.667	6.96	1.667	21.35	2.667	6.59	3.67	4.19
0.750	9.03	1.750	15.01	2.750	5.99	3.75	3.97
0.833	9.03	1.833	15.01	2.833	5.99	3.83	3.97
0.917	13.36	1.917	11.74	2.917	5.50	3.92	3.77
1.000	13.36	2.000	11.74	3.000	5.50	4.00	3.77

```
    Unit Hyd Qpeak  (cms)=   0.063

    PEAK FLOW       (cms)=   0.007 (i)
    TIME TO PEAK    (hrs)=   1.500
    RUNOFF VOLUME    (mm)=   9.002
    TOTAL RAINFALL   (mm)=  59.695
    RUNOFF COEFFICIENT   =   0.151

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

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--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\a719fc83
| Ptotal= 89.90 mm |    Comments: SCS II 24H_10YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

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--------------------
| CALIB            |
| NASHYD   (  0040)|   Area     (ha)=   8.10   Curve Number    (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

        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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.208 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 22.970
TOTAL RAINFALL (mm)= 89.900
RUNOFF COEFFICIENT = 0.256

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

MASS STORM Ptotal= 76.00 mm	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\2450d259 Comments: SCS II 12H_10YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.90	3.25	3.04	6.25	13.68	9.25	2.66
0.50	1.90	3.50	3.04	6.50	13.68	9.50	2.66
0.75	1.90	3.75	3.04	6.75	6.08	9.75	2.66
1.00	1.90	4.00	3.04	7.00	6.08	10.00	2.66
1.25	1.90	4.25	4.56	7.25	4.56	10.25	1.52
1.50	1.90	4.50	4.56	7.50	4.56	10.50	1.52
1.75	1.90	4.75	6.08	7.75	4.56	10.75	1.52
2.00	1.90	5.00	6.08	8.00	4.56	11.00	1.52
2.25	2.28	5.25	9.12	8.25	2.66	11.25	1.52
2.50	2.28	5.50	9.12	8.50	2.66	11.50	1.52
2.75	2.28	5.75	36.48	8.75	2.66	11.75	1.52
3.00	2.28	6.00	100.32	9.00	2.66	12.00	1.52

CALIB NASHYD (0041) ID= 1 DT= 5.0 min	Area (ha)= 8.10 Curve Number (CN)= 52.6 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.59

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	1.90	3.083	3.04	6.083	13.68	9.08	2.66
0.167	1.90	3.167	3.04	6.167	13.68	9.17	2.66
0.250	1.90	3.250	3.04	6.250	13.68	9.25	2.66
0.333	1.90	3.333	3.04	6.333	13.68	9.33	2.66
0.417	1.90	3.417	3.04	6.417	13.68	9.42	2.66
0.500	1.90	3.500	3.04	6.500	13.68	9.50	2.66
0.583	1.90	3.583	3.04	6.583	6.08	9.58	2.66
0.667	1.90	3.667	3.04	6.667	6.08	9.67	2.66
0.750	1.90	3.750	3.04	6.750	6.08	9.75	2.66
0.833	1.90	3.833	3.04	6.833	6.08	9.83	2.66

0.917	1.90	3.917	3.04	6.917	6.08	9.92	2.66
1.000	1.90	4.000	3.04	7.000	6.08	10.00	2.66
1.083	1.90	4.083	4.56	7.083	4.56	10.08	1.52
1.167	1.90	4.167	4.56	7.167	4.56	10.17	1.52
1.250	1.90	4.250	4.56	7.250	4.56	10.25	1.52
1.333	1.90	4.333	4.56	7.333	4.56	10.33	1.52
1.417	1.90	4.417	4.56	7.417	4.56	10.42	1.52
1.500	1.90	4.500	4.56	7.500	4.56	10.50	1.52
1.583	1.90	4.583	6.08	7.583	4.56	10.58	1.52
1.667	1.90	4.667	6.08	7.667	4.56	10.67	1.52
1.750	1.90	4.750	6.08	7.750	4.56	10.75	1.52
1.833	1.90	4.833	6.08	7.833	4.56	10.83	1.52
1.917	1.90	4.917	6.08	7.917	4.56	10.92	1.52
2.000	1.90	5.000	6.08	8.000	4.56	11.00	1.52
2.083	2.28	5.083	9.12	8.083	2.66	11.08	1.52
2.167	2.28	5.167	9.12	8.167	2.66	11.17	1.52
2.250	2.28	5.250	9.12	8.250	2.66	11.25	1.52
2.333	2.28	5.333	9.12	8.333	2.66	11.33	1.52
2.417	2.28	5.417	9.12	8.417	2.66	11.42	1.52
2.500	2.28	5.500	9.12	8.500	2.66	11.50	1.52
2.583	2.28	5.583	36.48	8.583	2.66	11.58	1.52
2.667	2.28	5.667	36.48	8.667	2.66	11.67	1.52
2.750	2.28	5.750	36.48	8.750	2.66	11.75	1.52
2.833	2.28	5.833	100.32	8.833	2.66	11.83	1.52
2.917	2.28	5.917	100.32	8.917	2.66	11.92	1.52
3.000	2.28	6.000	100.32	9.000	2.66	12.00	1.52

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.182 (i)
TIME TO PEAK (hrs)= 6.500
RUNOFF VOLUME (mm)= 16.809
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.221

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

MASS STORM	Filename: C:\Users\ssoumik\AppD ata\Local\Temp\ 1ee55f52-15a5-43d4-8e3e-37fe53d20538\118845a2
Ptotal= 70.80 mm	Comments: SCS II 6H_10YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.83	1.75	7.08	3.25	15.58	4.75	4.25
0.50	2.83	2.00	7.08	3.50	15.58	5.00	4.25
0.75	4.25	2.25	8.50	3.75	7.08	5.25	2.83
1.00	4.25	2.50	8.50	4.00	7.08	5.50	2.83
1.25	4.25	2.75	42.48	4.25	5.66	5.75	2.83
1.50	4.25	3.00	110.45	4.50	5.66	6.00	2.83

CALIB	
NASHYD (0042)	Area (ha)= 8.10 Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.59

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.83	1.583	7.08	3.083	15.58	4.58	4.25
0.167	2.83	1.667	7.08	3.167	15.58	4.67	4.25
0.250	2.83	1.750	7.08	3.250	15.58	4.75	4.25
0.333	2.83	1.833	7.08	3.333	15.58	4.83	4.25
0.417	2.83	1.917	7.08	3.417	15.58	4.92	4.25
0.500	2.83	2.000	7.08	3.500	15.58	5.00	4.25
0.583	4.25	2.083	8.50	3.583	7.08	5.08	2.83
0.667	4.25	2.167	8.50	3.667	7.08	5.17	2.83
0.750	4.25	2.250	8.50	3.750	7.08	5.25	2.83
0.833	4.25	2.333	8.50	3.833	7.08	5.33	2.83
0.917	4.25	2.417	8.50	3.917	7.08	5.42	2.83
1.000	4.25	2.500	8.50	4.000	7.08	5.50	2.83
1.083	4.25	2.583	42.48	4.083	5.66	5.58	2.83
1.167	4.25	2.667	42.48	4.167	5.66	5.67	2.83
1.250	4.25	2.750	42.48	4.250	5.66	5.75	2.83
1.333	4.25	2.833	110.45	4.333	5.66	5.83	2.83
1.417	4.25	2.917	110.45	4.417	5.66	5.92	2.83
1.500	4.25	3.000	110.45	4.500	5.66	6.00	2.83

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.185 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 14.692
TOTAL RAINFALL (mm)= 70.800
RUNOFF COEFFICIENT = 0.208

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

CHICAGO STORM	IDF curve parameters: A= 975.865
Ptotal= 59.69 mm	B= 4.699
	C= 0.760

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

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	4.32	1.17	30.27	2.17	9.72	3.17	5.09
0.33	4.91	1.33	126.55	2.33	8.35	3.33	4.74
0.50	5.73	1.50	39.22	2.50	7.35	3.50	4.45
0.67	6.96	1.67	21.35	2.67	6.59	3.67	4.19
0.83	9.03	1.83	15.01	2.83	5.99	3.83	3.97
1.00	13.36	2.00	11.74	3.00	5.50	4.00	3.77

CALIB	
NASHYD (0043)	Area (ha)= 8.10 Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.59

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	4.32	1.083	30.27	2.083	9.72	3.08	5.09
0.167	4.32	1.167	30.27	2.167	9.72	3.17	5.09
0.250	4.91	1.250	126.55	2.250	8.35	3.25	4.74
0.333	4.91	1.333	126.55	2.333	8.35	3.33	4.74

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                0.417    5.73 | 1.417   39.22 | 2.417    7.35 |  3.42    4.45
                0.500    5.73 | 1.500   39.22 | 2.500    7.35 |  3.50    4.45
                0.583    6.96 | 1.583   21.35 | 2.583    6.59 |  3.58    4.19
                0.667    6.96 | 1.667   21.35 | 2.667    6.59 |  3.67    4.19
                0.750    9.03 | 1.750   15.01 | 2.750    5.99 |  3.75    3.97
                0.833    9.03 | 1.833   15.01 | 2.833    5.99 |  3.83    3.97
                0.917   13.36 | 1.917   11.74 | 2.917    5.50 |  3.92    3.77
                1.000   13.36 | 2.000   11.74 | 3.000    5.50 |  4.00    3.77

     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.120 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=  10.548
     TOTAL RAINFALL   (mm)=  59.695
     RUNOFF COEFFICIENT   =   0.177

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

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       V    V   I    SSSSS  U   U    A    L
       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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\e536b26a-18c9-4f2a-843b-30e3260d47ab\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\e536b26a-18c9-4f2a-843b-30e3260d47ab\scen

DATE: 12-15-2018                          TIME: 09:08:11

USER:

COMMENTS: _____

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  ** SIMULATION : Run 04                        **
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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\6d7a2231
| Ptotal=107.50 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
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                    Duration of storm    = 24.00 hrs
                    Mass curve time step = 15.00 min

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.25    1.08 |  6.25    2.15 | 12.25   15.48 | 18.25    1.93
      0.50    1.08 |  6.50    2.15 | 12.50   15.48 | 18.50    1.94
      0.75    1.08 |  6.75    2.15 | 12.75    7.95 | 18.75    1.93
      1.00    1.07 |  7.00    2.15 | 13.00    7.96 | 19.00    1.94
      1.25    1.08 |  7.25    2.15 | 13.25    1.50 | 19.25    1.93
      1.50    1.07 |  7.50    2.15 | 13.50    1.50 | 19.50    1.94
      1.75    1.08 |  7.75    2.15 | 13.75    8.82 | 19.75    1.93
      2.00    1.93 |  8.00    2.15 | 14.00    8.82 | 20.00    1.94
      2.25    1.40 |  8.25    2.90 | 14.25    3.22 | 20.25    1.29
      2.50    1.40 |  8.50    2.90 | 14.50    3.22 | 20.50    1.29
      2.75    1.40 |  8.75    2.90 | 14.75    3.22 | 20.75    1.29
      3.00    1.40 |  9.00    2.90 | 15.00    3.23 | 21.00    1.29
      3.25    1.40 |  9.25    3.44 | 15.25    3.22 | 21.25    1.29
      3.50    1.40 |  9.50    3.44 | 15.50    3.22 | 21.50    1.29
      3.75    1.40 |  9.75    3.87 | 15.75    3.22 | 21.75    1.29
      4.00    1.40 | 10.00    3.87 | 16.00    3.22 | 22.00    1.29
      4.25    1.72 | 10.25    4.95 | 16.25    1.94 | 22.25    1.29
      4.50    1.72 | 10.50    4.95 | 16.50    1.93 | 22.50    1.29
      4.75    1.72 | 10.75    6.67 | 16.75    1.93 | 22.75    1.29
      5.00    1.72 | 11.00    6.66 | 17.00    1.94 | 23.00    1.29
      5.25    1.72 | 11.25   10.32 | 17.25    1.93 | 23.25    1.29
      5.50    1.72 | 11.50   10.32 | 17.50    1.94 | 23.50    1.29
      5.75    1.72 | 11.75   44.72 | 17.75    1.93 | 23.75    1.29
      6.00    1.72 | 12.00  118.68 | 18.00    1.94 | 24.00    1.29

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| CALIB            |
| NASHYD   (  0001)|   Area    (ha)=   0.28   Curve Number   (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   8.00   # 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    1.08 | 6.083    2.15 |12.083   15.49 | 18.08    1.94
     0.167    1.08 | 6.167    2.15 |12.167   15.48 | 18.17    1.93
     0.250    1.08 | 6.250    2.15 |12.250   15.48 | 18.25    1.93
     0.333    1.08 | 6.333    2.15 |12.333   15.48 | 18.33    1.94
     0.417    1.08 | 6.417    2.15 |12.417   15.48 | 18.42    1.94
     0.500    1.08 | 6.500    2.15 |12.500   15.48 | 18.50    1.94
     0.583    1.08 | 6.583    2.15 |12.583    7.96 | 18.58    1.94
     0.667    1.08 | 6.667    2.15 |12.667    7.95 | 18.67    1.93
     0.750    1.08 | 6.750    2.15 |12.750    7.95 | 18.75    1.93
     0.833    1.07 | 6.833    2.15 |12.833    7.95 | 18.83    1.94
     0.917    1.07 | 6.917    2.15 |12.917    7.96 | 18.92    1.94
     1.000    1.07 | 7.000    2.15 |13.000    7.96 | 19.00    1.94
     1.083    1.07 | 7.083    2.15 |13.083    1.51 | 19.08    1.94
     1.167    1.08 | 7.167    2.15 |13.167    1.50 | 19.17    1.93
     1.250    1.08 | 7.250    2.15 |13.250    1.50 | 19.25    1.93
     1.333    1.08 | 7.333    2.15 |13.333    1.50 | 19.33    1.94
     1.417    1.07 | 7.417    2.15 |13.417    1.50 | 19.42    1.94
     1.500    1.08 | 7.500    2.15 |13.500    1.50 | 19.50    1.94
     1.583    1.08 | 7.583    2.15 |13.583    8.81 | 19.58    1.93
     1.667    1.08 | 7.667    2.15 |13.667    8.82 | 19.67    1.93
     1.750    1.08 | 7.750    2.15 |13.750    8.82 | 19.75    1.94
     1.833    1.93 | 7.833    2.15 |13.833    8.81 | 19.83    1.94
     1.917    1.93 | 7.917    2.15 |13.917    8.82 | 19.92    1.94
     2.000    1.93 | 8.000    2.15 |14.000    8.82 | 20.00    1.93
```

2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.020 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 28.715
TOTAL RAINFALL (mm)= 107.500
RUNOFF COEFFICIENT = 0.267

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\6d7a2231
Ptotal=107.50 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB		
NASHYD (0002)	Area (ha)= 0.88	Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29

2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.048 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 23.987
TOTAL RAINFALL (mm)= 107.500
RUNOFF COEFFICIENT = 0.223

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\6d7a2231
Ptotal=107.50 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB			
NASHYD (0003)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29

2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.796 (i)
TIME TO PEAK (hrs)= 12.667
RUNOFF VOLUME (mm)= 31.703
TOTAL RAINFALL (mm)= 107.500
RUNOFF COEFFICIENT = 0.295

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

MASS STORM	Filename: C:\Users\ssoumik\AppD ata\Local\Temp\ 1ee55f52-15a5-43d4-8e3e-37fe53d20538\8b21e398
Ptotal= 90.70 mm	Comments: SCS II 12H_25YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.27	3.25	3.63	6.25	16.33	9.25	3.17
0.50	2.27	3.50	3.63	6.50	16.33	9.50	3.17
0.75	2.27	3.75	3.63	6.75	7.26	9.75	3.17
1.00	2.27	4.00	3.63	7.00	7.26	10.00	3.17
1.25	2.27	4.25	5.44	7.25	5.44	10.25	1.81
1.50	2.27	4.50	5.44	7.50	5.44	10.50	1.81
1.75	2.27	4.75	7.26	7.75	5.44	10.75	1.81
2.00	2.27	5.00	7.26	8.00	5.44	11.00	1.81
2.25	2.72	5.25	10.88	8.25	3.17	11.25	1.81
2.50	2.72	5.50	10.88	8.50	3.17	11.50	1.81
2.75	2.72	5.75	43.54	8.75	3.17	11.75	1.81
3.00	2.72	6.00	119.72	9.00	3.17	12.00	1.81

CALIB			
NASHYD (0004)	Area (ha)= 0.28	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.00	# 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	2.27	3.083	3.63	6.083	16.33	9.08	3.17
0.167	2.27	3.167	3.63	6.167	16.33	9.17	3.17
0.250	2.27	3.250	3.63	6.250	16.33	9.25	3.17
0.333	2.27	3.333	3.63	6.333	16.33	9.33	3.17
0.417	2.27	3.417	3.63	6.417	16.33	9.42	3.17
0.500	2.27	3.500	3.63	6.500	16.33	9.50	3.17
0.583	2.27	3.583	3.63	6.583	7.26	9.58	3.17
0.667	2.27	3.667	3.63	6.667	7.26	9.67	3.17
0.750	2.27	3.750	3.63	6.750	7.26	9.75	3.17
0.833	2.27	3.833	3.63	6.833	7.26	9.83	3.17
0.917	2.27	3.917	3.63	6.917	7.26	9.92	3.17
1.000	2.27	4.000	3.63	7.000	7.26	10.00	3.17
1.083	2.27	4.083	5.44	7.083	5.44	10.08	1.81
1.167	2.27	4.167	5.44	7.167	5.44	10.17	1.81
1.250	2.27	4.250	5.44	7.250	5.44	10.25	1.81
1.333	2.27	4.333	5.44	7.333	5.44	10.33	1.81
1.417	2.27	4.417	5.44	7.417	5.44	10.42	1.81
1.500	2.27	4.500	5.44	7.500	5.44	10.50	1.81
1.583	2.27	4.583	7.26	7.583	5.44	10.58	1.81
1.667	2.27	4.667	7.26	7.667	5.44	10.67	1.81
1.750	2.27	4.750	7.26	7.750	5.44	10.75	1.81
1.833	2.27	4.833	7.26	7.833	5.44	10.83	1.81
1.917	2.27	4.917	7.26	7.917	5.44	10.92	1.81
2.000	2.27	5.000	7.26	8.000	5.44	11.00	1.81
2.083	2.72	5.083	10.88	8.083	3.17	11.08	1.81
2.167	2.72	5.167	10.88	8.167	3.17	11.17	1.81
2.250	2.72	5.250	10.88	8.250	3.17	11.25	1.81
2.333	2.72	5.333	10.88	8.333	3.17	11.33	1.81
2.417	2.72	5.417	10.88	8.417	3.17	11.42	1.81
2.500	2.72	5.500	10.88	8.500	3.17	11.50	1.81
2.583	2.72	5.583	43.54	8.583	3.17	11.58	1.81
2.667	2.72	5.667	43.54	8.667	3.17	11.67	1.81
2.750	2.72	5.750	43.54	8.750	3.17	11.75	1.81
2.833	2.72	5.833	119.72	8.833	3.17	11.83	1.81
2.917	2.72	5.917	119.72	8.917	3.17	11.92	1.81
3.000	2.72	6.000	119.72	9.000	3.17	12.00	1.81

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.018 (i)
TIME TO PEAK (hrs)= 6.083
RUNOFF VOLUME (mm)= 20.856
TOTAL RAINFALL (mm)= 90.700
RUNOFF COEFFICIENT = 0.230

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\b7d4aaa8
Ptotal= 85.20 mm	Comments: SCS II 6H_25YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	3.41	1.75	8.52	3.25	18.74	4.75	5.11
0.50	3.41	2.00	8.52	3.50	18.74	5.00	5.11
0.75	5.11	2.25	10.22	3.75	8.52	5.25	3.41
1.00	5.11	2.50	10.22	4.00	8.52	5.50	3.41
1.25	5.11	2.75	51.12	4.25	6.82	5.75	3.41
1.50	5.11	3.00	132.91	4.50	6.82	6.00	3.41

CALIB	
NASHYD (0005)	Area (ha)= 0.28 Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.00 # 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	3.41	1.583	8.52	3.083	18.74	4.58	5.11
0.167	3.41	1.667	8.52	3.167	18.74	4.67	5.11
0.250	3.41	1.750	8.52	3.250	18.74	4.75	5.11
0.333	3.41	1.833	8.52	3.333	18.74	4.83	5.11
0.417	3.41	1.917	8.52	3.417	18.74	4.92	5.11
0.500	3.41	2.000	8.52	3.500	18.74	5.00	5.11
0.583	5.11	2.083	10.22	3.583	8.52	5.08	3.41
0.667	5.11	2.167	10.22	3.667	8.52	5.17	3.41
0.750	5.11	2.250	10.22	3.750	8.52	5.25	3.41
0.833	5.11	2.333	10.22	3.833	8.52	5.33	3.41
0.917	5.11	2.417	10.22	3.917	8.52	5.42	3.41
1.000	5.11	2.500	10.22	4.000	8.52	5.50	3.41
1.083	5.11	2.583	51.12	4.083	6.82	5.58	3.41
1.167	5.11	2.667	51.12	4.167	6.82	5.67	3.41
1.250	5.11	2.750	51.12	4.250	6.82	5.75	3.41
1.333	5.11	2.833	132.91	4.333	6.82	5.83	3.41
1.417	5.11	2.917	132.91	4.417	6.82	5.92	3.41
1.500	5.11	3.000	132.91	4.500	6.82	6.00	3.41

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 18.485
TOTAL RAINFALL (mm)= 85.200
RUNOFF COEFFICIENT = 0.217

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\8b21e398
Ptotal= 90.70 mm	Comments: SCS II 12H_25YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.27	3.25	3.63	6.25	16.33	9.25	3.17
0.50	2.27	3.50	3.63	6.50	16.33	9.50	3.17
0.75	2.27	3.75	3.63	6.75	7.26	9.75	3.17
1.00	2.27	4.00	3.63	7.00	7.26	10.00	3.17
1.25	2.27	4.25	5.44	7.25	5.44	10.25	1.81
1.50	2.27	4.50	5.44	7.50	5.44	10.50	1.81
1.75	2.27	4.75	7.26	7.75	5.44	10.75	1.81
2.00	2.27	5.00	7.26	8.00	5.44	11.00	1.81
2.25	2.72	5.25	10.88	8.25	3.17	11.25	1.81
2.50	2.72	5.50	10.88	8.50	3.17	11.50	1.81
2.75	2.72	5.75	43.54	8.75	3.17	11.75	1.81
3.00	2.72	6.00	119.72	9.00	3.17	12.00	1.81

CALIB	
NASHYD (0006)	Area (ha)= 0.88 Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)= 10.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.27	3.083	3.63	6.083	16.33	9.08	3.17
0.167	2.27	3.167	3.63	6.167	16.33	9.17	3.17
0.250	2.27	3.250	3.63	6.250	16.33	9.25	3.17
0.333	2.27	3.333	3.63	6.333	16.33	9.33	3.17
0.417	2.27	3.417	3.63	6.417	16.33	9.42	3.17
0.500	2.27	3.500	3.63	6.500	16.33	9.50	3.17
0.583	2.27	3.583	3.63	6.583	7.26	9.58	3.17
0.667	2.27	3.667	3.63	6.667	7.26	9.67	3.17
0.750	2.27	3.750	3.63	6.750	7.26	9.75	3.17
0.833	2.27	3.833	3.63	6.833	7.26	9.83	3.17
0.917	2.27	3.917	3.63	6.917	7.26	9.92	3.17
1.000	2.27	4.000	3.63	7.000	7.26	10.00	3.17
1.083	2.27	4.083	5.44	7.083	5.44	10.08	1.81
1.167	2.27	4.167	5.44	7.167	5.44	10.17	1.81
1.250	2.27	4.250	5.44	7.250	5.44	10.25	1.81
1.333	2.27	4.333	5.44	7.333	5.44	10.33	1.81
1.417	2.27	4.417	5.44	7.417	5.44	10.42	1.81
1.500	2.27	4.500	5.44	7.500	5.44	10.50	1.81
1.583	2.27	4.583	7.26	7.583	5.44	10.58	1.81
1.667	2.27	4.667	7.26	7.667	5.44	10.67	1.81
1.750	2.27	4.750	7.26	7.750	5.44	10.75	1.81
1.833	2.27	4.833	7.26	7.833	5.44	10.83	1.81
1.917	2.27	4.917	7.26	7.917	5.44	10.92	1.81
2.000	2.27	5.000	7.26	8.000	5.44	11.00	1.81
2.083	2.72	5.083	10.88	8.083	3.17	11.08	1.81
2.167	2.72	5.167	10.88	8.167	3.17	11.17	1.81
2.250	2.72	5.250	10.88	8.250	3.17	11.25	1.81
2.333	2.72	5.333	10.88	8.333	3.17	11.33	1.81
2.417	2.72	5.417	10.88	8.417	3.17	11.42	1.81
2.500	2.72	5.500	10.88	8.500	3.17	11.50	1.81
2.583	2.72	5.583	43.54	8.583	3.17	11.58	1.81
2.667	2.72	5.667	43.54	8.667	3.17	11.67	1.81
2.750	2.72	5.750	43.54	8.750	3.17	11.75	1.81
2.833	2.72	5.833	119.72	8.833	3.17	11.83	1.81
2.917	2.72	5.917	119.72	8.917	3.17	11.92	1.81

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              3.000    2.72 | 6.000  119.72 | 9.000    3.17 | 12.00    1.81

     Unit Hyd Qpeak  (cms)=   0.160

     PEAK FLOW       (cms)=   0.041 (i)
     TIME TO PEAK    (hrs)=   6.083
     RUNOFF VOLUME    (mm)=  17.161
     TOTAL RAINFALL   (mm)=  90.700
     RUNOFF COEFFICIENT   =   0.189

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\b7d4aaa8
| Ptotal= 85.20 mm |    Comments: SCS II 6H_25YR
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                       Duration of storm    =  6.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    3.41 |  1.75    8.52 |  3.25   18.74 |  4.75    5.11
                0.50    3.41 |  2.00    8.52 |  3.50   18.74 |  5.00    5.11
                0.75    5.11 |  2.25   10.22 |  3.75    8.52 |  5.25    3.41
                1.00    5.11 |  2.50   10.22 |  4.00    8.52 |  5.50    3.41
                1.25    5.11 |  2.75   51.12 |  4.25    6.82 |  5.75    3.41
                1.50    5.11 |  3.00  132.91 |  4.50    6.82 |  6.00    3.41

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| CALIB            |
| NASHYD   (  0007)|   Area    (ha)=   0.88   Curve Number   (CN)= 46.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

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

                           ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    3.41 | 1.583    8.52 | 3.083   18.74 |  4.58    5.11
               0.167    3.41 | 1.667    8.52 | 3.167   18.74 |  4.67    5.11
               0.250    3.41 | 1.750    8.52 | 3.250   18.74 |  4.75    5.11
               0.333    3.41 | 1.833    8.52 | 3.333   18.74 |  4.83    5.11
               0.417    3.41 | 1.917    8.52 | 3.417   18.74 |  4.92    5.11
               0.500    3.41 | 2.000    8.52 | 3.500   18.74 |  5.00    5.11
               0.583    5.11 | 2.083   10.22 | 3.583    8.52 |  5.08    3.41
               0.667    5.11 | 2.167   10.22 | 3.667    8.52 |  5.17    3.41
               0.750    5.11 | 2.250   10.22 | 3.750    8.52 |  5.25    3.41
               0.833    5.11 | 2.333   10.22 | 3.833    8.52 |  5.33    3.41
               0.917    5.11 | 2.417   10.22 | 3.917    8.52 |  5.42    3.41
               1.000    5.11 | 2.500   10.22 | 4.000    8.52 |  5.50    3.41
               1.083    5.11 | 2.583   51.12 | 4.083    6.82 |  5.58    3.41
               1.167    5.11 | 2.667   51.12 | 4.167    6.82 |  5.67    3.41
               1.250    5.11 | 2.750   51.12 | 4.250    6.82 |  5.75    3.41
               1.333    5.11 | 2.833  132.91 | 4.333    6.82 |  5.83    3.41
               1.417    5.11 | 2.917  132.91 | 4.417    6.82 |  5.92    3.41
               1.500    5.11 | 3.000  132.91 | 4.500    6.82 |  6.00    3.41

     Unit Hyd Qpeak  (cms)=   0.160

     PEAK FLOW       (cms)=   0.042 (i)
     TIME TO PEAK    (hrs)=   3.083
     RUNOFF VOLUME    (mm)=  15.121
     TOTAL RAINFALL   (mm)=  85.200
     RUNOFF COEFFICIENT   =   0.177

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\8b21e398
| Ptotal= 90.70 mm |    Comments: SCS II 12H_25YR
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                       Duration of storm    = 12.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    2.27 |  3.25    3.63 |  6.25   16.33 |  9.25    3.17
                0.50    2.27 |  3.50    3.63 |  6.50   16.33 |  9.50    3.17
                0.75    2.27 |  3.75    3.63 |  6.75    7.26 |  9.75    3.17
                1.00    2.27 |  4.00    3.63 |  7.00    7.26 | 10.00    3.17
                1.25    2.27 |  4.25    5.44 |  7.25    5.44 | 10.25    1.81
                1.50    2.27 |  4.50    5.44 |  7.50    5.44 | 10.50    1.81
                1.75    2.27 |  4.75    7.26 |  7.75    5.44 | 10.75    1.81
                2.00    2.27 |  5.00    7.26 |  8.00    5.44 | 11.00    1.81
                2.25    2.72 |  5.25   10.88 |  8.25    3.17 | 11.25    1.81
                2.50    2.72 |  5.50   10.88 |  8.50    3.17 | 11.50    1.81
                2.75    2.72 |  5.75   43.54 |  8.75    3.17 | 11.75    1.81
                3.00    2.72 |  6.00  119.72 |  9.00    3.17 | 12.00    1.81

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--------------------
| CALIB            |
| NASHYD   (  0008)|   Area    (ha)=  25.12   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.70

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

                           ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.27 | 3.083    3.63 | 6.083   16.33 |  9.08    3.17
               0.167    2.27 | 3.167    3.63 | 6.167   16.33 |  9.17    3.17
               0.250    2.27 | 3.250    3.63 | 6.250   16.33 |  9.25    3.17
               0.333    2.27 | 3.333    3.63 | 6.333   16.33 |  9.33    3.17
               0.417    2.27 | 3.417    3.63 | 6.417   16.33 |  9.42    3.17
               0.500    2.27 | 3.500    3.63 | 6.500   16.33 |  9.50    3.17
               0.583    2.27 | 3.583    3.63 | 6.583    7.26 |  9.58    3.17
               0.667    2.27 | 3.667    3.63 | 6.667    7.26 |  9.67    3.17
               0.750    2.27 | 3.750    3.63 | 6.750    7.26 |  9.75    3.17
               0.833    2.27 | 3.833    3.63 | 6.833    7.26 |  9.83    3.17
               0.917    2.27 | 3.917    3.63 | 6.917    7.26 |  9.92    3.17
               1.000    2.27 | 4.000    3.63 | 7.000    7.26 | 10.00    3.17
               1.083    2.27 | 4.083    5.44 | 7.083    5.44 | 10.08    1.81
               1.167    2.27 | 4.167    5.44 | 7.167    5.44 | 10.17    1.81
               1.250    2.27 | 4.250    5.44 | 7.250    5.44 | 10.25    1.81
               1.333    2.27 | 4.333    5.44 | 7.333    5.44 | 10.33    1.81
               1.417    2.27 | 4.417    5.44 | 7.417    5.44 | 10.42    1.81
               1.500    2.27 | 4.500    5.44 | 7.500    5.44 | 10.50    1.81
               1.583    2.27 | 4.583    7.26 | 7.583    5.44 | 10.58    1.81
               1.667    2.27 | 4.667    7.26 | 7.667    5.44 | 10.67    1.81
               1.750    2.27 | 4.750    7.26 | 7.750    5.44 | 10.75    1.81
               1.833    2.27 | 4.833    7.26 | 7.833    5.44 | 10.83    1.81
               1.917    2.27 | 4.917    7.26 | 7.917    5.44 | 10.92    1.81
               2.000    2.27 | 5.000    7.26 | 8.000    5.44 | 11.00    1.81
               2.083    2.72 | 5.083   10.88 | 8.083    3.17 | 11.08    1.81
```

2.167	2.72	5.167	10.88	8.167	3.17	11.17	1.81
2.250	2.72	5.250	10.88	8.250	3.17	11.25	1.81
2.333	2.72	5.333	10.88	8.333	3.17	11.33	1.81
2.417	2.72	5.417	10.88	8.417	3.17	11.42	1.81
2.500	2.72	5.500	10.88	8.500	3.17	11.50	1.81
2.583	2.72	5.583	43.54	8.583	3.17	11.58	1.81
2.667	2.72	5.667	43.54	8.667	3.17	11.67	1.81
2.750	2.72	5.750	43.54	8.750	3.17	11.75	1.81
2.833	2.72	5.833	119.72	8.833	3.17	11.83	1.81
2.917	2.72	5.917	119.72	8.917	3.17	11.92	1.81
3.000	2.72	6.000	119.72	9.000	3.17	12.00	1.81

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.699 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 23.346
TOTAL RAINFALL (mm)= 90.700
RUNOFF COEFFICIENT = 0.257

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\b7d4aaa8
Ptotal= 85.20 mm	Comments: SCS II 6H_25YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	3.41	1.75	8.52	3.25	18.74	4.75	5.11
0.50	3.41	2.00	8.52	3.50	18.74	5.00	5.11
0.75	5.11	2.25	10.22	3.75	8.52	5.25	3.41
1.00	5.11	2.50	10.22	4.00	8.52	5.50	3.41
1.25	5.11	2.75	51.12	4.25	6.82	5.75	3.41
1.50	5.11	3.00	132.91	4.50	6.82	6.00	3.41

CALIB	
NASHYD (0009)	Area (ha)= 25.12 Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.70

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	3.41	1.583	8.52	3.083	18.74	4.58	5.11
0.167	3.41	1.667	8.52	3.167	18.74	4.67	5.11
0.250	3.41	1.750	8.52	3.250	18.74	4.75	5.11
0.333	3.41	1.833	8.52	3.333	18.74	4.83	5.11
0.417	3.41	1.917	8.52	3.417	18.74	4.92	5.11
0.500	3.41	2.000	8.52	3.500	18.74	5.00	5.11
0.583	5.11	2.083	10.22	3.583	8.52	5.08	3.41
0.667	5.11	2.167	10.22	3.667	8.52	5.17	3.41
0.750	5.11	2.250	10.22	3.750	8.52	5.25	3.41
0.833	5.11	2.333	10.22	3.833	8.52	5.33	3.41
0.917	5.11	2.417	10.22	3.917	8.52	5.42	3.41
1.000	5.11	2.500	10.22	4.000	8.52	5.50	3.41
1.083	5.11	2.583	51.12	4.083	6.82	5.58	3.41
1.167	5.11	2.667	51.12	4.167	6.82	5.67	3.41
1.250	5.11	2.750	51.12	4.250	6.82	5.75	3.41
1.333	5.11	2.833	132.91	4.333	6.82	5.83	3.41
1.417	5.11	2.917	132.91	4.417	6.82	5.92	3.41
1.500	5.11	3.000	132.91	4.500	6.82	6.00	3.41

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.724 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 20.809
TOTAL RAINFALL (mm)= 85.200
RUNOFF COEFFICIENT = 0.244

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

CHICAGO STORM	IDF curve parameters: A=1146.275
Ptotal= 71.24 mm	B= 4.922
	C= 0.757

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

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	5.22	1.17	36.37	2.17	11.74	3.17	6.15
0.33	5.94	1.33	148.15	2.33	10.09	3.33	5.74
0.50	6.93	1.50	47.06	2.50	8.89	3.50	5.38
0.67	8.42	1.67	25.72	2.67	7.96	3.67	5.08
0.83	10.91	1.83	18.11	2.83	7.24	3.83	4.80
1.00	16.13	2.00	14.17	3.00	6.65	4.00	4.57

CALIB	
NASHYD (0010)	Area (ha)= 25.12 Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.70

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	5.22	1.083	36.37	2.083	11.74	3.08	6.15
0.167	5.22	1.167	36.37	2.167	11.74	3.17	6.15
0.250	5.94	1.250	148.15	2.250	10.09	3.25	5.74
0.333	5.94	1.333	148.15	2.333	10.09	3.33	5.74
0.417	6.93	1.417	47.06	2.417	8.89	3.42	5.38
0.500	6.93	1.500	47.06	2.500	8.89	3.50	5.38
0.583	8.42	1.583	25.72	2.583	7.96	3.58	5.08
0.667	8.42	1.667	25.72	2.667	7.96	3.67	5.08
0.750	10.91	1.750	18.11	2.750	7.24	3.75	4.80
0.833	10.91	1.833	18.11	2.833	7.24	3.83	4.80
0.917	16.13	1.917	14.17	2.917	6.65	3.92	4.57
1.000	16.13	2.000	14.17	3.000	6.65	4.00	4.57

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.473 (i)
TIME TO PEAK (hrs)= 2.250
RUNOFF VOLUME (mm)= 14.865
TOTAL RAINFALL (mm)= 71.236

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     RUNOFF COEFFICIENT   =   0.209

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

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| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
--------------------                          C=   0.757
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
                0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
                0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
                0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
                0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
                1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


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| CALIB            |
| NASHYD   (  0011)|   Area     (ha)=   0.88   Curve Number    (CN)= 46.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

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


                           ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
               0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
               0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
               0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
               0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
               0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
               0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
               0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
               0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
               0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
               0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
               1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Unit Hyd Qpeak  (cms)=   0.160

     PEAK FLOW       (cms)=   0.022 (i)
     TIME TO PEAK    (hrs)=   1.583
     RUNOFF VOLUME    (mm)=  10.416
     TOTAL RAINFALL   (mm)=  71.236
     RUNOFF COEFFICIENT   =   0.146

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

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| CHICAGO STORM    |    IDF curve parameters: A=1146.275
| Ptotal= 71.24 mm |                          B=   4.922
--------------------                          C=   0.757
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    5.22 |  1.17   36.37 |  2.17   11.74 |  3.17    6.15
                0.33    5.94 |  1.33  148.15 |  2.33   10.09 |  3.33    5.74
                0.50    6.93 |  1.50   47.06 |  2.50    8.89 |  3.50    5.38
                0.67    8.42 |  1.67   25.72 |  2.67    7.96 |  3.67    5.08
                0.83   10.91 |  1.83   18.11 |  2.83    7.24 |  3.83    4.80
                1.00   16.13 |  2.00   14.17 |  3.00    6.65 |  4.00    4.57


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| CALIB            |
| NASHYD   (  0012)|   Area     (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   8.00   # 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    5.22 | 1.083   36.37 | 2.083   11.74 |  3.08    6.15
               0.167    5.22 | 1.167   36.37 | 2.167   11.74 |  3.17    6.15
               0.250    5.94 | 1.250  148.15 | 2.250   10.09 |  3.25    5.74
               0.333    5.94 | 1.333  148.15 | 2.333   10.09 |  3.33    5.74
               0.417    6.93 | 1.417   47.06 | 2.417    8.89 |  3.42    5.38
               0.500    6.93 | 1.500   47.06 | 2.500    8.89 |  3.50    5.38
               0.583    8.42 | 1.583   25.72 | 2.583    7.96 |  3.58    5.08
               0.667    8.42 | 1.667   25.72 | 2.667    7.96 |  3.67    5.08
               0.750   10.91 | 1.750   18.11 | 2.750    7.24 |  3.75    4.80
               0.833   10.91 | 1.833   18.11 | 2.833    7.24 |  3.83    4.80
               0.917   16.13 | 1.917   14.17 | 2.917    6.65 |  3.92    4.57
               1.000   16.13 | 2.000   14.17 | 3.000    6.65 |  4.00    4.57

     Unit Hyd Qpeak  (cms)=   0.063

     PEAK FLOW       (cms)=   0.010 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=  12.966
     TOTAL RAINFALL   (mm)=  71.236
     RUNOFF COEFFICIENT   =   0.182

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\6d7a2231
| Ptotal=107.50 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
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                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    1.08 |  6.25    2.15 | 12.25   15.48 | 18.25    1.93
                0.50    1.08 |  6.50    2.15 | 12.50   15.48 | 18.50    1.94
                0.75    1.08 |  6.75    2.15 | 12.75    7.95 | 18.75    1.93
                1.00    1.07 |  7.00    2.15 | 13.00    7.96 | 19.00    1.94
                1.25    1.08 |  7.25    2.15 | 13.25    1.50 | 19.25    1.93
                1.50    1.07 |  7.50    2.15 | 13.50    1.50 | 19.50    1.94
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1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB			
NASHYD (0040)	Area (ha)=	8.10	Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.59	

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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.290 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 31.703
TOTAL RAINFALL (mm)= 107.500
RUNOFF COEFFICIENT = 0.295

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\8b21e398
Ptotal= 90.70 mm	Comments: SCS II 12H_25YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.27	3.25	3.63	6.25	16.33	9.25	3.17
0.50	2.27	3.50	3.63	6.50	16.33	9.50	3.17
0.75	2.27	3.75	3.63	6.75	7.26	9.75	3.17
1.00	2.27	4.00	3.63	7.00	7.26	10.00	3.17
1.25	2.27	4.25	5.44	7.25	5.44	10.25	1.81
1.50	2.27	4.50	5.44	7.50	5.44	10.50	1.81
1.75	2.27	4.75	7.26	7.75	5.44	10.75	1.81
2.00	2.27	5.00	7.26	8.00	5.44	11.00	1.81
2.25	2.72	5.25	10.88	8.25	3.17	11.25	1.81

2.50	2.72	5.50	10.88	8.50	3.17	11.50	1.81
2.75	2.72	5.75	43.54	8.75	3.17	11.75	1.81
3.00	2.72	6.00	119.72	9.00	3.17	12.00	1.81

CALIB					
NASHYD (0041)	Area (ha)=	8.10	Curve Number (CN)=	52.6	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.59			

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.27	3.083	3.63	6.083	16.33	9.08	3.17
0.167	2.27	3.167	3.63	6.167	16.33	9.17	3.17
0.250	2.27	3.250	3.63	6.250	16.33	9.25	3.17
0.333	2.27	3.333	3.63	6.333	16.33	9.33	3.17
0.417	2.27	3.417	3.63	6.417	16.33	9.42	3.17
0.500	2.27	3.500	3.63	6.500	16.33	9.50	3.17
0.583	2.27	3.583	3.63	6.583	7.26	9.58	3.17
0.667	2.27	3.667	3.63	6.667	7.26	9.67	3.17
0.750	2.27	3.750	3.63	6.750	7.26	9.75	3.17
0.833	2.27	3.833	3.63	6.833	7.26	9.83	3.17
0.917	2.27	3.917	3.63	6.917	7.26	9.92	3.17
1.000	2.27	4.000	3.63	7.000	7.26	10.00	3.17
1.083	2.27	4.083	5.44	7.083	5.44	10.08	1.81
1.167	2.27	4.167	5.44	7.167	5.44	10.17	1.81
1.250	2.27	4.250	5.44	7.250	5.44	10.25	1.81
1.333	2.27	4.333	5.44	7.333	5.44	10.33	1.81
1.417	2.27	4.417	5.44	7.417	5.44	10.42	1.81
1.500	2.27	4.500	5.44	7.500	5.44	10.50	1.81
1.583	2.27	4.583	7.26	7.583	5.44	10.58	1.81
1.667	2.27	4.667	7.26	7.667	5.44	10.67	1.81
1.750	2.27	4.750	7.26	7.750	5.44	10.75	1.81
1.833	2.27	4.833	7.26	7.833	5.44	10.83	1.81
1.917	2.27	4.917	7.26	7.917	5.44	10.92	1.81
2.000	2.27	5.000	7.26	8.000	5.44	11.00	1.81
2.083	2.72	5.083	10.88	8.083	3.17	11.08	1.81
2.167	2.72	5.167	10.88	8.167	3.17	11.17	1.81
2.250	2.72	5.250	10.88	8.250	3.17	11.25	1.81
2.333	2.72	5.333	10.88	8.333	3.17	11.33	1.81
2.417	2.72	5.417	10.88	8.417	3.17	11.42	1.81
2.500	2.72	5.500	10.88	8.500	3.17	11.50	1.81
2.583	2.72	5.583	43.54	8.583	3.17	11.58	1.81
2.667	2.72	5.667	43.54	8.667	3.17	11.67	1.81
2.750	2.72	5.750	43.54	8.750	3.17	11.75	1.81
2.833	2.72	5.833	119.72	8.833	3.17	11.83	1.81
2.917	2.72	5.917	119.72	8.917	3.17	11.92	1.81
3.000	2.72	6.000	119.72	9.000	3.17	12.00	1.81

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.254 (i)
TIME TO PEAK (hrs)= 6.500
RUNOFF VOLUME (mm)= 23.345
TOTAL RAINFALL (mm)= 90.700
RUNOFF COEFFICIENT = 0.257

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

MASS STORM	Filename: C:\Users\ssoumik\AppD
	ata\Local\Temp\
	1ee55f52-15a5-43d4-8e3e-37fe53d20538\b7d4aaa8
Ptotal= 85.20 mm	Comments: SCS II 6H_25YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	3.41	1.75	8.52	3.25	18.74	4.75	5.11
0.50	3.41	2.00	8.52	3.50	18.74	5.00	5.11
0.75	5.11	2.25	10.22	3.75	8.52	5.25	3.41
1.00	5.11	2.50	10.22	4.00	8.52	5.50	3.41
1.25	5.11	2.75	51.12	4.25	6.82	5.75	3.41
1.50	5.11	3.00	132.91	4.50	6.82	6.00	3.41

CALIB					
NASHYD (0042)	Area (ha)=	8.10	Curve Number (CN)=	52.6	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.59			

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	3.41	1.583	8.52	3.083	18.74	4.58	5.11
0.167	3.41	1.667	8.52	3.167	18.74	4.67	5.11
0.250	3.41	1.750	8.52	3.250	18.74	4.75	5.11
0.333	3.41	1.833	8.52	3.333	18.74	4.83	5.11
0.417	3.41	1.917	8.52	3.417	18.74	4.92	5.11
0.500	3.41	2.000	8.52	3.500	18.74	5.00	5.11
0.583	5.11	2.083	10.22	3.583	8.52	5.08	3.41
0.667	5.11	2.167	10.22	3.667	8.52	5.17	3.41
0.750	5.11	2.250	10.22	3.750	8.52	5.25	3.41
0.833	5.11	2.333	10.22	3.833	8.52	5.33	3.41
0.917	5.11	2.417	10.22	3.917	8.52	5.42	3.41
1.000	5.11	2.500	10.22	4.000	8.52	5.50	3.41
1.083	5.11	2.583	51.12	4.083	6.82	5.58	3.41
1.167	5.11	2.667	51.12	4.167	6.82	5.67	3.41
1.250	5.11	2.750	51.12	4.250	6.82	5.75	3.41
1.333	5.11	2.833	132.91	4.333	6.82	5.83	3.41
1.417	5.11	2.917	132.91	4.417	6.82	5.92	3.41
1.500	5.11	3.000	132.91	4.500	6.82	6.00	3.41

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.264 (i)
TIME TO PEAK (hrs)= 3.583
RUNOFF VOLUME (mm)= 20.809
TOTAL RAINFALL (mm)= 85.200
RUNOFF COEFFICIENT = 0.244

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

CHICAGO STORM	IDF curve parameters: A=1146.275
Ptotal= 71.24 mm	B= 4.922
	C= 0.757
	used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	5.22	1.17	36.37	2.17	11.74	3.17	6.15
0.33	5.94	1.33	148.15	2.33	10.09	3.33	5.74
0.50	6.93	1.50	47.06	2.50	8.89	3.50	5.38
0.67	8.42	1.67	25.72	2.67	7.96	3.67	5.08
0.83	10.91	1.83	18.11	2.83	7.24	3.83	4.80
1.00	16.13	2.00	14.17	3.00	6.65	4.00	4.57

CALIB			
NASHYD (0043)	Area (ha)=	8.10	Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.59	

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	5.22	1.083	36.37	2.083	11.74	3.08	6.15
0.167	5.22	1.167	36.37	2.167	11.74	3.17	6.15
0.250	5.94	1.250	148.15	2.250	10.09	3.25	5.74
0.333	5.94	1.333	148.15	2.333	10.09	3.33	5.74
0.417	6.93	1.417	47.06	2.417	8.89	3.42	5.38
0.500	6.93	1.500	47.06	2.500	8.89	3.50	5.38
0.583	8.42	1.583	25.72	2.583	7.96	3.58	5.08
0.667	8.42	1.667	25.72	2.667	7.96	3.67	5.08
0.750	10.91	1.750	18.11	2.750	7.24	3.75	4.80
0.833	10.91	1.833	18.11	2.833	7.24	3.83	4.80
0.917	16.13	1.917	14.17	2.917	6.65	3.92	4.57
1.000	16.13	2.000	14.17	3.000	6.65	4.00	4.57

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.170 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 14.865
TOTAL RAINFALL (mm)= 71.236
RUNOFF COEFFICIENT = 0.209

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

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       V    V   I    SSSSS  U   U    A    L
       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 5.0\VO2\voin.dat
Output filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-a266-6b877f48bd3e\abd00681-a54e-474e-adfd-82bd2b30535c\scen
Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-a266-6b877f48bd3e\abd00681-a54e-474e-adfd-82bd2b30535c\scen

DATE: 12-15-2018 TIME: 09:08:11

USER:

COMMENTS: _____

** SIMULATION : Run 05 **

MASS STORM	Filename: C:\Users\ssoumik\AppD ata\Local\Temp\ 1ee55f52-15a5-43d4-8e3e-37fe53d20538\62c328ea
Ptotal=120.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

CALIB			
NASHYD (0001)	Area (ha)=	0.28	Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)=	8.00	# 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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.025 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 35.422
TOTAL RAINFALL (mm)= 120.600
RUNOFF COEFFICIENT = 0.294

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\62c328ea
Ptotal=120.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

CALIB	
NASHYD (0002)	Area (ha)= 0.88 Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)= 10.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.083	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.060 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 29.877
TOTAL RAINFALL (mm)= 120.600
RUNOFF COEFFICIENT = 0.248

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\62c328ea
Ptotal=120.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

CALIB					
NASHYD (0003)	Area (ha)= 25.12	Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.70	

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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17

0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.979 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 38.791
TOTAL RAINFALL (mm)= 120.600
RUNOFF COEFFICIENT = 0.322

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\cbe81c21
Ptotal=101.70 mm	Comments: SCS II 12H_50YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.54	3.25	4.07	6.25	18.31	9.25	3.56
0.50	2.54	3.50	4.07	6.50	18.31	9.50	3.56
0.75	2.54	3.75	4.07	6.75	8.14	9.75	3.56
1.00	2.54	4.00	4.07	7.00	8.14	10.00	3.56
1.25	2.54	4.25	6.10	7.25	6.10	10.25	2.03
1.50	2.54	4.50	6.10	7.50	6.10	10.50	2.03
1.75	2.54	4.75	8.14	7.75	6.10	10.75	2.03
2.00	2.54	5.00	8.14	8.00	6.10	11.00	2.03
2.25	3.05	5.25	12.20	8.25	3.56	11.25	2.03
2.50	3.05	5.50	12.20	8.50	3.56	11.50	2.03
2.75	3.05	5.75	48.82	8.75	3.56	11.75	2.03
3.00	3.05	6.00	134.24	9.00	3.56	12.00	2.03

CALIB			
NASHYD (0004)	Area (ha)= 0.28	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.00	# 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	2.54	3.083	4.07	6.083	18.31	9.08	3.56
0.167	2.54	3.167	4.07	6.167	18.31	9.17	3.56
0.250	2.54	3.250	4.07	6.250	18.31	9.25	3.56
0.333	2.54	3.333	4.07	6.333	18.31	9.33	3.56
0.417	2.54	3.417	4.07	6.417	18.31	9.42	3.56
0.500	2.54	3.500	4.07	6.500	18.31	9.50	3.56
0.583	2.54	3.583	4.07	6.583	8.14	9.58	3.56
0.667	2.54	3.667	4.07	6.667	8.14	9.67	3.56
0.750	2.54	3.750	4.07	6.750	8.14	9.75	3.56
0.833	2.54	3.833	4.07	6.833	8.14	9.83	3.56
0.917	2.54	3.917	4.07	6.917	8.14	9.92	3.56
1.000	2.54	4.000	4.07	7.000	8.14	10.00	3.56
1.083	2.54	4.083	6.10	7.083	6.10	10.08	2.03
1.167	2.54	4.167	6.10	7.167	6.10	10.17	2.03
1.250	2.54	4.250	6.10	7.250	6.10	10.25	2.03
1.333	2.54	4.333	6.10	7.333	6.10	10.33	2.03
1.417	2.54	4.417	6.10	7.417	6.10	10.42	2.03
1.500	2.54	4.500	6.10	7.500	6.10	10.50	2.03

1.583	2.54	4.583	8.14	7.583	6.10	10.58	2.03
1.667	2.54	4.667	8.14	7.667	6.10	10.67	2.03
1.750	2.54	4.750	8.14	7.750	6.10	10.75	2.03
1.833	2.54	4.833	8.14	7.833	6.10	10.83	2.03
1.917	2.54	4.917	8.14	7.917	6.10	10.92	2.03
2.000	2.54	5.000	8.14	8.000	6.10	11.00	2.03
2.083	3.05	5.083	12.20	8.083	3.56	11.08	2.03
2.167	3.05	5.167	12.20	8.167	3.56	11.17	2.03
2.250	3.05	5.250	12.20	8.250	3.56	11.25	2.03
2.333	3.05	5.333	12.20	8.333	3.56	11.33	2.03
2.417	3.05	5.417	12.20	8.417	3.56	11.42	2.03
2.500	3.05	5.500	12.20	8.500	3.56	11.50	2.03
2.583	3.05	5.583	48.82	8.583	3.56	11.58	2.03
2.667	3.05	5.667	48.82	8.667	3.56	11.67	2.03
2.750	3.05	5.750	48.82	8.750	3.56	11.75	2.03
2.833	3.05	5.833	134.24	8.833	3.56	11.83	2.03
2.917	3.05	5.917	134.24	8.917	3.56	11.92	2.03
3.000	3.05	6.000	134.24	9.000	3.56	12.00	2.03

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.022 (i)
TIME TO PEAK (hrs)= 6.083
RUNOFF VOLUME (mm)= 25.901
TOTAL RAINFALL (mm)= 101.700
RUNOFF COEFFICIENT = 0.255

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\c45cd20f
Ptotal= 95.90 mm	Comments: SCS II 6H_50YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	3.84	1.75	9.59	3.25	21.10	4.75	5.75
0.50	3.84	2.00	9.59	3.50	21.10	5.00	5.75
0.75	5.75	2.25	11.51	3.75	9.59	5.25	3.84
1.00	5.75	2.50	11.51	4.00	9.59	5.50	3.84
1.25	5.75	2.75	57.54	4.25	7.67	5.75	3.84
1.50	5.75	3.00	149.60	4.50	7.67	6.00	3.84

CALIB	
NASHYD (0005)	Area (ha)= 0.28 Curve Number (CN)= 51.0
ID= 1 DT= 5.0 min	Ia (mm)= 8.00 # 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	3.84	1.583	9.59	3.083	21.10	4.58	5.75
0.167	3.84	1.667	9.59	3.167	21.10	4.67	5.75
0.250	3.84	1.750	9.59	3.250	21.10	4.75	5.75
0.333	3.84	1.833	9.59	3.333	21.10	4.83	5.75
0.417	3.84	1.917	9.59	3.417	21.10	4.92	5.75
0.500	3.84	2.000	9.59	3.500	21.10	5.00	5.75
0.583	5.75	2.083	11.51	3.583	9.59	5.08	3.84
0.667	5.75	2.167	11.51	3.667	9.59	5.17	3.84
0.750	5.75	2.250	11.51	3.750	9.59	5.25	3.84
0.833	5.75	2.333	11.51	3.833	9.59	5.33	3.84
0.917	5.75	2.417	11.51	3.917	9.59	5.42	3.84
1.000	5.75	2.500	11.51	4.000	9.59	5.50	3.84
1.083	5.75	2.583	57.54	4.083	7.67	5.58	3.84
1.167	5.75	2.667	57.54	4.167	7.67	5.67	3.84
1.250	5.75	2.750	57.54	4.250	7.67	5.75	3.84
1.333	5.75	2.833	149.60	4.333	7.67	5.83	3.84
1.417	5.75	2.917	149.60	4.417	7.67	5.92	3.84
1.500	5.75	3.000	149.60	4.500	7.67	6.00	3.84

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 23.192
TOTAL RAINFALL (mm)= 95.900
RUNOFF COEFFICIENT = 0.242

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\cbe81c21
Ptotal=101.70 mm	Comments: SCS II 12H_50YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.54	3.25	4.07	6.25	18.31	9.25	3.56
0.50	2.54	3.50	4.07	6.50	18.31	9.50	3.56
0.75	2.54	3.75	4.07	6.75	8.14	9.75	3.56
1.00	2.54	4.00	4.07	7.00	8.14	10.00	3.56
1.25	2.54	4.25	6.10	7.25	6.10	10.25	2.03
1.50	2.54	4.50	6.10	7.50	6.10	10.50	2.03
1.75	2.54	4.75	8.14	7.75	6.10	10.75	2.03
2.00	2.54	5.00	8.14	8.00	6.10	11.00	2.03
2.25	3.05	5.25	12.20	8.25	3.56	11.25	2.03
2.50	3.05	5.50	12.20	8.50	3.56	11.50	2.03
2.75	3.05	5.75	48.82	8.75	3.56	11.75	2.03
3.00	3.05	6.00	134.24	9.00	3.56	12.00	2.03

CALIB	
NASHYD (0006)	Area (ha)= 0.88 Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)= 10.00 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.21

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.54	3.083	4.07	6.083	18.31	9.08	3.56
0.167	2.54	3.167	4.07	6.167	18.31	9.17	3.56
0.250	2.54	3.250	4.07	6.250	18.31	9.25	3.56
0.333	2.54	3.333	4.07	6.333	18.31	9.33	3.56
0.417	2.54	3.417	4.07	6.417	18.31	9.42	3.56
0.500	2.54	3.500	4.07	6.500	18.31	9.50	3.56
0.583	2.54	3.583	4.07	6.583	8.14	9.58	3.56
0.667	2.54	3.667	4.07	6.667	8.14	9.67	3.56

0.750	2.54	3.750	4.07	6.750	8.14	9.75	3.56
0.833	2.54	3.833	4.07	6.833	8.14	9.83	3.56
0.917	2.54	3.917	4.07	6.917	8.14	9.92	3.56
1.000	2.54	4.000	4.07	7.000	8.14	10.00	3.56
1.083	2.54	4.083	6.10	7.083	6.10	10.08	2.03
1.167	2.54	4.167	6.10	7.167	6.10	10.17	2.03
1.250	2.54	4.250	6.10	7.250	6.10	10.25	2.03
1.333	2.54	4.333	6.10	7.333	6.10	10.33	2.03
1.417	2.54	4.417	6.10	7.417	6.10	10.42	2.03
1.500	2.54	4.500	6.10	7.500	6.10	10.50	2.03
1.583	2.54	4.583	8.14	7.583	6.10	10.58	2.03
1.667	2.54	4.667	8.14	7.667	6.10	10.67	2.03
1.750	2.54	4.750	8.14	7.750	6.10	10.75	2.03
1.833	2.54	4.833	8.14	7.833	6.10	10.83	2.03
1.917	2.54	4.917	8.14	7.917	6.10	10.92	2.03
2.000	2.54	5.000	8.14	8.000	6.10	11.00	2.03
2.083	3.05	5.083	12.20	8.083	3.56	11.08	2.03
2.167	3.05	5.167	12.20	8.167	3.56	11.17	2.03
2.250	3.05	5.250	12.20	8.250	3.56	11.25	2.03
2.333	3.05	5.333	12.20	8.333	3.56	11.33	2.03
2.417	3.05	5.417	12.20	8.417	3.56	11.42	2.03
2.500	3.05	5.500	12.20	8.500	3.56	11.50	2.03
2.583	3.05	5.583	48.82	8.583	3.56	11.58	2.03
2.667	3.05	5.667	48.82	8.667	3.56	11.67	2.03
2.750	3.05	5.750	48.82	8.750	3.56	11.75	2.03
2.833	3.05	5.833	134.24	8.833	3.56	11.83	2.03
2.917	3.05	5.917	134.24	8.917	3.56	11.92	2.03
3.000	3.05	6.000	134.24	9.000	3.56	12.00	2.03

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.052 (i)
TIME TO PEAK (hrs)= 6.083
RUNOFF VOLUME (mm)= 21.534
TOTAL RAINFALL (mm)= 101.700
RUNOFF COEFFICIENT = 0.212

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\c45cd20f
Ptotal= 95.90 mm	Comments: SCS II 6H_50YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	3.84	1.75	9.59	3.25	21.10	4.75	5.75
0.50	3.84	2.00	9.59	3.50	21.10	5.00	5.75
0.75	5.75	2.25	11.51	3.75	9.59	5.25	3.84
1.00	5.75	2.50	11.51	4.00	9.59	5.50	3.84
1.25	5.75	2.75	57.54	4.25	7.67	5.75	3.84
1.50	5.75	3.00	149.60	4.50	7.67	6.00	3.84

CALIB			
NASHYD (0007)	Area (ha)= 0.88	Curve Number (CN)= 46.0	
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.21		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.84	1.583	9.59	3.083	21.10	4.58	5.75
0.167	3.84	1.667	9.59	3.167	21.10	4.67	5.75
0.250	3.84	1.750	9.59	3.250	21.10	4.75	5.75
0.333	3.84	1.833	9.59	3.333	21.10	4.83	5.75
0.417	3.84	1.917	9.59	3.417	21.10	4.92	5.75
0.500	3.84	2.000	9.59	3.500	21.10	5.00	5.75
0.583	5.75	2.083	11.51	3.583	9.59	5.08	3.84
0.667	5.75	2.167	11.51	3.667	9.59	5.17	3.84
0.750	5.75	2.250	11.51	3.750	9.59	5.25	3.84
0.833	5.75	2.333	11.51	3.833	9.59	5.33	3.84
0.917	5.75	2.417	11.51	3.917	9.59	5.42	3.84
1.000	5.75	2.500	11.51	4.000	9.59	5.50	3.84
1.083	5.75	2.583	57.54	4.083	7.67	5.58	3.84
1.167	5.75	2.667	57.54	4.167	7.67	5.67	3.84
1.250	5.75	2.750	57.54	4.250	7.67	5.75	3.84
1.333	5.75	2.833	149.60	4.333	7.67	5.83	3.84
1.417	5.75	2.917	149.60	4.417	7.67	5.92	3.84
1.500	5.75	3.000	149.60	4.500	7.67	6.00	3.84

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.054 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 19.181
TOTAL RAINFALL (mm)= 95.900
RUNOFF COEFFICIENT = 0.200

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\cbe81c21
Ptotal=101.70 mm	Comments: SCS II 12H_50YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.54	3.25	4.07	6.25	18.31	9.25	3.56
0.50	2.54	3.50	4.07	6.50	18.31	9.50	3.56
0.75	2.54	3.75	4.07	6.75	8.14	9.75	3.56
1.00	2.54	4.00	4.07	7.00	8.14	10.00	3.56
1.25	2.54	4.25	6.10	7.25	6.10	10.25	2.03
1.50	2.54	4.50	6.10	7.50	6.10	10.50	2.03
1.75	2.54	4.75	8.14	7.75	6.10	10.75	2.03
2.00	2.54	5.00	8.14	8.00	6.10	11.00	2.03
2.25	3.05	5.25	12.20	8.25	3.56	11.25	2.03
2.50	3.05	5.50	12.20	8.50	3.56	11.50	2.03
2.75	3.05	5.75	48.82	8.75	3.56	11.75	2.03
3.00	3.05	6.00	134.24	9.00	3.56	12.00	2.03

CALIB			
NASHYD (0008)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.54	3.083	4.07	6.083	18.31	9.08	3.56
0.167	2.54	3.167	4.07	6.167	18.31	9.17	3.56
0.250	2.54	3.250	4.07	6.250	18.31	9.25	3.56
0.333	2.54	3.333	4.07	6.333	18.31	9.33	3.56
0.417	2.54	3.417	4.07	6.417	18.31	9.42	3.56
0.500	2.54	3.500	4.07	6.500	18.31	9.50	3.56
0.583	2.54	3.583	4.07	6.583	8.14	9.58	3.56
0.667	2.54	3.667	4.07	6.667	8.14	9.67	3.56
0.750	2.54	3.750	4.07	6.750	8.14	9.75	3.56
0.833	2.54	3.833	4.07	6.833	8.14	9.83	3.56
0.917	2.54	3.917	4.07	6.917	8.14	9.92	3.56
1.000	2.54	4.000	4.07	7.000	8.14	10.00	3.56
1.083	2.54	4.083	6.10	7.083	6.10	10.08	2.03
1.167	2.54	4.167	6.10	7.167	6.10	10.17	2.03
1.250	2.54	4.250	6.10	7.250	6.10	10.25	2.03
1.333	2.54	4.333	6.10	7.333	6.10	10.33	2.03
1.417	2.54	4.417	6.10	7.417	6.10	10.42	2.03
1.500	2.54	4.500	6.10	7.500	6.10	10.50	2.03
1.583	2.54	4.583	8.14	7.583	6.10	10.58	2.03
1.667	2.54	4.667	8.14	7.667	6.10	10.67	2.03
1.750	2.54	4.750	8.14	7.750	6.10	10.75	2.03
1.833	2.54	4.833	8.14	7.833	6.10	10.83	2.03
1.917	2.54	4.917	8.14	7.917	6.10	10.92	2.03
2.000	2.54	5.000	8.14	8.000	6.10	11.00	2.03
2.083	3.05	5.083	12.20	8.083	3.56	11.08	2.03
2.167	3.05	5.167	12.20	8.167	3.56	11.17	2.03
2.250	3.05	5.250	12.20	8.250	3.56	11.25	2.03
2.333	3.05	5.333	12.20	8.333	3.56	11.33	2.03
2.417	3.05	5.417	12.20	8.417	3.56	11.42	2.03
2.500	3.05	5.500	12.20	8.500	3.56	11.50	2.03
2.583	3.05	5.583	48.82	8.583	3.56	11.58	2.03
2.667	3.05	5.667	48.82	8.667	3.56	11.67	2.03
2.750	3.05	5.750	48.82	8.750	3.56	11.75	2.03
2.833	3.05	5.833	134.24	8.833	3.56	11.83	2.03
2.917	3.05	5.917	134.24	8.917	3.56	11.92	2.03
3.000	3.05	6.000	134.24	9.000	3.56	12.00	2.03

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.864 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 28.719
TOTAL RAINFALL (mm)= 101.700
RUNOFF COEFFICIENT = 0.282

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\c45cd20f
Ptotal= 95.90 mm	Comments: SCS II 6H_50YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	3.84	1.75	9.59	3.25	21.10	4.75	5.75
0.50	3.84	2.00	9.59	3.50	21.10	5.00	5.75
0.75	5.75	2.25	11.51	3.75	9.59	5.25	3.84
1.00	5.75	2.50	11.51	4.00	9.59	5.50	3.84
1.25	5.75	2.75	57.54	4.25	7.67	5.75	3.84
1.50	5.75	3.00	149.60	4.50	7.67	6.00	3.84

CALIB NASHYD (0009) ID= 1 DT= 5.0 min	Area (ha)= 25.12 Curve Number (CN)= 52.6 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.70

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	3.84	1.583	9.59	3.083	21.10	4.58	5.75
0.167	3.84	1.667	9.59	3.167	21.10	4.67	5.75
0.250	3.84	1.750	9.59	3.250	21.10	4.75	5.75
0.333	3.84	1.833	9.59	3.333	21.10	4.83	5.75
0.417	3.84	1.917	9.59	3.417	21.10	4.92	5.75
0.500	3.84	2.000	9.59	3.500	21.10	5.00	5.75
0.583	5.75	2.083	11.51	3.583	9.59	5.08	3.84
0.667	5.75	2.167	11.51	3.667	9.59	5.17	3.84
0.750	5.75	2.250	11.51	3.750	9.59	5.25	3.84
0.833	5.75	2.333	11.51	3.833	9.59	5.33	3.84
0.917	5.75	2.417	11.51	3.917	9.59	5.42	3.84
1.000	5.75	2.500	11.51	4.000	9.59	5.50	3.84
1.083	5.75	2.583	57.54	4.083	7.67	5.58	3.84
1.167	5.75	2.667	57.54	4.167	7.67	5.67	3.84
1.250	5.75	2.750	57.54	4.250	7.67	5.75	3.84
1.333	5.75	2.833	149.60	4.333	7.67	5.83	3.84
1.417	5.75	2.917	149.60	4.417	7.67	5.92	3.84
1.500	5.75	3.000	149.60	4.500	7.67	6.00	3.84

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 0.903 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 25.838
TOTAL RAINFALL (mm)= 95.900
RUNOFF COEFFICIENT = 0.269

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

CHICAGO STORM Ptotal= 79.45 mm	IDF curve parameters: A=1236.152 B= 4.699 C= 0.751 used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	5.93	1.17	40.22	2.17	13.20	3.17	6.98
0.33	6.74	1.33	164.22	2.33	11.37	3.33	6.51
0.50	7.85	1.50	51.92	2.50	10.03	3.50	6.11
0.67	9.50	1.67	28.58	2.67	9.00	3.67	5.77
0.83	12.27	1.83	20.23	2.83	8.19	3.83	5.46
1.00	18.04	2.00	15.88	3.00	7.53	4.00	5.19

CALIB NASHYD (0010) ID= 1 DT= 5.0 min	Area (ha)= 25.12 Curve Number (CN)= 52.6 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00

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--------------------   U.H. Tp(hrs)=   0.70

        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    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
              0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
              0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
              0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
              0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
              0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
              0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
              0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
              0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
              0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
              0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
              1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

    Unit Hyd Qpeak  (cms)=   1.371

    PEAK FLOW       (cms)=   0.581 (i)
    TIME TO PEAK    (hrs)=   2.250
    RUNOFF VOLUME    (mm)=  18.274
    TOTAL RAINFALL   (mm)=  79.453
    RUNOFF COEFFICIENT   =   0.230

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

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| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
--------------------                          C=   0.751
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.17    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
               0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
               0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
               0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
               0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
               1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


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| CALIB            |
| NASHYD   (  0011)|   Area     (ha)=   0.88   Curve Number    (CN)= 46.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
              0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
              0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
              0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
              0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
              0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
              0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
              0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
              0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
              0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
              0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
              1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

    Unit Hyd Qpeak  (cms)=   0.160

    PEAK FLOW       (cms)=   0.028 (i)
    TIME TO PEAK    (hrs)=   1.583
    RUNOFF VOLUME    (mm)=  13.100
    TOTAL RAINFALL   (mm)=  79.453
    RUNOFF COEFFICIENT   =   0.165

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

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| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
--------------------                          C=   0.751
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.17    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
               0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
               0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
               0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
               0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
               1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19


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| CALIB            |
| NASHYD   (  0012)|   Area     (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   8.00   # 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    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
              0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
              0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
              0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
              0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
              0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
              0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
              0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
              0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
              0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
              0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
              1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

    Unit Hyd Qpeak  (cms)=   0.063
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     PEAK FLOW       (cms)=   0.013 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=  16.123
     TOTAL RAINFALL   (mm)=  79.453
     RUNOFF COEFFICIENT   =   0.203

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

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| CALIB            |
| NASHYD   (  0040)|   Area    (ha)=   8.10   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

        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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

```
Unit Hyd Qpeak  (cms)=   0.524

PEAK FLOW       (cms)=   0.357 (i)
TIME TO PEAK    (hrs)=  12.500
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```
     RUNOFF VOLUME    (mm)=  38.790
     TOTAL RAINFALL   (mm)= 120.600
     RUNOFF COEFFICIENT   =   0.322

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\cbe81c21
| Ptotal=101.70 mm |    Comments: SCS II 12H_50YR
--------------------
                         Duration of storm    = 12.00 hrs
                         Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    2.54 |  3.25    4.07 |  6.25   18.31 |  9.25    3.56
                0.50    2.54 |  3.50    4.07 |  6.50   18.31 |  9.50    3.56
                0.75    2.54 |  3.75    4.07 |  6.75    8.14 |  9.75    3.56
                1.00    2.54 |  4.00    4.07 |  7.00    8.14 | 10.00    3.56
                1.25    2.54 |  4.25    6.10 |  7.25    6.10 | 10.25    2.03
                1.50    2.54 |  4.50    6.10 |  7.50    6.10 | 10.50    2.03
                1.75    2.54 |  4.75    8.14 |  7.75    6.10 | 10.75    2.03
                2.00    2.54 |  5.00    8.14 |  8.00    6.10 | 11.00    2.03
                2.25    3.05 |  5.25   12.20 |  8.25    3.56 | 11.25    2.03
                2.50    3.05 |  5.50   12.20 |  8.50    3.56 | 11.50    2.03
                2.75    3.05 |  5.75   48.82 |  8.75    3.56 | 11.75    2.03
                3.00    3.05 |  6.00  134.24 |  9.00    3.56 | 12.00    2.03

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--------------------
| CALIB            |
| NASHYD   (  0041)|   Area    (ha)=   8.10   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

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

                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    2.54 | 3.083    4.07 | 6.083   18.31 |  9.08    3.56
               0.167    2.54 | 3.167    4.07 | 6.167   18.31 |  9.17    3.56
               0.250    2.54 | 3.250    4.07 | 6.250   18.31 |  9.25    3.56
               0.333    2.54 | 3.333    4.07 | 6.333   18.31 |  9.33    3.56
               0.417    2.54 | 3.417    4.07 | 6.417   18.31 |  9.42    3.56
               0.500    2.54 | 3.500    4.07 | 6.500   18.31 |  9.50    3.56
               0.583    2.54 | 3.583    4.07 | 6.583    8.14 |  9.58    3.56
               0.667    2.54 | 3.667    4.07 | 6.667    8.14 |  9.67    3.56
               0.750    2.54 | 3.750    4.07 | 6.750    8.14 |  9.75    3.56
               0.833    2.54 | 3.833    4.07 | 6.833    8.14 |  9.83    3.56
               0.917    2.54 | 3.917    4.07 | 6.917    8.14 |  9.92    3.56
               1.000    2.54 | 4.000    4.07 | 7.000    8.14 | 10.00    3.56
               1.083    2.54 | 4.083    6.10 | 7.083    6.10 | 10.08    2.03
               1.167    2.54 | 4.167    6.10 | 7.167    6.10 | 10.17    2.03
               1.250    2.54 | 4.250    6.10 | 7.250    6.10 | 10.25    2.03
               1.333    2.54 | 4.333    6.10 | 7.333    6.10 | 10.33    2.03
               1.417    2.54 | 4.417    6.10 | 7.417    6.10 | 10.42    2.03
               1.500    2.54 | 4.500    6.10 | 7.500    6.10 | 10.50    2.03
               1.583    2.54 | 4.583    8.14 | 7.583    6.10 | 10.58    2.03
               1.667    2.54 | 4.667    8.14 | 7.667    6.10 | 10.67    2.03
               1.750    2.54 | 4.750    8.14 | 7.750    6.10 | 10.75    2.03
               1.833    2.54 | 4.833    8.14 | 7.833    6.10 | 10.83    2.03
               1.917    2.54 | 4.917    8.14 | 7.917    6.10 | 10.92    2.03
               2.000    2.54 | 5.000    8.14 | 8.000    6.10 | 11.00    2.03
               2.083    3.05 | 5.083   12.20 | 8.083    3.56 | 11.08    2.03
               2.167    3.05 | 5.167   12.20 | 8.167    3.56 | 11.17    2.03
               2.250    3.05 | 5.250   12.20 | 8.250    3.56 | 11.25    2.03
               2.333    3.05 | 5.333   12.20 | 8.333    3.56 | 11.33    2.03
               2.417    3.05 | 5.417   12.20 | 8.417    3.56 | 11.42    2.03
               2.500    3.05 | 5.500   12.20 | 8.500    3.56 | 11.50    2.03
               2.583    3.05 | 5.583   48.82 | 8.583    3.56 | 11.58    2.03
               2.667    3.05 | 5.667   48.82 | 8.667    3.56 | 11.67    2.03
               2.750    3.05 | 5.750   48.82 | 8.750    3.56 | 11.75    2.03
               2.833    3.05 | 5.833  134.24 | 8.833    3.56 | 11.83    2.03
               2.917    3.05 | 5.917  134.24 | 8.917    3.56 | 11.92    2.03
               3.000    3.05 | 6.000  134.24 | 9.000    3.56 | 12.00    2.03

     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.314 (i)
     TIME TO PEAK    (hrs)=   6.500
     RUNOFF VOLUME    (mm)=  28.719
     TOTAL RAINFALL   (mm)= 101.700
     RUNOFF COEFFICIENT   =   0.282

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\c45cd20f
| Ptotal= 95.90 mm |    Comments: SCS II 6H_50YR
--------------------
                         Duration of storm    =  6.00 hrs
                         Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    3.84 |  1.75    9.59 |  3.25   21.10 |  4.75    5.75
                0.50    3.84 |  2.00    9.59 |  3.50   21.10 |  5.00    5.75
                0.75    5.75 |  2.25   11.51 |  3.75    9.59 |  5.25    3.84
                1.00    5.75 |  2.50   11.51 |  4.00    9.59 |  5.50    3.84
                1.25    5.75 |  2.75   57.54 |  4.25    7.67 |  5.75    3.84
                1.50    5.75 |  3.00  149.60 |  4.50    7.67 |  6.00    3.84

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--------------------
| CALIB            |
| NASHYD   (  0042)|   Area    (ha)=   8.10   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

        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    3.84 | 1.583    9.59 | 3.083   21.10 |  4.58    5.75
               0.167    3.84 | 1.667    9.59 | 3.167   21.10 |  4.67    5.75
               0.250    3.84 | 1.750    9.59 | 3.250   21.10 |  4.75    5.75
               0.333    3.84 | 1.833    9.59 | 3.333   21.10 |  4.83    5.75
               0.417    3.84 | 1.917    9.59 | 3.417   21.10 |  4.92    5.75
               0.500    3.84 | 2.000    9.59 | 3.500   21.10 |  5.00    5.75
               0.583    5.75 | 2.083   11.51 | 3.583    9.59 |  5.08    3.84
               0.667    5.75 | 2.167   11.51 | 3.667    9.59 |  5.17    3.84
               0.750    5.75 | 2.250   11.51 | 3.750    9.59 |  5.25    3.84
               0.833    5.75 | 2.333   11.51 | 3.833    9.59 |  5.33    3.84
               0.917    5.75 | 2.417   11.51 | 3.917    9.59 |  5.42    3.84
               1.000    5.75 | 2.500   11.51 | 4.000    9.59 |  5.50    3.84
               1.083    5.75 | 2.583   57.54 | 4.083    7.67 |  5.58    3.84
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                1.167    5.75 | 2.667   57.54 | 4.167    7.67 |  5.67    3.84
                1.250    5.75 | 2.750   57.54 | 4.250    7.67 |  5.75    3.84
                1.333    5.75 | 2.833  149.60 | 4.333    7.67 |  5.83    3.84
                1.417    5.75 | 2.917  149.60 | 4.417    7.67 |  5.92    3.84
                1.500    5.75 | 3.000  149.60 | 4.500    7.67 |  6.00    3.84

     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.328 (i)
     TIME TO PEAK    (hrs)=   3.583
     RUNOFF VOLUME    (mm)=  25.837
     TOTAL RAINFALL   (mm)=  95.900
     RUNOFF COEFFICIENT   =   0.269

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1236.152
| Ptotal= 79.45 mm |                          B=   4.699
--------------------                          C=   0.751
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.17    5.93 |  1.17   40.22 |  2.17   13.20 |  3.17    6.98
                0.33    6.74 |  1.33  164.22 |  2.33   11.37 |  3.33    6.51
                0.50    7.85 |  1.50   51.92 |  2.50   10.03 |  3.50    6.11
                0.67    9.50 |  1.67   28.58 |  2.67    9.00 |  3.67    5.77
                0.83   12.27 |  1.83   20.23 |  2.83    8.19 |  3.83    5.46
                1.00   18.04 |  2.00   15.88 |  3.00    7.53 |  4.00    5.19

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0043)|   Area     (ha)=   8.10   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

         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    5.93 | 1.083   40.22 | 2.083   13.20 |  3.08    6.98
               0.167    5.93 | 1.167   40.22 | 2.167   13.20 |  3.17    6.98
               0.250    6.74 | 1.250  164.22 | 2.250   11.37 |  3.25    6.51
               0.333    6.74 | 1.333  164.22 | 2.333   11.37 |  3.33    6.51
               0.417    7.85 | 1.417   51.92 | 2.417   10.03 |  3.42    6.11
               0.500    7.85 | 1.500   51.92 | 2.500   10.03 |  3.50    6.11
               0.583    9.50 | 1.583   28.58 | 2.583    9.00 |  3.58    5.77
               0.667    9.50 | 1.667   28.58 | 2.667    9.00 |  3.67    5.77
               0.750   12.27 | 1.750   20.23 | 2.750    8.19 |  3.75    5.46
               0.833   12.27 | 1.833   20.23 | 2.833    8.19 |  3.83    5.46
               0.917   18.04 | 1.917   15.88 | 2.917    7.53 |  3.92    5.19
               1.000   18.04 | 2.000   15.88 | 3.000    7.53 |  4.00    5.19

     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.209 (i)
     TIME TO PEAK    (hrs)=   2.083
     RUNOFF VOLUME    (mm)=  18.273
     TOTAL RAINFALL   (mm)=  79.453
     RUNOFF COEFFICIENT   =   0.230

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

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       V    V   I    SSSSS  U   U    A    L
       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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\cbb76b94-4233-45e4-93a0-128bc6aed316\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\cbb76b94-4233-45e4-93a0-128bc6aed316\scen

DATE: 12-15-2018                          TIME: 09:08:11

USER:

COMMENTS: _____

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  ***********************************************
  ** SIMULATION : Run 06                       **
  ***********************************************

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\1bad87f9
| Ptotal=133.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    1.34 |  6.25    2.67 | 12.25   19.24 | 18.25    2.40
                0.50    1.34 |  6.50    2.67 | 12.50   19.24 | 18.50    2.40
                0.75    1.34 |  6.75    2.67 | 12.75    9.89 | 18.75    2.40
                1.00    1.34 |  7.00    2.67 | 13.00    9.89 | 19.00    2.40
                1.25    1.34 |  7.25    2.67 | 13.25    1.87 | 19.25    2.40
                1.50    1.34 |  7.50    2.67 | 13.50    1.87 | 19.50    2.40
                1.75    1.34 |  7.75    2.67 | 13.75   10.96 | 19.75    2.40
                2.00    2.40 |  8.00    2.67 | 14.00   10.96 | 20.00    2.40
```

2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB			
NASHYD (0001)	Area (ha)= 0.28	Curve Number (CN)= 51.0	
ID= 1 DT= 5.0 min	Ia (mm)= 8.00	# 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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Unit Hyd Qpeak (cms)= 0.063

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 42.524
TOTAL RAINFALL (mm)= 133.600
RUNOFF COEFFICIENT = 0.318

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60

3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB			
NASHYD (0002)	Area (ha)= 0.88	Curve Number (CN)= 46.0	
ID= 1 DT= 5.0 min	Ia (mm)= 10.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.21		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.074 (i)
TIME TO PEAK (hrs)= 12.083
RUNOFF VOLUME (mm)= 36.164
TOTAL RAINFALL (mm)= 133.600
RUNOFF COEFFICIENT = 0.271

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60

3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB			
NASHYD (0003)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 1.173 (i)
TIME TO PEAK (hrs)= 12.583
RUNOFF VOLUME (mm)= 46.261
TOTAL RAINFALL (mm)= 133.600
RUNOFF COEFFICIENT = 0.346

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\b2dbabe9
Ptotal=112.50 mm	Comments: SCS II 12H_100YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.81	3.25	4.50	6.25	20.25	9.25	3.94
0.50	2.81	3.50	4.50	6.50	20.25	9.50	3.94
0.75	2.81	3.75	4.50	6.75	9.00	9.75	3.94
1.00	2.81	4.00	4.50	7.00	9.00	10.00	3.94
1.25	2.81	4.25	6.75	7.25	6.75	10.25	2.25
1.50	2.81	4.50	6.75	7.50	6.75	10.50	2.25
1.75	2.81	4.75	9.00	7.75	6.75	10.75	2.25
2.00	2.81	5.00	9.00	8.00	6.75	11.00	2.25
2.25	3.37	5.25	13.50	8.25	3.94	11.25	2.25
2.50	3.37	5.50	13.50	8.50	3.94	11.50	2.25
2.75	3.37	5.75	54.00	8.75	3.94	11.75	2.25
3.00	3.37	6.00	148.50	9.00	3.94	12.00	2.25

CALIB			
NASHYD (0004)	Area (ha)= 0.28	Curve Number (CN)= 51.0	

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|ID= 1 DT= 5.0 min |    Ia      (mm)=   8.00   # 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	2.81	3.083	4.50	6.083	20.25	9.08	3.94
0.167	2.81	3.167	4.50	6.167	20.25	9.17	3.94
0.250	2.81	3.250	4.50	6.250	20.25	9.25	3.94
0.333	2.81	3.333	4.50	6.333	20.25	9.33	3.94
0.417	2.81	3.417	4.50	6.417	20.25	9.42	3.94
0.500	2.81	3.500	4.50	6.500	20.25	9.50	3.94
0.583	2.81	3.583	4.50	6.583	9.00	9.58	3.94
0.667	2.81	3.667	4.50	6.667	9.00	9.67	3.94
0.750	2.81	3.750	4.50	6.750	9.00	9.75	3.94
0.833	2.81	3.833	4.50	6.833	9.00	9.83	3.94
0.917	2.81	3.917	4.50	6.917	9.00	9.92	3.94
1.000	2.81	4.000	4.50	7.000	9.00	10.00	3.94
1.083	2.81	4.083	6.75	7.083	6.75	10.08	2.25
1.167	2.81	4.167	6.75	7.167	6.75	10.17	2.25
1.250	2.81	4.250	6.75	7.250	6.75	10.25	2.25
1.333	2.81	4.333	6.75	7.333	6.75	10.33	2.25
1.417	2.81	4.417	6.75	7.417	6.75	10.42	2.25
1.500	2.81	4.500	6.75	7.500	6.75	10.50	2.25
1.583	2.81	4.583	9.00	7.583	6.75	10.58	2.25
1.667	2.81	4.667	9.00	7.667	6.75	10.67	2.25
1.750	2.81	4.750	9.00	7.750	6.75	10.75	2.25
1.833	2.81	4.833	9.00	7.833	6.75	10.83	2.25
1.917	2.81	4.917	9.00	7.917	6.75	10.92	2.25
2.000	2.81	5.000	9.00	8.000	6.75	11.00	2.25
2.083	3.37	5.083	13.50	8.083	3.94	11.08	2.25
2.167	3.37	5.167	13.50	8.167	3.94	11.17	2.25
2.250	3.37	5.250	13.50	8.250	3.94	11.25	2.25
2.333	3.37	5.333	13.50	8.333	3.94	11.33	2.25
2.417	3.37	5.417	13.50	8.417	3.94	11.42	2.25
2.500	3.37	5.500	13.50	8.500	3.94	11.50	2.25
2.583	3.37	5.583	54.00	8.583	3.94	11.58	2.25
2.667	3.37	5.667	54.00	8.667	3.94	11.67	2.25
2.750	3.37	5.750	54.00	8.750	3.94	11.75	2.25
2.833	3.37	5.833	148.50	8.833	3.94	11.83	2.25
2.917	3.37	5.917	148.50	8.917	3.94	11.92	2.25
3.000	3.37	6.000	148.50	9.000	3.94	12.00	2.25

```
     Unit Hyd Qpeak  (cms)=   0.063

     PEAK FLOW       (cms)=   0.027 (i)
     TIME TO PEAK    (hrs)=   6.083
     RUNOFF VOLUME    (mm)=  31.218
     TOTAL RAINFALL   (mm)= 112.500
     RUNOFF COEFFICIENT   =   0.277

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\06dbffa2
| Ptotal=106.50 mm |    Comments: SCS II 6H_100YR
--------------------
                       Duration of storm    =  6.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	4.26	1.75	10.65	3.25	23.43	4.75	6.39
0.50	4.26	2.00	10.65	3.50	23.43	5.00	6.39
0.75	6.39	2.25	12.78	3.75	10.65	5.25	4.26
1.00	6.39	2.50	12.78	4.00	10.65	5.50	4.26
1.25	6.39	2.75	63.90	4.25	8.52	5.75	4.26
1.50	6.39	3.00	166.14	4.50	8.52	6.00	4.26

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| CALIB            |
| NASHYD   (  0005)|   Area     (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   8.00   # 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	4.26	1.583	10.65	3.083	23.43	4.58	6.39
0.167	4.26	1.667	10.65	3.167	23.43	4.67	6.39
0.250	4.26	1.750	10.65	3.250	23.43	4.75	6.39
0.333	4.26	1.833	10.65	3.333	23.43	4.83	6.39
0.417	4.26	1.917	10.65	3.417	23.43	4.92	6.39
0.500	4.26	2.000	10.65	3.500	23.43	5.00	6.39
0.583	6.39	2.083	12.78	3.583	10.65	5.08	4.26
0.667	6.39	2.167	12.78	3.667	10.65	5.17	4.26
0.750	6.39	2.250	12.78	3.750	10.65	5.25	4.26
0.833	6.39	2.333	12.78	3.833	10.65	5.33	4.26
0.917	6.39	2.417	12.78	3.917	10.65	5.42	4.26
1.000	6.39	2.500	12.78	4.000	10.65	5.50	4.26
1.083	6.39	2.583	63.90	4.083	8.52	5.58	4.26
1.167	6.39	2.667	63.90	4.167	8.52	5.67	4.26
1.250	6.39	2.750	63.90	4.250	8.52	5.75	4.26
1.333	6.39	2.833	166.14	4.333	8.52	5.83	4.26
1.417	6.39	2.917	166.14	4.417	8.52	5.92	4.26
1.500	6.39	3.000	166.14	4.500	8.52	6.00	4.26

```
     Unit Hyd Qpeak  (cms)=   0.063

     PEAK FLOW       (cms)=   0.029 (i)
     TIME TO PEAK    (hrs)=   3.083
     RUNOFF VOLUME    (mm)=  28.222
     TOTAL RAINFALL   (mm)= 106.500
     RUNOFF COEFFICIENT   =   0.265

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\b2dbabe9
| Ptotal=112.50 mm |    Comments: SCS II 12H_100YR
--------------------
                       Duration of storm    = 12.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.81	3.25	4.50	6.25	20.25	9.25	3.94
0.50	2.81	3.50	4.50	6.50	20.25	9.50	3.94
0.75	2.81	3.75	4.50	6.75	9.00	9.75	3.94
1.00	2.81	4.00	4.50	7.00	9.00	10.00	3.94
1.25	2.81	4.25	6.75	7.25	6.75	10.25	2.25
1.50	2.81	4.50	6.75	7.50	6.75	10.50	2.25
1.75	2.81	4.75	9.00	7.75	6.75	10.75	2.25

2.00	2.81	5.00	9.00	8.00	6.75	11.00	2.25
2.25	3.37	5.25	13.50	8.25	3.94	11.25	2.25
2.50	3.37	5.50	13.50	8.50	3.94	11.50	2.25
2.75	3.37	5.75	54.00	8.75	3.94	11.75	2.25
3.00	3.37	6.00	148.50	9.00	3.94	12.00	2.25

CALIB			
NASHYD (0006)	Area (ha)=	0.88	Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)=	10.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.21	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.81	3.083	4.50	6.083	20.25	9.08	3.94
0.167	2.81	3.167	4.50	6.167	20.25	9.17	3.94
0.250	2.81	3.250	4.50	6.250	20.25	9.25	3.94
0.333	2.81	3.333	4.50	6.333	20.25	9.33	3.94
0.417	2.81	3.417	4.50	6.417	20.25	9.42	3.94
0.500	2.81	3.500	4.50	6.500	20.25	9.50	3.94
0.583	2.81	3.583	4.50	6.583	9.00	9.58	3.94
0.667	2.81	3.667	4.50	6.667	9.00	9.67	3.94
0.750	2.81	3.750	4.50	6.750	9.00	9.75	3.94
0.833	2.81	3.833	4.50	6.833	9.00	9.83	3.94
0.917	2.81	3.917	4.50	6.917	9.00	9.92	3.94
1.000	2.81	4.000	4.50	7.000	9.00	10.00	3.94
1.083	2.81	4.083	6.75	7.083	6.75	10.08	2.25
1.167	2.81	4.167	6.75	7.167	6.75	10.17	2.25
1.250	2.81	4.250	6.75	7.250	6.75	10.25	2.25
1.333	2.81	4.333	6.75	7.333	6.75	10.33	2.25
1.417	2.81	4.417	6.75	7.417	6.75	10.42	2.25
1.500	2.81	4.500	6.75	7.500	6.75	10.50	2.25
1.583	2.81	4.583	9.00	7.583	6.75	10.58	2.25
1.667	2.81	4.667	9.00	7.667	6.75	10.67	2.25
1.750	2.81	4.750	9.00	7.750	6.75	10.75	2.25
1.833	2.81	4.833	9.00	7.833	6.75	10.83	2.25
1.917	2.81	4.917	9.00	7.917	6.75	10.92	2.25
2.000	2.81	5.000	9.00	8.000	6.75	11.00	2.25
2.083	3.37	5.083	13.50	8.083	3.94	11.08	2.25
2.167	3.37	5.167	13.50	8.167	3.94	11.17	2.25
2.250	3.37	5.250	13.50	8.250	3.94	11.25	2.25
2.333	3.37	5.333	13.50	8.333	3.94	11.33	2.25
2.417	3.37	5.417	13.50	8.417	3.94	11.42	2.25
2.500	3.37	5.500	13.50	8.500	3.94	11.50	2.25
2.583	3.37	5.583	54.00	8.583	3.94	11.58	2.25
2.667	3.37	5.667	54.00	8.667	3.94	11.67	2.25
2.750	3.37	5.750	54.00	8.750	3.94	11.75	2.25
2.833	3.37	5.833	148.50	8.833	3.94	11.83	2.25
2.917	3.37	5.917	148.50	8.917	3.94	11.92	2.25
3.000	3.37	6.000	148.50	9.000	3.94	12.00	2.25

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.064 (i)
TIME TO PEAK (hrs)= 6.083
RUNOFF VOLUME (mm)= 26.180
TOTAL RAINFALL (mm)= 112.500
RUNOFF COEFFICIENT = 0.233

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\06dbffa2
Ptotal=106.50 mm	Comments: SCS II 6H_100YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	4.26	1.75	10.65	3.25	23.43	4.75	6.39
0.50	4.26	2.00	10.65	3.50	23.43	5.00	6.39
0.75	6.39	2.25	12.78	3.75	10.65	5.25	4.26
1.00	6.39	2.50	12.78	4.00	10.65	5.50	4.26
1.25	6.39	2.75	63.90	4.25	8.52	5.75	4.26
1.50	6.39	3.00	166.14	4.50	8.52	6.00	4.26

CALIB			
NASHYD (0007)	Area (ha)=	0.88	Curve Number (CN)= 46.0
ID= 1 DT= 5.0 min	Ia (mm)=	10.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.21	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.26	1.583	10.65	3.083	23.43	4.58	6.39
0.167	4.26	1.667	10.65	3.167	23.43	4.67	6.39
0.250	4.26	1.750	10.65	3.250	23.43	4.75	6.39
0.333	4.26	1.833	10.65	3.333	23.43	4.83	6.39
0.417	4.26	1.917	10.65	3.417	23.43	4.92	6.39
0.500	4.26	2.000	10.65	3.500	23.43	5.00	6.39
0.583	6.39	2.083	12.78	3.583	10.65	5.08	4.26
0.667	6.39	2.167	12.78	3.667	10.65	5.17	4.26
0.750	6.39	2.250	12.78	3.750	10.65	5.25	4.26
0.833	6.39	2.333	12.78	3.833	10.65	5.33	4.26
0.917	6.39	2.417	12.78	3.917	10.65	5.42	4.26
1.000	6.39	2.500	12.78	4.000	10.65	5.50	4.26
1.083	6.39	2.583	63.90	4.083	8.52	5.58	4.26
1.167	6.39	2.667	63.90	4.167	8.52	5.67	4.26
1.250	6.39	2.750	63.90	4.250	8.52	5.75	4.26
1.333	6.39	2.833	166.14	4.333	8.52	5.83	4.26
1.417	6.39	2.917	166.14	4.417	8.52	5.92	4.26
1.500	6.39	3.000	166.14	4.500	8.52	6.00	4.26

Unit Hyd Qpeak (cms)= 0.160

PEAK FLOW (cms)= 0.067 (i)
TIME TO PEAK (hrs)= 3.083
RUNOFF VOLUME (mm)= 23.557
TOTAL RAINFALL (mm)= 106.500
RUNOFF COEFFICIENT = 0.221

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\b2dbabe9
Ptotal=112.50 mm	Comments: SCS II 12H_100YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.81	3.25	4.50	6.25	20.25	9.25	3.94
0.50	2.81	3.50	4.50	6.50	20.25	9.50	3.94
0.75	2.81	3.75	4.50	6.75	9.00	9.75	3.94
1.00	2.81	4.00	4.50	7.00	9.00	10.00	3.94
1.25	2.81	4.25	6.75	7.25	6.75	10.25	2.25
1.50	2.81	4.50	6.75	7.50	6.75	10.50	2.25
1.75	2.81	4.75	9.00	7.75	6.75	10.75	2.25
2.00	2.81	5.00	9.00	8.00	6.75	11.00	2.25
2.25	3.37	5.25	13.50	8.25	3.94	11.25	2.25
2.50	3.37	5.50	13.50	8.50	3.94	11.50	2.25
2.75	3.37	5.75	54.00	8.75	3.94	11.75	2.25
3.00	3.37	6.00	148.50	9.00	3.94	12.00	2.25

CALIB			
NASHYD (0008)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.81	3.083	4.50	6.083	20.25	9.08	3.94
0.167	2.81	3.167	4.50	6.167	20.25	9.17	3.94
0.250	2.81	3.250	4.50	6.250	20.25	9.25	3.94
0.333	2.81	3.333	4.50	6.333	20.25	9.33	3.94
0.417	2.81	3.417	4.50	6.417	20.25	9.42	3.94
0.500	2.81	3.500	4.50	6.500	20.25	9.50	3.94
0.583	2.81	3.583	4.50	6.583	9.00	9.58	3.94
0.667	2.81	3.667	4.50	6.667	9.00	9.67	3.94
0.750	2.81	3.750	4.50	6.750	9.00	9.75	3.94
0.833	2.81	3.833	4.50	6.833	9.00	9.83	3.94
0.917	2.81	3.917	4.50	6.917	9.00	9.92	3.94
1.000	2.81	4.000	4.50	7.000	9.00	10.00	3.94
1.083	2.81	4.083	6.75	7.083	6.75	10.08	2.25
1.167	2.81	4.167	6.75	7.167	6.75	10.17	2.25
1.250	2.81	4.250	6.75	7.250	6.75	10.25	2.25
1.333	2.81	4.333	6.75	7.333	6.75	10.33	2.25
1.417	2.81	4.417	6.75	7.417	6.75	10.42	2.25
1.500	2.81	4.500	6.75	7.500	6.75	10.50	2.25
1.583	2.81	4.583	9.00	7.583	6.75	10.58	2.25
1.667	2.81	4.667	9.00	7.667	6.75	10.67	2.25
1.750	2.81	4.750	9.00	7.750	6.75	10.75	2.25
1.833	2.81	4.833	9.00	7.833	6.75	10.83	2.25
1.917	2.81	4.917	9.00	7.917	6.75	10.92	2.25
2.000	2.81	5.000	9.00	8.000	6.75	11.00	2.25
2.083	3.37	5.083	13.50	8.083	3.94	11.08	2.25
2.167	3.37	5.167	13.50	8.167	3.94	11.17	2.25
2.250	3.37	5.250	13.50	8.250	3.94	11.25	2.25
2.333	3.37	5.333	13.50	8.333	3.94	11.33	2.25
2.417	3.37	5.417	13.50	8.417	3.94	11.42	2.25
2.500	3.37	5.500	13.50	8.500	3.94	11.50	2.25
2.583	3.37	5.583	54.00	8.583	3.94	11.58	2.25
2.667	3.37	5.667	54.00	8.667	3.94	11.67	2.25
2.750	3.37	5.750	54.00	8.750	3.94	11.75	2.25
2.833	3.37	5.833	148.50	8.833	3.94	11.83	2.25
2.917	3.37	5.917	148.50	8.917	3.94	11.92	2.25
3.000	3.37	6.000	148.50	9.000	3.94	12.00	2.25

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 1.037 (i)
TIME TO PEAK (hrs)= 6.667
RUNOFF VOLUME (mm)= 34.353
TOTAL RAINFALL (mm)= 112.500
RUNOFF COEFFICIENT = 0.305

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\06dbffa2
Ptotal=106.50 mm	Comments: SCS II 6H_100YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	4.26	1.75	10.65	3.25	23.43	4.75	6.39
0.50	4.26	2.00	10.65	3.50	23.43	5.00	6.39
0.75	6.39	2.25	12.78	3.75	10.65	5.25	4.26
1.00	6.39	2.50	12.78	4.00	10.65	5.50	4.26
1.25	6.39	2.75	63.90	4.25	8.52	5.75	4.26
1.50	6.39	3.00	166.14	4.50	8.52	6.00	4.26

CALIB			
NASHYD (0009)	Area (ha)= 25.12	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.70		

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	4.26	1.583	10.65	3.083	23.43	4.58	6.39
0.167	4.26	1.667	10.65	3.167	23.43	4.67	6.39
0.250	4.26	1.750	10.65	3.250	23.43	4.75	6.39
0.333	4.26	1.833	10.65	3.333	23.43	4.83	6.39
0.417	4.26	1.917	10.65	3.417	23.43	4.92	6.39
0.500	4.26	2.000	10.65	3.500	23.43	5.00	6.39
0.583	6.39	2.083	12.78	3.583	10.65	5.08	4.26
0.667	6.39	2.167	12.78	3.667	10.65	5.17	4.26
0.750	6.39	2.250	12.78	3.750	10.65	5.25	4.26
0.833	6.39	2.333	12.78	3.833	10.65	5.33	4.26
0.917	6.39	2.417	12.78	3.917	10.65	5.42	4.26
1.000	6.39	2.500	12.78	4.000	10.65	5.50	4.26
1.083	6.39	2.583	63.90	4.083	8.52	5.58	4.26
1.167	6.39	2.667	63.90	4.167	8.52	5.67	4.26
1.250	6.39	2.750	63.90	4.250	8.52	5.75	4.26
1.333	6.39	2.833	166.14	4.333	8.52	5.83	4.26
1.417	6.39	2.917	166.14	4.417	8.52	5.92	4.26
1.500	6.39	3.000	166.14	4.500	8.52	6.00	4.26

Unit Hyd Qpeak (cms)= 1.371

PEAK FLOW (cms)= 1.094 (i)
TIME TO PEAK (hrs)= 3.667
RUNOFF VOLUME (mm)= 31.182
TOTAL RAINFALL (mm)= 106.500
RUNOFF COEFFICIENT = 0.293

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
--------------------                          C=   0.759
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	6.41	1.17	45.22	2.17	14.50	3.17	7.56
0.33	7.29	1.33	180.15	2.33	12.44	3.33	7.04
0.50	8.52	1.50	58.54	2.50	10.94	3.50	6.60
0.67	10.36	1.67	31.96	2.67	9.80	3.67	6.22
0.83	13.45	1.83	22.45	2.83	8.90	3.83	5.89
1.00	19.96	2.00	17.52	3.00	8.16	4.00	5.59

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--------------------
| CALIB            |
| NASHYD   (  0010)|   Area     (ha)=  25.12   Curve Number    (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.70

        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	6.41	1.083	45.22	2.083	14.50	3.08	7.56
0.167	6.41	1.167	45.22	2.167	14.50	3.17	7.56
0.250	7.29	1.250	180.15	2.250	12.44	3.25	7.04
0.333	7.29	1.333	180.15	2.333	12.44	3.33	7.04
0.417	8.52	1.417	58.54	2.417	10.94	3.42	6.60
0.500	8.52	1.500	58.54	2.500	10.94	3.50	6.60
0.583	10.36	1.583	31.96	2.583	9.80	3.58	6.22
0.667	10.36	1.667	31.96	2.667	9.80	3.67	6.22
0.750	13.45	1.750	22.45	2.750	8.90	3.75	5.89
0.833	13.45	1.833	22.45	2.833	8.90	3.83	5.89
0.917	19.96	1.917	17.52	2.917	8.16	3.92	5.59
1.000	19.96	2.000	17.52	3.000	8.16	4.00	5.59

```
    Unit Hyd Qpeak  (cms)=   1.371

    PEAK FLOW       (cms)=   0.705 (i)
    TIME TO PEAK    (hrs)=   2.250
    RUNOFF VOLUME    (mm)=  21.894
    TOTAL RAINFALL   (mm)=  87.580
    RUNOFF COEFFICIENT   =   0.250

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
--------------------                          C=   0.759
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	6.41	1.17	45.22	2.17	14.50	3.17	7.56
0.33	7.29	1.33	180.15	2.33	12.44	3.33	7.04
0.50	8.52	1.50	58.54	2.50	10.94	3.50	6.60
0.67	10.36	1.67	31.96	2.67	9.80	3.67	6.22
0.83	13.45	1.83	22.45	2.83	8.90	3.83	5.89
1.00	19.96	2.00	17.52	3.00	8.16	4.00	5.59

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--------------------
| CALIB            |
| NASHYD   (  0011)|   Area     (ha)=   0.88   Curve Number    (CN)= 46.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=  10.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.21

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.41	1.083	45.22	2.083	14.50	3.08	7.56
0.167	6.41	1.167	45.22	2.167	14.50	3.17	7.56
0.250	7.29	1.250	180.15	2.250	12.44	3.25	7.04
0.333	7.29	1.333	180.15	2.333	12.44	3.33	7.04
0.417	8.52	1.417	58.54	2.417	10.94	3.42	6.60
0.500	8.52	1.500	58.54	2.500	10.94	3.50	6.60
0.583	10.36	1.583	31.96	2.583	9.80	3.58	6.22
0.667	10.36	1.667	31.96	2.667	9.80	3.67	6.22
0.750	13.45	1.750	22.45	2.750	8.90	3.75	5.89
0.833	13.45	1.833	22.45	2.833	8.90	3.83	5.89
0.917	19.96	1.917	17.52	2.917	8.16	3.92	5.59
1.000	19.96	2.000	17.52	3.000	8.16	4.00	5.59

```
    Unit Hyd Qpeak  (cms)=   0.160

    PEAK FLOW       (cms)=   0.035 (i)
    TIME TO PEAK    (hrs)=   1.583
    RUNOFF VOLUME    (mm)=  15.992
    TOTAL RAINFALL   (mm)=  87.580
    RUNOFF COEFFICIENT   =   0.183

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

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--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
--------------------                          C=   0.759
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	6.41	1.17	45.22	2.17	14.50	3.17	7.56
0.33	7.29	1.33	180.15	2.33	12.44	3.33	7.04
0.50	8.52	1.50	58.54	2.50	10.94	3.50	6.60
0.67	10.36	1.67	31.96	2.67	9.80	3.67	6.22
0.83	13.45	1.83	22.45	2.83	8.90	3.83	5.89
1.00	19.96	2.00	17.52	3.00	8.16	4.00	5.59

```
| CALIB            |
| NASHYD   (  0012)|   Area     (ha)=   0.28   Curve Number    (CN)= 51.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   8.00   # 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	6.41	1.083	45.22	2.083	14.50	3.08	7.56
0.167	6.41	1.167	45.22	2.167	14.50	3.17	7.56
0.250	7.29	1.250	180.15	2.250	12.44	3.25	7.04
0.333	7.29	1.333	180.15	2.333	12.44	3.33	7.04
0.417	8.52	1.417	58.54	2.417	10.94	3.42	6.60
0.500	8.52	1.500	58.54	2.500	10.94	3.50	6.60
0.583	10.36	1.583	31.96	2.583	9.80	3.58	6.22
0.667	10.36	1.667	31.96	2.667	9.80	3.67	6.22
0.750	13.45	1.750	22.45	2.750	8.90	3.75	5.89
0.833	13.45	1.833	22.45	2.833	8.90	3.83	5.89
0.917	19.96	1.917	17.52	2.917	8.16	3.92	5.59
1.000	19.96	2.000	17.52	3.000	8.16	4.00	5.59

```
     Unit Hyd Qpeak  (cms)=   0.063

     PEAK FLOW       (cms)=   0.016 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=  19.497
     TOTAL RAINFALL   (mm)=  87.580
     RUNOFF COEFFICIENT   =   0.223

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

```
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              1ee55f52-15a5-43d4-8e3e-37fe53d20538\1bad87f9
| Ptotal=133.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
                     Duration of storm    = 24.00 hrs
                     Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

```
| CALIB            |
| NASHYD   (  0040)|   Area     (ha)=   8.10   Curve Number    (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
                     U.H. Tp(hrs)=   0.59
```

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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60

4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.428 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 46.260
TOTAL RAINFALL (mm)= 133.600
RUNOFF COEFFICIENT = 0.346

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\b2dbabe9
Ptotal=112.50 mm	Comments: SCS II 12H_100YR

Duration of storm = 12.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	2.81	3.25	4.50	6.25	20.25	9.25	3.94
0.50	2.81	3.50	4.50	6.50	20.25	9.50	3.94
0.75	2.81	3.75	4.50	6.75	9.00	9.75	3.94
1.00	2.81	4.00	4.50	7.00	9.00	10.00	3.94
1.25	2.81	4.25	6.75	7.25	6.75	10.25	2.25
1.50	2.81	4.50	6.75	7.50	6.75	10.50	2.25
1.75	2.81	4.75	9.00	7.75	6.75	10.75	2.25
2.00	2.81	5.00	9.00	8.00	6.75	11.00	2.25
2.25	3.37	5.25	13.50	8.25	3.94	11.25	2.25
2.50	3.37	5.50	13.50	8.50	3.94	11.50	2.25
2.75	3.37	5.75	54.00	8.75	3.94	11.75	2.25
3.00	3.37	6.00	148.50	9.00	3.94	12.00	2.25

CALIB			
NASHYD (0041)	Area (ha)= 8.10	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.59		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.81	3.083	4.50	6.083	20.25	9.08	3.94
0.167	2.81	3.167	4.50	6.167	20.25	9.17	3.94
0.250	2.81	3.250	4.50	6.250	20.25	9.25	3.94
0.333	2.81	3.333	4.50	6.333	20.25	9.33	3.94
0.417	2.81	3.417	4.50	6.417	20.25	9.42	3.94
0.500	2.81	3.500	4.50	6.500	20.25	9.50	3.94
0.583	2.81	3.583	4.50	6.583	9.00	9.58	3.94
0.667	2.81	3.667	4.50	6.667	9.00	9.67	3.94
0.750	2.81	3.750	4.50	6.750	9.00	9.75	3.94
0.833	2.81	3.833	4.50	6.833	9.00	9.83	3.94
0.917	2.81	3.917	4.50	6.917	9.00	9.92	3.94
1.000	2.81	4.000	4.50	7.000	9.00	10.00	3.94
1.083	2.81	4.083	6.75	7.083	6.75	10.08	2.25
1.167	2.81	4.167	6.75	7.167	6.75	10.17	2.25
1.250	2.81	4.250	6.75	7.250	6.75	10.25	2.25
1.333	2.81	4.333	6.75	7.333	6.75	10.33	2.25
1.417	2.81	4.417	6.75	7.417	6.75	10.42	2.25
1.500	2.81	4.500	6.75	7.500	6.75	10.50	2.25
1.583	2.81	4.583	9.00	7.583	6.75	10.58	2.25
1.667	2.81	4.667	9.00	7.667	6.75	10.67	2.25
1.750	2.81	4.750	9.00	7.750	6.75	10.75	2.25
1.833	2.81	4.833	9.00	7.833	6.75	10.83	2.25
1.917	2.81	4.917	9.00	7.917	6.75	10.92	2.25
2.000	2.81	5.000	9.00	8.000	6.75	11.00	2.25
2.083	3.37	5.083	13.50	8.083	3.94	11.08	2.25
2.167	3.37	5.167	13.50	8.167	3.94	11.17	2.25
2.250	3.37	5.250	13.50	8.250	3.94	11.25	2.25
2.333	3.37	5.333	13.50	8.333	3.94	11.33	2.25
2.417	3.37	5.417	13.50	8.417	3.94	11.42	2.25
2.500	3.37	5.500	13.50	8.500	3.94	11.50	2.25
2.583	3.37	5.583	54.00	8.583	3.94	11.58	2.25
2.667	3.37	5.667	54.00	8.667	3.94	11.67	2.25
2.750	3.37	5.750	54.00	8.750	3.94	11.75	2.25
2.833	3.37	5.833	148.50	8.833	3.94	11.83	2.25
2.917	3.37	5.917	148.50	8.917	3.94	11.92	2.25
3.000	3.37	6.000	148.50	9.000	3.94	12.00	2.25

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.377 (i)
TIME TO PEAK (hrs)= 6.500
RUNOFF VOLUME (mm)= 34.353
TOTAL RAINFALL (mm)= 112.500
RUNOFF COEFFICIENT = 0.305

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\1ee55f52-15a5-43d4-8e3e-37fe53d20538\06dbffa2
Ptotal=106.50 mm	Comments: SCS II 6H_100YR

Duration of storm = 6.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	4.26	1.75	10.65	3.25	23.43	4.75	6.39
0.50	4.26	2.00	10.65	3.50	23.43	5.00	6.39
0.75	6.39	2.25	12.78	3.75	10.65	5.25	4.26
1.00	6.39	2.50	12.78	4.00	10.65	5.50	4.26
1.25	6.39	2.75	63.90	4.25	8.52	5.75	4.26
1.50	6.39	3.00	166.14	4.50	8.52	6.00	4.26

```
| CALIB            |
| NASHYD   (  0042)|   Area    (ha)=   8.10   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

        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	4.26	1.583	10.65	3.083	23.43	4.58	6.39
0.167	4.26	1.667	10.65	3.167	23.43	4.67	6.39
0.250	4.26	1.750	10.65	3.250	23.43	4.75	6.39
0.333	4.26	1.833	10.65	3.333	23.43	4.83	6.39
0.417	4.26	1.917	10.65	3.417	23.43	4.92	6.39
0.500	4.26	2.000	10.65	3.500	23.43	5.00	6.39
0.583	6.39	2.083	12.78	3.583	10.65	5.08	4.26
0.667	6.39	2.167	12.78	3.667	10.65	5.17	4.26
0.750	6.39	2.250	12.78	3.750	10.65	5.25	4.26
0.833	6.39	2.333	12.78	3.833	10.65	5.33	4.26
0.917	6.39	2.417	12.78	3.917	10.65	5.42	4.26
1.000	6.39	2.500	12.78	4.000	10.65	5.50	4.26
1.083	6.39	2.583	63.90	4.083	8.52	5.58	4.26
1.167	6.39	2.667	63.90	4.167	8.52	5.67	4.26
1.250	6.39	2.750	63.90	4.250	8.52	5.75	4.26
1.333	6.39	2.833	166.14	4.333	8.52	5.83	4.26
1.417	6.39	2.917	166.14	4.417	8.52	5.92	4.26
1.500	6.39	3.000	166.14	4.500	8.52	6.00	4.26

```
    Unit Hyd Qpeak  (cms)=   0.524

    PEAK FLOW       (cms)=   0.398 (i)
    TIME TO PEAK    (hrs)=   3.583
    RUNOFF VOLUME    (mm)=  31.181
    TOTAL RAINFALL   (mm)= 106.500
    RUNOFF COEFFICIENT   =   0.293

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

```
| CHICAGO STORM    |    IDF curve parameters: A=1426.408
| Ptotal= 87.58 mm |                          B=   5.273
--------------------                          C=   0.759
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 10.00 min
                       Time to peak ratio =  0.33
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	6.41	1.17	45.22	2.17	14.50	3.17	7.56
0.33	7.29	1.33	180.15	2.33	12.44	3.33	7.04
0.50	8.52	1.50	58.54	2.50	10.94	3.50	6.60
0.67	10.36	1.67	31.96	2.67	9.80	3.67	6.22
0.83	13.45	1.83	22.45	2.83	8.90	3.83	5.89
1.00	19.96	2.00	17.52	3.00	8.16	4.00	5.59

```
| CALIB            |
| NASHYD   (  0043)|   Area    (ha)=   8.10   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

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

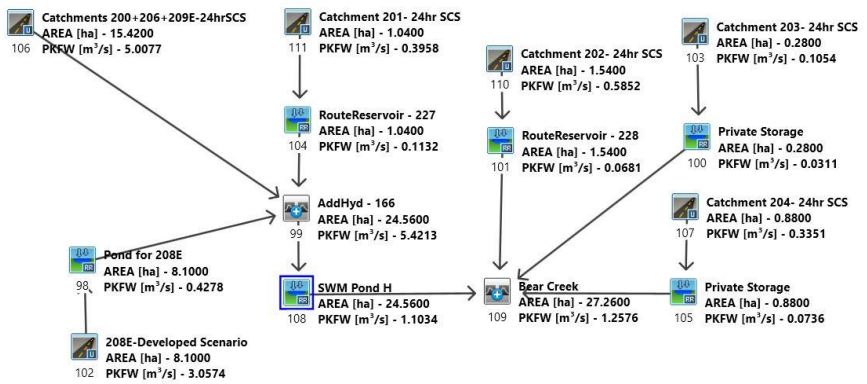
---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	6.41	1.083	45.22	2.083	14.50	3.08	7.56
0.167	6.41	1.167	45.22	2.167	14.50	3.17	7.56
0.250	7.29	1.250	180.15	2.250	12.44	3.25	7.04
0.333	7.29	1.333	180.15	2.333	12.44	3.33	7.04
0.417	8.52	1.417	58.54	2.417	10.94	3.42	6.60
0.500	8.52	1.500	58.54	2.500	10.94	3.50	6.60
0.583	10.36	1.583	31.96	2.583	9.80	3.58	6.22
0.667	10.36	1.667	31.96	2.667	9.80	3.67	6.22
0.750	13.45	1.750	22.45	2.750	8.90	3.75	5.89
0.833	13.45	1.833	22.45	2.833	8.90	3.83	5.89
0.917	19.96	1.917	17.52	2.917	8.16	3.92	5.59
1.000	19.96	2.000	17.52	3.000	8.16	4.00	5.59

```
    Unit Hyd Qpeak  (cms)=   0.524

    PEAK FLOW       (cms)=   0.254 (i)
    TIME TO PEAK    (hrs)=   2.083
    RUNOFF VOLUME    (mm)=  21.893
    TOTAL RAINFALL   (mm)=  87.580
    RUNOFF COEFFICIENT   =   0.250

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



SCHAEFFERS CONSULTING ENGINEERS

Visual OTTHYMO™ Schematic
POST-DEVELOPMENT STORAGE
(ULTIMATE CONDITION)
(24 HR SCS)

Job #: 2017-4560 | **Date: DECEMBER 2018**

POST-DEVELOPMENT-ULTIMATE-24HOUR SCS

```
==============================================================================
====================

       V    V   I    SSSSS  U   U    A    L
       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: 12-15-2018                          TIME: 09:11:16

USER:


COMMENTS: _____________________________________________________

------------------------------------------------------------------------------
----------------------
  ***********************************************
  ** SIMULATION : Run 01                       **
  ***********************************************

--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
--------------------
                         Duration of storm    = 24.00 hrs
                         Mass curve time step = 15.00 min

              TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
              0.50    0.55 |  6.50    1.10 | 12.50    7.92 | 18.50    0.99
              0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
              1.00    0.55 |  7.00    1.10 | 13.00    4.07 | 19.00    0.99
              1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
              1.50    0.55 |  7.50    1.10 | 13.50    0.77 | 19.50    0.99
              1.75    0.55 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
              2.00    0.99 |  8.00    1.10 | 14.00    4.51 | 20.00    0.99
```

2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB	
STANDHYD (0102)	Area (ha)= 8.10
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	6.08	2.03
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	232.38	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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Max.Eff.Inten.	(mm/hr)=	60.72	37.05	
over	(min)	5.00	20.00	
Storage Coeff.	(min)=	5.17 (ii)	15.67 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	20.00	
Unit Hyd. peak	(cms)=	0.21	0.07	
				TOTALS
PEAK FLOW	(cms)=	0.99	0.12	1.077 (iii)
TIME TO PEAK	(hrs)=	12.00	12.17	12.00
RUNOFF VOLUME	(mm)=	54.00	29.11	47.78
TOTAL RAINFALL	(mm)=	55.00	55.00	55.00
RUNOFF COEFFICIENT	=	0.98	0.53	0.87

(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.

RESERVOIR(0098)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2080	0.4120
	0.0145	0.2500	0.2900	0.4890

```
                        0.0790     0.2651   |   0.3570      0.5441
                        0.1510     0.3505   |   0.4280      0.5972

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0102)      8.100     1.077     12.00      47.78
   OUTFLOW: ID= 1 (  0098)      8.100     0.078     13.00      46.20

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  7.24
                  TIME SHIFT OF PEAK FLOW         (min)= 60.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2651

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
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                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
                0.50    0.55 |  6.50    1.10 | 12.50    7.92 | 18.50    0.99
                0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
                1.00    0.55 |  7.00    1.10 | 13.00    4.07 | 19.00    0.99
                1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
                1.50    0.55 |  7.50    1.10 | 13.50    0.77 | 19.50    0.99
                1.75    0.55 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
                2.00    0.99 |  8.00    1.10 | 14.00    4.51 | 20.00    0.99
                2.25    0.72 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
                2.50    0.71 |  8.50    1.48 | 14.50    1.65 | 20.50    0.66
                2.75    0.72 |  8.75    1.49 | 14.75    1.65 | 20.75    0.66
                3.00    0.71 |  9.00    1.49 | 15.00    1.65 | 21.00    0.66
                3.25    0.71 |  9.25    1.76 | 15.25    1.65 | 21.25    0.66
                3.50    0.71 |  9.50    1.76 | 15.50    1.65 | 21.50    0.66
                3.75    0.72 |  9.75    1.98 | 15.75    1.65 | 21.75    0.66
                4.00    0.71 | 10.00    1.98 | 16.00    1.65 | 22.00    0.66
                4.25    0.88 | 10.25    2.53 | 16.25    0.99 | 22.25    0.66
                4.50    0.88 | 10.50    2.53 | 16.50    0.99 | 22.50    0.66
                4.75    0.88 | 10.75    3.41 | 16.75    0.99 | 22.75    0.66
                5.00    0.88 | 11.00    3.41 | 17.00    0.99 | 23.00    0.66
                5.25    0.88 | 11.25    5.28 | 17.25    0.99 | 23.25    0.66
                5.50    0.88 | 11.50    5.28 | 17.50    0.99 | 23.50    0.66
                5.75    0.88 | 11.75   22.88 | 17.75    0.99 | 23.75    0.66
                6.00    0.88 | 12.00   60.72 | 18.00    0.99 | 24.00    0.66

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| CALIB            |
| STANDHYD (  0106)|   Area    (ha)=  15.42
|ID= 1 DT= 5.0 min |   Total Imp(%)=  58.00   Dir. Conn.(%)=  58.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.94         6.48
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     320.62        40.00
     Mannings n           =      0.013        0.250

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

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.55 |  6.083    1.10 | 12.083    7.93 |  18.08    0.99
0.167    0.55 |  6.167    1.10 | 12.167    7.92 |  18.17    0.99
0.250    0.55 |  6.250    1.10 | 12.250    7.92 |  18.25    0.99
0.333    0.55 |  6.333    1.10 | 12.333    7.92 |  18.33    0.99
0.417    0.55 |  6.417    1.10 | 12.417    7.92 |  18.42    0.99
0.500    0.55 |  6.500    1.10 | 12.500    7.92 |  18.50    0.99
0.583    0.55 |  6.583    1.10 | 12.583    4.07 |  18.58    0.99
0.667    0.55 |  6.667    1.10 | 12.667    4.07 |  18.67    0.99
0.750    0.55 |  6.750    1.10 | 12.750    4.07 |  18.75    0.99
0.833    0.55 |  6.833    1.10 | 12.833    4.07 |  18.83    0.99
0.917    0.55 |  6.917    1.10 | 12.917    4.07 |  18.92    0.99
1.000    0.55 |  7.000    1.10 | 13.000    4.07 |  19.00    0.99
1.083    0.55 |  7.083    1.10 | 13.083    0.77 |  19.08    0.99
1.167    0.55 |  7.167    1.10 | 13.167    0.77 |  19.17    0.99
1.250    0.55 |  7.250    1.10 | 13.250    0.77 |  19.25    0.99
1.333    0.55 |  7.333    1.10 | 13.333    0.77 |  19.33    0.99
1.417    0.55 |  7.417    1.10 | 13.417    0.77 |  19.42    0.99
1.500    0.55 |  7.500    1.10 | 13.500    0.77 |  19.50    0.99
1.583    0.55 |  7.583    1.10 | 13.583    4.51 |  19.58    0.99
1.667    0.55 |  7.667    1.10 | 13.667    4.51 |  19.67    0.99
1.750    0.55 |  7.750    1.10 | 13.750    4.51 |  19.75    0.99
1.833    0.99 |  7.833    1.10 | 13.833    4.51 |  19.83    0.99
1.917    0.99 |  7.917    1.10 | 13.917    4.51 |  19.92    0.99
2.000    0.99 |  8.000    1.10 | 14.000    4.51 |  20.00    0.99
2.083    0.72 |  8.083    1.49 | 14.083    1.65 |  20.08    0.66
2.167    0.72 |  8.167    1.49 | 14.167    1.65 |  20.17    0.66
2.250    0.72 |  8.250    1.48 | 14.250    1.65 |  20.25    0.66
2.333    0.71 |  8.333    1.48 | 14.333    1.65 |  20.33    0.66
2.417    0.71 |  8.417    1.48 | 14.417    1.65 |  20.42    0.66
2.500    0.71 |  8.500    1.48 | 14.500    1.65 |  20.50    0.66
2.583    0.71 |  8.583    1.49 | 14.583    1.65 |  20.58    0.66
2.667    0.72 |  8.667    1.49 | 14.667    1.65 |  20.67    0.66
2.750    0.72 |  8.750    1.48 | 14.750    1.65 |  20.75    0.66
2.833    0.71 |  8.833    1.49 | 14.833    1.65 |  20.83    0.66
2.917    0.71 |  8.917    1.49 | 14.917    1.65 |  20.92    0.66
3.000    0.71 |  9.000    1.49 | 15.000    1.65 |  21.00    0.66
3.083    0.71 |  9.083    1.76 | 15.083    1.65 |  21.08    0.66
3.167    0.71 |  9.167    1.76 | 15.167    1.65 |  21.17    0.66
3.250    0.71 |  9.250    1.76 | 15.250    1.65 |  21.25    0.66
3.333    0.71 |  9.333    1.76 | 15.333    1.65 |  21.33    0.66
3.417    0.71 |  9.417    1.76 | 15.417    1.65 |  21.42    0.66
3.500    0.71 |  9.500    1.76 | 15.500    1.65 |  21.50    0.66
3.583    0.71 |  9.583    1.98 | 15.583    1.65 |  21.58    0.66
3.667    0.72 |  9.667    1.98 | 15.667    1.65 |  21.67    0.66
3.750    0.72 |  9.750    1.98 | 15.750    1.65 |  21.75    0.66
3.833    0.71 |  9.833    1.98 | 15.833    1.65 |  21.83    0.66
3.917    0.71 |  9.917    1.98 | 15.917    1.65 |  21.92    0.66
4.000    0.71 | 10.000    1.98 | 16.000    1.65 |  22.00    0.66
4.083    0.88 | 10.083    2.53 | 16.083    0.99 |  22.08    0.66
4.167    0.88 | 10.167    2.53 | 16.167    0.99 |  22.17    0.66
4.250    0.88 | 10.250    2.53 | 16.250    0.99 |  22.25    0.66
4.333    0.88 | 10.333    2.53 | 16.333    0.99 |  22.33    0.66
4.417    0.88 | 10.417    2.53 | 16.417    0.99 |  22.42    0.66
4.500    0.88 | 10.500    2.53 | 16.500    0.99 |  22.50    0.66
4.583    0.88 | 10.583    3.41 | 16.583    0.99 |  22.58    0.66
4.667    0.88 | 10.667    3.41 | 16.667    0.99 |  22.67    0.66
4.750    0.88 | 10.750    3.41 | 16.750    0.99 |  22.75    0.66
4.833    0.88 | 10.833    3.41 | 16.833    0.99 |  22.83    0.66
4.917    0.88 | 10.917    3.41 | 16.917    0.99 |  22.92    0.66
5.000    0.88 | 11.000    3.41 | 17.000    0.99 |  23.00    0.66
5.083    0.88 | 11.083    5.28 | 17.083    0.99 |  23.08    0.66
5.167    0.88 | 11.167    5.28 | 17.167    0.99 |  23.17    0.66
5.250    0.88 | 11.250    5.28 | 17.250    0.99 |  23.25    0.66
5.333    0.88 | 11.333    5.28 | 17.333    0.99 |  23.33    0.66
5.417    0.88 | 11.417    5.28 | 17.417    0.99 |  23.42    0.66
5.500    0.88 | 11.500    5.28 | 17.500    0.99 |  23.50    0.66
5.583    0.88 | 11.583   22.88 | 17.583    0.99 |  23.58    0.66
5.667    0.88 | 11.667   22.88 | 17.667    0.99 |  23.67    0.66
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5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Max.Eff.Inten.(mm/hr)=		60.72	31.99
over (min)		5.00	20.00
Storage Coeff. (min)=		5.10 (ii)	16.23 (ii)
Unit Hyd. Tpeak (min)=		5.00	20.00
Unit Hyd. peak (cms)=		0.21	0.06
			TOTALS
PEAK FLOW	(cms)=	1.46	0.33 1.695 (iii)
TIME TO PEAK	(hrs)=	12.00	12.17 12.00
RUNOFF VOLUME	(mm)=	54.00	25.31 41.95
TOTAL RAINFALL	(mm)=	55.00	55.00 55.00
RUNOFF COEFFICIENT	=	0.98	0.46 0.76

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

MASS STORM	Filename: C:\Users\ssoumik\AppD ata\Local\Temp\ 053abc7c-95d9-4419-94cc-b08f725a5301\a3457ff2
Ptotal= 55.00 mm	Comments: SCS II 24H_2YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.55	6.25	1.10	12.25	7.92	18.25	0.99
0.50	0.55	6.50	1.10	12.50	7.92	18.50	0.99
0.75	0.55	6.75	1.10	12.75	4.07	18.75	0.99
1.00	0.55	7.00	1.10	13.00	4.07	19.00	0.99
1.25	0.55	7.25	1.10	13.25	0.77	19.25	0.99
1.50	0.55	7.50	1.10	13.50	0.77	19.50	0.99
1.75	0.55	7.75	1.10	13.75	4.51	19.75	0.99
2.00	0.99	8.00	1.10	14.00	4.51	20.00	0.99
2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB			
STANDHYD (0111)	Area (ha)=	1.04	
ID= 1 DT= 5.0 min	Total Imp(%)=	75.00	Dir. Conn.(%)= 75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.78	0.26
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	2.00	2.00
Length (m)=	83.27	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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66

```
               4.750    0.88 |10.750    3.41 |16.750    0.99 | 22.75    0.66
               4.833    0.88 |10.833    3.41 |16.833    0.99 | 22.83    0.66
               4.917    0.88 |10.917    3.41 |16.917    0.99 | 22.92    0.66
               5.000    0.88 |11.000    3.41 |17.000    0.99 | 23.00    0.66
               5.083    0.88 |11.083    5.28 |17.083    0.99 | 23.08    0.66
               5.167    0.88 |11.167    5.28 |17.167    0.99 | 23.17    0.66
               5.250    0.88 |11.250    5.28 |17.250    0.99 | 23.25    0.66
               5.333    0.88 |11.333    5.28 |17.333    0.99 | 23.33    0.66
               5.417    0.88 |11.417    5.28 |17.417    0.99 | 23.42    0.66
               5.500    0.88 |11.500    5.28 |17.500    0.99 | 23.50    0.66
               5.583    0.88 |11.583   22.88 |17.583    0.99 | 23.58    0.66
               5.667    0.88 |11.667   22.88 |17.667    0.99 | 23.67    0.66
               5.750    0.88 |11.750   22.88 |17.750    0.99 | 23.75    0.66
               5.833    0.88 |11.833   60.72 |17.833    0.99 | 23.83    0.66
               5.917    0.88 |11.917   60.72 |17.917    0.99 | 23.92    0.66
               6.000    0.88 |12.000   60.72 |18.000    0.99 | 24.00    0.66

     Max.Eff.Inten.(mm/hr)=      60.72        31.99
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.27 (ii)   13.40 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=      0.30         0.08
                                                    *TOTALS*
     PEAK FLOW       (cms)=      0.13         0.01          0.145 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=     54.00        25.31         46.82
     TOTAL RAINFALL   (mm)=     55.00        55.00         55.00
     RUNOFF COEFFICIENT   =      0.98         0.46          0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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(  0104)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                        0.0000     0.0000   |   0.1134     0.0447

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0111)     1.040     0.145     12.00      46.82
   OUTFLOW: ID= 1 (  0104)     1.040     0.042     12.08      46.73

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 28.82
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0165

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--------------------
| ADD HYD  (  0099)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)     (cms)    (hrs)     (mm)
        ID1= 1 (  0104):     1.04   0.042    12.08    46.73
      + ID2= 2 (  0106):    15.42   1.695    12.00    41.95
        ==================================================
        ID = 3 (  0099):    16.46   1.732    12.00    42.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0099)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)     (cms)    (hrs)     (mm)
        ID1= 3 (  0099):    16.46   1.732    12.00    42.25
      + ID2= 2 (  0098):     8.10   0.078    13.00    46.20
        ==================================================
        ID = 1 (  0099):    24.56   1.743    12.00    43.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0108)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                        0.0000     0.0000   |   0.5380     0.7427
                        0.0442     0.4230   |   0.7490     0.8891
                        0.2050     0.4608   |   0.9210     0.9994
                        0.3910     0.6279   |   1.1040     1.1071

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)     24.560     1.743     12.00      43.56
   OUTFLOW: ID= 1 (  0108)     24.560     0.204     13.08      42.89

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.70
                  TIME SHIFT OF PEAK FLOW         (min)= 65.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4608

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
--------------------

                         Duration of storm    = 24.00 hrs
                         Mass curve time step = 15.00 min

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
      0.50    0.55 |  6.50    1.10 | 12.50    7.92 | 18.50    0.99
      0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
      1.00    0.55 |  7.00    1.10 | 13.00    4.07 | 19.00    0.99
      1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
      1.50    0.55 |  7.50    1.10 | 13.50    0.77 | 19.50    0.99
      1.75    0.55 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
      2.00    0.99 |  8.00    1.10 | 14.00    4.51 | 20.00    0.99
      2.25    0.72 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
      2.50    0.71 |  8.50    1.48 | 14.50    1.65 | 20.50    0.66
      2.75    0.72 |  8.75    1.49 | 14.75    1.65 | 20.75    0.66
      3.00    0.71 |  9.00    1.49 | 15.00    1.65 | 21.00    0.66
      3.25    0.71 |  9.25    1.76 | 15.25    1.65 | 21.25    0.66
      3.50    0.71 |  9.50    1.76 | 15.50    1.65 | 21.50    0.66
      3.75    0.72 |  9.75    1.98 | 15.75    1.65 | 21.75    0.66
      4.00    0.71 | 10.00    1.98 | 16.00    1.65 | 22.00    0.66
      4.25    0.88 | 10.25    2.53 | 16.25    0.99 | 22.25    0.66
      4.50    0.88 | 10.50    2.53 | 16.50    0.99 | 22.50    0.66
      4.75    0.88 | 10.75    3.41 | 16.75    0.99 | 22.75    0.66
      5.00    0.88 | 11.00    3.41 | 17.00    0.99 | 23.00    0.66
      5.25    0.88 | 11.25    5.28 | 17.25    0.99 | 23.25    0.66
      5.50    0.88 | 11.50    5.28 | 17.50    0.99 | 23.50    0.66
      5.75    0.88 | 11.75   22.88 | 17.75    0.99 | 23.75    0.66
      6.00    0.88 | 12.00   60.72 | 18.00    0.99 | 24.00    0.66
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--------------------
| CALIB            |
| STANDHYD (  0103)|   Area    (ha)=   0.28
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.08
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      43.20        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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

```
     Max.Eff.Inten.(mm/hr)=      60.72        31.99
                   over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.53 (ii)   12.66 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.038 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      54.00        25.31         45.65
     TOTAL RAINFALL   (mm)=      55.00        55.00         55.00
     RUNOFF COEFFICIENT   =       0.98         0.46          0.83

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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(  0100)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0200     0.0118
                          0.0050     0.0062   |   0.0250     0.0132
                          0.0100     0.0083   |   0.0310     0.0145
                          0.0140     0.0100   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0103)      0.280     0.038     12.00      45.65
   OUTFLOW: ID= 1 (  0100)      0.280     0.005     12.58      44.56

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.07
                  TIME SHIFT OF PEAK FLOW          (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0061

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--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
```

```
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.55	6.25	1.10	12.25	7.92	18.25	0.99
0.50	0.55	6.50	1.10	12.50	7.92	18.50	0.99
0.75	0.55	6.75	1.10	12.75	4.07	18.75	0.99
1.00	0.55	7.00	1.10	13.00	4.07	19.00	0.99
1.25	0.55	7.25	1.10	13.25	0.77	19.25	0.99
1.50	0.55	7.50	1.10	13.50	0.77	19.50	0.99
1.75	0.55	7.75	1.10	13.75	4.51	19.75	0.99
2.00	0.99	8.00	1.10	14.00	4.51	20.00	0.99
2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

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| CALIB            |
| STANDHYD (  0107)|   Area    (ha)=   0.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      76.59        40.00
     Mannings n           =      0.013        0.250

         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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Max.Eff.Inten.	(mm/hr)=	60.72	31.99	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.16 (ii)	13.29 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.31	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.11	0.01	0.122 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	54.00	25.31	46.82
TOTAL RAINFALL	(mm)=	55.00	55.00	55.00

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     RUNOFF COEFFICIENT   =       0.98         0.46          0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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(  0105)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0480     0.0422
                          0.0110     0.0224   |   0.0610     0.0471
                          0.0240     0.0304   |   0.0740     0.0520
                          0.0340     0.0355   |   0.0000     0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0107)     0.880     0.122     12.00      46.82
   OUTFLOW: ID= 1 (  0105)     0.880     0.011     12.67      46.24

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.98
                  TIME SHIFT OF PEAK FLOW         (min)= 40.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0224

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--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
                0.50    0.55 |  6.50    1.10 | 12.50    7.92 | 18.50    0.99
                0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
                1.00    0.55 |  7.00    1.10 | 13.00    4.07 | 19.00    0.99
                1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
                1.50    0.55 |  7.50    1.10 | 13.50    0.77 | 19.50    0.99
                1.75    0.55 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
                2.00    0.99 |  8.00    1.10 | 14.00    4.51 | 20.00    0.99
                2.25    0.72 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
                2.50    0.71 |  8.50    1.48 | 14.50    1.65 | 20.50    0.66
                2.75    0.72 |  8.75    1.49 | 14.75    1.65 | 20.75    0.66
                3.00    0.71 |  9.00    1.49 | 15.00    1.65 | 21.00    0.66
                3.25    0.71 |  9.25    1.76 | 15.25    1.65 | 21.25    0.66
                3.50    0.71 |  9.50    1.76 | 15.50    1.65 | 21.50    0.66
                3.75    0.72 |  9.75    1.98 | 15.75    1.65 | 21.75    0.66
                4.00    0.71 | 10.00    1.98 | 16.00    1.65 | 22.00    0.66
                4.25    0.88 | 10.25    2.53 | 16.25    0.99 | 22.25    0.66
                4.50    0.88 | 10.50    2.53 | 16.50    0.99 | 22.50    0.66
                4.75    0.88 | 10.75    3.41 | 16.75    0.99 | 22.75    0.66
                5.00    0.88 | 11.00    3.41 | 17.00    0.99 | 23.00    0.66
                5.25    0.88 | 11.25    5.28 | 17.25    0.99 | 23.25    0.66
                5.50    0.88 | 11.50    5.28 | 17.50    0.99 | 23.50    0.66
                5.75    0.88 | 11.75   22.88 | 17.75    0.99 | 23.75    0.66
                6.00    0.88 | 12.00   60.72 | 18.00    0.99 | 24.00    0.66

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| CALIB            |
| STANDHYD (  0110)|   Area     (ha)=   1.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
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                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.15          0.38
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       2.00          2.00
     Length            (m)=     101.32         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    0.55 | 6.083    1.10 |12.083    7.93 | 18.08    0.99
         0.167    0.55 | 6.167    1.10 |12.167    7.92 | 18.17    0.99
         0.250    0.55 | 6.250    1.10 |12.250    7.92 | 18.25    0.99
         0.333    0.55 | 6.333    1.10 |12.333    7.92 | 18.33    0.99
         0.417    0.55 | 6.417    1.10 |12.417    7.92 | 18.42    0.99
         0.500    0.55 | 6.500    1.10 |12.500    7.92 | 18.50    0.99
         0.583    0.55 | 6.583    1.10 |12.583    4.07 | 18.58    0.99
         0.667    0.55 | 6.667    1.10 |12.667    4.07 | 18.67    0.99
         0.750    0.55 | 6.750    1.10 |12.750    4.07 | 18.75    0.99
         0.833    0.55 | 6.833    1.10 |12.833    4.07 | 18.83    0.99
         0.917    0.55 | 6.917    1.10 |12.917    4.07 | 18.92    0.99
         1.000    0.55 | 7.000    1.10 |13.000    4.07 | 19.00    0.99
         1.083    0.55 | 7.083    1.10 |13.083    0.77 | 19.08    0.99
         1.167    0.55 | 7.167    1.10 |13.167    0.77 | 19.17    0.99
         1.250    0.55 | 7.250    1.10 |13.250    0.77 | 19.25    0.99
         1.333    0.55 | 7.333    1.10 |13.333    0.77 | 19.33    0.99
         1.417    0.55 | 7.417    1.10 |13.417    0.77 | 19.42    0.99
         1.500    0.55 | 7.500    1.10 |13.500    0.77 | 19.50    0.99
         1.583    0.55 | 7.583    1.10 |13.583    4.51 | 19.58    0.99
         1.667    0.55 | 7.667    1.10 |13.667    4.51 | 19.67    0.99
         1.750    0.55 | 7.750    1.10 |13.750    4.51 | 19.75    0.99
         1.833    0.99 | 7.833    1.10 |13.833    4.51 | 19.83    0.99
         1.917    0.99 | 7.917    1.10 |13.917    4.51 | 19.92    0.99
         2.000    0.99 | 8.000    1.10 |14.000    4.51 | 20.00    0.99
         2.083    0.72 | 8.083    1.49 |14.083    1.65 | 20.08    0.66
         2.167    0.72 | 8.167    1.49 |14.167    1.65 | 20.17    0.66
         2.250    0.72 | 8.250    1.48 |14.250    1.65 | 20.25    0.66
         2.333    0.71 | 8.333    1.48 |14.333    1.65 | 20.33    0.66
         2.417    0.71 | 8.417    1.48 |14.417    1.65 | 20.42    0.66
         2.500    0.71 | 8.500    1.48 |14.500    1.65 | 20.50    0.66
         2.583    0.71 | 8.583    1.49 |14.583    1.65 | 20.58    0.66
         2.667    0.72 | 8.667    1.49 |14.667    1.65 | 20.67    0.66
         2.750    0.72 | 8.750    1.48 |14.750    1.65 | 20.75    0.66
         2.833    0.71 | 8.833    1.49 |14.833    1.65 | 20.83    0.66
         2.917    0.71 | 8.917    1.49 |14.917    1.65 | 20.92    0.66
         3.000    0.71 | 9.000    1.49 |15.000    1.65 | 21.00    0.66
         3.083    0.71 | 9.083    1.76 |15.083    1.65 | 21.08    0.66
         3.167    0.71 | 9.167    1.76 |15.167    1.65 | 21.17    0.66
         3.250    0.71 | 9.250    1.76 |15.250    1.65 | 21.25    0.66
         3.333    0.71 | 9.333    1.76 |15.333    1.65 | 21.33    0.66
         3.417    0.71 | 9.417    1.76 |15.417    1.65 | 21.42    0.66
         3.500    0.71 | 9.500    1.76 |15.500    1.65 | 21.50    0.66
         3.583    0.71 | 9.583    1.98 |15.583    1.65 | 21.58    0.66
         3.667    0.72 | 9.667    1.98 |15.667    1.65 | 21.67    0.66
         3.750    0.72 | 9.750    1.98 |15.750    1.65 | 21.75    0.66
         3.833    0.71 | 9.833    1.98 |15.833    1.65 | 21.83    0.66
         3.917    0.71 | 9.917    1.98 |15.917    1.65 | 21.92    0.66
         4.000    0.71 |10.000    1.98 |16.000    1.65 | 22.00    0.66
         4.083    0.88 |10.083    2.53 |16.083    0.99 | 22.08    0.66
         4.167    0.88 |10.167    2.53 |16.167    0.99 | 22.17    0.66
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                4.250    0.88 |10.250    2.53 |16.250    0.99 | 22.25    0.66
                4.333    0.88 |10.333    2.53 |16.333    0.99 | 22.33    0.66
                4.417    0.88 |10.417    2.53 |16.417    0.99 | 22.42    0.66
                4.500    0.88 |10.500    2.53 |16.500    0.99 | 22.50    0.66
                4.583    0.88 |10.583    3.41 |16.583    0.99 | 22.58    0.66
                4.667    0.88 |10.667    3.41 |16.667    0.99 | 22.67    0.66
                4.750    0.88 |10.750    3.41 |16.750    0.99 | 22.75    0.66
                4.833    0.88 |10.833    3.41 |16.833    0.99 | 22.83    0.66
                4.917    0.88 |10.917    3.41 |16.917    0.99 | 22.92    0.66
                5.000    0.88 |11.000    3.41 |17.000    0.99 | 23.00    0.66
                5.083    0.88 |11.083    5.28 |17.083    0.99 | 23.08    0.66
                5.167    0.88 |11.167    5.28 |17.167    0.99 | 23.17    0.66
                5.250    0.88 |11.250    5.28 |17.250    0.99 | 23.25    0.66
                5.333    0.88 |11.333    5.28 |17.333    0.99 | 23.33    0.66
                5.417    0.88 |11.417    5.28 |17.417    0.99 | 23.42    0.66
                5.500    0.88 |11.500    5.28 |17.500    0.99 | 23.50    0.66
                5.583    0.88 |11.583   22.88 |17.583    0.99 | 23.58    0.66
                5.667    0.88 |11.667   22.88 |17.667    0.99 | 23.67    0.66
                5.750    0.88 |11.750   22.88 |17.750    0.99 | 23.75    0.66
                5.833    0.88 |11.833   60.72 |17.833    0.99 | 23.83    0.66
                5.917    0.88 |11.917   60.72 |17.917    0.99 | 23.92    0.66
                6.000    0.88 |12.000   60.72 |18.000    0.99 | 24.00    0.66

     Max.Eff.Inten.(mm/hr)=      60.72        31.99
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.55 (ii)   13.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.19         0.02     0.214 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08      12.00
     RUNOFF VOLUME    (mm)=      54.00        25.31      46.82
     TOTAL RAINFALL   (mm)=      55.00        55.00      55.00
     RUNOFF COEFFICIENT   =       0.98         0.46       0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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(  0101)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0470     0.0860
                         0.0130     0.0440   |   0.0580     0.0960
                         0.0240     0.0610   |   0.0690     0.1060
                         0.0340     0.0720   |   0.0000     0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)     1.540     0.214     12.00      46.82
   OUTFLOW: ID= 1 (  0101)     1.540     0.013     13.00      46.27

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.04
                  TIME SHIFT OF PEAK FLOW         (min)= 60.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0438

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--------------------
| ADD HYD  (  0109)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0100):     0.28    0.005    12.58     44.56
     + ID2= 2 (  0101):     1.54    0.013    13.00     46.27
       ================================================
       ID = 3 (  0109):     1.82    0.018    12.83     46.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0109)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 3 (  0109):     1.82    0.018    12.83     46.00
     + ID2= 2 (  0105):     0.88    0.011    12.67     46.24
       ================================================
       ID = 1 (  0109):     2.70    0.029    12.75     46.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0109)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)     (hrs)      (mm)
       ID1= 1 (  0109):     2.70    0.029    12.75     46.08
     + ID2= 2 (  0108):    24.56    0.204    13.08     42.89
       ================================================
       ID = 3 (  0109):    27.26    0.232    13.08     43.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
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       V    V   I    SSSSS  U   U    A    L
       V    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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\046bc95d-18ac-4a68-842f-b803873b8a36\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\046bc95d-18ac-4a68-842f-b803873b8a36\scen
```

DATE: 12-15-2018 TIME: 09:11:15

USER:

COMMENTS: _____

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  ***********************************************
  ** SIMULATION : Run 02                       **
  ***********************************************
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MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\efbc61a7
Ptotal= 76.00 mm	Comments: SCS II 24H_5YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB	
STANDHYD (0102)	Area (ha)= 8.10
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	6.08	2.03
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	232.38	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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91

5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Max.Eff.Inten.(mm/hr)=		83.90	61.34	
over (min)		5.00	10.00	
Storage Coeff. (min)=		4.55 (ii)	9.42 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.23	0.12	
				TOTALS
PEAK FLOW	(cms)=	1.38	0.26	1.645 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	75.00	46.51	67.88
TOTAL RAINFALL	(mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT	=	0.99	0.61	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.

RESERVOIR(0098)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2080	0.4120
	0.0145	0.2500	0.2900	0.4890
	0.0790	0.2651	0.3570	0.5441
	0.1510	0.3505	0.4280	0.5972

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0102)	8.100	1.645	12.00	67.88
OUTFLOW: ID= 1 (0098)	8.100	0.151	12.67	66.30

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.18
TIME SHIFT OF PEAK FLOW (min)= 40.00
MAXIMUM STORAGE USED (ha.m.)= 0.3505

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\efbc61a7
Ptotal= 76.00 mm	Comments: SCS II 24H_5YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME (hrs)	RAIN (mm/hr)	TIME (hrs)	RAIN (mm/hr)	TIME (hrs)	RAIN (mm/hr)	TIME (hrs)	RAIN (mm/hr)
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB			
STANDHYD (0106)	Area (ha)= 15.42		
ID= 1 DT= 5.0 min	Total Imp(%)= 58.00	Dir. Conn.(%)= 58.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)= 8.94	6.48	
Dep. Storage	(mm)= 1.00	1.50	
Average Slope	(%)= 2.00	2.00	
Length	(m)= 320.62	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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91

2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

			TOTALS
Max.Eff.Inten.(mm/hr)=	83.90	54.84	
over (min)	5.00	15.00	
Storage Coeff. (min)=	4.48 (ii)	13.45 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.23	0.08	
PEAK FLOW (cms)=	2.04	0.61	2.582 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	75.00	41.39	60.89
TOTAL RAINFALL (mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT =	0.99	0.54	0.80

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

MASS STORM	Filename: C:\Users\ssoumik\AppD
	ata\Local\Temp\
	053abc7c-95d9-4419-94cc-b08f725a5301\efbc61a7
Ptotal= 76.00 mm	Comments: SCS II 24H_5YR

Duration of storm = 24.00 hrs

Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB	
STANDHYD (0111)	Area (ha)= 1.04
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.78	0.26
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	83.27	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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37

1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Max.Eff.Inten.(mm/hr)=	83.90	54.84	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.99 (ii)	6.87 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.31	0.14	
			TOTALS
PEAK FLOW (cms)=	0.18	0.03	0.215 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	75.00	41.40	66.59
TOTAL RAINFALL (mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT =	0.99	0.54	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0104)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1134	0.0447

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0111)	1.040	0.215	12.00	66.59
OUTFLOW: ID= 1 (0104)	1.040	0.061	12.08	66.51

PEAK FLOW REDUCTION [Qout/Qin](%)= 28.56
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0242

ADD HYD (0099)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0104):	1.04	0.061	12.08	66.51
+ ID2= 2 (0106):	15.42	2.582	12.00	60.89
ID = 3 (0099):	16.46	2.637	12.00	61.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0099)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0099):	16.46	2.637	12.00	61.24
+ ID2= 2 (0098):	8.10	0.151	12.67	66.30
ID = 1 (0099):	24.56	2.727	12.00	62.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0108)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.5380	0.7427
	0.0442	0.4230	0.7490	0.8891
	0.2050	0.4608	0.9210	0.9994
	0.3910	0.6279	1.1040	1.1071

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0099)	24.560	2.727	12.00	62.91
OUTFLOW: ID= 1 (0108)	24.560	0.390	13.00	62.24

PEAK FLOW REDUCTION [Qout/Qin](%)= 14.32
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.6279

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\efbc61a7
| Ptotal= 76.00 mm |    Comments: SCS II 24H_5YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    0.76 |  6.25    1.52 | 12.25   10.94 | 18.25    1.37
               0.50    0.76 |  6.50    1.52 | 12.50   10.94 | 18.50    1.37
               0.75    0.76 |  6.75    1.52 | 12.75    5.62 | 18.75    1.37
               1.00    0.76 |  7.00    1.52 | 13.00    5.62 | 19.00    1.37
               1.25    0.76 |  7.25    1.52 | 13.25    1.06 | 19.25    1.37
               1.50    0.76 |  7.50    1.52 | 13.50    1.06 | 19.50    1.37
               1.75    0.76 |  7.75    1.52 | 13.75    6.23 | 19.75    1.37
               2.00    1.37 |  8.00    1.52 | 14.00    6.23 | 20.00    1.37
               2.25    0.99 |  8.25    2.05 | 14.25    2.28 | 20.25    0.91
               2.50    0.99 |  8.50    2.05 | 14.50    2.28 | 20.50    0.91
               2.75    0.99 |  8.75    2.05 | 14.75    2.28 | 20.75    0.91
               3.00    0.99 |  9.00    2.05 | 15.00    2.28 | 21.00    0.91
               3.25    0.99 |  9.25    2.43 | 15.25    2.28 | 21.25    0.91
               3.50    0.99 |  9.50    2.43 | 15.50    2.28 | 21.50    0.91
               3.75    0.99 |  9.75    2.74 | 15.75    2.28 | 21.75    0.91
               4.00    0.99 | 10.00    2.74 | 16.00    2.28 | 22.00    0.91
               4.25    1.22 | 10.25    3.50 | 16.25    1.37 | 22.25    0.91
               4.50    1.22 | 10.50    3.50 | 16.50    1.37 | 22.50    0.91
               4.75    1.22 | 10.75    4.71 | 16.75    1.37 | 22.75    0.91
               5.00    1.22 | 11.00    4.71 | 17.00    1.37 | 23.00    0.91
               5.25    1.22 | 11.25    7.30 | 17.25    1.37 | 23.25    0.91
               5.50    1.22 | 11.50    7.30 | 17.50    1.37 | 23.50    0.91
               5.75    1.22 | 11.75   31.62 | 17.75    1.37 | 23.75    0.91
               6.00    1.22 | 12.00   83.90 | 18.00    1.37 | 24.00    0.91

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| CALIB            |
| STANDHYD (  0103)|   Area    (ha)=   0.28
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
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                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.08
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      43.20        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    0.76 |  6.083    1.52 |12.083   10.95 | 18.08    1.37
              0.167    0.76 |  6.167    1.52 |12.167   10.94 | 18.17    1.37
              0.250    0.76 |  6.250    1.52 |12.250   10.94 | 18.25    1.37
              0.333    0.76 |  6.333    1.52 |12.333   10.94 | 18.33    1.37
              0.417    0.76 |  6.417    1.52 |12.417   10.94 | 18.42    1.37
              0.500    0.76 |  6.500    1.52 |12.500   10.94 | 18.50    1.37
              0.583    0.76 |  6.583    1.52 |12.583    5.62 | 18.58    1.37
              0.667    0.76 |  6.667    1.52 |12.667    5.62 | 18.67    1.37
              0.750    0.76 |  6.750    1.52 |12.750    5.62 | 18.75    1.37
              0.833    0.76 |  6.833    1.52 |12.833    5.62 | 18.83    1.37
              0.917    0.76 |  6.917    1.52 |12.917    5.62 | 18.92    1.37
              1.000    0.76 |  7.000    1.52 |13.000    5.62 | 19.00    1.37
              1.083    0.76 |  7.083    1.52 |13.083    1.06 | 19.08    1.37
              1.167    0.76 |  7.167    1.52 |13.167    1.06 | 19.17    1.37
              1.250    0.76 |  7.250    1.52 |13.250    1.06 | 19.25    1.37
              1.333    0.76 |  7.333    1.52 |13.333    1.06 | 19.33    1.37
              1.417    0.76 |  7.417    1.52 |13.417    1.06 | 19.42    1.37
              1.500    0.76 |  7.500    1.52 |13.500    1.06 | 19.50    1.37
              1.583    0.76 |  7.583    1.52 |13.583    6.23 | 19.58    1.37
              1.667    0.76 |  7.667    1.52 |13.667    6.23 | 19.67    1.37
              1.750    0.76 |  7.750    1.52 |13.750    6.23 | 19.75    1.37
              1.833    1.37 |  7.833    1.52 |13.833    6.23 | 19.83    1.37
              1.917    1.37 |  7.917    1.52 |13.917    6.23 | 19.92    1.37
              2.000    1.37 |  8.000    1.52 |14.000    6.23 | 20.00    1.37
              2.083    0.99 |  8.083    2.05 |14.083    2.28 | 20.08    0.91
              2.167    0.99 |  8.167    2.05 |14.167    2.28 | 20.17    0.91
              2.250    0.99 |  8.250    2.05 |14.250    2.28 | 20.25    0.91
              2.333    0.99 |  8.333    2.05 |14.333    2.28 | 20.33    0.91
              2.417    0.99 |  8.417    2.05 |14.417    2.28 | 20.42    0.91
              2.500    0.99 |  8.500    2.05 |14.500    2.28 | 20.50    0.91
              2.583    0.99 |  8.583    2.05 |14.583    2.28 | 20.58    0.91
              2.667    0.99 |  8.667    2.05 |14.667    2.28 | 20.67    0.91
              2.750    0.99 |  8.750    2.05 |14.750    2.28 | 20.75    0.91
              2.833    0.99 |  8.833    2.05 |14.833    2.28 | 20.83    0.91
              2.917    0.99 |  8.917    2.05 |14.917    2.28 | 20.92    0.91
              3.000    0.99 |  9.000    2.05 |15.000    2.28 | 21.00    0.91
              3.083    0.99 |  9.083    2.43 |15.083    2.28 | 21.08    0.91
              3.167    0.99 |  9.167    2.43 |15.167    2.28 | 21.17    0.91
              3.250    0.99 |  9.250    2.43 |15.250    2.28 | 21.25    0.91
              3.333    0.99 |  9.333    2.43 |15.333    2.28 | 21.33    0.91
              3.417    0.99 |  9.417    2.43 |15.417    2.28 | 21.42    0.91
              3.500    0.99 |  9.500    2.43 |15.500    2.28 | 21.50    0.91
              3.583    0.99 |  9.583    2.74 |15.583    2.28 | 21.58    0.91
              3.667    0.99 |  9.667    2.74 |15.667    2.28 | 21.67    0.91
              3.750    0.99 |  9.750    2.74 |15.750    2.28 | 21.75    0.91
              3.833    0.99 |  9.833    2.74 |15.833    2.28 | 21.83    0.91
              3.917    0.99 |  9.917    2.74 |15.917    2.28 | 21.92    0.91
              4.000    0.99 |10.000    2.74 |16.000    2.28 | 22.00    0.91
              4.083    1.22 |10.083    3.50 |16.083    1.37 | 22.08    0.91
              4.167    1.22 |10.167    3.50 |16.167    1.37 | 22.17    0.91
              4.250    1.22 |10.250    3.50 |16.250    1.37 | 22.25    0.91
              4.333    1.22 |10.333    3.50 |16.333    1.37 | 22.33    0.91
              4.417    1.22 |10.417    3.50 |16.417    1.37 | 22.42    0.91
              4.500    1.22 |10.500    3.50 |16.500    1.37 | 22.50    0.91
              4.583    1.22 |10.583    4.71 |16.583    1.37 | 22.58    0.91
              4.667    1.22 |10.667    4.71 |16.667    1.37 | 22.67    0.91
              4.750    1.22 |10.750    4.71 |16.750    1.37 | 22.75    0.91
              4.833    1.22 |10.833    4.71 |16.833    1.37 | 22.83    0.91
              4.917    1.22 |10.917    4.71 |16.917    1.37 | 22.92    0.91
              5.000    1.22 |11.000    4.71 |17.000    1.37 | 23.00    0.91
              5.083    1.22 |11.083    7.30 |17.083    1.37 | 23.08    0.91
              5.167    1.22 |11.167    7.30 |17.167    1.37 | 23.17    0.91
              5.250    1.22 |11.250    7.30 |17.250    1.37 | 23.25    0.91
              5.333    1.22 |11.333    7.30 |17.333    1.37 | 23.33    0.91
              5.417    1.22 |11.417    7.30 |17.417    1.37 | 23.42    0.91
              5.500    1.22 |11.500    7.30 |17.500    1.37 | 23.50    0.91
              5.583    1.22 |11.583   31.61 |17.583    1.37 | 23.58    0.91
              5.667    1.22 |11.667   31.62 |17.667    1.37 | 23.67    0.91
              5.750    1.22 |11.750   31.62 |17.750    1.37 | 23.75    0.91
              5.833    1.22 |11.833   83.90 |17.833    1.37 | 23.83    0.91
              5.917    1.22 |11.917   83.90 |17.917    1.37 | 23.92    0.91
              6.000    1.22 |12.000   83.90 |18.000    1.37 | 24.00    0.91

Max.Eff.Inten.(mm/hr)=      83.90        54.84
          over (min)        5.00        15.00
Storage Coeff.  (min)=      1.35 (ii)   10.32 (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)
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     TIME TO PEAK     (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      75.00        41.40          65.23
     TOTAL RAINFALL   (mm)=      76.00        76.00          76.00
     RUNOFF COEFFICIENT   =       0.99         0.54           0.86

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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(  0100)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.0200     0.0118
                         0.0050     0.0062    |   0.0250     0.0132
                         0.0100     0.0083    |   0.0310     0.0145
                         0.0140     0.0100    |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0103)    0.280     0.054     12.00      65.23
   OUTFLOW: ID= 1 (  0100)    0.280     0.010     12.33      64.14

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.38
                  TIME SHIFT OF PEAK FLOW         (min)= 20.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0083

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\efbc61a7
| Ptotal= 76.00 mm |    Comments: SCS II 24H_5YR
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                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.76 |  6.25    1.52 | 12.25   10.94 | 18.25    1.37
                0.50    0.76 |  6.50    1.52 | 12.50   10.94 | 18.50    1.37
                0.75    0.76 |  6.75    1.52 | 12.75    5.62 | 18.75    1.37
                1.00    0.76 |  7.00    1.52 | 13.00    5.62 | 19.00    1.37
                1.25    0.76 |  7.25    1.52 | 13.25    1.06 | 19.25    1.37
                1.50    0.76 |  7.50    1.52 | 13.50    1.06 | 19.50    1.37
                1.75    0.76 |  7.75    1.52 | 13.75    6.23 | 19.75    1.37
                2.00    1.37 |  8.00    1.52 | 14.00    6.23 | 20.00    1.37
                2.25    0.99 |  8.25    2.05 | 14.25    2.28 | 20.25    0.91
                2.50    0.99 |  8.50    2.05 | 14.50    2.28 | 20.50    0.91
                2.75    0.99 |  8.75    2.05 | 14.75    2.28 | 20.75    0.91
                3.00    0.99 |  9.00    2.05 | 15.00    2.28 | 21.00    0.91
                3.25    0.99 |  9.25    2.43 | 15.25    2.28 | 21.25    0.91
                3.50    0.99 |  9.50    2.43 | 15.50    2.28 | 21.50    0.91
                3.75    0.99 |  9.75    2.74 | 15.75    2.28 | 21.75    0.91
                4.00    0.99 | 10.00    2.74 | 16.00    2.28 | 22.00    0.91
                4.25    1.22 | 10.25    3.50 | 16.25    1.37 | 22.25    0.91
                4.50    1.22 | 10.50    3.50 | 16.50    1.37 | 22.50    0.91
                4.75    1.22 | 10.75    4.71 | 16.75    1.37 | 22.75    0.91
                5.00    1.22 | 11.00    4.71 | 17.00    1.37 | 23.00    0.91
                5.25    1.22 | 11.25    7.30 | 17.25    1.37 | 23.25    0.91
                5.50    1.22 | 11.50    7.30 | 17.50    1.37 | 23.50    0.91
                5.75    1.22 | 11.75   31.62 | 17.75    1.37 | 23.75    0.91
                6.00    1.22 | 12.00   83.90 | 18.00    1.37 | 24.00    0.91

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| CALIB            |
| STANDHYD (  0107)|   Area     (ha)=   0.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
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                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66          0.22
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      76.59         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    0.76 | 6.083    1.52 |12.083   10.95 | 18.08    1.37
0.167    0.76 | 6.167    1.52 |12.167   10.94 | 18.17    1.37
0.250    0.76 | 6.250    1.52 |12.250   10.94 | 18.25    1.37
0.333    0.76 | 6.333    1.52 |12.333   10.94 | 18.33    1.37
0.417    0.76 | 6.417    1.52 |12.417   10.94 | 18.42    1.37
0.500    0.76 | 6.500    1.52 |12.500   10.94 | 18.50    1.37
0.583    0.76 | 6.583    1.52 |12.583    5.62 | 18.58    1.37
0.667    0.76 | 6.667    1.52 |12.667    5.62 | 18.67    1.37
0.750    0.76 | 6.750    1.52 |12.750    5.62 | 18.75    1.37
0.833    0.76 | 6.833    1.52 |12.833    5.62 | 18.83    1.37
0.917    0.76 | 6.917    1.52 |12.917    5.62 | 18.92    1.37
1.000    0.76 | 7.000    1.52 |13.000    5.62 | 19.00    1.37
1.083    0.76 | 7.083    1.52 |13.083    1.06 | 19.08    1.37
1.167    0.76 | 7.167    1.52 |13.167    1.06 | 19.17    1.37
1.250    0.76 | 7.250    1.52 |13.250    1.06 | 19.25    1.37
1.333    0.76 | 7.333    1.52 |13.333    1.06 | 19.33    1.37
1.417    0.76 | 7.417    1.52 |13.417    1.06 | 19.42    1.37
1.500    0.76 | 7.500    1.52 |13.500    1.06 | 19.50    1.37
1.583    0.76 | 7.583    1.52 |13.583    6.23 | 19.58    1.37
1.667    0.76 | 7.667    1.52 |13.667    6.23 | 19.67    1.37
1.750    0.76 | 7.750    1.52 |13.750    6.23 | 19.75    1.37
1.833    1.37 | 7.833    1.52 |13.833    6.23 | 19.83    1.37
1.917    1.37 | 7.917    1.52 |13.917    6.23 | 19.92    1.37
2.000    1.37 | 8.000    1.52 |14.000    6.23 | 20.00    1.37
2.083    0.99 | 8.083    2.05 |14.083    2.28 | 20.08    0.91
2.167    0.99 | 8.167    2.05 |14.167    2.28 | 20.17    0.91
2.250    0.99 | 8.250    2.05 |14.250    2.28 | 20.25    0.91
2.333    0.99 | 8.333    2.05 |14.333    2.28 | 20.33    0.91
2.417    0.99 | 8.417    2.05 |14.417    2.28 | 20.42    0.91
2.500    0.99 | 8.500    2.05 |14.500    2.28 | 20.50    0.91
2.583    0.99 | 8.583    2.05 |14.583    2.28 | 20.58    0.91
2.667    0.99 | 8.667    2.05 |14.667    2.28 | 20.67    0.91
2.750    0.99 | 8.750    2.05 |14.750    2.28 | 20.75    0.91
2.833    0.99 | 8.833    2.05 |14.833    2.28 | 20.83    0.91
2.917    0.99 | 8.917    2.05 |14.917    2.28 | 20.92    0.91
3.000    0.99 | 9.000    2.05 |15.000    2.28 | 21.00    0.91
3.083    0.99 | 9.083    2.43 |15.083    2.28 | 21.08    0.91
3.167    0.99 | 9.167    2.43 |15.167    2.28 | 21.17    0.91
3.250    0.99 | 9.250    2.43 |15.250    2.28 | 21.25    0.91
3.333    0.99 | 9.333    2.43 |15.333    2.28 | 21.33    0.91
3.417    0.99 | 9.417    2.43 |15.417    2.28 | 21.42    0.91
3.500    0.99 | 9.500    2.43 |15.500    2.28 | 21.50    0.91
3.583    0.99 | 9.583    2.74 |15.583    2.28 | 21.58    0.91
3.667    0.99 | 9.667    2.74 |15.667    2.28 | 21.67    0.91
3.750    0.99 | 9.750    2.74 |15.750    2.28 | 21.75    0.91
3.833    0.99 | 9.833    2.74 |15.833    2.28 | 21.83    0.91
3.917    0.99 | 9.917    2.74 |15.917    2.28 | 21.92    0.91
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4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Max.Eff.Inten.(mm/hr)=	83.90		54.84	
over (min)	5.00		10.00	
Storage Coeff. (min)=	1.90	(ii)	6.78	(ii)
Unit Hyd. Tpeak (min)=	5.00		10.00	
Unit Hyd. peak (cms)=	0.32		0.14	
				TOTALS
PEAK FLOW (cms)=	0.15		0.03	0.182 (iii)
TIME TO PEAK (hrs)=	12.00		12.00	12.00
RUNOFF VOLUME (mm)=	75.00		41.39	66.59
TOTAL RAINFALL (mm)=	76.00		76.00	76.00
RUNOFF COEFFICIENT =	0.99		0.54	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0105)	
IN= 2---> OUT= 1	
DT= 5.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.0480	0.0422
0.0110	0.0224	0.0610	0.0471
0.0240	0.0304	0.0740	0.0520
0.0340	0.0355	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0107)	0.880	0.182	12.00	66.59
OUTFLOW: ID= 1 (0105)	0.880	0.024	12.50	66.01

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.22
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.0304

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\efbc61a7
Ptotal= 76.00 mm	Comments: SCS II 24H_5YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB	
STANDHYD (0110)|	Area (ha)= 1.54
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.15	0.38
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	101.32	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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37

1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Max.Eff.Inten.(mm/hr)=	83.90	54.84	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.24 (ii)	7.12 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.30	0.14	
			TOTALS
PEAK FLOW (cms)=	0.27	0.05	0.317 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	75.00	41.39	66.60

TOTAL RAINFALL (mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT =	0.99	0.54	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0101)|				
IN= 2---> OUT= 1 |				
DT= 5.0 min |	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0470	0.0860
	0.0130	0.0440	0.0580	0.0960
	0.0240	0.0610	0.0690	0.1060
	0.0340	0.0720	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0110)	1.540	0.317	12.00	66.60
OUTFLOW: ID= 1 (0101)	1.540	0.024	12.75	66.04

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.48
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.0606

ADD HYD (0109)|					
1 + 2 = 3 |	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0100):	0.28	0.010	12.33	64.14	
+ ID2= 2 (0101):	1.54	0.024	12.75	66.04	
ID = 3 (0109):	1.82	0.033	12.58	65.75	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0109)|					
3 + 2 = 1 |	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (0109):	1.82	0.033	12.58	65.75	
+ ID2= 2 (0105):	0.88	0.024	12.50	66.01	
ID = 1 (0109):	2.70	0.057	12.50	65.83	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0109)|					
1 + 2 = 3 |	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0109):	2.70	0.057	12.50	65.83	
+ ID2= 2 (0108):	24.56	0.390	13.00	62.24	
ID = 3 (0109):	27.26	0.444	13.00	62.59	

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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================
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       V    V   I    SSSSS  U   U    A    L
       V    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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\480b391d-2311-486c-9f24-9ca98f1866e9\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\480b391d-2311-486c-9f24-9ca98f1866e9\scen


DATE: 12-15-2018                          TIME: 09:11:16

USER:



COMMENTS: _____________________________________________________


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  ***********************************************
  ** SIMULATION : Run 03                       **
  ***********************************************

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\a719fc83
| Ptotal= 89.90 mm |    Comments: SCS II 24H_10YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.90 |  6.25    1.80 | 12.25   12.95 | 18.25    1.62
                0.50    0.90 |  6.50    1.80 | 12.50   12.95 | 18.50    1.62
                0.75    0.90 |  6.75    1.80 | 12.75    6.65 | 18.75    1.62
                1.00    0.90 |  7.00    1.80 | 13.00    6.65 | 19.00    1.62
                1.25    0.90 |  7.25    1.80 | 13.25    1.26 | 19.25    1.62
                1.50    0.90 |  7.50    1.80 | 13.50    1.26 | 19.50    1.62
                1.75    0.90 |  7.75    1.80 | 13.75    7.37 | 19.75    1.62
                2.00    1.62 |  8.00    1.80 | 14.00    7.37 | 20.00    1.62
                2.25    1.17 |  8.25    2.43 | 14.25    2.70 | 20.25    1.08
                2.50    1.17 |  8.50    2.43 | 14.50    2.70 | 20.50    1.08
                2.75    1.17 |  8.75    2.43 | 14.75    2.70 | 20.75    1.08
                3.00    1.17 |  9.00    2.43 | 15.00    2.70 | 21.00    1.08
                3.25    1.17 |  9.25    2.88 | 15.25    2.70 | 21.25    1.08
                3.50    1.17 |  9.50    2.88 | 15.50    2.70 | 21.50    1.08
                3.75    1.17 |  9.75    3.24 | 15.75    2.70 | 21.75    1.08
                4.00    1.17 | 10.00    3.24 | 16.00    2.70 | 22.00    1.08
                4.25    1.44 | 10.25    4.14 | 16.25    1.62 | 22.25    1.08
                4.50    1.44 | 10.50    4.14 | 16.50    1.62 | 22.50    1.08
                4.75    1.44 | 10.75    5.57 | 16.75    1.62 | 22.75    1.08
                5.00    1.44 | 11.00    5.57 | 17.00    1.62 | 23.00    1.08
                5.25    1.44 | 11.25    8.63 | 17.25    1.62 | 23.25    1.08
                5.50    1.44 | 11.50    8.63 | 17.50    1.62 | 23.50    1.08
                5.75    1.44 | 11.75   37.40 | 17.75    1.62 | 23.75    1.08
                6.00    1.44 | 12.00   99.25 | 18.00    1.62 | 24.00    1.08

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| CALIB            |
| STANDHYD (  0102)|   Area     (ha)=   8.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         6.08          2.03
     Dep. Storage     (mm)=         1.00          1.50
     Average Slope     (%)=         1.00          2.00
     Length            (m)=       232.38         40.00
     Mannings n           =        0.013         0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
0.083    0.90 | 6.083    1.80 |12.083   12.96 | 18.08    1.62
0.167    0.90 | 6.167    1.80 |12.167   12.95 | 18.17    1.62
0.250    0.90 | 6.250    1.80 |12.250   12.95 | 18.25    1.62
0.333    0.90 | 6.333    1.80 |12.333   12.95 | 18.33    1.62
0.417    0.90 | 6.417    1.80 |12.417   12.95 | 18.42    1.62
0.500    0.90 | 6.500    1.80 |12.500   12.95 | 18.50    1.62
0.583    0.90 | 6.583    1.80 |12.583    6.65 | 18.58    1.62
0.667    0.90 | 6.667    1.80 |12.667    6.65 | 18.67    1.62
0.750    0.90 | 6.750    1.80 |12.750    6.65 | 18.75    1.62
0.833    0.90 | 6.833    1.80 |12.833    6.65 | 18.83    1.62
0.917    0.90 | 6.917    1.80 |12.917    6.65 | 18.92    1.62
1.000    0.90 | 7.000    1.80 |13.000    6.65 | 19.00    1.62
1.083    0.90 | 7.083    1.80 |13.083    1.26 | 19.08    1.62
1.167    0.90 | 7.167    1.80 |13.167    1.26 | 19.17    1.62
1.250    0.90 | 7.250    1.80 |13.250    1.26 | 19.25    1.62
1.333    0.90 | 7.333    1.80 |13.333    1.26 | 19.33    1.62
1.417    0.90 | 7.417    1.80 |13.417    1.26 | 19.42    1.62
1.500    0.90 | 7.500    1.80 |13.500    1.26 | 19.50    1.62
1.583    0.90 | 7.583    1.80 |13.583    7.37 | 19.58    1.62
1.667    0.90 | 7.667    1.80 |13.667    7.37 | 19.67    1.62
1.750    0.90 | 7.750    1.80 |13.750    7.37 | 19.75    1.62
1.833    1.62 | 7.833    1.80 |13.833    7.37 | 19.83    1.62
1.917    1.62 | 7.917    1.80 |13.917    7.37 | 19.92    1.62
2.000    1.62 | 8.000    1.80 |14.000    7.37 | 20.00    1.62
2.083    1.17 | 8.083    2.43 |14.083    2.70 | 20.08    1.08
2.167    1.17 | 8.167    2.43 |14.167    2.70 | 20.17    1.08
2.250    1.17 | 8.250    2.43 |14.250    2.70 | 20.25    1.08
2.333    1.17 | 8.333    2.43 |14.333    2.70 | 20.33    1.08
2.417    1.17 | 8.417    2.43 |14.417    2.70 | 20.42    1.08
2.500    1.17 | 8.500    2.43 |14.500    2.70 | 20.50    1.08
2.583    1.17 | 8.583    2.43 |14.583    2.70 | 20.58    1.08
2.667    1.17 | 8.667    2.43 |14.667    2.70 | 20.67    1.08
2.750    1.17 | 8.750    2.43 |14.750    2.70 | 20.75    1.08
2.833    1.17 | 8.833    2.43 |14.833    2.70 | 20.83    1.08
2.917    1.17 | 8.917    2.43 |14.917    2.70 | 20.92    1.08
```

3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Max.Eff.Inten.(mm/hr)=	99.25	76.82	
over (min)	5.00	10.00	
Storage Coeff. (min)=	4.25 (ii)	8.81 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.24	0.12	
			TOTALS
PEAK FLOW (cms)=	1.64	0.34	1.982 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	88.90	58.66	81.34
TOTAL RAINFALL (mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT =	0.99	0.65	0.90

***** 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.

RESERVOIR(0098) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2080	0.4120
	0.0145	0.2500	0.2900	0.4890
	0.0790	0.2651	0.3570	0.5441
	0.1510	0.3505	0.4280	0.5972

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0102)	8.100	1.982	12.00	81.34
OUTFLOW: ID= 1 (0098)	8.100	0.208	12.58	79.75

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.49
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.4120

MASS STORM Ptotal= 89.90 mm	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\a719fc83 Comments: SCS II 24H_10YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB STANDHYD (0106) ID= 1 DT= 5.0 min	Area (ha)= 15.42 Total Imp(%)= 58.00 Dir. Conn.(%)= 58.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	8.94	6.48
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	2.00	2.00
Length (m)=	320.62	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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62

0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Max.Eff.Inten.(mm/hr)=	99.25	69.65	
over (min)	5.00	15.00	
Storage Coeff. (min)=	4.19 (ii)	12.34 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.24	0.08	
			TOTALS
PEAK FLOW (cms)=	2.42	0.81	3.151 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	88.90	52.81	73.74
TOTAL RAINFALL (mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT =	0.99	0.59	0.82

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

MASS STORM	Filename: C:\Users\ssoumik\AppD
	ata\Local\Temp\
	053abc7c-95d9-4419-94cc-b08f725a5301\a719fc83
Ptotal= 89.90 mm	Comments: SCS II 24H_10YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB	
STANDHYD (0111)	Area (ha)= 1.04
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.78	0.26

Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	83.27	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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Max.Eff.Inten.	(mm/hr)=	99.25	69.65	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.86 (ii)	6.43 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.32	0.14	
				TOTALS
PEAK FLOW	(cms)=	0.22	0.04	0.258 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	88.90	52.81	79.87
TOTAL RAINFALL	(mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT	=	0.99	0.59	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0104)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1134	0.0447

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0111)	1.040	0.258	12.00	79.87
OUTFLOW: ID= 1 (0104)	1.040	0.074	12.08	79.79

PEAK FLOW REDUCTION [Qout/Qin](%)= 28.57
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0291

ADD HYD (0099)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0104):	1.04	0.074	12.08	79.79
+ ID2= 2 (0106):	15.42	3.151	12.00	73.74
ID = 3 (0099):	16.46	3.217	12.00	74.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0099)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0099):    16.46   3.217    12.00    74.12
      + ID2= 2 (  0098):     8.10   0.208    12.58    79.75
        ================================================
        ID = 1 (  0099):    24.56   3.353    12.00    75.98

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0108)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.5380     0.7427
                         0.0442     0.4230   |   0.7490     0.8891
                         0.2050     0.4608   |   0.9210     0.9994
                         0.3910     0.6279   |   1.1040     1.1071

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)     24.560     3.353     12.00      75.98
   OUTFLOW: ID= 1 (  0108)     24.560     0.538     13.00      75.31

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.04
                  TIME SHIFT OF PEAK FLOW         (min)= 60.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7427

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--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\a719fc83
| Ptotal= 89.90 mm |    Comments: SCS II 24H_10YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.90 |  6.25    1.80 | 12.25   12.95 | 18.25    1.62
                0.50    0.90 |  6.50    1.80 | 12.50   12.95 | 18.50    1.62
                0.75    0.90 |  6.75    1.80 | 12.75    6.65 | 18.75    1.62
                1.00    0.90 |  7.00    1.80 | 13.00    6.65 | 19.00    1.62
                1.25    0.90 |  7.25    1.80 | 13.25    1.26 | 19.25    1.62
                1.50    0.90 |  7.50    1.80 | 13.50    1.26 | 19.50    1.62
                1.75    0.90 |  7.75    1.80 | 13.75    7.37 | 19.75    1.62
                2.00    1.62 |  8.00    1.80 | 14.00    7.37 | 20.00    1.62
                2.25    1.17 |  8.25    2.43 | 14.25    2.70 | 20.25    1.08
                2.50    1.17 |  8.50    2.43 | 14.50    2.70 | 20.50    1.08
                2.75    1.17 |  8.75    2.43 | 14.75    2.70 | 20.75    1.08
                3.00    1.17 |  9.00    2.43 | 15.00    2.70 | 21.00    1.08
                3.25    1.17 |  9.25    2.88 | 15.25    2.70 | 21.25    1.08
                3.50    1.17 |  9.50    2.88 | 15.50    2.70 | 21.50    1.08
                3.75    1.17 |  9.75    3.24 | 15.75    2.70 | 21.75    1.08
                4.00    1.17 | 10.00    3.24 | 16.00    2.70 | 22.00    1.08
                4.25    1.44 | 10.25    4.14 | 16.25    1.62 | 22.25    1.08
                4.50    1.44 | 10.50    4.14 | 16.50    1.62 | 22.50    1.08
                4.75    1.44 | 10.75    5.57 | 16.75    1.62 | 22.75    1.08
                5.00    1.44 | 11.00    5.57 | 17.00    1.62 | 23.00    1.08
                5.25    1.44 | 11.25    8.63 | 17.25    1.62 | 23.25    1.08
                5.50    1.44 | 11.50    8.63 | 17.50    1.62 | 23.50    1.08
                5.75    1.44 | 11.75   37.40 | 17.75    1.62 | 23.75    1.08
                6.00    1.44 | 12.00   99.25 | 18.00    1.62 | 24.00    1.08

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| CALIB            |
| STANDHYD (  0103)|   Area     (ha)=   0.28
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
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                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20          0.08
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      43.20         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    0.90 | 6.083    1.80 |12.083   12.96 | 18.08    1.62
     0.167    0.90 | 6.167    1.80 |12.167   12.95 | 18.17    1.62
     0.250    0.90 | 6.250    1.80 |12.250   12.95 | 18.25    1.62
     0.333    0.90 | 6.333    1.80 |12.333   12.95 | 18.33    1.62
     0.417    0.90 | 6.417    1.80 |12.417   12.95 | 18.42    1.62
     0.500    0.90 | 6.500    1.80 |12.500   12.95 | 18.50    1.62
     0.583    0.90 | 6.583    1.80 |12.583    6.65 | 18.58    1.62
     0.667    0.90 | 6.667    1.80 |12.667    6.65 | 18.67    1.62
     0.750    0.90 | 6.750    1.80 |12.750    6.65 | 18.75    1.62
     0.833    0.90 | 6.833    1.80 |12.833    6.65 | 18.83    1.62
     0.917    0.90 | 6.917    1.80 |12.917    6.65 | 18.92    1.62
     1.000    0.90 | 7.000    1.80 |13.000    6.65 | 19.00    1.62
     1.083    0.90 | 7.083    1.80 |13.083    1.26 | 19.08    1.62
     1.167    0.90 | 7.167    1.80 |13.167    1.26 | 19.17    1.62
     1.250    0.90 | 7.250    1.80 |13.250    1.26 | 19.25    1.62
     1.333    0.90 | 7.333    1.80 |13.333    1.26 | 19.33    1.62
     1.417    0.90 | 7.417    1.80 |13.417    1.26 | 19.42    1.62
     1.500    0.90 | 7.500    1.80 |13.500    1.26 | 19.50    1.62
     1.583    0.90 | 7.583    1.80 |13.583    7.37 | 19.58    1.62
     1.667    0.90 | 7.667    1.80 |13.667    7.37 | 19.67    1.62
     1.750    0.90 | 7.750    1.80 |13.750    7.37 | 19.75    1.62
     1.833    1.62 | 7.833    1.80 |13.833    7.37 | 19.83    1.62
     1.917    1.62 | 7.917    1.80 |13.917    7.37 | 19.92    1.62
     2.000    1.62 | 8.000    1.80 |14.000    7.37 | 20.00    1.62
     2.083    1.17 | 8.083    2.43 |14.083    2.70 | 20.08    1.08
     2.167    1.17 | 8.167    2.43 |14.167    2.70 | 20.17    1.08
     2.250    1.17 | 8.250    2.43 |14.250    2.70 | 20.25    1.08
     2.333    1.17 | 8.333    2.43 |14.333    2.70 | 20.33    1.08
     2.417    1.17 | 8.417    2.43 |14.417    2.70 | 20.42    1.08
     2.500    1.17 | 8.500    2.43 |14.500    2.70 | 20.50    1.08
     2.583    1.17 | 8.583    2.43 |14.583    2.70 | 20.58    1.08
     2.667    1.17 | 8.667    2.43 |14.667    2.70 | 20.67    1.08
     2.750    1.17 | 8.750    2.43 |14.750    2.70 | 20.75    1.08
     2.833    1.17 | 8.833    2.43 |14.833    2.70 | 20.83    1.08
     2.917    1.17 | 8.917    2.43 |14.917    2.70 | 20.92    1.08
     3.000    1.17 | 9.000    2.43 |15.000    2.70 | 21.00    1.08
     3.083    1.17 | 9.083    2.88 |15.083    2.70 | 21.08    1.08
     3.167    1.17 | 9.167    2.88 |15.167    2.70 | 21.17    1.08
     3.250    1.17 | 9.250    2.88 |15.250    2.70 | 21.25    1.08
     3.333    1.17 | 9.333    2.88 |15.333    2.70 | 21.33    1.08
     3.417    1.17 | 9.417    2.88 |15.417    2.70 | 21.42    1.08
     3.500    1.17 | 9.500    2.88 |15.500    2.70 | 21.50    1.08
     3.583    1.17 | 9.583    3.24 |15.583    2.70 | 21.58    1.08
     3.667    1.17 | 9.667    3.24 |15.667    2.70 | 21.67    1.08
     3.750    1.17 | 9.750    3.24 |15.750    2.70 | 21.75    1.08
     3.833    1.17 | 9.833    3.24 |15.833    2.70 | 21.83    1.08
     3.917    1.17 | 9.917    3.24 |15.917    2.70 | 21.92    1.08
     4.000    1.17 |10.000    3.24 |16.000    2.70 | 22.00    1.08
     4.083    1.44 |10.083    4.14 |16.083    1.62 | 22.08    1.08
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4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Max.Eff.Inten.(mm/hr)=	99.25	69.65		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.26 (ii)	6.21 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.33	0.15		
			TOTALS	
PEAK FLOW (cms)=	0.05	0.01	0.068 (iii)	
TIME TO PEAK (hrs)=	12.00	12.00	12.00	
RUNOFF VOLUME (mm)=	88.90	52.81	78.42	
TOTAL RAINFALL (mm)=	89.90	89.90	89.90	
RUNOFF COEFFICIENT =	0.99	0.59	0.87	

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0100)		IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
				0.0000	0.0000	0.0200	0.0118
				0.0050	0.0062	0.0250	0.0132
				0.0100	0.0083	0.0310	0.0145
				0.0140	0.0100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0103)	0.280	0.068	12.00	78.42
OUTFLOW: ID= 1 (0100)	0.280	0.014	12.17	77.32

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.26
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0099

| MASS STORM | Filename: C:\Users\ssoumik\AppD
| | ata\Local\Temp\ | 053abc7c-95d9-4419-94cc-b08f725a5301\a719fc83
| Ptotal= 89.90 mm | Comments: SCS II 24H_10YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB	STANDHYD (0107)	ID= 1 DT= 5.0 min	Area (ha)= 0.88	Total Imp(%)= 75.00	Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.66	0.22
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	76.59	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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62

1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

			TOTALS
Max.Eff.Inten.(mm/hr)=	99.25	69.65	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.77 (ii)	6.34 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.15	
PEAK FLOW (cms)=	0.18	0.04	0.218 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	88.90	52.81	79.87
TOTAL RAINFALL (mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT =	0.99	0.59	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0105)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0480	0.0422
	0.0110	0.0224	0.0610	0.0471
	0.0240	0.0304	0.0740	0.0520
	0.0340	0.0355	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0107)	0.880	0.218	12.00	79.87
OUTFLOW: ID= 1 (0105)	0.880	0.034	12.25	79.29

PEAK FLOW REDUCTION [Qout/Qin](%)= 15.57
TIME SHIFT OF PEAK FLOW (min)= 15.00
MAXIMUM STORAGE USED (ha.m.)= 0.0355

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\a719fc83
Ptotal= 89.90 mm	Comments: SCS II 24H_10YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

```
| CALIB              |
| STANDHYD (  0110)|   Area     (ha)=   1.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.15         0.38
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     101.32        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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

```
     Max.Eff.Inten.(mm/hr)=      99.25        69.65
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      2.10 (ii)    6.66 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=      0.31         0.14
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.32         0.06          0.381 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     88.90        52.81         79.87
     TOTAL RAINFALL   (mm)=     89.90        89.90         89.90
     RUNOFF COEFFICIENT   =      0.99         0.59          0.89

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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(  0101)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0470     0.0860
                          0.0130     0.0440   |   0.0580     0.0960
                          0.0240     0.0610   |   0.0690     0.1060
                          0.0340     0.0720   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)      1.540     0.381     12.00      79.87
   OUTFLOW: ID= 1 (  0101)      1.540     0.034     12.58      79.32

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.80
                  TIME SHIFT OF PEAK FLOW         (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0715

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

--------------------
| ADD HYD  (  0109)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
```

```
       ID1= 1 (  0100):     0.28   0.014    12.17    77.32
     + ID2= 2 (  0101):     1.54   0.034    12.58    79.32
       ================================================
       ID = 3 (  0109):     1.82   0.046    12.50    79.01

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0109)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0109):     1.82   0.046    12.50    79.01
     + ID2= 2 (  0105):     0.88   0.034    12.25    79.29
       ================================================
       ID = 1 (  0109):     2.70   0.080    12.50    79.10

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0109)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0109):     2.70   0.080    12.50    79.10
     + ID2= 2 (  0108):    24.56   0.538    13.00    75.31
       ================================================
       ID = 3 (  0109):    27.26   0.612    12.83    75.68

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\254a3fdd-824a-470a-9617-76dbe4f489a6\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\254a3fdd-824a-470a-9617-76dbe4f489a6\scen


DATE: 12-15-2018                          TIME: 09:11:16

USER:

COMMENTS: _____

--------------------------------------------------------------------------------
----------------------
  ***********************************************
  ** SIMULATION : Run 04                       **
  ***********************************************

--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\6d7a2231
| Ptotal=107.50 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    1.08 |  6.25    2.15 | 12.25   15.48 | 18.25    1.93
                0.50    1.08 |  6.50    2.15 | 12.50   15.48 | 18.50    1.94
                0.75    1.08 |  6.75    2.15 | 12.75    7.95 | 18.75    1.93
                1.00    1.07 |  7.00    2.15 | 13.00    7.96 | 19.00    1.94
                1.25    1.08 |  7.25    2.15 | 13.25    1.50 | 19.25    1.93
                1.50    1.07 |  7.50    2.15 | 13.50    1.50 | 19.50    1.94
                1.75    1.08 |  7.75    2.15 | 13.75    8.82 | 19.75    1.93
                2.00    1.93 |  8.00    2.15 | 14.00    8.82 | 20.00    1.94
                2.25    1.40 |  8.25    2.90 | 14.25    3.22 | 20.25    1.29
                2.50    1.40 |  8.50    2.90 | 14.50    3.22 | 20.50    1.29
                2.75    1.40 |  8.75    2.90 | 14.75    3.22 | 20.75    1.29
                3.00    1.40 |  9.00    2.90 | 15.00    3.23 | 21.00    1.29
                3.25    1.40 |  9.25    3.44 | 15.25    3.22 | 21.25    1.29
                3.50    1.40 |  9.50    3.44 | 15.50    3.22 | 21.50    1.29
                3.75    1.40 |  9.75    3.87 | 15.75    3.22 | 21.75    1.29
                4.00    1.40 | 10.00    3.87 | 16.00    3.22 | 22.00    1.29
                4.25    1.72 | 10.25    4.95 | 16.25    1.94 | 22.25    1.29
                4.50    1.72 | 10.50    4.95 | 16.50    1.93 | 22.50    1.29
                4.75    1.72 | 10.75    6.67 | 16.75    1.93 | 22.75    1.29
                5.00    1.72 | 11.00    6.66 | 17.00    1.94 | 23.00    1.29
                5.25    1.72 | 11.25   10.32 | 17.25    1.93 | 23.25    1.29
                5.50    1.72 | 11.50   10.32 | 17.50    1.94 | 23.50    1.29
                5.75    1.72 | 11.75   44.72 | 17.75    1.93 | 23.75    1.29
                6.00    1.72 | 12.00  118.68 | 18.00    1.94 | 24.00    1.29

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0102)|   Area     (ha)=   8.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.08          2.03
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     232.38         40.00
     Mannings n           =      0.013         0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    1.08 | 6.083    2.15 |12.083   15.49 | 18.08    1.94
               0.167    1.08 | 6.167    2.15 |12.167   15.48 | 18.17    1.93
               0.250    1.08 | 6.250    2.15 |12.250   15.48 | 18.25    1.93
               0.333    1.08 | 6.333    2.15 |12.333   15.48 | 18.33    1.94
```

0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=	118.68	96.73	
over (min)	5.00	10.00	
Storage Coeff. (min)=	3.96 (ii)	8.20 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.24	0.13	
			TOTALS
PEAK FLOW (cms)=	1.97	0.44	2.413 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	106.50	74.50	98.50
TOTAL RAINFALL (mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT =	0.99	0.69	0.92

***** 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.

RESERVOIR(0098) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2080	0.4120
	0.0145	0.2500	0.2900	0.4890
	0.0790	0.2651	0.3570	0.5441
	0.1510	0.3505	0.4280	0.5972

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0102)	8.100	2.413	12.00	98.50
OUTFLOW: ID= 1 (0098)	8.100	0.289	12.58	96.91

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.99
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.4890

MASS STORM Ptotal=107.50 mm	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\6d7a2231 Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29

4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB			
STANDHYD (0106)	Area (ha)= 15.42		
ID= 1 DT= 5.0 min	Total Imp(%)= 58.00	Dir. Conn.(%)= 58.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.94	6.48
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	320.62	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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=		118.68	88.96	
over (min)		5.00	15.00	
Storage Coeff. (min)=		3.90 (ii)	11.29 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.25	0.09	
				TOTALS
PEAK FLOW	(cms)=	2.91	1.08	3.888 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	106.50	67.86	90.27
TOTAL RAINFALL	(mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT	=	0.99	0.63	0.84

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\6d7a2231
Ptotal=107.50 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94

0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB	
STANDHYD (0111)	Area (ha)= 1.04
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.78	0.26
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	83.27	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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=		118.68	88.96	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.74 (ii)	5.98 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.32	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.26	0.06	0.313 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	106.50	67.86	96.84
TOTAL RAINFALL	(mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT	=	0.99	0.63	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(  0104)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.1134     0.0447

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0111)     1.040     0.313     12.00      96.84
   OUTFLOW: ID= 1 (  0104)     1.040     0.089     12.08      96.75

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 28.58
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0354

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--------------------
| ADD HYD  (  0099)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     1.04   0.089    12.08    96.75
     + ID2= 2 (  0106):    15.42   3.888    12.00    90.27
       ==========================================================
       ID = 3 (  0099):    16.46   3.968    12.00    90.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0099)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0099):    16.46   3.968    12.00    90.68
     + ID2= 2 (  0098):     8.10   0.289    12.58    96.91
       ==========================================================
       ID = 1 (  0099):    24.56   4.169    12.00    92.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0108)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.5380     0.7427
                          0.0442     0.4230   |   0.7490     0.8891
                          0.2050     0.4608   |   0.9210     0.9994
                          0.3910     0.6279   |   1.1040     1.1071

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)    24.560     4.169     12.00      92.73
   OUTFLOW: ID= 1 (  0108)    24.560     0.749     12.75      92.06

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 17.96
                  TIME SHIFT OF PEAK FLOW         (min)= 45.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8891

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--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\6d7a2231
| Ptotal=107.50 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                  Duration of storm    = 24.00 hrs
                  Mass curve time step = 15.00 min

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.25    1.08 |  6.25    2.15 | 12.25   15.48 | 18.25    1.93
      0.50    1.08 |  6.50    2.15 | 12.50   15.48 | 18.50    1.94
      0.75    1.08 |  6.75    2.15 | 12.75    7.95 | 18.75    1.93
      1.00    1.07 |  7.00    2.15 | 13.00    7.96 | 19.00    1.94
      1.25    1.08 |  7.25    2.15 | 13.25    1.50 | 19.25    1.93
      1.50    1.07 |  7.50    2.15 | 13.50    1.50 | 19.50    1.94
      1.75    1.08 |  7.75    2.15 | 13.75    8.82 | 19.75    1.93
      2.00    1.93 |  8.00    2.15 | 14.00    8.82 | 20.00    1.94
      2.25    1.40 |  8.25    2.90 | 14.25    3.22 | 20.25    1.29
      2.50    1.40 |  8.50    2.90 | 14.50    3.22 | 20.50    1.29
      2.75    1.40 |  8.75    2.90 | 14.75    3.22 | 20.75    1.29
      3.00    1.40 |  9.00    2.90 | 15.00    3.23 | 21.00    1.29
      3.25    1.40 |  9.25    3.44 | 15.25    3.22 | 21.25    1.29
      3.50    1.40 |  9.50    3.44 | 15.50    3.22 | 21.50    1.29
      3.75    1.40 |  9.75    3.87 | 15.75    3.22 | 21.75    1.29
      4.00    1.40 | 10.00    3.87 | 16.00    3.22 | 22.00    1.29
      4.25    1.72 | 10.25    4.95 | 16.25    1.94 | 22.25    1.29
      4.50    1.72 | 10.50    4.95 | 16.50    1.93 | 22.50    1.29
      4.75    1.72 | 10.75    6.67 | 16.75    1.93 | 22.75    1.29
      5.00    1.72 | 11.00    6.66 | 17.00    1.94 | 23.00    1.29
      5.25    1.72 | 11.25   10.32 | 17.25    1.93 | 23.25    1.29
      5.50    1.72 | 11.50   10.32 | 17.50    1.94 | 23.50    1.29
      5.75    1.72 | 11.75   44.72 | 17.75    1.93 | 23.75    1.29
      6.00    1.72 | 12.00  118.68 | 18.00    1.94 | 24.00    1.29

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--------------------
| CALIB            |
| STANDHYD (  0103)|   Area     (ha)=   0.28
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.20          0.08
     Dep. Storage     (mm)=        1.00          1.50
     Average Slope     (%)=        2.00          2.00
     Length            (m)=       43.20         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    1.08 | 6.083    2.15 |12.083   15.49 | 18.08    1.94
     0.167    1.08 | 6.167    2.15 |12.167   15.48 | 18.17    1.93
     0.250    1.08 | 6.250    2.15 |12.250   15.48 | 18.25    1.93
     0.333    1.08 | 6.333    2.15 |12.333   15.48 | 18.33    1.94
     0.417    1.08 | 6.417    2.15 |12.417   15.48 | 18.42    1.94
     0.500    1.08 | 6.500    2.15 |12.500   15.48 | 18.50    1.94
     0.583    1.08 | 6.583    2.15 |12.583    7.96 | 18.58    1.94
     0.667    1.08 | 6.667    2.15 |12.667    7.95 | 18.67    1.93
     0.750    1.08 | 6.750    2.15 |12.750    7.95 | 18.75    1.93
     0.833    1.07 | 6.833    2.15 |12.833    7.95 | 18.83    1.94
     0.917    1.07 | 6.917    2.15 |12.917    7.96 | 18.92    1.94
     1.000    1.07 | 7.000    2.15 |13.000    7.96 | 19.00    1.94
     1.083    1.07 | 7.083    2.15 |13.083    1.51 | 19.08    1.94
     1.167    1.08 | 7.167    2.15 |13.167    1.50 | 19.17    1.93
     1.250    1.08 | 7.250    2.15 |13.250    1.50 | 19.25    1.93
     1.333    1.08 | 7.333    2.15 |13.333    1.50 | 19.33    1.94
     1.417    1.07 | 7.417    2.15 |13.417    1.50 | 19.42    1.94
     1.500    1.08 | 7.500    2.15 |13.500    1.50 | 19.50    1.94
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1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=	118.68	88.96	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.17 (ii)	5.78 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.15	
			TOTALS
PEAK FLOW (cms)=	0.07	0.02	0.083 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	106.50	67.86	95.28
TOTAL RAINFALL (mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT =	0.99	0.63	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0100)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0200	0.0118
	0.0050	0.0062	0.0250	0.0132
	0.0100	0.0083	0.0310	0.0145
	0.0140	0.0100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0103)	0.280	0.083	12.00	95.28
OUTFLOW: ID= 1 (0100)	0.280	0.020	12.17	94.17

PEAK FLOW REDUCTION [Qout/Qin](%)= 24.02
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0118

MASS STORM	Filename: C:\Users\ssoumik\AppD
	ata\Local\Temp\
	053abc7c-95d9-4419-94cc-b08f725a5301\6d7a2231
Ptotal=107.50 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB	
STANDHYD (0107)	Area (ha)= 0.88

|ID= 1 DT= 5.0 min | Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.66	0.22
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	76.59	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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=		118.68	88.96	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.65 (ii)	5.90 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.32	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.22	0.05	0.265 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	106.50	67.86	96.83
TOTAL RAINFALL	(mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT	=	0.99	0.63	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0105)| IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0480	0.0422
	0.0110	0.0224	0.0610	0.0471
	0.0240	0.0304	0.0740	0.0520
	0.0340	0.0355	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0107)	0.880	0.265	12.00	96.83
OUTFLOW: ID= 1 (0105)	0.880	0.048	12.17	96.26

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.08
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0422

MASS STORM	Ptotal=107.50 mm	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\6d7a2231
		Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs

Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB
STANDHYD (0110)
ID= 1 DT= 5.0 min

Area (ha)= 1.54
Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.15	0.38
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	101.32	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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.	(mm/hr)=	118.68	88.96	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.95 (ii)	6.20 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.31	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.38	0.08	0.463 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	106.50	67.86	96.84
TOTAL RAINFALL	(mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT	=	0.99	0.63	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

```
           CN*  =  81.0    Ia = Dep. 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(  0101)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0470     0.0860
                         0.0130     0.0440   |   0.0580     0.0960
                         0.0240     0.0610   |   0.0690     0.1060
                         0.0340     0.0720   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)     1.540     0.463     12.00      96.84
   OUTFLOW: ID= 1 (  0101)     1.540     0.046     12.58      96.28

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.01
                  TIME SHIFT OF PEAK FLOW         (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0854

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--------------------
| ADD HYD  (  0109)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0100):     0.28   0.020    12.17    94.17
      + ID2= 2 (  0101):     1.54   0.046    12.58    96.28
        ================================================
        ID = 3 (  0109):     1.82   0.064    12.33    95.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0109)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0109):     1.82   0.064    12.33    95.96
      + ID2= 2 (  0105):     0.88   0.048    12.17    96.26
        ================================================
        ID = 1 (  0109):     2.70   0.112    12.25    96.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0109)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0109):     2.70   0.112    12.25    96.05
      + ID2= 2 (  0108):    24.56   0.749    12.75    92.06
        ================================================
        ID = 3 (  0109):    27.26   0.853    12.67    92.45

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
====================
```

```
          V    V   I    SSSSS  U   U    A    L
          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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\1157c830-fb41-40f5-a07d-9032385a0236\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\1157c830-fb41-40f5-a07d-9032385a0236\scen

DATE: 12-15-2018                          TIME: 09:11:15

USER:


COMMENTS: _____________________________________________________

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----------------------
  ***********************************************
  ** SIMULATION : Run 05                       **
  ***********************************************

--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
          0.25    1.21 |  6.25    2.41 | 12.25   17.37 | 18.25    2.17
          0.50    1.21 |  6.50    2.41 | 12.50   17.37 | 18.50    2.17
          0.75    1.21 |  6.75    2.41 | 12.75    8.92 | 18.75    2.17
          1.00    1.21 |  7.00    2.41 | 13.00    8.92 | 19.00    2.17
          1.25    1.21 |  7.25    2.41 | 13.25    1.69 | 19.25    2.17
          1.50    1.21 |  7.50    2.41 | 13.50    1.69 | 19.50    2.17
          1.75    1.21 |  7.75    2.41 | 13.75    9.89 | 19.75    2.17
          2.00    2.17 |  8.00    2.41 | 14.00    9.89 | 20.00    2.17
          2.25    1.57 |  8.25    3.26 | 14.25    3.62 | 20.25    1.45
          2.50    1.57 |  8.50    3.26 | 14.50    3.62 | 20.50    1.45
          2.75    1.57 |  8.75    3.26 | 14.75    3.62 | 20.75    1.45
          3.00    1.57 |  9.00    3.26 | 15.00    3.62 | 21.00    1.45
          3.25    1.57 |  9.25    3.86 | 15.25    3.62 | 21.25    1.45
          3.50    1.57 |  9.50    3.86 | 15.50    3.62 | 21.50    1.45
          3.75    1.57 |  9.75    4.34 | 15.75    3.62 | 21.75    1.45
          4.00    1.57 | 10.00    4.34 | 16.00    3.62 | 22.00    1.45
          4.25    1.93 | 10.25    5.55 | 16.25    2.17 | 22.25    1.45
```

4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

CALIB	
STANDHYD (0102)	Area (ha)= 8.10
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	6.08	2.03
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	232.38	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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Max.Eff.Inten.	(mm/hr)=	133.14	111.68	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	3.78 (ii)	7.83 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.25	0.13	
				TOTALS
PEAK FLOW	(cms)=	2.22	0.52	2.736 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	119.60	86.53	111.33
TOTAL RAINFALL	(mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT	=	0.99	0.72	0.92

***** 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.

RESERVOIR(0098)			
IN= 2---> OUT= 1			
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2080	0.4120
	0.0145	0.2500	0.2900	0.4890
	0.0790	0.2651	0.3570	0.5441
	0.1510	0.3505	0.4280	0.5972

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0102)	8.100	2.736	12.00	111.33
OUTFLOW: ID= 1 (0098)	8.100	0.356	12.50	109.74

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.02
                  TIME SHIFT OF PEAK FLOW         (min)= 30.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5441

--------------------------------------------------------------------------------
--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    1.21 |  6.25    2.41 | 12.25   17.37 | 18.25    2.17
               0.50    1.21 |  6.50    2.41 | 12.50   17.37 | 18.50    2.17
               0.75    1.21 |  6.75    2.41 | 12.75    8.92 | 18.75    2.17
               1.00    1.21 |  7.00    2.41 | 13.00    8.92 | 19.00    2.17
               1.25    1.21 |  7.25    2.41 | 13.25    1.69 | 19.25    2.17
               1.50    1.21 |  7.50    2.41 | 13.50    1.69 | 19.50    2.17
               1.75    1.21 |  7.75    2.41 | 13.75    9.89 | 19.75    2.17
               2.00    2.17 |  8.00    2.41 | 14.00    9.89 | 20.00    2.17
               2.25    1.57 |  8.25    3.26 | 14.25    3.62 | 20.25    1.45
               2.50    1.57 |  8.50    3.26 | 14.50    3.62 | 20.50    1.45
               2.75    1.57 |  8.75    3.26 | 14.75    3.62 | 20.75    1.45
               3.00    1.57 |  9.00    3.26 | 15.00    3.62 | 21.00    1.45
               3.25    1.57 |  9.25    3.86 | 15.25    3.62 | 21.25    1.45
               3.50    1.57 |  9.50    3.86 | 15.50    3.62 | 21.50    1.45
               3.75    1.57 |  9.75    4.34 | 15.75    3.62 | 21.75    1.45
               4.00    1.57 | 10.00    4.34 | 16.00    3.62 | 22.00    1.45
               4.25    1.93 | 10.25    5.55 | 16.25    2.17 | 22.25    1.45
               4.50    1.93 | 10.50    5.55 | 16.50    2.17 | 22.50    1.45
               4.75    1.93 | 10.75    7.48 | 16.75    2.17 | 22.75    1.45
               5.00    1.93 | 11.00    7.48 | 17.00    2.17 | 23.00    1.45
               5.25    1.93 | 11.25   11.58 | 17.25    2.17 | 23.25    1.45
               5.50    1.93 | 11.50   11.58 | 17.50    2.17 | 23.50    1.45
               5.75    1.93 | 11.75   50.17 | 17.75    2.17 | 23.75    1.45
               6.00    1.93 | 12.00  133.14 | 18.00    2.17 | 24.00    1.45

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0106)|   Area    (ha)=  15.42
|ID= 1 DT= 5.0 min |   Total Imp(%)=  58.00   Dir. Conn.(%)=  58.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.94         6.48
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     320.62        40.00
     Mannings n           =      0.013        0.250

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


                              ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.21 | 6.083    2.41 |12.083   17.38 | 18.08    2.17
              0.167    1.21 | 6.167    2.41 |12.167   17.37 | 18.17    2.17
              0.250    1.21 | 6.250    2.41 |12.250   17.37 | 18.25    2.17
              0.333    1.21 | 6.333    2.41 |12.333   17.37 | 18.33    2.17
              0.417    1.21 | 6.417    2.41 |12.417   17.37 | 18.42    2.17
              0.500    1.21 | 6.500    2.41 |12.500   17.37 | 18.50    2.17
              0.583    1.21 | 6.583    2.41 |12.583    8.93 | 18.58    2.17
              0.667    1.21 | 6.667    2.41 |12.667    8.92 | 18.67    2.17
              0.750    1.21 | 6.750    2.41 |12.750    8.92 | 18.75    2.17
              0.833    1.21 | 6.833    2.41 |12.833    8.92 | 18.83    2.17
              0.917    1.21 | 6.917    2.41 |12.917    8.92 | 18.92    2.17
              1.000    1.21 | 7.000    2.41 |13.000    8.92 | 19.00    2.17
              1.083    1.21 | 7.083    2.41 |13.083    1.69 | 19.08    2.17
              1.167    1.21 | 7.167    2.41 |13.167    1.69 | 19.17    2.17
              1.250    1.21 | 7.250    2.41 |13.250    1.69 | 19.25    2.17
              1.333    1.21 | 7.333    2.41 |13.333    1.69 | 19.33    2.17
              1.417    1.21 | 7.417    2.41 |13.417    1.69 | 19.42    2.17
              1.500    1.21 | 7.500    2.41 |13.500    1.69 | 19.50    2.17
              1.583    1.21 | 7.583    2.41 |13.583    9.89 | 19.58    2.17
              1.667    1.21 | 7.667    2.41 |13.667    9.89 | 19.67    2.17
              1.750    1.21 | 7.750    2.41 |13.750    9.89 | 19.75    2.17
              1.833    2.17 | 7.833    2.41 |13.833    9.89 | 19.83    2.17
              1.917    2.17 | 7.917    2.41 |13.917    9.89 | 19.92    2.17
              2.000    2.17 | 8.000    2.41 |14.000    9.89 | 20.00    2.17
              2.083    1.57 | 8.083    3.26 |14.083    3.62 | 20.08    1.45
              2.167    1.57 | 8.167    3.26 |14.167    3.62 | 20.17    1.45
              2.250    1.57 | 8.250    3.26 |14.250    3.62 | 20.25    1.45
              2.333    1.57 | 8.333    3.26 |14.333    3.62 | 20.33    1.45
              2.417    1.57 | 8.417    3.26 |14.417    3.62 | 20.42    1.45
              2.500    1.57 | 8.500    3.26 |14.500    3.62 | 20.50    1.45
              2.583    1.57 | 8.583    3.26 |14.583    3.62 | 20.58    1.45
              2.667    1.57 | 8.667    3.26 |14.667    3.62 | 20.67    1.45
              2.750    1.57 | 8.750    3.26 |14.750    3.62 | 20.75    1.45
              2.833    1.57 | 8.833    3.26 |14.833    3.62 | 20.83    1.45
              2.917    1.57 | 8.917    3.26 |14.917    3.62 | 20.92    1.45
              3.000    1.57 | 9.000    3.26 |15.000    3.62 | 21.00    1.45
              3.083    1.57 | 9.083    3.86 |15.083    3.62 | 21.08    1.45
              3.167    1.57 | 9.167    3.86 |15.167    3.62 | 21.17    1.45
              3.250    1.57 | 9.250    3.86 |15.250    3.62 | 21.25    1.45
              3.333    1.57 | 9.333    3.86 |15.333    3.62 | 21.33    1.45
              3.417    1.57 | 9.417    3.86 |15.417    3.62 | 21.42    1.45
              3.500    1.57 | 9.500    3.86 |15.500    3.62 | 21.50    1.45
              3.583    1.57 | 9.583    4.34 |15.583    3.62 | 21.58    1.45
              3.667    1.57 | 9.667    4.34 |15.667    3.62 | 21.67    1.45
              3.750    1.57 | 9.750    4.34 |15.750    3.62 | 21.75    1.45
              3.833    1.57 | 9.833    4.34 |15.833    3.62 | 21.83    1.45
              3.917    1.57 | 9.917    4.34 |15.917    3.62 | 21.92    1.45
              4.000    1.57 |10.000    4.34 |16.000    3.62 | 22.00    1.45
              4.083    1.93 |10.083    5.55 |16.083    2.17 | 22.08    1.45
              4.167    1.93 |10.167    5.55 |16.167    2.17 | 22.17    1.45
              4.250    1.93 |10.250    5.55 |16.250    2.17 | 22.25    1.45
              4.333    1.93 |10.333    5.55 |16.333    2.17 | 22.33    1.45
              4.417    1.93 |10.417    5.55 |16.417    2.17 | 22.42    1.45
              4.500    1.93 |10.500    5.55 |16.500    2.17 | 22.50    1.45
              4.583    1.93 |10.583    7.48 |16.583    2.17 | 22.58    1.45
              4.667    1.93 |10.667    7.48 |16.667    2.17 | 22.67    1.45
              4.750    1.93 |10.750    7.48 |16.750    2.17 | 22.75    1.45
              4.833    1.93 |10.833    7.48 |16.833    2.17 | 22.83    1.45
              4.917    1.93 |10.917    7.48 |16.917    2.17 | 22.92    1.45
              5.000    1.93 |11.000    7.48 |17.000    2.17 | 23.00    1.45
              5.083    1.93 |11.083   11.58 |17.083    2.17 | 23.08    1.45
              5.167    1.93 |11.167   11.58 |17.167    2.17 | 23.17    1.45
              5.250    1.93 |11.250   11.58 |17.250    2.17 | 23.25    1.45
              5.333    1.93 |11.333   11.58 |17.333    2.17 | 23.33    1.45
              5.417    1.93 |11.417   11.58 |17.417    2.17 | 23.42    1.45
              5.500    1.93 |11.500   11.58 |17.500    2.17 | 23.50    1.45
              5.583    1.93 |11.583   50.17 |17.583    2.17 | 23.58    1.45
              5.667    1.93 |11.667   50.17 |17.667    2.17 | 23.67    1.45
              5.750    1.93 |11.750   50.17 |17.750    2.17 | 23.75    1.45
              5.833    1.93 |11.833  133.13 |17.833    2.17 | 23.83    1.45
              5.917    1.93 |11.917  133.14 |17.917    2.17 | 23.92    1.45
              6.000    1.93 |12.000  133.14 |18.000    2.17 | 24.00    1.45

Max.Eff.Inten.(mm/hr)=     133.14       103.59
            over (min)        5.00        15.00
Storage Coeff.  (min)=       3.72 (ii)   10.68 (ii)
```

```
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.25          0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       3.27          1.29          4.447 (iii)
     TIME TO PEAK    (hrs)=      12.00         12.08         12.00
     RUNOFF VOLUME    (mm)=     119.60         79.39        102.71
     TOTAL RAINFALL   (mm)=     120.60        120.60        120.60
     RUNOFF COEFFICIENT   =       0.99          0.66          0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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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--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    1.21 |  6.25    2.41 | 12.25   17.37 | 18.25    2.17
                0.50    1.21 |  6.50    2.41 | 12.50   17.37 | 18.50    2.17
                0.75    1.21 |  6.75    2.41 | 12.75    8.92 | 18.75    2.17
                1.00    1.21 |  7.00    2.41 | 13.00    8.92 | 19.00    2.17
                1.25    1.21 |  7.25    2.41 | 13.25    1.69 | 19.25    2.17
                1.50    1.21 |  7.50    2.41 | 13.50    1.69 | 19.50    2.17
                1.75    1.21 |  7.75    2.41 | 13.75    9.89 | 19.75    2.17
                2.00    2.17 |  8.00    2.41 | 14.00    9.89 | 20.00    2.17
                2.25    1.57 |  8.25    3.26 | 14.25    3.62 | 20.25    1.45
                2.50    1.57 |  8.50    3.26 | 14.50    3.62 | 20.50    1.45
                2.75    1.57 |  8.75    3.26 | 14.75    3.62 | 20.75    1.45
                3.00    1.57 |  9.00    3.26 | 15.00    3.62 | 21.00    1.45
                3.25    1.57 |  9.25    3.86 | 15.25    3.62 | 21.25    1.45
                3.50    1.57 |  9.50    3.86 | 15.50    3.62 | 21.50    1.45
                3.75    1.57 |  9.75    4.34 | 15.75    3.62 | 21.75    1.45
                4.00    1.57 | 10.00    4.34 | 16.00    3.62 | 22.00    1.45
                4.25    1.93 | 10.25    5.55 | 16.25    2.17 | 22.25    1.45
                4.50    1.93 | 10.50    5.55 | 16.50    2.17 | 22.50    1.45
                4.75    1.93 | 10.75    7.48 | 16.75    2.17 | 22.75    1.45
                5.00    1.93 | 11.00    7.48 | 17.00    2.17 | 23.00    1.45
                5.25    1.93 | 11.25   11.58 | 17.25    2.17 | 23.25    1.45
                5.50    1.93 | 11.50   11.58 | 17.50    2.17 | 23.50    1.45
                5.75    1.93 | 11.75   50.17 | 17.75    2.17 | 23.75    1.45
                6.00    1.93 | 12.00  133.14 | 18.00    2.17 | 24.00    1.45

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--------------------
| CALIB            |
| STANDHYD (  0111)|   Area    (ha)=   1.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.78          0.26
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       2.00          2.00
     Length            (m)=      83.27         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    1.21 | 6.083    2.41 |12.083   17.38 | 18.08    2.17
0.167    1.21 | 6.167    2.41 |12.167   17.37 | 18.17    2.17
0.250    1.21 | 6.250    2.41 |12.250   17.37 | 18.25    2.17
0.333    1.21 | 6.333    2.41 |12.333   17.37 | 18.33    2.17
0.417    1.21 | 6.417    2.41 |12.417   17.37 | 18.42    2.17
0.500    1.21 | 6.500    2.41 |12.500   17.37 | 18.50    2.17
0.583    1.21 | 6.583    2.41 |12.583    8.93 | 18.58    2.17
0.667    1.21 | 6.667    2.41 |12.667    8.92 | 18.67    2.17
0.750    1.21 | 6.750    2.41 |12.750    8.92 | 18.75    2.17
0.833    1.21 | 6.833    2.41 |12.833    8.92 | 18.83    2.17
0.917    1.21 | 6.917    2.41 |12.917    8.92 | 18.92    2.17
1.000    1.21 | 7.000    2.41 |13.000    8.92 | 19.00    2.17
1.083    1.21 | 7.083    2.41 |13.083    1.69 | 19.08    2.17
1.167    1.21 | 7.167    2.41 |13.167    1.69 | 19.17    2.17
1.250    1.21 | 7.250    2.41 |13.250    1.69 | 19.25    2.17
1.333    1.21 | 7.333    2.41 |13.333    1.69 | 19.33    2.17
1.417    1.21 | 7.417    2.41 |13.417    1.69 | 19.42    2.17
1.500    1.21 | 7.500    2.41 |13.500    1.69 | 19.50    2.17
1.583    1.21 | 7.583    2.41 |13.583    9.89 | 19.58    2.17
1.667    1.21 | 7.667    2.41 |13.667    9.89 | 19.67    2.17
1.750    1.21 | 7.750    2.41 |13.750    9.89 | 19.75    2.17
1.833    2.17 | 7.833    2.41 |13.833    9.89 | 19.83    2.17
1.917    2.17 | 7.917    2.41 |13.917    9.89 | 19.92    2.17
2.000    2.17 | 8.000    2.41 |14.000    9.89 | 20.00    2.17
2.083    1.57 | 8.083    3.26 |14.083    3.62 | 20.08    1.45
2.167    1.57 | 8.167    3.26 |14.167    3.62 | 20.17    1.45
2.250    1.57 | 8.250    3.26 |14.250    3.62 | 20.25    1.45
2.333    1.57 | 8.333    3.26 |14.333    3.62 | 20.33    1.45
2.417    1.57 | 8.417    3.26 |14.417    3.62 | 20.42    1.45
2.500    1.57 | 8.500    3.26 |14.500    3.62 | 20.50    1.45
2.583    1.57 | 8.583    3.26 |14.583    3.62 | 20.58    1.45
2.667    1.57 | 8.667    3.26 |14.667    3.62 | 20.67    1.45
2.750    1.57 | 8.750    3.26 |14.750    3.62 | 20.75    1.45
2.833    1.57 | 8.833    3.26 |14.833    3.62 | 20.83    1.45
2.917    1.57 | 8.917    3.26 |14.917    3.62 | 20.92    1.45
3.000    1.57 | 9.000    3.26 |15.000    3.62 | 21.00    1.45
3.083    1.57 | 9.083    3.86 |15.083    3.62 | 21.08    1.45
3.167    1.57 | 9.167    3.86 |15.167    3.62 | 21.17    1.45
3.250    1.57 | 9.250    3.86 |15.250    3.62 | 21.25    1.45
3.333    1.57 | 9.333    3.86 |15.333    3.62 | 21.33    1.45
3.417    1.57 | 9.417    3.86 |15.417    3.62 | 21.42    1.45
3.500    1.57 | 9.500    3.86 |15.500    3.62 | 21.50    1.45
3.583    1.57 | 9.583    4.34 |15.583    3.62 | 21.58    1.45
3.667    1.57 | 9.667    4.34 |15.667    3.62 | 21.67    1.45
3.750    1.57 | 9.750    4.34 |15.750    3.62 | 21.75    1.45
3.833    1.57 | 9.833    4.34 |15.833    3.62 | 21.83    1.45
3.917    1.57 | 9.917    4.34 |15.917    3.62 | 21.92    1.45
4.000    1.57 |10.000    4.34 |16.000    3.62 | 22.00    1.45
4.083    1.93 |10.083    5.55 |16.083    2.17 | 22.08    1.45
4.167    1.93 |10.167    5.55 |16.167    2.17 | 22.17    1.45
4.250    1.93 |10.250    5.55 |16.250    2.17 | 22.25    1.45
4.333    1.93 |10.333    5.55 |16.333    2.17 | 22.33    1.45
4.417    1.93 |10.417    5.55 |16.417    2.17 | 22.42    1.45
4.500    1.93 |10.500    5.55 |16.500    2.17 | 22.50    1.45
4.583    1.93 |10.583    7.48 |16.583    2.17 | 22.58    1.45
4.667    1.93 |10.667    7.48 |16.667    2.17 | 22.67    1.45
4.750    1.93 |10.750    7.48 |16.750    2.17 | 22.75    1.45
4.833    1.93 |10.833    7.48 |16.833    2.17 | 22.83    1.45
4.917    1.93 |10.917    7.48 |16.917    2.17 | 22.92    1.45
5.000    1.93 |11.000    7.48 |17.000    2.17 | 23.00    1.45
5.083    1.93 |11.083   11.58 |17.083    2.17 | 23.08    1.45
5.167    1.93 |11.167   11.58 |17.167    2.17 | 23.17    1.45
5.250    1.93 |11.250   11.58 |17.250    2.17 | 23.25    1.45
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                5.333    1.93 |11.333   11.58 |17.333    2.17 | 23.33    1.45
                5.417    1.93 |11.417   11.58 |17.417    2.17 | 23.42    1.45
                5.500    1.93 |11.500   11.58 |17.500    2.17 | 23.50    1.45
                5.583    1.93 |11.583   50.17 |17.583    2.17 | 23.58    1.45
                5.667    1.93 |11.667   50.17 |17.667    2.17 | 23.67    1.45
                5.750    1.93 |11.750   50.17 |17.750    2.17 | 23.75    1.45
                5.833    1.93 |11.833  133.13 |17.833    2.17 | 23.83    1.45
                5.917    1.93 |11.917  133.14 |17.917    2.17 | 23.92    1.45
                6.000    1.93 |12.000  133.14 |18.000    2.17 | 24.00    1.45

     Max.Eff.Inten.(mm/hr)=     133.14       103.59
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.66 (ii)    5.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.29         0.07        0.354 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     119.60        79.39        109.54
     TOTAL RAINFALL   (mm)=     120.60       120.60        120.60
     RUNOFF COEFFICIENT   =       0.99         0.66          0.91

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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(  0104)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                        0.0000     0.0000   |   0.1134      0.0447

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0111)    1.040     0.354     12.00     109.54
   OUTFLOW: ID= 1 (  0104)    1.040     0.101     12.08     109.46

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 28.59
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0400

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--------------------
| ADD HYD  (  0099)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0104):     1.04   0.101    12.08   109.46
     + ID2= 2 (  0106):    15.42   4.447    12.00   102.71
       ==========================================================
       ID = 3 (  0099):    16.46   4.538    12.00   103.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0099)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0099):    16.46   4.538    12.00   103.14
     + ID2= 2 (  0098):     8.10   0.356    12.50   109.74
       ==========================================================
       ID = 1 (  0099):    24.56   4.792    12.00   105.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0108)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                        0.0000     0.0000   |   0.5380      0.7427
                        0.0442     0.4230   |   0.7490      0.8891
                        0.2050     0.4608   |   0.9210      0.9994
                        0.3910     0.6279   |   1.1040      1.1071

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0099)    24.560     4.792     12.00     105.31
   OUTFLOW: ID= 1 (  0108)    24.560     0.920     12.67     104.64

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.20
                  TIME SHIFT OF PEAK FLOW         (min)= 40.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.9994

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
          0.25    1.21 |  6.25    2.41 | 12.25   17.37 | 18.25    2.17
          0.50    1.21 |  6.50    2.41 | 12.50   17.37 | 18.50    2.17
          0.75    1.21 |  6.75    2.41 | 12.75    8.92 | 18.75    2.17
          1.00    1.21 |  7.00    2.41 | 13.00    8.92 | 19.00    2.17
          1.25    1.21 |  7.25    2.41 | 13.25    1.69 | 19.25    2.17
          1.50    1.21 |  7.50    2.41 | 13.50    1.69 | 19.50    2.17
          1.75    1.21 |  7.75    2.41 | 13.75    9.89 | 19.75    2.17
          2.00    2.17 |  8.00    2.41 | 14.00    9.89 | 20.00    2.17
          2.25    1.57 |  8.25    3.26 | 14.25    3.62 | 20.25    1.45
          2.50    1.57 |  8.50    3.26 | 14.50    3.62 | 20.50    1.45
          2.75    1.57 |  8.75    3.26 | 14.75    3.62 | 20.75    1.45
          3.00    1.57 |  9.00    3.26 | 15.00    3.62 | 21.00    1.45
          3.25    1.57 |  9.25    3.86 | 15.25    3.62 | 21.25    1.45
          3.50    1.57 |  9.50    3.86 | 15.50    3.62 | 21.50    1.45
          3.75    1.57 |  9.75    4.34 | 15.75    3.62 | 21.75    1.45
          4.00    1.57 | 10.00    4.34 | 16.00    3.62 | 22.00    1.45
          4.25    1.93 | 10.25    5.55 | 16.25    2.17 | 22.25    1.45
          4.50    1.93 | 10.50    5.55 | 16.50    2.17 | 22.50    1.45
          4.75    1.93 | 10.75    7.48 | 16.75    2.17 | 22.75    1.45
          5.00    1.93 | 11.00    7.48 | 17.00    2.17 | 23.00    1.45
          5.25    1.93 | 11.25   11.58 | 17.25    2.17 | 23.25    1.45
          5.50    1.93 | 11.50   11.58 | 17.50    2.17 | 23.50    1.45
          5.75    1.93 | 11.75   50.17 | 17.75    2.17 | 23.75    1.45
          6.00    1.93 | 12.00  133.14 | 18.00    2.17 | 24.00    1.45

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| CALIB            |
| STANDHYD (  0103)|   Area     (ha)=   0.28
|ID= 1 DT= 5.0 min |   Total Imp(%)=  71.00   Dir. Conn.(%)=  71.00
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		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.08
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	43.20	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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Max.Eff.Inten.	(mm/hr)=	133.14	103.59	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.12 (ii)	5.52 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.34	0.16	
				TOTALS
PEAK FLOW	(cms)=	0.07	0.02	0.094 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	119.60	79.39	107.92
TOTAL RAINFALL	(mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT	=	0.99	0.66	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0100)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0200	0.0118
	0.0050	0.0062	0.0250	0.0132
	0.0100	0.0083	0.0310	0.0145
	0.0140	0.0100	0.0000	0.0000

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2	(0103)	0.280	0.094	12.00	107.92
OUTFLOW: ID= 1	(0100)	0.280	0.025	12.08	106.83

PEAK FLOW REDUCTION [Qout/Qin](%)= 26.41
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0132

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\62c328ea
Ptotal=120.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

CALIB		
STANDHYD (0107)	Area (ha)=	0.88
ID= 1 DT= 5.0 min	Total Imp(%)=	75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.66	0.22
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	76.59	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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Max.Eff.Inten.	(mm/hr)=	133.14	103.59	
	over (min)	5.00	10.00	
Storage Coeff.	(min)=	1.58 (ii)	5.63 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.33	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.24	0.06	0.300 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	119.60	79.39	109.54
TOTAL RAINFALL	(mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT	=	0.99	0.66	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0105)	
IN= 2---> OUT= 1	
DT= 5.0 min	OUTFLOW (cms) / STORAGE (ha.m.) / OUTFLOW (cms) / STORAGE (ha.m.)
	0.0000 / 0.0000 / 0.0480 / 0.0422
	0.0110 / 0.0224 / 0.0610 / 0.0471
	0.0240 / 0.0304 / 0.0740 / 0.0520
	0.0340 / 0.0355 / 0.0000 / 0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0107)	0.880	0.300	12.00	109.54
OUTFLOW: ID= 1 (0105)	0.880	0.061	12.17	108.96

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.30
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0471

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\62c328ea
Ptotal=120.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

CALIB	
STANDHYD (0110)	Area (ha)= 1.54
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.15	0.38
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	2.00	2.00
Length (m)=	101.32	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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45

```
                4.833    1.93 |10.833    7.48 |16.833    2.17 | 22.83    1.45
                4.917    1.93 |10.917    7.48 |16.917    2.17 | 22.92    1.45
                5.000    1.93 |11.000    7.48 |17.000    2.17 | 23.00    1.45
                5.083    1.93 |11.083   11.58 |17.083    2.17 | 23.08    1.45
                5.167    1.93 |11.167   11.58 |17.167    2.17 | 23.17    1.45
                5.250    1.93 |11.250   11.58 |17.250    2.17 | 23.25    1.45
                5.333    1.93 |11.333   11.58 |17.333    2.17 | 23.33    1.45
                5.417    1.93 |11.417   11.58 |17.417    2.17 | 23.42    1.45
                5.500    1.93 |11.500   11.58 |17.500    2.17 | 23.50    1.45
                5.583    1.93 |11.583   50.17 |17.583    2.17 | 23.58    1.45
                5.667    1.93 |11.667   50.17 |17.667    2.17 | 23.67    1.45
                5.750    1.93 |11.750   50.17 |17.750    2.17 | 23.75    1.45
                5.833    1.93 |11.833  133.13 |17.833    2.17 | 23.83    1.45
                5.917    1.93 |11.917  133.14 |17.917    2.17 | 23.92    1.45
                6.000    1.93 |12.000  133.14 |18.000    2.17 | 24.00    1.45

     Max.Eff.Inten.(mm/hr)=     133.14       103.59
                 over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.87 (ii)    5.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.15
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.43         0.10          0.524 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     119.60        79.39        109.54
     TOTAL RAINFALL   (mm)=     120.60       120.60        120.60
     RUNOFF COEFFICIENT   =       0.99         0.66          0.91

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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(  0101)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0470     0.0860
                         0.0130     0.0440   |   0.0580     0.0960
                         0.0240     0.0610   |   0.0690     0.1060
                         0.0340     0.0720   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0110)     1.540     0.524     12.00     109.54
   OUTFLOW: ID= 1 (  0101)     1.540     0.057     12.58     108.99

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 10.91
                  TIME SHIFT OF PEAK FLOW         (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0955

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

--------------------
| ADD HYD  (  0109)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0100):     0.28   0.025    12.08   106.83
      + ID2= 2 (  0101):     1.54   0.057    12.58   108.99
        ========================================================
        ID = 3 (  0109):     1.82   0.079    12.25   108.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0109)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0109):     1.82   0.079    12.25   108.65
      + ID2= 2 (  0105):     0.88   0.061    12.17   108.96
        ========================================================
        ID = 1 (  0109):     2.70   0.140    12.17   108.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0109)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0109):     2.70   0.140    12.17   108.76
      + ID2= 2 (  0108):    24.56   0.920    12.67   104.64
        ========================================================
        ID = 3 (  0109):    27.26   1.049    12.58   105.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================
======================

       V    V   I    SSSSS  U   U    A    L
       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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\2106a444-e491-4290-9169-6103bf52731f\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\2106a444-e491-4290-9169-6103bf52731f\scen

DATE: 12-15-2018                          TIME: 09:11:16

USER:


COMMENTS: _____

--------------------------------------------------------------------------------
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  ***********************************************
```

```
  ** SIMULATION : Run 06                          **
  ************************************************

--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              053abc7c-95d9-4419-94cc-b08f725a5301\1bad87f9
| Ptotal=133.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

```
--------------------
| CALIB            |
| STANDHYD (  0102)|   Area    (ha)=   8.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       6.08         2.03
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     232.38        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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

```
Max.Eff.Inten.(mm/hr)=     147.49       126.56
          over (min)          5.00        10.00
Storage Coeff.  (min)=       3.63 (ii)    7.52 (ii)
Unit Hyd. Tpeak (min)=       5.00        10.00
Unit Hyd. peak  (cms)=       0.25         0.13
```

			TOTALS	
PEAK FLOW	(cms)=	2.46	0.59	3.057 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	132.60	98.63	124.11
TOTAL RAINFALL	(mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT	=	0.99	0.74	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.

RESERVOIR(0098)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.2080	0.4120
	0.0145	0.2500	0.2900	0.4890
	0.0790	0.2651	0.3570	0.5441
	0.1510	0.3505	0.4280	0.5972

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0102)	8.100	3.057	12.00	124.11
OUTFLOW: ID= 1 (0098)	8.100	0.428	12.50	122.51

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.99
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.5972

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB	
STANDHYD (0106)	Area (ha)= 15.42
ID= 1 DT= 5.0 min	Total Imp(%)= 58.00 Dir. Conn.(%)= 58.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.94	6.48
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	320.62	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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60

3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=	147.49	118.25	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.57 (ii)	10.17 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.26	0.10	
			TOTALS
PEAK FLOW (cms)=	3.63	1.50	5.008 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	132.60	91.04	115.14
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.68	0.86

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

MASS STORM	Filename: C:\Users\ssoumik\AppD ata\Local\Temp\ 053abc7c-95d9-4419-94cc-b08f725a5301\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB	
STANDHYD (0111)	Area (ha)= 1.04
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.78	0.26
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	83.27	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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60

2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=		147.49	118.25	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.59 (ii)	5.48 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.33	0.16	
				TOTALS
PEAK FLOW	(cms)=	0.32	0.08	0.396 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	132.60	91.04	122.21
TOTAL RAINFALL	(mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT	=	0.99	0.68	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0104)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1134	0.0447

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0111)	1.040	0.396	12.00	122.21
OUTFLOW: ID= 1 (0104)	1.040	0.113	12.08	122.12

PEAK FLOW REDUCTION [Qout/Qin](%)= 28.61
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0447

ADD HYD (0099)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0104):	1.04	0.113	12.08	122.12
+ ID2= 2 (0106):	15.42	5.008	12.00	115.14
ID = 3 (0099):	16.46	5.110	12.00	115.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0099)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0099):	16.46	5.110	12.00	115.58
+ ID2= 2 (0098):	8.10	0.428	12.50	122.51
ID = 1 (0099):	24.56	5.421	12.00	117.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(0108)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.5380	0.7427
	0.0442	0.4230	0.7490	0.8891
	0.2050	0.4608	0.9210	0.9994
	0.3910	0.6279	1.1040	1.1071

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0099)	24.560	5.421	12.00	117.87
OUTFLOW: ID= 1 (0108)	24.560	1.103	12.67	117.19

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.35
TIME SHIFT OF PEAK FLOW (min)= 40.00
MAXIMUM STORAGE USED (ha.m.)= 1.1071

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB	
STANDHYD (0103)	Area (ha)= 0.28
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.08
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	43.20	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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=	147.49	118.25		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.07 (ii)	5.30 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.34	0.16		
				TOTALS
PEAK FLOW (cms)=	0.08	0.02		0.105 (iii)
TIME TO PEAK (hrs)=	12.00	12.00		12.00
RUNOFF VOLUME (mm)=	132.60	91.04		120.53
TOTAL RAINFALL (mm)=	133.60	133.60		133.60
RUNOFF COEFFICIENT =	0.99	0.68		0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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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Length            (m)=      76.59        40.00
Mannings n            =      0.013        0.250

   NOTE:  RAINFALL WAS TRANSFORMED TO   5.0 MIN. TIME STEP.
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RESERVOIR(0100) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0200	0.0118
	0.0050	0.0062	0.0250	0.0132
	0.0100	0.0083	0.0310	0.0145
	0.0140	0.0100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0103)	0.280	0.105	12.00	120.53
OUTFLOW: ID= 1 (0100)	0.280	0.031	12.08	119.42

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                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.47
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0145
```

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

```
                  Duration of storm    = 24.00 hrs
                  Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB STANDHYD (0107) ID= 1 DT= 5.0 min	Area (ha)= 0.88 Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.66	0.22
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60

5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=	147.49	118.25	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.51 (ii)	5.41 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.16	
			TOTALS
PEAK FLOW (cms)=	0.27	0.06	0.335 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	132.60	91.04	122.21
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.68	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0105)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0480	0.0422
	0.0110	0.0224	0.0610	0.0471
	0.0240	0.0304	0.0740	0.0520
	0.0340	0.0355	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0107)	0.880	0.335	12.00	122.21
OUTFLOW: ID= 1 (0105)	0.880	0.074	12.17	121.62

PEAK FLOW REDUCTION [Qout/Qin](%)= 21.95
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0520

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\053abc7c-95d9-4419-94cc-b08f725a5301\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB			
STANDHYD (0110)	Area (ha)= 1.54		
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00	Dir. Conn.(%)= 75.00	
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.15	0.38
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	101.32	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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60

2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=	147.49	118.25	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.79 (ii)	5.68 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.15	
			TOTALS
PEAK FLOW (cms)=	0.47	0.11	0.585 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	132.60	91.04	122.21
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.68	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0101)					
IN= 2---> OUT= 1					
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)	
	0.0000	0.0000	0.0470	0.0860	
	0.0130	0.0440	0.0580	0.0960	
	0.0240	0.0610	0.0690	0.1060	
	0.0340	0.0720	0.0000	0.0000	

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0110)	1.540	0.585	12.00	122.21
OUTFLOW: ID= 1 (0101)	1.540	0.068	12.50	121.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.64
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.1054

ADD HYD (0109)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0100):	0.28	0.031	12.08	119.42
+ ID2= 2 (0101):	1.54	0.068	12.50	121.65
ID = 3 (0109):	1.82	0.096	12.17	121.31

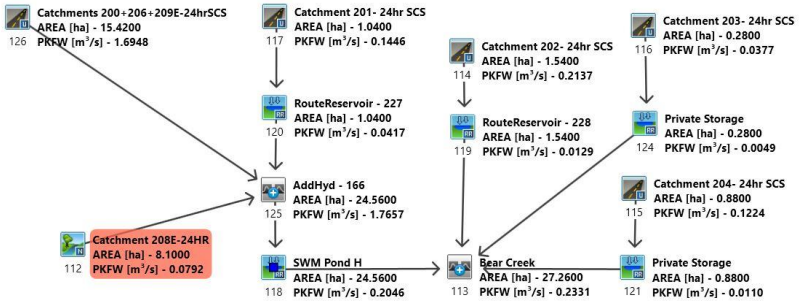
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0109)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0109):	1.82	0.096	12.17	121.31
+ ID2= 2 (0105):	0.88	0.074	12.17	121.62
ID = 1 (0109):	2.70	0.169	12.17	121.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0109)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0109):	2.70	0.169	12.17	121.41
+ ID2= 2 (0108):	24.56	1.103	12.67	117.19
ID = 3 (0109):	27.26	1.258	12.58	117.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.



SCHAEFFERS
CONSULTING ENGINEERS

Visual OTTHYMO™ Schematic
POST-DEVELOPMENT STORAGE
(INTERIM CONDITION)

Job #: 2017-4560	**Date: DECEMBER 2018**

POST-DEVELOPMENT-INTERIM-24HOUR SCS

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================================================================================
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       V    V   I    SSSSS  U   U    A    L
       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: 12-15-2018                          TIME: 09:14:08

USER:


COMMENTS: _____________________________________________________

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  ***********************************************
  ** SIMULATION : Run 01                       **
  ***********************************************

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
      0.50    0.55 |  6.50    1.10 | 12.50    7.92 | 18.50    0.99
      0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
      1.00    0.55 |  7.00    1.10 | 13.00    4.07 | 19.00    0.99
      1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
      1.50    0.55 |  7.50    1.10 | 13.50    0.77 | 19.50    0.99
      1.75    0.55 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
      2.00    0.99 |  8.00    1.10 | 14.00    4.51 | 20.00    0.99
      2.25    0.72 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
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2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB			
NASHYD (0112)	Area (ha)=	8.10	Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.59	

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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 8.964
TOTAL RAINFALL (mm)= 55.000
RUNOFF COEFFICIENT = 0.163

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a3457ff2
Ptotal= 55.00 mm	Comments: SCS II 24H_2YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.55	6.25	1.10	12.25	7.92	18.25	0.99
0.50	0.55	6.50	1.10	12.50	7.92	18.50	0.99
0.75	0.55	6.75	1.10	12.75	4.07	18.75	0.99
1.00	0.55	7.00	1.10	13.00	4.07	19.00	0.99
1.25	0.55	7.25	1.10	13.25	0.77	19.25	0.99
1.50	0.55	7.50	1.10	13.50	0.77	19.50	0.99
1.75	0.55	7.75	1.10	13.75	4.51	19.75	0.99
2.00	0.99	8.00	1.10	14.00	4.51	20.00	0.99
2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66

3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB	
STANDHYD (0117)	Area (ha)= 1.04
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.78	0.26
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	83.27	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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Max.Eff.Inten.	(mm/hr)=	60.72	31.99	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.27 (ii)	13.40 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.30	0.08	
				TOTALS
PEAK FLOW	(cms)=	0.13	0.01	0.145 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	54.00	25.31	46.82
TOTAL RAINFALL	(mm)=	55.00	55.00	55.00
RUNOFF COEFFICIENT	=	0.98	0.46	0.85

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0120)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1134	0.0447

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2	(0117)	1.040	0.145	12.00	46.82

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   OUTFLOW: ID= 1 (  0120)      1.040      0.042     12.08      46.73

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 28.82
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0165

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
               0.50    0.55 |  6.50    1.10 | 12.50    7.92 | 18.50    0.99
               0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
               1.00    0.55 |  7.00    1.10 | 13.00    4.07 | 19.00    0.99
               1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
               1.50    0.55 |  7.50    1.10 | 13.50    0.77 | 19.50    0.99
               1.75    0.55 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
               2.00    0.99 |  8.00    1.10 | 14.00    4.51 | 20.00    0.99
               2.25    0.72 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
               2.50    0.71 |  8.50    1.48 | 14.50    1.65 | 20.50    0.66
               2.75    0.72 |  8.75    1.49 | 14.75    1.65 | 20.75    0.66
               3.00    0.71 |  9.00    1.49 | 15.00    1.65 | 21.00    0.66
               3.25    0.71 |  9.25    1.76 | 15.25    1.65 | 21.25    0.66
               3.50    0.71 |  9.50    1.76 | 15.50    1.65 | 21.50    0.66
               3.75    0.72 |  9.75    1.98 | 15.75    1.65 | 21.75    0.66
               4.00    0.71 | 10.00    1.98 | 16.00    1.65 | 22.00    0.66
               4.25    0.88 | 10.25    2.53 | 16.25    0.99 | 22.25    0.66
               4.50    0.88 | 10.50    2.53 | 16.50    0.99 | 22.50    0.66
               4.75    0.88 | 10.75    3.41 | 16.75    0.99 | 22.75    0.66
               5.00    0.88 | 11.00    3.41 | 17.00    0.99 | 23.00    0.66
               5.25    0.88 | 11.25    5.28 | 17.25    0.99 | 23.25    0.66
               5.50    0.88 | 11.50    5.28 | 17.50    0.99 | 23.50    0.66
               5.75    0.88 | 11.75   22.88 | 17.75    0.99 | 23.75    0.66
               6.00    0.88 | 12.00   60.72 | 18.00    0.99 | 24.00    0.66

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| CALIB            |
| STANDHYD (  0126)|   Area     (ha)=  15.42
|ID= 1 DT= 5.0 min |   Total Imp(%)=  58.00   Dir. Conn.(%)=  58.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.94         6.48
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     320.62        40.00
     Mannings n             =      0.013        0.250

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


                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    0.55 |  6.083    1.10 |12.083    7.93 | 18.08    0.99
               0.167    0.55 |  6.167    1.10 |12.167    7.92 | 18.17    0.99
               0.250    0.55 |  6.250    1.10 |12.250    7.92 | 18.25    0.99
               0.333    0.55 |  6.333    1.10 |12.333    7.92 | 18.33    0.99
               0.417    0.55 |  6.417    1.10 |12.417    7.92 | 18.42    0.99
               0.500    0.55 |  6.500    1.10 |12.500    7.92 | 18.50    0.99
               0.583    0.55 |  6.583    1.10 |12.583    4.07 | 18.58    0.99
               0.667    0.55 |  6.667    1.10 |12.667    4.07 | 18.67    0.99
               0.750    0.55 |  6.750    1.10 |12.750    4.07 | 18.75    0.99
               0.833    0.55 |  6.833    1.10 |12.833    4.07 | 18.83    0.99
               0.917    0.55 |  6.917    1.10 |12.917    4.07 | 18.92    0.99
               1.000    0.55 |  7.000    1.10 |13.000    4.07 | 19.00    0.99
               1.083    0.55 |  7.083    1.10 |13.083    0.77 | 19.08    0.99
               1.167    0.55 |  7.167    1.10 |13.167    0.77 | 19.17    0.99
               1.250    0.55 |  7.250    1.10 |13.250    0.77 | 19.25    0.99
               1.333    0.55 |  7.333    1.10 |13.333    0.77 | 19.33    0.99
               1.417    0.55 |  7.417    1.10 |13.417    0.77 | 19.42    0.99
               1.500    0.55 |  7.500    1.10 |13.500    0.77 | 19.50    0.99
               1.583    0.55 |  7.583    1.10 |13.583    4.51 | 19.58    0.99
               1.667    0.55 |  7.667    1.10 |13.667    4.51 | 19.67    0.99
               1.750    0.55 |  7.750    1.10 |13.750    4.51 | 19.75    0.99
               1.833    0.99 |  7.833    1.10 |13.833    4.51 | 19.83    0.99
               1.917    0.99 |  7.917    1.10 |13.917    4.51 | 19.92    0.99
               2.000    0.99 |  8.000    1.10 |14.000    4.51 | 20.00    0.99
               2.083    0.72 |  8.083    1.49 |14.083    1.65 | 20.08    0.66
               2.167    0.72 |  8.167    1.49 |14.167    1.65 | 20.17    0.66
               2.250    0.72 |  8.250    1.48 |14.250    1.65 | 20.25    0.66
               2.333    0.71 |  8.333    1.48 |14.333    1.65 | 20.33    0.66
               2.417    0.71 |  8.417    1.48 |14.417    1.65 | 20.42    0.66
               2.500    0.71 |  8.500    1.48 |14.500    1.65 | 20.50    0.66
               2.583    0.71 |  8.583    1.49 |14.583    1.65 | 20.58    0.66
               2.667    0.72 |  8.667    1.49 |14.667    1.65 | 20.67    0.66
               2.750    0.72 |  8.750    1.48 |14.750    1.65 | 20.75    0.66
               2.833    0.71 |  8.833    1.49 |14.833    1.65 | 20.83    0.66
               2.917    0.71 |  8.917    1.49 |14.917    1.65 | 20.92    0.66
               3.000    0.71 |  9.000    1.49 |15.000    1.65 | 21.00    0.66
               3.083    0.71 |  9.083    1.76 |15.083    1.65 | 21.08    0.66
               3.167    0.71 |  9.167    1.76 |15.167    1.65 | 21.17    0.66
               3.250    0.71 |  9.250    1.76 |15.250    1.65 | 21.25    0.66
               3.333    0.71 |  9.333    1.76 |15.333    1.65 | 21.33    0.66
               3.417    0.71 |  9.417    1.76 |15.417    1.65 | 21.42    0.66
               3.500    0.71 |  9.500    1.76 |15.500    1.65 | 21.50    0.66
               3.583    0.71 |  9.583    1.98 |15.583    1.65 | 21.58    0.66
               3.667    0.72 |  9.667    1.98 |15.667    1.65 | 21.67    0.66
               3.750    0.72 |  9.750    1.98 |15.750    1.65 | 21.75    0.66
               3.833    0.71 |  9.833    1.98 |15.833    1.65 | 21.83    0.66
               3.917    0.71 |  9.917    1.98 |15.917    1.65 | 21.92    0.66
               4.000    0.71 |10.000    1.98 |16.000    1.65 | 22.00    0.66
               4.083    0.88 |10.083    2.53 |16.083    0.99 | 22.08    0.66
               4.167    0.88 |10.167    2.53 |16.167    0.99 | 22.17    0.66
               4.250    0.88 |10.250    2.53 |16.250    0.99 | 22.25    0.66
               4.333    0.88 |10.333    2.53 |16.333    0.99 | 22.33    0.66
               4.417    0.88 |10.417    2.53 |16.417    0.99 | 22.42    0.66
               4.500    0.88 |10.500    2.53 |16.500    0.99 | 22.50    0.66
               4.583    0.88 |10.583    3.41 |16.583    0.99 | 22.58    0.66
               4.667    0.88 |10.667    3.41 |16.667    0.99 | 22.67    0.66
               4.750    0.88 |10.750    3.41 |16.750    0.99 | 22.75    0.66
               4.833    0.88 |10.833    3.41 |16.833    0.99 | 22.83    0.66
               4.917    0.88 |10.917    3.41 |16.917    0.99 | 22.92    0.66
               5.000    0.88 |11.000    3.41 |17.000    0.99 | 23.00    0.66
               5.083    0.88 |11.083    5.28 |17.083    0.99 | 23.08    0.66
               5.167    0.88 |11.167    5.28 |17.167    0.99 | 23.17    0.66
               5.250    0.88 |11.250    5.28 |17.250    0.99 | 23.25    0.66
               5.333    0.88 |11.333    5.28 |17.333    0.99 | 23.33    0.66
               5.417    0.88 |11.417    5.28 |17.417    0.99 | 23.42    0.66
               5.500    0.88 |11.500    5.28 |17.500    0.99 | 23.50    0.66
               5.583    0.88 |11.583   22.88 |17.583    0.99 | 23.58    0.66
               5.667    0.88 |11.667   22.88 |17.667    0.99 | 23.67    0.66
               5.750    0.88 |11.750   22.88 |17.750    0.99 | 23.75    0.66
               5.833    0.88 |11.833   60.72 |17.833    0.99 | 23.83    0.66
               5.917    0.88 |11.917   60.72 |17.917    0.99 | 23.92    0.66
               6.000    0.88 |12.000   60.72 |18.000    0.99 | 24.00    0.66

Max.Eff.Inten.(mm/hr)=      60.72        31.99
```

```
              over (min)        5.00         20.00
     Storage Coeff.  (min)=     5.10 (ii)    16.23 (ii)
     Unit Hyd. Tpeak (min)=     5.00         20.00
     Unit Hyd. peak  (cms)=     0.21          0.06
                                                  *TOTALS*
     PEAK FLOW       (cms)=     1.46          0.33          1.695 (iii)
     TIME TO PEAK    (hrs)=    12.00         12.17         12.00
     RUNOFF VOLUME    (mm)=    54.00         25.31         41.95
     TOTAL RAINFALL   (mm)=    55.00         55.00         55.00
     RUNOFF COEFFICIENT   =     0.98          0.46          0.76


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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  (  0125)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0112):     8.10   0.079    12.50     8.96
      + ID2= 2 (  0120):     1.04   0.042    12.08    46.73
        ================================================
        ID = 3 (  0125):     9.14   0.117    12.50    13.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0125)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0125):     9.14   0.117    12.50    13.26
      + ID2= 2 (  0126):    15.42   1.695    12.00    41.95
        ================================================
        ID = 1 (  0125):    24.56   1.766    12.00    31.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0118)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          0.0000     0.0000    |   0.5380     0.7358
                          0.0442     0.4230    |   0.7490     0.8808
                          0.2050     0.4653    |   0.9210     0.9883
                          0.3910     0.6220    |   1.1040     1.0928

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0125)     24.560      1.766     12.00      31.27
   OUTFLOW: ID= 1 (  0118)     24.560      0.205     13.08      31.17

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 11.59
                  TIME SHIFT OF PEAK FLOW         (min)= 65.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4653

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
--------------------

                          Duration of storm    = 24.00 hrs
                          Mass curve time step = 15.00 min

          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
          0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
          0.50    0.55 |  6.50    1.10 | 12.50    7.92 | 18.50    0.99
          0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
          1.00    0.55 |  7.00    1.10 | 13.00    4.07 | 19.00    0.99
          1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
          1.50    0.55 |  7.50    1.10 | 13.50    0.77 | 19.50    0.99
          1.75    0.55 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
          2.00    0.99 |  8.00    1.10 | 14.00    4.51 | 20.00    0.99
          2.25    0.72 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
          2.50    0.71 |  8.50    1.48 | 14.50    1.65 | 20.50    0.66
          2.75    0.72 |  8.75    1.49 | 14.75    1.65 | 20.75    0.66
          3.00    0.71 |  9.00    1.49 | 15.00    1.65 | 21.00    0.66
          3.25    0.71 |  9.25    1.76 | 15.25    1.65 | 21.25    0.66
          3.50    0.71 |  9.50    1.76 | 15.50    1.65 | 21.50    0.66
          3.75    0.72 |  9.75    1.98 | 15.75    1.65 | 21.75    0.66
          4.00    0.71 | 10.00    1.98 | 16.00    1.65 | 22.00    0.66
          4.25    0.88 | 10.25    2.53 | 16.25    0.99 | 22.25    0.66
          4.50    0.88 | 10.50    2.53 | 16.50    0.99 | 22.50    0.66
          4.75    0.88 | 10.75    3.41 | 16.75    0.99 | 22.75    0.66
          5.00    0.88 | 11.00    3.41 | 17.00    0.99 | 23.00    0.66
          5.25    0.88 | 11.25    5.28 | 17.25    0.99 | 23.25    0.66
          5.50    0.88 | 11.50    5.28 | 17.50    0.99 | 23.50    0.66
          5.75    0.88 | 11.75   22.88 | 17.75    0.99 | 23.75    0.66
          6.00    0.88 | 12.00   60.72 | 18.00    0.99 | 24.00    0.66

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| CALIB            |
| STANDHYD (  0114)|   Area     (ha)=   1.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=     1.15          0.38
     Dep. Storage     (mm)=     1.00          1.50
     Average Slope     (%)=     2.00          2.00
     Length            (m)=   101.32         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    0.55 | 6.083    1.10 |12.083    7.93 | 18.08    0.99
         0.167    0.55 | 6.167    1.10 |12.167    7.92 | 18.17    0.99
         0.250    0.55 | 6.250    1.10 |12.250    7.92 | 18.25    0.99
         0.333    0.55 | 6.333    1.10 |12.333    7.92 | 18.33    0.99
         0.417    0.55 | 6.417    1.10 |12.417    7.92 | 18.42    0.99
         0.500    0.55 | 6.500    1.10 |12.500    7.92 | 18.50    0.99
         0.583    0.55 | 6.583    1.10 |12.583    4.07 | 18.58    0.99
         0.667    0.55 | 6.667    1.10 |12.667    4.07 | 18.67    0.99
         0.750    0.55 | 6.750    1.10 |12.750    4.07 | 18.75    0.99
         0.833    0.55 | 6.833    1.10 |12.833    4.07 | 18.83    0.99
         0.917    0.55 | 6.917    1.10 |12.917    4.07 | 18.92    0.99
         1.000    0.55 | 7.000    1.10 |13.000    4.07 | 19.00    0.99
         1.083    0.55 | 7.083    1.10 |13.083    0.77 | 19.08    0.99
         1.167    0.55 | 7.167    1.10 |13.167    0.77 | 19.17    0.99
         1.250    0.55 | 7.250    1.10 |13.250    0.77 | 19.25    0.99
         1.333    0.55 | 7.333    1.10 |13.333    0.77 | 19.33    0.99
```

1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Max.Eff.Inten.(mm/hr)=	60.72		31.99	
over (min)	5.00		15.00	
Storage Coeff. (min)=	2.55	(ii)	13.69	(ii)
Unit Hyd. Tpeak (min)=	5.00		15.00	
Unit Hyd. peak (cms)=	0.29		0.08	
				TOTALS
PEAK FLOW (cms)=	0.19		0.02	0.214 (iii)
TIME TO PEAK (hrs)=	12.00		12.08	12.00
RUNOFF VOLUME (mm)=	54.00		25.31	46.82
TOTAL RAINFALL (mm)=	55.00		55.00	55.00
RUNOFF COEFFICIENT =	0.98		0.46	0.85

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0119)| IN= 2---> OUT= 1 | DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0470	0.0860
	0.0130	0.0440	0.0580	0.0960
	0.0240	0.0610	0.0690	0.1060
	0.0340	0.0720	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0114)	1.540	0.214	12.00	46.82
OUTFLOW: ID= 1 (0119)	1.540	0.013	13.00	46.27

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.04
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.0438

MASS STORM | Ptotal= 55.00 mm	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a3457ff2
	Comments: SCS II 24H_2YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.55	6.25	1.10	12.25	7.92	18.25	0.99
0.50	0.55	6.50	1.10	12.50	7.92	18.50	0.99
0.75	0.55	6.75	1.10	12.75	4.07	18.75	0.99
1.00	0.55	7.00	1.10	13.00	4.07	19.00	0.99
1.25	0.55	7.25	1.10	13.25	0.77	19.25	0.99
1.50	0.55	7.50	1.10	13.50	0.77	19.50	0.99
1.75	0.55	7.75	1.10	13.75	4.51	19.75	0.99
2.00	0.99	8.00	1.10	14.00	4.51	20.00	0.99
2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

```
| CALIB                |
| STANDHYD (  0115)|   Area     (ha)=   0.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      76.59        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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

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     Max.Eff.Inten.(mm/hr)=      60.72        31.99
                  over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.16 (ii)   13.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.11         0.01        0.122 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08        12.00
     RUNOFF VOLUME    (mm)=      54.00        25.31        46.82
     TOTAL RAINFALL   (mm)=      55.00        55.00        55.00
     RUNOFF COEFFICIENT   =       0.98         0.46         0.85

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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(  0121)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0480      0.0422
                          0.0110     0.0224   |   0.0610      0.0471
                          0.0240     0.0304   |   0.0740      0.0520
                          0.0340     0.0355   |   0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0115)     0.880     0.122     12.00      46.82
   OUTFLOW: ID= 1 (  0121)     0.880     0.011     12.67      46.24

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  8.98
                  TIME SHIFT OF PEAK FLOW         (min)= 40.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0224

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a3457ff2
| Ptotal= 55.00 mm |    Comments: SCS II 24H_2YR
```

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.55	6.25	1.10	12.25	7.92	18.25	0.99
0.50	0.55	6.50	1.10	12.50	7.92	18.50	0.99
0.75	0.55	6.75	1.10	12.75	4.07	18.75	0.99
1.00	0.55	7.00	1.10	13.00	4.07	19.00	0.99
1.25	0.55	7.25	1.10	13.25	0.77	19.25	0.99
1.50	0.55	7.50	1.10	13.50	0.77	19.50	0.99
1.75	0.55	7.75	1.10	13.75	4.51	19.75	0.99
2.00	0.99	8.00	1.10	14.00	4.51	20.00	0.99
2.25	0.72	8.25	1.49	14.25	1.65	20.25	0.66
2.50	0.71	8.50	1.48	14.50	1.65	20.50	0.66
2.75	0.72	8.75	1.49	14.75	1.65	20.75	0.66
3.00	0.71	9.00	1.49	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.76	15.50	1.65	21.50	0.66
3.75	0.72	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.71	10.00	1.98	16.00	1.65	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	2.53	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	3.41	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	5.28	17.50	0.99	23.50	0.66
5.75	0.88	11.75	22.88	17.75	0.99	23.75	0.66
6.00	0.88	12.00	60.72	18.00	0.99	24.00	0.66

CALIB	
STANDHYD (0116)	Area (ha)= 0.28
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.08
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	43.20	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	0.55	6.083	1.10	12.083	7.93	18.08	0.99
0.167	0.55	6.167	1.10	12.167	7.92	18.17	0.99
0.250	0.55	6.250	1.10	12.250	7.92	18.25	0.99
0.333	0.55	6.333	1.10	12.333	7.92	18.33	0.99
0.417	0.55	6.417	1.10	12.417	7.92	18.42	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.583	0.55	6.583	1.10	12.583	4.07	18.58	0.99
0.667	0.55	6.667	1.10	12.667	4.07	18.67	0.99
0.750	0.55	6.750	1.10	12.750	4.07	18.75	0.99
0.833	0.55	6.833	1.10	12.833	4.07	18.83	0.99
0.917	0.55	6.917	1.10	12.917	4.07	18.92	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.083	0.55	7.083	1.10	13.083	0.77	19.08	0.99
1.167	0.55	7.167	1.10	13.167	0.77	19.17	0.99
1.250	0.55	7.250	1.10	13.250	0.77	19.25	0.99
1.333	0.55	7.333	1.10	13.333	0.77	19.33	0.99
1.417	0.55	7.417	1.10	13.417	0.77	19.42	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.583	0.55	7.583	1.10	13.583	4.51	19.58	0.99
1.667	0.55	7.667	1.10	13.667	4.51	19.67	0.99
1.750	0.55	7.750	1.10	13.750	4.51	19.75	0.99
1.833	0.99	7.833	1.10	13.833	4.51	19.83	0.99
1.917	0.99	7.917	1.10	13.917	4.51	19.92	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.083	0.72	8.083	1.49	14.083	1.65	20.08	0.66
2.167	0.72	8.167	1.49	14.167	1.65	20.17	0.66
2.250	0.72	8.250	1.48	14.250	1.65	20.25	0.66
2.333	0.71	8.333	1.48	14.333	1.65	20.33	0.66
2.417	0.71	8.417	1.48	14.417	1.65	20.42	0.66
2.500	0.71	8.500	1.48	14.500	1.65	20.50	0.66
2.583	0.71	8.583	1.49	14.583	1.65	20.58	0.66
2.667	0.72	8.667	1.49	14.667	1.65	20.67	0.66
2.750	0.72	8.750	1.48	14.750	1.65	20.75	0.66
2.833	0.71	8.833	1.49	14.833	1.65	20.83	0.66
2.917	0.71	8.917	1.49	14.917	1.65	20.92	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.083	0.71	9.083	1.76	15.083	1.65	21.08	0.66
3.167	0.71	9.167	1.76	15.167	1.65	21.17	0.66
3.250	0.71	9.250	1.76	15.250	1.65	21.25	0.66
3.333	0.71	9.333	1.76	15.333	1.65	21.33	0.66
3.417	0.71	9.417	1.76	15.417	1.65	21.42	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.583	0.71	9.583	1.98	15.583	1.65	21.58	0.66
3.667	0.72	9.667	1.98	15.667	1.65	21.67	0.66
3.750	0.72	9.750	1.98	15.750	1.65	21.75	0.66
3.833	0.71	9.833	1.98	15.833	1.65	21.83	0.66
3.917	0.71	9.917	1.98	15.917	1.65	21.92	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.083	0.88	10.083	2.53	16.083	0.99	22.08	0.66
4.167	0.88	10.167	2.53	16.167	0.99	22.17	0.66
4.250	0.88	10.250	2.53	16.250	0.99	22.25	0.66
4.333	0.88	10.333	2.53	16.333	0.99	22.33	0.66
4.417	0.88	10.417	2.53	16.417	0.99	22.42	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.583	0.88	10.583	3.41	16.583	0.99	22.58	0.66
4.667	0.88	10.667	3.41	16.667	0.99	22.67	0.66
4.750	0.88	10.750	3.41	16.750	0.99	22.75	0.66
4.833	0.88	10.833	3.41	16.833	0.99	22.83	0.66
4.917	0.88	10.917	3.41	16.917	0.99	22.92	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.083	0.88	11.083	5.28	17.083	0.99	23.08	0.66
5.167	0.88	11.167	5.28	17.167	0.99	23.17	0.66
5.250	0.88	11.250	5.28	17.250	0.99	23.25	0.66
5.333	0.88	11.333	5.28	17.333	0.99	23.33	0.66
5.417	0.88	11.417	5.28	17.417	0.99	23.42	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.583	0.88	11.583	22.88	17.583	0.99	23.58	0.66
5.667	0.88	11.667	22.88	17.667	0.99	23.67	0.66
5.750	0.88	11.750	22.88	17.750	0.99	23.75	0.66
5.833	0.88	11.833	60.72	17.833	0.99	23.83	0.66
5.917	0.88	11.917	60.72	17.917	0.99	23.92	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

				TOTALS
Max.Eff.Inten.	(mm/hr)=	60.72	31.99	
	over (min)	5.00	15.00	
Storage Coeff.	(min)=	1.53 (ii)	12.66 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.33	0.08	
PEAK FLOW	(cms)=	0.03	0.00	0.038 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	54.00	25.31	45.65
TOTAL RAINFALL	(mm)=	55.00	55.00	55.00
RUNOFF COEFFICIENT	=	0.98	0.46	0.83

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

```
      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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(  0124)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0200     0.0118
                         0.0050     0.0062   |   0.0250     0.0132
                         0.0100     0.0083   |   0.0310     0.0145
                         0.0140     0.0100   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0116)    0.280     0.038     12.00      45.65
   OUTFLOW: ID= 1 (  0124)    0.280     0.005     12.58      44.56

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.07
                  TIME SHIFT OF PEAK FLOW         (min)= 35.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0061

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--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0118):    24.56   0.205    13.08    31.17
     + ID2= 2 (  0119):     1.54   0.013    13.00    46.27
       ====================================================
       ID = 3 (  0113):    26.10   0.218    13.08    32.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0113)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0113):    26.10   0.218    13.08    32.07
     + ID2= 2 (  0121):     0.88   0.011    12.67    46.24
       ====================================================
       ID = 1 (  0113):    26.98   0.228    13.08    32.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0113):    26.98   0.228    13.08    32.53
     + ID2= 2 (  0124):     0.28   0.005    12.58    44.56
       ====================================================
       ID = 3 (  0113):    27.26   0.233    13.08    32.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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      V    V   I    SSSSS  U   U    A    L
      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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\68fc9e7d-9219-4c3a-b011-037118dc9b6f\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\68fc9e7d-9219-4c3a-b011-037118dc9b6f\scen


DATE: 12-15-2018                          TIME: 09:14:07

USER:



COMMENTS: _____________________________________________________

--------------------------------------------------------------------------------
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  ********************************************
  ** SIMULATION : Run 02                     **
  ********************************************

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\efbc61a7
| Ptotal= 76.00 mm |    Comments: SCS II 24H_5YR
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
          0.25    0.76 |  6.25    1.52 | 12.25   10.94 | 18.25    1.37
          0.50    0.76 |  6.50    1.52 | 12.50   10.94 | 18.50    1.37
          0.75    0.76 |  6.75    1.52 | 12.75    5.62 | 18.75    1.37
          1.00    0.76 |  7.00    1.52 | 13.00    5.62 | 19.00    1.37
          1.25    0.76 |  7.25    1.52 | 13.25    1.06 | 19.25    1.37
          1.50    0.76 |  7.50    1.52 | 13.50    1.06 | 19.50    1.37
          1.75    0.76 |  7.75    1.52 | 13.75    6.23 | 19.75    1.37
          2.00    1.37 |  8.00    1.52 | 14.00    6.23 | 20.00    1.37
          2.25    0.99 |  8.25    2.05 | 14.25    2.28 | 20.25    0.91
          2.50    0.99 |  8.50    2.05 | 14.50    2.28 | 20.50    0.91
```

2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB					
NASHYD (0112)	Area (ha)=	8.10	Curve Number (CN)=	52.6	
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.59			

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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.151 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 16.809
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.221

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\efbc61a7
Ptotal= 76.00 mm	Comments: SCS II 24H_5YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91

3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB
STANDHYD (0117)
ID= 1 DT= 5.0 min

Area (ha)= 1.04
Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.78	0.26
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	83.27	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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Max.Eff.Inten.	(mm/hr)=	83.90	54.84	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.99 (ii)	6.87 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.31	0.14	
				TOTALS
PEAK FLOW	(cms)=	0.18	0.03	0.215 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	75.00	41.40	66.59
TOTAL RAINFALL	(mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT	=	0.99	0.54	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0120)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1134	0.0447

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0117)	1.040	0.215	12.00	66.59
OUTFLOW: ID= 1 (0120)	1.040	0.061	12.08	66.51

```
                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 28.56
                  TIME SHIFT OF PEAK FLOW          (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0242

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\efbc61a7
| Ptotal= 76.00 mm |    Comments: SCS II 24H_5YR
--------------------
                  Duration of storm    = 24.00 hrs
                  Mass curve time step = 15.00 min

               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    0.76 |  6.25    1.52 | 12.25   10.94 | 18.25    1.37
               0.50    0.76 |  6.50    1.52 | 12.50   10.94 | 18.50    1.37
               0.75    0.76 |  6.75    1.52 | 12.75    5.62 | 18.75    1.37
               1.00    0.76 |  7.00    1.52 | 13.00    5.62 | 19.00    1.37
               1.25    0.76 |  7.25    1.52 | 13.25    1.06 | 19.25    1.37
               1.50    0.76 |  7.50    1.52 | 13.50    1.06 | 19.50    1.37
               1.75    0.76 |  7.75    1.52 | 13.75    6.23 | 19.75    1.37
               2.00    1.37 |  8.00    1.52 | 14.00    6.23 | 20.00    1.37
               2.25    0.99 |  8.25    2.05 | 14.25    2.28 | 20.25    0.91
               2.50    0.99 |  8.50    2.05 | 14.50    2.28 | 20.50    0.91
               2.75    0.99 |  8.75    2.05 | 14.75    2.28 | 20.75    0.91
               3.00    0.99 |  9.00    2.05 | 15.00    2.28 | 21.00    0.91
               3.25    0.99 |  9.25    2.43 | 15.25    2.28 | 21.25    0.91
               3.50    0.99 |  9.50    2.43 | 15.50    2.28 | 21.50    0.91
               3.75    0.99 |  9.75    2.74 | 15.75    2.28 | 21.75    0.91
               4.00    0.99 | 10.00    2.74 | 16.00    2.28 | 22.00    0.91
               4.25    1.22 | 10.25    3.50 | 16.25    1.37 | 22.25    0.91
               4.50    1.22 | 10.50    3.50 | 16.50    1.37 | 22.50    0.91
               4.75    1.22 | 10.75    4.71 | 16.75    1.37 | 22.75    0.91
               5.00    1.22 | 11.00    4.71 | 17.00    1.37 | 23.00    0.91
               5.25    1.22 | 11.25    7.30 | 17.25    1.37 | 23.25    0.91
               5.50    1.22 | 11.50    7.30 | 17.50    1.37 | 23.50    0.91
               5.75    1.22 | 11.75   31.62 | 17.75    1.37 | 23.75    0.91
               6.00    1.22 | 12.00   83.90 | 18.00    1.37 | 24.00    0.91

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| CALIB            |
| STANDHYD (  0126)|   Area    (ha)=  15.42
|ID= 1 DT= 5.0 min |   Total Imp(%)=  58.00   Dir. Conn.(%)=  58.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.94         6.48
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     320.62        40.00
     Mannings n             =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    0.76 | 6.083    1.52 |12.083   10.95 | 18.08    1.37
              0.167    0.76 | 6.167    1.52 |12.167   10.94 | 18.17    1.37
              0.250    0.76 | 6.250    1.52 |12.250   10.94 | 18.25    1.37
              0.333    0.76 | 6.333    1.52 |12.333   10.94 | 18.33    1.37
              0.417    0.76 | 6.417    1.52 |12.417   10.94 | 18.42    1.37
              0.500    0.76 | 6.500    1.52 |12.500   10.94 | 18.50    1.37
              0.583    0.76 | 6.583    1.52 |12.583    5.62 | 18.58    1.37
              0.667    0.76 | 6.667    1.52 |12.667    5.62 | 18.67    1.37
              0.750    0.76 | 6.750    1.52 |12.750    5.62 | 18.75    1.37
              0.833    0.76 | 6.833    1.52 |12.833    5.62 | 18.83    1.37
              0.917    0.76 | 6.917    1.52 |12.917    5.62 | 18.92    1.37
              1.000    0.76 | 7.000    1.52 |13.000    5.62 | 19.00    1.37
              1.083    0.76 | 7.083    1.52 |13.083    1.06 | 19.08    1.37
              1.167    0.76 | 7.167    1.52 |13.167    1.06 | 19.17    1.37
              1.250    0.76 | 7.250    1.52 |13.250    1.06 | 19.25    1.37
              1.333    0.76 | 7.333    1.52 |13.333    1.06 | 19.33    1.37
              1.417    0.76 | 7.417    1.52 |13.417    1.06 | 19.42    1.37
              1.500    0.76 | 7.500    1.52 |13.500    1.06 | 19.50    1.37
              1.583    0.76 | 7.583    1.52 |13.583    6.23 | 19.58    1.37
              1.667    0.76 | 7.667    1.52 |13.667    6.23 | 19.67    1.37
              1.750    0.76 | 7.750    1.52 |13.750    6.23 | 19.75    1.37
              1.833    1.37 | 7.833    1.52 |13.833    6.23 | 19.83    1.37
              1.917    1.37 | 7.917    1.52 |13.917    6.23 | 19.92    1.37
              2.000    1.37 | 8.000    1.52 |14.000    6.23 | 20.00    1.37
              2.083    0.99 | 8.083    2.05 |14.083    2.28 | 20.08    0.91
              2.167    0.99 | 8.167    2.05 |14.167    2.28 | 20.17    0.91
              2.250    0.99 | 8.250    2.05 |14.250    2.28 | 20.25    0.91
              2.333    0.99 | 8.333    2.05 |14.333    2.28 | 20.33    0.91
              2.417    0.99 | 8.417    2.05 |14.417    2.28 | 20.42    0.91
              2.500    0.99 | 8.500    2.05 |14.500    2.28 | 20.50    0.91
              2.583    0.99 | 8.583    2.05 |14.583    2.28 | 20.58    0.91
              2.667    0.99 | 8.667    2.05 |14.667    2.28 | 20.67    0.91
              2.750    0.99 | 8.750    2.05 |14.750    2.28 | 20.75    0.91
              2.833    0.99 | 8.833    2.05 |14.833    2.28 | 20.83    0.91
              2.917    0.99 | 8.917    2.05 |14.917    2.28 | 20.92    0.91
              3.000    0.99 | 9.000    2.05 |15.000    2.28 | 21.00    0.91
              3.083    0.99 | 9.083    2.43 |15.083    2.28 | 21.08    0.91
              3.167    0.99 | 9.167    2.43 |15.167    2.28 | 21.17    0.91
              3.250    0.99 | 9.250    2.43 |15.250    2.28 | 21.25    0.91
              3.333    0.99 | 9.333    2.43 |15.333    2.28 | 21.33    0.91
              3.417    0.99 | 9.417    2.43 |15.417    2.28 | 21.42    0.91
              3.500    0.99 | 9.500    2.43 |15.500    2.28 | 21.50    0.91
              3.583    0.99 | 9.583    2.74 |15.583    2.28 | 21.58    0.91
              3.667    0.99 | 9.667    2.74 |15.667    2.28 | 21.67    0.91
              3.750    0.99 | 9.750    2.74 |15.750    2.28 | 21.75    0.91
              3.833    0.99 | 9.833    2.74 |15.833    2.28 | 21.83    0.91
              3.917    0.99 | 9.917    2.74 |15.917    2.28 | 21.92    0.91
              4.000    0.99 |10.000    2.74 |16.000    2.28 | 22.00    0.91
              4.083    1.22 |10.083    3.50 |16.083    1.37 | 22.08    0.91
              4.167    1.22 |10.167    3.50 |16.167    1.37 | 22.17    0.91
              4.250    1.22 |10.250    3.50 |16.250    1.37 | 22.25    0.91
              4.333    1.22 |10.333    3.50 |16.333    1.37 | 22.33    0.91
              4.417    1.22 |10.417    3.50 |16.417    1.37 | 22.42    0.91
              4.500    1.22 |10.500    3.50 |16.500    1.37 | 22.50    0.91
              4.583    1.22 |10.583    4.71 |16.583    1.37 | 22.58    0.91
              4.667    1.22 |10.667    4.71 |16.667    1.37 | 22.67    0.91
              4.750    1.22 |10.750    4.71 |16.750    1.37 | 22.75    0.91
              4.833    1.22 |10.833    4.71 |16.833    1.37 | 22.83    0.91
              4.917    1.22 |10.917    4.71 |16.917    1.37 | 22.92    0.91
              5.000    1.22 |11.000    4.71 |17.000    1.37 | 23.00    0.91
              5.083    1.22 |11.083    7.30 |17.083    1.37 | 23.08    0.91
              5.167    1.22 |11.167    7.30 |17.167    1.37 | 23.17    0.91
              5.250    1.22 |11.250    7.30 |17.250    1.37 | 23.25    0.91
              5.333    1.22 |11.333    7.30 |17.333    1.37 | 23.33    0.91
              5.417    1.22 |11.417    7.30 |17.417    1.37 | 23.42    0.91
              5.500    1.22 |11.500    7.30 |17.500    1.37 | 23.50    0.91
              5.583    1.22 |11.583   31.61 |17.583    1.37 | 23.58    0.91
              5.667    1.22 |11.667   31.62 |17.667    1.37 | 23.67    0.91
              5.750    1.22 |11.750   31.62 |17.750    1.37 | 23.75    0.91
              5.833    1.22 |11.833   83.90 |17.833    1.37 | 23.83    0.91
              5.917    1.22 |11.917   83.90 |17.917    1.37 | 23.92    0.91
              6.000    1.22 |12.000   83.90 |18.000    1.37 | 24.00    0.91

   Max.Eff.Inten.(mm/hr)=      83.90        54.84
              over (min)        5.00        15.00
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     Storage Coeff.  (min)=       4.48 (ii)   13.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.23         0.08
                                                  *TOTALS*
     PEAK FLOW       (cms)=       2.04         0.61          2.582 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      75.00        41.39         60.89
     TOTAL RAINFALL   (mm)=      76.00        76.00         76.00
     RUNOFF COEFFICIENT   =       0.99         0.54          0.80

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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  (  0125)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (  0112):     8.10   0.151    12.50    16.81
      + ID2= 2 (  0120):     1.04   0.061    12.08    66.51
        ================================================
        ID = 3 (  0125):     9.14   0.205    12.50    22.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0125)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
        ID1= 3 (  0125):     9.14   0.205    12.50    22.46
      + ID2= 2 (  0126):    15.42   2.582    12.00    60.89
        ================================================
        ID = 1 (  0125):    24.56   2.704    12.00    46.59

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0118)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)      (ha.m.)   |   (cms)      (ha.m.)
                          0.0000     0.0000    |   0.5380      0.7358
                          0.0442     0.4230    |   0.7490      0.8808
                          0.2050     0.4653    |   0.9210      0.9883
                          0.3910     0.6220    |   1.1040      1.0928

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0125)     24.560      2.704     12.00      46.59
   OUTFLOW: ID= 1 (  0118)     24.560      0.391     13.00      46.49

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 14.46
                  TIME SHIFT OF PEAK FLOW         (min)= 60.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6220

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\efbc61a7
| Ptotal= 76.00 mm |    Comments: SCS II 24H_5YR
--------------------

                          Duration of storm    = 24.00 hrs
                          Mass curve time step = 15.00 min

          TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
           hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
          0.25    0.76 |  6.25    1.52 | 12.25   10.94 | 18.25    1.37
          0.50    0.76 |  6.50    1.52 | 12.50   10.94 | 18.50    1.37
          0.75    0.76 |  6.75    1.52 | 12.75    5.62 | 18.75    1.37
          1.00    0.76 |  7.00    1.52 | 13.00    5.62 | 19.00    1.37
          1.25    0.76 |  7.25    1.52 | 13.25    1.06 | 19.25    1.37
          1.50    0.76 |  7.50    1.52 | 13.50    1.06 | 19.50    1.37
          1.75    0.76 |  7.75    1.52 | 13.75    6.23 | 19.75    1.37
          2.00    1.37 |  8.00    1.52 | 14.00    6.23 | 20.00    1.37
          2.25    0.99 |  8.25    2.05 | 14.25    2.28 | 20.25    0.91
          2.50    0.99 |  8.50    2.05 | 14.50    2.28 | 20.50    0.91
          2.75    0.99 |  8.75    2.05 | 14.75    2.28 | 20.75    0.91
          3.00    0.99 |  9.00    2.05 | 15.00    2.28 | 21.00    0.91
          3.25    0.99 |  9.25    2.43 | 15.25    2.28 | 21.25    0.91
          3.50    0.99 |  9.50    2.43 | 15.50    2.28 | 21.50    0.91
          3.75    0.99 |  9.75    2.74 | 15.75    2.28 | 21.75    0.91
          4.00    0.99 | 10.00    2.74 | 16.00    2.28 | 22.00    0.91
          4.25    1.22 | 10.25    3.50 | 16.25    1.37 | 22.25    0.91
          4.50    1.22 | 10.50    3.50 | 16.50    1.37 | 22.50    0.91
          4.75    1.22 | 10.75    4.71 | 16.75    1.37 | 22.75    0.91
          5.00    1.22 | 11.00    4.71 | 17.00    1.37 | 23.00    0.91
          5.25    1.22 | 11.25    7.30 | 17.25    1.37 | 23.25    0.91
          5.50    1.22 | 11.50    7.30 | 17.50    1.37 | 23.50    0.91
          5.75    1.22 | 11.75   31.62 | 17.75    1.37 | 23.75    0.91
          6.00    1.22 | 12.00   83.90 | 18.00    1.37 | 24.00    0.91

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| CALIB            |
| STANDHYD (  0114)|   Area     (ha)=   1.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.15         0.38
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     101.32        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    0.76 | 6.083    1.52 |12.083   10.95 | 18.08    1.37
         0.167    0.76 | 6.167    1.52 |12.167   10.94 | 18.17    1.37
         0.250    0.76 | 6.250    1.52 |12.250   10.94 | 18.25    1.37
         0.333    0.76 | 6.333    1.52 |12.333   10.94 | 18.33    1.37
         0.417    0.76 | 6.417    1.52 |12.417   10.94 | 18.42    1.37
         0.500    0.76 | 6.500    1.52 |12.500   10.94 | 18.50    1.37
         0.583    0.76 | 6.583    1.52 |12.583    5.62 | 18.58    1.37
         0.667    0.76 | 6.667    1.52 |12.667    5.62 | 18.67    1.37
         0.750    0.76 | 6.750    1.52 |12.750    5.62 | 18.75    1.37
         0.833    0.76 | 6.833    1.52 |12.833    5.62 | 18.83    1.37
         0.917    0.76 | 6.917    1.52 |12.917    5.62 | 18.92    1.37
         1.000    0.76 | 7.000    1.52 |13.000    5.62 | 19.00    1.37
         1.083    0.76 | 7.083    1.52 |13.083    1.06 | 19.08    1.37
         1.167    0.76 | 7.167    1.52 |13.167    1.06 | 19.17    1.37
         1.250    0.76 | 7.250    1.52 |13.250    1.06 | 19.25    1.37
         1.333    0.76 | 7.333    1.52 |13.333    1.06 | 19.33    1.37
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1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

			TOTALS
Max.Eff.Inten.(mm/hr)=	83.90	54.84	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.24 (ii)	7.12 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.30	0.14	
PEAK FLOW (cms)=	0.27	0.05	0.317 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	75.00	41.39	66.60
TOTAL RAINFALL (mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT =	0.99	0.54	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0119) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0470	0.0860
	0.0130	0.0440	0.0580	0.0960
	0.0240	0.0610	0.0690	0.1060
	0.0340	0.0720	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0114)	1.540	0.317	12.00	66.60
OUTFLOW: ID= 1 (0119)	1.540	0.024	12.75	66.04

PEAK FLOW REDUCTION [Qout/Qin](%)= 7.48
TIME SHIFT OF PEAK FLOW (min)= 45.00
MAXIMUM STORAGE USED (ha.m.)= 0.0606

MASS STORM Ptotal= 76.00 mm	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\efbc61a7 Comments: SCS II 24H_5YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

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| CALIB              |
| STANDHYD (  0115)|   Area     (ha)=   0.88
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
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                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66         0.22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      76.59        40.00
     Mannings n             =     0.013        0.250

         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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

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     Max.Eff.Inten.(mm/hr)=      83.90        54.84
                 over (min)       5.00        10.00
     Storage Coeff.  (min)=       1.90 (ii)    6.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.15         0.03          0.182 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00          12.00
     RUNOFF VOLUME    (mm)=      75.00        41.39          66.59
     TOTAL RAINFALL   (mm)=      76.00        76.00          76.00
     RUNOFF COEFFICIENT   =       0.99         0.54           0.88

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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(  0121)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.0480      0.0422
                          0.0110     0.0224   |   0.0610      0.0471
                          0.0240     0.0304   |   0.0740      0.0520
                          0.0340     0.0355   |   0.0000      0.0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0115)     0.880     0.182     12.00      66.59
   OUTFLOW: ID= 1 (  0121)     0.880     0.024     12.50      66.01

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 13.22
                  TIME SHIFT OF PEAK FLOW         (min)= 30.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0304

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\efbc61a7
| Ptotal= 76.00 mm |    Comments: SCS II 24H_5YR
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Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.76	6.25	1.52	12.25	10.94	18.25	1.37
0.50	0.76	6.50	1.52	12.50	10.94	18.50	1.37
0.75	0.76	6.75	1.52	12.75	5.62	18.75	1.37
1.00	0.76	7.00	1.52	13.00	5.62	19.00	1.37
1.25	0.76	7.25	1.52	13.25	1.06	19.25	1.37
1.50	0.76	7.50	1.52	13.50	1.06	19.50	1.37
1.75	0.76	7.75	1.52	13.75	6.23	19.75	1.37
2.00	1.37	8.00	1.52	14.00	6.23	20.00	1.37
2.25	0.99	8.25	2.05	14.25	2.28	20.25	0.91
2.50	0.99	8.50	2.05	14.50	2.28	20.50	0.91
2.75	0.99	8.75	2.05	14.75	2.28	20.75	0.91
3.00	0.99	9.00	2.05	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.43	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	0.99	10.00	2.74	16.00	2.28	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	3.50	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	4.71	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	7.30	17.50	1.37	23.50	0.91
5.75	1.22	11.75	31.62	17.75	1.37	23.75	0.91
6.00	1.22	12.00	83.90	18.00	1.37	24.00	0.91

CALIB
STANDHYD (0116)
ID= 1 DT= 5.0 min

Area (ha)= 0.28
Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.08
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	43.20	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	0.76	6.083	1.52	12.083	10.95	18.08	1.37
0.167	0.76	6.167	1.52	12.167	10.94	18.17	1.37
0.250	0.76	6.250	1.52	12.250	10.94	18.25	1.37
0.333	0.76	6.333	1.52	12.333	10.94	18.33	1.37
0.417	0.76	6.417	1.52	12.417	10.94	18.42	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.583	0.76	6.583	1.52	12.583	5.62	18.58	1.37
0.667	0.76	6.667	1.52	12.667	5.62	18.67	1.37
0.750	0.76	6.750	1.52	12.750	5.62	18.75	1.37
0.833	0.76	6.833	1.52	12.833	5.62	18.83	1.37
0.917	0.76	6.917	1.52	12.917	5.62	18.92	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.083	0.76	7.083	1.52	13.083	1.06	19.08	1.37
1.167	0.76	7.167	1.52	13.167	1.06	19.17	1.37
1.250	0.76	7.250	1.52	13.250	1.06	19.25	1.37
1.333	0.76	7.333	1.52	13.333	1.06	19.33	1.37
1.417	0.76	7.417	1.52	13.417	1.06	19.42	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.583	0.76	7.583	1.52	13.583	6.23	19.58	1.37
1.667	0.76	7.667	1.52	13.667	6.23	19.67	1.37
1.750	0.76	7.750	1.52	13.750	6.23	19.75	1.37
1.833	1.37	7.833	1.52	13.833	6.23	19.83	1.37
1.917	1.37	7.917	1.52	13.917	6.23	19.92	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.083	0.99	8.083	2.05	14.083	2.28	20.08	0.91
2.167	0.99	8.167	2.05	14.167	2.28	20.17	0.91
2.250	0.99	8.250	2.05	14.250	2.28	20.25	0.91
2.333	0.99	8.333	2.05	14.333	2.28	20.33	0.91
2.417	0.99	8.417	2.05	14.417	2.28	20.42	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.583	0.99	8.583	2.05	14.583	2.28	20.58	0.91
2.667	0.99	8.667	2.05	14.667	2.28	20.67	0.91
2.750	0.99	8.750	2.05	14.750	2.28	20.75	0.91
2.833	0.99	8.833	2.05	14.833	2.28	20.83	0.91
2.917	0.99	8.917	2.05	14.917	2.28	20.92	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.083	0.99	9.083	2.43	15.083	2.28	21.08	0.91
3.167	0.99	9.167	2.43	15.167	2.28	21.17	0.91
3.250	0.99	9.250	2.43	15.250	2.28	21.25	0.91
3.333	0.99	9.333	2.43	15.333	2.28	21.33	0.91
3.417	0.99	9.417	2.43	15.417	2.28	21.42	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.583	0.99	9.583	2.74	15.583	2.28	21.58	0.91
3.667	0.99	9.667	2.74	15.667	2.28	21.67	0.91
3.750	0.99	9.750	2.74	15.750	2.28	21.75	0.91
3.833	0.99	9.833	2.74	15.833	2.28	21.83	0.91
3.917	0.99	9.917	2.74	15.917	2.28	21.92	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.083	1.22	10.083	3.50	16.083	1.37	22.08	0.91
4.167	1.22	10.167	3.50	16.167	1.37	22.17	0.91
4.250	1.22	10.250	3.50	16.250	1.37	22.25	0.91
4.333	1.22	10.333	3.50	16.333	1.37	22.33	0.91
4.417	1.22	10.417	3.50	16.417	1.37	22.42	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.583	1.22	10.583	4.71	16.583	1.37	22.58	0.91
4.667	1.22	10.667	4.71	16.667	1.37	22.67	0.91
4.750	1.22	10.750	4.71	16.750	1.37	22.75	0.91
4.833	1.22	10.833	4.71	16.833	1.37	22.83	0.91
4.917	1.22	10.917	4.71	16.917	1.37	22.92	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.083	1.22	11.083	7.30	17.083	1.37	23.08	0.91
5.167	1.22	11.167	7.30	17.167	1.37	23.17	0.91
5.250	1.22	11.250	7.30	17.250	1.37	23.25	0.91
5.333	1.22	11.333	7.30	17.333	1.37	23.33	0.91
5.417	1.22	11.417	7.30	17.417	1.37	23.42	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.583	1.22	11.583	31.61	17.583	1.37	23.58	0.91
5.667	1.22	11.667	31.62	17.667	1.37	23.67	0.91
5.750	1.22	11.750	31.62	17.750	1.37	23.75	0.91
5.833	1.22	11.833	83.90	17.833	1.37	23.83	0.91
5.917	1.22	11.917	83.90	17.917	1.37	23.92	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Max.Eff.Inten.	(mm/hr)=	83.90	54.84	
	over (min)	5.00	15.00	
Storage Coeff.	(min)=	1.35 (ii)	10.32 (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)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	75.00	41.40	65.23
TOTAL RAINFALL	(mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT	=	0.99	0.54	0.86

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

```
      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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(  0124)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0200     0.0118
                         0.0050     0.0062   |   0.0250     0.0132
                         0.0100     0.0083   |   0.0310     0.0145
                         0.0140     0.0100   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0116)    0.280     0.054     12.00      65.23
   OUTFLOW: ID= 1 (  0124)    0.280     0.010     12.33      64.14

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.38
                  TIME SHIFT OF PEAK FLOW         (min)= 20.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0083

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0118):    24.56   0.391    13.00    46.49
     + ID2= 2 (  0119):     1.54   0.024    12.75    66.04
       ========================================================
       ID = 3 (  0113):    26.10   0.415    13.00    47.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0113):    26.10   0.415    13.00    47.64
     + ID2= 2 (  0121):     0.88   0.024    12.50    66.01
       ========================================================
       ID = 1 (  0113):    26.98   0.436    12.92    48.24

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0113):    26.98   0.436    12.92    48.24
     + ID2= 2 (  0124):     0.28   0.010    12.33    64.14
       ========================================================
       ID = 3 (  0113):    27.26   0.445    12.92    48.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
======================

       V    V   I    SSSSS  U   U    A    L
       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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\743baed2-dbf0-4c0f-8d8b-08eea3b89227\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\743baed2-dbf0-4c0f-8d8b-08eea3b89227\scen


DATE: 12-15-2018                          TIME: 09:14:07

USER:


COMMENTS: _____________________________________________________


--------------------------------------------------------------------------------
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  ***********************************************
  ** SIMULATION : Run 03                       **
  ***********************************************

---------------------
| MASS STORM        |    Filename: C:\Users\ssoumik\AppD
|                   |              ata\Local\Temp\
|                   |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a719fc83
| Ptotal= 89.90 mm  |    Comments: SCS II 24H_10YR
---------------------
                         Duration of storm    = 24.00 hrs
                         Mass curve time step = 15.00 min

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.25    0.90 |  6.25    1.80 | 12.25   12.95 | 18.25    1.62
      0.50    0.90 |  6.50    1.80 | 12.50   12.95 | 18.50    1.62
      0.75    0.90 |  6.75    1.80 | 12.75    6.65 | 18.75    1.62
      1.00    0.90 |  7.00    1.80 | 13.00    6.65 | 19.00    1.62
      1.25    0.90 |  7.25    1.80 | 13.25    1.26 | 19.25    1.62
      1.50    0.90 |  7.50    1.80 | 13.50    1.26 | 19.50    1.62
      1.75    0.90 |  7.75    1.80 | 13.75    7.37 | 19.75    1.62
      2.00    1.62 |  8.00    1.80 | 14.00    7.37 | 20.00    1.62
      2.25    1.17 |  8.25    2.43 | 14.25    2.70 | 20.25    1.08
      2.50    1.17 |  8.50    2.43 | 14.50    2.70 | 20.50    1.08
      2.75    1.17 |  8.75    2.43 | 14.75    2.70 | 20.75    1.08
      3.00    1.17 |  9.00    2.43 | 15.00    2.70 | 21.00    1.08
      3.25    1.17 |  9.25    2.88 | 15.25    2.70 | 21.25    1.08
      3.50    1.17 |  9.50    2.88 | 15.50    2.70 | 21.50    1.08
```

3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB			
NASHYD (0112)	Area (ha)= 8.10	Curve Number (CN)= 52.6	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.59		

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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.208 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 22.970
TOTAL RAINFALL (mm)= 89.900
RUNOFF COEFFICIENT = 0.256

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a719fc83
Ptotal= 89.90 mm	Comments: SCS II 24H_10YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08

4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB	
STANDHYD (0117)	Area (ha)= 1.04
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.78	0.26
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	83.27	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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Max.Eff.Inten.	(mm/hr)=	99.25	69.65	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.86 (ii)	6.43 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.32	0.14	
				TOTALS
PEAK FLOW	(cms)=	0.22	0.04	0.258 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	88.90	52.81	79.87
TOTAL RAINFALL	(mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT	=	0.99	0.59	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0120)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1134	0.0447

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0117)	1.040	0.258	12.00	79.87
OUTFLOW: ID= 1 (0120)	1.040	0.074	12.08	79.79

PEAK FLOW REDUCTION [Qout/Qin](%)= 28.57
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0291

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a719fc83
| Ptotal= 89.90 mm |    Comments: SCS II 24H_10YR
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                     Duration of storm    = 24.00 hrs
                     Mass curve time step = 15.00 min

               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    0.90 |  6.25    1.80 | 12.25   12.95 | 18.25    1.62
               0.50    0.90 |  6.50    1.80 | 12.50   12.95 | 18.50    1.62
               0.75    0.90 |  6.75    1.80 | 12.75    6.65 | 18.75    1.62
               1.00    0.90 |  7.00    1.80 | 13.00    6.65 | 19.00    1.62
               1.25    0.90 |  7.25    1.80 | 13.25    1.26 | 19.25    1.62
               1.50    0.90 |  7.50    1.80 | 13.50    1.26 | 19.50    1.62
               1.75    0.90 |  7.75    1.80 | 13.75    7.37 | 19.75    1.62
               2.00    1.62 |  8.00    1.80 | 14.00    7.37 | 20.00    1.62
               2.25    1.17 |  8.25    2.43 | 14.25    2.70 | 20.25    1.08
               2.50    1.17 |  8.50    2.43 | 14.50    2.70 | 20.50    1.08
               2.75    1.17 |  8.75    2.43 | 14.75    2.70 | 20.75    1.08
               3.00    1.17 |  9.00    2.43 | 15.00    2.70 | 21.00    1.08
               3.25    1.17 |  9.25    2.88 | 15.25    2.70 | 21.25    1.08
               3.50    1.17 |  9.50    2.88 | 15.50    2.70 | 21.50    1.08
               3.75    1.17 |  9.75    3.24 | 15.75    2.70 | 21.75    1.08
               4.00    1.17 | 10.00    3.24 | 16.00    2.70 | 22.00    1.08
               4.25    1.44 | 10.25    4.14 | 16.25    1.62 | 22.25    1.08
               4.50    1.44 | 10.50    4.14 | 16.50    1.62 | 22.50    1.08
               4.75    1.44 | 10.75    5.57 | 16.75    1.62 | 22.75    1.08
               5.00    1.44 | 11.00    5.57 | 17.00    1.62 | 23.00    1.08
               5.25    1.44 | 11.25    8.63 | 17.25    1.62 | 23.25    1.08
               5.50    1.44 | 11.50    8.63 | 17.50    1.62 | 23.50    1.08
               5.75    1.44 | 11.75   37.40 | 17.75    1.62 | 23.75    1.08
               6.00    1.44 | 12.00   99.25 | 18.00    1.62 | 24.00    1.08

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| CALIB            |
| STANDHYD (  0126)|   Area    (ha)=  15.42
|ID= 1 DT= 5.0 min |   Total Imp(%)=  58.00   Dir. Conn.(%)=  58.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       8.94         6.48
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=     320.62        40.00
     Mannings n           =      0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    0.90 | 6.083    1.80 |12.083   12.96 | 18.08    1.62
              0.167    0.90 | 6.167    1.80 |12.167   12.95 | 18.17    1.62
              0.250    0.90 | 6.250    1.80 |12.250   12.95 | 18.25    1.62
              0.333    0.90 | 6.333    1.80 |12.333   12.95 | 18.33    1.62
              0.417    0.90 | 6.417    1.80 |12.417   12.95 | 18.42    1.62
              0.500    0.90 | 6.500    1.80 |12.500   12.95 | 18.50    1.62
              0.583    0.90 | 6.583    1.80 |12.583    6.65 | 18.58    1.62
              0.667    0.90 | 6.667    1.80 |12.667    6.65 | 18.67    1.62
              0.750    0.90 | 6.750    1.80 |12.750    6.65 | 18.75    1.62
              0.833    0.90 | 6.833    1.80 |12.833    6.65 | 18.83    1.62
              0.917    0.90 | 6.917    1.80 |12.917    6.65 | 18.92    1.62
              1.000    0.90 | 7.000    1.80 |13.000    6.65 | 19.00    1.62
              1.083    0.90 | 7.083    1.80 |13.083    1.26 | 19.08    1.62
              1.167    0.90 | 7.167    1.80 |13.167    1.26 | 19.17    1.62
              1.250    0.90 | 7.250    1.80 |13.250    1.26 | 19.25    1.62
              1.333    0.90 | 7.333    1.80 |13.333    1.26 | 19.33    1.62
              1.417    0.90 | 7.417    1.80 |13.417    1.26 | 19.42    1.62
              1.500    0.90 | 7.500    1.80 |13.500    1.26 | 19.50    1.62
              1.583    0.90 | 7.583    1.80 |13.583    7.37 | 19.58    1.62
              1.667    0.90 | 7.667    1.80 |13.667    7.37 | 19.67    1.62
              1.750    0.90 | 7.750    1.80 |13.750    7.37 | 19.75    1.62
              1.833    1.62 | 7.833    1.80 |13.833    7.37 | 19.83    1.62
              1.917    1.62 | 7.917    1.80 |13.917    7.37 | 19.92    1.62
              2.000    1.62 | 8.000    1.80 |14.000    7.37 | 20.00    1.62
              2.083    1.17 | 8.083    2.43 |14.083    2.70 | 20.08    1.08
              2.167    1.17 | 8.167    2.43 |14.167    2.70 | 20.17    1.08
              2.250    1.17 | 8.250    2.43 |14.250    2.70 | 20.25    1.08
              2.333    1.17 | 8.333    2.43 |14.333    2.70 | 20.33    1.08
              2.417    1.17 | 8.417    2.43 |14.417    2.70 | 20.42    1.08
              2.500    1.17 | 8.500    2.43 |14.500    2.70 | 20.50    1.08
              2.583    1.17 | 8.583    2.43 |14.583    2.70 | 20.58    1.08
              2.667    1.17 | 8.667    2.43 |14.667    2.70 | 20.67    1.08
              2.750    1.17 | 8.750    2.43 |14.750    2.70 | 20.75    1.08
              2.833    1.17 | 8.833    2.43 |14.833    2.70 | 20.83    1.08
              2.917    1.17 | 8.917    2.43 |14.917    2.70 | 20.92    1.08
              3.000    1.17 | 9.000    2.43 |15.000    2.70 | 21.00    1.08
              3.083    1.17 | 9.083    2.88 |15.083    2.70 | 21.08    1.08
              3.167    1.17 | 9.167    2.88 |15.167    2.70 | 21.17    1.08
              3.250    1.17 | 9.250    2.88 |15.250    2.70 | 21.25    1.08
              3.333    1.17 | 9.333    2.88 |15.333    2.70 | 21.33    1.08
              3.417    1.17 | 9.417    2.88 |15.417    2.70 | 21.42    1.08
              3.500    1.17 | 9.500    2.88 |15.500    2.70 | 21.50    1.08
              3.583    1.17 | 9.583    3.24 |15.583    2.70 | 21.58    1.08
              3.667    1.17 | 9.667    3.24 |15.667    2.70 | 21.67    1.08
              3.750    1.17 | 9.750    3.24 |15.750    2.70 | 21.75    1.08
              3.833    1.17 | 9.833    3.24 |15.833    2.70 | 21.83    1.08
              3.917    1.17 | 9.917    3.24 |15.917    2.70 | 21.92    1.08
              4.000    1.17 |10.000    3.24 |16.000    2.70 | 22.00    1.08
              4.083    1.44 |10.083    4.14 |16.083    1.62 | 22.08    1.08
              4.167    1.44 |10.167    4.14 |16.167    1.62 | 22.17    1.08
              4.250    1.44 |10.250    4.14 |16.250    1.62 | 22.25    1.08
              4.333    1.44 |10.333    4.14 |16.333    1.62 | 22.33    1.08
              4.417    1.44 |10.417    4.14 |16.417    1.62 | 22.42    1.08
              4.500    1.44 |10.500    4.14 |16.500    1.62 | 22.50    1.08
              4.583    1.44 |10.583    5.57 |16.583    1.62 | 22.58    1.08
              4.667    1.44 |10.667    5.57 |16.667    1.62 | 22.67    1.08
              4.750    1.44 |10.750    5.57 |16.750    1.62 | 22.75    1.08
              4.833    1.44 |10.833    5.57 |16.833    1.62 | 22.83    1.08
              4.917    1.44 |10.917    5.57 |16.917    1.62 | 22.92    1.08
              5.000    1.44 |11.000    5.57 |17.000    1.62 | 23.00    1.08
              5.083    1.44 |11.083    8.63 |17.083    1.62 | 23.08    1.08
              5.167    1.44 |11.167    8.63 |17.167    1.62 | 23.17    1.08
              5.250    1.44 |11.250    8.63 |17.250    1.62 | 23.25    1.08
              5.333    1.44 |11.333    8.63 |17.333    1.62 | 23.33    1.08
              5.417    1.44 |11.417    8.63 |17.417    1.62 | 23.42    1.08
              5.500    1.44 |11.500    8.63 |17.500    1.62 | 23.50    1.08
              5.583    1.44 |11.583   37.40 |17.583    1.62 | 23.58    1.08
              5.667    1.44 |11.667   37.40 |17.667    1.62 | 23.67    1.08
              5.750    1.44 |11.750   37.40 |17.750    1.62 | 23.75    1.08
              5.833    1.44 |11.833   99.24 |17.833    1.62 | 23.83    1.08
              5.917    1.44 |11.917   99.25 |17.917    1.62 | 23.92    1.08
              6.000    1.44 |12.000   99.25 |18.000    1.62 | 24.00    1.08

Max.Eff.Inten.(mm/hr)=      99.25        69.65
          over (min)         5.00        15.00
Storage Coeff.  (min)=       4.19 (ii)   12.34 (ii)
Unit Hyd. Tpeak (min)=       5.00        15.00
Unit Hyd. peak  (cms)=       0.24         0.08
                                                    *TOTALS*
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     PEAK FLOW       (cms)=       2.42         0.81          3.151 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08          12.00
     RUNOFF VOLUME    (mm)=      88.90        52.81          73.74
     TOTAL RAINFALL   (mm)=      89.90        89.90          89.90
     RUNOFF COEFFICIENT   =       0.99         0.59           0.82

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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  (  0125)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)     (cms)    (hrs)      (mm)
        ID1= 1 (  0112):     8.10   0.208    12.50    22.97
      + ID2= 2 (  0120):     1.04   0.074    12.08    79.79
        ================================================
        ID = 3 (  0125):     9.14   0.273    12.50    29.43

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0125)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)     (cms)    (hrs)      (mm)
        ID1= 3 (  0125):     9.14   0.273    12.50    29.43
      + ID2= 2 (  0126):    15.42   3.151    12.00    73.74
        ================================================
        ID = 1 (  0125):    24.56   3.310    12.00    57.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0118)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |   0.5380     0.7358
                          0.0442     0.4230   |   0.7490     0.8808
                          0.2050     0.4653   |   0.9210     0.9883
                          0.3910     0.6220   |   1.1040     1.0928

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0125)    24.560     3.310     12.00      57.25
   OUTFLOW: ID= 1 (  0118)    24.560     0.538     12.83      57.15

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 16.25
                  TIME SHIFT OF PEAK FLOW         (min)= 50.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.7358

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a719fc83
| Ptotal= 89.90 mm |    Comments: SCS II 24H_10YR
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                     Duration of storm    = 24.00 hrs
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Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

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| CALIB            |
| STANDHYD (  0114)|   Area     (ha)=   1.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
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                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         1.15          0.38
     Dep. Storage     (mm)=         1.00          1.50
     Average Slope     (%)=         2.00          2.00
     Length            (m)=       101.32         40.00
     Mannings n           =        0.013         0.250

        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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62

1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Max.Eff.Inten.(mm/hr)=	99.25	69.65	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.10 (ii)	6.66 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.31	0.14	
			TOTALS
PEAK FLOW (cms)=	0.32	0.06	0.381 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	88.90	52.81	79.87
TOTAL RAINFALL (mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT =	0.99	0.59	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0119)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0470	0.0860
	0.0130	0.0440	0.0580	0.0960
	0.0240	0.0610	0.0690	0.1060
	0.0340	0.0720	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0114)	1.540	0.381	12.00	79.87
OUTFLOW: ID= 1 (0119)	1.540	0.034	12.58	79.32

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.80
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.0715

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a719fc83
Ptotal= 89.90 mm	Comments: SCS II 24H_10YR

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB		
STANDHYD (0115)	Area (ha)= 0.88	
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00	Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.66	0.22
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	76.59	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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Max.Eff.Inten.	(mm/hr)=	99.25	69.65	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.77 (ii)	6.34 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.32	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.18	0.04	0.218 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	88.90	52.81	79.87
TOTAL RAINFALL	(mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT	=	0.99	0.59	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0121)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0480	0.0422
	0.0110	0.0224	0.0610	0.0471
	0.0240	0.0304	0.0740	0.0520
	0.0340	0.0355	0.0000	0.0000

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2	(0115)	0.880	0.218	12.00	79.87
OUTFLOW: ID= 1	(0121)	0.880	0.034	12.25	79.29

PEAK FLOW REDUCTION [Qout/Qin](%)= 15.57
TIME SHIFT OF PEAK FLOW (min)= 15.00
MAXIMUM STORAGE USED (ha.m.)= 0.0355

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\a719fc83
Ptotal= 89.90 mm	Comments: SCS II 24H_10YR
	Duration of storm = 24.00 hrs
	Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.90	6.25	1.80	12.25	12.95	18.25	1.62
0.50	0.90	6.50	1.80	12.50	12.95	18.50	1.62
0.75	0.90	6.75	1.80	12.75	6.65	18.75	1.62
1.00	0.90	7.00	1.80	13.00	6.65	19.00	1.62
1.25	0.90	7.25	1.80	13.25	1.26	19.25	1.62
1.50	0.90	7.50	1.80	13.50	1.26	19.50	1.62
1.75	0.90	7.75	1.80	13.75	7.37	19.75	1.62
2.00	1.62	8.00	1.80	14.00	7.37	20.00	1.62
2.25	1.17	8.25	2.43	14.25	2.70	20.25	1.08
2.50	1.17	8.50	2.43	14.50	2.70	20.50	1.08
2.75	1.17	8.75	2.43	14.75	2.70	20.75	1.08
3.00	1.17	9.00	2.43	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	2.88	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.17	10.00	3.24	16.00	2.70	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	4.14	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	5.57	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	8.63	17.50	1.62	23.50	1.08
5.75	1.44	11.75	37.40	17.75	1.62	23.75	1.08
6.00	1.44	12.00	99.25	18.00	1.62	24.00	1.08

CALIB			
STANDHYD (0116)	Area (ha)=	0.28	
ID= 1 DT= 5.0 min	Total Imp(%)=	71.00	Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.08
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	43.20	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	0.90	6.083	1.80	12.083	12.96	18.08	1.62
0.167	0.90	6.167	1.80	12.167	12.95	18.17	1.62
0.250	0.90	6.250	1.80	12.250	12.95	18.25	1.62
0.333	0.90	6.333	1.80	12.333	12.95	18.33	1.62
0.417	0.90	6.417	1.80	12.417	12.95	18.42	1.62
0.500	0.90	6.500	1.80	12.500	12.95	18.50	1.62
0.583	0.90	6.583	1.80	12.583	6.65	18.58	1.62
0.667	0.90	6.667	1.80	12.667	6.65	18.67	1.62
0.750	0.90	6.750	1.80	12.750	6.65	18.75	1.62
0.833	0.90	6.833	1.80	12.833	6.65	18.83	1.62
0.917	0.90	6.917	1.80	12.917	6.65	18.92	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.083	0.90	7.083	1.80	13.083	1.26	19.08	1.62
1.167	0.90	7.167	1.80	13.167	1.26	19.17	1.62
1.250	0.90	7.250	1.80	13.250	1.26	19.25	1.62
1.333	0.90	7.333	1.80	13.333	1.26	19.33	1.62
1.417	0.90	7.417	1.80	13.417	1.26	19.42	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.583	0.90	7.583	1.80	13.583	7.37	19.58	1.62
1.667	0.90	7.667	1.80	13.667	7.37	19.67	1.62
1.750	0.90	7.750	1.80	13.750	7.37	19.75	1.62
1.833	1.62	7.833	1.80	13.833	7.37	19.83	1.62
1.917	1.62	7.917	1.80	13.917	7.37	19.92	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.083	1.17	8.083	2.43	14.083	2.70	20.08	1.08
2.167	1.17	8.167	2.43	14.167	2.70	20.17	1.08
2.250	1.17	8.250	2.43	14.250	2.70	20.25	1.08
2.333	1.17	8.333	2.43	14.333	2.70	20.33	1.08
2.417	1.17	8.417	2.43	14.417	2.70	20.42	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.583	1.17	8.583	2.43	14.583	2.70	20.58	1.08
2.667	1.17	8.667	2.43	14.667	2.70	20.67	1.08
2.750	1.17	8.750	2.43	14.750	2.70	20.75	1.08
2.833	1.17	8.833	2.43	14.833	2.70	20.83	1.08
2.917	1.17	8.917	2.43	14.917	2.70	20.92	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.083	1.17	9.083	2.88	15.083	2.70	21.08	1.08
3.167	1.17	9.167	2.88	15.167	2.70	21.17	1.08
3.250	1.17	9.250	2.88	15.250	2.70	21.25	1.08
3.333	1.17	9.333	2.88	15.333	2.70	21.33	1.08
3.417	1.17	9.417	2.88	15.417	2.70	21.42	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.583	1.17	9.583	3.24	15.583	2.70	21.58	1.08
3.667	1.17	9.667	3.24	15.667	2.70	21.67	1.08
3.750	1.17	9.750	3.24	15.750	2.70	21.75	1.08
3.833	1.17	9.833	3.24	15.833	2.70	21.83	1.08
3.917	1.17	9.917	3.24	15.917	2.70	21.92	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.083	1.44	10.083	4.14	16.083	1.62	22.08	1.08
4.167	1.44	10.167	4.14	16.167	1.62	22.17	1.08
4.250	1.44	10.250	4.14	16.250	1.62	22.25	1.08
4.333	1.44	10.333	4.14	16.333	1.62	22.33	1.08
4.417	1.44	10.417	4.14	16.417	1.62	22.42	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.583	1.44	10.583	5.57	16.583	1.62	22.58	1.08
4.667	1.44	10.667	5.57	16.667	1.62	22.67	1.08
4.750	1.44	10.750	5.57	16.750	1.62	22.75	1.08
4.833	1.44	10.833	5.57	16.833	1.62	22.83	1.08
4.917	1.44	10.917	5.57	16.917	1.62	22.92	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.083	1.44	11.083	8.63	17.083	1.62	23.08	1.08
5.167	1.44	11.167	8.63	17.167	1.62	23.17	1.08
5.250	1.44	11.250	8.63	17.250	1.62	23.25	1.08
5.333	1.44	11.333	8.63	17.333	1.62	23.33	1.08
5.417	1.44	11.417	8.63	17.417	1.62	23.42	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.583	1.44	11.583	37.40	17.583	1.62	23.58	1.08
5.667	1.44	11.667	37.40	17.667	1.62	23.67	1.08
5.750	1.44	11.750	37.40	17.750	1.62	23.75	1.08
5.833	1.44	11.833	99.24	17.833	1.62	23.83	1.08
5.917	1.44	11.917	99.25	17.917	1.62	23.92	1.08
6.000	1.44	12.000	99.25	18.000	1.62	24.00	1.08

Max.Eff.Inten.	(mm/hr)=	99.25	69.65	
	over (min)	5.00	10.00	
Storage Coeff.	(min)=	1.26 (ii)	6.21 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.33	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.05	0.01	0.068 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	88.90	52.81	78.42
TOTAL RAINFALL	(mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT	=	0.99	0.59	0.87

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(  0124)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0200     0.0118
                         0.0050     0.0062   |   0.0250     0.0132
                         0.0100     0.0083   |   0.0310     0.0145
                         0.0140     0.0100   |   0.0000     0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0116)    0.280     0.068     12.00      78.42
   OUTFLOW: ID= 1 (  0124)    0.280     0.014     12.17      77.32

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.26
                  TIME SHIFT OF PEAK FLOW         (min)= 10.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0099

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)    (hrs)     (mm)
        ID1= 1 (  0118):    24.56    0.538    12.83    57.15
      + ID2= 2 (  0119):     1.54    0.034    12.58    79.32
        ==================================================
        ID = 3 (  0113):    26.10    0.571    12.83    58.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)    (hrs)     (mm)
        ID1= 3 (  0113):    26.10    0.571    12.83    58.46
      + ID2= 2 (  0121):     0.88    0.034    12.25    79.29
        ==================================================
        ID = 1 (  0113):    26.98    0.602    12.83    59.14

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)    (hrs)     (mm)
        ID1= 1 (  0113):    26.98    0.602    12.83    59.14
      + ID2= 2 (  0124):     0.28    0.014    12.17    77.32
        ==================================================
        ID = 3 (  0113):    27.26    0.613    12.75    59.33

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
======================

       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I      SS    U   U  AAAAA  L
        V  V    I       SS   U   U  A   A  L
         VV     I    SSSSS   UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\d26758c7-afda-477f-98e8-4cb440e94a1b\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\d26758c7-afda-477f-98e8-4cb440e94a1b\scen


DATE: 12-15-2018                          TIME: 09:14:07

USER:


COMMENTS: _____________________________________________________

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  ***********************************************
  ** SIMULATION : Run 04                       **
  ***********************************************

--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\6d7a2231
| Ptotal=107.50 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    1.08 |  6.25    2.15 | 12.25   15.48 | 18.25    1.93
                0.50    1.08 |  6.50    2.15 | 12.50   15.48 | 18.50    1.94
                0.75    1.08 |  6.75    2.15 | 12.75    7.95 | 18.75    1.93
                1.00    1.07 |  7.00    2.15 | 13.00    7.96 | 19.00    1.94
                1.25    1.08 |  7.25    2.15 | 13.25    1.50 | 19.25    1.93
                1.50    1.07 |  7.50    2.15 | 13.50    1.50 | 19.50    1.94
                1.75    1.08 |  7.75    2.15 | 13.75    8.82 | 19.75    1.93
                2.00    1.93 |  8.00    2.15 | 14.00    8.82 | 20.00    1.94
                2.25    1.40 |  8.25    2.90 | 14.25    3.22 | 20.25    1.29
                2.50    1.40 |  8.50    2.90 | 14.50    3.22 | 20.50    1.29
                2.75    1.40 |  8.75    2.90 | 14.75    3.22 | 20.75    1.29
                3.00    1.40 |  9.00    2.90 | 15.00    3.23 | 21.00    1.29
                3.25    1.40 |  9.25    3.44 | 15.25    3.22 | 21.25    1.29
                3.50    1.40 |  9.50    3.44 | 15.50    3.22 | 21.50    1.29
                3.75    1.40 |  9.75    3.87 | 15.75    3.22 | 21.75    1.29
                4.00    1.40 | 10.00    3.87 | 16.00    3.22 | 22.00    1.29
                4.25    1.72 | 10.25    4.95 | 16.25    1.94 | 22.25    1.29
                4.50    1.72 | 10.50    4.95 | 16.50    1.93 | 22.50    1.29
                4.75    1.72 | 10.75    6.67 | 16.75    1.93 | 22.75    1.29
```

5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB			
NASHYD (0112)	Area (ha)=	8.10	Curve Number (CN)= 52.6
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.59	

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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.290 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 31.703
TOTAL RAINFALL (mm)= 107.500
RUNOFF COEFFICIENT = 0.295

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\6d7a2231
Ptotal=107.50 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29

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                5.75    1.72 | 11.75   44.72 | 17.75    1.93 | 23.75    1.29
                6.00    1.72 | 12.00  118.68 | 18.00    1.94 | 24.00    1.29

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| CALIB            |
| STANDHYD (  0117)|   Area    (ha)=   1.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.78         0.26
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       2.00         2.00
     Length            (m)=      83.27        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     1.08 | 6.083     2.15 |12.083    15.49 | 18.08     1.94
     0.167     1.08 | 6.167     2.15 |12.167    15.48 | 18.17     1.93
     0.250     1.08 | 6.250     2.15 |12.250    15.48 | 18.25     1.93
     0.333     1.08 | 6.333     2.15 |12.333    15.48 | 18.33     1.94
     0.417     1.08 | 6.417     2.15 |12.417    15.48 | 18.42     1.94
     0.500     1.08 | 6.500     2.15 |12.500    15.48 | 18.50     1.94
     0.583     1.08 | 6.583     2.15 |12.583     7.96 | 18.58     1.94
     0.667     1.08 | 6.667     2.15 |12.667     7.95 | 18.67     1.93
     0.750     1.08 | 6.750     2.15 |12.750     7.95 | 18.75     1.93
     0.833     1.07 | 6.833     2.15 |12.833     7.95 | 18.83     1.94
     0.917     1.07 | 6.917     2.15 |12.917     7.96 | 18.92     1.94
     1.000     1.07 | 7.000     2.15 |13.000     7.96 | 19.00     1.94
     1.083     1.07 | 7.083     2.15 |13.083     1.51 | 19.08     1.94
     1.167     1.08 | 7.167     2.15 |13.167     1.50 | 19.17     1.93
     1.250     1.08 | 7.250     2.15 |13.250     1.50 | 19.25     1.93
     1.333     1.08 | 7.333     2.15 |13.333     1.50 | 19.33     1.94
     1.417     1.07 | 7.417     2.15 |13.417     1.50 | 19.42     1.94
     1.500     1.08 | 7.500     2.15 |13.500     1.50 | 19.50     1.94
     1.583     1.08 | 7.583     2.15 |13.583     8.81 | 19.58     1.93
     1.667     1.08 | 7.667     2.15 |13.667     8.82 | 19.67     1.93
     1.750     1.08 | 7.750     2.15 |13.750     8.82 | 19.75     1.94
     1.833     1.93 | 7.833     2.15 |13.833     8.81 | 19.83     1.94
     1.917     1.93 | 7.917     2.15 |13.917     8.82 | 19.92     1.94
     2.000     1.93 | 8.000     2.15 |14.000     8.82 | 20.00     1.93
     2.083     1.40 | 8.083     2.90 |14.083     3.23 | 20.08     1.29
     2.167     1.40 | 8.167     2.90 |14.167     3.22 | 20.17     1.29
     2.250     1.40 | 8.250     2.90 |14.250     3.22 | 20.25     1.29
     2.333     1.40 | 8.333     2.90 |14.333     3.22 | 20.33     1.29
     2.417     1.40 | 8.417     2.90 |14.417     3.22 | 20.42     1.29
     2.500     1.40 | 8.500     2.90 |14.500     3.22 | 20.50     1.29
     2.583     1.40 | 8.583     2.90 |14.583     3.22 | 20.58     1.29
     2.667     1.40 | 8.667     2.90 |14.667     3.22 | 20.67     1.29
     2.750     1.40 | 8.750     2.90 |14.750     3.22 | 20.75     1.29
     2.833     1.40 | 8.833     2.90 |14.833     3.23 | 20.83     1.29
     2.917     1.40 | 8.917     2.90 |14.917     3.23 | 20.92     1.29
     3.000     1.40 | 9.000     2.90 |15.000     3.23 | 21.00     1.29
     3.083     1.40 | 9.083     3.44 |15.083     3.22 | 21.08     1.29
     3.167     1.40 | 9.167     3.44 |15.167     3.22 | 21.17     1.29
     3.250     1.40 | 9.250     3.44 |15.250     3.22 | 21.25     1.29
     3.333     1.40 | 9.333     3.44 |15.333     3.22 | 21.33     1.29
     3.417     1.40 | 9.417     3.44 |15.417     3.22 | 21.42     1.29
     3.500     1.40 | 9.500     3.44 |15.500     3.22 | 21.50     1.29
     3.583     1.40 | 9.583     3.87 |15.583     3.22 | 21.58     1.29
     3.667     1.40 | 9.667     3.87 |15.667     3.22 | 21.67     1.29
     3.750     1.40 | 9.750     3.87 |15.750     3.22 | 21.75     1.29
     3.833     1.40 | 9.833     3.87 |15.833     3.22 | 21.83     1.29
     3.917     1.40 | 9.917     3.87 |15.917     3.22 | 21.92     1.29
     4.000     1.40 |10.000     3.87 |16.000     3.22 | 22.00     1.29
     4.083     1.72 |10.083     4.94 |16.083     1.94 | 22.08     1.29
     4.167     1.72 |10.167     4.95 |16.167     1.94 | 22.17     1.29
     4.250     1.72 |10.250     4.95 |16.250     1.94 | 22.25     1.29
     4.333     1.72 |10.333     4.94 |16.333     1.94 | 22.33     1.29
     4.417     1.72 |10.417     4.95 |16.417     1.93 | 22.42     1.29
     4.500     1.72 |10.500     4.95 |16.500     1.93 | 22.50     1.29
     4.583     1.72 |10.583     6.66 |16.583     1.94 | 22.58     1.29
     4.667     1.72 |10.667     6.67 |16.667     1.93 | 22.67     1.29
     4.750     1.72 |10.750     6.67 |16.750     1.93 | 22.75     1.29
     4.833     1.72 |10.833     6.66 |16.833     1.94 | 22.83     1.29
     4.917     1.72 |10.917     6.66 |16.917     1.94 | 22.92     1.29
     5.000     1.72 |11.000     6.66 |17.000     1.94 | 23.00     1.29
     5.083     1.72 |11.083    10.32 |17.083     1.94 | 23.08     1.29
     5.167     1.72 |11.167    10.32 |17.167     1.93 | 23.17     1.29
     5.250     1.72 |11.250    10.32 |17.250     1.93 | 23.25     1.29
     5.333     1.72 |11.333    10.32 |17.333     1.94 | 23.33     1.29
     5.417     1.72 |11.417    10.32 |17.417     1.94 | 23.42     1.29
     5.500     1.72 |11.500    10.32 |17.500     1.94 | 23.50     1.29
     5.583     1.72 |11.583    44.72 |17.583     1.94 | 23.58     1.29
     5.667     1.72 |11.667    44.72 |17.667     1.93 | 23.67     1.29
     5.750     1.72 |11.750    44.72 |17.750     1.93 | 23.75     1.29
     5.833     1.72 |11.833   118.67 |17.833     1.94 | 23.83     1.29
     5.917     1.72 |11.917   118.68 |17.917     1.94 | 23.92     1.29
     6.000     1.72 |12.000   118.68 |18.000     1.94 | 24.00     1.29

     Max.Eff.Inten.(mm/hr)=     118.68        88.96
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.74 (ii)    5.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.26         0.06         0.313 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     106.50        67.86         96.84
     TOTAL RAINFALL   (mm)=     107.50       107.50        107.50
     RUNOFF COEFFICIENT   =       0.99         0.63          0.90

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  81.0    Ia = Dep. 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(  0120)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1134     0.0447

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0117)      1.040     0.313     12.00      96.84
   OUTFLOW: ID= 1 (  0120)      1.040     0.089     12.08      96.75

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 28.58
                  TIME SHIFT OF PEAK FLOW          (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0354

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
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| | 5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\6d7a2231
| Ptotal=107.50 mm | Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB	
STANDHYD (0126)	Area (ha)= 15.42
ID= 1 DT= 5.0 min	Total Imp(%)= 58.00 Dir. Conn.(%)= 58.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.94	6.48
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	320.62	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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.	(mm/hr)=	118.68	88.96	
	over (min)	5.00	15.00	
Storage Coeff.	(min)=	3.90 (ii)	11.29 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.25	0.09	
				TOTALS
PEAK FLOW	(cms)=	2.91	1.08	3.888 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	106.50	67.86	90.27
TOTAL RAINFALL	(mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT	=	0.99	0.63	0.84

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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  (  0125)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0112):     8.10   0.290    12.50    31.70
     + ID2= 2 (  0120):     1.04   0.089    12.08    96.75
       ====================================================
       ID = 3 (  0125):     9.14   0.368    12.50    39.10

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0125)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0125):     9.14   0.368    12.50    39.10
     + ID2= 2 (  0126):    15.42   3.888    12.00    90.27
       ====================================================
       ID = 1 (  0125):    24.56   4.100    12.00    71.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0118)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.5380     0.7358
                         0.0442     0.4230    |   0.7490     0.8808
                         0.2050     0.4653    |   0.9210     0.9883
                         0.3910     0.6220    |   1.1040     1.0928

                                AREA     QPEAK     TPEAK      R.V.
                                (ha)     (cms)     (hrs)      (mm)
   INFLOW : ID= 2 (  0125)     24.560     4.100     12.00     71.23
   OUTFLOW: ID= 1 (  0118)     24.560     0.749     12.75     71.13

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 18.26
                  TIME SHIFT OF PEAK FLOW         (min)= 45.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.8808

--------------------------------------------------------------------------------
--------------------
| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\6d7a2231
| Ptotal=107.50 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min

               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    1.08 |  6.25    2.15 | 12.25   15.48 | 18.25    1.93
               0.50    1.08 |  6.50    2.15 | 12.50   15.48 | 18.50    1.94
               0.75    1.08 |  6.75    2.15 | 12.75    7.95 | 18.75    1.93
               1.00    1.07 |  7.00    2.15 | 13.00    7.96 | 19.00    1.94
               1.25    1.08 |  7.25    2.15 | 13.25    1.50 | 19.25    1.93
               1.50    1.07 |  7.50    2.15 | 13.50    1.50 | 19.50    1.94
               1.75    1.08 |  7.75    2.15 | 13.75    8.82 | 19.75    1.93
               2.00    1.93 |  8.00    2.15 | 14.00    8.82 | 20.00    1.94
               2.25    1.40 |  8.25    2.90 | 14.25    3.22 | 20.25    1.29
               2.50    1.40 |  8.50    2.90 | 14.50    3.22 | 20.50    1.29
               2.75    1.40 |  8.75    2.90 | 14.75    3.22 | 20.75    1.29
               3.00    1.40 |  9.00    2.90 | 15.00    3.23 | 21.00    1.29
               3.25    1.40 |  9.25    3.44 | 15.25    3.22 | 21.25    1.29
               3.50    1.40 |  9.50    3.44 | 15.50    3.22 | 21.50    1.29
               3.75    1.40 |  9.75    3.87 | 15.75    3.22 | 21.75    1.29
               4.00    1.40 | 10.00    3.87 | 16.00    3.22 | 22.00    1.29
               4.25    1.72 | 10.25    4.95 | 16.25    1.94 | 22.25    1.29
               4.50    1.72 | 10.50    4.95 | 16.50    1.93 | 22.50    1.29
               4.75    1.72 | 10.75    6.67 | 16.75    1.93 | 22.75    1.29
               5.00    1.72 | 11.00    6.66 | 17.00    1.94 | 23.00    1.29
               5.25    1.72 | 11.25   10.32 | 17.25    1.93 | 23.25    1.29
               5.50    1.72 | 11.50   10.32 | 17.50    1.94 | 23.50    1.29
               5.75    1.72 | 11.75   44.72 | 17.75    1.93 | 23.75    1.29
               6.00    1.72 | 12.00  118.68 | 18.00    1.94 | 24.00    1.29

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--------------------
| CALIB            |
| STANDHYD (  0114)|   Area     (ha)=   1.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.15          0.38
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       2.00          2.00
     Length            (m)=     101.32         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    1.08 | 6.083    2.15 |12.083   15.49 | 18.08    1.94
     0.167    1.08 | 6.167    2.15 |12.167   15.48 | 18.17    1.93
     0.250    1.08 | 6.250    2.15 |12.250   15.48 | 18.25    1.93
     0.333    1.08 | 6.333    2.15 |12.333   15.48 | 18.33    1.94
     0.417    1.08 | 6.417    2.15 |12.417   15.48 | 18.42    1.94
     0.500    1.08 | 6.500    2.15 |12.500   15.48 | 18.50    1.94
     0.583    1.08 | 6.583    2.15 |12.583    7.96 | 18.58    1.94
     0.667    1.08 | 6.667    2.15 |12.667    7.95 | 18.67    1.93
     0.750    1.08 | 6.750    2.15 |12.750    7.95 | 18.75    1.93
     0.833    1.07 | 6.833    2.15 |12.833    7.95 | 18.83    1.94
     0.917    1.07 | 6.917    2.15 |12.917    7.96 | 18.92    1.94
     1.000    1.07 | 7.000    2.15 |13.000    7.96 | 19.00    1.94
     1.083    1.07 | 7.083    2.15 |13.083    1.51 | 19.08    1.94
     1.167    1.08 | 7.167    2.15 |13.167    1.50 | 19.17    1.93
     1.250    1.08 | 7.250    2.15 |13.250    1.50 | 19.25    1.93
     1.333    1.08 | 7.333    2.15 |13.333    1.50 | 19.33    1.94
     1.417    1.07 | 7.417    2.15 |13.417    1.50 | 19.42    1.94
     1.500    1.08 | 7.500    2.15 |13.500    1.50 | 19.50    1.94
     1.583    1.08 | 7.583    2.15 |13.583    8.81 | 19.58    1.93
     1.667    1.08 | 7.667    2.15 |13.667    8.82 | 19.67    1.93
     1.750    1.08 | 7.750    2.15 |13.750    8.82 | 19.75    1.94
     1.833    1.93 | 7.833    2.15 |13.833    8.81 | 19.83    1.94
     1.917    1.93 | 7.917    2.15 |13.917    8.82 | 19.92    1.94
     2.000    1.93 | 8.000    2.15 |14.000    8.82 | 20.00    1.93
     2.083    1.40 | 8.083    2.90 |14.083    3.23 | 20.08    1.29
```

2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=	118.68	88.96	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.95 (ii)	6.20 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.31	0.15	
			TOTALS
PEAK FLOW (cms)=	0.38	0.08	0.463 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	106.50	67.86	96.84
TOTAL RAINFALL (mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT =	0.99	0.63	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0119)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0470	0.0860
	0.0130	0.0440	0.0580	0.0960
	0.0240	0.0610	0.0690	0.1060
	0.0340	0.0720	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0114)	1.540	0.463	12.00	96.84
OUTFLOW: ID= 1 (0119)	1.540	0.046	12.58	96.28

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.01
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.0854

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\6d7a2231
Ptotal=107.50 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93
1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB	
STANDHYD (0115)	Area (ha)= 0.88
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.66	0.22
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	76.59	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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=	118.68	88.96	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.65 (ii)	5.90 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.15	
			TOTALS
PEAK FLOW (cms)=	0.22	0.05	0.265 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	106.50	67.86	96.83
TOTAL RAINFALL (mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT =	0.99	0.63	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0121) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0480	0.0422
	0.0110	0.0224	0.0610	0.0471
	0.0240	0.0304	0.0740	0.0520
	0.0340	0.0355	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0115)	0.880	0.265	12.00	96.83
OUTFLOW: ID= 1 (0121)	0.880	0.048	12.17	96.26

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.08
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0422

MASS STORM Ptotal=107.50 mm	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\6d7a2231 Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.08	6.25	2.15	12.25	15.48	18.25	1.93
0.50	1.08	6.50	2.15	12.50	15.48	18.50	1.94
0.75	1.08	6.75	2.15	12.75	7.95	18.75	1.93

1.00	1.07	7.00	2.15	13.00	7.96	19.00	1.94
1.25	1.08	7.25	2.15	13.25	1.50	19.25	1.93
1.50	1.07	7.50	2.15	13.50	1.50	19.50	1.94
1.75	1.08	7.75	2.15	13.75	8.82	19.75	1.93
2.00	1.93	8.00	2.15	14.00	8.82	20.00	1.94
2.25	1.40	8.25	2.90	14.25	3.22	20.25	1.29
2.50	1.40	8.50	2.90	14.50	3.22	20.50	1.29
2.75	1.40	8.75	2.90	14.75	3.22	20.75	1.29
3.00	1.40	9.00	2.90	15.00	3.23	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.44	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.40	10.00	3.87	16.00	3.22	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.94	22.25	1.29
4.50	1.72	10.50	4.95	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.67	16.75	1.93	22.75	1.29
5.00	1.72	11.00	6.66	17.00	1.94	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	10.32	17.50	1.94	23.50	1.29
5.75	1.72	11.75	44.72	17.75	1.93	23.75	1.29
6.00	1.72	12.00	118.68	18.00	1.94	24.00	1.29

CALIB	
STANDHYD (0116)	Area (ha)= 0.28
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.08
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	43.20	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	1.08	6.083	2.15	12.083	15.49	18.08	1.94
0.167	1.08	6.167	2.15	12.167	15.48	18.17	1.93
0.250	1.08	6.250	2.15	12.250	15.48	18.25	1.93
0.333	1.08	6.333	2.15	12.333	15.48	18.33	1.94
0.417	1.08	6.417	2.15	12.417	15.48	18.42	1.94
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.583	1.08	6.583	2.15	12.583	7.96	18.58	1.94
0.667	1.08	6.667	2.15	12.667	7.95	18.67	1.93
0.750	1.08	6.750	2.15	12.750	7.95	18.75	1.93
0.833	1.07	6.833	2.15	12.833	7.95	18.83	1.94
0.917	1.07	6.917	2.15	12.917	7.96	18.92	1.94
1.000	1.07	7.000	2.15	13.000	7.96	19.00	1.94
1.083	1.07	7.083	2.15	13.083	1.51	19.08	1.94
1.167	1.08	7.167	2.15	13.167	1.50	19.17	1.93
1.250	1.08	7.250	2.15	13.250	1.50	19.25	1.93
1.333	1.08	7.333	2.15	13.333	1.50	19.33	1.94
1.417	1.07	7.417	2.15	13.417	1.50	19.42	1.94
1.500	1.08	7.500	2.15	13.500	1.50	19.50	1.94
1.583	1.08	7.583	2.15	13.583	8.81	19.58	1.93
1.667	1.08	7.667	2.15	13.667	8.82	19.67	1.93
1.750	1.08	7.750	2.15	13.750	8.82	19.75	1.94
1.833	1.93	7.833	2.15	13.833	8.81	19.83	1.94
1.917	1.93	7.917	2.15	13.917	8.82	19.92	1.94
2.000	1.93	8.000	2.15	14.000	8.82	20.00	1.93
2.083	1.40	8.083	2.90	14.083	3.23	20.08	1.29
2.167	1.40	8.167	2.90	14.167	3.22	20.17	1.29
2.250	1.40	8.250	2.90	14.250	3.22	20.25	1.29
2.333	1.40	8.333	2.90	14.333	3.22	20.33	1.29
2.417	1.40	8.417	2.90	14.417	3.22	20.42	1.29
2.500	1.40	8.500	2.90	14.500	3.22	20.50	1.29
2.583	1.40	8.583	2.90	14.583	3.22	20.58	1.29
2.667	1.40	8.667	2.90	14.667	3.22	20.67	1.29
2.750	1.40	8.750	2.90	14.750	3.22	20.75	1.29
2.833	1.40	8.833	2.90	14.833	3.23	20.83	1.29
2.917	1.40	8.917	2.90	14.917	3.23	20.92	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.083	1.40	9.083	3.44	15.083	3.22	21.08	1.29
3.167	1.40	9.167	3.44	15.167	3.22	21.17	1.29
3.250	1.40	9.250	3.44	15.250	3.22	21.25	1.29
3.333	1.40	9.333	3.44	15.333	3.22	21.33	1.29
3.417	1.40	9.417	3.44	15.417	3.22	21.42	1.29
3.500	1.40	9.500	3.44	15.500	3.22	21.50	1.29
3.583	1.40	9.583	3.87	15.583	3.22	21.58	1.29
3.667	1.40	9.667	3.87	15.667	3.22	21.67	1.29
3.750	1.40	9.750	3.87	15.750	3.22	21.75	1.29
3.833	1.40	9.833	3.87	15.833	3.22	21.83	1.29
3.917	1.40	9.917	3.87	15.917	3.22	21.92	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.083	1.72	10.083	4.94	16.083	1.94	22.08	1.29
4.167	1.72	10.167	4.95	16.167	1.94	22.17	1.29
4.250	1.72	10.250	4.95	16.250	1.94	22.25	1.29
4.333	1.72	10.333	4.94	16.333	1.94	22.33	1.29
4.417	1.72	10.417	4.95	16.417	1.93	22.42	1.29
4.500	1.72	10.500	4.95	16.500	1.93	22.50	1.29
4.583	1.72	10.583	6.66	16.583	1.94	22.58	1.29
4.667	1.72	10.667	6.67	16.667	1.93	22.67	1.29
4.750	1.72	10.750	6.67	16.750	1.93	22.75	1.29
4.833	1.72	10.833	6.66	16.833	1.94	22.83	1.29
4.917	1.72	10.917	6.66	16.917	1.94	22.92	1.29
5.000	1.72	11.000	6.66	17.000	1.94	23.00	1.29
5.083	1.72	11.083	10.32	17.083	1.94	23.08	1.29
5.167	1.72	11.167	10.32	17.167	1.93	23.17	1.29
5.250	1.72	11.250	10.32	17.250	1.93	23.25	1.29
5.333	1.72	11.333	10.32	17.333	1.94	23.33	1.29
5.417	1.72	11.417	10.32	17.417	1.94	23.42	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.583	1.72	11.583	44.72	17.583	1.94	23.58	1.29
5.667	1.72	11.667	44.72	17.667	1.93	23.67	1.29
5.750	1.72	11.750	44.72	17.750	1.93	23.75	1.29
5.833	1.72	11.833	118.67	17.833	1.94	23.83	1.29
5.917	1.72	11.917	118.68	17.917	1.94	23.92	1.29
6.000	1.72	12.000	118.68	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=		118.68	88.96	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.17 (ii)	5.78 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.07	0.02	0.083 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	106.50	67.86	95.28
TOTAL RAINFALL	(mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT	=	0.99	0.63	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(  0124)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.0200     0.0118
                         0.0050     0.0062   |   0.0250     0.0132
                         0.0100     0.0083   |   0.0310     0.0145
                         0.0140     0.0100   |   0.0000     0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0116)      0.280     0.083     12.00      95.28
   OUTFLOW: ID= 1 (  0124)      0.280     0.020     12.17      94.17

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 24.02
                  TIME SHIFT OF PEAK FLOW         (min)= 10.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0118

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0118):    24.56   0.749    12.75    71.13
      + ID2= 2 (  0119):     1.54   0.046    12.58    96.28
        ================================================
        ID = 3 (  0113):    26.10   0.794    12.75    72.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0113):    26.10   0.794    12.75    72.61
      + ID2= 2 (  0121):     0.88   0.048    12.17    96.26
        ================================================
        ID = 1 (  0113):    26.98   0.837    12.67    73.38

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0113):    26.98   0.837    12.67    73.38
      + ID2= 2 (  0124):     0.28   0.020    12.17    94.17
        ================================================
        ID = 3 (  0113):    27.26   0.853    12.67    73.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
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       V    V   I    SSSSS  U   U    A    L
       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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\87286e17-4e65-4257-95d6-8aa444c8dcde\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\87286e17-4e65-4257-95d6-8aa444c8dcde\scen

DATE: 12-15-2018                          TIME: 09:14:07

USER:

COMMENTS: _____________________________________________________

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  ********************************************
  ** SIMULATION : Run 05                     **
  ********************************************

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                         Duration of storm    = 24.00 hrs
                         Mass curve time step = 15.00 min

      TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.25    1.21 |  6.25    2.41 | 12.25   17.37 | 18.25    2.17
      0.50    1.21 |  6.50    2.41 | 12.50   17.37 | 18.50    2.17
      0.75    1.21 |  6.75    2.41 | 12.75    8.92 | 18.75    2.17
      1.00    1.21 |  7.00    2.41 | 13.00    8.92 | 19.00    2.17
      1.25    1.21 |  7.25    2.41 | 13.25    1.69 | 19.25    2.17
      1.50    1.21 |  7.50    2.41 | 13.50    1.69 | 19.50    2.17
      1.75    1.21 |  7.75    2.41 | 13.75    9.89 | 19.75    2.17
      2.00    2.17 |  8.00    2.41 | 14.00    9.89 | 20.00    2.17
      2.25    1.57 |  8.25    3.26 | 14.25    3.62 | 20.25    1.45
      2.50    1.57 |  8.50    3.26 | 14.50    3.62 | 20.50    1.45
      2.75    1.57 |  8.75    3.26 | 14.75    3.62 | 20.75    1.45
      3.00    1.57 |  9.00    3.26 | 15.00    3.62 | 21.00    1.45
      3.25    1.57 |  9.25    3.86 | 15.25    3.62 | 21.25    1.45
      3.50    1.57 |  9.50    3.86 | 15.50    3.62 | 21.50    1.45
      3.75    1.57 |  9.75    4.34 | 15.75    3.62 | 21.75    1.45
      4.00    1.57 | 10.00    4.34 | 16.00    3.62 | 22.00    1.45
      4.25    1.93 | 10.25    5.55 | 16.25    2.17 | 22.25    1.45
      4.50    1.93 | 10.50    5.55 | 16.50    2.17 | 22.50    1.45
      4.75    1.93 | 10.75    7.48 | 16.75    2.17 | 22.75    1.45
      5.00    1.93 | 11.00    7.48 | 17.00    2.17 | 23.00    1.45
      5.25    1.93 | 11.25   11.58 | 17.25    2.17 | 23.25    1.45
      5.50    1.93 | 11.50   11.58 | 17.50    2.17 | 23.50    1.45
      5.75    1.93 | 11.75   50.17 | 17.75    2.17 | 23.75    1.45
      6.00    1.93 | 12.00  133.14 | 18.00    2.17 | 24.00    1.45
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--------------------
| CALIB            |
| NASHYD   (  0112)|   Area    (ha)=   8.10   Curve Number   (CN)= 52.6
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.59

        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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

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     Unit Hyd Qpeak  (cms)=   0.524

     PEAK FLOW       (cms)=   0.357 (i)
     TIME TO PEAK    (hrs)=  12.500
     RUNOFF VOLUME    (mm)=  38.790
     TOTAL RAINFALL   (mm)= 120.600
     RUNOFF COEFFICIENT   =   0.322

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

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
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                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

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| CALIB                |
| STANDHYD (  0117)|   Area    (ha)=   1.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.78         0.26
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      2.00         2.00
     Length            (m)=     83.27        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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

```
     Max.Eff.Inten.(mm/hr)=     133.14       103.59
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.66 (ii)    5.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.15
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.29         0.07        0.354 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00       12.00
     RUNOFF VOLUME    (mm)=     119.60        79.39      109.54
     TOTAL RAINFALL   (mm)=     120.60       120.60      120.60
     RUNOFF COEFFICIENT   =       0.99         0.66        0.91

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  81.0    Ia = Dep. 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(  0120)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.1134      0.0447

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0117)      1.040     0.354     12.00     109.54
   OUTFLOW: ID= 1 (  0120)      1.040     0.101     12.08     109.46

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 28.59
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0400

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                         Duration of storm    = 24.00 hrs
                         Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

CALIB
STANDHYD (0126)
ID= 1 DT= 5.0 min

Area (ha)= 15.42
Total Imp(%)= 58.00 Dir. Conn.(%)= 58.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.94	6.48
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	320.62	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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Max.Eff.Inten.	(mm/hr)=	133.14	103.59	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	3.72 (ii)	10.68 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.25	0.09	
				TOTALS
PEAK FLOW	(cms)=	3.27	1.29	4.447 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	119.60	79.39	102.71
TOTAL RAINFALL	(mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT	=	0.99	0.66	0.85

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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  (  0125)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 1 (  0112):     8.10   0.357    12.50    38.79
      + ID2= 2 (  0120):     1.04   0.101    12.08   109.46
        ================================================
        ID = 3 (  0125):     9.14   0.445    12.50    46.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD  (  0125)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
        ID1= 3 (  0125):     9.14   0.445    12.50    46.83
      + ID2= 2 (  0126):    15.42   4.447    12.00   102.71
        ================================================
        ID = 1 (  0125):    24.56   4.702    12.00    81.91

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR(  0118)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000   |   0.5380     0.7358
                         0.0442     0.4230   |   0.7490     0.8808
                         0.2050     0.4653   |   0.9210     0.9883
                         0.3910     0.6220   |   1.1040     1.0928

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0125)    24.560     4.702     12.00      81.91
   OUTFLOW: ID= 1 (  0118)    24.560     0.921     12.67      81.82

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 19.58
                  TIME SHIFT OF PEAK FLOW         (min)= 40.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.9883

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\62c328ea
| Ptotal=120.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------

                         Duration of storm    = 24.00 hrs
                         Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    1.21 |  6.25    2.41 | 12.25   17.37 | 18.25    2.17
                0.50    1.21 |  6.50    2.41 | 12.50   17.37 | 18.50    2.17
                0.75    1.21 |  6.75    2.41 | 12.75    8.92 | 18.75    2.17
                1.00    1.21 |  7.00    2.41 | 13.00    8.92 | 19.00    2.17
                1.25    1.21 |  7.25    2.41 | 13.25    1.69 | 19.25    2.17
                1.50    1.21 |  7.50    2.41 | 13.50    1.69 | 19.50    2.17
                1.75    1.21 |  7.75    2.41 | 13.75    9.89 | 19.75    2.17
                2.00    2.17 |  8.00    2.41 | 14.00    9.89 | 20.00    2.17
                2.25    1.57 |  8.25    3.26 | 14.25    3.62 | 20.25    1.45
                2.50    1.57 |  8.50    3.26 | 14.50    3.62 | 20.50    1.45
                2.75    1.57 |  8.75    3.26 | 14.75    3.62 | 20.75    1.45
                3.00    1.57 |  9.00    3.26 | 15.00    3.62 | 21.00    1.45
                3.25    1.57 |  9.25    3.86 | 15.25    3.62 | 21.25    1.45
                3.50    1.57 |  9.50    3.86 | 15.50    3.62 | 21.50    1.45
                3.75    1.57 |  9.75    4.34 | 15.75    3.62 | 21.75    1.45
                4.00    1.57 | 10.00    4.34 | 16.00    3.62 | 22.00    1.45
                4.25    1.93 | 10.25    5.55 | 16.25    2.17 | 22.25    1.45
                4.50    1.93 | 10.50    5.55 | 16.50    2.17 | 22.50    1.45
                4.75    1.93 | 10.75    7.48 | 16.75    2.17 | 22.75    1.45
                5.00    1.93 | 11.00    7.48 | 17.00    2.17 | 23.00    1.45
                5.25    1.93 | 11.25   11.58 | 17.25    2.17 | 23.25    1.45
                5.50    1.93 | 11.50   11.58 | 17.50    2.17 | 23.50    1.45
                5.75    1.93 | 11.75   50.17 | 17.75    2.17 | 23.75    1.45
                6.00    1.93 | 12.00  133.14 | 18.00    2.17 | 24.00    1.45

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--------------------
| CALIB            |
| STANDHYD (  0114)|   Area     (ha)=   1.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area      (ha)=       1.15          0.38
     Dep. Storage      (mm)=       1.00          1.50
     Average Slope      (%)=       2.00          2.00
     Length             (m)=     101.32         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    1.21 | 6.083    2.41 |12.083   17.38 | 18.08    2.17
    0.167    1.21 | 6.167    2.41 |12.167   17.37 | 18.17    2.17
    0.250    1.21 | 6.250    2.41 |12.250   17.37 | 18.25    2.17
    0.333    1.21 | 6.333    2.41 |12.333   17.37 | 18.33    2.17
    0.417    1.21 | 6.417    2.41 |12.417   17.37 | 18.42    2.17
    0.500    1.21 | 6.500    2.41 |12.500   17.37 | 18.50    2.17
    0.583    1.21 | 6.583    2.41 |12.583    8.93 | 18.58    2.17
    0.667    1.21 | 6.667    2.41 |12.667    8.92 | 18.67    2.17
    0.750    1.21 | 6.750    2.41 |12.750    8.92 | 18.75    2.17
    0.833    1.21 | 6.833    2.41 |12.833    8.92 | 18.83    2.17
    0.917    1.21 | 6.917    2.41 |12.917    8.92 | 18.92    2.17
    1.000    1.21 | 7.000    2.41 |13.000    8.92 | 19.00    2.17
    1.083    1.21 | 7.083    2.41 |13.083    1.69 | 19.08    2.17
    1.167    1.21 | 7.167    2.41 |13.167    1.69 | 19.17    2.17
    1.250    1.21 | 7.250    2.41 |13.250    1.69 | 19.25    2.17
    1.333    1.21 | 7.333    2.41 |13.333    1.69 | 19.33    2.17
    1.417    1.21 | 7.417    2.41 |13.417    1.69 | 19.42    2.17
    1.500    1.21 | 7.500    2.41 |13.500    1.69 | 19.50    2.17
    1.583    1.21 | 7.583    2.41 |13.583    9.89 | 19.58    2.17
    1.667    1.21 | 7.667    2.41 |13.667    9.89 | 19.67    2.17
    1.750    1.21 | 7.750    2.41 |13.750    9.89 | 19.75    2.17
    1.833    2.17 | 7.833    2.41 |13.833    9.89 | 19.83    2.17
    1.917    2.17 | 7.917    2.41 |13.917    9.89 | 19.92    2.17
    2.000    2.17 | 8.000    2.41 |14.000    9.89 | 20.00    2.17
    2.083    1.57 | 8.083    3.26 |14.083    3.62 | 20.08    1.45
    2.167    1.57 | 8.167    3.26 |14.167    3.62 | 20.17    1.45
    2.250    1.57 | 8.250    3.26 |14.250    3.62 | 20.25    1.45
    2.333    1.57 | 8.333    3.26 |14.333    3.62 | 20.33    1.45
    2.417    1.57 | 8.417    3.26 |14.417    3.62 | 20.42    1.45
    2.500    1.57 | 8.500    3.26 |14.500    3.62 | 20.50    1.45
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2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Max.Eff.Inten.(mm/hr)=	133.14	103.59	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.87 (ii)	5.92 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.15	
			TOTALS
PEAK FLOW (cms)=	0.43	0.10	0.524 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	119.60	79.39	109.54
TOTAL RAINFALL (mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT =	0.99	0.66	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0119)	IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
			(cms)	(ha.m.)	(cms)	(ha.m.)
			0.0000	0.0000	0.0470	0.0860
			0.0130	0.0440	0.0580	0.0960
			0.0240	0.0610	0.0690	0.1060
			0.0340	0.0720	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0114)	1.540	0.524	12.00	109.54
OUTFLOW: ID= 1 (0119)	1.540	0.057	12.58	108.99

PEAK FLOW REDUCTION [Qout/Qin](%)= 10.91
TIME SHIFT OF PEAK FLOW (min)= 35.00
MAXIMUM STORAGE USED (ha.m.)= 0.0955

| MASS STORM | Ptotal=120.60 mm | Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\62c328ea
Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17
2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

| CALIB | STANDHYD (0115)| ID= 1 DT= 5.0 min | Area (ha)= 0.88 Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.66	0.22
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	2.00	2.00
Length (m)=	76.59	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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

			TOTALS
Max.Eff.Inten.(mm/hr)=	133.14	103.59	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.58 (ii)	5.63 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.15	
PEAK FLOW (cms)=	0.24	0.06	0.300 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	119.60	79.39	109.54
TOTAL RAINFALL (mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT =	0.99	0.66	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0121)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0480	0.0422
	0.0110	0.0224	0.0610	0.0471
	0.0240	0.0304	0.0740	0.0520
	0.0340	0.0355	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0115)	0.880	0.300	12.00	109.54
OUTFLOW: ID= 1 (0121)	0.880	0.061	12.17	108.96

PEAK FLOW REDUCTION [Qout/Qin](%)= 20.30
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0471

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\62c328ea
Ptotal=120.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.21	6.25	2.41	12.25	17.37	18.25	2.17
0.50	1.21	6.50	2.41	12.50	17.37	18.50	2.17
0.75	1.21	6.75	2.41	12.75	8.92	18.75	2.17
1.00	1.21	7.00	2.41	13.00	8.92	19.00	2.17
1.25	1.21	7.25	2.41	13.25	1.69	19.25	2.17
1.50	1.21	7.50	2.41	13.50	1.69	19.50	2.17
1.75	1.21	7.75	2.41	13.75	9.89	19.75	2.17
2.00	2.17	8.00	2.41	14.00	9.89	20.00	2.17

2.25	1.57	8.25	3.26	14.25	3.62	20.25	1.45
2.50	1.57	8.50	3.26	14.50	3.62	20.50	1.45
2.75	1.57	8.75	3.26	14.75	3.62	20.75	1.45
3.00	1.57	9.00	3.26	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	3.86	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.57	10.00	4.34	16.00	3.62	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	5.55	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	7.48	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	11.58	17.50	2.17	23.50	1.45
5.75	1.93	11.75	50.17	17.75	2.17	23.75	1.45
6.00	1.93	12.00	133.14	18.00	2.17	24.00	1.45

CALIB	
STANDHYD (0116)	Area (ha)= 0.28
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.08
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	43.20	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	1.21	6.083	2.41	12.083	17.38	18.08	2.17
0.167	1.21	6.167	2.41	12.167	17.37	18.17	2.17
0.250	1.21	6.250	2.41	12.250	17.37	18.25	2.17
0.333	1.21	6.333	2.41	12.333	17.37	18.33	2.17
0.417	1.21	6.417	2.41	12.417	17.37	18.42	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.583	1.21	6.583	2.41	12.583	8.93	18.58	2.17
0.667	1.21	6.667	2.41	12.667	8.92	18.67	2.17
0.750	1.21	6.750	2.41	12.750	8.92	18.75	2.17
0.833	1.21	6.833	2.41	12.833	8.92	18.83	2.17
0.917	1.21	6.917	2.41	12.917	8.92	18.92	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.083	1.21	7.083	2.41	13.083	1.69	19.08	2.17
1.167	1.21	7.167	2.41	13.167	1.69	19.17	2.17
1.250	1.21	7.250	2.41	13.250	1.69	19.25	2.17
1.333	1.21	7.333	2.41	13.333	1.69	19.33	2.17
1.417	1.21	7.417	2.41	13.417	1.69	19.42	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.583	1.21	7.583	2.41	13.583	9.89	19.58	2.17
1.667	1.21	7.667	2.41	13.667	9.89	19.67	2.17
1.750	1.21	7.750	2.41	13.750	9.89	19.75	2.17
1.833	2.17	7.833	2.41	13.833	9.89	19.83	2.17
1.917	2.17	7.917	2.41	13.917	9.89	19.92	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.083	1.57	8.083	3.26	14.083	3.62	20.08	1.45
2.167	1.57	8.167	3.26	14.167	3.62	20.17	1.45
2.250	1.57	8.250	3.26	14.250	3.62	20.25	1.45
2.333	1.57	8.333	3.26	14.333	3.62	20.33	1.45
2.417	1.57	8.417	3.26	14.417	3.62	20.42	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.583	1.57	8.583	3.26	14.583	3.62	20.58	1.45
2.667	1.57	8.667	3.26	14.667	3.62	20.67	1.45
2.750	1.57	8.750	3.26	14.750	3.62	20.75	1.45
2.833	1.57	8.833	3.26	14.833	3.62	20.83	1.45
2.917	1.57	8.917	3.26	14.917	3.62	20.92	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.083	1.57	9.083	3.86	15.083	3.62	21.08	1.45
3.167	1.57	9.167	3.86	15.167	3.62	21.17	1.45
3.250	1.57	9.250	3.86	15.250	3.62	21.25	1.45
3.333	1.57	9.333	3.86	15.333	3.62	21.33	1.45
3.417	1.57	9.417	3.86	15.417	3.62	21.42	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.583	1.57	9.583	4.34	15.583	3.62	21.58	1.45
3.667	1.57	9.667	4.34	15.667	3.62	21.67	1.45
3.750	1.57	9.750	4.34	15.750	3.62	21.75	1.45
3.833	1.57	9.833	4.34	15.833	3.62	21.83	1.45
3.917	1.57	9.917	4.34	15.917	3.62	21.92	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.083	1.93	10.083	5.55	16.083	2.17	22.08	1.45
4.167	1.93	10.167	5.55	16.167	2.17	22.17	1.45
4.250	1.93	10.250	5.55	16.250	2.17	22.25	1.45
4.333	1.93	10.333	5.55	16.333	2.17	22.33	1.45
4.417	1.93	10.417	5.55	16.417	2.17	22.42	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.583	1.93	10.583	7.48	16.583	2.17	22.58	1.45
4.667	1.93	10.667	7.48	16.667	2.17	22.67	1.45
4.750	1.93	10.750	7.48	16.750	2.17	22.75	1.45
4.833	1.93	10.833	7.48	16.833	2.17	22.83	1.45
4.917	1.93	10.917	7.48	16.917	2.17	22.92	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.083	1.93	11.083	11.58	17.083	2.17	23.08	1.45
5.167	1.93	11.167	11.58	17.167	2.17	23.17	1.45
5.250	1.93	11.250	11.58	17.250	2.17	23.25	1.45
5.333	1.93	11.333	11.58	17.333	2.17	23.33	1.45
5.417	1.93	11.417	11.58	17.417	2.17	23.42	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.583	1.93	11.583	50.17	17.583	2.17	23.58	1.45
5.667	1.93	11.667	50.17	17.667	2.17	23.67	1.45
5.750	1.93	11.750	50.17	17.750	2.17	23.75	1.45
5.833	1.93	11.833	133.13	17.833	2.17	23.83	1.45
5.917	1.93	11.917	133.14	17.917	2.17	23.92	1.45
6.000	1.93	12.000	133.14	18.000	2.17	24.00	1.45

Max.Eff.Inten.(mm/hr)=		133.14	103.59	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.12 (ii)	5.52 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.16	
				TOTALS
PEAK FLOW	(cms)=	0.07	0.02	0.094 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	119.60	79.39	107.92
TOTAL RAINFALL	(mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT	=	0.99	0.66	0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0124)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0200	0.0118

```
                        0.0050     0.0062   |   0.0250      0.0132
                        0.0100     0.0083   |   0.0310      0.0145
                        0.0140     0.0100   |   0.0000      0.0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0116)    0.280     0.094     12.00     107.92
   OUTFLOW: ID= 1 (  0124)    0.280     0.025     12.08     106.83

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 26.41
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0132

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--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0118):    24.56   0.921    12.67    81.82
     + ID2= 2 (  0119):     1.54   0.057    12.58   108.99
       ========================================================
       ID = 3 (  0113):    26.10   0.977    12.67    83.42

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0113):    26.10   0.977    12.67    83.42
     + ID2= 2 (  0121):     0.88   0.061    12.17   108.96
       ========================================================
       ID = 1 (  0113):    26.98   1.030    12.67    84.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0113):    26.98   1.030    12.67    84.25
     + ID2= 2 (  0124):     0.28   0.025    12.08   106.83
       ========================================================
       ID = 3 (  0113):    27.26   1.049    12.58    84.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================
======================

      V    V   I    SSSSS  U   U    A    L
      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 5.0\VO2\voin.dat
  Output  filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\b2c69ca9-e9eb-4e53-b8c0-68fe8926db0c\scen
  Summary filename: C:\Users\ssoumik\AppData\Local\Civica\VH5\b41b348d-2025-43d3-
a266-6b877f48bd3e\b2c69ca9-e9eb-4e53-b8c0-68fe8926db0c\scen


DATE: 12-15-2018                          TIME: 09:14:07

USER:


COMMENTS: _____________________________________________________

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  ***********************************************
  ** SIMULATION : Run 06                        **
  ***********************************************

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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\1bad87f9
| Ptotal=133.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                         Duration of storm    = 24.00 hrs
                         Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    1.34 |  6.25    2.67 | 12.25   19.24 | 18.25    2.40
                0.50    1.34 |  6.50    2.67 | 12.50   19.24 | 18.50    2.40
                0.75    1.34 |  6.75    2.67 | 12.75    9.89 | 18.75    2.40
                1.00    1.34 |  7.00    2.67 | 13.00    9.89 | 19.00    2.40
                1.25    1.34 |  7.25    2.67 | 13.25    1.87 | 19.25    2.40
                1.50    1.34 |  7.50    2.67 | 13.50    1.87 | 19.50    2.40
                1.75    1.34 |  7.75    2.67 | 13.75   10.96 | 19.75    2.40
                2.00    2.40 |  8.00    2.67 | 14.00   10.96 | 20.00    2.40
                2.25    1.74 |  8.25    3.61 | 14.25    4.01 | 20.25    1.60
                2.50    1.74 |  8.50    3.61 | 14.50    4.01 | 20.50    1.60
                2.75    1.74 |  8.75    3.61 | 14.75    4.01 | 20.75    1.60
                3.00    1.74 |  9.00    3.61 | 15.00    4.01 | 21.00    1.60
                3.25    1.74 |  9.25    4.28 | 15.25    4.01 | 21.25    1.60
                3.50    1.74 |  9.50    4.28 | 15.50    4.01 | 21.50    1.60
                3.75    1.74 |  9.75    4.81 | 15.75    4.01 | 21.75    1.60
                4.00    1.74 | 10.00    4.81 | 16.00    4.01 | 22.00    1.60
                4.25    2.14 | 10.25    6.15 | 16.25    2.40 | 22.25    1.60
                4.50    2.14 | 10.50    6.15 | 16.50    2.40 | 22.50    1.60
                4.75    2.14 | 10.75    8.28 | 16.75    2.40 | 22.75    1.60
                5.00    2.14 | 11.00    8.28 | 17.00    2.40 | 23.00    1.60
                5.25    2.14 | 11.25   12.83 | 17.25    2.40 | 23.25    1.60
                5.50    2.14 | 11.50   12.83 | 17.50    2.40 | 23.50    1.60
                5.75    2.14 | 11.75   55.58 | 17.75    2.40 | 23.75    1.60
                6.00    2.14 | 12.00  147.49 | 18.00    2.40 | 24.00    1.60

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--------------------
| CALIB            |
| NASHYD   (  0112)|   Area    (ha)=   8.10   Curve Number   (CN)= 52.6
```

|ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.59

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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Unit Hyd Qpeak (cms)= 0.524

PEAK FLOW (cms)= 0.428 (i)
TIME TO PEAK (hrs)= 12.500
RUNOFF VOLUME (mm)= 46.260
TOTAL RAINFALL (mm)= 133.600
RUNOFF COEFFICIENT = 0.346

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

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB	
STANDHYD (0117)	Area (ha)= 1.04
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

IMPERVIOUS PERVIOUS (i)

Surface Area	(ha)=	0.78	0.26
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	83.27	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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

			TOTALS
Max.Eff.Inten.(mm/hr)=	147.49	118.25	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.59 (ii)	5.48 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.16	
PEAK FLOW (cms)=	0.32	0.08	0.396 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	132.60	91.04	122.21
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.68	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0120)	IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
			0.0000	0.0000	0.1134	0.0447

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0117)	1.040	0.396	12.00	122.21
OUTFLOW: ID= 1 (0120)	1.040	0.113	12.08	122.12

PEAK FLOW REDUCTION [Qout/Qin](%)= 28.61
TIME SHIFT OF PEAK FLOW (min)= 5.00
MAXIMUM STORAGE USED (ha.m.)= 0.0447

MASS STORM	Ptotal=133.60 mm

Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\1bad87f9
Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40

0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB	
STANDHYD (0126)	Area (ha)= 15.42
ID= 1 DT= 5.0 min	Total Imp(%)= 58.00 Dir. Conn.(%)= 58.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	8.94	6.48
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	320.62	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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=		147.49	118.25	
over (min)		5.00	15.00	
Storage Coeff. (min)=		3.57 (ii)	10.17 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.26	0.10	
				TOTALS
PEAK FLOW	(cms)=	3.63	1.50	5.008 (iii)
TIME TO PEAK	(hrs)=	12.00	12.08	12.00
RUNOFF VOLUME	(mm)=	132.60	91.04	115.14
TOTAL RAINFALL	(mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT	=	0.99	0.68	0.86

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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  (  0125)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0112):     8.10   0.428    12.50    46.26
     + ID2= 2 (  0120):     1.04   0.113    12.08   122.12
       ================================================
       ID = 3 (  0125):     9.14   0.526    12.50    54.89

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

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--------------------
| ADD HYD  (  0125)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0125):     9.14   0.526    12.50    54.89
     + ID2= 2 (  0126):    15.42   5.008    12.00   115.14
       ================================================
       ID = 1 (  0125):    24.56   5.308    12.00    92.72

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

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--------------------
| RESERVOIR(  0118)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------       (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.0000    |   0.5380      0.7358
                         0.0442     0.4230    |   0.7490      0.8808
                         0.2050     0.4653    |   0.9210      0.9883
                         0.3910     0.6220    |   1.1040      1.0928

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0125)    24.560     5.308     12.00      92.72
   OUTFLOW: ID= 1 (  0118)    24.560     1.103     12.67      92.62

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 20.78
                  TIME SHIFT OF PEAK FLOW         (min)= 40.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  1.0928
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| MASS STORM       |    Filename: C:\Users\ssoumik\AppD
|                  |              ata\Local\Temp\
|                  |              5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\1bad87f9
| Ptotal=133.60 mm |    Comments: Mass 24-Hour SCS Type II Design Storm
--------------------
                       Duration of storm    = 24.00 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

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--------------------
| CALIB            |
| STANDHYD (  0114)|   Area     (ha)=   1.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.15          0.38
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       2.00          2.00
     Length            (m)=     101.32         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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60

3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=	147.49	118.25	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.79 (ii)	5.68 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.15	
			TOTALS
PEAK FLOW (cms)=	0.47	0.11	0.585 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	132.60	91.04	122.21
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.68	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0119)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0470	0.0860
	0.0130	0.0440	0.0580	0.0960
	0.0240	0.0610	0.0690	0.1060
	0.0340	0.0720	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0114)	1.540	0.585	12.00	122.21
OUTFLOW: ID= 1 (0119)	1.540	0.068	12.50	121.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 11.64
TIME SHIFT OF PEAK FLOW (min)= 30.00
MAXIMUM STORAGE USED (ha.m.)= 0.1054

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB	
STANDHYD (0115)	Area (ha)= 0.88
ID= 1 DT= 5.0 min	Total Imp(%)= 75.00 Dir. Conn.(%)= 75.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.66	0.22
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	76.59	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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40

0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=	147.49	118.25	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.51 (ii)	5.41 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.16	
			TOTALS
PEAK FLOW (cms)=	0.27	0.06	0.335 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	132.60	91.04	122.21
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.68	0.91

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0121)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0480	0.0422
	0.0110	0.0224	0.0610	0.0471
	0.0240	0.0304	0.0740	0.0520
	0.0340	0.0355	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0115)	0.880	0.335	12.00	122.21
OUTFLOW: ID= 1 (0121)	0.880	0.074	12.17	121.62

PEAK FLOW REDUCTION [Qout/Qin](%)= 21.95
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0520

MASS STORM	Filename: C:\Users\ssoumik\AppData\Local\Temp\5ee1b7a1-25c1-4dc4-a48c-c6f04b8cb694\1bad87f9
Ptotal=133.60 mm	Comments: Mass 24-Hour SCS Type II Design Storm

Duration of storm = 24.00 hrs
Mass curve time step = 15.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.34	6.25	2.67	12.25	19.24	18.25	2.40
0.50	1.34	6.50	2.67	12.50	19.24	18.50	2.40
0.75	1.34	6.75	2.67	12.75	9.89	18.75	2.40
1.00	1.34	7.00	2.67	13.00	9.89	19.00	2.40
1.25	1.34	7.25	2.67	13.25	1.87	19.25	2.40
1.50	1.34	7.50	2.67	13.50	1.87	19.50	2.40
1.75	1.34	7.75	2.67	13.75	10.96	19.75	2.40
2.00	2.40	8.00	2.67	14.00	10.96	20.00	2.40
2.25	1.74	8.25	3.61	14.25	4.01	20.25	1.60
2.50	1.74	8.50	3.61	14.50	4.01	20.50	1.60
2.75	1.74	8.75	3.61	14.75	4.01	20.75	1.60
3.00	1.74	9.00	3.61	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60

3.50	1.74	9.50	4.28	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	1.74	10.00	4.81	16.00	4.01	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	6.15	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	8.28	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	12.83	17.50	2.40	23.50	1.60
5.75	2.14	11.75	55.58	17.75	2.40	23.75	1.60
6.00	2.14	12.00	147.49	18.00	2.40	24.00	1.60

CALIB	
STANDHYD (0116)	Area (ha)= 0.28
ID= 1 DT= 5.0 min	Total Imp(%)= 71.00 Dir. Conn.(%)= 71.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.20	0.08
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	2.00	2.00
Length	(m)=	43.20	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	1.34	6.083	2.67	12.083	19.25	18.08	2.40
0.167	1.34	6.167	2.67	12.167	19.24	18.17	2.40
0.250	1.34	6.250	2.67	12.250	19.24	18.25	2.40
0.333	1.34	6.333	2.67	12.333	19.24	18.33	2.40
0.417	1.34	6.417	2.67	12.417	19.24	18.42	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.583	1.34	6.583	2.67	12.583	9.89	18.58	2.40
0.667	1.34	6.667	2.67	12.667	9.89	18.67	2.40
0.750	1.34	6.750	2.67	12.750	9.89	18.75	2.40
0.833	1.34	6.833	2.67	12.833	9.89	18.83	2.40
0.917	1.34	6.917	2.67	12.917	9.89	18.92	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.083	1.34	7.083	2.67	13.083	1.87	19.08	2.40
1.167	1.34	7.167	2.67	13.167	1.87	19.17	2.40
1.250	1.34	7.250	2.67	13.250	1.87	19.25	2.40
1.333	1.34	7.333	2.67	13.333	1.87	19.33	2.40
1.417	1.34	7.417	2.67	13.417	1.87	19.42	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.583	1.34	7.583	2.67	13.583	10.95	19.58	2.40
1.667	1.34	7.667	2.67	13.667	10.96	19.67	2.40
1.750	1.34	7.750	2.67	13.750	10.96	19.75	2.40
1.833	2.40	7.833	2.67	13.833	10.96	19.83	2.40
1.917	2.40	7.917	2.67	13.917	10.96	19.92	2.40
2.000	2.40	8.000	2.67	14.000	10.96	20.00	2.40
2.083	1.74	8.083	3.61	14.083	4.01	20.08	1.60
2.167	1.74	8.167	3.61	14.167	4.01	20.17	1.60
2.250	1.74	8.250	3.61	14.250	4.01	20.25	1.60
2.333	1.74	8.333	3.61	14.333	4.01	20.33	1.60
2.417	1.74	8.417	3.61	14.417	4.01	20.42	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.583	1.74	8.583	3.61	14.583	4.01	20.58	1.60
2.667	1.74	8.667	3.61	14.667	4.01	20.67	1.60
2.750	1.74	8.750	3.61	14.750	4.01	20.75	1.60
2.833	1.74	8.833	3.61	14.833	4.01	20.83	1.60
2.917	1.74	8.917	3.61	14.917	4.01	20.92	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.083	1.74	9.083	4.28	15.083	4.01	21.08	1.60
3.167	1.74	9.167	4.28	15.167	4.01	21.17	1.60
3.250	1.74	9.250	4.28	15.250	4.01	21.25	1.60
3.333	1.74	9.333	4.28	15.333	4.01	21.33	1.60
3.417	1.74	9.417	4.28	15.417	4.01	21.42	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.583	1.74	9.583	4.81	15.583	4.01	21.58	1.60
3.667	1.74	9.667	4.81	15.667	4.01	21.67	1.60
3.750	1.74	9.750	4.81	15.750	4.01	21.75	1.60
3.833	1.74	9.833	4.81	15.833	4.01	21.83	1.60
3.917	1.74	9.917	4.81	15.917	4.01	21.92	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.083	2.14	10.083	6.15	16.083	2.41	22.08	1.60
4.167	2.14	10.167	6.15	16.167	2.40	22.17	1.60
4.250	2.14	10.250	6.15	16.250	2.40	22.25	1.60
4.333	2.14	10.333	6.15	16.333	2.40	22.33	1.60
4.417	2.14	10.417	6.15	16.417	2.40	22.42	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.583	2.14	10.583	8.28	16.583	2.40	22.58	1.60
4.667	2.14	10.667	8.28	16.667	2.40	22.67	1.60
4.750	2.14	10.750	8.28	16.750	2.40	22.75	1.60
4.833	2.14	10.833	8.28	16.833	2.40	22.83	1.60
4.917	2.14	10.917	8.28	16.917	2.40	22.92	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.083	2.14	11.083	12.83	17.083	2.40	23.08	1.60
5.167	2.14	11.167	12.83	17.167	2.40	23.17	1.60
5.250	2.14	11.250	12.83	17.250	2.40	23.25	1.60
5.333	2.14	11.333	12.83	17.333	2.40	23.33	1.60
5.417	2.14	11.417	12.83	17.417	2.40	23.42	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.583	2.14	11.583	55.57	17.583	2.40	23.58	1.60
5.667	2.14	11.667	55.58	17.667	2.40	23.67	1.60
5.750	2.14	11.750	55.58	17.750	2.40	23.75	1.60
5.833	2.14	11.833	147.48	17.833	2.40	23.83	1.60
5.917	2.14	11.917	147.49	17.917	2.40	23.92	1.60
6.000	2.14	12.000	147.49	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=		147.49	118.25	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.07 (ii)	5.30 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.16	
				TOTALS
PEAK FLOW	(cms)=	0.08	0.02	0.105 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	132.60	91.04	120.53
TOTAL RAINFALL	(mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT	=	0.99	0.68	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 81.0 Ia = Dep. 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(0124)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0200	0.0118
	0.0050	0.0062	0.0250	0.0132
	0.0100	0.0083	0.0310	0.0145
	0.0140	0.0100	0.0000	0.0000

	AREA	QPEAK	TPEAK	R.V.

```
                              (ha)      (cms)      (hrs)        (mm)
   INFLOW : ID= 2 (  0116)      0.280      0.105     12.00     120.53
   OUTFLOW: ID= 1 (  0124)      0.280      0.031     12.08     119.42

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 29.47
                  TIME SHIFT OF PEAK FLOW         (min)=  5.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0145

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)    (hrs)      (mm)
        ID1= 1 (  0118):    24.56   1.103    12.67    92.62
      + ID2= 2 (  0119):     1.54   0.068    12.50   121.65
        ==================================================
        ID = 3 (  0113):    26.10   1.170    12.67    94.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)    (hrs)      (mm)
        ID1= 3 (  0113):    26.10   1.170    12.67    94.34
      + ID2= 2 (  0121):     0.88   0.074    12.17   121.62
        ==================================================
        ID = 1 (  0113):    26.98   1.234    12.58    95.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD  (  0113)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)     (cms)    (hrs)      (mm)
        ID1= 1 (  0113):    26.98   1.234    12.58    95.23
      + ID2= 2 (  0124):     0.28   0.031    12.08   119.42
        ==================================================
        ID = 3 (  0113):    27.26   1.258    12.58    95.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

WATER BALANCE CALCULATIONS

TABLE 1: WATER BUDGET - PRE DEVELOPMENT
WATER BALANCE/WATER BUDGET ASSESSMENT

Catchment Designation	Site	Impermeable Area*	Total
Area (m^2)	258218	0	258218
Pervious Area (m^2)	258218	0	258218
Impervious Area (m^2)	0	0	0
Infiltration Factors			
Topography Infiltration Factor (Rolling Land)*	0.2	N/A	
Soil Infiltration Factor (Silty to Sandy Glacial Till)*	0.3	N/A	
Land Cover Infiltration Factor (Cultivated Land)*	0.1	N/A	
MOE Infiltration Factor	0.6	N/A	
Inputs (per unit area)			
Precipitation (mm/year)**	933	0	**933**
Total Inputs (mm/year)	933	0	**933**
Outputs (mm/year)			
Precipitation Surplus	336	0	336
Net Surplus	336	0	336
Downspout Disconnection Retention	0	0	0
Evapotranspiration**	597	0	597
Roof Evapotranspiration	0	0	0
Rooftop Runoff Lawn Evaporation	0	0	0
Total Evapotranspiration	**597**	**0**	**597**
Infiltration	202	0	202
Rooftop Infiltration	0	0	0
Total Infiltration	**202**	**0**	**202**
Runoff Pervious Area	134	0	134
Runoff Impervious Area	0	0	0
Total Runoff	**134**	**0**	**134**
Total Outputs	**933**	**0**	933
Difference (Inputs - Outputs)	0	0	0
Input (Volumes - m^3/year)			
Precipitation	240917	0	240917
Total Inputs	**240917**	**0**	**240917**
Outputs (Volumes - m^3/year)			
Precipitation Surplus	86761	0	86761
Net Surplus	86761	0	86761
Downspout Disconnection Retention	0	0	0
Evapotranspiration	154156	0	154156
Roof Evapotranspiration	0	0	0
Rooftop Runoff Lawn Evaporation	0	0	0
Total Evapotranspiration	154156	0	**154156**
Infiltration	52057	0	52057
Rooftop Infiltration	0	0	0
Total Infiltration	**52057**	**0**	**52057**
Runoff Pervious Area	34704	0	34704
Runoff Impervious Area	0	0	0
Total Runoff	**34704**	**0**	**34704**
Total Outputs	**240917**	**0**	**240917**
Difference (Inputs - Outputs)	0	0	0

*Data based on MOE

**Precipitation and Evapotranspiration data based on Environment Canada-Barrie WPCC Station (1978-2006)

Project No: 4560- DiPoce-Barrie ########

TABLE 2: WATER BUDGET - POST-DEVELOPMENT WITHOUT MITIGATION
WATER BALANCE/WATER BUDGET ASSESSMENT

	Site																										
Catchment Designation	Backyard	Front Lawn	Roofs	Front Porch	Park (93% Pervious)	Park (7% Impervious)	Service Corridor (93% Pervious)	Service Corridor (7% Impervious)	Pond (50% Impervious)	Pond (50% Pervious)	School (71% Impervious)	School (29% Pervious)	ROW-18m (75% Impervious)	ROW-18m (25% Pervious)	ROW- 24m (75% Impervious)	ROW-24m (25% Impervious)	Block 39 (75% Impervious)	Block 39 (25% Pervious)	Block 40 (75% Impervious)	Block 40 (25% Pervious)	Block 41 (75% Impervious)	Block 41 (25% Pervious)	Block 42 (71% Impervious)	Block 42 (29% Pervious)	Pipeline Coriddor + Undeveloped Lands (7% Impervious)	Pipeline Coriddor + Undeveloped Lands (93%Pervious)	Paths	Driveways	Total
Area (m^2)	10570	5692	30085	697	23031	1772	331	25	6248	6248	15771	6308	13496	4615	11105	3797	7800	2600	11550	3850	6600	2200	2000	800	5313	70587	945	4182	258218
Pervious Area (m^2)	10570	5692	0	0	23031	0	331	0	0	6248	0	6308	0	4615	0	3797	0	2600	0	3850	0	2200	0	800	0	70587	0	0	140630
Impervious Area (m^2)	0	0	30085	697	0	1772	0	25	6248	0	15771	0	13496	0	11105	0	7800	0	11550	0	6600	0	2000	0	5313	0	945	4182	117588
Infiltration Factors																													
Topography Infiltration Factor (Rolling Land)*	0.2	0.2	N/A	N/A	0.2	N/A	0.2	N/A	N/A	0.2	N/A	0.2	N/A	0.2	0.2	0.2	N/A	0.2	N/A	0.2	0.2	0.2	0.2	0.2	0.2	0.2	N/A	N/A	
Soil Infiltration Factor (Silty to Sandy Glacial Till)*	0.3	0.3	N/A	N/A	0.3	N/A	0.3	N/A	N/A	0.3	N/A	0.3	N/A	0.3	0.3	0.3	N/A	0.3	N/A	0.3	0.3	0.3	0.3	0.3	0.3	0.3	N/A	N/A	
Land Cover Infiltration Factor (Cultivated Land)*	0.1	0.1	N/A	N/A	0.1	N/A	0.1	N/A	N/A	0.1	N/A	0.1	N/A	0.1	0.1	0.1	N/A	0.1	N/A	0.1	0.1	0.1	0.1	0.1	0.1	0.1	N/A	N/A	
MOE Infiltration Factor	**0.6**	**0.6**	**N/A**	**N/A**	**0.6**	**N/A**	**0.6**	**N/A**	**N/A**	**0.6**	**N/A**	**0.6**	**N/A**	**0.6**	**0.6**	**0.6**	**N/A**	**0.6**	**N/A**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**N/A**	**N/A**	
Inputs (per unit area)																													
Precipitation (mm/year)**	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933
Total Inputs (m^3/year)	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933
Outputs (per unit area)																													
Precipitation Surplus (mm/year)	336	336	840	840	336	840	336	840	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	840	347
Net Surplus (mm/year)	336	336	840	840	336	840	336	840	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	840	347
Downspout Disconnection Retention	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Evapotranspiration (mm/year)	597	597	0	93	597	93	597	93	93	597	93	597	93	597	93	597	93	597	93	597	93	597	93	597	93	597	93	93	159
Roof Evapotranspiration (mm/year)	0	0	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Rooftop Runoff Lawn Evaporation (mm/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Evapotranspiration (mm/yr)	**597**	**597**	**93**	**93**	**597**	**93**	**597**	**93**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**93**	170
Infiltration (mm/year)	202	202	0	0	202	0	202	0	0	202	0	202	0	202	0	202	0	202	0	202	0	202	0	202	0	202	0	0	47
Rooftop Infiltration (mm/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mitigation (mm/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Infiltration (mm/year)	**202**	**202**	**0**	**0**	**202**	**0**	**202**	**0**	**0**	**202**	**0**	**202**	**0**	**202**	**0**	**202**	**0**	**202**	**0**	**202**	**0**	**202**	**0**	**202**	**0**	**202**	**0**	**0**	47
Runoff Pervious Area (mm/year)	134	134	0	0	134	0	134	0	0	134	0	134	0	134	0	134	0	134	0	134	0	134	0	134	0	134	0	0	32
Runoff Impervious Area (mm/year)	0	0	840	840	0	840	0	840	840	0	840	0	840	0	840	0	840	0	840	0	840	0	840	0	840	0	840	840	268
Total Runoff (mm/year)	**134**	**134**	**840**	**840**	**134**	**840**	**134**	**840**	**840**	**134**	**840**	**134**	**840**	**134**	**840**	**134**	**840**	**134**	**840**	**134**	**840**	**134**	**840**	**134**	**840**	**134**	**840**	**840**	300
Total Outputs (mm/year)	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	517
Difference (Inputs - Outputs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input Volumes																													
Precipitation (m^3/year)	9862	5310	28069	650	21488	1653	308	24	5829	5829	14714	5886	12592	4306	10361	3543	7277	2426	10776	3592	6158	2053	1866	746	4957	65858	882	3902	**240917**
Total Inputs (m^3/year)	**9862**	**5310**	**28069**	**650**	**21488**	**1653**	**308**	**24**	**5829**	**5829**	**14714**	**5886**	**12592**	**4306**	**10361**	**3543**	**7277**	**2426**	**10776**	**3592**	**6158**	**2053**	**1866**	**746**	**4957**	**65858**	**882**	**3902**	**240917**
Outputs (Volumes)																													
Precipitation Surplus (m^3/year)	3552	1912	25262	585	7739	1488	111	21	5246	2099	13243	2120	11333	1551	9325	1276	6550	874	9699	1294	5542	739	1679	269	4461	23717	794	3511	145990
Net Surplus (m^3/year)	3552	1912	25262	585	7739	1488	111	21	5246	2099	13243	2120	11333	1551	9325	1276	6550	874	9699	1294	5542	739	1679	269	4461	23717	794	3511	145990
Downspout Disconnection Retention (m^3/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Evapotranspiration (m^3/year)	6311	3398	0	65	13750	165	197	2	583	3730	1471	3766	1259	2755	1036	2267	728	1552	1078	2298	616	1313	187	478	496	42140	88	390	92120
Roof Evapotranspiration (m^3/year)	0	0	2807	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2807
Rooftop Runoff Lawn Evaporation (m^3/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Evapotranspiration (m^3/year)	**6311**	**3398**	**2807**	**65**	**13750**	**165**	**197**	**2**	**583**	**3730**	**1471**	**3766**	**1259**	**2755**	**1036**	**2267**	**728**	**1552**	**1078**	**2298**	**616**	**1313**	**187**	**478**	**496**	**42140**	**88**	**390**	**94927**
Infiltration (m^3/year)	2131	1147	0	0	4643	0	67	0	0	1260	0	1272	0	930	0	766	0	524	0	776	0	444	0	161	0	14230	0	0	28351
Rooftop Infiltration (m^3/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mitigation (m^3/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Infiltration (m^3/year)	**2131**	**1147**	**0**	**0**	**4643**	**0**	**67**	**0**	**0**	**1260**	**0**	**1272**	**0**	**930**	**0**	**766**	**0**	**524**	**0**	**776**	**0**	**444**	**0**	**161**	**0**	**14230**	**0**	**0**	**28351**
Runoff Pervious Area (m^3/year)	1421	765	0	0	3095	0	44	0	0	840	0	848	0	620	0	510	0	349	0	517	0	296	0	108	0	9487	0	0	18901
Runoff Impervious Area (m^3/year)	0	0	25262	585	0	1488	0	21	5246	0	13243	0	11333	0	9325	0	6550	0	9699	0	5542	0	1679	0	4461	0	794	3511	98739
Total Runoff (m^3/year)	**1421**	**765**	**25262**	**585**	**3095**	**1488**	**44**	**21**	**5246**	**840**	**13243**	**848**	**11333**	**620**	**9325**	**510**	**6550**	**349**	**9699**	**517**	**5542**	**296**	**1679**	**108**	**4461**	**9487**	**794**	**3511**	**117640**
Total Outputs (m^3/year)	**9862**	**5310**	**28069**	**650**	**21488**	**1653**	**308**	**24**	**5829**	**5829**	**14714**	**5886**	**12592**	**4306**	**10361**	**3543**	**7277**	**2426**	**10776**	**3592**	**6158**	**2053**	**1866**	**746**	**4957**	**65858**	**882**	**3902**	**240917**
Difference (Inputs - Outputs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**

*Data based on MOE

**Precipitation and Evapotranspiration data based on Environment Canada-Barrie WPCC Station (1978-2006)

Project No: 4560- DIPoce-Barrie

12/14/2018

TABLE 3: WATER BUDGET - POST-DEVELOPMENT WITH MITIGATION
WATER BALANCE/WATER BUDGET ASSESSMENT

	Site																											
Catchment Designation	Backyard	Front Lawn	Roofs	Front Porch	Park (93% Pervious)	Park (7% Impervious)	Service Corridor (93% Pervious)	Service Corridor (7% Impervious)	Pond (50% Impervious)	Pond (50% Pervious)	School (71% Impervious)	School (29% Pervious)	ROW-18m (75% Impervious)	ROW-18m (25% Pervious)	ROW- 24m (75% Impervious)	ROW-24m (25% Impervious)	Block 39 (75% Impervious)	Block 39 (25% Pervious)	Block 40 (75% Impervious)	Block 40 (25% Pervious)	Block 41 (75% Impervious)	Block 41 (25% Pervious)	Block 42 (71% Impervious)	Block 42 (29% Pervious)	Pipeline Coriddor + Undeveloped Lands (7% Impervious)	Pipeline Coriddor + Undeveloped Lands (93%Pervious)	Paths	Driveways	Total
Area (m²)	10570	5692	30085	697	23031	1772	331	25	6248	6248	15771	6308	13496	4615	11105	3797	7800	2600	11550	3850	6600	2200	2000	800	5313	70587	945	4182	258218
Pervious Area (m²)	10570	5692	0	0	23031	0	331	0	0	6248	0	6308	0	4615	0	3797	0	2600	0	3850	0	2200	0	800	0	70587	0	0	140630
Impervious Area (m²)	0	0	30085	697	0	1772	0	25	6248	0	15771	0	13496	0	11105	0	7800	0	11550	0	6600	0	2000	0	5313	0	945	4182	117588
Infiltration Factors																													
Topography Infiltration Factor (Rolling Land)*	0.2	0.2	N/A	N/A	0.2	N/A	0.2	N/A	N/A	0.2	N/A	0.2	N/A	0.2	0.2	0.2	N/A	0.2	0.2	0.2	N/A	0.2	0.2	0.2	0.2	0.2	N/A	N/A	
Soil Infiltration Factor (Silty to Sandy Glacial Till)*	0.3	0.3	N/A	N/A	0.3	N/A	0.3	N/A	N/A	0.3	N/A	0.3	N/A	0.3	0.3	0.3	N/A	0.3	0.3	0.3	N/A	0.3	0.3	0.3	0.3	0.3	N/A	N/A	
Land Cover Infiltration Factor (Cultivated Land)*	0.1	0.1	N/A	N/A	0.1	N/A	0.1	N/A	N/A	0.1	N/A	0.1	N/A	0.1	0.1	0.1	N/A	0.1	0.1	0.1	N/A	0.1	0.1	0.1	0.1	0.1	N/A	N/A	
MOE Infiltration Factor	**0.6**	**0.6**	**N/A**	**N/A**	**0.6**	**N/A**	**0.6**	**N/A**	**N/A**	**0.6**	**N/A**	**0.6**	**N/A**	**0.6**	**0.6**	**0.6**	**N/A**	**0.6**	**0.6**	**0.6**	**N/A**	**0.6**	**0.6**	**0.6**	**0.6**	**0.6**	**N/A**	**N/A**	
Inputs (per unit area)																													
Precipitation (mm/year)**	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933
Total Inputs (m³/year)	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933	933
Outputs (per unit area)																													
Precipitation Surplus (mm/year)	336	336	840	840	336	840	336	840	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	840	347
Net Surplus (mm/year)	336	336	840	840	336	840	336	840	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	336	840	840	347
Downspout Disconnection Retention	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Evapotranspiration (mm/year)	597	597	0	93	597	93	597	93	93	597	93	597	93	597	93	597	93	597	93	597	93	597	93	597	93	597	93	93	159
Roof Evapotranspiration (mm/year)	0	0	93	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11
Rooftop Runoff Lawn Evaporation (mm/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Evapotranspiration (mm/yr)	**597**	**597**	**93**	**93**	**597**	**93**	**597**	**93**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**597**	**93**	**93**	170
Infiltration (mm/year)	202	202	0	0	202	0	202	0	0	202	0	202	0	202	0	202	0	202	0	202	0	202	0	202	0	202	0	0	47
Rooftop Infiltration (mm/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mitigation (Infiltration trenches) (mm/year)	0	0	0	0	0	220	0	0	0	0	220	0	220	0	0	0	220	0	220	0	220	0	220	0	0	0	0	0	25
Mitigation (Infiltration within the Pond)(mm/year)	0	0	483	483	0	483	0	483	483	0	483	0	483	0	483	0	0	0	0	0	0	0	0	0	483	0	483	483	154
Total Infiltration (mm/year)	**202**	**202**	**483**	**483**	**202**	**703**	**202**	**483**	**483**	**202**	**703**	**202**	**703**	**202**	**483**	**202**	**220**	**202**	**220**	**202**	**220**	**202**	**220**	**202**	**483**	**202**	**483**	**483**	227
Runoff Pervious Area (mm/year)	134	134	0	0	134	0	134	0	0	134	0	134	0	134	0	134	0	134	0	134	0	134	0	134	0	134	0	0	32
Runoff Impervious Area (mm/year)	0	0	357	357	0	137	0	357	357	0	137	0	137	0	357	0	620	0	620	0	620	0	620	0	357	0	357	357	89
Total Runoff (mm/year)	**134**	**134**	**357**	**357**	**134**	**137**	**134**	**357**	**357**	**134**	**137**	**134**	**137**	**134**	**357**	**134**	**620**	**134**	**620**	**134**	**620**	**134**	**620**	**134**	**357**	**134**	**357**	**357**	121
Total Outputs (mm/year)	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	**933**	517
Difference (Inputs - Outputs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Input Volumes																													
Precipitation (m³/year)	9862	5310	28069	650	21488	1653	308	24	5829	5829	14714	5886	12592	4306	10361	3543	7277	2426	10776	3592	6158	2053	1866	746	4957	65858	882	3902	240917
Total Inputs (m³/year)	**9862**	**5310**	**28069**	**650**	**21488**	**1653**	**308**	**24**	**5829**	**5829**	**14714**	**5886**	**12592**	**4306**	**10361**	**3543**	**7277**	**2426**	**10776**	**3592**	**6158**	**2053**	**1866**	**746**	**4957**	**65858**	**882**	**3902**	**240917**
Outputs (Volumes)																													
Precipitation Surplus (m³/year)	3552	1912	25262	585	7739	1488	111	21	5246	2099	13243	2120	11333	1551	9325	1276	6550	874	9699	1294	5542	739	1679	269	4461	23717	794	3511	145990
Net Surplus (m³/year)	3552	1912	25262	585	7739	1488	111	21	5246	2099	13243	2120	11333	1551	9325	1276	6550	874	9699	1294	5542	739	1679	269	4461	23717	794	3511	145990
Downspout Disconnection Retention (m³/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Evapotranspiration (m³/year)	6311	3398	0	65	13750	165	197	2	583	3730	1471	3766	1259	2755	1036	2267	728	1552	1078	2298	616	1313	187	478	496	42140	88	390	92120
Roof Evapotranspiration (m³/year)	0	0	2807	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2807
Rooftop Runoff Lawn Evaporation (m³/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Evapotranspiration (m³/year)	**6311**	**3398**	**2807**	**65**	**13750**	**165**	**197**	**2**	**583**	**3730**	**1471**	**3766**	**1259**	**2755**	**1036**	**2267**	**728**	**1552**	**1078**	**2298**	**616**	**1313**	**187**	**478**	**496**	**42140**	**88**	**390**	**94927**
Infiltration (m³/year)	2131	1147	0	0	4643	0	67	0	0	1260	0	1272	0	930	0	766	0	524	0	776	0	444	0	161	0	14230	0	0	28351
Rooftop Infiltration (m³/year)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Mitigation (Infiltration Trenches) (m³/year)	0	0	0	0	0	390	0	0	0	0	3470	0	2969	0	0	0	1716	0	2541	0	1452	0	440	0	0	0	0	0	12977
Mitigation (Infiltration within the SWM Pond) (m³/year)	0	0	14531	337	0	856	0	12	3018	0	7617	0	6519	0	5364	0	0	0	0	0	0	0	0	0	2566	0	456	2020	43295
Total Infiltration (m³/year)	**2131**	**1147**	**14531**	**337**	**4643**	**1245**	**67**	**12**	**3018**	**1260**	**11087**	**1272**	**9488**	**930**	**5364**	**766**	**1716**	**524**	**2541**	**776**	**1452**	**444**	**440**	**161**	**2566**	**14230**	**456**	**2020**	**84624**
Runoff Pervious Area (m³/year)	1421	765	0	0	3095	0	44	0	0	840	0	848	0	620	0	510	0	349	0	517	0	296	0	108	0	9487	0	0	18901
Runoff Impervious Area (m³/year)	0	0	10731	249	0	242	0	9	2229	0	2156	0	1845	0	3961	0	4834	0	7158	0	4090	0	1239	0	1895	0	337	1492	42466
Total Runoff (m³/year)	**1421**	**765**	**10731**	**249**	**3095**	**242**	**44**	**9**	**2229**	**840**	**2156**	**848**	**1845**	**620**	**3961**	**510**	**4834**	**349**	**7158**	**517**	**4090**	**296**	**1239**	**108**	**1895**	**9487**	**337**	**1492**	**61367**
Total Outputs (m³/year)	**9862**	**5310**	**28069**	**650**	**21488**	**1653**	**308**	**24**	**5829**	**5829**	**14714**	**5886**	**12592**	**4306**	**10361**	**3543**	**7277**	**2426**	**10776**	**3592**	**6158**	**2053**	**1866**	**746**	**4957**	**65858**	**882**	**3902**	**240917**
Difference (Inputs - Outputs)	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	**0**

*Data based on MOE

**Precipitation and Evapotranspiration data based on Environment Canada-Barrie WPCC Station (1978-2006)

TABLE 4: WATER BUDGET -SUMMARY TABLE

Characteristics	Site				
	Pre-development	Post-development	Change (Pre to Post)	Post-development with	Change (pre to post with mitigation)
Inputs (Volumes)					
Precipitation (m^3/year)	240917	240917	0%	240917	0.0%
Total Inputs (m^3/year)	240917	240917	0%	240917	0.0%
Outputs (Volumes)					
Precipitation surplus (m^3/year)	86761	145990	68%	145990	68%
Net Surplus (m^3/year)	86761	145990	68%	145990	68%
Total Evapotranspiration (m^3/year)	154156	94927	-38%	94927	-38%
Total Infiltration (m^3/year)	52057	28351	-46%	84624	63%
Total Runoff (m^3/year)	34704	117640	239%	61367	77%
Total Outputs (m^3/year)	240917	240917	0%	240917	0%

Total Infiltration req'd: to match post to pre **23706** **m^3/yr**

Water Balance Mitigation Calculations

Pre Development Infiltration =	**52,057 m^3/y**
Post Development Infiltration without mitigation =	**28,351 m^3/y**
Post to Pre Deficit =	**23,706 m^3/y**
Mitigation Measures	
Top Soil Amendment =	**0 m^3/y**
Rooftop infiltration =	**0 m^3/y**
Infiltration Trench within the Park Block=	**390 m^3/y**
Infiltration Trench within the School Block=	**3,470 m^3/y**
Infiltration Trench within the SWM pond=	**43,295 m^3/y**
Infiltration Trench within the Block 39=	**1,716 m^3/y**
Infiltration Trench within the Block 40=	**2,541 m^3/y**
Infiltration Trench within the Block 41=	**1,452 m^3/y**
Infiltration Trench within the Block 42=	**440 m^3/y**
Mitgation Voulme Provided =	**53,304 m^3/y**
Deficit =	**-29,598 m^3/y**

In order to meet the annual pre-development infiltration deficit, the runoff from the site directed to infiltration trenches shall be equal to the annual deficit volume. Therefore,

Infiltration Trench within the SWM pond=

8.96 ha x Annual Precipitation Depth = 43,295 m^3/year

Required Annual Precpitation Depth to meet deficit = 483 mm/yr

A precipitation analysis (rainfall & snowfall) was conducted to estimate an event with sufficient precipitation that produces an annual runoff volume of 43296 m^3/year (or a total depth of annual rainfall equal to 483 mm)

The analysis was performed on daily precipitation data collected from Barrie from 1978 to 2006 by Environment Canada. The data was then arranged into four categories for each year: Total Annual Depth of Precipitation from events less than or equal to 5mm, 10mm, 15mm and 20mm. This yearly data was then used to determine an average annual precipitation depth.

Based on this analysis, it is concluded that precipitation events of depth less than or equal to *12.50 mm* will produce an annual amount of precipitation equal to 483 mm/yr

The total required infiltration trench volume is 12.5 mm x 8.96 ha x 10 = 1120 m^3

Infiltration Trench within the Park Block=

0.18 ha x Annual Precipitation Depth = 390 m^3/year

Required Annual Precpitation Depth to meet deficit = 220 mm/yr

A precipitation analysis (rainfall & snowfall) was conducted to estimate an event with sufficient precipitation that produces an annual runoff volume of 390 m^3/year (or a total depth of annual rainfall equal to 220 mm)

The analysis was performed on daily precipitation data collected from Barrie from 1978 to 2006 by Environment Canada. The data was then arranged into four categories for each year: Total Annual Depth of Precipitation from events less than or equal to 5mm, 10mm, 15mm and 20mm. This yearly data was then used to determine an average annual precipitation depth.

Based on this analysis, it is concluded that precipitation events of depth less than or equal to *5.00 mm* will produce an annual amount of precipitation equal to 220 mm/yr

The total required infiltration trench volume is 5 mm x 0.18 ha x 10 = 8.9 m^3

Infiltration Trench within the School Block=

1.58 ha x Annual Precipitation Depth = 3,470 m^3/year

Required Annual Precpitation Depth to meet deficit = 220 mm/yr

A precipitation analysis (rainfall & snowfall) was conducted to estimate an event with sufficient precipitation that produces an annual runoff volume of 3470 m^3/year (or a total depth of annual rainfall equal to 220 mm)

The analysis was performed on daily precipitation data collected from Barrie from 1978 to 2006 by Environment Canada. The data was then arranged into four categories for each year: Total Annual Depth of Precipitation from events less than or equal to 5mm, 10mm, 15mm and 20mm. This yearly data was then used to determine an average annual precipitation depth.

Based on this analysis, it is concluded that precipitation events of depth less than or equal to *5.00 mm*
will produce an annual amount of precipitation equal to 220 mm/yr

The total required infiltration trench volume is 5 mm x 1.58 ha x 10 = 79 m^3

Infiltration Trench within the Block 39=

0.78 ha x Annual Precipitation Depth = 1,716 m^3/year

Required Annual Precpitation Depth to meet deficit = 220 mm/yr

A precipitation analysis (rainfall & snowfall) was conducted to estimate an event with sufficient precipitation that produces an annual runoff volume of 1716 m^3/year (or a total depth of annual rainfall equal to 220 mm)

The analysis was performed on daily precipitation data collected from Barrie from 1978 to 2006 by Environment Canada. The data was then arranged into four categories for each year: Total Annual Depth of Precipitation from events less than or equal to 5mm, 10mm, 15mm and 20mm. This yearly data was then used to determine an average annual precipitation depth.

Based on this analysis, it is concluded that precipitation events of depth less than or equal to *5.00 mm*
will produce an annual amount of precipitation equal to 220 mm/yr

The total required infiltration trench volume is 5 mm x 0.78 ha x 10 = 39 m^3

Infiltration Trench within the Block 40=

1.16 ha x Annual Precipitation Depth = 2,541 m^3/year

Required Annual Precpitation Depth to meet deficit = 220 mm/yr

A precipitation analysis (rainfall & snowfall) was conducted to estimate an event with sufficient precipitation that produces an annual runoff volume of 2541 m^3/year (or a total depth of annual rainfall equal to 220 mm)

The analysis was performed on daily precipitation data collected from Barrie from 1978 to 2006 by Environment Canada. The data was then arranged into four categories for each year: Total Annual Depth of Precipitation from events less than or equal to 5mm, 10mm, 15mm and 20mm. This yearly data was then used to determine an average annual precipitation depth.

Based on this analysis, it is concluded that precipitation events of depth less than or equal to *5.00 mm*
will produce an annual amount of precipitation equal to 220 mm/yr

The total required infiltration trench volume is 5 mm x 1.16 ha x 10 = 58 m^3

Infiltration Trench within the Block 41=

0.66 ha x Annual Precipitation Depth = 1,452 m^3/year

Required Annual Precpitation Depth to meet deficit = 220 mm/yr

A precipitation analysis (rainfall & snowfall) was conducted to estimate an event with sufficient precipitation that produces an annual runoff volume of 1452 m^3/year (or a total depth of annual rainfall equal to 220 mm)

The analysis was performed on daily precipitation data collected from Barrie from 1978 to 2006 by Environment Canada. The data was then arranged into four categories for each year: Total Annual Depth of Precipitation from events less than or equal to 5mm, 10mm, 15mm and 20mm. This yearly data was then used to determine an average annual precipitation depth.

Based on this analysis, it is concluded that precipitation events of depth less than or equal to *5.00 mm*
will produce an annual amount of precipitation equal to 220 mm/yr

The total required infiltration trench volume is 5 mm x 0.66 ha x 10 = 33 m^3

Infiltration Trench within the Block 42=

0.20 ha x Annual Precipitation Depth = 440 m^3/year

Required Annual Precpitation Depth to meet deficit = 220 mm/yr

A precipitation analysis (rainfall & snowfall) was conducted to estimate an event with sufficient precipitation that produces an annual runoff volume of 440 m^3/year (or a total depth of annual rainfall equal to 220 mm)

The analysis was performed on daily precipitation data collected from Barrie from 1978 to 2006 by Environment Canada. The data was then arranged into four categories for each year: Total Annual Depth of Precipitation from events less than or equal to 5mm, 10mm, 15mm and 20mm. This yearly data was then used to determine an average annual precipitation depth.

Based on this analysis, it is concluded that precipitation events of depth less than or equal to *5.00 mm*
will produce an annual amount of precipitation equal to 220 mm/yr

The total required infiltration trench volume is 5 mm x 0.2 ha x 10 = 10 m^3

QUALITY, VOLUMETRIC CONTROL CALCULATIONS

&

PRELIMINARY FOREBAY SIZING CALCULATIONS

WATER QUALITY REQUIREMENT CALCULATIONS
Infiltration Treatment - SWM Pond H

MOE SWM Planning & Design Manual Table 3.2: Water Quality Storage Requirements Based on Receiving Waters

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level					
		0%	35%	55%	70%	85%	100%
Basic	Infiltration	20	20	20	20	20	20

* For wet ponds, all of the storage, except for 40 m^3/ha represents the permanent pool volume. The 40 m^3/ha represents extended detention storage.

Input:

Estimated Imperviousness = 59%
Area* = 16.46 ha
Level of Protection: Basic
SWMP Type : Wet Pond

Calculation:

Permanent Pool Volume = 20 m^3/ha → **329** m^3

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2018-12-13

DiPoce
WATER QUALITY REQUIREMENT CALCULATIONS
Permanent Pool Treatment - SWM Pond H

MOE SWM Planning & Design Manual Table 3.2: Water Quality Storage Requirements Based on Receiving Waters

Protection Level	SWMP Type	Storage Volume (m^3/ha) for Impervious Level					
		0%	35%	55%	70%	85%	100%
Basic	Wet Pond	40	60	75	85	95	110

* For wet ponds, all of the storage, except for 40 m^3/ha represents the permanent pool volume.
The 40 m^3/ha represents extended detention storage.

Input:

Estimated Imperviousness =	58%	
Area* =	15.42	ha
Level of Protection:	Basic	

Calculation:

Total Storage Volume Required =	77	m^3/ha →	1,187	m^3
Permanent Pool Volume =	37	m^3/ha →	**571**	m^3
Active Storage Volume =	40	m^3/ha →	617	m^3

SCHAEFFERS
CONSULTING ENGINEERS

Project No.: 4560
Project Name: DiPoce (Innisfil) Development
Location: City of Barrie

TIMP CALCS FOR VOLUME CONTROL

Interim Condition

	Area	TIMP	XIMP
Catchment 200+206	14.49	58%	58%
Catchment 201	1.04	75%	75%
Catchment 208E	8.1	7%	7%
Catchment 209E	0.93	50%	50%
TOTAL	24.56	42%	42%

Ultimate Condition (Development of Site Plan 208)

	Area	TIMP	XIMP
Catchment 200+206	14.49	58%	58%
Catchment 201	1.04	75%	75%
Catchment 209E	0.93	50%	50%
TOTAL	16.46	59%	59%

Printed 13-Dec-18

Project No.: 4560
Project Name: Di Poce (Innisfil) Inc. Development
Location: City of Barrie

SCHAEFFERS
CONSULTING ENGINEERS

Volume Control Requirement Calculation

Interim Condition

Information:

Estimated Imperviousness =	42%		
Area* =	24.56	ha	
Retained Storm Event =	12.5	mm	
Infiltration Rate =	30	mm/hr	---> *Note: The soils on-site are generally Sand to Silty Sand with an approximate hydraulic conductivity of 5x10^{-5} corresponding to an*
Safety Factor =	2		
Available Infil. Footprint Area =	1500	m^2	

Calculation:

Volumetric Control Requirement =	1289.4	m^3
Infiltration Flux =	22.50	m^3/hr
Drawdown Time =	57.31	hours

Ultimate Condition (Development of Site Plan 208)

Information

Estimated Imperviousness =	59%		
Area* =	16.46	ha	
Retained Storm Event =	12.5	mm	
Infiltration Rate =	30.0	mm/hr	---> *Note: The soils on-site are generally Sand to Silty Sand with an approximate hydraulic conductivity of 5x10^{-5} corresponding to an*
Safety Factor =	2		
Available Infil. Footprint Area =	1500	m^2	

Calculation:

Volumetric Control Requirement =	1213.925	m^3
Infiltration Flux =	22.50	m^3/hr
Drawdown Time =	53.952	hours

PROJECT NO *4560*
DESCRIPTION *DI POCE (INNISFIL) INC. DEVELOPMENT*
DATE *Dec-18*

SCHAEFFERS
CONSULTING ENGINEERS

FOREBAY SETTLING LENGTH

ref: SWM Planning & Design Manual (MOE, March 2003)

$Dist = (rQ_p / V_s)^{1/2}$, where

Dist = forebay length (m)
r = Length to width ratio of forebay (>2:1)
Q_p = peak flowrate from the pond during design quality storm (m^3/s)
V_s = settling velocity in the forebay (m/s)

r =	2		(2:1)
Q_p =	0.047	m^3/s	(required erosion outflow rate)
V_s =	0.0003	m	(based on 150µm particles)

Dist = 18 metres

DISPERSION LENGTH

ref: SWM Planning & Design Manual (MOE, March 2003)

$D = 8Q / dV_f$, where

D = length of dispersion (m)
Q = 10 year inlet flowrate (m^3/s)
d = depth of permanent pool in forebay (m)
V_f = desired velocity in the forebay (m/s)

Q =	3.492	m^3/s	(from hydrologic model)
d =	1.50	m	
V_f =	0.5	m/s	(MOEE empirical value)

Dist = 37 m

Forebay Length Required: 37 metres
Forebay Length Provided: 39 metres

PRELIMINARY OIL/GRIT SEPARATOR SIZING FOR CATHCMENT 201

(BLOCK 39)

Detailed Stormceptor Sizing Report – Barrie

Project Information & Location			
Project Name	Barrie	**Project Number**	4560
City	Barrie	**State/ Province**	Ontario
Country	Canada	**Date**	12/12/2018
Designer Information		**EOR Information (optional)**	
Name	Brandon O'Leary	**Name**	Sadman Soumik
Company	Forterra	**Company**	Schaeffer & Associates Ltd.
Phone #	905-630-0359	**Phone #**	
Email	brandon.oleary@forterrabp.com	**Email**	

Stormwater Treatment Recommendation

The recommended Stormceptor Model(s) which achieve or exceed the user defined water quality objective for each site within the project are listed in the below Sizing Summary table.

Site Name	Barrie
Recommended Stormceptor Model	EFO8
TSS Removal (%) Provided	82
Particle Size Distribution (PSD)	Fine Distribution
Rainfall Station	BARRIE WPCC

The recommended Stormceptor model achieves the water quality objectives based on the selected inputs, historical rainfall records and selected particle size distribution.

EFO Sizing Summary			
EFO Model	**% TSS Removal Provided**	**% Runoff Volume Captured Provided**	**Standard EFO Hydrocarbon Storage Capacity**
EFO4	66	78	265 L (70 gal)
EFO6	78	91	610 L (160 gal)
EFO8	82	96	1070 L (280 gal)
EFO10	87	99	1670 L (440 gal)
EFO12	89	99	2475 L (655 gal)
Parallel Units / MAX	Custom	Custom	Custom

For Stormceptor Specifications and Drawings Please Visit:
http://www.imbriumsystems.com/technical-specifications

OVERVIEW

Stormceptor ® EF is a continuation and evolution of the most globally recognized oil-grit separator (OGS) stormwater treatment technology - **Stormceptor ®.** Also known as a hydrodynamic separator, the enhanced flow Stormceptor EF is a high performing oil-grit separator that effectively removes a wide variety of pollutants from stormwater and snowmelt runoff at higher flow rates as compared to the original Stormceptor. Stormceptor EF captures and retains sediment (TSS), free oils, gross pollutants and other pollutants that attach to particles, such as nutrients and metals. Stormceptor EF's patent-pending treatment and scour prevention technology and internal bypass ensures sediment is retained during all rainfall events.

Design Methodology

Stormceptor is sized using PCSWMM for Stormceptor, a continuous simulation model based on US EPA SWMM. The program calculates hydrology using local historical rainfall data and specified site parameters. With US EPA SWMM's precision, every Stormceptor unit is designed to achieve a defined water quality objective. The TSS removal data presented follows US EPA guidelines to reduce the average annual TSS load. The Stormceptor's unit process for TSS removal is settling. The settling model calculates TSS removal by analyzing:

- Site parameters
- Continuous historical rainfall data, including duration, distribution, peaks & inter-event dry periods
- Particle size distribution, and associated settling velocities (Stokes Law, corrected for drag)
- TSS load
- Detention time of the system

Hydrology Analysis
PCSWMM for Stormceptor calculates annual hydrology with the US EPA SWMM and local continuous historical rainfall data. Performance calculations of Stormceptor are based on the average annual removal of TSS for the selected site parameters. The Stormceptor is engineered to capture sediment particles by treating the required average annual runoff volume, ensuring positive removal efficiency is maintained during each rainfall event, and preventing negative removal efficiency (scour). Smaller recurring storms account for the majority of rainfall events and average annual runoff volume, as observed in the historical rainfall data analyses presented in this section.

Rainfall Station			
State/Province	Ontario	**Total Number of Rainfall Events**	2595
Rainfall Station Name	BARRIE WPCC	**Total Rainfall (mm)**	12897.4
Station ID #	0557	**Average Annual Rainfall (mm)**	358.3
Coordinates	44°23'N, 79°41'W	**Total Evaporation (mm)**	956.1
Elevation (ft)	725	**Total Infiltration (mm)**	3159.9
Years of Rainfall Data	36	**Total Rainfall that is Runoff (mm)**	8781.4

Notes
• Stormceptor performance estimates are based on simulations using PCSWMM for Stormceptor, which uses the EPA Rainfall and Runoff modules. • Design estimates listed are only representative of specific project requirements based on total suspended solids (TSS) removal defined by the selected PSD, and based on stable site conditions only, after construction is completed. • For submerged applications or sites specific to spill control, please contact your local Stormceptor representative for further design assistance.

ONLINE APPLICATION

Stormceptor EF's internal bypass and patent-pending scour prevention technology has demonstrated very effective retention of pollutants in third-party testing and verification following the Canadian ETV's **Procedure for Laboratory Testing of Oil-Grit Separators.** Sediment scour prevention demonstrated an effluent concentration of less than 10 mg/L for sediment particles ranging from 1 to 1,000 microns, even during peak influent flow rates associated with infrequent high intensity storm events. While Stormceptor EF will capture oil, only the Stormceptor EFO configuration has been third-party tested and verified to retain greater than 99% of captured oil. Based on these verified performance attributes, the most efficient and widely accepted application of Stormceptor EF is an online configuration, which allows all upstream conveyance flows to enter and exit the unit. The online application eliminates the need for costly additional bypass structures, piping and installation expense.

FLOW ENTRANCE OPTIONS

Single Inlet Pipe – A common design which includes one inlet pipe and one outlet pipe. A 90-degree (maximum) bend is also accepted with this configuration.

Inlet Grate – Allows surface runoff to enter the unit from grade. The inlet grate option can also be used in conjunction with one inlet pipe or multiple inlet pipes. A removable flow deflector is added in the Stormceptor EF4/EFO4.

Maximum Pipe Diameter		
Model	Inlet (in/mm)	Outlet (in/mm)
EF4 / EFO4	24 / 610	24 / 610
EF6 / EFO6	36 / 915	36 / 915
EF8 / EFO8	48 / 1220	48 / 1220
EF10 / EFO10	72 / 1828	72 / 1828
EF12 / EFO12	72 / 1828	72 / 1828

Multiple Inlet Pipe – Allows for multiple inlet pipes of various diameters to enter the unit.

Maximum Pipe Diameter		
Model	Inlet (in/mm)	Outlet (in/mm)
EF4 / EFO4	18 / 457	24 / 610
EF6 / EFO6	30 / 762	36 / 915
EF8 / EFO8	42 / 1067	48 / 1220
EF10 / EFO10	60 / 1524	72 / 1828
EF12 / EFO12	60 / 1524	72 / 1828

Drainage Area	
Total Area (ha)	1.04
Imperviousness %	75

Up Stream Storage	
Storage (ha-m)	Discharge (cms)
0.000	0.000

Up Stream Flow Diversion	
Max. Flow to Stormceptor (cms)	

Water Quality Objective	
TSS Removal (%)	80.0
Runoff Volume Capture (%)	90.00
Oil Spill Capture Volume (L)	
Peak Conveyed Flow Rate (L/s)	
Water Quality Flow Rate (L/s)	

Design Details	
Stormceptor Inlet Invert Elev (m)	
Stormceptor Outlet Invert Elev (m)	
Stormceptor Rim Elev (m)	
Normal Water Level Elevation (m)	
Pipe Diameter (mm)	
Pipe Material	
Multiple Inlets (Y/N)	No
Grate Inlet (Y/N)	No

Particle Size Distribution (PSD)

Removing the smallest fraction of particulates from runoff ensures the majority of pollutants, such as metals, hydrocarbons and nutrients are captured. The table below identifies the Particle Size Distribution (PSD) that was selected to define TSS removal for the Stormceptor design.

Fine Distribution		
Particle Diameter (microns)	Distribution %	Specific Gravity
20.0	20.0	1.30
60.0	20.0	1.80
150.0	20.0	2.20
400.0	20.0	2.65
2000.0	20.0	2.65

Site Name	Barrie

Site Details

Drainage Area	
Total Area (ha)	1.04
Imperviousness %	75
Oil Spill Capture Volume (L)	

Infiltration Parameters	
Horton's equation is used to estimate infiltration	
Max. Infiltration Rate (mm/hr)	61.98
Min. Infiltration Rate (mm/hr)	10.16
Decay Rate (1/sec)	0.00055
Regeneration Rate (1/sec)	0.01

Surface Characteristics	
Width (m)	204.00
Slope %	2
Impervious Depression Storage (mm)	0.508
Pervious Depression Storage (mm)	5.08
Impervious Manning's n	0.015
Pervious Manning's n	0.25

Evaporation	
Daily Evaporation Rate (mm/day)	2.54

Dry Weather Flow	
Dry Weather Flow (L/s)	0

Maintenance Frequency	
Maintenance Frequency (months) >	12

Winter Months	
Winter Infiltration	0

TSS Loading Parameters	
TSS Loading Function	Build Up/ Wash-off

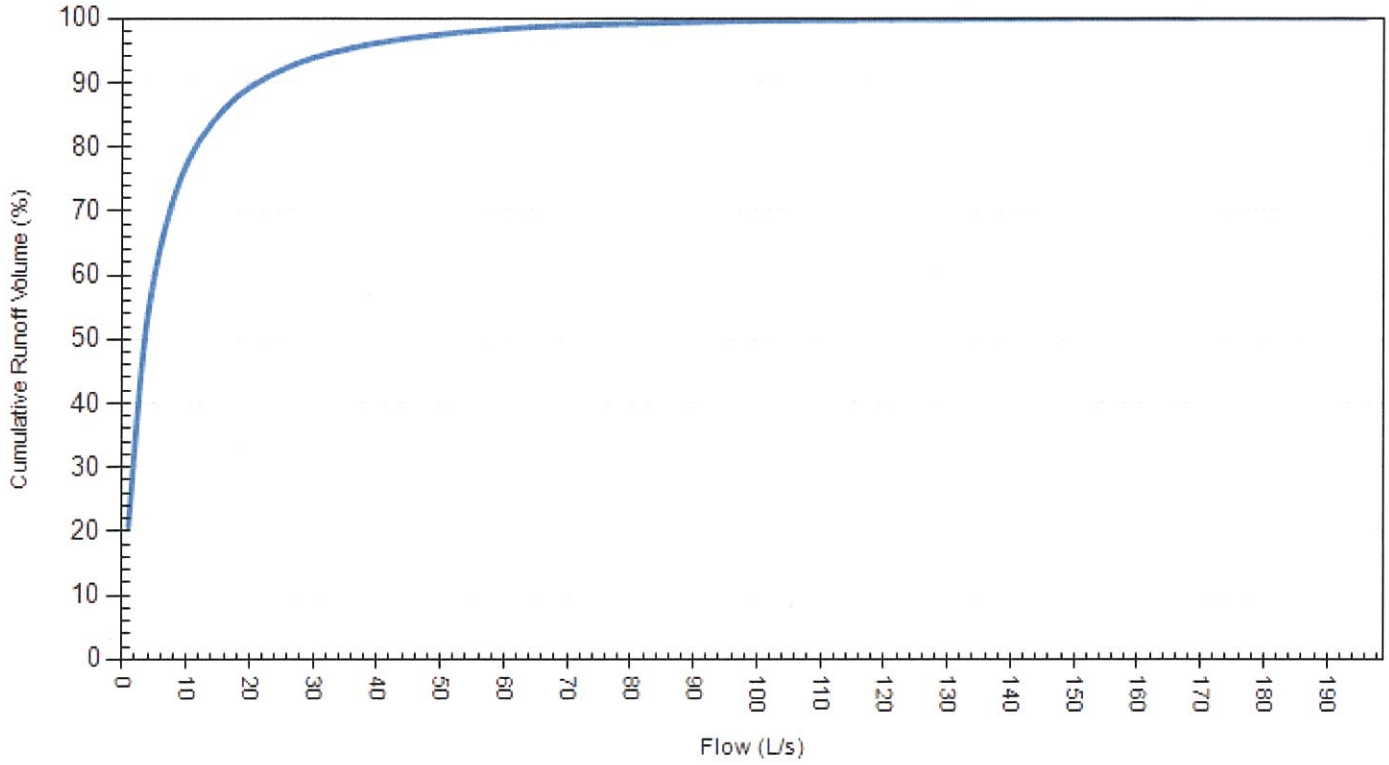
Buildup/Wash-off Parameters	
Target Event Mean Conc. (EMC) mg/L	125
Exponential Buildup Power	0.40
Exponential Washoff Exponent	0.20

TSS Availability Parameters	
Availability Constant A	0.057
Availability Factor B	0.04
Availability Exponent C	1.10
Min. Particle Size Affected by Availability (micron)	400

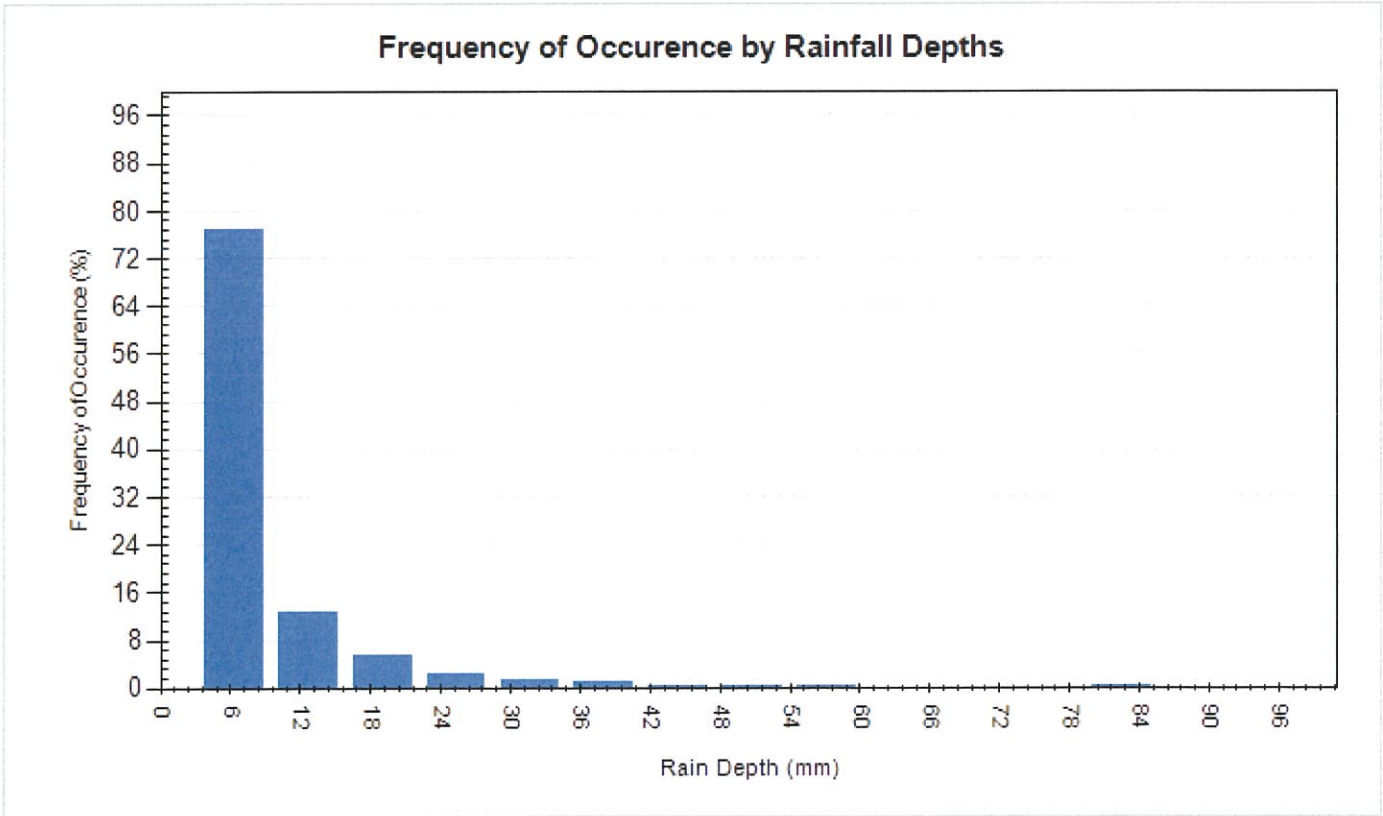
Cumulative Runoff Volume by Runoff Rate			
Runoff Rate (L/s)	**Runoff Volume (m³)**	**Volume Over (m³)**	**Cumulative Runoff Volume (%)**
1	19029	72852	20.7
4	49663	42215	54.1
9	68854	23023	74.9
16	79048	12829	86.0
25	84518	7360	92.0
36	87640	4237	95.4
49	89499	2378	97.4
64	90599	1278	98.6
81	91184	693	99.2
100	91503	374	99.6
121	91691	185	99.8
144	91789	87	99.9
169	91850	26	100.0
196	91874	3	100.0

Cumulative Runoff Volume by Runoff Rate

For area: 1.04(ha), imperviousness: 75.0%, rainfall station: BARRIE WPCC



Rainfall Event Analysis				
Rainfall Depth (mm)	**No. of Events**	**Percentage of Total Events (%)**	**Total Volume (mm)**	**Percentage of Annual Volume (%)**
6.35	1991	76.7	3535	27.4
12.70	325	12.5	2942	22.8
19.05	137	5.3	2129	16.5
25.40	63	2.4	1420	11.0
31.75	36	1.4	1002	7.8
38.10	20	0.8	693	5.4
44.45	10	0.4	406	3.1
50.80	6	0.2	285	2.2
57.15	2	0.1	108	0.8
63.50	1	0.0	58	0.5
69.85	1	0.0	68	0.5
76.20	0	0.0	0	0.0
82.55	2	0.1	156	1.2
88.90	0	0.0	0	0.0
95.25	0	0.0	0	0.0
101.60	1	0.0	96	0.7



PHOSPHORUS BUDGET CALCULATIONS- NVCA

Development Export Summary

Development :4560 - DiPoce Inc. Properties- Residential Development

Updated : Sept 2014

Pre-Development Phosphorus Export

DEVELOPMENT : 4560 - DiPoce Inc. Properties- Residential Development

Landuse		Area (ha)	P coeff (kg/ha)	Pload (kg/yr)
Agricultural				
Cropland	ROW Crop NVCA- Catchment :	0.87		0.14
Cropland	ROW Crop NVCA- Catchment :	1.04		0.17
Cropland	ROW Crop NVCA- Catchment :	11.98		1.93
	Agricultural Land use Class Total :	**13.89**		**2.24**
Natural Heritage				
Forest		0.27	0.06	0.02
Forest		1.19	0.06	0.07
Transition		0.28	0.07	0.02
Transition		0.34	0.07	0.02
Transition		0.76	0.07	0.05
Transition		1.32	0.07	0.09
Wetland		0.05	0.05	
Wetland		0.14	0.05	0.01
	Natural Heritage Land use Class Total :	**4.35**		**0.28**
	Development Total :	**18.24**		**2.52**

Updated : Sept 2014

Cropland Site Sediment & Phosphorus Pre-Development Export

DEVELOPMENT : 4560 - DiPoce Inc. Properties- Residential Development

COLOUR KEY : Site Specific Input | Constant / Lookup | Calculation

SubArea : ROW Crop NVCA- Catchment 200+206

Slope Area (ha)	11.98	R (rainfall / runoff for Lake Simcoe)	120.00
Surface Slope Gradient (%)	3.88	K (soil errodability factor)	0.04
Length of Slope (m)	339.00	NN (determined by slope)	0.40
Cropt Type Factor)	0.02	LS (slope length gradient factor)	1.01
Tillage Type Factor	0.25	C (crop management factor)	0.01
		P (prevention + capture)	0.25
		Soil Loss (kg/year)	0.01
		Phosphorus export (kg/ha/yr)	0.16
		Phosphorus load (kg/yr)	1.93

SubArea : ROW Crop NVCA- Catchment 201

Slope Area (ha)	1.04	R (rainfall / runoff for Lake Simcoe)	120.00
Surface Slope Gradient (%)	2.81	K (soil errodability factor)	0.04
Length of Slope (m)	98.00	NN (determined by slope)	0.30
Cropt Type Factor)	0.02	LS (slope length gradient factor)	0.38
Tillage Type Factor	0.25	C (crop management factor)	0.01
		P (prevention + capture)	0.25
		Soil Loss (kg/year)	0.00
		Phosphorus export (kg/ha/yr)	0.16
		Phosphorus load (kg/yr)	0.17

SubArea : ROW Crop NVCA- Catchment 202

Slope Area (ha)	0.87	R (rainfall / runoff for Lake Simcoe)	120.00
Surface Slope Gradient (%)	4.44	K (soil errodability factor)	0.04
Length of Slope (m)	144.00	NN (determined by slope)	0.40
Cropt Type Factor)	0.02	LS (slope length gradient factor)	0.84
Tillage Type Factor	0.25	C (crop management factor)	0.01
		P (prevention + capture)	0.25
		Soil Loss (kg/year)	0.01
		Phosphorus export (kg/ha/yr)	0.16
		Phosphorus load (kg/yr)	0.14

PRE Developed Area (ha) :	**13.89**
Phosphorus export (kg/ha/yr) :	**0.48**
Phosphorus load (kg/yr) :	**2.24**

Updated : Sept 2014

Post-Development Phosphorus Export

DEVELOPMENT : 4560 - DiPoce Inc. Properties- Residential Development

Landuse	Area (ha)	P coeff (kg/ha)	Pload (kg/yr)
Natural Heritage			
Open Water	1.25	0.26	0.33
Turf/Sod	0.04	0.11	
Turf/Sod	2.48	0.11	0.27
Natural Heritage Land use Class Total :	**3.77**		**0.60**
Urban			
Commercial	0.28	0.20	0.06
Commercial	2.21	0.20	0.44
Residential	0.88	0.41	0.36
Residential	0.98	0.41	0.40
Residential	1.04	0.41	0.43
Residential	1.54	0.41	0.63
Residential	4.15	0.41	1.70
Transportation	0.09	0.50	0.05
Transportation	1.49	0.50	0.75
Transportation	1.81	0.50	0.91
Urban Land use Class Total :	**14.47**		**5.73**
Development Total :	**18.24**		**6.33**

Updated : Sept 2014

Cropland Site Sediment & Phosphorus Post-Development Export

DEVELOPMENT : 4560 - DiPoce Inc. Properties- Residential Development

COLOUR KEY :	Site Specific Input	Constant / Lookup	Calculation

SubArea :

Slope Area (ha)	R (rainfall / runoff for Lake Simcoe)
Surface Slope Gradient (%)	K (soil errodability factor)
Length of Slope (m)	NN (determined by slope)
Cropt Type Factor)	LS (slope length gradient factor)
Tillage Type Factor	C (crop management factor)
	P (prevention + capture)
	Soil Loss (kg/year)
	Phosphorus export (kg/ha/yr)
	Phosphorus load (kg/yr)

PRE Developed Area (ha) :

Phosphorus export (kg/ha/yr) :

Phosphorus load (kg/yr) :

Updated : Sept 2014

Post Dev BMP

Area (ha)	Treated Area %	P coefficient	P coefficient	P Load Reduction (kg/yr)	Rationale
Best Management Practices (BMP) Applied (and Rationale)					
Transportation					
3.30	100	0.50	87 %	1.44	Row 18m & 24m: Treatment Train Approach- CB Shields (30%) --> SWM Pond (55%) --> Infiltration in SWM Pond (60%) --> Overall a 87% efficiency achieved (Calculations
User Entry					
Residential					
0.98	100	0.41	87 %	0.35	7 m Lots: Townhouse Front Yards- Treatment Train Approach- CB Shields (30%) --> SWM Pond (55%) --> Infiltration in SWM Pond (60%) --> Overall a 87% efficiency achieved
User Entry					
Open Water					
1.25	100	0.26	82 %	0.27	SWM Pond: Treatment Train Approach --> SWM Pond (55%) --> Infiltration in SWM Pond (60%) --> Overall a 82% efficiency achieved (Calculations attached).
User Entry					
Transportation					
0.09	100	0.50	87 %	0.04	Paths: Treatment Train Approach- CB Shields (30%) --> SWM Pond (55%) --> Infiltration in SWM Pond (60%) --> Overall a 87% efficiency achieved (Calculations attached).
User Entry					
Commercial					
2.21	100	0.20	82 %	0.36	School: Treatment Train Approach- SWM Pond (55%) --> Infiltration in SWM Pond (60%) --> Overall a 82% efficiency achieved (Calculations Attached).
User Entry					
Turf/Sod					
2.48	100	0.11	82 %	0.22	Park: Treatment Train Approach- SWM Pond (63%) --> Infiltration in SWM Pond (60%) --> Overall a 82% efficiency achieved (Calculations Attached).55
User Entry					
Turf/Sod					
0.04	100	0.11	87 %		Service Corridor: Treatment Train Approach- CB Shields (30%)--> SWM Pond (55%) --> Infiltration in SWM Pond (60%) --> Overall a 85% efficiency achieved (Calculations
User Entry					
Residential					
4.15	100	0.41	82 %	1.40	7 m Lots: Rooftops and Backyards- Treatment Train Approach- CB Shields (30%) --> SWM Pond (55%) --> Infiltration in SWM Pond (60%) --> Overall a 82% efficiency
User Entry					

Residential					
1.54	100	0.41	60 %	0.38	Medium Density- Block 40: Treatment Train approach - Infiltration within Site (60%)
Soakaways - Infiltration Trenches					

Residential					
1.04	100	0.41	60 %	0.26	Medium Density- Block 39: Treatment Train approach - Infiltration within Site (60%)
Soakaways - Infiltration Trenches					

Residential					
0.88	100	0.41	60 %	0.22	Medium Density- Block 41: Treatment Train approach - Infiltration within Site (60%)
Soakaways - Infiltration Trenches					

Commercial					
0.28	100	0.20	60 %	0.03	Commercial Block 42: Treatment Train approach - Infiltration within Site (60%)
Soakaways - Infiltration Trenches					

Updated : Sept 2014

Development Area P and BMP Summary

Total PreDevelopment Area (ha):	18.24
PreDevelopment Area excluding Wetlands (ha):	18.05
Total PostDevelopment Area (ha):	18.24
Total Area treated by BMP's (ha):	18.24
Treated Area total:	18.24
Total PreDevelopment Load (kg/yr):	2.52
Total PostDevelopment Load (kg/yr):	6.33
Total P Load Reduction with BMP's (kg/yr):	4.97
Minimum P Load Reduction Required:	3.81
Total PostDevelopment Load with BMP's (kg/yr)	1.36

Conclusion : No Net Increase in P Load.

Updated : Sept 2014

Post Dev Construction

APPENDIX C: SANITARY SERVICING CALCUATIONS

Proposed Sanitary Flow Calculation

Project No. 4560

Proposed Residential Development, City of Barrie

Site Area:	25.82	ha
Infiltration Rate:	0.1000	L/ha/sec
Residential Generation Rate:	225	L/capita/day
Commercial Generation	28	m3/ha/day

Summary of Average Residential Sanitary Generation Calculation

Tenure Type	Units	Unit Density (cap/unit)	Population	Sanitary Demand (L/cap/day)	Average Demand (L/s)
Townhouses-Residential	199	2.57	512	225	1.333
Medium Density-Residential	163	2.57	420	225	1.094
Total			**932**		**2.427**

Summary of Sanitary Design Flow Calculation

Average Residential Demand (L/s)	Residential Population (persons)	Harmon's Peaking Factor (M)*	Commercial Demand (L/ha/s)	Commercial Area (ha)	Infiltration (L/ha/s)	Total Area (ha)	Total Peak Flow (L/s)
2.427	932	3.82	0.32	0.28	0.1000	25.82	**11.94**

*Based on equivalent population method

$M = 1 + 14/(4 + (P/1000)^{0.5})$

APPENDIX D: WATER SUPPLY CALCULATIONS

Di Poce Residential Subdivision

City of Barrie

November 2018

Demands			
Average daily demand		225	L/cap/day
Minimum hour factor		0.4	
Maximum day factor		2.75	
Peak hour factor		4.13	
Fire Flow	Institutional:	200	L/s
	Commercial:	283	L/s
	Townhouses:	150	L/s
	Medium Density Block:	150	L/s
Population Densities			
Persons per unit	Institutional flow:	28	m^3/day/ha
	Medium density (47 units per ha):	2.571	persons per unit
	Townhouses:	2.571	persons per unit
	Parks:	50	persons/ha

Node	Elevation (m)	Units					Population	Flow	Demand			
		Institutional (ha)	Commercial (ha)	Medium Density Block [ha]	Townhouses	Park (ha)	Residential	Institutional/Commercial Flow [L/s]	Average Day (l/s)	Maximum Day (l/s)	Peak Hour (l/s)	Minimum Hour (l/s)
J-6	298.71						0		0.00	0.00	0.00	0.00
J-112	299.42				7		18		0.05	0.13	0.19	0.02
J-113	296.46				8		21		0.05	0.15	0.23	0.02
J-114	297.51				54		139		0.36	1.00	1.49	0.14
J-115	300.14				8		21		0.05	0.15	0.23	0.02
J-116	302.23				16		42		0.11	0.30	0.45	0.04
J-117	300.49				24		62		0.16	0.44	0.67	0.06
J-118	306.41				33		85		0.22	0.61	0.91	0.09
J-119	305.84						0		0.00	0.00	0.00	0.00
J-120	309.1				9	2.48	24+park equivalent population		0.39	1.06	1.59	0.15
J-121	303.59				28		72		0.19	0.52	0.77	0.08
J-122	298.46			0.88			108		0.28	0.77	1.16	0.11
J-123	298.91			2.58			314		0.82	2.25	3.38	0.33
J-124	304.33	2.21			12		31	0.72	0.80	2.19	3.29	0.32
J-125	296.41		0.28				0	0.09	0.09	0.25	0.37	0.04
				Total:	199		932		3.57	9.81	14.74	1.43

Scenario: Average
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)	Pressure Head (m)
4750	J-125	296.41	0.09	348.88	515	52.47
4715	J-113	296.46	0.05	348.86	514	52.40
4717	J-114	297.51	0.36	348.86	504	51.35
4741	J-122	298.46	0.28	348.87	494	50.41
4435	J-6	298.71	0.00	348.87	492	50.16
4744	J-123	298.91	0.82	348.87	490	49.96
4712	J-112	299.42	0.05	348.86	485	49.44
4719	J-115	300.14	0.05	348.86	478	48.72
4725	J-117	300.49	0.16	348.86	474	48.37
4721	J-116	302.23	0.11	348.86	457	46.63
4738	J-121	303.59	0.19	348.86	444	45.27
4747	J-124	304.33	0.80	348.86	437	44.53
4731	J-119	305.84	0.00	348.86	422	43.02
4729	J-118	306.41	0.22	348.86	416	42.45
4735	J-120	309.10	0.39	348.86	390	39.76

Scenario: Average
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Darcy-Weisbach e (mm)
4736	P-6(1)(1)(1)	41	J-60	J-120	300.0	PVC	120.0	-2.59	0.04	0.0015
4748	P-6(1)(1)(2)(1)	145	J-120	J-124	300.0	PVC	120.0	-2.98	0.04	0.0015
4749	P-6(1)(1)(2)(2)	64	J-124	J-116	300.0	PVC	120.0	-3.78	0.05	0.0015
4726	P-6(1)(2)(1)	83	J-116	J-117	300.0	PVC	120.0	-3.39	0.05	0.0015
4727	P-6(1)(2)(2)	81	J-117	J-112	300.0	PVC	120.0	-4.20	0.06	0.0015
4745	P-6(2)(1)(1)	63	J-112	J-123	300.0	PVC	120.0	-4.97	0.07	0.0015
4746	P-6(2)(1)(2)	143	J-123	J-122	300.0	PVC	120.0	-5.79	0.08	0.0015
4743	P-6(2)(2)	44	J-122	J-6	300.0	PVC	120.0	-6.07	0.09	0.0015
4751	P-7(1)	96	J-6	J-125	300.0	PVC	120.0	-6.07	0.09	0.0015
4752	P-7(2)	345	J-125	3S119-A	300.0	PVC	120.0	-6.16	0.09	0.0015
4716	P-162	148	J-112	J-113	200.0	PVC	110.0	0.73	0.02	0.0015
4718	P-163	140	J-113	J-114	200.0	PVC	110.0	0.68	0.02	0.0015
4720	P-164	144	J-114	J-115	200.0	PVC	110.0	0.55	0.02	0.0015
4724	P-165	120	J-115	J-116	200.0	PVC	110.0	0.50	0.02	0.0015
4728	P-166	187	J-114	J-117	200.0	PVC	110.0	-0.24	0.01	0.0015
4739	P-167(1)(1)	160	J-117	J-121	300.0	PVC	120.0	0.41	0.01	0.0015
4740	P-167(1)(2)	116	J-121	J-119	300.0	PVC	120.0	0.22	0.00	0.0015
4733	P-167(2)	111	J-119	J-118	50.0	Copper	135.0	0.00	0.00	0.0015
4734	P-168	10	J-118	J-119	300.0	PVC	120.0	-0.22	0.00	0.0015

Scenario: MDD+FF
Current Time Step: 0.000 h
Fire Flow Node FlexTable: Fire Flow Report

ID	Label	Fire Flow Iterations	Satisfies Fire Flow Constraints?	Fire Flow (Needed) (L/s)	Fire Flow (Available) (L/s)	Pressure (Calculated Residual) (kPa)	Demand (L/s)	Hydraulic Grade (m)
4435	J-6	2	True	76.00	77.00	448	0.00	347.32
4712	J-112	2	True	150.00	151.00	393	0.13	347.32
4715	J-113	2	True	150.00	151.00	362	0.15	347.32
4717	J-114	2	True	150.00	151.00	373	1.00	347.32
4719	J-115	2	True	150.00	151.00	333	0.15	347.32
4721	J-116	2	True	150.00	151.00	368	0.30	347.32
4725	J-117	2	True	150.00	151.00	383	0.44	347.32
4729	J-118	2	True	0.00	221.00	171	0.61	347.32
4731	J-119	2	True	150.00	151.00	287	0.00	347.32
4735	J-120	2	True	150.00	151.00	308	1.06	347.32
4738	J-121	2	True	150.00	151.00	327	0.52	347.32
4741	J-122	2	True	150.00	151.00	401	0.77	347.32
4744	J-123	2	True	150.00	151.00	397	2.25	347.32
4747	J-124	2	True	200.00	201.00	308	2.19	347.32
4750	J-125	2	True	283.00	284.00	286	0.25	347.32

Scenario: MDD+FF
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)	Pressure Head (m)
4750	J-125	296.41	0.25	347.32	498	50.91
4715	J-113	296.46	0.15	347.32	498	50.86
4717	J-114	297.51	1.00	347.32	487	49.81
4741	J-122	298.46	0.77	347.32	478	48.86
4435	J-6	298.71	0.00	347.32	476	48.61
4744	J-123	298.91	2.25	347.32	474	48.41
4712	J-112	299.42	0.13	347.32	469	47.90
4719	J-115	300.14	0.15	347.32	462	47.18
4725	J-117	300.49	0.44	347.32	458	46.83
4721	J-116	302.23	0.30	347.32	441	45.09
4738	J-121	303.59	0.52	347.32	428	43.73
4747	J-124	304.33	2.19	347.32	421	42.99
4731	J-119	305.84	0.00	347.32	406	41.48
4729	J-118	306.41	0.61	347.32	400	40.91
4735	J-120	309.10	1.06	347.32	374	38.22

Scenario: MDD+FF
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Darcy-Weisbach e (mm)
4736	P-6(1)(1)(1)	41	J-60	J-120	300.0	PVC	120.0	5.92	0.08	0.0015
4748	P-6(1)(1)(2)(1)	145	J-120	J-124	300.0	PVC	120.0	4.86	0.07	0.0015
4749	P-6(1)(1)(2)(2)	64	J-124	J-116	300.0	PVC	120.0	2.67	0.04	0.0015
4726	P-6(1)(2)(1)	83	J-116	J-117	300.0	PVC	120.0	1.83	0.03	0.0015
4727	P-6(1)(2)(2)	81	J-117	J-112	300.0	PVC	120.0	-0.13	0.00	0.0015
4745	P-6(2)(1)(1)	63	J-112	J-123	300.0	PVC	120.0	-0.63	0.01	0.0015
4746	P-6(2)(1)(2)	143	J-123	J-122	300.0	PVC	120.0	-2.88	0.04	0.0015
4743	P-6(2)(2)	44	J-122	J-6	300.0	PVC	120.0	-3.65	0.05	0.0015
4751	P-7(1)	96	J-6	J-125	300.0	PVC	120.0	-3.65	0.05	0.0015
4752	P-7(2)	345	J-125	3S119-A	300.0	PVC	120.0	-3.90	0.06	0.0015
4716	P-162	148	J-112	J-113	200.0	PVC	110.0	0.37	0.01	0.0015
4718	P-163	140	J-113	J-114	200.0	PVC	110.0	0.22	0.01	0.0015
4720	P-164	144	J-114	J-115	200.0	PVC	110.0	-0.39	0.01	0.0015
4724	P-165	120	J-115	J-116	200.0	PVC	110.0	-0.54	0.02	0.0015
4728	P-166	187	J-114	J-117	200.0	PVC	110.0	-0.39	0.01	0.0015
4739	P-167(1)(1)	160	J-117	J-121	300.0	PVC	120.0	1.13	0.02	0.0015
4740	P-167(1)(2)	116	J-121	J-119	300.0	PVC	120.0	0.61	0.01	0.0015
4733	P-167(2)	111	J-119	J-118	50.0	Copper	135.0	0.00	0.00	0.0015
4734	P-168	10	J-118	J-119	300.0	PVC	120.0	-0.61	0.01	0.0015

Scenario: Minimum
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)	Pressure Head (m)
4750	J-125	296.41	0.04	348.99	516	52.58
4715	J-113	296.46	0.02	349.00	515	52.54
4717	J-114	297.51	0.14	349.00	505	51.49
4741	J-122	298.46	0.11	349.00	496	50.54
4435	J-6	298.71	0.00	349.00	493	50.29
4744	J-123	298.91	0.33	349.00	491	50.09
4712	J-112	299.42	0.02	349.00	486	49.58
4719	J-115	300.14	0.02	349.00	479	48.86
4725	J-117	300.49	0.06	349.00	476	48.51
4721	J-116	302.23	0.04	349.00	459	46.77
4738	J-121	303.59	0.07	349.00	445	45.41
4747	J-124	304.33	0.32	349.00	438	44.67
4731	J-119	305.84	0.00	349.00	423	43.16
4729	J-118	306.41	0.09	349.00	418	42.59
4735	J-120	309.10	0.15	349.00	391	39.90

Scenario: Minimum
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Darcy-Weisbach e (mm)
4736	P-6(1)(1)(1)	41	J-60	J-120	300.0	PVC	120.0	2.94	0.04	0.0015
4748	P-6(1)(1)(2)(1)	145	J-120	J-124	300.0	PVC	120.0	2.79	0.04	0.0015
4749	P-6(1)(1)(2)(2)	64	J-124	J-116	300.0	PVC	120.0	2.47	0.03	0.0015
4726	P-6(1)(2)(1)	83	J-116	J-117	300.0	PVC	120.0	2.06	0.03	0.0015
4727	P-6(1)(2)(2)	81	J-117	J-112	300.0	PVC	120.0	1.77	0.02	0.0015
4745	P-6(2)(1)(1)	63	J-112	J-123	300.0	PVC	120.0	2.01	0.03	0.0015
4746	P-6(2)(1)(2)	143	J-123	J-122	300.0	PVC	120.0	1.68	0.02	0.0015
4743	P-6(2)(2)	44	J-122	J-6	300.0	PVC	120.0	1.57	0.02	0.0015
4751	P-7(1)	96	J-6	J-125	300.0	PVC	120.0	1.57	0.02	0.0015
4752	P-7(2)	345	J-125	3S119-A	300.0	PVC	120.0	1.53	0.02	0.0015
4716	P-162	148	J-112	J-113	200.0	PVC	110.0	-0.26	0.01	0.0015
4718	P-163	140	J-113	J-114	200.0	PVC	110.0	-0.28	0.01	0.0015
4720	P-164	144	J-114	J-115	200.0	PVC	110.0	-0.35	0.01	0.0015
4724	P-165	120	J-115	J-116	200.0	PVC	110.0	-0.37	0.01	0.0015
4728	P-166	187	J-114	J-117	200.0	PVC	110.0	-0.08	0.00	0.0015
4739	P-167(1)(1)	160	J-117	J-121	300.0	PVC	120.0	0.16	0.00	0.0015
4740	P-167(1)(2)	116	J-121	J-119	300.0	PVC	120.0	0.09	0.00	0.0015
4733	P-167(2)	111	J-119	J-118	50.0	Copper	135.0	0.00	0.00	0.0015
4734	P-168	10	J-118	J-119	300.0	PVC	120.0	-0.09	0.00	0.0015

Scenario: Peak Hour
Current Time Step: 0.000 h
FlexTable: Junction Table

ID	Label	Elevation (m)	Demand (L/s)	Hydraulic Grade (m)	Pressure (kPa)	Pressure Head (m)
4750	J-125	296.41	0.37	348.37	510	51.96
4715	J-113	296.46	0.23	348.33	509	51.87
4717	J-114	297.51	1.49	348.33	498	50.82
4741	J-122	298.46	1.16	348.35	489	49.89
4435	J-6	298.71	0.00	348.36	487	49.65
4744	J-123	298.91	3.38	348.34	485	49.43
4712	J-112	299.42	0.19	348.34	480	48.92
4719	J-115	300.14	0.23	348.33	473	48.19
4725	J-117	300.49	0.67	348.33	469	47.84
4721	J-116	302.23	0.45	348.33	452	46.10
4738	J-121	303.59	0.77	348.33	439	44.74
4747	J-124	304.33	3.29	348.33	432	44.00
4731	J-119	305.84	0.00	348.33	417	42.49
4729	J-118	306.41	0.91	348.33	411	41.92
4735	J-120	309.10	1.59	348.33	385	39.23

Scenario: Peak Hour
Current Time Step: 0.000 h
FlexTable: Pipe Table

ID	Label	Length (Scaled) (m)	Start Node	Stop Node	Diameter (mm)	Material	Hazen-Williams C	Flow (L/s)	Velocity (m/s)	Darcy-Weisbach e (mm)
4736	P-6(1)(1)(1)	41	J-60	J-120	300.0	PVC	120.0	2.87	0.04	0.0015
4748	P-6(1)(1)(2)(1)	145	J-120	J-124	300.0	PVC	120.0	1.28	0.02	0.0015
4749	P-6(1)(1)(2)(2)	64	J-124	J-116	300.0	PVC	120.0	-2.01	0.03	0.0015
4726	P-6(1)(2)(1)	83	J-116	J-117	300.0	PVC	120.0	-2.69	0.04	0.0015
4727	P-6(1)(2)(2)	81	J-117	J-112	300.0	PVC	120.0	-5.63	0.08	0.0015
4745	P-6(2)(1)(1)	63	J-112	J-123	300.0	PVC	120.0	-6.95	0.10	0.0015
4746	P-6(2)(1)(2)	143	J-123	J-122	300.0	PVC	120.0	-10.33	0.15	0.0015
4743	P-6(2)(2)	44	J-122	J-6	300.0	PVC	120.0	-11.49	0.16	0.0015
4751	P-7(1)	96	J-6	J-125	300.0	PVC	120.0	-11.49	0.16	0.0015
4752	P-7(2)	345	J-125	3S119-A	300.0	PVC	120.0	-11.86	0.17	0.0015
4716	P-162	148	J-112	J-113	200.0	PVC	110.0	1.14	0.04	0.0015
4718	P-163	140	J-113	J-114	200.0	PVC	110.0	0.91	0.03	0.0015
4720	P-164	144	J-114	J-115	200.0	PVC	110.0	0.00	0.00	0.0015
4724	P-165	120	J-115	J-116	200.0	PVC	110.0	-0.23	0.01	0.0015
4728	P-166	187	J-114	J-117	200.0	PVC	110.0	-0.58	0.02	0.0015
4739	P-167(1)(1)	160	J-117	J-121	300.0	PVC	120.0	1.68	0.02	0.0015
4740	P-167(1)(2)	116	J-121	J-119	300.0	PVC	120.0	0.91	0.01	0.0015
4733	P-167(2)	111	J-119	J-118	50.0	Copper	135.0	0.00	0.00	0.0015
4734	P-168	10	J-118	J-119	300.0	PVC	120.0	-0.91	0.01	0.0015

Scenario: MDDTFF

Mapleview Drive West

County Road 27

Essa Road

Color Coding Legend

Pipe: Diameter (mm)

<= 150.0

<= 200.0

<= 250.0

<= 300.0

<= 400.0

<= 500.0

Other

Scenario: MDDHH

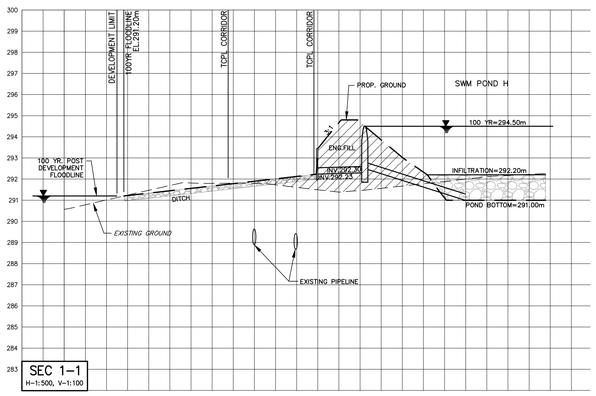
Color Coding Legend

Pipe: Diameter (mm)

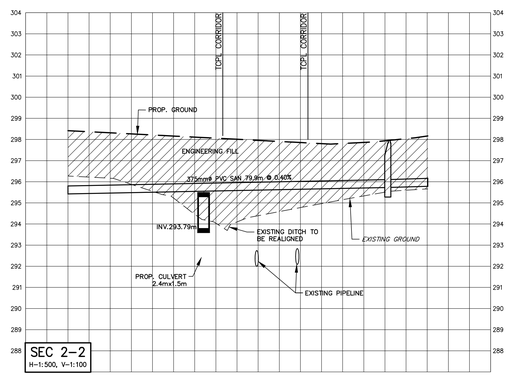
	<=	150.0
	<=	200.0
	<=	250.0
	<=	300.0
	<=	400.0
	<=	500.0
		Other

WaterCAD CONNECT Edition Upd
[10.01.0

APPENDIX E: ENGINEERING DRAWINGS



SEC 1–1
H–1:500, V–1:100



SEC 2–2
H–1:500, V–1:100

4560 SWM POND H

	ELEVATION	PROVIDED STORAGE	REQUIRED STORAGE
PERMANENT POOL	292.50	1,235	571
2 YR	293.50	4,888	4,608
5 YR	293.75	6,390	6,278
10 YR	293.95	7,672	7,427
25 YR	294.15	9,025	8,891
50 YR	294.30	10,088	9,994
100 YR	294.50	11,570	11,071

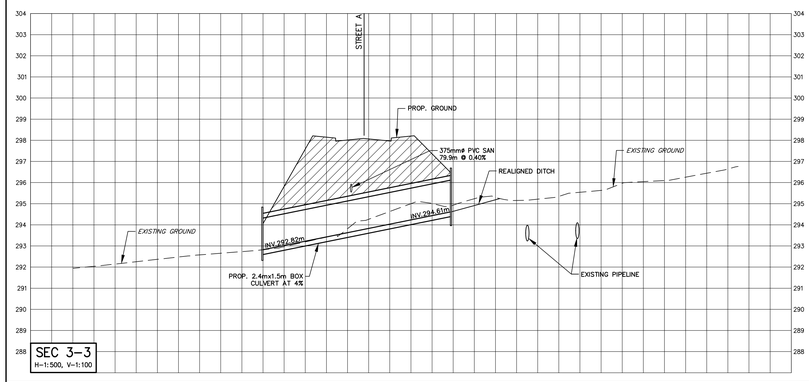
Infiltration at Wet Cell	PROVIDED STORAGE	REQUIRED STORAGE
El. 291.00-292.20	2,285	1,290
Permanent Pool		
El. 291.00-292.50	1,235	571

LEGEND

- PROPOSED STORM MANHOLE
- PROPOSED SANITARY MANHOLE
- PROPOSED CLEAN WATER COLLECTOR MANHOLE
- PROPOSED STORM SEWER
- PROPOSED SANITARY SEWER
- PROPOSED STORM CLEAN WATER COLLECTOR (CWC)
- 200ø MM PROPOSED WATERMAIN
- 246 EXISTING CONTOUR AND ELEVATION
- PROPERTY LIMIT
- OVERLAND FLOW ROUTE
- Ex.274.02 EXISTING ELEVATION
- 279.69 PROPOSED ELEVATION
- N 283.58 DE 283.53 SANITARY SEWER OBVERT
- N 280.80 W 280.32 E 280.75 STORM SEWER OBVERT
- E 281.20 STORM CLEAN WATER COLLECTOR OBVERT
- ROAD HIGH POINT
- ROAD LOW POINT
- TREES TO BE REMOVED

REFER TO COUNTY ROAD 27 AND MABERN STREET SANITARY TRUNK AMD WATERMAIN DESIGN BY R.J. BURNSIDE & ASSOCIATES LIMITED. BURNSIDE PROJECT NO. 032868.2000 FOR INFORMATION REGARDING SANITARY AND WATERMAIN ALONG STREET A AND COUNTY ROAD 27.

REFER TO PROJECT BEAR CREEK RIDGE DEVELOPMENT, SUBDIVISION BY R.J. BURNSIDE & ASSOCIATES LIMITED.



SEC 3–3
H–1:500, V–1:100

DISTANCE NOTE
DISTANCES SHOWN HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.9996884

BEARING NOTE
BEARINGS HEREIN ARE GRID BEARINGS AND ARE DERIVED FROM CONTROL MONUMENTS 031910009 (N=4914801.348, E=601584.468)AND 010860410 (N=4913103.484, E=604668.820), AND ARE REFERRED TO THE CENTRAL MERIDIAN (81 DEGREES OF LONGITUDE) IN ZONE, 17 AND ARE BASED ON NAD27 (76 ADJUSTMENT).

BENCH MARK No. 031201100B
ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE CITY OF BARRIE BENCH MARK No 031201100B HAVING A PUBLISHED ELEVATION OF 311.503 METRES.

BENCH MARK V010865470
269.751 – BRASS TABLET SET IN CONCRETE HEADWALL OF UNDERGROUND STORM SEWER ENTRANCE ON WEST SIDE OF FERNDALE DRIVE NORTH, 1.0KM NORTH OF EDGEHILL DRIVE. TABLET IS SET HORIZONTALLY IN EAST FACE OF WESTERLY WALL, 15.0m WEST OF CENTRELINE OF FERNDALE DRIVE NORTH, 44.0M SOUTH OF NORTHWEST END AND 370M BELOW TOP OF CONCRETE WALL. BENCH MARKS WILL BE FROM CITY OF BARRIE VERTICAL CONTROL NETWORK.
INITIAL BENCH MARK TO BE OF 2nd ORDER ACCURACY

NO.	REVISIONS	DATE	APPROVED

SCHAEFFERS
CONSULTING ENGINEERS
SCHAEFFER & ASSOCIATES LTD.
6 Ronrose Drive, Concord, Ontario L4K 4R3
Tel: (905) 738-6100
Fax: (905) 738-6875
E-mail: design@schaeffers.com

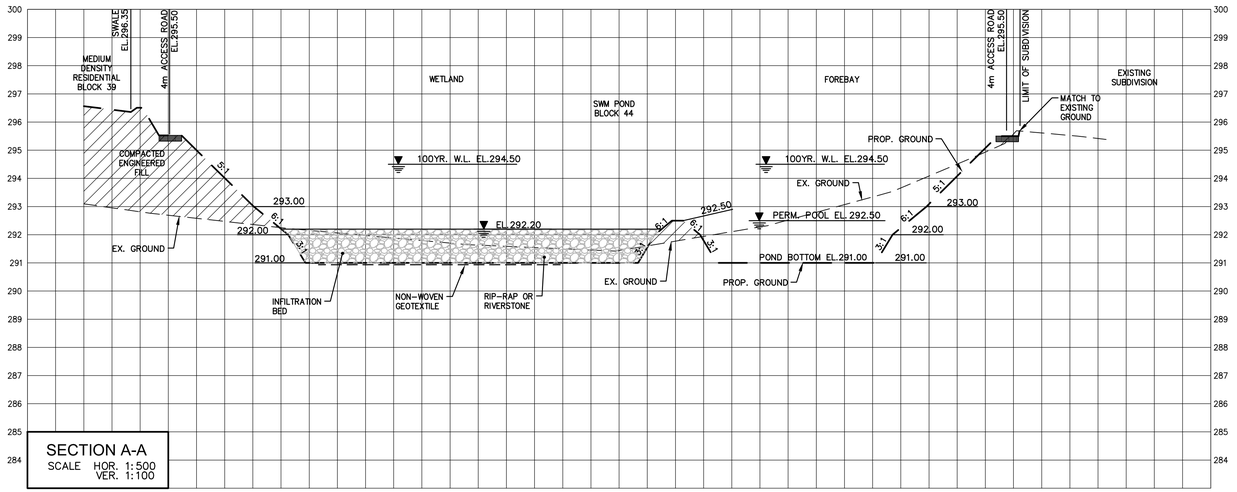
CITY OF BARRIE
ACCEPTED
DATE. . . . . .
. . . . . .
DIRECTOR OF ENGINEERING

DiPoce RESIDENTIAL SUBDIVISION
GRADING & SERVICING PLAN

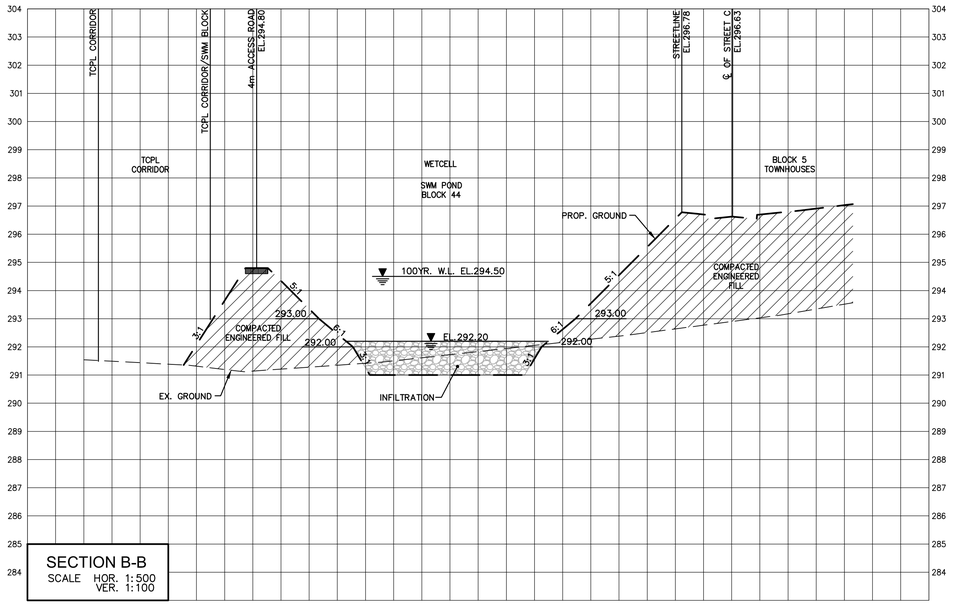
The City of BARRIE
ENGINEERING DEPARTMENT

SCALE HOR. 1:1000	VERT. n/a	PROJECT NO.	4560
DESIGN A.C.	DRAWN A.C.	SHEET NO.	GR/SS
REVIEWED Z.L.	DATE OCTOBER 2018		

F:\Salem\4560\4560-Drawings\4560-GR-SS.dwg, 2018-12-15 11:49:36 AM, DWG To PDF.pc3



SECTION A-A
SCALE HOR. 1:500
VER. 1:100



SECTION B-B
SCALE HOR. 1:500
VER. 1:100

REVISIONS			
No.	DESCRIPTION	By	Date

CITY OF BARRIE BENCHMARK No. XX-X

ELEVATIONS SHOW HEREON ARE GEODETIC AND ARE RELATED TO CITY OF BARRIE BENCH MARK No. 00-0 HAVING AN ELEVATION OF 000.000METRES.

APPROVED AS TO FORM IN RELIANCE UPON THE PROFESSIONAL SKILL AND ABILITY OF SCHAEFFERS CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION.

DIRECTOR OF DEVELOPMENT ENGINEERING & INFRASTRUCTURE PLANNING SERVICES — DATE

DI POCE MANAGEMENT LIMITED

SCHAEFFERS
CONSULTING ENGINEERS
SCHAEFFER & ASSOCIATES LTD.
6 Ronrose Drive, Concord,
Ontario L4K 4R3
Tel: (905) 738-6100
Fax: (905) 738-6875
E-mail: design@schaeffers.com

PROJECT No. 2017 - 4560 | DRAWING No.

SCALE

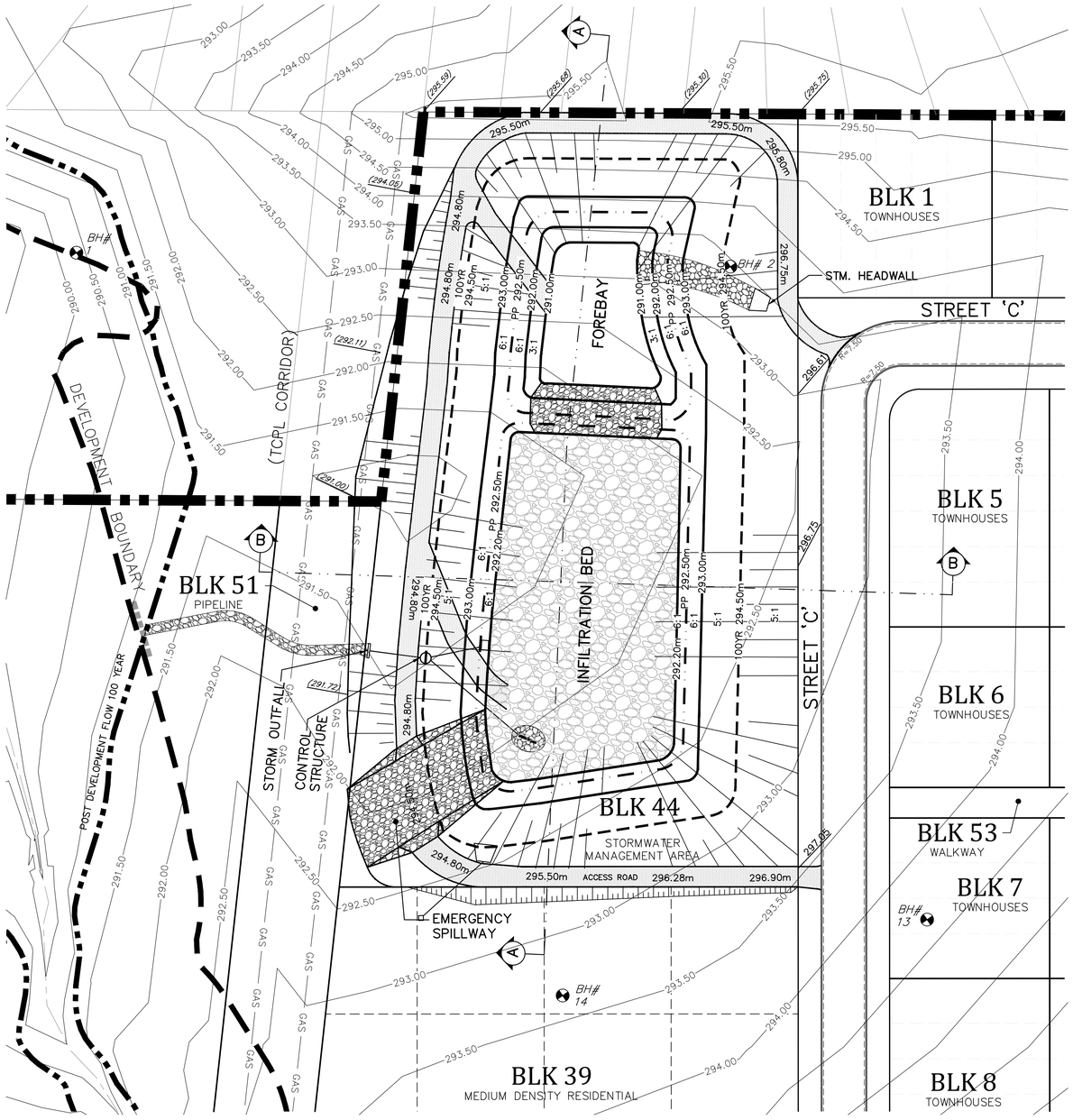
The City of BARRIE

SWM POND `H'
CROSS SECTIONS

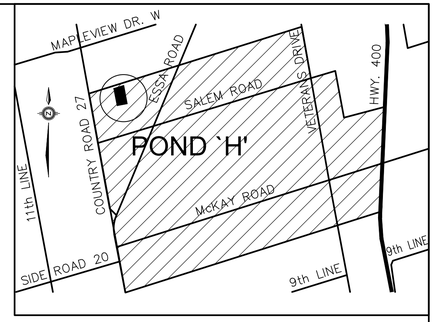
D19 XXXXX | 19T-XXXXX

DESIGNED BY: T.O.	DATE: MARCH 2015	CHECKED BY: N.L.
DRAWN BY: R.M.M.		APPROVED BY: P.S.
SCALE: AS SHOWN		DWG. No.

F:\Salem\4560\4560-Drawings\4560SWM-H Sections.dwg, 2018-12-15 11:52:18 AM, DWG To PDF.pc3



DESCRIPTION	PROVIDED STORAGE	REQUIRED STORAGE
INFILTRATION AT WET CELL EL.291.00 – EL.292.20	2,285m^3	1,290m^3
PERMANENT POOL EL291.00 – EL.292.50	1,235m^3	571m^3



LEGEND

(293.00)	DENOTES EXISTING ELEVATION
299.00	DENOTES PROPOSED ELEVATION
– – – –	DENOTES 100 YR. WATER LEVEL
– – · – –	DENOTES PERMANENT POOL LEVEL
———	DENOTES PROPOSED POND CONTOUR LINE

4560 SWM POND H

	ELEVATION	PROVIDED STORAGE	REQUIRED STORAGE
PERMANENT POOL	292.50	1,235	571
2 YR	293.50	4,888	4,608
5 YR	293.75	6,390	6,278
10 YR	293.95	7,672	7,427
25 YR	294.15	9,025	8,891
50 YR	294.30	10,088	9,994
100 YR	294.50	11,570	11,071

Infiltration at Wet Cell	**PROVIDED STORAGE**	**REQUIRED STORAGE**
El. 291.00-292.20	2,285	1,290
Permanent Pool		
El. 291.00-292.50	1,235	571

REVISIONS

No.	DESCRIPTION	By	Date

CITY OF BARRIE BENCHMARK No. XX–X

ELEVATIONS SHOW HEREON ARE GEODETIC AND ARE RELATED TO CITY OF BARRIE BENCH MARK No. 00–0 HAVING AN ELEVATION OF 000.000METRES.

APPROVED AS TO FORM IN RELIANCE, UPON THE PROFESSIONAL SKILL AND ABILITY OF SCHAEFFERS CONSULTING ENGINEERS AS TO DESIGN AND SPECIFICATION.

DIRECTOR OF DEVELOPMENT ENGINEERING & INFRASTRUCTURE PLANNING SERVICES — DATE

DI POCE MANAGEMENT LIMITED

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CONSULTING ENGINEERS
SCHAEFFER & ASSOCIATES LTD.
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Tel: (905) 738-6100
Fax: (905) 738-6875
E-mail: design@schaeffers.com

PROJECT No. 2017 - 4560 | DRAWING No.

SCALE

The City of BARRIE

SWM POND `H'

D19 XXXXX | 19T–XXXXX

DESIGNED BY: T.O.	DATE: MARCH 2015	CHECKED BY: N.L.
DRAWN BY: R.M.M.		APPROVED BY: P.S.
SCALE: 1:500		DWG. No.