C.C. Tatham & Associates Ltd.
Consulting Engineers

CAMPERDOWN CONDOMINIUMS

Town of The Blue Mountains

Preliminary Stormwater Management Report

prepared by:

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prepared for

2220740 Ontario Inc. c/o Romspen Investment Corp.

June 21, 2018

CCTA File 117304

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1 Introduction

C.C. Tatham & Associates Ltd. has been retained by 222074 Ontario Inc.to provide engineering services in support of a proposed residential development located on Old Lakeshore Road and Camperdown Road in the Town of The Blue Mountains. Specifically, this report has been prepared to demonstrate the preferred site servicing strategy and provide information relating to stormwater management and drainage.

1.1 Site Description

The 6.61 ha site is located on Old Lakeshore Road within the Craigleith Camperdown sub-watershed study area in the Town of The Blue Mountains. Currently, the site is zoned Residential (R3-H), Public Open Space (OS1) and Hazard (H) in accordance with Town By-law 2006-22. It is legally described as Part Lot 26 Concession 6 in the former Collingwood Township. A portion of the proposed development resides within the Nipissing Ridge geological region of the Georgian Bay Peninsula. We have enclosed a Site Location Plan (Fig.1) for your reference.

1.2 Geotechnical Investigation & Reports

A geotechnical study of the site has not been completed at the time of this report. It is our understanding that it will be commissioned in the near future.

Based on the Soil Survey of Grey County Map No. 17 (North), the on-site soils are Tecumseth Sand Loam (TS), Waterloo Sand Loam (Wsl) and Dunedin Clay (Duc). The soil material is characterized as poorly sorted outwash sand and clay. Tecumseth Sand Loam, Waterloo Sand Loam and Dunedin Clay have hydrologic soil group classifications of 'AB', 'A' and 'D' respectively. Soils of this nature are categorized as having 'good to imperfect' drainage which results in moderate infiltration.

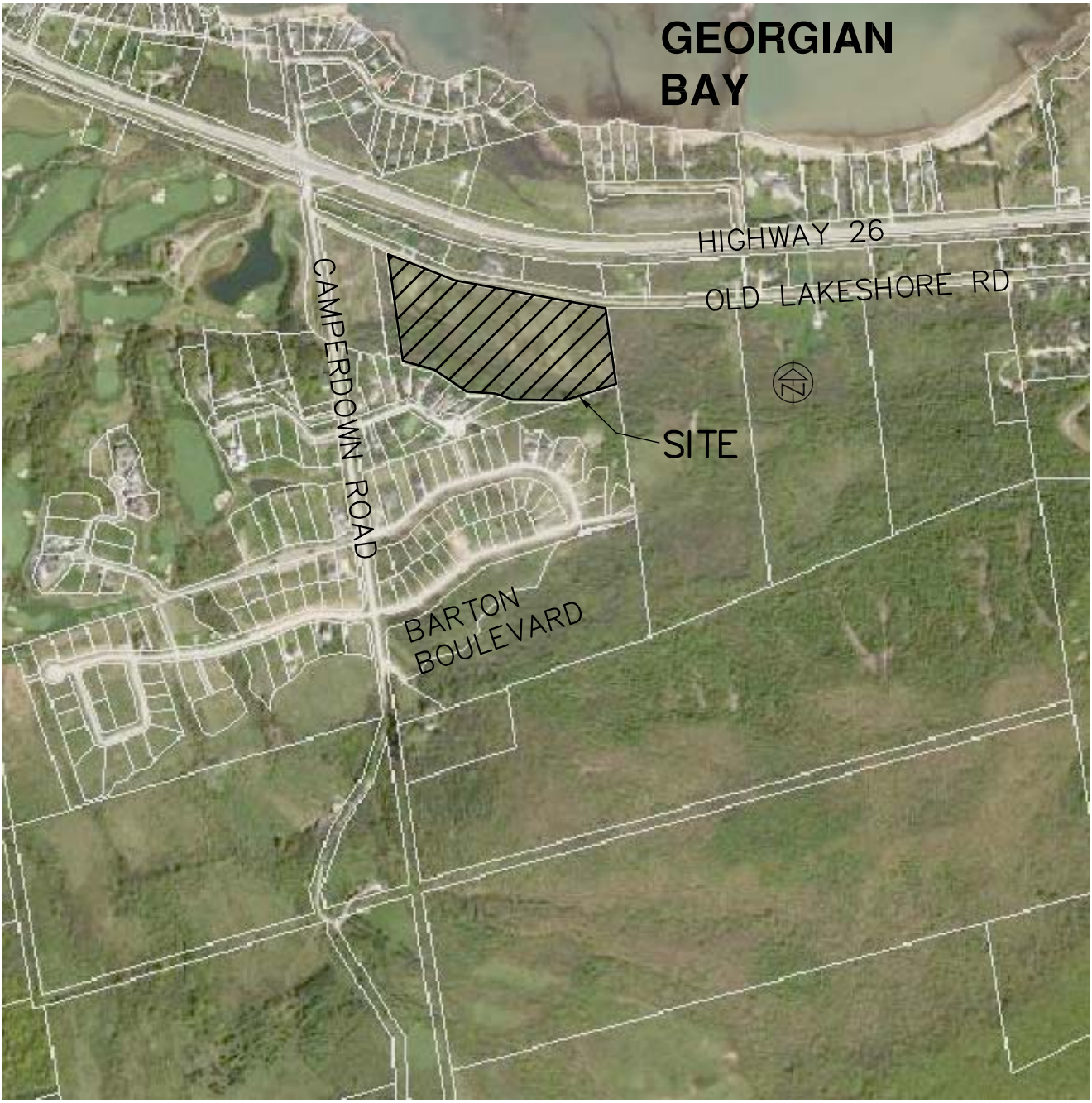
Background reports prepared by C.F. Crozier & Associates Inc. obtained from the Grey County and Town of The Blue Mountains website suggests that Peto MacCallum Ltd. completed five test pit investigations on site to review the existing soil conditions in June of 2004. The report suggests that a uniform layer of topsoil (0.10 m depth) generally covers the site with underlying subsurface soil material consisting of native silty-clay overlaying weathered bedrock at a depth of between 0.8 m to 2.0 m. Further geotechnical investigations will be required prior to completion of the final design.

1.3 Existing Land Use

The site is located at the base of the Nipissing Ridge formation on a flat plateau containing forested and open space areas with the land sloping from southwest to northeast between 2% and 5%.

1.4 Proposed Land Use

The current site plan prepared by Innovative Planning Solutions (IPS) illustrates the proposed development consisting of 34 residential units, a 10-metre condominium road allowance, open space (non-developable land), a walking trail and a stormwater management block.



GREY COUNTY
TOWN OF THE
BLUE MOUNTAINS

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

CAMPERDOWN CONDOMINIUMS
SITE LOCATION PLAN

DWG. No.
FIG. 1

SCALE: NTS	DATE: MARCH 2018	JOB NO. 117304

2 Stormwater Management

2.1 Stormwater Management Objectives and Background

The primary objective of the Stormwater Management Plan is to identify the existing and future drainage conditions in the area of the site to develop a plan that will mitigate the impact of the development of the local drainage systems. In addition, this plan will demonstrate that the development can be completed in accordance with applicable Municipal, Regional and Provincial guidelines.

This will be accomplished by evaluating the effect of the development on the local drainage conditions, constructing on-site quality control measures, and providing solutions to mitigate siltation and erosion during and after construction.

The stormwater management strategy for the proposed development site has been prepared recognizing the pertinent Conservation Authority, Municipal and Provincial guidelines on water resources including the following:

- Policies for the Administration of the Development, Interference with Wetlands and Alterations to Shorelines and Watercourses Regulation (Ontario Regulation 151/06), Grey Sauble Conservation Authority, (January 2010);
- The Blue Mountains Engineering Standards, Town of The Blue Mountains, (April 2009); and,
- Stormwater Management Planning and Design Manual, Ministry of the Environment, (March 2003).

2.2 Stormwater Management Criteria

Several environmental factors and site conditions govern the design of the stormwater management plan for the residential development. The SWM criteria to be adhered to during detailed design are as follows:

- Pre-to -post peak runoff flow rate matching for the 2 through 100-year design storm event;
- Safe conveyance of the Regional Storm Event through the development into the township's right-of-way; and,
- Level 1 'Enhanced' water quality treatment will be designed to meet or exceed Municipal and Provincial standards. The plan must achieve 80% total suspended solids (TSS) removal prior to off-site discharge.

3 Pre-Development Conditions

3.1 Existing Site Conditions

The subject property, which consists of parts of Catchment 101 and Catchment 102 (see DP-1), currently contains forested and open space areas and slopes from the southwest to northeast towards Old Lakeshore Road between 2% and 5%.

Catchment 101 contains external drainage from the rear-yards of the existing residential properties on the north side of Camperdown Court. This external drainage flows northeast through the subject property and crosses Old Lakeshore Road through an existing 900 mm x 900 mm concrete box culvert.

Catchment 102 contains external drainage from the rear-yards of a portion of the existing residential properties on the north side of Barton Boulevard. This external drainage flows northeast through the subject property and crosses Old Lakeshore Road through an existing 1500 mm x 1500 mm concrete box culvert.

Stormwater from Catchments 101 and 102 travels east after crossing Old Lakeshore Road, and eventually crosses Highway 26 through existing culverts where it outlets to an existing watercourse, and ultimately discharges into Nottawasaga Bay.

A preliminary Visual OTTHYMO model has been developed based on the current concept plan to quantify the pre-development peak runoff flow rates from the site. The model has been developed utilizing the Ministry of Transportation IDF Curve Lookup rainfall data and existing information from the Camperdown East 1 Limited Residential Development Preliminary Servicing and Stormwater Management Report (February 2009). Table 1 summarizes the hydrological parameters for the existing site.

Table 1: Pre-Development Hydrologic Parameters

Catchment ID	Catchment Area (Ha)	CN Number	Initial Abstraction (mm)	Runoff Coefficient	Time of Concentration (min)	Time to Peak (hr)
101	5.92	52.48	7.7	0.26	15.4	0.17
102	2.91	59.65	7.23	0.36	13.5	0.15

3.2 Pre-Development Peak Runoff Flow Rate Analysis

Table 2 summarizes the pre-development peak runoff flow rates from each catchment and the total peak runoff flow rate for the property. We have enclosed the Pre-Development Drainage Plan (DP-1) for reference.

Table 2: Pre-Development Peak Runoff Flow Rate Summary

Design Storm	Catchment 101 (m^3/s)		Catchment 102 (m^3/s)		Combined (m^3/s)	
	4-Hour Chicago	24-Hr SCS Type II	4-Hour Chicago	24-Hr SCS Type II	4-Hour Chicago	24-Hr SCS Type II
25 mm	0.025	-	0.019	-	0.044	-
2-Year	0.032	0.109	0.024	0.074	0.055	0.182
5-Year	0.072	0.200	0.051	0.133	0.123	0.332
10-Year	0.105	0.274	0.074	0.180	0.179	0.451
25-Year	0.155	0.377	0.108	0.245	0.262	0.619
50-Year	0.198	0.459	0.137	0.295	0.333	0.751
100-Year	0.243	0.548	0.167	0.350	0.408	0.894
Regional	0.359	-	0.208	-	0.567	-

Detailed pre-development Visual OTTHYMO modeling results have been enclosed in Appendix A.

4 Post-Development Water Quantity Control

4.1 Proposed Site Conditions

The proposed stormwater management plan for the development will ensure the post-development peak runoff flow rates from the site are attenuated to pre-development levels while providing 'Enhanced' Level 1 stormwater quality control.

The proposed 34-unit development will have a combination of impervious areas consisting of houses, asphalt and gravel areas totalling approximately 1.34 ha (based on an average house and driveway area of 232 sq.m and 60 sq.m, respectively), while the remaining 5.27 sq.m will consist of the SWM Pond, walking trail, open space (non-developable land) and grassed/lawn areas (see DP-2).

The proposed drainage conditions will include multiple interceptor ditches along the south limit of the development. These ditches will intercept drainage from the rear-yards above the Nipissing Ridge and the open space south of the development (Catchments 202 & 203) into a series of ditch inlet catch basins (DICB). Runoff from the majority of the residential development (Catchment 201) along with the DICBs will be directed to an end-of-pipe stormwater management facility via an internal storm sewer system (minor system) and overland flow through the roadway (major system). Controlled runoff from the SWM facility will be conveyed eastward via a storm sewer beneath the proposed 6 m public walking trail, ultimately discharging to the existing intermittent watercourse and combining with the uncontrolled portions of the site.

Uncontrolled drainage from the remaining catchments (204, 205, 206 & 207) will be intercepted by a proposed ditch along the south side of the proposed 6 m walkway and will ultimately outlet to the intermittent watercourse at the east limit of the property.

4.2 Post-Development Peak Runoff Flow Rate Analysis

Detailed impervious calculations for each catchment are enclosed in Appendix B. Table 3 summarizes the hydrologic parameters for the proposed development.

Table 3: Post-Development Catchment Parameters

Catchment ID	Catchment Area (Ha)	Curve Number (CN)	% Impervious	% Impervious Directly Connect
Catchment 201	2.82	-	38.0	19.0
Catchment 202	1.58	44.13	-	-
Catchment 203	2.80	42.93	-	-
Catchment 204	0.62	48.08	-	-
Catchment 205	0.20	-	37.6	18.8
Catchment 206	0.51	-	27.6	13.8
Catchment 207	0.32	61.0	-	-

Table 4 below summarizes the post-development total peak flow rates from the development site. We have enclosed the Post-Development Drainage Plan (DP-2), storm sewer design sheet and detailed post-development Visual OTTHYMO modelling results in Appendix B for reference.

Table 4: Post-Development Peak Runoff Flow Rate Summary

Design Storm	Peak Runoff Flow Rate (m^3/s)	
	4-Hour Chicago	24-Hr SCS Type II
25 mm	0.024 (0.044)	-
2-Year	0.047 (0.055)	0.071 (0.182)
5-Year	0.092 (0.123)	0.126 (0.332)
10-Year	0.123 (0.179)	0.159 (0.451)
25-Year	0.161 (0.262)	0.200 (0.619)
50-Year	0.190 (0.333)	0.230 (0.751)
100-Year	0.219 (0.408)	0.260 (0.894)
Regional	0.130 (0.567)	-

(0.010) – Pre-development Flow Rates

4.3 Stormwater Management Facility

The development will contain an extended detention wet pond constructed in accordance with the MOECC Stormwater Management Planning and Design Manual (March 2003).

The outlet control structure will be located at the northeast corner of the SWM facility. Discharge from the facility will be conveyed by a 900 mm diameter storm pipe that will extend approximately 85 m east beneath the proposed 6 m walkway and discharge immediately upstream of the existing 1500 mm x 1500 mm box culvert at Old Lakeshore Road.

Extended detention will be achieved utilizing a 250 mm diameter orifice. All flows above the 25 mm event, up to and including the 100-year event will be safely conveyed through the outlet control chamber facility. The Regional storm event will be safely conveyed via the emergency spillway.

The Visual OTTHYMO hydrologic model has been used to evaluate the function of the proposed wet pond. A summary of the storage volumes and water levels for the facility are provided in Table 5.

Table 5: Post-Development SWM Facility Volume Summary

Design Storm	Storm Pond Outflow (m^3/s)	Storage Volume Used (m^3)	Water Surface Elevation (m)
25 mm	0.000	73	186.39
2-year	0.000	283	186.84
5-year	0.000	472	187.14
10-year	0.000	612	187.32
25-year	0.000	809	187.50
50-year	0.000	961	187.64
100-year	0.000	986	187.67
Regional	0.048	3913	189.95

The Hydraflow Express Extension for Autodesk AutoCAD Civil 3D was utilized to model the water level across the emergency spillway during the Regional storm event. The water level across the spillway would be 188.03 m for the Regional pond outflow of 0.048 m^3/s. Detailed modelling results have been included in Appendix B for reference.

4.4 Water Quality Control

The primary outlet receiver for the site is the existing intermittent watercourse on the east side of the site and ultimately drains to Nottawasaga Bay which is a cold-water fishery. Level 1 'Enhanced' water quality treatment is required in the form of 80% total suspended solids (TSS) removal prior to off-site discharge. This will be achieved on-site through lot level controls and the SWM facility.

Under proposed conditions, approximately 7.20 ha will drain to the proposed pond at a combined imperviousness level of 21.0%. The required permanent pool and extended detention volumes are approximately 230 m^3 and 110 m^3, respectively.

Approximately 405 m^3 of permanent pool and 1385 m^3 of extended detention will be provided. This is well above the quality control requirements required for Level 1 'Enhanced' treatment suggested in the MOECC Stormwater Design Manual.

5 Siltation and Erosion Controls

Siltation and erosion controls will be implemented for all construction activities within the development site, including vegetation clearing, topsoil stripping, material stockpiling, road construction activities and grading operations. The detailed erosion and sediment control measures proposed will be implemented during and after construction and will be provided during final design and may include the following:

- heavy duty silt fence will be erected around the perimeter of the site before any grading operations commence to control sediment movement;
- a construction vehicle entrance will be constructed and maintained consisting of a stone mud mat to reduce off-site tracking of material; and
- rock check flow dams and straw bale check flow dams will be installed prior to construction and will be maintained and inspected throughout the course of construction as required to prevent the transportation of sediment and delirious materials offsite.

6 Conclusions & Recommendations

The proposed Stormwater Management Plan demonstrates that the development will meet the established criteria with respect to stormwater management set forth in governing documents and can proceed without negatively impacting the local drainage systems. Level 1 'Enhanced' water quality control in the form of 80% TSS removal and water quantity control in the form of post to pre-development peak flow matching will be satisfied through the use of internal storm sewers and overland flow culminating in an end-of-pipe stormwater management pond.

In conclusion, the proposed stormwater management plan supports the concept of an environmentally sustainable development and will mitigate anticipated stormwater impacts associated with the construction of the proposed development.

Authored by: Andrew Schoof, M.A.Sc., E.I.T.
Intern Engineer

Reviewed by: Randy Simpson, B.A.Sc., P.Eng.
Senior Engineer, Project Manager

APPENDIX A:
PRE-DEVELOPMENT HYDROLOGICAL ANALYSIS

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

Project:	Camperdown Condominiums
File No.:	117304
Date:	March 2018
Designed By:	AS
Checked By:	
Subject:	CN Calculator

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 101 **Area** 5.92 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
TS	TECUMSETH	AB	Sand Loam	1	4.14	0.7	2.49	0.6	46	0.83	0.2	59	0.8288	0.2	51	0		68	0		100	0		50	49.6
WSL	WATERLOO	A	Sand Loam	1	1.78	0.3	0.53	0.30	32	0.71	0.40	49	0	0	38	0		62	0.5328	0.3	100	0		50	59.2
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	5.92	1	3.0192	0.51		1.5392	0.26		0.8288	0.14		0	0		0.5328	0.09		0	0		52.48

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	5.92	ha
Time of Concentration (Minutes)	**5.46**	
Time of Concentration (Hours)	**0.09**	
Time to Peak (2/3 x Time of Concentration)	**0.06**	

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	5.92	ha
Time of Concentration (Minutes)	**15.39**	
Time of Concentration (Hours)	**0.26**	
Time to Peak (2/3 x Time of Concentration)	**0.17**	

Time to Peak	**0.17 hrs**

Initial Abstraction	**7.7 mm**

Wetlands	12
Woods	10
Meadows	8
Cultivated	7
Lawns	5
Impervious	2

Runoff Coefficient	**0.26**

Landuse Type	Soil Series				
	TS	WSL	0	0	0
	1	1	#N/A	#N/A	#N/A
Forest/Woodland	0.18	0.18	#N/A	#N/A	#N/A
Cultivated	0.4	0.4	#N/A	#N/A	#N/A
Pasture/Lawn	0.22	0.22	#N/A	#N/A	#N/A
Impervious	0.95	0.95	#N/A	#N/A	#N/A
Wetland/Lake/SWMF	0.05	0.05	#N/A	#N/A	#N/A
Meadows	0.20	0.20	#N/A	#N/A	#N/A
Soil Series Total	0.192	0.427	#N/A	#N/A	#N/A

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

Project:	Camperdown Condominiums
File No.:	117304
Date:	March 2018
Designed By:	AS
Checked By:	
Subject:	CN Calculator

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 102 **Area** 2.91 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
TS	TECUMSETH	AB	Sand Loam	1	1.16	0.40	0.93	0.8	46	0.2328	0.2	59	0		51	0		68	0		100	0		50	48.6
WSL	WATERLOO	A	Sand Loam	1	0.73	0.25	0.58	0.8	32	0.15	0.2	49	0		38	0		62	0		100	0		50	35.4
DUC	DUNEDIN	D	Clay Loam or Clay	3	1.02	0.35	0.00	0	79	0.66	0.65	84	0		81	0		86	0.3565	0.35	100	0		50	89.6
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	2.91	1.00	1.51	0.52		1.04	0.36		0	0		0	0		0.35648	0.1225		0	0		59.65

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	2.91	ha
Time of Concentration (Minutes)	**5.87**	
Time of Concentration (Hours)	**0.10**	
Time to Peak (2/3 x Time of Concentration)	**0.07**	

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	2.91	ha
Time of Concentration (Minutes)	**13.53**	
Time of Concentration (Hours)	**0.23**	
Time to Peak (2/3 x Time of Concentration)	**0.15**	

Time to Peak	**0.15 hrs**

Initial Abstraction	**7.2325 mm**

Wetlands	12
Woods	10
Meadows	8
Cultivated	7
Lawns	5
Impervious	2

Runoff Coefficient	**0.36**

Landuse Type	Soil Series				
	TS	WSL	DUC	0	0
	1	1	3	#N/A	#N/A
Forest/Woodland	0.18	0.18	0.52	#N/A	#N/A
Cultivated	0.4	0.4	0.7	#N/A	#N/A
Pasture/Lawn	0.22	0.22	0.55	#N/A	#N/A
Impervious	0.95	0.95	0.95	#N/A	#N/A
Wetland/Lake/SWMF	0.05	0.05	0.05	#N/A	#N/A
Meadows	0.20	0.20	0.54	#N/A	#N/A
Soil Series Total	0.188	0.188	0.69	#N/A	#N/A

Ontario IDF CURVE LOOKUP

Active coordinate

44° 32' 15" N, 80° 23' 45" W (44.537500,-80.395833)

Retrieved: Fri, 05 Jan 2018 21:16:03 GMT

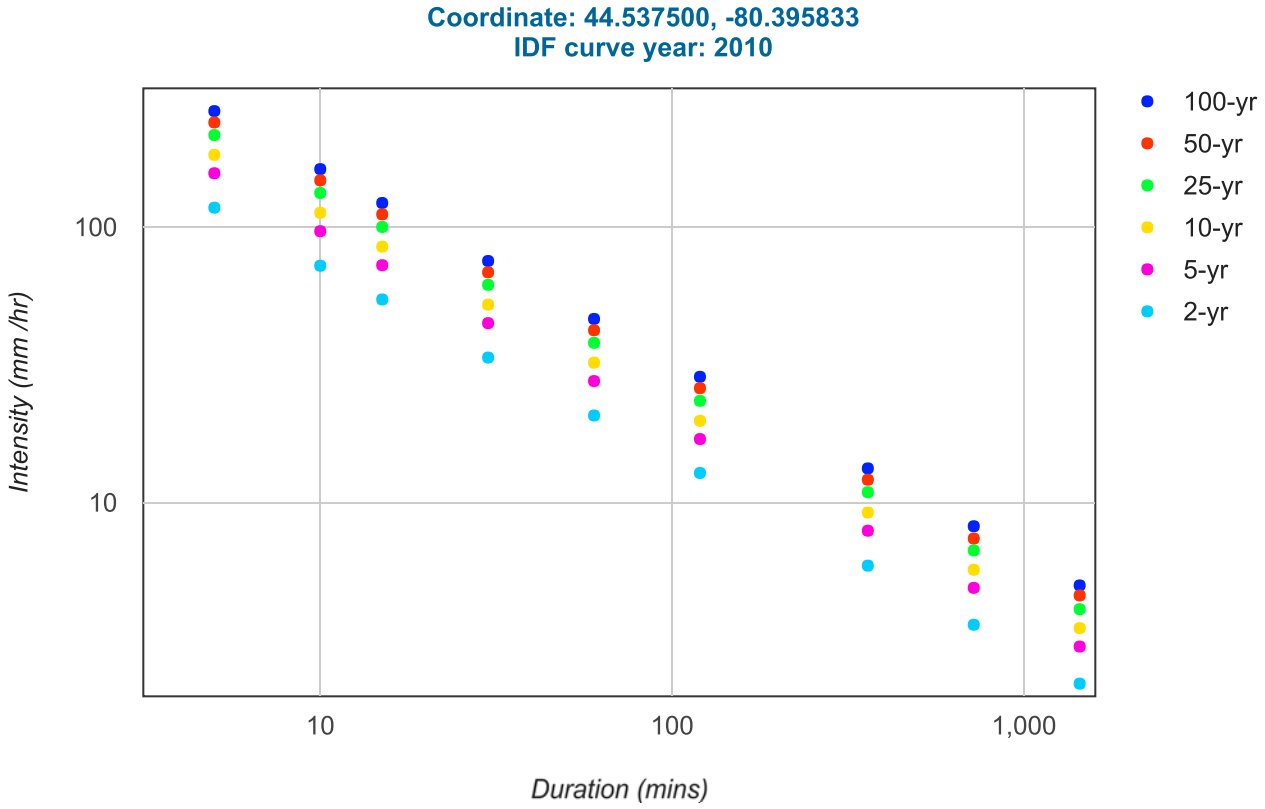
Location summary

These are the locations in the selection.

IDF Curve: 44° 32' 15" N, 80° 23' 45" W (44.537500,-80.395833)

Results

An IDF curve was found.



Coefficient summary

IDF Curve: 44° 32' 15" N, 80° 23' 45" W (44.537500,-80.395833)

Retrieved: Fri, 05 Jan 2018 21:16:03 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	20.7	27.6	32.2	38.0	42.2	46.4
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	117.6	72.4	54.6	33.6	20.7	12.8	5.9	3.6	2.2
5-yr	156.8	96.6	72.7	44.8	27.6	17.0	7.9	4.9	3.0
10-yr	182.9	112.7	84.9	52.3	32.2	19.8	9.2	5.7	3.5
25-yr	215.8	133.0	100.1	61.7	38.0	23.4	10.9	6.7	4.1
50-yr	239.7	147.7	111.2	68.5	42.2	26.0	12.1	7.4	4.6
100-yr	263.6	162.3	122.3	75.3	46.4	28.6	13.3	8.2	5.0

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	9.8	12.1	13.6	16.8	20.7	25.5	35.5	43.7	53.9
5-yr	13.1	16.1	18.2	22.4	27.6	34.0	47.3	58.3	71.8
10-yr	15.2	18.8	21.2	26.1	32.2	39.7	55.2	68.0	83.8
25-yr	18.0	22.2	25.0	30.8	38.0	46.8	65.2	80.3	98.9
50-yr	20.0	24.6	27.8	34.3	42.2	52.0	72.4	89.2	109.8
100-yr	22.0	27.1	30.6	37.7	46.4	57.2	79.6	98.0	120.8

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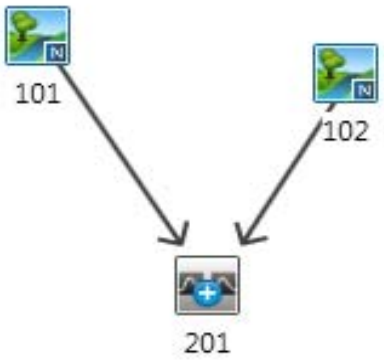
CAMPERDOWN CONDOMINIUM
PRE-DEVELOPMENT CONDITIONS



1	Nashyd	1	Route Pipe	1	Duhyd
1	Standhyd	1	Route Channel	1	Diverthyd
1	Addhyd	1	Route Reservoir		

C.C. TATHAM & ASSOCIATES LTD.
Consulting Engineers

Project:	Camperdown Condominium
File No.:	117304
Subject:	Otthymo Flow Schematic
Date:	March 2018 **Figure:** 1

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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)\VH Suite 3.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Temp\ee8d6be2-212d-4e5c-aa9c-f3f473b66655\Scenario.ou
t
  Summary filename:
C:\Users\aschoof\AppData\Local\Temp\ee8d6be2-212d-4e5c-aa9c-f3f473b66655\Scenario.su
m


DATE: 03/27/2018                          TIME: 05:42:37

USER:


COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
----------------------
  ***************************
  ** SIMULATION NUMBER:   1 **
  ***************************


--------------------
|    READ STORM    |    Filename: C:\Users\aschoof\AppD
|                  |              ata\Local\Temp\
|                  |              ee8d6be2-212d-4e5c-aa9c-f3f473b66655\bedd3f05
| Ptotal= 24.97 mm |    Comments: OWEN SOUND 25 mm (from a 2 year-4hr stor
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.10    1.29 |  1.10    2.81 |  2.10   13.05 |  3.10    2.04
                0.20    1.36 |  1.20    3.22 |  2.20    8.44 |  3.20    1.89
                0.30    1.44 |  1.30    3.77 |  2.30    6.21 |  3.30    1.76
                0.40    1.53 |  1.40    4.55 |  2.40    4.91 |  3.40    1.65
                0.50    1.63 |  1.50    5.77 |  2.50    4.06 |  3.50    1.55
                0.60    1.75 |  1.60    7.86 |  2.60    3.47 |  3.60    1.46
                0.70    1.89 |  1.70   12.27 |  2.70    3.03 |  3.70    1.39
                0.80    2.06 |  1.80   26.17 |  2.80    2.70 |  3.80    1.32
                                      Page 1
```



```
                0.90    2.26 |  1.90   72.58 |  2.90    2.43 |  3.90    1.26
                1.00    2.50 |  2.00   26.96 |  3.00    2.22 |  4.00    1.20

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

--------------------
| CALIB            |
| NASHYD    (0101) |   Area    (ha)=   5.92   Curve Number   (CN)= 52.5
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    1.29 | 1.033    2.81 | 2.033   13.05 |  3.03    2.04
               0.067    1.29 | 1.067    2.81 | 2.067   13.05 |  3.07    2.04
               0.100    1.29 | 1.100    2.81 | 2.100   13.05 |  3.10    2.04
               0.133    1.36 | 1.133    3.22 | 2.133    8.44 |  3.13    1.89
               0.167    1.36 | 1.167    3.22 | 2.167    8.44 |  3.17    1.89
               0.200    1.36 | 1.200    3.22 | 2.200    8.44 |  3.20    1.89
               0.233    1.44 | 1.233    3.77 | 2.233    6.21 |  3.23    1.76
               0.267    1.44 | 1.267    3.77 | 2.267    6.21 |  3.27    1.76
               0.300    1.44 | 1.300    3.77 | 2.300    6.21 |  3.30    1.76
               0.333    1.53 | 1.333    4.55 | 2.333    4.91 |  3.33    1.65
               0.367    1.53 | 1.367    4.55 | 2.367    4.91 |  3.37    1.65
               0.400    1.53 | 1.400    4.55 | 2.400    4.91 |  3.40    1.65
               0.433    1.63 | 1.433    5.77 | 2.433    4.06 |  3.43    1.55
               0.467    1.63 | 1.467    5.77 | 2.467    4.06 |  3.47    1.55
               0.500    1.63 | 1.500    5.77 | 2.500    4.06 |  3.50    1.55
               0.533    1.75 | 1.533    7.86 | 2.533    3.47 |  3.53    1.46
               0.567    1.75 | 1.567    7.86 | 2.567    3.47 |  3.57    1.46
               0.600    1.75 | 1.600    7.86 | 2.600    3.47 |  3.60    1.46
               0.633    1.89 | 1.633   12.27 | 2.633    3.03 |  3.63    1.39
               0.667    1.89 | 1.667   12.27 | 2.667    3.03 |  3.67    1.39
               0.700    1.89 | 1.700   12.27 | 2.700    3.03 |  3.70    1.39
               0.733    2.06 | 1.733   26.17 | 2.733    2.70 |  3.73    1.32
               0.767    2.06 | 1.767   26.17 | 2.767    2.70 |  3.77    1.32
               0.800    2.06 | 1.800   26.17 | 2.800    2.70 |  3.80    1.32
               0.833    2.26 | 1.833   72.58 | 2.833    2.43 |  3.83    1.26
               0.867    2.26 | 1.867   72.58 | 2.867    2.43 |  3.87    1.26
               0.900    2.26 | 1.900   72.58 | 2.900    2.43 |  3.90    1.26
               0.933    2.50 | 1.933   26.96 | 2.933    2.22 |  3.93    1.20
               0.967    2.50 | 1.967   26.96 | 2.967    2.22 |  3.97    1.20
               1.000    2.50 | 2.000   26.96 | 3.000    2.22 |  4.00    1.20

    Unit Hyd Qpeak  (cms)=   1.330

    PEAK FLOW       (cms)=   0.025 (i)
    TIME TO PEAK    (hrs)=   2.133
    RUNOFF VOLUME    (mm)=   1.206
    TOTAL RAINFALL   (mm)=  24.971
    RUNOFF COEFFICIENT   =   0.048

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

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

--------------------
| CALIB            |
| NASHYD    (0102) |   Area    (ha)=   2.91   Curve Number   (CN)= 59.7
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.23   # of Linear Res.(N)= 3.00
                                      Page 2
```

```
--------------------   U.H. Tp(hrs)=   0.15

     Unit Hyd Qpeak  (cms)=   0.741

     PEAK FLOW       (cms)=   0.019 (i)
     TIME TO PEAK    (hrs)=   2.100
     RUNOFF VOLUME    (mm)=   1.660
     TOTAL RAINFALL   (mm)=  24.971
     RUNOFF COEFFICIENT   =   0.066

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

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

--------------------
| ADD HYD   (0201) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0101):     5.92   0.025     2.13     1.21
       + ID2= 2 (0102):     2.91   0.019     2.10     1.66
         ================================================
         ID = 3 (0201):     8.83   0.044     2.10     1.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   2 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 429.639
| Ptotal= 31.65 mm |                          B=   1.500
--------------------                          C=   0.728
                        used in:   INTENSITY =  A / (t + B)^C

                        Duration of storm  =  4.00 hrs
                        Storm time step    =  5.00 min
                        Time to peak ratio =  0.33

                    The CORRELATION coefficient is = 0.9997

                     TIME       INPUT INT.           TAB. INT.
                    (min)        (mm/hr)              (mm/hr)
                      5.          117.60               109.98
                     10.           72.40                72.60
                     15.           54.60                55.82
                     30.           33.60                34.86
                     60.           20.70                21.42
                    120.           12.80                13.05
                    360.            5.90                 5.90
                    720.            3.60                 3.57
                   1440.            2.20                 2.16


                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.08    2.31 |  1.08    8.17 |  2.08    5.60 |  3.08    2.98
                0.17    2.44 |  1.17   11.68 |  2.17    5.17 |  3.17    2.87
                0.25    2.58 |  1.25   24.71 |  2.25    4.81 |  3.25    2.78
                0.33    2.74 |  1.33  109.98 |  2.33    4.51 |  3.33    2.70
                0.42    2.92 |  1.42   31.54 |  2.42    4.25 |  3.42    2.62
                0.50    3.14 |  1.50   17.91 |  2.50    4.02 |  3.50    2.54
```



```
                0.58    3.40 |  1.58   13.00 |  2.58    3.82 |  3.58    2.47
                0.67    3.73 |  1.67   10.39 |  2.67    3.64 |  3.67    2.41
                0.75    4.13 |  1.75    8.75 |  2.75    3.48 |  3.75    2.34
                0.83    4.66 |  1.83    7.61 |  2.83    3.34 |  3.83    2.29
                0.92    5.38 |  1.92    6.77 |  2.92    3.20 |  3.92    2.23
                1.00    6.43 |  2.00    6.12 |  3.00    3.08 |  4.00    2.18

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (0101)  |   Area    (ha)=   5.92   Curve Number   (CN)= 52.5
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.

                                ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.033    2.31 | 1.033    8.17 | 2.033    5.60 |  3.03    2.98
                0.067    2.31 | 1.067    8.17 | 2.067    5.60 |  3.07    2.98
                0.100    2.37 | 1.100    9.92 | 2.100    5.38 |  3.10    2.93
                0.133    2.44 | 1.133   11.68 | 2.133    5.17 |  3.13    2.87
                0.167    2.44 | 1.167   11.68 | 2.167    5.17 |  3.17    2.87
                0.200    2.58 | 1.200   24.71 | 2.200    4.81 |  3.20    2.78
                0.233    2.58 | 1.233   24.71 | 2.233    4.81 |  3.23    2.78
                0.267    2.66 | 1.267   67.34 | 2.267    4.66 |  3.27    2.74
                0.300    2.74 | 1.300  109.98 | 2.300    4.51 |  3.30    2.70
                0.333    2.74 | 1.333  109.98 | 2.333    4.51 |  3.33    2.70
                0.367    2.92 | 1.367   31.54 | 2.367    4.25 |  3.37    2.62
                0.400    2.92 | 1.400   31.54 | 2.400    4.25 |  3.40    2.62
                0.433    3.03 | 1.433   24.73 | 2.433    4.13 |  3.43    2.58
                0.467    3.14 | 1.467   17.91 | 2.467    4.02 |  3.47    2.54
                0.500    3.14 | 1.500   17.91 | 2.500    4.02 |  3.50    2.54
                0.533    3.40 | 1.533   13.00 | 2.533    3.82 |  3.53    2.47
                0.567    3.40 | 1.567   13.00 | 2.567    3.82 |  3.57    2.47
                0.600    3.56 | 1.600   11.69 | 2.600    3.73 |  3.60    2.44
                0.633    3.73 | 1.633   10.39 | 2.633    3.64 |  3.63    2.41
                0.667    3.73 | 1.667   10.39 | 2.667    3.64 |  3.67    2.41
                0.700    4.13 | 1.700    8.75 | 2.700    3.48 |  3.70    2.34
                0.733    4.13 | 1.733    8.75 | 2.733    3.48 |  3.73    2.34
                0.767    4.39 | 1.767    8.18 | 2.767    3.41 |  3.77    2.32
                0.800    4.66 | 1.800    7.61 | 2.800    3.34 |  3.80    2.29
                0.833    4.66 | 1.833    7.61 | 2.833    3.34 |  3.83    2.29
                0.867    5.38 | 1.867    6.77 | 2.867    3.20 |  3.87    2.23
                0.900    5.38 | 1.900    6.77 | 2.900    3.20 |  3.90    2.23
                0.933    5.91 | 1.933    6.44 | 2.933    3.14 |  3.93    2.21
                0.967    6.43 | 1.967    6.12 | 2.967    3.08 |  3.97    2.18
                1.000    6.43 | 2.000    6.12 | 3.000    3.08 |  4.00    2.18

     Unit Hyd Qpeak  (cms)=   1.330

     PEAK FLOW       (cms)=   0.032 (i)
     TIME TO PEAK    (hrs)=   1.567
     RUNOFF VOLUME    (mm)=   2.258
     TOTAL RAINFALL   (mm)=  31.649
     RUNOFF COEFFICIENT   =   0.071

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

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

```
--------------------
| CALIB            |
| NASHYD    (0102) |   Area    (ha)=   2.91   Curve Number   (CN)= 59.7
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.23   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.15

     Unit Hyd Qpeak  (cms)=   0.741

     PEAK FLOW       (cms)=   0.024 (i)
     TIME TO PEAK    (hrs)=   1.533
     RUNOFF VOLUME    (mm)=   3.038
     TOTAL RAINFALL   (mm)=  31.649
     RUNOFF COEFFICIENT   =   0.096

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

```
--------------------
| ADD HYD   (0201) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0101):     5.92   0.032     1.57     2.26
       + ID2= 2 (0102):     2.91   0.024     1.53     3.04
         ================================================
         ID = 3 (0201):     8.83   0.055     1.57     2.52

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

```
  ***************************
  ** SIMULATION NUMBER:   3 **
  ***************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 565.766
| Ptotal= 42.60 mm |                          B=   1.503
--------------------                          C=   0.724
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.33

                    The CORRELATION coefficient is = 0.9997

                     TIME       INPUT INT.          TAB. INT.
                    (min)        (mm/hr)             (mm/hr)
                      5.          156.80               145.86
                     10.           96.60                96.52
                     15.           72.70                74.32
                     30.           44.80                46.54
                     60.           27.60                28.67
                    120.           17.00                17.51
                    360.            7.90                 7.95
                    720.            4.90                 4.82
                   1440.            3.00                 2.92


   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.08    3.16 |  1.08   11.06 |'  2.08    7.60 |  3.08    4.06
   0.17    3.32 |  1.17   15.78 |'  2.17    7.02 |  3.17    3.92
```



```
   0.25    3.51 |  1.25   33.18 |  2.25    6.54 |  3.25    3.79
   0.33    3.73 |  1.33  145.86 |  2.33    6.13 |  3.33    3.68
   0.42    3.98 |  1.42   42.28 |  2.42    5.78 |  3.42    3.57
   0.50    4.28 |  1.50   24.13 |  2.50    5.47 |  3.50    3.47
   0.58    4.64 |  1.58   17.55 |  2.58    5.20 |  3.58    3.37
   0.67    5.07 |  1.67   14.05 |  2.67    4.96 |  3.67    3.28
   0.75    5.62 |  1.75   11.84 |  2.75    4.74 |  3.75    3.20
   0.83    6.33 |  1.83   10.31 |  2.83    4.54 |  3.83    3.12
   0.92    7.30 |  1.92    9.18 |  2.92    4.37 |  3.92    3.05
   1.00    8.73 |  2.00    8.30 |  3.00    4.20 |  4.00    2.98
```

```
--------------------
| CALIB            |
| NASHYD    (0101) |   Area    (ha)=   5.92   Curve Number   (CN)= 52.5
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
    TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
     hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.033    3.16 | 1.033   11.06 | 2.033    7.60 |  3.03    4.06
   0.067    3.16 | 1.067   11.06 | 2.067    7.60 |  3.07    4.06
   0.100    3.24 | 1.100   13.42 | 2.100    7.31 |  3.10    3.99
   0.133    3.32 | 1.133   15.78 | 2.133    7.02 |  3.13    3.92
   0.167    3.32 | 1.167   15.78 | 2.167    7.02 |  3.17    3.92
   0.200    3.51 | 1.200   33.18 | 2.200    6.54 |  3.20    3.79
   0.233    3.51 | 1.233   33.18 | 2.233    6.54 |  3.23    3.79
   0.267    3.62 | 1.267   89.52 | 2.267    6.34 |  3.27    3.73
   0.300    3.73 | 1.300  145.86 | 2.300    6.13 |  3.30    3.68
   0.333    3.73 | 1.333  145.86 | 2.333    6.13 |  3.33    3.68
   0.367    3.98 | 1.367   42.28 | 2.367    5.78 |  3.37    3.57
   0.400    3.98 | 1.400   42.28 | 2.400    5.78 |  3.40    3.57
   0.433    4.13 | 1.433   33.20 | 2.433    5.62 |  3.43    3.52
   0.467    4.28 | 1.467   24.13 | 2.467    5.47 |  3.47    3.47
   0.500    4.28 | 1.500   24.13 | 2.500    5.47 |  3.50    3.47
   0.533    4.64 | 1.533   17.55 | 2.533    5.20 |  3.53    3.37
   0.567    4.64 | 1.567   17.55 | 2.567    5.20 |  3.57    3.37
   0.600    4.85 | 1.600   15.80 | 2.600    5.08 |  3.60    3.33
   0.633    5.07 | 1.633   14.05 | 2.633    4.96 |  3.63    3.28
   0.667    5.07 | 1.667   14.05 | 2.667    4.96 |  3.67    3.28
   0.700    5.62 | 1.700   11.84 | 2.700    4.74 |  3.70    3.20
   0.733    5.62 | 1.733   11.84 | 2.733    4.74 |  3.73    3.20
   0.767    5.97 | 1.767   11.08 | 2.767    4.64 |  3.77    3.16
   0.800    6.33 | 1.800   10.31 | 2.800    4.54 |  3.80    3.12
   0.833    6.33 | 1.833   10.31 | 2.833    4.54 |  3.83    3.12
   0.867    7.30 | 1.867    9.18 | 2.867    4.37 |  3.87    3.05
   0.900    7.30 | 1.900    9.18 | 2.900    4.37 |  3.90    3.05
   0.933    8.02 | 1.933    8.74 | 2.933    4.28 |  3.93    3.01
   0.967    8.73 | 1.967    8.30 | 2.967    4.20 |  3.97    2.98
   1.000    8.73 | 2.000    8.30 | 3.000    4.20 |  4.00    2.98

     Unit Hyd Qpeak  (cms)=   1.330

     PEAK FLOW       (cms)=   0.072 (i)
     TIME TO PEAK    (hrs)=   1.533
     RUNOFF VOLUME    (mm)=   4.598
     TOTAL RAINFALL   (mm)=  42.601
     RUNOFF COEFFICIENT   =   0.108
```

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

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--------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD    (0102)   |   Area    (ha)=   2.91   Curve Number   (CN)= 59.7
|ID= 1 DT= 2.0 min   |   Ia      (mm)=   7.23   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.15

     Unit Hyd Qpeak  (cms)=   0.741

     PEAK FLOW       (cms)=   0.051 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=   6.038
     TOTAL RAINFALL   (mm)=  42.601
     RUNOFF COEFFICIENT   =   0.142

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

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

--------------------
| ADD HYD   (0201) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0101):     5.92   0.072     1.53     4.60
        + ID2= 2 (0102):     2.91   0.051     1.50     6.04
          ================================================
          ID = 3 (0201):     8.83   0.123     1.53     5.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
  ****************************
  ** SIMULATION NUMBER:   4 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 660.708
| Ptotal= 49.48 mm |                          B=   1.501
--------------------                          C=   0.725
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.33

                    The CORRELATION coefficient is = 0.9997

                     TIME       INPUT INT.           TAB. INT.
                    (min)        (mm/hr)              (mm/hr)
                       5.         182.90               170.06
                      10.         112.70               112.45
                      15.          84.90                86.56
                      30.          52.30                54.17
                      60.          32.20                33.35
                     120.          19.80                20.36
                     360.           9.20                 9.23
                     720.           5.70                 5.59
                    1440.           3.50                 3.39
```



```
      TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
      0.08    3.65 |  1.08   12.83 |'  2.08    8.81 |  3.08    4.70
      0.17    3.85 |  1.17   18.31 |'  2.17    8.14 |  3.17    4.54
      0.25    4.07 |  1.25   38.56 |'  2.25    7.58 |  3.25    4.39
      0.33    4.32 |  1.33  170.06 |'  2.33    7.10 |  3.33    4.26
      0.42    4.61 |  1.42   49.15 |'  2.42    6.69 |  3.42    4.13
      0.50    4.96 |  1.50   28.02 |'  2.50    6.34 |  3.50    4.01
      0.58    5.37 |  1.58   20.36 |'  2.58    6.02 |  3.58    3.90
      0.67    5.87 |  1.67   16.29 |'  2.67    5.74 |  3.67    3.80
      0.75    6.51 |  1.75   13.73 |'  2.75    5.49 |  3.75    3.70
      0.83    7.33 |  1.83   11.95 |'  2.83    5.26 |  3.83    3.61
      0.92    8.46 |  1.92   10.64 |'  2.92    5.05 |  3.92    3.53
      1.00   10.12 |  2.00    9.62 |'  3.00    4.87 |  4.00    3.45

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| NASHYD    (0101)   |   Area    (ha)=   5.92   Curve Number   (CN)= 52.5
|ID= 1 DT= 2.0 min   |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
      TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
       hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
     0.033    3.65 | 1.033   12.83 | 2.033    8.81 |  3.03    4.70
     0.067    3.65 | 1.067   12.83 | 2.067    8.81 |  3.07    4.70
     0.100    3.75 | 1.100   15.57 | 2.100    8.47 |  3.10    4.62
     0.133    3.85 | 1.133   18.31 | 2.133    8.14 |  3.13    4.54
     0.167    3.85 | 1.167   18.31 | 2.167    8.14 |  3.17    4.54
     0.200    4.07 | 1.200   38.56 | 2.200    7.58 |  3.20    4.39
     0.233    4.07 | 1.233   38.56 | 2.233    7.58 |  3.23    4.39
     0.267    4.19 | 1.267  104.31 | 2.267    7.34 |  3.27    4.32
     0.300    4.32 | 1.300  170.06 | 2.300    7.10 |  3.30    4.26
     0.333    4.32 | 1.333  170.06 | 2.333    7.10 |  3.33    4.26
     0.367    4.61 | 1.367   49.15 | 2.367    6.69 |  3.37    4.13
     0.400    4.61 | 1.400   49.15 | 2.400    6.69 |  3.40    4.13
     0.433    4.78 | 1.433   38.58 | 2.433    6.51 |  3.43    4.07
     0.467    4.96 | 1.467   28.02 | 2.467    6.34 |  3.47    4.01
     0.500    4.96 | 1.500   28.02 | 2.500    6.34 |  3.50    4.01
     0.533    5.37 | 1.533   20.36 | 2.533    6.02 |  3.53    3.90
     0.567    5.37 | 1.567   20.36 | 2.567    6.02 |  3.57    3.90
     0.600    5.62 | 1.600   18.33 | 2.600    5.88 |  3.60    3.85
     0.633    5.87 | 1.633   16.29 | 2.633    5.74 |  3.63    3.80
     0.667    5.87 | 1.667   16.29 | 2.667    5.74 |  3.67    3.80
     0.700    6.51 | 1.700   13.73 | 2.700    5.49 |  3.70    3.70
     0.733    6.51 | 1.733   13.73 | 2.733    5.49 |  3.73    3.70
     0.767    6.92 | 1.767   12.84 | 2.767    5.37 |  3.77    3.66
     0.800    7.33 | 1.800   11.95 | 2.800    5.26 |  3.80    3.61
     0.833    7.33 | 1.833   11.95 | 2.833    5.26 |  3.83    3.61
     0.867    8.46 | 1.867   10.64 | 2.867    5.05 |  3.87    3.53
     0.900    8.46 | 1.900   10.64 | 2.900    5.05 |  3.90    3.53
     0.933    9.29 | 1.933   10.13 | 2.933    4.96 |  3.93    3.49
     0.967   10.12 | 1.967    9.62 | 2.967    4.87 |  3.97    3.45
     1.000   10.12 | 2.000    9.62 | 3.000    4.87 |  4.00    3.45

     Unit Hyd Qpeak  (cms)=   1.330

     PEAK FLOW       (cms)=   0.105 (i)
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```
     TIME TO PEAK    (hrs)=   1.533
     RUNOFF VOLUME    (mm)=   6.422
     TOTAL RAINFALL   (mm)=  49.478
     RUNOFF COEFFICIENT   =   0.130

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0102) |   Area    (ha)=   2.91   Curve Number   (CN)= 59.7
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.23   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.15

     Unit Hyd Qpeak  (cms)=   0.741

     PEAK FLOW       (cms)=   0.074 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=   8.337
     TOTAL RAINFALL   (mm)=  49.478
     RUNOFF COEFFICIENT   =   0.168

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

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--------------------
| ADD HYD   (0201) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0101):     5.92   0.105     1.53     6.42
       + ID2= 2 (0102):     2.91   0.074     1.50     8.34
         ================================================
         ID = 3 (0201):     8.83   0.179     1.53     7.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   5 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 781.516
| Ptotal= 58.21 mm |                          B=   1.500
--------------------                          C=   0.726
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.33

                    The CORRELATION coefficient is = 0.9997

                     TIME       INPUT INT.           TAB. INT.
                    (min)        (mm/hr)              (mm/hr)
                       5.         215.80               200.80
                      10.         133.00               132.70
                      15.         100.10               102.10
                      30.          61.70                63.85
                      60.          38.00                39.28
                     120.          23.40                23.96
                     360.          10.90                10.86
```



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                     720.          6.70                 6.57
                    1440.          4.10                 3.98
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	4.28	1.08	15.07	2.08	10.34	3.08	5.51
0.17	4.51	1.17	21.52	2.17	9.55	3.17	5.32
0.25	4.77	1.25	45.39	2.25	8.89	3.25	5.15
0.33	5.06	1.33	200.80	2.33	8.34	3.33	4.99
0.42	5.41	1.42	57.88	2.42	7.85	3.42	4.84
0.50	5.81	1.50	32.95	2.50	7.43	3.50	4.70
0.58	6.30	1.58	23.94	2.58	7.06	3.58	4.58
0.67	6.89	1.67	19.15	2.67	6.73	3.67	4.46
0.75	7.64	1.75	16.13	2.75	6.44	3.75	4.34
0.83	8.61	1.83	14.04	2.83	6.17	3.83	4.24
0.92	9.93	1.92	12.49	2.92	5.93	3.92	4.13
1.00	11.88	2.00	11.29	3.00	5.71	4.00	4.04

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--------------------
| CALIB            |
| NASHYD    (0101) |   Area    (ha)=   5.92   Curve Number   (CN)= 52.5
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	4.28	1.033	15.07	2.033	10.34	3.03	5.51
0.067	4.28	1.067	15.07	2.067	10.34	3.07	5.51
0.100	4.40	1.100	18.29	2.100	9.94	3.10	5.41
0.133	4.51	1.133	21.52	2.133	9.55	3.13	5.32
0.167	4.51	1.167	21.52	2.167	9.55	3.17	5.32
0.200	4.77	1.200	45.39	2.200	8.89	3.20	5.15
0.233	4.77	1.233	45.39	2.233	8.89	3.23	5.15
0.267	4.92	1.267	123.09	2.267	8.62	3.27	5.07
0.300	5.06	1.300	200.80	2.300	8.34	3.30	4.99
0.333	5.06	1.333	200.80	2.333	8.34	3.33	4.99
0.367	5.41	1.367	57.88	2.367	7.85	3.37	4.84
0.400	5.41	1.400	57.88	2.400	7.85	3.40	4.84
0.433	5.61	1.433	45.41	2.433	7.64	3.43	4.77
0.467	5.81	1.467	32.95	2.467	7.43	3.47	4.70
0.500	5.81	1.500	32.95	2.500	7.43	3.50	4.70
0.533	6.30	1.533	23.94	2.533	7.06	3.53	4.58
0.567	6.30	1.567	23.94	2.567	7.06	3.57	4.58
0.600	6.59	1.600	21.54	2.600	6.90	3.60	4.52
0.633	6.89	1.633	19.15	2.633	6.73	3.63	4.46
0.667	6.89	1.667	19.15	2.667	6.73	3.67	4.46
0.700	7.64	1.700	16.13	2.700	6.44	3.70	4.34
0.733	7.64	1.733	16.13	2.733	6.44	3.73	4.34
0.767	8.12	1.767	15.08	2.767	6.30	3.77	4.29
0.800	8.61	1.800	14.04	2.800	6.17	3.80	4.24
0.833	8.61	1.833	14.04	2.833	6.17	3.83	4.24
0.867	9.93	1.867	12.49	2.867	5.93	3.87	4.13
0.900	9.93	1.900	12.49	2.900	5.93	3.90	4.13
0.933	10.91	1.933	11.89	2.933	5.82	3.93	4.09
0.967	11.88	1.967	11.29	2.967	5.71	3.97	4.04
1.000	11.88	2.000	11.29	3.000	5.71	4.00	4.04

```
     Unit Hyd Qpeak  (cms)=   1.330

     PEAK FLOW       (cms)=   0.155 (i)
     TIME TO PEAK    (hrs)=   1.533
     RUNOFF VOLUME    (mm)=   9.093
     TOTAL RAINFALL   (mm)=  58.205
     RUNOFF COEFFICIENT   =   0.156

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0102) |   Area    (ha)=   2.91   Curve Number   (CN)= 59.7
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.23   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.15

     Unit Hyd Qpeak  (cms)=   0.741

     PEAK FLOW       (cms)=   0.108 (i)
     TIME TO PEAK    (hrs)=   1.500
     RUNOFF VOLUME    (mm)=  11.661
     TOTAL RAINFALL   (mm)=  58.205
     RUNOFF COEFFICIENT   =   0.200

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

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--------------------
| ADD HYD   (0201) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0101):     5.92   0.155     1.53     9.09
       + ID2= 2 (0102):     2.91   0.108     1.50    11.66
         ================================================
         ID = 3 (0201):     8.83   0.262     1.53     9.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   6 **
  ****************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 866.887
| Ptotal= 64.92 mm |                          B=   1.508
--------------------                          C=   0.725
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.33

                    The CORRELATION coefficient is = 0.9997

                     TIME       INPUT INT.           TAB. INT.
                    (min)        (mm/hr)              (mm/hr)
                      5.         239.70               222.95
                     10.         147.70               147.48
                     15.         111.20               113.54
```



```
                     30.         68.50                71.06
                     60.         42.20                43.75
                    120.         26.00                26.71
                    360.         12.10                12.12
                    720.          7.40                 7.34
                   1440.          4.60                 4.44
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	4.79	1.08	16.84	2.08	11.56	3.08	6.16
0.17	5.05	1.17	24.03	2.17	10.68	3.17	5.95
0.25	5.34	1.25	50.62	2.25	9.95	3.25	5.76
0.33	5.67	1.33	222.95	2.33	9.32	3.33	5.58
0.42	6.05	1.42	64.53	2.42	8.78	3.42	5.42
0.50	6.50	1.50	36.78	2.50	8.31	3.50	5.27
0.58	7.04	1.58	26.73	2.58	7.90	3.58	5.12
0.67	7.71	1.67	21.39	2.67	7.53	3.67	4.99
0.75	8.54	1.75	18.02	2.75	7.20	3.75	4.86
0.83	9.62	1.83	15.69	2.83	6.90	3.83	4.74
0.92	11.11	1.92	13.96	2.92	6.63	3.92	4.63
1.00	13.28	2.00	12.62	3.00	6.39	4.00	4.52

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--------------------
| CALIB            |
| NASHYD    (0101) |   Area    (ha)=   5.92   Curve Number   (CN)= 52.5
|ID= 1 DT= 2.0 min |   Ia      (mm)=   7.70   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.
```

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	4.79	1.033	16.84	2.033	11.56	3.03	6.16
0.067	4.79	1.067	16.84	2.067	11.56	3.07	6.16
0.100	4.92	1.100	20.44	2.100	11.12	3.10	6.06
0.133	5.05	1.133	24.03	2.133	10.68	3.13	5.95
0.167	5.05	1.167	24.03	2.167	10.68	3.17	5.95
0.200	5.34	1.200	50.62	2.200	9.95	3.20	5.76
0.233	5.34	1.233	50.62	2.233	9.95	3.23	5.76
0.267	5.50	1.267	136.79	2.267	9.63	3.27	5.67
0.300	5.67	1.300	222.95	2.300	9.32	3.30	5.58
0.333	5.67	1.333	222.95	2.333	9.32	3.33	5.58
0.367	6.05	1.367	64.53	2.367	8.78	3.37	5.42
0.400	6.05	1.400	64.53	2.400	8.78	3.40	5.42
0.433	6.28	1.433	50.65	2.433	8.55	3.43	5.34
0.467	6.50	1.467	36.78	2.467	8.31	3.47	5.27
0.500	6.50	1.500	36.78	2.500	8.31	3.50	5.27
0.533	7.04	1.533	26.73	2.533	7.90	3.53	5.12
0.567	7.04	1.567	26.73	2.567	7.90	3.57	5.12
0.600	7.38	1.600	24.06	2.600	7.71	3.60	5.05
0.633	7.71	1.633	21.39	2.633	7.53	3.63	4.99
0.667	7.71	1.667	21.39	2.667	7.53	3.67	4.99
0.700	8.54	1.700	18.02	2.700	7.20	3.70	4.86
0.733	8.54	1.733	18.02	2.733	7.20	3.73	4.86
0.767	9.08	1.767	16.85	2.767	7.05	3.77	4.80
0.800	9.62	1.800	15.69	2.800	6.90	3.80	4.74
0.833	9.62	1.833	15.69	2.833	6.90	3.83	4.74
0.867	11.11	1.867	13.96	2.867	6.63	3.87	4.63

0.900	11.11	1.900	13.96	2.900	6.63	3.90	4.63
0.933	12.19	1.933	13.29	2.933	6.51	3.93	4.57
0.967	13.28	1.967	12.62	2.967	6.39	3.97	4.52
1.000	13.28	2.000	12.62	3.000	6.39	4.00	4.52

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.198 (i)
TIME TO PEAK (hrs)= 1.533
RUNOFF VOLUME (mm)= 11.397
TOTAL RAINFALL (mm)= 64.917
RUNOFF COEFFICIENT = 0.176

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

CALIB					
NASHYD (0102)	Area	(ha)=	2.91	Curve Number (CN)=	59.7
ID= 1 DT= 2.0 min	Ia	(mm)=	7.23	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.15		

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.137 (i)
TIME TO PEAK (hrs)= 1.500
RUNOFF VOLUME (mm)= 14.498
TOTAL RAINFALL (mm)= 64.917
RUNOFF COEFFICIENT = 0.223

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

ADD HYD (0201)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0101):	5.92	0.198	1.53	11.40
	+ ID2= 2 (0102):	2.91	0.137	1.50	14.50
	ID = 3 (0201):	8.83	0.333	1.50	12.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 7 **
****

CHICAGO STORM	IDF curve parameters:	A=	954.383
Ptotal= 71.08 mm		B=	1.501
		C=	0.726

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

Duration of storm = 4.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.33

The CORRELATION coefficient is = 0.9997

TIME	INPUT INT.	TAB. INT.

(min)	(mm/hr)	(mm/hr)
5.	263.60	245.19
10.	162.30	162.04
15.	122.30	124.68
30.	75.30	77.97
60.	46.40	47.97
120.	28.60	29.26
360.	13.30	13.26
720.	8.20	8.03
1440.	5.00	4.86

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	5.23	1.08	18.40	2.08	12.62	3.08	6.72
0.17	5.51	1.17	26.28	2.17	11.66	3.17	6.50
0.25	5.82	1.25	55.43	2.25	10.86	3.25	6.29
0.33	6.18	1.33	245.19	2.33	10.18	3.33	6.09
0.42	6.60	1.42	70.68	2.42	9.59	3.42	5.91
0.50	7.10	1.50	40.24	2.50	9.08	3.50	5.75
0.58	7.69	1.58	29.23	2.58	8.62	3.58	5.59
0.67	8.41	1.67	23.38	2.67	8.22	3.67	5.44
0.75	9.32	1.75	19.70	2.75	7.86	3.75	5.30
0.83	10.51	1.83	17.14	2.83	7.53	3.83	5.17
0.92	12.13	1.92	15.25	2.92	7.24	3.92	5.05
1.00	14.51	2.00	13.79	3.00	6.97	4.00	4.93

CALIB					
NASHYD (0101)	Area	(ha)=	5.92	Curve Number (CN)=	52.5
ID= 1 DT= 2.0 min	Ia	(mm)=	7.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.17		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	5.23	1.033	18.40	2.033	12.62	3.03	6.72
0.067	5.23	1.067	18.40	2.067	12.62	3.07	6.72
0.100	5.37	1.100	22.34	2.100	12.14	3.10	6.61
0.133	5.51	1.133	26.28	2.133	11.66	3.13	6.50
0.167	5.51	1.167	26.28	2.167	11.66	3.17	6.50
0.200	5.82	1.200	55.43	2.200	10.86	3.20	6.29
0.233	5.82	1.233	55.43	2.233	10.86	3.23	6.29
0.267	6.00	1.267	150.31	2.267	10.52	3.27	6.19
0.300	6.18	1.300	245.19	2.300	10.18	3.30	6.09
0.333	6.18	1.333	245.19	2.333	10.18	3.33	6.09
0.367	6.60	1.367	70.68	2.367	9.59	3.37	5.91
0.400	6.60	1.400	70.68	2.400	9.59	3.40	5.91
0.433	6.85	1.433	55.46	2.433	9.33	3.43	5.83
0.467	7.10	1.467	40.24	2.467	9.08	3.47	5.75
0.500	7.10	1.500	40.24	2.500	9.08	3.50	5.75
0.533	7.69	1.533	29.23	2.533	8.62	3.53	5.59
0.567	7.69	1.567	29.23	2.567	8.62	3.57	5.59
0.600	8.05	1.600	26.31	2.600	8.42	3.60	5.51
0.633	8.41	1.633	23.38	2.633	8.22	3.63	5.44
0.667	8.41	1.667	23.38	2.667	8.22	3.67	5.44
0.700	9.32	1.700	19.70	2.700	7.86	3.70	5.30
0.733	9.32	1.733	19.70	2.733	7.86	3.73	5.30

0.767	9.92	1.767	18.42	2.767	7.70	3.77	5.24
0.800	10.51	1.800	17.14	2.800	7.53	3.80	5.17
0.833	10.51	1.833	17.14	2.833	7.53	3.83	5.17
0.867	12.13	1.867	15.25	2.867	7.24	3.87	5.05
0.900	12.13	1.900	15.25	2.900	7.24	3.90	5.05
0.933	13.32	1.933	14.52	2.933	7.11	3.93	4.99
0.967	14.51	1.967	13.79	2.967	6.97	3.97	4.93
1.000	14.51	2.000	13.79	3.000	6.97	4.00	4.93

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.243 (i)
TIME TO PEAK (hrs)= 1.533
RUNOFF VOLUME (mm)= 13.691
TOTAL RAINFALL (mm)= 71.080
RUNOFF COEFFICIENT = 0.193

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

CALIB					
NASHYD (0102)	Area	(ha)=	2.91	Curve Number (CN)=	59.7
ID= 1 DT= 2.0 min	Ia	(mm)=	7.23	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.15		

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.167 (i)
TIME TO PEAK (hrs)= 1.500
RUNOFF VOLUME (mm)= 17.296
TOTAL RAINFALL (mm)= 71.080
RUNOFF COEFFICIENT = 0.243

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

ADD HYD (0201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	5.92	0.243	1.53	13.69
+ ID2= 2 (0102):	2.91	0.167	1.50	17.30
ID = 3 (0201):	8.83	0.408	1.50	14.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 8 **
****

READ STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\ee8d6be2-212d-4e5c-aa9c-f3f473b66655\6f9ee3e9
Ptotal=193.00 mm	Comments: TIMMINS REGIONAL 12 HOUR DURATION STORM

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr

0.20	15.00	3.20	3.00	6.20	43.00	9.20	13.00
0.40	15.00	3.40	3.00	6.40	43.00	9.40	13.00
0.60	15.00	3.60	3.00	6.60	43.00	9.60	13.00
0.80	15.00	3.80	3.00	6.80	43.00	9.80	13.00
1.00	15.00	4.00	3.00	7.00	43.00	10.00	13.00
1.20	20.00	4.20	5.00	7.20	20.00	10.20	13.00
1.40	20.00	4.40	5.00	7.40	20.00	10.40	13.00
1.60	20.00	4.60	5.00	7.60	20.00	10.60	13.00
1.80	20.00	4.80	5.00	7.80	20.00	10.80	13.00
2.00	20.00	5.00	5.00	8.00	20.00	11.00	13.00
2.20	10.00	5.20	20.00	8.20	23.00	11.20	8.00
2.40	10.00	5.40	20.00	8.40	23.00	11.40	8.00
2.60	10.00	5.60	20.00	8.60	23.00	11.60	8.00
2.80	10.00	5.80	20.00	8.80	23.00	11.80	8.00
3.00	10.00	6.00	20.00	9.00	23.00	12.00	8.00

CALIB					
NASHYD (0101)	Area	(ha)=	5.92	Curve Number (CN)=	52.5
ID= 1 DT= 2.0 min	Ia	(mm)=	7.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.17		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	15.00	3.033	3.00	6.033	43.00	9.03	13.00
0.067	15.00	3.067	3.00	6.067	43.00	9.07	13.00
0.100	15.00	3.100	3.00	6.100	43.00	9.10	13.00
0.133	15.00	3.133	3.00	6.133	43.00	9.13	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.200	15.00	3.200	3.00	6.200	43.00	9.20	13.00
0.233	15.00	3.233	3.00	6.233	43.00	9.23	13.00
0.267	15.00	3.267	3.00	6.267	43.00	9.27	13.00
0.300	15.00	3.300	3.00	6.300	43.00	9.30	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.367	15.00	3.367	3.00	6.367	43.00	9.37	13.00
0.400	15.00	3.400	3.00	6.400	43.00	9.40	13.00
0.433	15.00	3.433	3.00	6.433	43.00	9.43	13.00
0.467	15.00	3.467	3.00	6.467	43.00	9.47	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.533	15.00	3.533	3.00	6.533	43.00	9.53	13.00
0.567	15.00	3.567	3.00	6.567	43.00	9.57	13.00
0.600	15.00	3.600	3.00	6.600	43.00	9.60	13.00
0.633	15.00	3.633	3.00	6.633	43.00	9.63	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.700	15.00	3.700	3.00	6.700	43.00	9.70	13.00
0.733	15.00	3.733	3.00	6.733	43.00	9.73	13.00
0.767	15.00	3.767	3.00	6.767	43.00	9.77	13.00
0.800	15.00	3.800	3.00	6.800	43.00	9.80	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.867	15.00	3.867	3.00	6.867	43.00	9.87	13.00
0.900	15.00	3.900	3.00	6.900	43.00	9.90	13.00
0.933	15.00	3.933	3.00	6.933	43.00	9.93	13.00
0.967	15.00	3.967	3.00	6.967	43.00	9.97	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.033	20.00	4.033	5.00	7.033	20.00	10.03	13.00
1.067	20.00	4.067	5.00	7.067	20.00	10.07	13.00
1.100	20.00	4.100	5.00	7.100	20.00	10.10	13.00

1.133	20.00	4.133	5.00	7.133	20.00	10.13	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.200	20.00	4.200	5.00	7.200	20.00	10.20	13.00
1.233	20.00	4.233	5.00	7.233	20.00	10.23	13.00
1.267	20.00	4.267	5.00	7.267	20.00	10.27	13.00
1.300	20.00	4.300	5.00	7.300	20.00	10.30	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.367	20.00	4.367	5.00	7.367	20.00	10.37	13.00
1.400	20.00	4.400	5.00	7.400	20.00	10.40	13.00
1.433	20.00	4.433	5.00	7.433	20.00	10.43	13.00
1.467	20.00	4.467	5.00	7.467	20.00	10.47	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.533	20.00	4.533	5.00	7.533	20.00	10.53	13.00
1.567	20.00	4.567	5.00	7.567	20.00	10.57	13.00
1.600	20.00	4.600	5.00	7.600	20.00	10.60	13.00
1.633	20.00	4.633	5.00	7.633	20.00	10.63	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.700	20.00	4.700	5.00	7.700	20.00	10.70	13.00
1.733	20.00	4.733	5.00	7.733	20.00	10.73	13.00
1.767	20.00	4.767	5.00	7.767	20.00	10.77	13.00
1.800	20.00	4.800	5.00	7.800	20.00	10.80	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.867	20.00	4.867	5.00	7.867	20.00	10.87	13.00
1.900	20.00	4.900	5.00	7.900	20.00	10.90	13.00
1.933	20.00	4.933	5.00	7.933	20.00	10.93	13.00
1.967	20.00	4.967	5.00	7.967	20.00	10.97	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.033	10.00	5.033	20.00	8.033	23.00	11.03	8.00
2.067	10.00	5.067	20.00	8.067	23.00	11.07	8.00
2.100	10.00	5.100	20.00	8.100	23.00	11.10	8.00
2.133	10.00	5.133	20.00	8.133	23.00	11.13	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.200	10.00	5.200	20.00	8.200	23.00	11.20	8.00
2.233	10.00	5.233	20.00	8.233	23.00	11.23	8.00
2.267	10.00	5.267	20.00	8.267	23.00	11.27	8.00
2.300	10.00	5.300	20.00	8.300	23.00	11.30	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.367	10.00	5.367	20.00	8.367	23.00	11.37	8.00
2.400	10.00	5.400	20.00	8.400	23.00	11.40	8.00
2.433	10.00	5.433	20.00	8.433	23.00	11.43	8.00
2.467	10.00	5.467	20.00	8.467	23.00	11.47	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.533	10.00	5.533	20.00	8.533	23.00	11.53	8.00
2.567	10.00	5.567	20.00	8.567	23.00	11.57	8.00
2.600	10.00	5.600	20.00	8.600	23.00	11.60	8.00
2.633	10.00	5.633	20.00	8.633	23.00	11.63	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.700	10.00	5.700	20.00	8.700	23.00	11.70	8.00
2.733	10.00	5.733	20.00	8.733	23.00	11.73	8.00
2.767	10.00	5.767	20.00	8.767	23.00	11.77	8.00
2.800	10.00	5.800	20.00	8.800	23.00	11.80	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.867	10.00	5.867	20.00	8.867	23.00	11.87	8.00
2.900	10.00	5.900	20.00	8.900	23.00	11.90	8.00
2.933	10.00	5.933	20.00	8.933	23.00	11.93	8.00
2.967	10.00	5.967	20.00	8.967	23.00	11.97	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	7.99

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.359 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 82.670

TOTAL RAINFALL (mm)= 192.999
RUNOFF COEFFICIENT = 0.428

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

CALIB					
NASHYD (0102)	Area (ha)=	2.91	Curve Number (CN)=	59.7	
ID= 1 DT= 2.0 min	Ia (mm)=	7.23	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.15			

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.208 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 96.493
TOTAL RAINFALL (mm)= 192.999
RUNOFF COEFFICIENT = 0.500

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

ADD HYD (0201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	5.92	0.359	7.00	82.67
+ ID2= 2 (0102):	2.91	0.208	7.00	96.49
ID = 3 (0201):	8.83	0.567	7.00	87.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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================================================================================
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       V    V   I    SSSSS  U   U    A    L
       V    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)\VH Suite 3.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Temp\36c4b767-dab5-4a78-8603-ecfb23d0f7da\Scenario.ou
t
  Summary filename:
C:\Users\aschoof\AppData\Local\Temp\36c4b767-dab5-4a78-8603-ecfb23d0f7da\Scenario.su
m


DATE: 03/27/2018                          TIME: 05:45:04

USER:


COMMENTS: ____________________________________________________________


--------------------------------------------------------------------------------
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  ***************************
  ** SIMULATION NUMBER:   1 **
  ***************************


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| MASS STORM       |    Filename: C:\Users\aschoof\AppD
|                  |              ata\Local\Temp\
|                  |              36c4b767-dab5-4a78-8603-ecfb23d0f7da\3be3101d
| Ptotal= 53.90 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------
                       Duration of storm    = 23.75 hrs
                       Mass curve time step = 15.00 min
                       New Storm time step  =  5.00 min


                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.08    0.22 |  6.08    0.93 | 12.08    7.76 | 18.08    1.01
                0.17    0.43 |  6.17    1.01 | 12.17    7.76 | 18.17    0.93
                0.25    0.65 |  6.25    1.08 | 12.25    7.76 | 18.25    0.86
                0.33    0.57 |  6.33    1.01 | 12.33    6.54 | 18.33    0.93
```


0.42	0.50	6.42	0.93	12.42	5.32	18.42	1.01
0.50	0.43	6.50	0.86	12.50	4.10	18.50	1.08
0.58	0.50	6.58	0.93	12.58	4.02	18.58	1.01
0.67	0.57	6.67	1.01	12.67	3.95	18.67	0.93
0.75	0.65	6.75	1.08	12.75	3.88	18.75	0.86
0.83	0.65	6.83	1.08	12.83	3.59	18.83	0.93
0.92	0.65	6.92	1.08	12.92	3.31	18.92	1.01
1.00	0.65	7.00	1.08	13.00	3.02	19.00	1.08
1.08	0.65	7.08	1.15	13.08	2.95	19.08	1.01
1.17	0.65	7.17	1.22	13.17	2.87	19.17	0.93
1.25	0.65	7.25	1.29	13.25	2.80	19.25	0.86
1.33	0.57	7.33	1.22	13.33	2.66	19.33	0.93
1.42	0.50	7.42	1.15	13.42	2.52	19.42	1.01
1.50	0.43	7.50	1.08	13.50	2.37	19.50	1.08
1.58	0.50	7.58	1.15	13.58	2.30	19.58	1.01
1.67	0.57	7.67	1.22	13.67	2.23	19.67	0.93
1.75	0.65	7.75	1.29	13.75	2.16	19.75	0.86
1.83	0.65	7.83	1.29	13.83	2.01	19.83	0.79
1.92	0.65	7.92	1.29	13.92	1.87	19.92	0.72
2.00	0.65	8.00	1.29	14.00	1.72	20.00	0.65
2.08	0.72	8.08	1.37	14.08	1.65	20.08	0.65
2.17	0.79	8.17	1.44	14.17	1.58	20.17	0.65
2.25	0.86	8.25	1.51	14.25	1.51	20.25	0.65
2.33	0.79	8.33	1.51	14.33	1.58	20.33	0.65
2.42	0.72	8.42	1.51	14.42	1.65	20.42	0.65
2.50	0.65	8.50	1.51	14.50	1.72	20.50	0.65
2.58	0.65	8.58	1.51	14.58	1.65	20.58	0.65
2.67	0.65	8.67	1.51	14.67	1.58	20.67	0.65
2.75	0.65	8.75	1.51	14.75	1.51	20.75	0.65
2.83	0.65	8.83	1.58	14.83	1.58	20.83	0.65
2.92	0.65	8.92	1.65	14.92	1.65	20.92	0.65
3.00	0.65	9.00	1.72	15.00	1.72	21.00	0.65
3.08	0.72	9.08	1.72	15.08	1.65	21.08	0.65
3.17	0.79	9.17	1.72	15.17	1.58	21.17	0.65
3.25	0.86	9.25	1.72	15.25	1.51	21.25	0.65
3.33	0.79	9.33	1.80	15.33	1.58	21.33	0.65
3.42	0.72	9.42	1.87	15.42	1.65	21.42	0.65
3.50	0.65	9.50	1.94	15.50	1.72	21.50	0.65
3.58	0.65	9.58	1.94	15.58	1.65	21.58	0.65
3.67	0.65	9.67	1.94	15.67	1.58	21.67	0.65
3.75	0.65	9.75	1.94	15.75	1.51	21.75	0.65
3.83	0.72	9.83	2.08	15.83	1.37	21.83	0.65
3.92	0.79	9.92	2.23	15.92	1.22	21.92	0.65
4.00	0.86	10.00	2.37	16.00	1.08	22.00	0.65
4.08	0.86	10.08	2.44	16.08	1.01	22.08	0.65
4.17	0.86	10.17	2.52	16.17	0.93	22.17	0.65
4.25	0.86	10.25	2.59	16.25	0.86	22.25	0.65
4.33	0.86	10.33	2.80	16.33	0.93	22.33	0.65
4.42	0.86	10.42	3.02	16.42	1.01	22.42	0.65
4.50	0.86	10.50	3.23	16.50	1.08	22.50	0.65
4.58	0.86	10.58	3.31	16.58	1.01	22.58	0.65
4.67	0.86	10.67	3.38	16.67	0.93	22.67	0.65
4.75	0.86	10.75	3.45	16.75	0.86	22.75	0.65
4.83	0.86	10.83	4.02	16.83	0.93	22.83	0.65
4.92	0.86	10.92	4.60	16.92	1.01	22.92	0.65
5.00	0.86	11.00	5.17	17.00	1.08	23.00	0.65
5.08	0.86	11.08	5.17	17.08	1.01	23.08	0.65
5.17	0.86	11.17	5.17	17.17	0.93	23.17	0.65
5.25	0.86	11.25	5.17	17.25	0.86	23.25	0.65
5.33	0.86	11.33	8.77	17.33	0.93	23.33	0.65
5.42	0.86	11.42	12.36	17.42	1.01	23.42	0.65
5.50	0.86	11.50	15.95	17.50	1.08	23.50	0.65
5.58	0.86	11.58	32.63	17.58	1.01	23.58	0.65

5.67	0.86	11.67	49.30	17.67	0.93	23.67	0.65
5.75	0.86	11.75	65.97	17.75	0.86	23.75	0.65
5.83	0.86	11.83	46.57	17.83	0.93		
5.92	0.86	11.92	27.17	17.92	1.01		
6.00	0.86	12.00	7.76	18.00	1.08		

CALIB / NASHYD (0101) / ID= 1 DT= 2.0 min	Area (ha)= 5.92	Curve Number (CN)= 52.5
	Ia (mm)= 7.70	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.17	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.22	6.000	0.86	11.967	7.76	17.93	1.04
0.067	0.22	6.033	0.93	12.000	7.76	17.97	1.08
0.100	0.32	6.067	0.93	12.033	7.76	18.00	1.08
0.133	0.43	6.100	0.97	12.067	7.76	18.03	1.01
0.167	0.43	6.133	1.01	12.100	7.76	18.07	1.01
0.200	0.65	6.167	1.01	12.133	7.76	18.10	0.97
0.233	0.65	6.200	1.08	12.167	7.76	18.13	0.93
0.267	0.61	6.233	1.08	12.200	7.76	18.17	0.93
0.300	0.57	6.267	1.04	12.233	7.76	18.20	0.86
0.333	0.57	6.300	1.01	12.267	7.15	18.23	0.86
0.367	0.50	6.333	1.01	12.300	6.54	18.27	0.90
0.400	0.50	6.367	0.93	12.333	6.54	18.30	0.93
0.433	0.47	6.400	0.93	12.367	5.32	18.33	0.93
0.467	0.43	6.433	0.90	12.400	5.32	18.37	1.01
0.500	0.43	6.467	0.86	12.433	4.71	18.40	1.01
0.533	0.50	6.500	0.86	12.467	4.10	18.43	1.04
0.567	0.50	6.533	0.93	12.500	4.10	18.47	1.08
0.600	0.54	6.567	0.93	12.533	4.02	18.50	1.08
0.633	0.57	6.600	0.97	12.567	4.02	18.53	1.01
0.667	0.57	6.633	1.01	12.600	3.99	18.57	1.01
0.700	0.65	6.667	1.01	12.633	3.95	18.60	0.97
0.733	0.65	6.700	1.08	12.667	3.95	18.63	0.93
0.767	0.65	6.733	1.08	12.700	3.88	18.67	0.93
0.800	0.65	6.767	1.08	12.733	3.88	18.70	0.86
0.833	0.65	6.800	1.08	12.767	3.74	18.73	0.86
0.867	0.65	6.833	1.08	12.800	3.59	18.77	0.90
0.900	0.65	6.867	1.08	12.833	3.59	18.80	0.93
0.933	0.65	6.900	1.08	12.867	3.31	18.83	0.93
0.967	0.65	6.933	1.08	12.900	3.31	18.87	1.01
1.000	0.65	6.967	1.08	12.933	3.16	18.90	1.01
1.033	0.65	7.000	1.08	12.967	3.02	18.93	1.04
1.067	0.65	7.033	1.15	13.000	3.02	18.97	1.08
1.100	0.65	7.067	1.15	13.033	2.95	19.00	1.08
1.133	0.65	7.100	1.19	13.067	2.95	19.03	1.01
1.167	0.65	7.133	1.22	13.100	2.91	19.07	1.01
1.200	0.65	7.167	1.22	13.133	2.87	19.10	0.97
1.233	0.65	7.200	1.29	13.167	2.87	19.13	0.93
1.267	0.61	7.233	1.29	13.200	2.80	19.17	0.93
1.300	0.57	7.267	1.26	13.233	2.80	19.20	0.86
1.333	0.57	7.300	1.22	13.267	2.73	19.23	0.86
1.367	0.50	7.333	1.22	13.300	2.66	19.27	0.90
1.400	0.50	7.367	1.15	13.333	2.66	19.30	0.93
1.433	0.47	7.400	1.15	13.367	2.52	19.33	0.93
1.467	0.43	7.433	1.11	13.400	2.52	19.37	1.01

1.500	0.43	7.467	1.08	13.433	2.44	19.40	1.01
1.533	0.50	7.500	1.08	13.467	2.37	19.43	1.04
1.567	0.50	7.533	1.15	13.500	2.37	19.47	1.08
1.600	0.54	7.567	1.15	13.533	2.30	19.50	1.08
1.633	0.57	7.600	1.19	13.567	2.30	19.53	1.01
1.667	0.57	7.633	1.22	13.600	2.26	19.57	1.01
1.700	0.65	7.667	1.22	13.633	2.23	19.60	0.97
1.733	0.65	7.700	1.29	13.667	2.23	19.63	0.93
1.767	0.65	7.733	1.29	13.700	2.16	19.67	0.93
1.800	0.65	7.767	1.29	13.733	2.16	19.70	0.86
1.833	0.65	7.800	1.29	13.767	2.08	19.73	0.86
1.867	0.65	7.833	1.29	13.800	2.01	19.77	0.83
1.900	0.65	7.867	1.29	13.833	2.01	19.80	0.79
1.933	0.65	7.900	1.29	13.867	1.87	19.83	0.79
1.967	0.65	7.933	1.29	13.900	1.87	19.87	0.72
2.000	0.65	7.967	1.29	13.933	1.80	19.90	0.72
2.033	0.72	8.000	1.29	13.967	1.72	19.93	0.68
2.067	0.72	8.033	1.37	14.000	1.72	19.97	0.65
2.100	0.75	8.067	1.37	14.033	1.65	20.00	0.65
2.133	0.79	8.100	1.40	14.067	1.65	20.03	0.65
2.167	0.79	8.133	1.44	14.100	1.62	20.07	0.65
2.200	0.86	8.167	1.44	14.133	1.58	20.10	0.65
2.233	0.86	8.200	1.51	14.167	1.58	20.13	0.65
2.267	0.83	8.233	1.51	14.200	1.51	20.17	0.65
2.300	0.79	8.267	1.51	14.233	1.51	20.20	0.65
2.333	0.79	8.300	1.51	14.267	1.55	20.23	0.65
2.367	0.72	8.333	1.51	14.300	1.58	20.27	0.65
2.400	0.72	8.367	1.51	14.333	1.58	20.30	0.65
2.433	0.68	8.400	1.51	14.367	1.65	20.33	0.65
2.467	0.65	8.433	1.51	14.400	1.65	20.37	0.65
2.500	0.65	8.467	1.51	14.433	1.69	20.40	0.65
2.533	0.65	8.500	1.51	14.467	1.72	20.43	0.65
2.567	0.65	8.533	1.51	14.500	1.72	20.47	0.65
2.600	0.65	8.567	1.51	14.533	1.65	20.50	0.65
2.633	0.65	8.600	1.51	14.567	1.65	20.53	0.65
2.667	0.65	8.633	1.51	14.600	1.62	20.57	0.65
2.700	0.65	8.667	1.51	14.633	1.58	20.60	0.65
2.733	0.65	8.700	1.51	14.667	1.58	20.63	0.65
2.767	0.65	8.733	1.51	14.700	1.51	20.67	0.65
2.800	0.65	8.767	1.55	14.733	1.51	20.70	0.65
2.833	0.65	8.800	1.58	14.767	1.55	20.73	0.65
2.867	0.65	8.833	1.58	14.800	1.58	20.77	0.65
2.900	0.65	8.867	1.65	14.833	1.58	20.80	0.65
2.933	0.65	8.900	1.65	14.867	1.65	20.83	0.65
2.967	0.65	8.933	1.69	14.900	1.65	20.87	0.65
3.000	0.65	8.967	1.72	14.933	1.69	20.90	0.65
3.033	0.72	9.000	1.72	14.967	1.72	20.93	0.65
3.067	0.72	9.033	1.72	15.000	1.72	20.97	0.65
3.100	0.75	9.067	1.72	15.033	1.65	21.00	0.65
3.133	0.79	9.100	1.72	15.067	1.65	21.03	0.65
3.167	0.79	9.133	1.72	15.100	1.62	21.07	0.65
3.200	0.86	9.167	1.72	15.133	1.58	21.10	0.65
3.233	0.86	9.200	1.72	15.167	1.58	21.13	0.65
3.267	0.83	9.233	1.72	15.200	1.51	21.17	0.65
3.300	0.79	9.267	1.76	15.233	1.51	21.20	0.65
3.333	0.79	9.300	1.80	15.267	1.55	21.23	0.65
3.367	0.72	9.333	1.80	15.300	1.58	21.27	0.65
3.400	0.72	9.367	1.87	15.333	1.58	21.30	0.65
3.433	0.68	9.400	1.87	15.367	1.65	21.33	0.65
3.467	0.65	9.433	1.90	15.400	1.65	21.37	0.65
3.500	0.65	9.467	1.94	15.433	1.69	21.40	0.65
3.533	0.65	9.500	1.94	15.467	1.72	21.43	0.65
3.567	0.65	9.533	1.94	15.500	1.72	21.47	0.65

3.600	0.65	9.567	1.94	15.533	1.65	21.50	0.65
3.633	0.65	9.600	1.94	15.567	1.65	21.53	0.65
3.667	0.65	9.633	1.94	15.600	1.62	21.57	0.65
3.700	0.65	9.667	1.94	15.633	1.58	21.60	0.65
3.733	0.65	9.700	1.94	15.667	1.58	21.63	0.65
3.767	0.68	9.733	1.94	15.700	1.51	21.67	0.65
3.800	0.72	9.767	2.01	15.733	1.51	21.70	0.65
3.833	0.72	9.800	2.08	15.767	1.44	21.73	0.65
3.867	0.79	9.833	2.08	15.800	1.37	21.77	0.65
3.900	0.79	9.867	2.23	15.833	1.37	21.80	0.65
3.933	0.83	9.900	2.23	15.867	1.22	21.83	0.65
3.967	0.86	9.933	2.30	15.900	1.22	21.87	0.65
4.000	0.86	9.967	2.37	15.933	1.15	21.90	0.65
4.033	0.86	10.000	2.37	15.967	1.08	21.93	0.65
4.067	0.86	10.033	2.44	16.000	1.08	21.97	0.65
4.100	0.86	10.067	2.44	16.033	1.01	22.00	0.65
4.133	0.86	10.100	2.48	16.067	1.01	22.03	0.65
4.167	0.86	10.133	2.52	16.100	0.97	22.07	0.65
4.200	0.86	10.167	2.52	16.133	0.93	22.10	0.65
4.233	0.86	10.200	2.59	16.167	0.93	22.13	0.65
4.267	0.86	10.233	2.59	16.200	0.86	22.17	0.65
4.300	0.86	10.267	2.70	16.233	0.86	22.20	0.65
4.333	0.86	10.300	2.80	16.267	0.90	22.23	0.65
4.367	0.86	10.333	2.80	16.300	0.93	22.27	0.65
4.400	0.86	10.367	3.02	16.333	0.93	22.30	0.65
4.433	0.86	10.400	3.02	16.367	1.01	22.33	0.65
4.467	0.86	10.433	3.13	16.400	1.01	22.37	0.65
4.500	0.86	10.467	3.23	16.433	1.04	22.40	0.65
4.533	0.86	10.500	3.23	16.467	1.08	22.43	0.65
4.567	0.86	10.533	3.31	16.500	1.08	22.47	0.65
4.600	0.86	10.567	3.31	16.533	1.01	22.50	0.65
4.633	0.86	10.600	3.34	16.567	1.01	22.53	0.65
4.667	0.86	10.633	3.38	16.600	0.97	22.57	0.65
4.700	0.86	10.667	3.38	16.633	0.93	22.60	0.65
4.733	0.86	10.700	3.45	16.667	0.93	22.63	0.65
4.767	0.86	10.733	3.45	16.700	0.86	22.67	0.65
4.800	0.86	10.767	3.74	16.733	0.86	22.70	0.65
4.833	0.86	10.800	4.02	16.767	0.90	22.73	0.65
4.867	0.86	10.833	4.03	16.800	0.93	22.77	0.65
4.900	0.86	10.867	4.60	16.833	0.93	22.80	0.65
4.933	0.86	10.900	4.60	16.867	1.01	22.83	0.65
4.967	0.86	10.933	4.89	16.900	1.01	22.87	0.65
5.000	0.86	10.967	5.17	16.933	1.04	22.90	0.65
5.033	0.86	11.000	5.17	16.967	1.08	22.93	0.65
5.067	0.86	11.033	5.17	17.000	1.08	22.97	0.65
5.100	0.86	11.067	5.17	17.033	1.01	23.00	0.65
5.133	0.86	11.100	5.17	17.067	1.01	23.03	0.65
5.167	0.86	11.133	5.17	17.100	0.97	23.07	0.65
5.200	0.86	11.167	5.17	17.133	0.93	23.10	0.65
5.233	0.86	11.200	5.17	17.167	0.93	23.13	0.65
5.267	0.86	11.233	5.17	17.200	0.86	23.17	0.65
5.300	0.86	11.267	6.97	17.233	0.86	23.20	0.65
5.333	0.86	11.300	8.77	17.267	0.90	23.23	0.65
5.367	0.86	11.333	8.77	17.300	0.93	23.27	0.65
5.400	0.86	11.367	12.36	17.333	0.93	23.30	0.65
5.433	0.86	11.400	12.36	17.367	1.01	23.33	0.65
5.467	0.86	11.433	14.16	17.400	1.01	23.37	0.65
5.500	0.86	11.467	15.95	17.433	1.04	23.40	0.65
5.533	0.86	11.500	15.97	17.467	1.08	23.43	0.65
5.567	0.86	11.533	32.63	17.500	1.08	23.47	0.65
5.600	0.86	11.567	32.63	17.533	1.01	23.50	0.65
5.633	0.86	11.600	40.98	17.567	1.01	23.53	0.65
5.667	0.86	11.633	49.30	17.600	0.97	23.57	0.65

5.700	0.86	11.667	49.32	17.633	0.93	23.60	0.65
5.733	0.86	11.700	65.97	17.667	0.93	23.63	0.65
5.767	0.86	11.733	65.97	17.700	0.86	23.67	0.65
5.800	0.86	11.767	56.25	17.733	0.86	23.70	0.65
5.833	0.86	11.800	46.57	17.767	0.90	23.73	0.65
5.867	0.86	11.833	46.55	17.800	0.93	23.77	0.32
5.900	0.86	11.867	27.17	17.833	0.93		
5.933	0.86	11.900	27.17	17.867	1.01		
5.967	0.86	11.933	17.44	17.900	1.01		

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.109 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 7.661
TOTAL RAINFALL (mm)= 53.684
RUNOFF COEFFICIENT = 0.143

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

CALIB	
NASHYD (0102)	Area (ha)= 2.91 Curve Number (CN)= 59.7
ID= 1 DT= 2.0 min	Ia (mm)= 7.23 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.15

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.074 (i)
TIME TO PEAK (hrs)= 11.900
RUNOFF VOLUME (mm)= 9.885
TOTAL RAINFALL (mm)= 53.684
RUNOFF COEFFICIENT = 0.184

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

ADD HYD (0201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	5.92	0.109	11.93	7.66
+ ID2= 2 (0102):	2.91	0.074	11.90	9.88
ID = 3 (0201):	8.83	0.182	11.93	8.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 2 **
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MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\36c4b767-dab5-4a78-8603-ecfb23d0f7da\9ab0dd0f
Ptotal= 71.80 mm	Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min

New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.29	6.08	1.24	12.08	10.34	18.08	1.34
0.17	0.57	6.17	1.34	12.17	10.34	18.17	1.24
0.25	0.86	6.25	1.44	12.25	10.34	18.25	1.15
0.33	0.77	6.33	1.34	12.33	8.71	18.33	1.24
0.42	0.67	6.42	1.24	12.42	7.08	18.42	1.34
0.50	0.57	6.50	1.15	12.50	5.46	18.50	1.44
0.58	0.67	6.58	1.24	12.58	5.36	18.58	1.34
0.67	0.77	6.67	1.34	12.67	5.27	18.67	1.24
0.75	0.86	6.75	1.44	12.75	5.17	18.75	1.15
0.83	0.86	6.83	1.44	12.83	4.79	18.83	1.24
0.92	0.86	6.92	1.44	12.92	4.40	18.92	1.34
1.00	0.86	7.00	1.44	13.00	4.02	19.00	1.44
1.08	0.86	7.08	1.53	13.08	3.93	19.08	1.34
1.17	0.86	7.17	1.63	13.17	3.83	19.17	1.24
1.25	0.86	7.25	1.72	13.25	3.73	19.25	1.15
1.33	0.77	7.33	1.63	13.33	3.54	19.33	1.24
1.42	0.67	7.42	1.53	13.42	3.35	19.42	1.34
1.50	0.57	7.50	1.44	13.50	3.16	19.50	1.44
1.58	0.67	7.58	1.53	13.58	3.06	19.58	1.34
1.67	0.77	7.67	1.63	13.67	2.97	19.67	1.24
1.75	0.86	7.75	1.72	13.75	2.87	19.75	1.15
1.83	0.86	7.83	1.72	13.83	2.68	19.83	1.05
1.92	0.86	7.92	1.72	13.92	2.49	19.92	0.96
2.00	0.86	8.00	1.72	14.00	2.30	20.00	0.86
2.08	0.96	8.08	1.82	14.08	2.20	20.08	0.86
2.17	1.05	8.17	1.91	14.17	2.11	20.17	0.86
2.25	1.15	8.25	2.01	14.25	2.01	20.25	0.86
2.33	1.05	8.33	2.01	14.33	2.11	20.33	0.86
2.42	0.96	8.42	2.01	14.42	2.20	20.42	0.86
2.50	0.86	8.50	2.01	14.50	2.30	20.50	0.86
2.58	0.86	8.58	2.01	14.58	2.20	20.58	0.86
2.67	0.86	8.67	2.01	14.67	2.11	20.67	0.86
2.75	0.86	8.75	2.01	14.75	2.01	20.75	0.86
2.83	0.86	8.83	2.11	14.83	2.11	20.83	0.86
2.92	0.86	8.92	2.20	14.92	2.20	20.92	0.86
3.00	0.86	9.00	2.30	15.00	2.30	21.00	0.86
3.08	0.96	9.08	2.30	15.08	2.20	21.08	0.86
3.17	1.05	9.17	2.30	15.17	2.11	21.17	0.86
3.25	1.15	9.25	2.30	15.25	2.01	21.25	0.86
3.33	1.05	9.33	2.39	15.33	2.11	21.33	0.86
3.42	0.96	9.42	2.49	15.42	2.20	21.42	0.86
3.50	0.86	9.50	2.58	15.50	2.30	21.50	0.86
3.58	0.86	9.58	2.58	15.58	2.20	21.58	0.86
3.67	0.86	9.67	2.58	15.67	2.11	21.67	0.86
3.75	0.86	9.75	2.58	15.75	2.01	21.75	0.86
3.83	0.96	9.83	2.78	15.83	1.82	21.83	0.86
3.92	1.05	9.92	2.97	15.92	1.63	21.92	0.86
4.00	1.15	10.00	3.16	16.00	1.44	22.00	0.86
4.08	1.15	10.08	3.25	16.08	1.34	22.08	0.86
4.17	1.15	10.17	3.35	16.17	1.24	22.17	0.86
4.25	1.15	10.25	3.45	16.25	1.15	22.25	0.86
4.33	1.15	10.33	3.73	16.33	1.24	22.33	0.86
4.42	1.15	10.42	4.02	16.42	1.34	22.42	0.86
4.50	1.15	10.50	4.31	16.50	1.44	22.50	0.86
4.58	1.15	10.58	4.40	16.58	1.34	22.58	0.86
4.67	1.15	10.67	4.50	16.67	1.24	22.67	0.86
4.75	1.15	10.75	4.60	16.75	1.15	22.75	0.86
4.83	1.15	10.83	5.36	16.83	1.24	22.83	0.86

4.92	1.15	10.92	6.13	16.92	1.34	22.92	0.86
5.00	1.15	11.00	6.89	17.00	1.44	23.00	0.86
5.08	1.15	11.08	6.89	17.08	1.34	23.08	0.86
5.17	1.15	11.17	6.89	17.17	1.24	23.17	0.86
5.25	1.15	11.25	6.89	17.25	1.15	23.25	0.86
5.33	1.15	11.33	11.68	17.33	1.24	23.33	0.86
5.42	1.15	11.42	16.47	17.42	1.34	23.42	0.86
5.50	1.15	11.50	21.25	17.50	1.44	23.50	0.86
5.58	1.15	11.58	43.46	17.58	1.34	23.58	0.86
5.67	1.15	11.67	65.67	17.67	1.24	23.67	0.86
5.75	1.15	11.75	87.88	17.75	1.15	23.75	0.86
5.83	1.15	11.83	62.04	17.83	1.24		
5.92	1.15	11.92	36.19	17.92	1.34		
6.00	1.15	12.00	10.34	18.00	1.44		

CALIB	
NASHYD (0101)	Area (ha)= 5.92 Curve Number (CN)= 52.5
ID= 1 DT= 2.0 min	Ia (mm)= 7.70 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.17

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.29	6.000	1.15	11.967	10.34	17.93	1.39
0.067	0.29	6.033	1.24	12.000	10.34	17.97	1.44
0.100	0.43	6.067	1.24	12.033	10.34	18.00	1.44
0.133	0.57	6.100	1.29	12.067	10.34	18.03	1.34
0.167	0.57	6.133	1.34	12.100	10.34	18.07	1.34
0.200	0.86	6.167	1.34	12.133	10.34	18.10	1.29
0.233	0.86	6.200	1.44	12.167	10.34	18.13	1.24
0.267	0.81	6.233	1.44	12.200	10.34	18.17	1.24
0.300	0.77	6.267	1.39	12.233	10.34	18.20	1.15
0.333	0.77	6.300	1.34	12.267	9.52	18.23	1.15
0.367	0.67	6.333	1.34	12.300	8.71	18.27	1.20
0.400	0.67	6.367	1.24	12.333	8.71	18.30	1.24
0.433	0.62	6.400	1.24	12.367	7.08	18.33	1.24
0.467	0.57	6.433	1.20	12.400	7.08	18.37	1.34
0.500	0.57	6.467	1.15	12.433	6.27	18.40	1.34
0.533	0.67	6.500	1.15	12.467	5.46	18.43	1.39
0.567	0.67	6.533	1.24	12.500	5.46	18.47	1.44
0.600	0.72	6.567	1.24	12.533	5.36	18.50	1.44
0.633	0.77	6.600	1.29	12.567	5.36	18.53	1.34
0.667	0.77	6.633	1.34	12.600	5.31	18.57	1.34
0.700	0.86	6.667	1.34	12.633	5.27	18.60	1.29
0.733	0.86	6.700	1.44	12.667	5.27	18.63	1.24
0.767	0.86	6.733	1.44	12.700	5.17	18.67	1.24
0.800	0.86	6.767	1.44	12.733	5.17	18.70	1.15
0.833	0.86	6.800	1.44	12.767	4.98	18.73	1.15
0.867	0.86	6.833	1.44	12.800	4.79	18.77	1.20
0.900	0.86	6.867	1.44	12.833	4.79	18.80	1.24
0.933	0.86	6.900	1.44	12.867	4.40	18.83	1.24
0.967	0.86	6.933	1.44	12.900	4.40	18.87	1.34
1.000	0.86	6.967	1.44	12.933	4.21	18.90	1.34
1.033	0.86	7.000	1.44	12.967	4.02	18.93	1.39
1.067	0.86	7.033	1.53	13.000	4.02	18.97	1.44
1.100	0.86	7.067	1.53	13.033	3.93	19.00	1.44
1.133	0.86	7.100	1.58	13.067	3.93	19.03	1.34
1.167	0.86	7.133	1.63	13.100	3.88	19.07	1.34

1.200	0.86	7.167	1.63	13.133	3.83	19.10	1.29
1.233	0.86	7.200	1.72	13.167	3.83	19.13	1.24
1.267	0.81	7.233	1.72	13.200	3.73	19.17	1.24
1.300	0.77	7.267	1.68	13.233	3.73	19.20	1.15
1.333	0.77	7.300	1.63	13.267	3.64	19.23	1.15
1.367	0.67	7.333	1.63	13.300	3.54	19.27	1.20
1.400	0.67	7.367	1.53	13.333	3.54	19.30	1.24
1.433	0.62	7.400	1.53	13.367	3.35	19.33	1.24
1.467	0.57	7.433	1.48	13.400	3.35	19.37	1.34
1.500	0.57	7.467	1.44	13.433	3.25	19.40	1.34
1.533	0.67	7.500	1.44	13.467	3.16	19.43	1.39
1.567	0.67	7.533	1.53	13.500	3.16	19.47	1.44
1.600	0.72	7.567	1.53	13.533	3.06	19.50	1.44
1.633	0.77	7.600	1.58	13.567	3.06	19.53	1.34
1.667	0.77	7.633	1.63	13.600	3.02	19.57	1.34
1.700	0.86	7.667	1.63	13.633	2.97	19.60	1.29
1.733	0.86	7.700	1.72	13.667	2.97	19.63	1.24
1.767	0.86	7.733	1.72	13.700	2.87	19.67	1.24
1.800	0.86	7.767	1.72	13.733	2.87	19.70	1.15
1.833	0.86	7.800	1.72	13.767	2.78	19.73	1.15
1.867	0.86	7.833	1.72	13.800	2.68	19.77	1.10
1.900	0.86	7.867	1.72	13.833	2.68	19.80	1.05
1.933	0.86	7.900	1.72	13.867	2.49	19.83	1.05
1.967	0.86	7.933	1.72	13.900	2.49	19.87	0.96
2.000	0.86	7.967	1.72	13.933	2.39	19.90	0.96
2.033	0.96	8.000	1.72	13.967	2.30	19.93	0.91
2.067	0.96	8.033	1.82	14.000	2.30	19.97	0.86
2.100	1.01	8.067	1.82	14.033	2.20	20.00	0.86
2.133	1.05	8.100	1.87	14.067	2.20	20.03	0.86
2.167	1.05	8.133	1.91	14.100	2.15	20.07	0.86
2.200	1.15	8.167	1.91	14.133	2.11	20.10	0.86
2.233	1.15	8.200	2.01	14.167	2.11	20.13	0.86
2.267	1.10	8.233	2.01	14.200	2.01	20.17	0.86
2.300	1.05	8.267	2.01	14.233	2.01	20.20	0.86
2.333	1.05	8.300	2.01	14.267	2.06	20.23	0.86
2.367	0.96	8.333	2.01	14.300	2.11	20.27	0.86
2.400	0.96	8.367	2.01	14.333	2.11	20.30	0.86
2.433	0.91	8.400	2.01	14.367	2.20	20.33	0.86
2.467	0.86	8.433	2.01	14.400	2.20	20.37	0.86
2.500	0.86	8.467	2.01	14.433	2.25	20.40	0.86
2.533	0.86	8.500	2.01	14.467	2.30	20.43	0.86
2.567	0.86	8.533	2.01	14.500	2.30	20.47	0.86
2.600	0.86	8.567	2.01	14.533	2.20	20.50	0.86
2.633	0.86	8.600	2.01	14.567	2.20	20.53	0.86
2.667	0.86	8.633	2.01	14.600	2.15	20.57	0.86
2.700	0.86	8.667	2.01	14.633	2.11	20.60	0.86
2.733	0.86	8.700	2.01	14.667	2.11	20.63	0.86
2.767	0.86	8.733	2.01	14.700	2.01	20.67	0.86
2.800	0.86	8.767	2.06	14.733	2.01	20.70	0.86
2.833	0.86	8.800	2.11	14.767	2.06	20.73	0.86
2.867	0.86	8.833	2.11	14.800	2.11	20.77	0.86
2.900	0.86	8.867	2.20	14.833	2.11	20.80	0.86
2.933	0.86	8.900	2.20	14.867	2.20	20.83	0.86
2.967	0.86	8.933	2.25	14.900	2.20	20.87	0.86
3.000	0.86	8.967	2.30	14.933	2.25	20.90	0.86
3.033	0.96	9.000	2.30	14.967	2.30	20.93	0.86
3.067	0.96	9.033	2.30	15.000	2.30	20.97	0.86
3.100	1.01	9.067	2.30	15.033	2.20	21.00	0.86
3.133	1.05	9.100	2.30	15.067	2.20	21.03	0.86
3.167	1.05	9.133	2.30	15.100	2.15	21.07	0.86
3.200	1.15	9.167	2.30	15.133	2.11	21.10	0.86
3.233	1.15	9.200	2.30	15.167	2.11	21.13	0.86
3.267	1.10	9.233	2.30	15.200	2.01	21.17	0.86

3.300	1.05	9.267	2.35	15.233	2.01	21.20	0.86
3.333	1.05	9.300	2.39	15.267	2.06	21.23	0.86
3.367	0.96	9.333	2.39	15.300	2.11	21.27	0.86
3.400	0.96	9.367	2.49	15.333	2.11	21.30	0.86
3.433	0.91	9.400	2.49	15.367	2.20	21.33	0.86
3.467	0.86	9.433	2.54	15.400	2.20	21.37	0.86
3.500	0.86	9.467	2.58	15.433	2.25	21.40	0.86
3.533	0.86	9.500	2.58	15.467	2.30	21.43	0.86
3.567	0.86	9.533	2.58	15.500	2.30	21.47	0.86
3.600	0.86	9.567	2.58	15.533	2.20	21.50	0.86
3.633	0.86	9.600	2.58	15.567	2.20	21.53	0.86
3.667	0.86	9.633	2.58	15.600	2.15	21.57	0.86
3.700	0.86	9.667	2.58	15.633	2.11	21.60	0.86
3.733	0.86	9.700	2.58	15.667	2.11	21.63	0.86
3.767	0.91	9.733	2.58	15.700	2.01	21.67	0.86
3.800	0.96	9.767	2.68	15.733	2.01	21.70	0.86
3.833	0.96	9.800	2.78	15.767	1.91	21.73	0.86
3.867	1.05	9.833	2.78	15.800	1.82	21.77	0.86
3.900	1.05	9.867	2.97	15.833	1.82	21.80	0.86
3.933	1.10	9.900	2.97	15.867	1.63	21.83	0.86
3.967	1.15	9.933	3.06	15.900	1.63	21.87	0.86
4.000	1.15	9.967	3.16	15.933	1.53	21.90	0.86
4.033	1.15	10.000	3.16	15.967	1.44	21.93	0.86
4.067	1.15	10.033	3.25	16.000	1.44	21.97	0.86
4.100	1.15	10.067	3.25	16.033	1.34	22.00	0.86
4.133	1.15	10.100	3.30	16.067	1.34	22.03	0.86
4.167	1.15	10.133	3.35	16.100	1.29	22.07	0.86
4.200	1.15	10.167	3.35	16.133	1.24	22.10	0.86
4.233	1.15	10.200	3.45	16.167	1.24	22.13	0.86
4.267	1.15	10.233	3.45	16.200	1.15	22.17	0.86
4.300	1.15	10.267	3.59	16.233	1.15	22.20	0.86
4.333	1.15	10.300	3.73	16.267	1.20	22.23	0.86
4.367	1.15	10.333	3.73	16.300	1.24	22.27	0.86
4.400	1.15	10.367	4.02	16.333	1.24	22.30	0.86
4.433	1.15	10.400	4.02	16.367	1.34	22.33	0.86
4.467	1.15	10.433	4.16	16.400	1.34	22.37	0.86
4.500	1.15	10.467	4.31	16.433	1.39	22.40	0.86
4.533	1.15	10.500	4.31	16.467	1.44	22.43	0.86
4.567	1.15	10.533	4.40	16.500	1.44	22.47	0.86
4.600	1.15	10.567	4.40	16.533	1.34	22.50	0.86
4.633	1.15	10.600	4.45	16.567	1.34	22.53	0.86
4.667	1.15	10.633	4.50	16.600	1.29	22.57	0.86
4.700	1.15	10.667	4.50	16.633	1.24	22.60	0.86
4.733	1.15	10.700	4.60	16.667	1.24	22.63	0.86
4.767	1.15	10.733	4.60	16.700	1.15	22.67	0.86
4.800	1.15	10.767	4.98	16.733	1.15	22.70	0.86
4.833	1.15	10.800	5.36	16.767	1.20	22.73	0.86
4.867	1.15	10.833	5.36	16.800	1.24	22.77	0.86
4.900	1.15	10.867	6.13	16.833	1.24	22.80	0.86
4.933	1.15	10.900	6.13	16.867	1.34	22.83	0.86
4.967	1.15	10.933	6.51	16.900	1.34	22.87	0.86
5.000	1.15	10.967	6.89	16.933	1.39	22.90	0.86
5.033	1.15	11.000	6.89	16.967	1.44	22.93	0.86
5.067	1.15	11.033	6.89	17.000	1.44	22.97	0.86
5.100	1.15	11.067	6.89	17.033	1.34	23.00	0.86
5.133	1.15	11.100	6.89	17.067	1.34	23.03	0.86
5.167	1.15	11.133	6.89	17.100	1.29	23.07	0.86
5.200	1.15	11.167	6.89	17.133	1.24	23.10	0.86
5.233	1.15	11.200	6.89	17.167	1.24	23.13	0.86
5.267	1.15	11.233	6.89	17.200	1.15	23.17	0.86
5.300	1.15	11.267	9.29	17.233	1.15	23.20	0.86
5.333	1.15	11.300	11.68	17.267	1.20	23.23	0.86
5.367	1.15	11.333	11.68	17.300	1.24	23.27	0.86

5.400	1.15	11.367	16.47	17.333	1.24	23.30	0.86
5.433	1.15	11.400	16.47	17.367	1.34	23.33	0.86
5.467	1.15	11.433	18.86	17.400	1.34	23.37	0.86
5.500	1.15	11.467	21.25	17.433	1.39	23.40	0.86
5.533	1.15	11.500	21.28	17.467	1.44	23.43	0.86
5.567	1.15	11.533	43.46	17.500	1.44	23.47	0.86
5.600	1.15	11.567	43.46	17.533	1.34	23.50	0.86
5.633	1.15	11.600	54.59	17.567	1.34	23.53	0.86
5.667	1.15	11.633	65.67	17.600	1.29	23.57	0.86
5.700	1.15	11.667	65.70	17.633	1.24	23.60	0.86
5.733	1.15	11.700	87.88	17.667	1.24	23.63	0.86
5.767	1.15	11.733	87.88	17.700	1.15	23.67	0.86
5.800	1.15	11.767	74.93	17.733	1.15	23.70	0.86
5.833	1.15	11.800	62.04	17.767	1.20	23.73	0.86
5.867	1.15	11.833	62.00	17.800	1.24	23.77	0.43
5.900	1.15	11.867	36.19	17.833	1.24		
5.933	1.15	11.900	36.19	17.867	1.34		
5.967	1.15	11.933	23.23	17.900	1.34		

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.200 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 13.858
TOTAL RAINFALL (mm)= 71.512
RUNOFF COEFFICIENT = 0.194

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

CALIB					
NASHYD (0102)	Area	(ha)=	2.91	Curve Number (CN)=	59.7
ID= 1 DT= 2.0 min	Ia	(mm)=	7.23	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.15		

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.133 (i)
TIME TO PEAK (hrs)= 11.900
RUNOFF VOLUME (mm)= 17.499
TOTAL RAINFALL (mm)= 71.512
RUNOFF COEFFICIENT = 0.245

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

ADD HYD (0201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	5.92	0.200	11.93	13.86
+ ID2= 2 (0102):	2.91	0.133	11.90	17.50
ID = 3 (0201):	8.83	0.332	11.93	15.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 3 **
****

MASS STORM
Ptotal= 83.80 mm

Filename: C:\Users\aschoof\AppData\Local\Temp\36c4b767-dab5-4a78-8603-ecfb23d0f7da\1b1949c3
Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min
New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.34	6.08	1.45	12.08	12.07	18.08	1.56
0.17	0.67	6.17	1.56	12.17	12.07	18.17	1.45
0.25	1.01	6.25	1.68	12.25	12.07	18.25	1.34
0.33	0.89	6.33	1.56	12.33	10.17	18.33	1.45
0.42	0.78	6.42	1.45	12.42	8.27	18.42	1.56
0.50	0.67	6.50	1.34	12.50	6.37	18.50	1.68
0.58	0.78	6.58	1.45	12.58	6.26	18.58	1.56
0.67	0.89	6.67	1.56	12.67	6.15	18.67	1.45
0.75	1.01	6.75	1.68	12.75	6.03	18.75	1.34
0.83	1.01	6.83	1.68	12.83	5.59	18.83	1.45
0.92	1.01	6.92	1.68	12.92	5.14	18.92	1.56
1.00	1.01	7.00	1.68	13.00	4.69	19.00	1.68
1.08	1.01	7.08	1.79	13.08	4.58	19.08	1.56
1.17	1.01	7.17	1.90	13.17	4.47	19.17	1.45
1.25	1.01	7.25	2.01	13.25	4.36	19.25	1.34
1.33	0.89	7.33	1.90	13.33	4.13	19.33	1.45
1.42	0.78	7.42	1.79	13.42	3.91	19.42	1.56
1.50	0.67	7.50	1.68	13.50	3.69	19.50	1.68
1.58	0.78	7.58	1.79	13.58	3.58	19.58	1.56
1.67	0.89	7.67	1.90	13.67	3.46	19.67	1.45
1.75	1.01	7.75	2.01	13.75	3.35	19.75	1.34
1.83	1.01	7.83	2.01	13.83	3.13	19.83	1.23
1.92	1.01	7.92	2.01	13.92	2.91	19.92	1.12
2.00	1.01	8.00	2.01	14.00	2.68	20.00	1.01
2.08	1.12	8.08	2.12	14.08	2.57	20.08	1.01
2.17	1.23	8.17	2.23	14.17	2.46	20.17	1.01
2.25	1.34	8.25	2.35	14.25	2.35	20.25	1.01
2.33	1.23	8.33	2.35	14.33	2.46	20.33	1.01
2.42	1.12	8.42	2.35	14.42	2.57	20.42	1.01
2.50	1.01	8.50	2.35	14.50	2.68	20.50	1.01
2.58	1.01	8.58	2.35	14.58	2.57	20.58	1.01
2.67	1.01	8.67	2.35	14.67	2.46	20.67	1.01
2.75	1.01	8.75	2.35	14.75	2.35	20.75	1.01
2.83	1.01	8.83	2.46	14.83	2.46	20.83	1.01
2.92	1.01	8.92	2.57	14.92	2.57	20.92	1.01
3.00	1.01	9.00	2.68	15.00	2.68	21.00	1.01
3.08	1.12	9.08	2.68	15.08	2.57	21.08	1.01
3.17	1.23	9.17	2.68	15.17	2.46	21.17	1.01
3.25	1.34	9.25	2.68	15.25	2.35	21.25	1.01
3.33	1.23	9.33	2.79	15.33	2.46	21.33	1.01
3.42	1.12	9.42	2.91	15.42	2.57	21.42	1.01
3.50	1.01	9.50	3.02	15.50	2.68	21.50	1.01
3.58	1.01	9.58	3.02	15.58	2.57	21.58	1.01
3.67	1.01	9.67	3.02	15.67	2.46	21.67	1.01
3.75	1.01	9.75	3.02	15.75	2.35	21.75	1.01
3.83	1.12	9.83	3.24	15.83	2.12	21.83	1.01
3.92	1.23	9.92	3.46	15.92	1.90	21.92	1.01
4.00	1.34	10.00	3.69	16.00	1.68	22.00	1.01
4.08	1.34	10.08	3.80	16.08	1.56	22.08	1.01

4.17	1.34	10.17	3.91	16.17	1.45	22.17	1.01
4.25	1.34	10.25	4.02	16.25	1.34	22.25	1.01
4.33	1.34	10.33	4.36	16.33	1.45	22.33	1.01
4.42	1.34	10.42	4.69	16.42	1.56	22.42	1.01
4.50	1.34	10.50	5.03	16.50	1.68	22.50	1.01
4.58	1.34	10.58	5.14	16.58	1.56	22.58	1.01
4.67	1.34	10.67	5.25	16.67	1.45	22.67	1.01
4.75	1.34	10.75	5.36	16.75	1.34	22.75	1.01
4.83	1.34	10.83	6.26	16.83	1.45	22.83	1.01
4.92	1.34	10.92	7.15	16.92	1.56	22.92	1.01
5.00	1.34	11.00	8.04	17.00	1.68	23.00	1.01
5.08	1.34	11.08	8.04	17.08	1.56	23.08	1.01
5.17	1.34	11.17	8.04	17.17	1.45	23.17	1.01
5.25	1.34	11.25	8.04	17.25	1.34	23.25	1.01
5.33	1.34	11.33	13.63	17.33	1.45	23.33	1.01
5.42	1.34	11.42	19.22	17.42	1.56	23.42	1.01
5.50	1.34	11.50	24.80	17.50	1.68	23.50	1.01
5.58	1.34	11.58	50.72	17.58	1.56	23.58	1.01
5.67	1.34	11.67	76.65	17.67	1.45	23.67	1.01
5.75	1.34	11.75	102.57	17.75	1.34	23.75	1.01
5.83	1.34	11.83	72.41	17.83	1.45		
5.92	1.34	11.92	42.24	17.92	1.56		
6.00	1.34	12.00	12.07	18.00	1.68		

CALIB			
NASHYD (0101)	Area (ha)= 5.92	Curve Number (CN)= 52.5	
ID= 1 DT= 2.0 min	Ia (mm)= 7.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.17		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.34	6.000	1.34	11.967	12.07	17.93	1.62
0.067	0.34	6.033	1.45	12.000	12.07	17.97	1.68
0.100	0.50	6.067	1.45	12.033	12.07	18.00	1.68
0.133	0.67	6.100	1.51	12.067	12.07	18.03	1.56
0.167	0.67	6.133	1.56	12.100	12.07	18.07	1.56
0.200	1.01	6.167	1.56	12.133	12.07	18.10	1.51
0.233	1.01	6.200	1.68	12.167	12.07	18.13	1.45
0.267	0.95	6.233	1.68	12.200	12.07	18.17	1.45
0.300	0.89	6.267	1.62	12.233	12.07	18.20	1.34
0.333	0.89	6.300	1.56	12.267	11.11	18.23	1.34
0.367	0.78	6.333	1.56	12.300	10.17	18.27	1.40
0.400	0.78	6.367	1.45	12.333	10.17	18.30	1.45
0.433	0.73	6.400	1.45	12.367	8.27	18.33	1.45
0.467	0.67	6.433	1.40	12.400	8.27	18.37	1.56
0.500	0.67	6.467	1.34	12.433	7.32	18.40	1.56
0.533	0.78	6.500	1.34	12.467	6.37	18.43	1.62
0.567	0.78	6.533	1.45	12.500	6.37	18.47	1.68
0.600	0.84	6.567	1.45	12.533	6.26	18.50	1.68
0.633	0.89	6.600	1.51	12.567	6.26	18.53	1.56
0.667	0.89	6.633	1.56	12.600	6.20	18.57	1.56
0.700	1.01	6.667	1.56	12.633	6.15	18.60	1.51
0.733	1.01	6.700	1.68	12.667	6.15	18.63	1.45
0.767	1.01	6.733	1.68	12.700	6.03	18.67	1.45
0.800	1.01	6.767	1.68	12.733	6.03	18.70	1.34
0.833	1.01	6.800	1.68	12.767	5.81	18.73	1.34
0.867	1.01	6.833	1.68	12.800	5.59	18.77	1.40

0.900	1.01	6.867	1.68	12.833	5.59	18.80	1.45
0.933	1.01	6.900	1.68	12.867	5.14	18.83	1.45
0.967	1.01	6.933	1.68	12.900	5.14	18.87	1.56
1.000	1.01	6.967	1.68	12.933	4.92	18.90	1.56
1.033	1.01	7.000	1.68	12.967	4.69	18.93	1.62
1.067	1.01	7.033	1.79	13.000	4.69	18.97	1.68
1.100	1.01	7.067	1.79	13.033	4.58	19.00	1.68
1.133	1.01	7.100	1.84	13.067	4.58	19.03	1.56
1.167	1.01	7.133	1.90	13.100	4.53	19.07	1.56
1.200	1.01	7.167	1.90	13.133	4.47	19.10	1.51
1.233	1.01	7.200	2.01	13.167	4.47	19.13	1.45
1.267	0.95	7.233	2.01	13.200	4.36	19.17	1.45
1.300	0.89	7.267	1.96	13.233	4.36	19.20	1.34
1.333	0.89	7.300	1.90	13.267	4.25	19.23	1.34
1.367	0.78	7.333	1.90	13.300	4.13	19.27	1.40
1.400	0.78	7.367	1.79	13.333	4.13	19.30	1.45
1.433	0.73	7.400	1.79	13.367	3.91	19.33	1.45
1.467	0.67	7.433	1.73	13.400	3.91	19.37	1.56
1.500	0.67	7.467	1.68	13.433	3.80	19.40	1.56
1.533	0.78	7.500	1.68	13.467	3.69	19.43	1.62
1.567	0.78	7.533	1.79	13.500	3.69	19.47	1.68
1.600	0.84	7.567	1.79	13.533	3.58	19.50	1.68
1.633	0.89	7.600	1.84	13.567	3.58	19.53	1.56
1.667	0.89	7.633	1.90	13.600	3.52	19.57	1.56
1.700	1.01	7.667	1.90	13.633	3.46	19.60	1.51
1.733	1.01	7.700	2.01	13.667	3.46	19.63	1.45
1.767	1.01	7.733	2.01	13.700	3.35	19.67	1.45
1.800	1.01	7.767	2.01	13.733	3.35	19.70	1.34
1.833	1.01	7.800	2.01	13.767	3.24	19.73	1.34
1.867	1.01	7.833	2.01	13.800	3.13	19.77	1.28
1.900	1.01	7.867	2.01	13.833	3.13	19.80	1.23
1.933	1.01	7.900	2.01	13.867	2.91	19.83	1.23
1.967	1.01	7.933	2.01	13.900	2.91	19.87	1.12
2.000	1.01	7.967	2.01	13.933	2.79	19.90	1.12
2.033	1.12	8.000	2.01	13.967	2.68	19.93	1.06
2.067	1.12	8.033	2.12	14.000	2.68	19.97	1.01
2.100	1.17	8.067	2.12	14.033	2.57	20.00	1.01
2.133	1.23	8.100	2.18	14.067	2.57	20.03	1.01
2.167	1.23	8.133	2.23	14.100	2.51	20.07	1.01
2.200	1.34	8.167	2.23	14.133	2.46	20.10	1.01
2.233	1.34	8.200	2.35	14.167	2.46	20.13	1.01
2.267	1.28	8.233	2.35	14.200	2.35	20.17	1.01
2.300	1.23	8.267	2.35	14.233	2.35	20.20	1.01
2.333	1.23	8.300	2.35	14.267	2.40	20.23	1.01
2.367	1.12	8.333	2.35	14.300	2.46	20.27	1.01
2.400	1.12	8.367	2.35	14.333	2.46	20.30	1.01
2.433	1.06	8.400	2.35	14.367	2.57	20.33	1.01
2.467	1.01	8.433	2.35	14.400	2.57	20.37	1.01
2.500	1.01	8.467	2.35	14.433	2.63	20.40	1.01
2.533	1.01	8.500	2.35	14.467	2.68	20.43	1.01
2.567	1.01	8.533	2.35	14.500	2.68	20.47	1.01
2.600	1.01	8.567	2.35	14.533	2.57	20.50	1.01
2.633	1.01	8.600	2.35	14.567	2.57	20.53	1.01
2.667	1.01	8.633	2.35	14.600	2.51	20.57	1.01
2.700	1.01	8.667	2.35	14.633	2.46	20.60	1.01
2.733	1.01	8.700	2.35	14.667	2.46	20.63	1.01
2.767	1.01	8.733	2.35	14.700	2.35	20.67	1.01
2.800	1.01	8.767	2.40	14.733	2.35	20.70	1.01
2.833	1.01	8.800	2.46	14.767	2.40	20.73	1.01
2.867	1.01	8.833	2.46	14.800	2.46	20.77	1.01
2.900	1.01	8.867	2.57	14.833	2.46	20.80	1.01
2.933	1.01	8.900	2.57	14.867	2.57	20.83	1.01
2.967	1.01	8.933	2.63	14.900	2.57	20.87	1.01

3.000	1.01	8.967	2.68	14.933	2.63	20.90	1.01
3.033	1.12	9.000	2.68	14.967	2.68	20.93	1.01
3.067	1.12	9.033	2.68	15.000	2.68	20.97	1.01
3.100	1.17	9.067	2.68	15.033	2.57	21.00	1.01
3.133	1.23	9.100	2.68	15.067	2.57	21.03	1.01
3.167	1.23	9.133	2.68	15.100	2.51	21.07	1.01
3.200	1.34	9.167	2.68	15.133	2.46	21.10	1.01
3.233	1.34	9.200	2.68	15.167	2.46	21.13	1.01
3.267	1.28	9.233	2.68	15.200	2.35	21.17	1.01
3.300	1.23	9.267	2.74	15.233	2.35	21.20	1.01
3.333	1.23	9.300	2.79	15.267	2.40	21.23	1.01
3.367	1.12	9.333	2.79	15.300	2.46	21.27	1.01
3.400	1.12	9.367	2.91	15.333	2.46	21.30	1.01
3.433	1.06	9.400	2.91	15.367	2.57	21.33	1.01
3.467	1.01	9.433	2.96	15.400	2.57	21.37	1.01
3.500	1.01	9.467	3.02	15.433	2.63	21.40	1.01
3.533	1.01	9.500	3.02	15.467	2.68	21.43	1.01
3.567	1.01	9.533	3.02	15.500	2.68	21.47	1.01
3.600	1.01	9.567	3.02	15.533	2.57	21.50	1.01
3.633	1.01	9.600	3.02	15.567	2.57	21.53	1.01
3.667	1.01	9.633	3.02	15.600	2.51	21.57	1.01
3.700	1.01	9.667	3.02	15.633	2.46	21.60	1.01
3.733	1.01	9.700	3.02	15.667	2.46	21.63	1.01
3.767	1.06	9.733	3.02	15.700	2.35	21.67	1.01
3.800	1.12	9.767	3.13	15.733	2.35	21.70	1.01
3.833	1.12	9.800	3.24	15.767	2.23	21.73	1.01
3.867	1.23	9.833	3.24	15.800	2.12	21.77	1.01
3.900	1.23	9.867	3.46	15.833	2.12	21.80	1.01
3.933	1.28	9.900	3.46	15.867	1.90	21.83	1.01
3.967	1.34	9.933	3.58	15.900	1.90	21.87	1.01
4.000	1.34	9.967	3.69	15.933	1.79	21.90	1.01
4.033	1.34	10.000	3.69	15.967	1.68	21.93	1.01
4.067	1.34	10.033	3.80	16.000	1.68	21.97	1.01
4.100	1.34	10.067	3.80	16.033	1.56	22.00	1.01
4.133	1.34	10.100	3.85	16.067	1.56	22.03	1.01
4.167	1.34	10.133	3.91	16.100	1.51	22.07	1.01
4.200	1.34	10.167	3.91	16.133	1.45	22.10	1.01
4.233	1.34	10.200	4.02	16.167	1.45	22.13	1.01
4.267	1.34	10.233	4.02	16.200	1.34	22.17	1.01
4.300	1.34	10.267	4.19	16.233	1.34	22.20	1.01
4.333	1.34	10.300	4.36	16.267	1.40	22.23	1.01
4.367	1.34	10.333	4.36	16.300	1.45	22.27	1.01
4.400	1.34	10.367	4.69	16.333	1.45	22.30	1.01
4.433	1.34	10.400	4.69	16.367	1.56	22.33	1.01
4.467	1.34	10.433	4.86	16.400	1.56	22.37	1.01
4.500	1.34	10.467	5.03	16.433	1.62	22.40	1.01
4.533	1.34	10.500	5.03	16.467	1.68	22.43	1.01
4.567	1.34	10.533	5.14	16.500	1.68	22.47	1.01
4.600	1.34	10.567	5.14	16.533	1.56	22.50	1.01
4.633	1.34	10.600	5.20	16.567	1.56	22.53	1.01
4.667	1.34	10.633	5.25	16.600	1.51	22.57	1.01
4.700	1.34	10.667	5.25	16.633	1.45	22.60	1.01
4.733	1.34	10.700	5.36	16.667	1.45	22.63	1.01
4.767	1.34	10.733	5.36	16.700	1.34	22.67	1.01
4.800	1.34	10.767	5.81	16.733	1.34	22.70	1.01
4.833	1.34	10.800	6.26	16.767	1.40	22.73	1.01
4.867	1.34	10.833	6.26	16.800	1.45	22.77	1.01
4.900	1.34	10.867	7.15	16.833	1.45	22.80	1.01
4.933	1.34	10.900	7.15	16.867	1.56	22.83	1.01
4.967	1.34	10.933	7.60	16.900	1.56	22.87	1.01
5.000	1.34	10.967	8.04	16.933	1.62	22.90	1.01
5.033	1.34	11.000	8.04	16.967	1.68	22.93	1.01
5.067	1.34	11.033	8.04	17.000	1.68	22.97	1.01

5.100	1.34	11.067	8.04	17.033	1.56	23.00	1.01
5.133	1.34	11.100	8.04	17.067	1.56	23.03	1.01
5.167	1.34	11.133	8.04	17.100	1.51	23.07	1.01
5.200	1.34	11.167	8.04	17.133	1.45	23.10	1.01
5.233	1.34	11.200	8.04	17.167	1.45	23.13	1.01
5.267	1.34	11.233	8.04	17.200	1.34	23.17	1.01
5.300	1.34	11.267	10.84	17.233	1.34	23.20	1.01
5.333	1.34	11.300	13.63	17.267	1.40	23.23	1.01
5.367	1.34	11.333	13.64	17.300	1.45	23.27	1.01
5.400	1.34	11.367	19.22	17.333	1.45	23.30	1.01
5.433	1.34	11.400	19.22	17.367	1.56	23.33	1.01
5.467	1.34	11.433	22.02	17.400	1.56	23.37	1.01
5.500	1.34	11.467	24.80	17.433	1.62	23.40	1.01
5.533	1.34	11.500	24.84	17.467	1.68	23.43	1.01
5.567	1.34	11.533	50.72	17.500	1.68	23.47	1.01
5.600	1.34	11.567	50.72	17.533	1.56	23.50	1.01
5.633	1.34	11.600	63.72	17.567	1.56	23.53	1.01
5.667	1.34	11.633	76.65	17.600	1.51	23.57	1.01
5.700	1.34	11.667	76.68	17.633	1.45	23.60	1.01
5.733	1.34	11.700	102.57	17.667	1.45	23.63	1.01
5.767	1.34	11.733	102.57	17.700	1.34	23.67	1.01
5.800	1.34	11.767	87.45	17.733	1.34	23.70	1.01
5.833	1.34	11.800	72.41	17.767	1.40	23.73	1.01
5.867	1.34	11.833	72.37	17.800	1.45	23.77	0.50
5.900	1.34	11.867	42.24	17.833	1.45		
5.933	1.34	11.900	42.24	17.867	1.56		
5.967	1.34	11.933	27.11	17.900	1.56		

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.274 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 18.772
TOTAL RAINFALL (mm)= 83.464
RUNOFF COEFFICIENT = 0.225

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

CALIB			
NASHYD (0102)	Area (ha)= 2.91	Curve Number (CN)= 59.7	
ID= 1 DT= 2.0 min	Ia (mm)= 7.23	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.15		

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.180 (i)
TIME TO PEAK (hrs)= 11.900
RUNOFF VOLUME (mm)= 23.425
TOTAL RAINFALL (mm)= 83.464
RUNOFF COEFFICIENT = 0.281

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

ADD HYD (0201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	5.92	0.274	11.93	18.77
+ ID2= 2 (0102):	2.91	0.180	11.90	23.43

ID = 3 (0201): 8.83 0.451 11.93 20.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

** SIMULATION NUMBER: 4 **

MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\36c4b767-dab5-4a78-8603-ecfb23d0f7da\da21477b
Ptotal= 98.90 mm	Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min
New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.40	6.08	1.71	12.08	14.24	18.08	1.85
0.17	0.79	6.17	1.85	12.17	14.24	18.17	1.71
0.25	1.19	6.25	1.98	12.25	14.24	18.25	1.58
0.33	1.05	6.33	1.85	12.33	12.00	18.33	1.71
0.42	0.92	6.42	1.71	12.42	9.76	18.42	1.85
0.50	0.79	6.50	1.58	12.50	7.52	18.50	1.98
0.58	0.92	6.58	1.71	12.58	7.38	18.58	1.85
0.67	1.05	6.67	1.85	12.67	7.25	18.67	1.71
0.75	1.19	6.75	1.98	12.75	7.12	18.75	1.58
0.83	1.19	6.83	1.98	12.83	6.59	18.83	1.71
0.92	1.19	6.92	1.98	12.92	6.07	18.92	1.85
1.00	1.19	7.00	1.98	13.00	5.54	19.00	1.98
1.08	1.19	7.08	2.11	13.08	5.41	19.08	1.85
1.17	1.19	7.17	2.24	13.17	5.27	19.17	1.71
1.25	1.19	7.25	2.37	13.25	5.14	19.25	1.58
1.33	1.05	7.33	2.24	13.33	4.88	19.33	1.71
1.42	0.92	7.42	2.11	13.42	4.62	19.42	1.85
1.50	0.79	7.50	1.98	13.50	4.35	19.50	1.98
1.58	0.92	7.58	2.11	13.58	4.22	19.58	1.85
1.67	1.05	7.67	2.24	13.67	4.09	19.67	1.71
1.75	1.19	7.75	2.37	13.75	3.96	19.75	1.58
1.83	1.19	7.83	2.37	13.83	3.69	19.83	1.45
1.92	1.19	7.92	2.37	13.92	3.43	19.92	1.32
2.00	1.19	8.00	2.37	14.00	3.16	20.00	1.19
2.08	1.32	8.08	2.51	14.08	3.03	20.08	1.19
2.17	1.45	8.17	2.64	14.17	2.90	20.17	1.19
2.25	1.58	8.25	2.77	14.25	2.77	20.25	1.19
2.33	1.45	8.33	2.77	14.33	2.90	20.33	1.19
2.42	1.32	8.42	2.77	14.42	3.03	20.42	1.19
2.50	1.19	8.50	2.77	14.50	3.16	20.50	1.19
2.58	1.19	8.58	2.77	14.58	3.03	20.58	1.19
2.67	1.19	8.67	2.77	14.67	2.90	20.67	1.19
2.75	1.19	8.75	2.77	14.75	2.77	20.75	1.19
2.83	1.19	8.83	2.90	14.83	2.90	20.83	1.19
2.92	1.19	8.92	3.03	14.92	3.03	20.92	1.19
3.00	1.19	9.00	3.16	15.00	3.16	21.00	1.19
3.08	1.32	9.08	3.16	15.08	3.03	21.08	1.19
3.17	1.45	9.17	3.16	15.17	2.90	21.17	1.19
3.25	1.58	9.25	3.16	15.25	2.77	21.25	1.19
3.33	1.45	9.33	3.30	15.33	2.90	21.33	1.19

3.42	1.32	9.42	3.43	15.42	3.03	21.42	1.19
3.50	1.19	9.50	3.56	15.50	3.16	21.50	1.19
3.58	1.19	9.58	3.56	15.58	3.03	21.58	1.19
3.67	1.19	9.67	3.56	15.67	2.90	21.67	1.19
3.75	1.19	9.75	3.56	15.75	2.77	21.75	1.19
3.83	1.32	9.83	3.82	15.83	2.51	21.83	1.19
3.92	1.45	9.92	4.09	15.92	2.24	21.92	1.19
4.00	1.58	10.00	4.35	16.00	1.98	22.00	1.19
4.08	1.58	10.08	4.48	16.08	1.85	22.08	1.19
4.17	1.58	10.17	4.62	16.17	1.71	22.17	1.19
4.25	1.58	10.25	4.75	16.25	1.58	22.25	1.19
4.33	1.58	10.33	5.14	16.33	1.71	22.33	1.19
4.42	1.58	10.42	5.54	16.42	1.85	22.42	1.19
4.50	1.58	10.50	5.93	16.50	1.98	22.50	1.19
4.58	1.58	10.58	6.07	16.58	1.85	22.58	1.19
4.67	1.58	10.67	6.20	16.67	1.71	22.67	1.19
4.75	1.58	10.75	6.33	16.75	1.58	22.75	1.19
4.83	1.58	10.83	7.38	16.83	1.71	22.83	1.19
4.92	1.58	10.92	8.44	16.92	1.85	22.92	1.19
5.00	1.58	11.00	9.49	17.00	1.98	23.00	1.19
5.08	1.58	11.08	9.49	17.08	1.85	23.08	1.19
5.17	1.58	11.17	9.49	17.17	1.71	23.17	1.19
5.25	1.58	11.25	9.49	17.25	1.58	23.25	1.19
5.33	1.58	11.33	16.09	17.33	1.71	23.33	1.19
5.42	1.58	11.42	22.68	17.42	1.85	23.42	1.19
5.50	1.58	11.50	29.27	17.50	1.98	23.50	1.19
5.58	1.58	11.58	59.86	17.58	1.85	23.58	1.19
5.67	1.58	11.67	90.46	17.67	1.71	23.67	1.19
5.75	1.58	11.75	121.05	17.75	1.58	23.75	1.19
5.83	1.58	11.83	85.45	17.83	1.71		
5.92	1.58	11.92	49.85	17.92	1.85		
6.00	1.58	12.00	14.25	18.00	1.98		

CALIB				
NASHYD (0101)	Area (ha)= 5.92	Curve Number (CN)= 52.5		
ID= 1 DT= 2.0 min	Ia (mm)= 7.70	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.17			

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.40	6.000	1.58	11.967	14.25	17.93	1.91
0.067	0.40	6.033	1.71	12.000	14.25	17.97	1.98
0.100	0.59	6.067	1.71	12.033	14.24	18.00	1.98
0.133	0.79	6.100	1.78	12.067	14.24	18.03	1.85
0.167	0.79	6.133	1.85	12.100	14.24	18.07	1.85
0.200	1.19	6.167	1.85	12.133	14.24	18.10	1.78
0.233	1.19	6.200	1.98	12.167	14.24	18.13	1.71
0.267	1.12	6.233	1.98	12.200	14.24	18.17	1.71
0.300	1.05	6.267	1.91	12.233	14.24	18.20	1.58
0.333	1.05	6.300	1.85	12.267	13.12	18.23	1.58
0.367	0.92	6.333	1.85	12.300	12.00	18.27	1.65
0.400	0.92	6.367	1.71	12.333	12.00	18.30	1.71
0.433	0.86	6.400	1.71	12.367	9.76	18.33	1.71
0.467	0.79	6.433	1.65	12.400	9.76	18.37	1.85
0.500	0.79	6.467	1.58	12.433	8.63	18.40	1.85
0.533	0.92	6.500	1.58	12.467	7.52	18.43	1.91
0.567	0.92	6.533	1.71	12.500	7.52	18.47	1.98

0.600	0.99	6.567	1.71	12.533	7.38	18.50	1.98
0.633	1.05	6.600	1.78	12.567	7.38	18.53	1.85
0.667	1.05	6.633	1.85	12.600	7.32	18.57	1.85
0.700	1.19	6.667	1.85	12.633	7.25	18.60	1.78
0.733	1.19	6.700	1.98	12.667	7.25	18.63	1.71
0.767	1.19	6.733	1.98	12.700	7.12	18.67	1.71
0.800	1.19	6.767	1.98	12.733	7.12	18.70	1.58
0.833	1.19	6.800	1.98	12.767	6.86	18.73	1.58
0.867	1.19	6.833	1.98	12.800	6.59	18.77	1.65
0.900	1.19	6.867	1.98	12.833	6.59	18.80	1.71
0.933	1.19	6.900	1.98	12.867	6.07	18.83	1.71
0.967	1.19	6.933	1.98	12.900	6.07	18.87	1.85
1.000	1.19	6.967	1.98	12.933	5.80	18.90	1.85
1.033	1.19	7.000	1.98	12.967	5.54	18.93	1.91
1.067	1.19	7.033	2.11	13.000	5.54	18.97	1.98
1.100	1.19	7.067	2.11	13.033	5.41	19.00	1.98
1.133	1.19	7.100	2.18	13.067	5.41	19.03	1.85
1.167	1.19	7.133	2.24	13.100	5.34	19.07	1.85
1.200	1.19	7.167	2.24	13.133	5.27	19.10	1.78
1.233	1.19	7.200	2.37	13.167	5.27	19.13	1.71
1.267	1.12	7.233	2.37	13.200	5.14	19.17	1.71
1.300	1.05	7.267	2.31	13.233	5.14	19.20	1.58
1.333	1.05	7.300	2.24	13.267	5.01	19.23	1.58
1.367	0.92	7.333	2.24	13.300	4.88	19.27	1.65
1.400	0.92	7.367	2.11	13.333	4.88	19.30	1.71
1.433	0.86	7.400	2.11	13.367	4.62	19.33	1.71
1.467	0.79	7.433	2.04	13.400	4.62	19.37	1.85
1.500	0.79	7.467	1.98	13.433	4.48	19.40	1.85
1.533	0.92	7.500	1.98	13.467	4.35	19.43	1.91
1.567	0.92	7.533	2.11	13.500	4.35	19.47	1.98
1.600	0.99	7.567	2.11	13.533	4.22	19.50	1.98
1.633	1.05	7.600	2.18	13.567	4.22	19.53	1.85
1.667	1.05	7.633	2.24	13.600	4.15	19.57	1.85
1.700	1.19	7.667	2.24	13.633	4.09	19.60	1.78
1.733	1.19	7.700	2.37	13.667	4.09	19.63	1.71
1.767	1.19	7.733	2.37	13.700	3.96	19.67	1.71
1.800	1.19	7.767	2.37	13.733	3.96	19.70	1.58
1.833	1.19	7.800	2.37	13.767	3.82	19.73	1.58
1.867	1.19	7.833	2.37	13.800	3.69	19.77	1.52
1.900	1.19	7.867	2.37	13.833	3.69	19.80	1.45
1.933	1.19	7.900	2.37	13.867	3.43	19.83	1.45
1.967	1.19	7.933	2.37	13.900	3.43	19.87	1.32
2.000	1.19	7.967	2.37	13.933	3.30	19.90	1.32
2.033	1.32	8.000	2.37	13.967	3.16	19.93	1.25
2.067	1.32	8.033	2.51	14.000	3.16	19.97	1.19
2.100	1.38	8.067	2.51	14.033	3.03	20.00	1.19
2.133	1.45	8.100	2.57	14.067	3.03	20.03	1.19
2.167	1.45	8.133	2.64	14.100	2.97	20.07	1.19
2.200	1.58	8.167	2.64	14.133	2.90	20.10	1.19
2.233	1.58	8.200	2.77	14.167	2.90	20.13	1.19
2.267	1.52	8.233	2.77	14.200	2.77	20.17	1.19
2.300	1.45	8.267	2.77	14.233	2.77	20.20	1.19
2.333	1.45	8.300	2.77	14.267	2.84	20.23	1.19
2.367	1.32	8.333	2.77	14.300	2.90	20.27	1.19
2.400	1.32	8.367	2.77	14.333	2.90	20.30	1.19
2.433	1.25	8.400	2.77	14.367	3.03	20.33	1.19
2.467	1.19	8.433	2.77	14.400	3.03	20.37	1.19
2.500	1.19	8.467	2.77	14.433	3.10	20.40	1.19
2.533	1.19	8.500	2.77	14.467	3.16	20.43	1.19
2.567	1.19	8.533	2.77	14.500	3.16	20.47	1.19
2.600	1.19	8.567	2.77	14.533	3.03	20.50	1.19
2.633	1.19	8.600	2.77	14.567	3.03	20.53	1.19
2.667	1.19	8.633	2.77	14.600	2.97	20.57	1.19

2.700	1.19	8.667	2.77	14.633	2.90	20.60	1.19
2.733	1.19	8.700	2.77	14.667	2.90	20.63	1.19
2.767	1.19	8.733	2.77	14.700	2.77	20.67	1.19
2.800	1.19	8.767	2.84	14.733	2.77	20.70	1.19
2.833	1.19	8.800	2.90	14.767	2.84	20.73	1.19
2.867	1.19	8.833	2.90	14.800	2.90	20.77	1.19
2.900	1.19	8.867	3.03	14.833	2.90	20.80	1.19
2.933	1.19	8.900	3.03	14.867	3.03	20.83	1.19
2.967	1.19	8.933	3.10	14.900	3.03	20.87	1.19
3.000	1.19	8.967	3.16	14.933	3.10	20.90	1.19
3.033	1.32	9.000	3.16	14.967	3.16	20.93	1.19
3.067	1.32	9.033	3.16	15.000	3.16	20.97	1.19
3.100	1.38	9.067	3.16	15.033	3.03	21.00	1.19
3.133	1.45	9.100	3.16	15.067	3.03	21.03	1.19
3.167	1.45	9.133	3.16	15.100	2.97	21.07	1.19
3.200	1.58	9.167	3.16	15.133	2.90	21.10	1.19
3.233	1.58	9.200	3.16	15.167	2.90	21.13	1.19
3.267	1.52	9.233	3.16	15.200	2.77	21.17	1.19
3.300	1.45	9.267	3.23	15.233	2.77	21.20	1.19
3.333	1.45	9.300	3.30	15.267	2.84	21.23	1.19
3.367	1.32	9.333	3.30	15.300	2.90	21.27	1.19
3.400	1.32	9.367	3.43	15.333	2.90	21.30	1.19
3.433	1.25	9.400	3.43	15.367	3.03	21.33	1.19
3.467	1.19	9.433	3.49	15.400	3.03	21.37	1.19
3.500	1.19	9.467	3.56	15.433	3.10	21.40	1.19
3.533	1.19	9.500	3.56	15.467	3.16	21.43	1.19
3.567	1.19	9.533	3.56	15.500	3.16	21.47	1.19
3.600	1.19	9.567	3.56	15.533	3.03	21.50	1.19
3.633	1.19	9.600	3.56	15.567	3.03	21.53	1.19
3.667	1.19	9.633	3.56	15.600	2.97	21.57	1.19
3.700	1.19	9.667	3.56	15.633	2.90	21.60	1.19
3.733	1.19	9.700	3.56	15.667	2.90	21.63	1.19
3.767	1.25	9.733	3.56	15.700	2.77	21.67	1.19
3.800	1.32	9.767	3.69	15.733	2.77	21.70	1.19
3.833	1.32	9.800	3.82	15.767	2.64	21.73	1.19
3.867	1.45	9.833	3.82	15.800	2.51	21.77	1.19
3.900	1.45	9.867	4.09	15.833	2.50	21.80	1.19
3.933	1.52	9.900	4.09	15.867	2.24	21.83	1.19
3.967	1.58	9.933	4.22	15.900	2.24	21.87	1.19
4.000	1.58	9.967	4.35	15.933	2.11	21.90	1.19
4.033	1.58	10.000	4.35	15.967	1.98	21.93	1.19
4.067	1.58	10.033	4.48	16.000	1.98	21.97	1.19
4.100	1.58	10.067	4.48	16.033	1.85	22.00	1.19
4.133	1.58	10.100	4.55	16.067	1.85	22.03	1.19
4.167	1.58	10.133	4.62	16.100	1.78	22.07	1.19
4.200	1.58	10.167	4.62	16.133	1.71	22.10	1.19
4.233	1.58	10.200	4.75	16.167	1.71	22.13	1.19
4.267	1.58	10.233	4.75	16.200	1.58	22.17	1.19
4.300	1.58	10.267	4.95	16.233	1.58	22.20	1.19
4.333	1.58	10.300	5.14	16.267	1.65	22.23	1.19
4.367	1.58	10.333	5.14	16.300	1.71	22.27	1.19
4.400	1.58	10.367	5.54	16.333	1.71	22.30	1.19
4.433	1.58	10.400	5.54	16.367	1.85	22.33	1.19
4.467	1.58	10.433	5.74	16.400	1.85	22.37	1.19
4.500	1.58	10.467	5.93	16.433	1.91	22.40	1.19
4.533	1.58	10.500	5.93	16.467	1.98	22.43	1.19
4.567	1.58	10.533	6.07	16.500	1.98	22.47	1.19
4.600	1.58	10.567	6.07	16.533	1.85	22.50	1.19
4.633	1.58	10.600	6.13	16.567	1.85	22.53	1.19
4.667	1.58	10.633	6.20	16.600	1.78	22.57	1.19
4.700	1.58	10.667	6.20	16.633	1.71	22.60	1.19
4.733	1.58	10.700	6.33	16.667	1.71	22.63	1.19
4.767	1.58	10.733	6.33	16.700	1.58	22.67	1.19

4.800	1.58	10.767	6.86	16.733	1.58	22.70	1.19
4.833	1.58	10.800	7.38	16.767	1.65	22.73	1.19
4.867	1.58	10.833	7.39	16.800	1.71	22.77	1.19
4.900	1.58	10.867	8.44	16.833	1.71	22.80	1.19
4.933	1.58	10.900	8.44	16.867	1.85	22.83	1.19
4.967	1.58	10.933	8.97	16.900	1.85	22.87	1.19
5.000	1.58	10.967	9.49	16.933	1.91	22.90	1.19
5.033	1.58	11.000	9.49	16.967	1.98	22.93	1.19
5.067	1.58	11.033	9.49	17.000	1.98	22.97	1.19
5.100	1.58	11.067	9.49	17.033	1.85	23.00	1.19
5.133	1.58	11.100	9.49	17.067	1.85	23.03	1.19
5.167	1.58	11.133	9.49	17.100	1.78	23.07	1.19
5.200	1.58	11.167	9.49	17.133	1.71	23.10	1.19
5.233	1.58	11.200	9.49	17.167	1.71	23.13	1.19
5.267	1.58	11.233	9.49	17.200	1.58	23.17	1.19
5.300	1.58	11.267	12.80	17.233	1.58	23.20	1.19
5.333	1.58	11.300	16.09	17.267	1.65	23.23	1.19
5.367	1.58	11.333	16.09	17.300	1.71	23.27	1.19
5.400	1.58	11.367	22.68	17.333	1.71	23.30	1.19
5.433	1.58	11.400	22.68	17.367	1.85	23.33	1.19
5.467	1.58	11.433	25.98	17.400	1.85	23.37	1.19
5.500	1.58	11.467	29.27	17.433	1.91	23.40	1.19
5.533	1.58	11.500	29.31	17.467	1.98	23.43	1.19
5.567	1.58	11.533	59.86	17.500	1.98	23.47	1.19
5.600	1.58	11.567	59.86	17.533	1.85	23.50	1.19
5.633	1.58	11.600	75.20	17.567	1.85	23.53	1.19
5.667	1.58	11.633	90.46	17.600	1.78	23.57	1.19
5.700	1.58	11.667	90.50	17.633	1.71	23.60	1.19
5.733	1.58	11.700	121.05	17.667	1.71	23.63	1.19
5.767	1.58	11.733	121.05	17.700	1.58	23.67	1.19
5.800	1.58	11.767	103.21	17.733	1.58	23.70	1.19
5.833	1.58	11.800	85.45	17.767	1.65	23.73	1.19
5.867	1.58	11.833	85.41	17.800	1.71	23.77	0.59
5.900	1.58	11.867	49.85	17.833	1.71		
5.933	1.58	11.900	49.85	17.867	1.85		
5.967	1.58	11.933	32.00	17.900	1.85		

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.377 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 25.700
TOTAL RAINFALL (mm)= 98.504
RUNOFF COEFFICIENT = 0.261

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

CALIB	
NASHYD (0102)	Area (ha)= 2.91 Curve Number (CN)= 59.7
ID= 1 DT= 2.0 min	Ia (mm)= 7.23 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.15

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.245 (i)
TIME TO PEAK (hrs)= 11.900
RUNOFF VOLUME (mm)= 31.660
TOTAL RAINFALL (mm)= 98.504
RUNOFF COEFFICIENT = 0.321

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

ADD HYD (0201)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0101):	5.92	0.377	11.93	25.70
	+ ID2= 2 (0102):	2.91	0.245	11.90	31.66
	ID = 3 (0201):	8.83	0.619	11.90	27.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 5 **
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MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\36c4b767-dab5-4a78-8603-ecfb23d0f7da\cc4aad37
Ptotal=109.80 mm	Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min
New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.44	6.08	1.90	12.08	15.81	18.08	2.05
0.17	0.88	6.17	2.05	12.17	15.81	18.17	1.90
0.25	1.32	6.25	2.20	12.25	15.81	18.25	1.76
0.33	1.17	6.33	2.05	12.33	13.32	18.33	1.90
0.42	1.02	6.42	1.90	12.42	10.83	18.42	2.05
0.50	0.88	6.50	1.76	12.50	8.35	18.50	2.20
0.58	1.02	6.58	1.90	12.58	8.20	18.58	2.05
0.67	1.17	6.67	2.05	12.67	8.05	18.67	1.90
0.75	1.32	6.75	2.20	12.75	7.91	18.75	1.76
0.83	1.32	6.83	2.20	12.83	7.32	18.83	1.90
0.92	1.32	6.92	2.20	12.92	6.73	18.92	2.05
1.00	1.32	7.00	2.20	13.00	6.15	19.00	2.20
1.08	1.32	7.08	2.34	13.08	6.00	19.08	2.05
1.17	1.32	7.17	2.49	13.17	5.86	19.17	1.90
1.25	1.32	7.25	2.64	13.25	5.71	19.25	1.76
1.33	1.17	7.33	2.49	13.33	5.42	19.33	1.90
1.42	1.02	7.42	2.34	13.42	5.12	19.42	2.05
1.50	0.88	7.50	2.20	13.50	4.83	19.50	2.20
1.58	1.02	7.58	2.34	13.58	4.68	19.58	2.05
1.67	1.17	7.67	2.49	13.67	4.54	19.67	1.90
1.75	1.32	7.75	2.64	13.75	4.39	19.75	1.76
1.83	1.32	7.83	2.64	13.83	4.10	19.83	1.61
1.92	1.32	7.92	2.64	13.92	3.81	19.92	1.46
2.00	1.32	8.00	2.64	14.00	3.51	20.00	1.32
2.08	1.46	8.08	2.78	14.08	3.37	20.08	1.32
2.17	1.61	8.17	2.93	14.17	3.22	20.17	1.32
2.25	1.76	8.25	3.07	14.25	3.07	20.25	1.32
2.33	1.61	8.33	3.07	14.33	3.22	20.33	1.32
2.42	1.46	8.42	3.07	14.42	3.37	20.42	1.32
2.50	1.32	8.50	3.07	14.50	3.51	20.50	1.32
2.58	1.32	8.58	3.07	14.58	3.37	20.58	1.32

2.67	1.32	8.67	3.07	14.67	3.22	20.67	1.32
2.75	1.32	8.75	3.07	14.75	3.07	20.75	1.32
2.83	1.32	8.83	3.22	14.83	3.22	20.83	1.32
2.92	1.32	8.92	3.37	14.92	3.37	20.92	1.32
3.00	1.32	9.00	3.51	15.00	3.51	21.00	1.32
3.08	1.46	9.08	3.51	15.08	3.37	21.08	1.32
3.17	1.61	9.17	3.51	15.17	3.22	21.17	1.32
3.25	1.76	9.25	3.51	15.25	3.07	21.25	1.32
3.33	1.61	9.33	3.66	15.33	3.22	21.33	1.32
3.42	1.46	9.42	3.81	15.42	3.37	21.42	1.32
3.50	1.32	9.50	3.95	15.50	3.51	21.50	1.32
3.58	1.32	9.58	3.95	15.58	3.37	21.58	1.32
3.67	1.32	9.67	3.95	15.67	3.22	21.67	1.32
3.75	1.32	9.75	3.95	15.75	3.07	21.75	1.32
3.83	1.46	9.83	4.25	15.83	2.78	21.83	1.32
3.92	1.61	9.92	4.54	15.92	2.49	21.92	1.32
4.00	1.76	10.00	4.83	16.00	2.20	22.00	1.32
4.08	1.76	10.08	4.98	16.08	2.05	22.08	1.32
4.17	1.76	10.17	5.12	16.17	1.90	22.17	1.32
4.25	1.76	10.25	5.27	16.25	1.76	22.25	1.32
4.33	1.76	10.33	5.71	16.33	1.90	22.33	1.32
4.42	1.76	10.42	6.15	16.42	2.05	22.42	1.32
4.50	1.76	10.50	6.59	16.50	2.20	22.50	1.32
4.58	1.76	10.58	6.73	16.58	2.05	22.58	1.32
4.67	1.76	10.67	6.88	16.67	1.90	22.67	1.32
4.75	1.76	10.75	7.03	16.75	1.76	22.75	1.32
4.83	1.76	10.83	8.20	16.83	1.90	22.83	1.32
4.92	1.76	10.92	9.37	16.92	2.05	22.92	1.32
5.00	1.76	11.00	10.54	17.00	2.20	23.00	1.32
5.08	1.76	11.08	10.54	17.08	2.05	23.08	1.32
5.17	1.76	11.17	10.54	17.17	1.90	23.17	1.32
5.25	1.76	11.25	10.54	17.25	1.76	23.25	1.32
5.33	1.76	11.33	17.86	17.33	1.90	23.33	1.32
5.42	1.76	11.42	25.18	17.42	2.05	23.42	1.32
5.50	1.76	11.50	32.50	17.50	2.20	23.50	1.32
5.58	1.76	11.58	66.46	17.58	2.05	23.58	1.32
5.67	1.76	11.67	100.43	17.67	1.90	23.67	1.32
5.75	1.76	11.75	134.39	17.75	1.76	23.75	1.32
5.83	1.76	11.83	94.87	17.83	1.90		
5.92	1.76	11.92	55.34	17.92	2.05		
6.00	1.76	12.00	15.82	18.00	2.20		

CALIB					
NASHYD (0101)	Area	(ha)=	5.92	Curve Number (CN)=	52.5
ID= 1 DT= 2.0 min	Ia	(mm)=	7.70	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.17		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.44	6.000	1.76	11.967	15.82	17.93	2.12
0.067	0.44	6.033	1.90	12.000	15.82	17.97	2.20
0.100	0.66	6.067	1.90	12.033	15.81	18.00	2.20
0.133	0.88	6.100	1.98	12.067	15.81	18.03	2.05
0.167	0.88	6.133	2.05	12.100	15.81	18.07	2.05
0.200	1.32	6.167	2.05	12.133	15.81	18.10	1.98
0.233	1.32	6.200	2.20	12.167	15.81	18.13	1.90
0.267	1.24	6.233	2.20	12.200	15.81	18.17	1.90

0.300	1.17	6.267	2.12	12.233	15.81	18.20	1.76
0.333	1.17	6.300	2.05	12.267	14.56	18.23	1.76
0.367	1.02	6.333	2.05	12.300	13.32	18.27	1.83
0.400	1.02	6.367	1.90	12.333	13.32	18.30	1.90
0.433	0.95	6.400	1.90	12.367	10.83	18.33	1.90
0.467	0.88	6.433	1.83	12.400	10.83	18.37	2.05
0.500	0.88	6.467	1.76	12.433	9.59	18.40	2.05
0.533	1.02	6.500	1.76	12.467	8.35	18.43	2.12
0.567	1.02	6.533	1.90	12.500	8.34	18.47	2.20
0.600	1.10	6.567	1.90	12.533	8.20	18.50	2.20
0.633	1.17	6.600	1.98	12.567	8.20	18.53	2.05
0.667	1.17	6.633	2.05	12.600	8.12	18.57	2.05
0.700	1.32	6.667	2.05	12.633	8.05	18.60	1.98
0.733	1.32	6.700	2.20	12.667	8.05	18.63	1.90
0.767	1.32	6.733	2.20	12.700	7.91	18.67	1.90
0.800	1.32	6.767	2.20	12.733	7.91	18.70	1.76
0.833	1.32	6.800	2.20	12.767	7.61	18.73	1.76
0.867	1.32	6.833	2.20	12.800	7.32	18.77	1.83
0.900	1.32	6.867	2.20	12.833	7.32	18.80	1.90
0.933	1.32	6.900	2.20	12.867	6.73	18.83	1.90
0.967	1.32	6.933	2.20	12.900	6.73	18.87	2.05
1.000	1.32	6.967	2.20	12.933	6.44	18.90	2.05
1.033	1.32	7.000	2.20	12.967	6.15	18.93	2.12
1.067	1.32	7.033	2.34	13.000	6.15	18.97	2.20
1.100	1.32	7.067	2.34	13.033	6.00	19.00	2.20
1.133	1.32	7.100	2.42	13.067	6.00	19.03	2.05
1.167	1.32	7.133	2.49	13.100	5.93	19.07	2.05
1.200	1.32	7.167	2.49	13.133	5.86	19.10	1.98
1.233	1.32	7.200	2.64	13.167	5.86	19.13	1.90
1.267	1.24	7.233	2.64	13.200	5.71	19.17	1.90
1.300	1.17	7.267	2.56	13.233	5.71	19.20	1.76
1.333	1.17	7.300	2.49	13.267	5.56	19.23	1.76
1.367	1.02	7.333	2.49	13.300	5.42	19.27	1.83
1.400	1.02	7.367	2.34	13.333	5.42	19.30	1.90
1.433	0.95	7.400	2.34	13.367	5.12	19.33	1.90
1.467	0.88	7.433	2.27	13.400	5.12	19.37	2.05
1.500	0.88	7.467	2.20	13.433	4.98	19.40	2.05
1.533	1.02	7.500	2.20	13.467	4.83	19.43	2.12
1.567	1.02	7.533	2.34	13.500	4.83	19.47	2.20
1.600	1.10	7.567	2.34	13.533	4.68	19.50	2.20
1.633	1.17	7.600	2.42	13.567	4.68	19.53	2.05
1.667	1.17	7.633	2.49	13.600	4.61	19.57	2.05
1.700	1.32	7.667	2.49	13.633	4.54	19.60	1.98
1.733	1.32	7.700	2.64	13.667	4.54	19.63	1.90
1.767	1.32	7.733	2.64	13.700	4.39	19.67	1.90
1.800	1.32	7.767	2.64	13.733	4.39	19.70	1.76
1.833	1.32	7.800	2.64	13.767	4.25	19.73	1.76
1.867	1.32	7.833	2.64	13.800	4.10	19.77	1.68
1.900	1.32	7.867	2.64	13.833	4.10	19.80	1.61
1.933	1.32	7.900	2.64	13.867	3.81	19.83	1.61
1.967	1.32	7.933	2.64	13.900	3.81	19.87	1.46
2.000	1.32	7.967	2.64	13.933	3.66	19.90	1.46
2.033	1.46	8.000	2.64	13.967	3.51	19.93	1.39
2.067	1.46	8.033	2.78	14.000	3.51	19.97	1.32
2.100	1.54	8.067	2.78	14.033	3.37	20.00	1.32
2.133	1.61	8.100	2.85	14.067	3.37	20.03	1.32
2.167	1.61	8.133	2.93	14.100	3.29	20.07	1.32
2.200	1.76	8.167	2.93	14.133	3.22	20.10	1.32
2.233	1.76	8.200	3.07	14.167	3.22	20.13	1.32
2.267	1.68	8.233	3.07	14.200	3.07	20.17	1.32
2.300	1.61	8.267	3.07	14.233	3.07	20.20	1.32
2.333	1.61	8.300	3.07	14.267	3.15	20.23	1.32
2.367	1.46	8.333	3.07	14.300	3.22	20.27	1.32

2.400	1.46	8.367	3.07	14.333	3.22	20.30	1.32
2.433	1.39	8.400	3.07	14.367	3.37	20.33	1.32
2.467	1.32	8.433	3.07	14.400	3.37	20.37	1.32
2.500	1.32	8.467	3.07	14.433	3.44	20.40	1.32
2.533	1.32	8.500	3.07	14.467	3.51	20.43	1.32
2.567	1.32	8.533	3.07	14.500	3.51	20.47	1.32
2.600	1.32	8.567	3.07	14.533	3.37	20.50	1.32
2.633	1.32	8.600	3.07	14.567	3.37	20.53	1.32
2.667	1.32	8.633	3.07	14.600	3.29	20.57	1.32
2.700	1.32	8.667	3.07	14.633	3.22	20.60	1.32
2.733	1.32	8.700	3.07	14.667	3.22	20.63	1.32
2.767	1.32	8.733	3.07	14.700	3.07	20.67	1.32
2.800	1.32	8.767	3.15	14.733	3.07	20.70	1.32
2.833	1.32	8.800	3.22	14.767	3.15	20.73	1.32
2.867	1.32	8.833	3.22	14.800	3.22	20.77	1.32
2.900	1.32	8.867	3.37	14.833	3.22	20.80	1.32
2.933	1.32	8.900	3.37	14.867	3.37	20.83	1.32
2.967	1.32	8.933	3.44	14.900	3.37	20.87	1.32
3.000	1.32	8.967	3.51	14.933	3.44	20.90	1.32
3.033	1.46	9.000	3.51	14.967	3.51	20.93	1.32
3.067	1.46	9.033	3.51	15.000	3.51	20.97	1.32
3.100	1.54	9.067	3.51	15.033	3.37	21.00	1.32
3.133	1.61	9.100	3.51	15.067	3.37	21.03	1.32
3.167	1.61	9.133	3.51	15.100	3.29	21.07	1.32
3.200	1.76	9.167	3.51	15.133	3.22	21.10	1.32
3.233	1.76	9.200	3.51	15.167	3.22	21.13	1.32
3.267	1.68	9.233	3.51	15.200	3.07	21.17	1.32
3.300	1.61	9.267	3.59	15.233	3.07	21.20	1.32
3.333	1.61	9.300	3.66	15.267	3.15	21.23	1.32
3.367	1.46	9.333	3.66	15.300	3.22	21.27	1.32
3.400	1.46	9.367	3.81	15.333	3.22	21.30	1.32
3.433	1.39	9.400	3.81	15.367	3.37	21.33	1.32
3.467	1.32	9.433	3.88	15.400	3.37	21.37	1.32
3.500	1.32	9.467	3.95	15.433	3.44	21.40	1.32
3.533	1.32	9.500	3.95	15.467	3.51	21.43	1.32
3.567	1.32	9.533	3.95	15.500	3.51	21.47	1.32
3.600	1.32	9.567	3.95	15.533	3.37	21.50	1.32
3.633	1.32	9.600	3.95	15.567	3.37	21.53	1.32
3.667	1.32	9.633	3.95	15.600	3.29	21.57	1.32
3.700	1.32	9.667	3.95	15.633	3.22	21.60	1.32
3.733	1.32	9.700	3.95	15.667	3.22	21.63	1.32
3.767	1.39	9.733	3.95	15.700	3.07	21.67	1.32
3.800	1.46	9.767	4.10	15.733	3.07	21.70	1.32
3.833	1.46	9.800	4.25	15.767	2.93	21.73	1.32
3.867	1.61	9.833	4.25	15.800	2.78	21.77	1.32
3.900	1.61	9.867	4.54	15.833	2.78	21.80	1.32
3.933	1.68	9.900	4.54	15.867	2.49	21.83	1.32
3.967	1.76	9.933	4.68	15.900	2.49	21.87	1.32
4.000	1.76	9.967	4.83	15.933	2.34	21.90	1.32
4.033	1.76	10.000	4.83	15.967	2.20	21.93	1.32
4.067	1.76	10.033	4.98	16.000	2.20	21.97	1.32
4.100	1.76	10.067	4.98	16.033	2.05	22.00	1.32
4.133	1.76	10.100	5.05	16.067	2.05	22.03	1.32
4.167	1.76	10.133	5.12	16.100	1.98	22.07	1.32
4.200	1.76	10.167	5.12	16.133	1.90	22.10	1.32
4.233	1.76	10.200	5.27	16.167	1.90	22.13	1.32
4.267	1.76	10.233	5.27	16.200	1.76	22.17	1.32
4.300	1.76	10.267	5.49	16.233	1.76	22.20	1.32
4.333	1.76	10.300	5.71	16.267	1.83	22.23	1.32
4.367	1.76	10.333	5.71	16.300	1.90	22.27	1.32
4.400	1.76	10.367	6.15	16.333	1.90	22.30	1.32
4.433	1.76	10.400	6.15	16.367	2.05	22.33	1.32
4.467	1.76	10.433	6.37	16.400	2.05	22.37	1.32

4.500	1.76	10.467	6.59	16.433	2.12	22.40	1.32
4.533	1.76	10.500	6.59	16.467	2.20	22.43	1.32
4.567	1.76	10.533	6.73	16.500	2.20	22.47	1.32
4.600	1.76	10.567	6.73	16.533	2.05	22.50	1.32
4.633	1.76	10.600	6.81	16.567	2.05	22.53	1.32
4.667	1.76	10.633	6.88	16.600	1.98	22.57	1.32
4.700	1.76	10.667	6.88	16.633	1.90	22.60	1.32
4.733	1.76	10.700	7.03	16.667	1.90	22.63	1.32
4.767	1.76	10.733	7.03	16.700	1.76	22.67	1.32
4.800	1.76	10.767	7.61	16.733	1.76	22.70	1.32
4.833	1.76	10.800	8.20	16.767	1.83	22.73	1.32
4.867	1.76	10.833	8.20	16.800	1.90	22.77	1.32
4.900	1.76	10.867	9.37	16.833	1.90	22.80	1.32
4.933	1.76	10.900	9.37	16.867	2.05	22.83	1.32
4.967	1.76	10.933	9.96	16.900	2.05	22.87	1.32
5.000	1.76	10.967	10.54	16.933	2.12	22.90	1.32
5.033	1.76	11.000	10.54	16.967	2.20	22.93	1.32
5.067	1.76	11.033	10.54	17.000	2.20	22.97	1.32
5.100	1.76	11.067	10.54	17.033	2.05	23.00	1.32
5.133	1.76	11.100	10.54	17.067	2.05	23.03	1.32
5.167	1.76	11.133	10.54	17.100	1.98	23.07	1.32
5.200	1.76	11.167	10.54	17.133	1.90	23.10	1.32
5.233	1.76	11.200	10.54	17.167	1.90	23.13	1.32
5.267	1.76	11.233	10.54	17.200	1.76	23.17	1.32
5.300	1.76	11.267	14.21	17.233	1.76	23.20	1.32
5.333	1.76	11.300	17.86	17.267	1.83	23.23	1.32
5.367	1.76	11.333	17.87	17.300	1.90	23.27	1.32
5.400	1.76	11.367	25.18	17.333	1.90	23.30	1.32
5.433	1.76	11.400	25.18	17.367	2.05	23.33	1.32
5.467	1.76	11.433	28.85	17.400	2.05	23.37	1.32
5.500	1.76	11.467	32.50	17.433	2.12	23.40	1.32
5.533	1.76	11.500	32.54	17.467	2.20	23.43	1.32
5.567	1.76	11.533	66.46	17.500	2.20	23.47	1.32
5.600	1.76	11.567	66.46	17.533	2.05	23.50	1.32
5.633	1.76	11.600	83.49	17.567	2.05	23.53	1.32
5.667	1.76	11.633	100.43	17.600	1.98	23.57	1.32
5.700	1.76	11.667	100.47	17.633	1.90	23.60	1.32
5.733	1.76	11.700	134.39	17.667	1.90	23.63	1.32
5.767	1.76	11.733	134.39	17.700	1.76	23.67	1.32
5.800	1.76	11.767	114.58	17.733	1.76	23.70	1.32
5.833	1.76	11.800	94.87	17.767	1.83	23.73	1.32
5.867	1.76	11.833	94.82	17.800	1.90	23.77	0.66
5.900	1.76	11.867	55.34	17.833	1.90		
5.933	1.76	11.900	55.34	17.867	2.05		
5.967	1.76	11.933	35.53	17.900	2.05		

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.459 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 31.158
TOTAL RAINFALL (mm)= 109.360
RUNOFF COEFFICIENT = 0.285

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

CALIB					
NASHYD (0102)	Area	(ha)=	2.91	Curve Number	(CN)= 59.7
ID= 1 DT= 2.0 min	Ia	(mm)=	7.23	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.15		

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.295 (i)
TIME TO PEAK (hrs)= 11.900
RUNOFF VOLUME (mm)= 38.069
TOTAL RAINFALL (mm)= 109.360
RUNOFF COEFFICIENT = 0.348

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

ADD HYD (0201)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0101):	5.92	0.459	11.93	31.16
	+ ID2= 2 (0102):	2.91	0.295	11.90	38.07
	ID = 3 (0201):	8.83	0.751	11.90	33.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

** SIMULATION NUMBER: 6 **

MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\36c4b767-dab5-4a78-8603-ecfb23d0f7da\a6ce3910
Ptotal=120.80 mm	Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min
New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.48	6.08	2.09	12.08	17.40	18.08	2.25
0.17	0.97	6.17	2.25	12.17	17.40	18.17	2.09
0.25	1.45	6.25	2.42	12.25	17.40	18.25	1.93
0.33	1.29	6.33	2.25	12.33	14.66	18.33	2.09
0.42	1.13	6.42	2.09	12.42	11.92	18.42	2.25
0.50	0.97	6.50	1.93	12.50	9.18	18.50	2.42
0.58	1.13	6.58	2.09	12.58	9.02	18.58	2.25
0.67	1.29	6.67	2.25	12.67	8.86	18.67	2.09
0.75	1.45	6.75	2.42	12.75	8.70	18.75	1.93
0.83	1.45	6.83	2.42	12.83	8.05	18.83	2.09
0.92	1.45	6.92	2.42	12.92	7.41	18.92	2.25
1.00	1.45	7.00	2.42	13.00	6.76	19.00	2.42
1.08	1.45	7.08	2.58	13.08	6.60	19.08	2.25
1.17	1.45	7.17	2.74	13.17	6.44	19.17	2.09
1.25	1.45	7.25	2.90	13.25	6.28	19.25	1.93
1.33	1.29	7.33	2.74	13.33	5.96	19.33	2.09
1.42	1.13	7.42	2.58	13.42	5.64	19.42	2.25
1.50	0.97	7.50	2.42	13.50	5.32	19.50	2.42
1.58	1.13	7.58	2.58	13.58	5.15	19.58	2.25
1.67	1.29	7.67	2.74	13.67	4.99	19.67	2.09
1.75	1.45	7.75	2.90	13.75	4.83	19.75	1.93
1.83	1.45	7.83	2.90	13.83	4.51	19.83	1.77

1.92	1.45	7.92	2.90	13.92	4.19	19.92	1.61
2.00	1.45	8.00	2.90	14.00	3.87	20.00	1.45
2.08	1.61	8.08	3.06	14.08	3.70	20.08	1.45
2.17	1.77	8.17	3.22	14.17	3.54	20.17	1.45
2.25	1.93	8.25	3.38	14.25	3.38	20.25	1.45
2.33	1.77	8.33	3.38	14.33	3.54	20.33	1.45
2.42	1.61	8.42	3.38	14.42	3.70	20.42	1.45
2.50	1.45	8.50	3.38	14.50	3.87	20.50	1.45
2.58	1.45	8.58	3.38	14.58	3.70	20.58	1.45
2.67	1.45	8.67	3.38	14.67	3.54	20.67	1.45
2.75	1.45	8.75	3.38	14.75	3.38	20.75	1.45
2.83	1.45	8.83	3.54	14.83	3.54	20.83	1.45
2.92	1.45	8.92	3.70	14.92	3.70	20.92	1.45
3.00	1.45	9.00	3.87	15.00	3.87	21.00	1.45
3.08	1.61	9.08	3.87	15.08	3.70	21.08	1.45
3.17	1.77	9.17	3.87	15.17	3.54	21.17	1.45
3.25	1.93	9.25	3.87	15.25	3.38	21.25	1.45
3.33	1.77	9.33	4.03	15.33	3.54	21.33	1.45
3.42	1.61	9.42	4.19	15.42	3.70	21.42	1.45
3.50	1.45	9.50	4.35	15.50	3.87	21.50	1.45
3.58	1.45	9.58	4.35	15.58	3.70	21.58	1.45
3.67	1.45	9.67	4.35	15.67	3.54	21.67	1.45
3.75	1.45	9.75	4.35	15.75	3.38	21.75	1.45
3.83	1.61	9.83	4.67	15.83	3.06	21.83	1.45
3.92	1.77	9.92	4.99	15.92	2.74	21.92	1.45
4.00	1.93	10.00	5.32	16.00	2.42	22.00	1.45
4.08	1.93	10.08	5.48	16.08	2.25	22.08	1.45
4.17	1.93	10.17	5.64	16.17	2.09	22.17	1.45
4.25	1.93	10.25	5.80	16.25	1.93	22.25	1.45
4.33	1.93	10.33	6.28	16.33	2.09	22.33	1.45
4.42	1.93	10.42	6.76	16.42	2.25	22.42	1.45
4.50	1.93	10.50	7.25	16.50	2.42	22.50	1.45
4.58	1.93	10.58	7.41	16.58	2.25	22.58	1.45
4.67	1.93	10.67	7.57	16.67	2.09	22.67	1.45
4.75	1.93	10.75	7.73	16.75	1.93	22.75	1.45
4.83	1.93	10.83	9.02	16.83	2.09	22.83	1.45
4.92	1.93	10.92	10.31	16.92	2.25	22.92	1.45
5.00	1.93	11.00	11.60	17.00	2.42	23.00	1.45
5.08	1.93	11.08	11.60	17.08	2.25	23.08	1.45
5.17	1.93	11.17	11.60	17.17	2.09	23.17	1.45
5.25	1.93	11.25	11.60	17.25	1.93	23.25	1.45
5.33	1.93	11.33	19.65	17.33	2.09	23.33	1.45
5.42	1.93	11.42	27.70	17.42	2.25	23.42	1.45
5.50	1.93	11.50	35.76	17.50	2.42	23.50	1.45
5.58	1.93	11.58	73.12	17.58	2.25	23.58	1.45
5.67	1.93	11.67	110.49	17.67	2.09	23.67	1.45
5.75	1.93	11.75	147.86	17.75	1.93	23.75	1.45
5.83	1.93	11.83	104.38	17.83	2.09		
5.92	1.93	11.92	60.89	17.92	2.25		
6.00	1.93	12.00	17.40	18.00	2.42		

CALIB			
NASHYD (0101)	Area (ha)= 5.92	Curve Number (CN)= 52.5	
ID= 1 DT= 2.0 min	Ia (mm)= 7.70	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.17		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN

hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.033	0.48	6.000	1.93	11.967	17.40	17.93	2.34
0.067	0.48	6.033	2.09	12.000	17.40	17.97	2.42
0.100	0.72	6.067	2.09	12.033	17.40	18.00	2.42
0.133	0.97	6.100	2.17	12.067	17.40	18.03	2.25
0.167	0.97	6.133	2.25	12.100	17.40	18.07	2.25
0.200	1.45	6.167	2.25	12.133	17.40	18.10	2.17
0.233	1.45	6.200	2.42	12.167	17.40	18.13	2.09
0.267	1.37	6.233	2.42	12.200	17.40	18.17	2.09
0.300	1.29	6.267	2.34	12.233	17.40	18.20	1.93
0.333	1.29	6.300	2.25	12.267	16.02	18.23	1.93
0.367	1.13	6.333	2.25	12.300	14.66	18.27	2.01
0.400	1.13	6.367	2.09	12.333	14.65	18.30	2.09
0.433	1.05	6.400	2.09	12.367	11.92	18.33	2.09
0.467	0.97	6.433	2.01	12.400	11.92	18.37	2.25
0.500	0.97	6.467	1.93	12.433	10.55	18.40	2.25
0.533	1.13	6.500	1.93	12.467	9.18	18.43	2.34
0.567	1.13	6.533	2.09	12.500	9.18	18.47	2.42
0.600	1.21	6.567	2.09	12.533	9.02	18.50	2.42
0.633	1.29	6.600	2.17	12.567	9.02	18.53	2.25
0.667	1.29	6.633	2.25	12.600	8.94	18.57	2.25
0.700	1.45	6.667	2.25	12.633	8.86	18.60	2.17
0.733	1.45	6.700	2.42	12.667	8.86	18.63	2.09
0.767	1.45	6.733	2.42	12.700	8.70	18.67	2.09
0.800	1.45	6.767	2.42	12.733	8.70	18.70	1.93
0.833	1.45	6.800	2.42	12.767	8.37	18.73	1.93
0.867	1.45	6.833	2.42	12.800	8.05	18.77	2.01
0.900	1.45	6.867	2.42	12.833	8.05	18.80	2.09
0.933	1.45	6.900	2.42	12.867	7.41	18.83	2.09
0.967	1.45	6.933	2.42	12.900	7.41	18.87	2.25
1.000	1.45	6.967	2.42	12.933	7.09	18.90	2.25
1.033	1.45	7.000	2.42	12.967	6.76	18.93	2.34
1.067	1.45	7.033	2.58	13.000	6.76	18.97	2.42
1.100	1.45	7.067	2.58	13.033	6.60	19.00	2.42
1.133	1.45	7.100	2.66	13.067	6.60	19.03	2.25
1.167	1.45	7.133	2.74	13.100	6.52	19.07	2.25
1.200	1.45	7.167	2.74	13.133	6.44	19.10	2.17
1.233	1.45	7.200	2.90	13.167	6.44	19.13	2.09
1.267	1.37	7.233	2.90	13.200	6.28	19.17	2.09
1.300	1.29	7.267	2.82	13.233	6.28	19.20	1.93
1.333	1.29	7.300	2.74	13.267	6.12	19.23	1.93
1.367	1.13	7.333	2.74	13.300	5.96	19.27	2.01
1.400	1.13	7.367	2.58	13.333	5.96	19.30	2.09
1.433	1.05	7.400	2.58	13.367	5.64	19.33	2.09
1.467	0.97	7.433	2.50	13.400	5.64	19.37	2.25
1.500	0.97	7.467	2.42	13.433	5.48	19.40	2.25
1.533	1.13	7.500	2.42	13.467	5.32	19.43	2.34
1.567	1.13	7.533	2.58	13.500	5.31	19.47	2.42
1.600	1.21	7.567	2.58	13.533	5.15	19.50	2.42
1.633	1.29	7.600	2.66	13.567	5.15	19.53	2.25
1.667	1.29	7.633	2.74	13.600	5.07	19.57	2.25
1.700	1.45	7.667	2.74	13.633	4.99	19.60	2.17
1.733	1.45	7.700	2.90	13.667	4.99	19.63	2.09
1.767	1.45	7.733	2.90	13.700	4.83	19.67	2.09
1.800	1.45	7.767	2.90	13.733	4.83	19.70	1.93
1.833	1.45	7.800	2.90	13.767	4.67	19.73	1.93
1.867	1.45	7.833	2.90	13.800	4.51	19.77	1.85
1.900	1.45	7.867	2.90	13.833	4.51	19.80	1.77
1.933	1.45	7.900	2.90	13.867	4.19	19.83	1.77
1.967	1.45	7.933	2.90	13.900	4.19	19.87	1.61
2.000	1.45	7.967	2.90	13.933	4.03	19.90	1.61
2.033	1.61	8.000	2.90	13.967	3.87	19.93	1.53
2.067	1.61	8.033	3.06	14.000	3.87	19.97	1.45

2.100	1.69	8.067	3.06	14.033	3.70	20.00	1.45
2.133	1.77	8.100	3.14	14.067	3.70	20.03	1.45
2.167	1.77	8.133	3.22	14.100	3.62	20.07	1.45
2.200	1.93	8.167	3.22	14.133	3.54	20.10	1.45
2.233	1.93	8.200	3.38	14.167	3.54	20.13	1.45
2.267	1.85	8.233	3.38	14.200	3.38	20.17	1.45
2.300	1.77	8.267	3.38	14.233	3.38	20.20	1.45
2.333	1.77	8.300	3.38	14.267	3.46	20.23	1.45
2.367	1.61	8.333	3.38	14.300	3.54	20.27	1.45
2.400	1.61	8.367	3.38	14.333	3.54	20.30	1.45
2.433	1.53	8.400	3.38	14.367	3.70	20.33	1.45
2.467	1.45	8.433	3.38	14.400	3.70	20.37	1.45
2.500	1.45	8.467	3.38	14.433	3.79	20.40	1.45
2.533	1.45	8.500	3.38	14.467	3.87	20.43	1.45
2.567	1.45	8.533	3.38	14.500	3.87	20.47	1.45
2.600	1.45	8.567	3.38	14.533	3.70	20.50	1.45
2.633	1.45	8.600	3.38	14.567	3.70	20.53	1.45
2.667	1.45	8.633	3.38	14.600	3.62	20.57	1.45
2.700	1.45	8.667	3.38	14.633	3.54	20.60	1.45
2.733	1.45	8.700	3.38	14.667	3.54	20.63	1.45
2.767	1.45	8.733	3.38	14.700	3.38	20.67	1.45
2.800	1.45	8.767	3.46	14.733	3.38	20.70	1.45
2.833	1.45	8.800	3.54	14.767	3.46	20.73	1.45
2.867	1.45	8.833	3.54	14.800	3.54	20.77	1.45
2.900	1.45	8.867	3.70	14.833	3.54	20.80	1.45
2.933	1.45	8.900	3.70	14.867	3.70	20.83	1.45
2.967	1.45	8.933	3.79	14.900	3.70	20.87	1.45
3.000	1.45	8.967	3.87	14.933	3.79	20.90	1.45
3.033	1.61	9.000	3.87	14.967	3.87	20.93	1.45
3.067	1.61	9.033	3.87	15.000	3.87	20.97	1.45
3.100	1.69	9.067	3.87	15.033	3.70	21.00	1.45
3.133	1.77	9.100	3.87	15.067	3.70	21.03	1.45
3.167	1.77	9.133	3.87	15.100	3.62	21.07	1.45
3.200	1.93	9.167	3.87	15.133	3.54	21.10	1.45
3.233	1.93	9.200	3.87	15.167	3.54	21.13	1.45
3.267	1.85	9.233	3.87	15.200	3.38	21.17	1.45
3.300	1.77	9.267	3.95	15.233	3.38	21.20	1.45
3.333	1.77	9.300	4.03	15.267	3.46	21.23	1.45
3.367	1.61	9.333	4.03	15.300	3.54	21.27	1.45
3.400	1.61	9.367	4.19	15.333	3.54	21.30	1.45
3.433	1.53	9.400	4.19	15.367	3.70	21.33	1.45
3.467	1.45	9.433	4.27	15.400	3.70	21.37	1.45
3.500	1.45	9.467	4.35	15.433	3.79	21.40	1.45
3.533	1.45	9.500	4.35	15.467	3.87	21.43	1.45
3.567	1.45	9.533	4.35	15.500	3.87	21.47	1.45
3.600	1.45	9.567	4.35	15.533	3.70	21.50	1.45
3.633	1.45	9.600	4.35	15.567	3.70	21.53	1.45
3.667	1.45	9.633	4.35	15.600	3.62	21.57	1.45
3.700	1.45	9.667	4.35	15.633	3.54	21.60	1.45
3.733	1.45	9.700	4.35	15.667	3.54	21.63	1.45
3.767	1.53	9.733	4.35	15.700	3.38	21.67	1.45
3.800	1.61	9.767	4.51	15.733	3.38	21.70	1.45
3.833	1.61	9.800	4.67	15.767	3.22	21.73	1.45
3.867	1.77	9.833	4.67	15.800	3.06	21.77	1.45
3.900	1.77	9.867	4.99	15.833	3.06	21.80	1.45
3.933	1.85	9.900	4.99	15.867	2.74	21.83	1.45
3.967	1.93	9.933	5.15	15.900	2.74	21.87	1.45
4.000	1.93	9.967	5.32	15.933	2.58	21.90	1.45
4.033	1.93	10.000	5.32	15.967	2.42	21.93	1.45
4.067	1.93	10.033	5.48	16.000	2.42	21.97	1.45
4.100	1.93	10.067	5.48	16.033	2.25	22.00	1.45
4.133	1.93	10.100	5.56	16.067	2.25	22.03	1.45
4.167	1.93	10.133	5.64	16.100	2.17	22.07	1.45

4.200	1.93	10.167	5.64	16.133	2.09	22.10	1.45
4.233	1.93	10.200	5.80	16.167	2.09	22.13	1.45
4.267	1.93	10.233	5.80	16.200	1.93	22.17	1.45
4.300	1.93	10.267	6.04	16.233	1.93	22.20	1.45
4.333	1.93	10.300	6.28	16.267	2.01	22.23	1.45
4.367	1.93	10.333	6.28	16.300	2.09	22.27	1.45
4.400	1.93	10.367	6.76	16.333	2.09	22.30	1.45
4.433	1.93	10.400	6.76	16.367	2.25	22.33	1.45
4.467	1.93	10.433	7.01	16.400	2.25	22.37	1.45
4.500	1.93	10.467	7.25	16.433	2.34	22.40	1.45
4.533	1.93	10.500	7.25	16.467	2.42	22.43	1.45
4.567	1.93	10.533	7.41	16.500	2.42	22.47	1.45
4.600	1.93	10.567	7.41	16.533	2.25	22.50	1.45
4.633	1.93	10.600	7.49	16.567	2.25	22.53	1.45
4.667	1.93	10.633	7.57	16.600	2.17	22.57	1.45
4.700	1.93	10.667	7.57	16.633	2.09	22.60	1.45
4.733	1.93	10.700	7.73	16.667	2.09	22.63	1.45
4.767	1.93	10.733	7.73	16.700	1.93	22.67	1.45
4.800	1.93	10.767	8.38	16.733	1.93	22.70	1.45
4.833	1.93	10.800	9.02	16.767	2.01	22.73	1.45
4.867	1.93	10.833	9.02	16.800	2.09	22.77	1.45
4.900	1.93	10.867	10.31	16.833	2.09	22.80	1.45
4.933	1.93	10.900	10.31	16.867	2.25	22.83	1.45
4.967	1.93	10.933	10.95	16.900	2.25	22.87	1.45
5.000	1.93	10.967	11.60	16.933	2.34	22.90	1.45
5.033	1.93	11.000	11.60	16.967	2.42	22.93	1.45
5.067	1.93	11.033	11.60	17.000	2.42	22.97	1.45
5.100	1.93	11.067	11.60	17.033	2.25	23.00	1.45
5.133	1.93	11.100	11.60	17.067	2.25	23.03	1.45
5.167	1.93	11.133	11.60	17.100	2.17	23.07	1.45
5.200	1.93	11.167	11.60	17.133	2.09	23.10	1.45
5.233	1.93	11.200	11.60	17.167	2.09	23.13	1.45
5.267	1.93	11.233	11.60	17.200	1.93	23.17	1.45
5.300	1.93	11.267	15.63	17.233	1.93	23.20	1.45
5.333	1.93	11.300	19.65	17.267	2.01	23.23	1.45
5.367	1.93	11.333	19.66	17.300	2.09	23.27	1.45
5.400	1.93	11.367	27.70	17.333	2.09	23.30	1.45
5.433	1.93	11.400	27.70	17.367	2.25	23.33	1.45
5.467	1.93	11.433	31.74	17.400	2.25	23.37	1.45
5.500	1.93	11.467	35.76	17.433	2.34	23.40	1.45
5.533	1.93	11.500	35.80	17.467	2.42	23.43	1.45
5.567	1.93	11.533	73.12	17.500	2.42	23.47	1.45
5.600	1.93	11.567	73.12	17.533	2.25	23.50	1.45
5.633	1.93	11.600	91.85	17.567	2.25	23.53	1.45
5.667	1.93	11.633	110.49	17.600	2.17	23.57	1.45
5.700	1.93	11.667	110.54	17.633	2.09	23.60	1.45
5.733	1.93	11.700	147.86	17.667	2.09	23.63	1.45
5.767	1.93	11.733	147.86	17.700	1.93	23.67	1.45
5.800	1.93	11.767	126.06	17.733	1.93	23.70	1.45
5.833	1.93	11.800	104.38	17.767	2.01	23.73	1.45
5.867	1.93	11.833	104.32	17.800	2.09	23.77	0.73
5.900	1.93	11.867	60.89	17.833	2.09		
5.933	1.93	11.900	60.89	17.867	2.25		
5.967	1.93	11.933	39.08	17.900	2.25		

Unit Hyd Qpeak (cms)= 1.330

PEAK FLOW (cms)= 0.548 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 37.014
TOTAL RAINFALL (mm)= 120.316
RUNOFF COEFFICIENT = 0.308

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

CALIB					
NASHYD (0102)	Area (ha)=	2.91	Curve Number (CN)=	59.7	
ID= 1 DT= 2.0 min	Ia (mm)=	7.23	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.15			

Unit Hyd Qpeak (cms)= 0.741

PEAK FLOW (cms)= 0.350 (i)
TIME TO PEAK (hrs)= 11.900
RUNOFF VOLUME (mm)= 44.880
TOTAL RAINFALL (mm)= 120.316
RUNOFF COEFFICIENT = 0.373

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

ADD HYD (0201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	5.92	0.548	11.93	37.01
+ ID2= 2 (0102):	2.91	0.350	11.90	44.88
ID = 3 (0201):	8.83	0.894	11.90	39.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

APPENDIX B:
POST-DEVELOPMENT HYDROLOGICAL ANALYSIS

STORM SEWER DESIGN SHEET

Approved:

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

Design Storm - OWEN SOUND MOE

5 YEAR		Runoff Coefficients	
A -	1234.576	Residential	0.55
B -	8.297	Open Space	0.25
C -	0.851		

Mannings "n"

Concrete	PVC
0.013	0.009

Project Name:	Camperdown Condominiums
Project Number:	117304
Municipality:	Town of The Blue Mountains
Designed By:	AS
Date:	March 2018
Checked By:	
Date:	March 2018

Location of Section	Type	Catchment ID	From Upstream	To Downstream	Tributary Area	Runoff Coefficient	Individual Aa x Ca	Cumulative Area	Cumulative A x C	Time of Concentration	Rainfall Intensity	Peak Flow	Manning's "n"	Slope	Diameter	Length	Full Flow Velocity	Full Flow Capacity	Actual Velocity	Time of Flow	Calculated Pipe Diameter	Time of Concentration to Next Segment
			MH #	MH#	Aa	Ca	Aa x Ca	A=Sum Aa	A x C=	Tc	i	q		S	D	L	vf	Q	va	t=L/60xva	d	tf=Tc+t
					ha			ha	Sum Aa x Ca	min	mm/hr	m3/s		m/m	mm	m	m/s	m3/s	m/s	min	mm	min
Open Space		203	DICB1	CBMH1	2.80	0.25	0.700	2.80	0.700	15.00	84.71	**0.16**	**0.009**	2.00%	**300**	31.0	2.79	**0.198**	2.79	0.18	280	15.18
Condo Road A		201a	CBMH1	CBMH2	0.40	0.55	0.220	0.40	0.220	15.00	84.71	**0.05**	**0.009**	1.00%	**300**	10.0	1.98	**0.140**	1.70	0.10	207	15.10
Condo Road A		201b	CBMH2	CBMH3	0.13	0.55	0.072	2.93	0.772	15.10	84.41	**0.18**	**0.009**	2.00%	**300**	87.0	2.79	**0.198**	2.79	0.52	290	15.62
Condo Road A		201c	CBMH3	DCBMH1	0.65	0.55	0.358	3.98	1.349	15.62	82.85	**0.31**	**0.013**	1.00%	**525**	87.0	1.99	**0.430**	1.99	0.73	464	16.35
Open Space		202	DICB2	CBMH4	1.58	0.25	0.395	1.58	0.395	15.00	84.71	**0.09**	**0.009**	2.00%	**300**	32.0	2.79	**0.198**	2.58	0.21	226	15.21
Condo Road A		201d	CBMH4	CBMH5	0.48	0.55	0.264	2.06	0.659	15.21	84.08	**0.15**	**0.009**	1.00%	**375**	10.0	2.29	**0.253**	2.26	0.07	311	15.28
Condo Road A		201e	CBMH5	DCBMH1	0.20	0.55	0.110	2.26	0.769	15.28	83.85	**0.18**	**0.009**	1.00%	**375**	50.0	2.29	**0.253**	2.29	0.36	329	15.64
SWM Pond		201f	DCBMH1	SWMF	1.16	0.55	0.638	7.40	2.756	16.35	80.76	**0.62**	**0.013**	1.00%	**675**	30.0	2.35	**0.841**	2.35	0.21	601	16.56

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

Project: Camperdown Condominiums		Date: June 2018
File No.: 117304		Designed: AS
Subject: Impervious Calculations		Checked

Site Area (Catchment 201)	=	28,200	sq.m	
Impervious Area	=	10,707	sq.m	(Asphalt, Driveway, House)
Pervious Area	=	17,493	sq.m	
Directly Connected Area	=	5,354	sq.m	(Asphalt, Driveway, House)
% Impervious	=	38.0		
% Directly Connected	=	19.0		

Site Area (Catchment 205)	=	2,000	sq.m	
Impervious Area	=	752	sq.m	(Asphalt, Driveway, House)
Pervious Area	=	1,248	sq.m	
Directly Connected Area	=	376	sq.m	(Asphalt, Driveway, House)
% Impervious	=	37.6		
% Directly Connected	=	18.8		

Site Area (Catchment 206)	=	5,400	sq.m	
Impervious Area	=	1,493	sq.m	(Asphalt, Driveway, House)
Pervious Area	=	3,907	sq.m	
Directly Connected Area	=	747	sq.m	(Asphalt, Driveway, House)
% Impervious	=	27.6		
% Directly Connected	=	13.8		

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

Project:	Camperdown Condominiums
File No.:	117304
Date:	June 2018
Designed By:	AS
Checked By:	
Subject:	CN Calculator

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 202 **Area** 1.58 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
WSL	WATERLOO	A	Sand Loam	1	1.19	0.75	1.19	1	32	0		49	0		38	0		62	0		100	0		50	32
DUC	DUNEDIN	D	Clay Loam or Clay	3	0.40	0.25	0.28	0.7	79	0.12	0.3	84	0		81	0		86	0		100	0		50	80.5
	#N/A	#N/A	#N/A	#N/A	0.00		0.00		#N/A	0.00		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	**1.58**	**1.00**	**1.46**	**0.93**		**0.12**	**0.08**		**0**	**0**		**0**	**0**		**0**	**0**		**0**	**0**		**44.13**

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	1.58	ha
Time of Concentration (Minutes)	**6.24**	
Time of Concentration (Hours)	**0.10**	
Time to Peak (2/3 x Time of Concentration)	**0.07**	

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	1.58	ha
Time of Concentration (Minutes)	**15.30**	
Time of Concentration (Hours)	**0.25**	
Time to Peak (2/3 x Time of Concentration)	**0.17**	

Time to Peak	**0.17 hrs**

Initial Abstraction	**9.625 mm**

Runoff Coefficient	**0.27**

Wetlands	12
Woods	10
Meadows	8
Cultivated	7
Lawns	5
Impervious	2

Landuse Type	Soil Series				
	WSL	DUC	0	0	0
	1	3	#N/A	#N/A	#N/A
Forest/Woodland	0.18	0.52	#N/A	#N/A	#N/A
Cultivated	0.4	0.7	#N/A	#N/A	#N/A
Pasture/Lawn	0.22	0.55	#N/A	#N/A	#N/A
Impervious	0.95	0.95	#N/A	#N/A	#N/A
Wetland/Lake/SWMF	0.05	0.05	#N/A	#N/A	#N/A
Meadows	0.20	0.54	#N/A	#N/A	#N/A
Soil Series Total	0.18	0.529	#N/A	#N/A	#N/A

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

Project:	Camperdown Condominiums
File No.:	117304
Date:	June 2018
Designed By:	AS
Checked By:	
Subject:	CN Calculator

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 203 **Area** 2.80 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
TS	TECUMSETH	AB	Sand Loam	1	0.95	0.34	0.95	1	46	0		59	0		51	0		68	0		100	0		50	46
WSL	WATERLOO	A	Sand Loam	1	1.85	0.66	1.39	0.75	32	0.28	0.15	49	0		38	0		62	0.1848	0.1	100	0		50	41.35
	#N/A	#N/A	#N/A	#N/A	0.00				#N/A			#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	2.8	1.00	2.34	0.84		0.28	0.10		0	0		0	0		0.1848	0.066		0	0		42.93

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	2.8	ha
Time of Concentration (Minutes)	**5.89**	
Time of Concentration (Hours)	**0.10**	
Time to Peak (2/3 x Time of Concentration)	**0.07**	

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	2.8	ha
Time of Concentration (Minutes)	**15.90**	
Time of Concentration (Hours)	**0.26**	
Time to Peak (2/3 x Time of Concentration)	**0.18**	

Time to Peak	**0.18 hrs**

Initial Abstraction	**8.977 mm**

Wetlands	12
Woods	10
Meadows	8
Cultivated	7
Lawns	5
Impervious	2

Runoff Coefficient	**0.23**

Landuse Type	Soil Series				
	TS	WSL	0	0	0
	1	1	#N/A	#N/A	#N/A
Forest/Woodland	0.18	0.18	#N/A	#N/A	#N/A
Cultivated	0.4	0.4	#N/A	#N/A	#N/A
Pasture/Lawn	0.22	0.22	#N/A	#N/A	#N/A
Impervious	0.95	0.95	#N/A	#N/A	#N/A
Wetland/Lake/SWMF	0.05	0.05	#N/A	#N/A	#N/A
Meadows	0.20	0.20	#N/A	#N/A	#N/A
Soil Series Total	0.18	0.263	#N/A	#N/A	#N/A

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

Project:	Camperdown Condominiums
File No.:	117304
Date:	June 2018
Designed By:	AS
Checked By:	
Subject:	CN Calculator

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 204 **Area** 0.62 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
TS	TECUMSETH	AB	Sand Loam	1	0.62	1.00	0.52	0.84	46	0.0992	0.16	59	0		51	0		68	0		100	0		50	48.08
	#N/A	#N/A	#N/A	#N/A	0.00		0.00		#N/A	0.00		#N/A	0		#N/A	0		#N/A	0	0.1	#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0.00				#N/A			#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	0.62	1.00	0.52	0.84		0.10	0.16		0	0		0	0		0	0		0	0		48.08

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	192	m
Minimum Catchment Elevation	190	m
Catchment length	115	m
Catchment Slope	2%	
Catchment Area	0.62	ha
Time of Concentration (Minutes)	**6.16**	
Time of Concentration (Hours)	**0.10**	
Time to Peak (2/3 x Time of Concentration)	**0.07**	

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	192	m
Minimum Catchment Elevation	190	m
Catchment length	115	m
Catchment Slope	2%	
Catchment Area	0.62	ha
Time of Concentration (Minutes)	**29.61**	
Time of Concentration (Hours)	**0.49**	
Time to Peak (2/3 x Time of Concentration)	**0.33**	

Time to Peak	**0.33 hrs**

Initial Abstraction	**9.2 mm**

Runoff Coefficient	**0.08**

Wetlands	12
Woods	10
Meadows	8
Cultivated	7
Lawns	5
Impervious	2

Landuse Type	Soil Series				
	TS	0	0	0	0
	1	#N/A	#N/A	#N/A	#N/A
Forest/Woodland	0.08	#N/A	#N/A	#N/A	#N/A
Cultivated	0.22	#N/A	#N/A	#N/A	#N/A
Pasture/Lawn	0.1	#N/A	#N/A	#N/A	#N/A
Impervious	0.95	#N/A	#N/A	#N/A	#N/A
Wetland/Lake/SWMF	0.05	#N/A	#N/A	#N/A	#N/A
Meadows	0.09	#N/A	#N/A	#N/A	#N/A
Soil Series Total	0.0832	#N/A	#N/A	#N/A	#N/A

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie

Project:	Camperdown Condominiums
File No.:	117304
Date:	June 2018
Designed By:	AS
Checked By:	
Subject:	CN Calculator

Camperdown Condominiums
CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

CONDITIONS

Catchment 207 **Area** 0.32 ha

WEIGHTED CN VALUE																									
Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Gravel			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
TIS	TIOGA	A	Sand Loam	1	0.32	1	0	0	32	0.224	0.7	49	0		38	0.096	0.3	89	0.00	0	100	0		50	61
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	**0.32**	**1**	**0**	**0**		**0.224**	**0.7**		**0**	**0**		**0.096**	**0.3**		**0**	**0**		**0**	**0**		**61.0**

Time of Concentration Calculations

Initial Abstraction	**4.4 mm**

Wetlands	12
Woods	10
Meadows	8
Gravel	3
Lawns	5
Impervious	2

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	191	m
Minimum Catchment Elevation	189	m
Catchment length	125	m
Catchment Slope	2%	
Catchment Area	0.32	ha
Time of Concentration (Minutes)	**7.27**	
Time of Concentration (Hours)	**0.12**	
Time to Peak (2/3 x Time of Concentration)	**0.08**	

Time to Peak	**0.29 hrs**

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	191	m
Minimum Catchment Elevation	189	m
Catchment length	125	m
Catchment Slope	2%	
Catchment Area	0.32	ha
Time of Concentration (Minutes)	**26.53**	
Time of Concentration (Hours)	**0.44**	
Time to Peak (2/3 x Time of Concentration)	**0.29**	

Runoff Coefficient	**0.25**

Landuse Type	Soil Series				
	TIS	0	0	0	0
	1	#N/A	#N/A	#N/A	#N/A
Forest/Woodland	0.08	#N/A	#N/A	#N/A	#N/A
Gravel	0.6	#N/A	#N/A	#N/A	#N/A
Pasture/Lawn	0.1	#N/A	#N/A	#N/A	#N/A
Impervious	0.95	#N/A	#N/A	#N/A	#N/A
Wetland/Lake/SWMF	0.05	#N/A	#N/A	#N/A	#N/A
Meadows	0.09	#N/A	#N/A	#N/A	#N/A
Soil Series Total	0.25	#N/A	#N/A	#N/A	#N/A

Camperdown Condominiums
SWM Pond Volume Table

Designed: AS
Checked: 0
Date: March 2018

Wet Pond Characteristics:

Side Slope: 5 :1
Top Elevation: 188.30 m
Bottom Elev: 186.30 m
Permanent Pool: 187.00 m
Stage 0.1 m

Stormwater Management Pond								
Pond Geometry				Pond Volume (m^3)				
Elevation (m)	Depth (m)	Area (m^2)	Avg. Area (m)	Dead	Accum. Dead	Live	Accum. Live	Accum. Total
186.00	0.00	184.80	184.80	0.00	0.00		0.00	0.00
186.10	0.10	223.10	203.95	20.39	20.39		0.00	20.39
186.20	0.20	264.80	243.95	24.39	44.79		0.00	44.79
186.30	0.30	305.90	285.35	28.53	73.32		0.00	73.32
186.40	0.40	350.40	328.15	32.81	106.14		0.00	106.14
186.50	0.50	396.90	373.65	37.36	143.50		0.00	143.50
186.60	0.60	445.50	421.20	42.12	185.62		0.00	185.62
186.70	0.70	496.20	470.85	47.08	232.71		0.00	232.71
186.80	0.80	548.90	522.55	52.25	284.96		0.00	284.96
186.90	0.90	603.70	576.30	57.63	342.59		0.00	342.59
187.00	1.00	660.50	632.10	63.21	405.80	0.00	0.00	405.80
187.10	1.10	719.40	689.95		405.80	68.99	68.99	474.80
187.20	1.20	780.40	749.90		405.80	74.99	143.98	549.79
187.30	1.30	843.10	811.75		405.80	81.17	225.16	630.96
187.40	1.40	907.50	875.30		405.80	87.53	312.69	718.49
187.50	1.50	973.40	940.45		405.80	94.04	406.73	812.54
187.60	1.60	1040.90	1007.15		405.80	100.71	507.45	913.25
187.70	1.70	1110.00	1075.45		405.80	107.54	614.99	1020.80
187.80	1.80	1180.60	1145.30		405.80	114.53	729.52	1135.33
187.90	1.90	1252.80	1216.70		405.80	121.67	851.19	1257.00
188.00	2.00	1326.50	1289.65		405.80	128.96	980.16	1385.96
188.10	2.10	1401.20	1363.85		405.80	136.38	1116.54	1522.35
188.20	2.20	1479.00	1440.10		405.80	144.01	1260.55	1666.36
188.30	2.30	1557.2	1518.10		405.80	151.81	1412.36	1818.17

Camperdown Condominiums
SWM Pond Volume Table

Designed: AS
Checked: 0
Date: March 2018

Pond Discharge Table:

Orifice #1:		**Orifice #2:**			Overflow Weir:		
Diameter:	250	Diameter:	0	mm	Bottom Length:	3.5	m
Area:	0.0491	Area:	0.0000	m^2	Sill Elevation:	188	m
C:	0.63	C:	0.63		D/S Weir Length:	10	m
Invert:	187.00	Invert:	187.5	m	Side Slopes (H:V)	5	:1

	Orifice #1		Orifice #2		Overflow Weir			
Elevation (m)	Head (m)	Discharge (m)	Head (m)	Discharge (m)	Head (m)	Discharge (m)	Hydraulic Control	Discharge (m^3/s)
186.00	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.10	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.20	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.30	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.40	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.50	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.60	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.70	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.80	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
186.90	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
187.00	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
187.10	0.000	0.000	0.000	0.000	0	0	Orifice	0.000
187.20	0.075	0.038	0.000	0.000	0	0	Orifice	0.038
187.30	0.175	0.057	0.000	0.000	0	0	Orifice	0.057
187.40	0.275	0.072	0.000	0.000	0	0	Orifice	0.072
187.50	0.375	0.084	0.000	0.000	0	0	Orifice	0.084
187.60	0.475	0.094	0.100	0.000	0	0	Orifice	0.094
187.70	0.575	0.104	0.200	0.000	0	0	Orifice	0.104
187.80	0.675	0.113	0.300	0.000	0	0	Orifice	0.113
187.90	0.775	0.121	0.400	0.000	0	0	Orifice	0.121
188.00	0.875	0.128	0.500	0.000	0	0	Orifice	0.128
188.10	0.975	0.135	0.600	0.000	0.10	0.1716	Orifice/Weir	0.307
188.20	1.075	0.142	0.700	0.000	0.20	0.5322	Orifice/Weir	0.674
188.30	1.175	0.148	0.800	0.000	0.30	1.0906	Orifice/Weir	1.239

Comments:

1 0.15 - Calculation based on prefered NVCA weir flow spreadsheet
2 N/A - Not Applicable
3 Orifice Equation is: $Q = C \times A \times (2gH)^{0.5}$

Where:
Q = flow rate (cms)
C = constant
A = area of opening(sq. m)
H = net head on the orifice
g = Acceleration due to gravity

Camperdown Condominiums
Stage-Storage-Discharge

Designed: AS
Checked:
Date: March 2018

Stormwater Management Pond								
Pond Geometry				Pond Volume (m^3)				Discharge (m^3/s)
Elevation (m)	Depth (m)	Area (m^2)	Avg. Area (m)	Dead	Accum. Dead	Live	Accum. Live	
186.00	0.00	184.80	184.80	0.00	0.00	0.00	0.00	0.000
186.10	0.10	223.10	203.95	20.39	20.39	0.00	0.00	0.000
186.20	0.20	264.80	243.95	24.39	44.79	0.00	0.00	0.000
186.30	0.30	305.90	285.35	28.53	73.32	0.00	0.00	0.000
186.40	0.40	350.40	328.15	32.81	106.14	0.00	0.00	0.000
186.50	0.50	396.90	373.65	37.36	143.50	0.00	0.00	0.000
186.60	0.60	445.50	421.20	42.12	185.62	0.00	0.00	0.000
186.70	0.70	496.20	470.85	47.08	232.71	0.00	0.00	0.000
186.80	0.80	548.90	522.55	52.25	284.96	0.00	0.00	0.000
186.90	0.90	603.70	576.30	57.63	342.59	0.00	0.00	0.000
187.00	1.00	660.50	632.10	63.21	405.80	0.00	0.00	0.000
187.10	1.10	719.40	689.95	0.00	405.80	68.99	68.99	0.000
187.20	1.20	780.40	749.90	0.00	405.80	74.99	143.98	0.038
187.30	1.30	843.10	811.75	0.00	405.80	81.17	225.16	0.057
187.40	1.40	907.50	875.30	0.00	405.80	87.53	312.69	0.072
187.50	1.50	973.40	940.45	0.00	405.80	94.04	406.73	0.084
187.60	1.60	1040.90	1007.15	0.00	405.80	100.71	507.45	0.094
187.70	1.70	1110.00	1075.45	0.00	405.80	107.54	614.99	0.104
187.80	1.80	1180.60	1145.30	0.00	405.80	114.53	729.52	0.113
187.90	1.90	1252.80	1216.70	0.00	405.80	121.67	851.19	0.121
188.00	2.00	1326.50	1289.65	0.00	405.80	128.96	980.16	0.128
188.10	2.10	1401.20	1363.85	0.00	405.80	136.38	1116.54	0.307
188.20	2.20	1479.00	1440.10	0.00	405.80	144.01	1260.55	0.674
188.30	2.30	1557.20	1518.10	0.00	405.80	151.81	1412.36	1.239

Channel Report

Hydraflow Express Extension for Autodesk® AutoCAD® Civil 3D® by Autodesk, Inc. Thursday, Jun 21 2018

<Name>

Trapezoidal

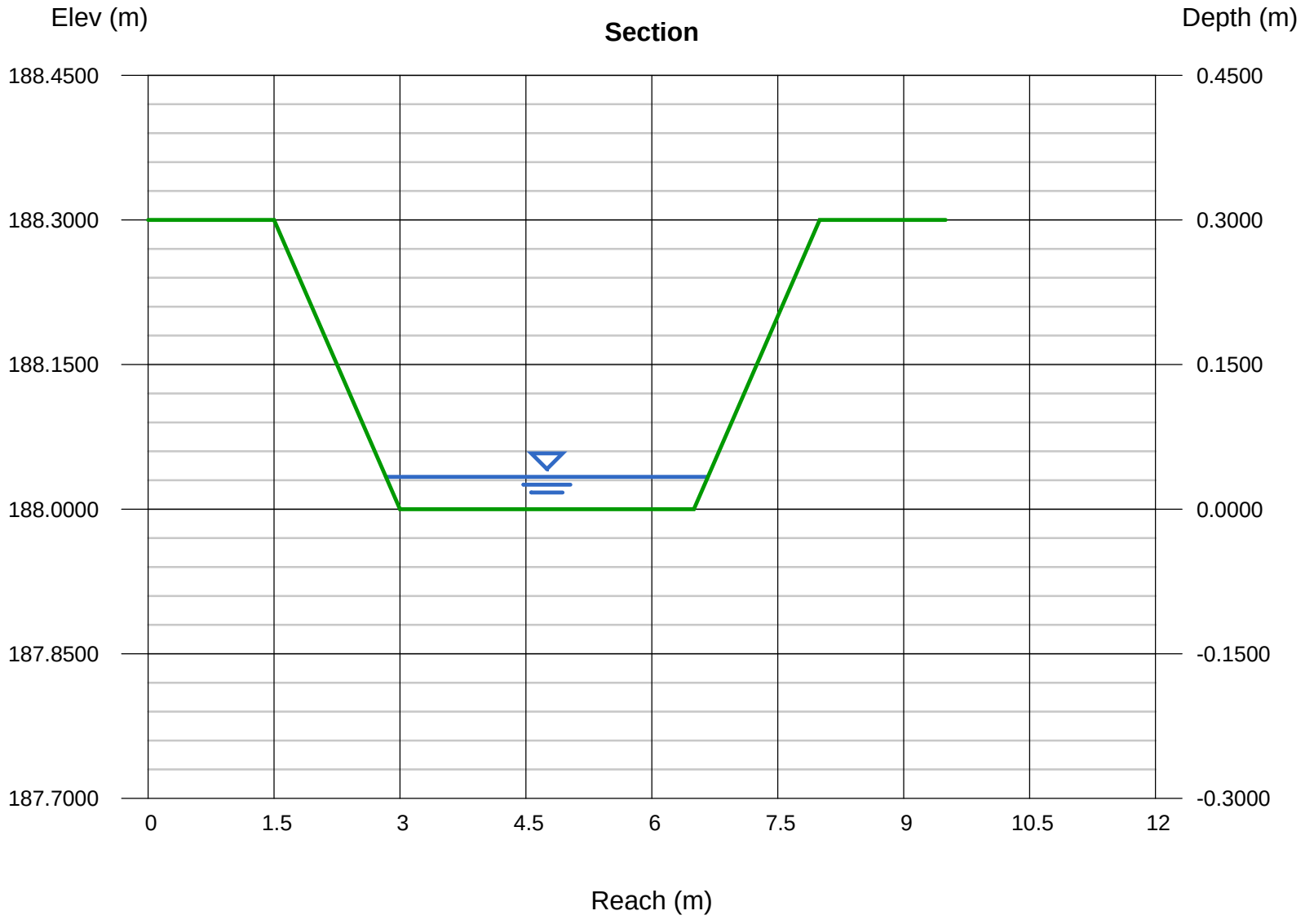
Bottom Width (m)	= 3.5000
Side Slopes (z:1)	= 5.0000, 5.0000
Total Depth (m)	= 0.3000
Invert Elev (m)	= 188.0000
Slope (%)	= 1.0000
N-Value	= 0.025

Calculations

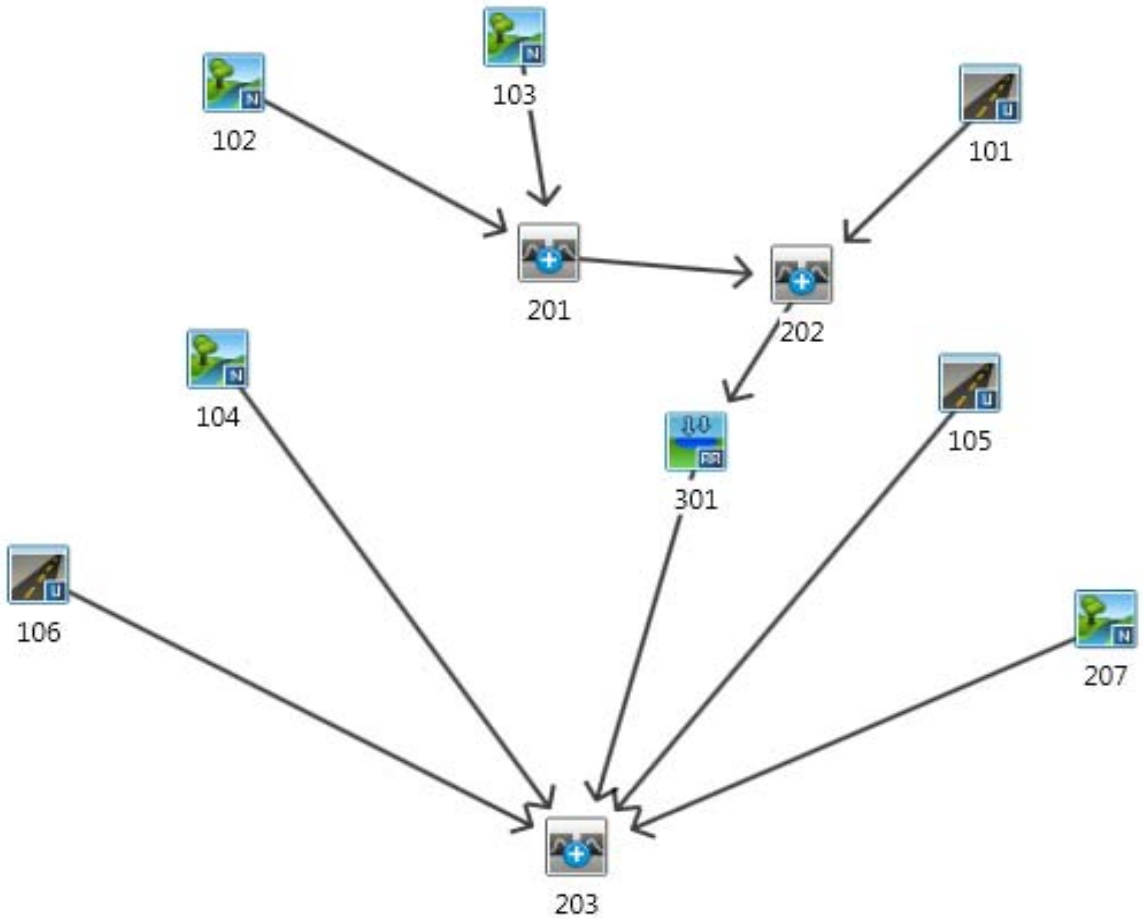
Compute by:	Known Q
Known Q (cms)	= 0.0480

Highlighted

Depth (m)	= 0.0335
Q (cms)	= 0.048
Area (sqm)	= 0.1230
Velocity (m/s)	= 0.3903
Wetted Perim (m)	= 3.8419
Crit Depth, Yc (m)	= 0.0274
Top Width (m)	= 3.8353
EGL (m)	= 0.0413



CAMPERDOWN CONDOMINIUMS
POST-DEVELOPMENT CONDITIONS



1	Nashyd	1	Route Pipe	1	Duhyd
1	Standhyd	1	Route Channel	1	Diverthyd
1	Addhyd	1	Route Reservoir		

C.C. TATHAM & ASSOCIATES LTD.
Consulting Engineers

Project:	Camperdown
File No.:	117304
Subject:	Otthymo Flow Schematic
Date:	April 2018 **Figure:** 1

```
================================================================================
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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)\VH Suite 3.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Temp\993555fd-98be-4b3c-8617-8b58b7968691\Scenario.ou
t
  Summary filename:
C:\Users\aschoof\AppData\Local\Temp\993555fd-98be-4b3c-8617-8b58b7968691\Scenario.su
m


DATE: 06/21/2018                          TIME: 01:10:57

USER:


COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
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  ***************************
  ** SIMULATION NUMBER:   1 **
  ***************************


--------------------
|    READ STORM    |    Filename: C:\Users\aschoof\AppD
|                  |              ata\Local\Temp\
|                  |              993555fd-98be-4b3c-8617-8b58b7968691\bedd3f05
| Ptotal= 24.97 mm |    Comments: OWEN SOUND 25 mm (from a 2 year-4hr stor
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.10    1.29 |  1.10    2.81 |  2.10   13.05 |  3.10    2.04
                0.20    1.36 |  1.20    3.22 |  2.20    8.44 |  3.20    1.89
                0.30    1.44 |  1.30    3.77 |  2.30    6.21 |  3.30    1.76
                0.40    1.53 |  1.40    4.55 |  2.40    4.91 |  3.40    1.65
                0.50    1.63 |  1.50    5.77 |  2.50    4.06 |  3.50    1.55
                0.60    1.75 |  1.60    7.86 |  2.60    3.47 |  3.60    1.46
                0.70    1.89 |  1.70   12.27 |  2.70    3.03 |  3.70    1.39
                0.80    2.06 |  1.80   26.17 |  2.80    2.70 |  3.80    1.32
```



```
                0.90    2.26 |  1.90   72.58 |  2.90    2.43 |  3.90    1.26
                1.00    2.50 |  2.00   26.96 |  3.00    2.22 |  4.00    1.20

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

--------------------
| CALIB            |
| NASHYD    (0102) |   Area    (ha)=   1.58   Curve Number   (CN)= 44.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.62   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

        NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    1.29 | 1.033    2.81 | 2.033   13.05 |  3.03    2.04
               0.067    1.29 | 1.067    2.81 | 2.067   13.05 |  3.07    2.04
               0.100    1.29 | 1.100    2.81 | 2.100   13.05 |  3.10    2.04
               0.133    1.36 | 1.133    3.22 | 2.133    8.44 |  3.13    1.89
               0.167    1.36 | 1.167    3.22 | 2.167    8.44 |  3.17    1.89
               0.200    1.36 | 1.200    3.22 | 2.200    8.44 |  3.20    1.89
               0.233    1.44 | 1.233    3.77 | 2.233    6.21 |  3.23    1.76
               0.267    1.44 | 1.267    3.77 | 2.267    6.21 |  3.27    1.76
               0.300    1.44 | 1.300    3.77 | 2.300    6.21 |  3.30    1.76
               0.333    1.53 | 1.333    4.55 | 2.333    4.91 |  3.33    1.65
               0.367    1.53 | 1.367    4.55 | 2.367    4.91 |  3.37    1.65
               0.400    1.53 | 1.400    4.55 | 2.400    4.91 |  3.40    1.65
               0.433    1.63 | 1.433    5.77 | 2.433    4.06 |  3.43    1.55
               0.467    1.63 | 1.467    5.77 | 2.467    4.06 |  3.47    1.55
               0.500    1.63 | 1.500    5.77 | 2.500    4.06 |  3.50    1.55
               0.533    1.75 | 1.533    7.86 | 2.533    3.47 |  3.53    1.46
               0.567    1.75 | 1.567    7.86 | 2.567    3.47 |  3.57    1.46
               0.600    1.75 | 1.600    7.86 | 2.600    3.47 |  3.60    1.46
               0.633    1.89 | 1.633   12.27 | 2.633    3.03 |  3.63    1.39
               0.667    1.89 | 1.667   12.27 | 2.667    3.03 |  3.67    1.39
               0.700    1.89 | 1.700   12.27 | 2.700    3.03 |  3.70    1.39
               0.733    2.06 | 1.733   26.17 | 2.733    2.70 |  3.73    1.32
               0.767    2.06 | 1.767   26.17 | 2.767    2.70 |  3.77    1.32
               0.800    2.06 | 1.800   26.17 | 2.800    2.70 |  3.80    1.32
               0.833    2.26 | 1.833   72.58 | 2.833    2.43 |  3.83    1.26
               0.867    2.26 | 1.867   72.58 | 2.867    2.43 |  3.87    1.26
               0.900    2.26 | 1.900   72.58 | 2.900    2.43 |  3.90    1.26
               0.933    2.50 | 1.933   26.96 | 2.933    2.22 |  3.93    1.20
               0.967    2.50 | 1.967   26.96 | 2.967    2.22 |  3.97    1.20
               1.000    2.50 | 2.000   26.96 | 3.000    2.22 |  4.00    1.20

    Unit Hyd Qpeak  (cms)=   0.355

    PEAK FLOW       (cms)=   0.004 (i)
    TIME TO PEAK    (hrs)=   2.167
    RUNOFF VOLUME    (mm)=   0.699
    TOTAL RAINFALL   (mm)=  24.971
    RUNOFF COEFFICIENT   =   0.028

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

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--------------------
| CALIB            |
| NASHYD    (0103) |   Area    (ha)=   2.80   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
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--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.594

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=   2.167
     RUNOFF VOLUME    (mm)=   0.723
     TOTAL RAINFALL   (mm)=  24.971
     RUNOFF COEFFICIENT   =   0.029

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

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--------------------
| ADD HYD   (0201) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0102):     1.58   0.004     2.17     0.70
       + ID2= 2 (0103):     2.80   0.007     2.17     0.72
         ================================================
         ID = 3 (0201):     4.38   0.010     2.17     0.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0101) |   Area    (ha)=   2.82
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=  19.00
--------------------                        IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.07         1.75
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     137.11        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    1.29 | 1.083    2.81 | 2.083   13.05 |  3.08    2.04
              0.167    1.35 | 1.167    3.14 | 2.167    9.36 |  3.17    1.92
              0.250    1.41 | 1.250    3.55 | 2.250    7.10 |  3.25    1.81
              0.333    1.48 | 1.333    4.08 | 2.333    5.69 |  3.33    1.72
              0.417    1.55 | 1.417    4.79 | 2.417    4.74 |  3.42    1.63
              0.500    1.63 | 1.500    5.77 | 2.500    4.06 |  3.50    1.55
              0.583    1.75 | 1.583    7.86 | 2.583    3.47 |  3.58    1.46
              0.667    1.86 | 1.667   11.39 | 2.667    3.12 |  3.67    1.40
              0.750    1.99 | 1.750   20.61 | 2.750    2.83 |  3.75    1.35
              0.833    2.14 | 1.833   44.73 | 2.833    2.59 |  3.83    1.30
              0.917    2.31 | 1.917   63.46 | 2.917    2.39 |  3.92    1.25
              1.000    2.50 | 2.000   26.96 | 3.000    2.22 |  4.00    1.20

     Max.Eff.Inten.(mm/hr)=      63.46        17.92
               over (min)         5.00        25.00
     Storage Coeff.  (min)=       3.70 (ii)   20.99 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.25         0.05
                                                    *TOTALS*
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     PEAK FLOW       (cms)=       0.08         0.05          0.095 (iii)
     TIME TO PEAK    (hrs)=       1.92         2.25           1.92
     RUNOFF VOLUME    (mm)=      23.97         4.57           8.25
     TOTAL RAINFALL   (mm)=      24.97        24.97          24.97
     RUNOFF COEFFICIENT   =       0.96         0.18           0.33

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

      (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
          Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
          Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
     (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   (0202) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0101):     2.82   0.095     1.92     8.25
       + ID2= 2 (0201):     4.38   0.010     2.17     0.71
         ================================================
         ID = 3 (0202):     7.20   0.093     1.93     3.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| RESERVOIR (0301) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)    (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.4748   |   0.1280      1.3860
                          0.0380     0.5498   |   0.3070      1.5223
                          0.0720     0.7185   |   0.6740      1.6664
                          0.0940     0.9133   |   1.2390      1.8182
                          0.1130     1.1353   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (0202)      7.200     0.093      1.93       3.66
     OUTFLOW: ID= 1 (0301)      7.200     0.000      0.00       0.00

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.00
                   TIME SHIFT OF PEAK FLOW         (min)=******
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.0073

     **** WARNING : SELECTED ROUTING TIME STEP DENIED.
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--------------------
| CALIB            |
| NASHYD    (0104) |   Area    (ha)=   0.62   Curve Number   (CN)= 48.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.33

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.

                              ---- TRANSFORMED HYETOGRAPH ----
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.29	1.033	2.81	2.033	13.05	3.03	2.04
0.067	1.29	1.067	2.81	2.067	13.05	3.07	2.04
0.100	1.29	1.100	2.81	2.100	13.05	3.10	2.04
0.133	1.36	1.133	3.22	2.133	8.44	3.13	1.89
0.167	1.36	1.167	3.22	2.167	8.44	3.17	1.89
0.200	1.36	1.200	3.22	2.200	8.44	3.20	1.89
0.233	1.44	1.233	3.77	2.233	6.21	3.23	1.76
0.267	1.44	1.267	3.77	2.267	6.21	3.27	1.76
0.300	1.44	1.300	3.77	2.300	6.21	3.30	1.76
0.333	1.53	1.333	4.55	2.333	4.91	3.33	1.65
0.367	1.53	1.367	4.55	2.367	4.91	3.37	1.65
0.400	1.53	1.400	4.55	2.400	4.91	3.40	1.65
0.433	1.63	1.433	5.77	2.433	4.06	3.43	1.55
0.467	1.63	1.467	5.77	2.467	4.06	3.47	1.55
0.500	1.63	1.500	5.77	2.500	4.06	3.50	1.55
0.533	1.75	1.533	7.86	2.533	3.47	3.53	1.46
0.567	1.75	1.567	7.86	2.567	3.47	3.57	1.46
0.600	1.75	1.600	7.86	2.600	3.47	3.60	1.46
0.633	1.89	1.633	12.27	2.633	3.03	3.63	1.39
0.667	1.89	1.667	12.27	2.667	3.03	3.67	1.39
0.700	1.89	1.700	12.27	2.700	3.03	3.70	1.39
0.733	2.06	1.733	26.17	2.733	2.70	3.73	1.32
0.767	2.06	1.767	26.17	2.767	2.70	3.77	1.32
0.800	2.06	1.800	26.17	2.800	2.70	3.80	1.32
0.833	2.26	1.833	72.58	2.833	2.43	3.83	1.26
0.867	2.26	1.867	72.58	2.867	2.43	3.87	1.26
0.900	2.26	1.900	72.58	2.900	2.43	3.90	1.26
0.933	2.50	1.933	26.96	2.933	2.22	3.93	1.20
0.967	2.50	1.967	26.96	2.967	2.22	3.97	1.20
1.000	2.50	2.000	26.96	3.000	2.22	4.00	1.20

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 2.367
RUNOFF VOLUME (mm)= 0.856
TOTAL RAINFALL (mm)= 24.971
RUNOFF COEFFICIENT = 0.034

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

CALIB STANDHYD (0105) ID= 1 DT= 5.0 min	Area (ha)= 0.20 Total Imp(%)= 38.00 Dir. Conn.(%)= 19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.12
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	36.51	20.00
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	1.29	1.083	2.81	2.083	13.05	3.08	2.04

0.167	1.35	1.167	3.14	2.167	9.36	3.17	1.92
0.250	1.41	1.250	3.55	2.250	7.10	3.25	1.81
0.333	1.48	1.333	4.08	2.333	5.69	3.33	1.72
0.417	1.55	1.417	4.79	2.417	4.74	3.42	1.63
0.500	1.63	1.500	5.77	2.500	4.06	3.50	1.55
0.583	1.75	1.583	7.86	2.583	3.47	3.58	1.46
0.667	1.86	1.667	11.39	2.667	3.12	3.67	1.40
0.750	1.99	1.750	20.61	2.750	2.83	3.75	1.35
0.833	2.14	1.833	44.73	2.833	2.59	3.83	1.30
0.917	2.31	1.917	63.46	2.917	2.39	3.92	1.25
1.000	2.50	2.000	26.96	3.000	2.22	4.00	1.20

Max.Eff.Inten.(mm/hr)=	63.46	31.93		
over (min)	5.00	15.00		
Storage Coeff. (min)=	1.67 (ii)	10.72 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.32	0.09		
				TOTALS
PEAK FLOW (cms)=	0.01	0.01		0.009 (iii)
TIME TO PEAK (hrs)=	1.92	2.08		1.92
RUNOFF VOLUME (mm)=	23.97	4.57		8.26
TOTAL RAINFALL (mm)=	24.97	24.97		24.97
RUNOFF COEFFICIENT =	0.96	0.18		0.33

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB STANDHYD (0106) ID= 1 DT= 5.0 min	Area (ha)= 0.54 Total Imp(%)= 28.00 Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		63.46	17.87
over (min)		5.00	20.00
Storage Coeff. (min)=		2.26 (ii)	16.31 (ii)
Unit Hyd. Tpeak (min)=		5.00	20.00
Unit Hyd. peak (cms)=		0.30	0.06
			TOTALS
PEAK FLOW (cms)=		0.01	0.01 0.015 (iii)
TIME TO PEAK (hrs)=		1.92	2.17 1.92
RUNOFF VOLUME (mm)=		23.97	3.74 6.57
TOTAL RAINFALL (mm)=		24.97	24.97 24.97
RUNOFF COEFFICIENT =		0.96	0.15 0.26

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

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      (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
           Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
           Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0207) |   Area    (ha)=   0.32   Curve Number   (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

     Unit Hyd Qpeak  (cms)=   0.042

     PEAK FLOW       (cms)=   0.002 (i)
     TIME TO PEAK    (hrs)=   2.250
     RUNOFF VOLUME    (mm)=   2.309
     TOTAL RAINFALL   (mm)=  24.971
     RUNOFF COEFFICIENT   =   0.092

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

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--------------------
| ADD HYD   (0203) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0104):     0.62   0.001     2.37     0.86
        + ID2= 2 (0105):     0.20   0.009     1.92     8.26
          ================================================
          ID = 3 (0203):     0.82   0.009     1.93     2.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 3 (0203):     0.82   0.009     1.93     2.65
        + ID2= 2 (0106):     0.54   0.015     1.92     6.57
          ================================================
          ID = 1 (0203):     1.36   0.023     1.93     4.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0203):     1.36   0.023     1.93     4.20
        + ID2= 2 (0207):     0.32   0.002     2.25     2.31
          ================================================
          ID = 3 (0203):     1.68   0.024     1.93     3.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| ADD HYD   (0203) |
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 3 (0203):     1.68   0.024     1.93     3.84
        + ID2= 2 (0301):     7.20   0.000     0.00     0.00
          ================================================
          ID = 1 (0203):     8.88   0.024     1.93     0.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  **************************
  ** SIMULATION NUMBER:   2 **
  **************************

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| CHICAGO STORM    |    IDF curve parameters: A= 429.639
| Ptotal= 31.65 mm |                          B=   1.500
--------------------                          C=   0.728
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.33

                    The CORRELATION coefficient is = 0.9997

                     TIME       INPUT INT.          TAB. INT.
                    (min)        (mm/hr)             (mm/hr)
                       5.         117.60              109.98
                      10.          72.40               72.60
                      15.          54.60               55.82
                      30.          33.60               34.86
                      60.          20.70               21.42
                     120.          12.80               13.05
                     360.           5.90                5.90
                     720.           3.60                3.57
                    1440.           2.20                2.16

   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
   0.08    2.31 |  1.08    8.17 |'  2.08    5.60 |  3.08    2.98
   0.17    2.44 |  1.17   11.68 |'  2.17    5.17 |  3.17    2.87
   0.25    2.58 |  1.25   24.71 |'  2.25    4.81 |  3.25    2.78
   0.33    2.74 |  1.33  109.98 |'  2.33    4.51 |  3.33    2.70
   0.42    2.92 |  1.42   31.54 |'  2.42    4.25 |  3.42    2.62
   0.50    3.14 |  1.50   17.91 |'  2.50    4.02 |  3.50    2.54
   0.58    3.40 |  1.58   13.00 |'  2.58    3.82 |  3.58    2.47
   0.67    3.73 |  1.67   10.39 |'  2.67    3.64 |  3.67    2.41
   0.75    4.13 |  1.75    8.75 |'  2.75    3.48 |  3.75    2.34
   0.83    4.66 |  1.83    7.61 |'  2.83    3.34 |  3.83    2.29
   0.92    5.38 |  1.92    6.77 |'  2.92    3.20 |  3.92    2.23
   1.00    6.43 |  2.00    6.12 |'  3.00    3.08 |  4.00    2.18

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| CALIB            |
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| NASHYD (0102) | Area (ha)= 1.58 Curve Number (CN)= 44.1
|ID= 1 DT= 2.0 min | Ia (mm)= 9.62 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.17

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	2.31	1.033	8.17	2.033	5.60	3.03	2.98
0.067	2.31	1.067	8.17	2.067	5.60	3.07	2.98
0.100	2.37	1.100	9.92	2.100	5.38	3.10	2.93
0.133	2.44	1.133	11.68	2.133	5.17	3.13	2.87
0.167	2.44	1.167	11.68	2.167	5.17	3.17	2.87
0.200	2.58	1.200	24.71	2.200	4.81	3.20	2.78
0.233	2.58	1.233	24.71	2.233	4.81	3.23	2.78
0.267	2.66	1.267	67.34	2.267	4.66	3.27	2.74
0.300	2.74	1.300	109.98	2.300	4.51	3.30	2.70
0.333	2.74	1.333	109.98	2.333	4.51	3.33	2.70
0.367	2.92	1.367	31.54	2.367	4.25	3.37	2.62
0.400	2.92	1.400	31.54	2.400	4.25	3.40	2.62
0.433	3.03	1.433	24.73	2.433	4.13	3.43	2.58
0.467	3.14	1.467	17.91	2.467	4.02	3.47	2.54
0.500	3.14	1.500	17.91	2.500	4.02	3.50	2.54
0.533	3.40	1.533	13.00	2.533	3.82	3.53	2.47
0.567	3.40	1.567	13.00	2.567	3.82	3.57	2.47
0.600	3.56	1.600	11.69	2.600	3.73	3.60	2.44
0.633	3.73	1.633	10.39	2.633	3.64	3.63	2.41
0.667	3.73	1.667	10.39	2.667	3.64	3.67	2.41
0.700	4.13	1.700	8.75	2.700	3.48	3.70	2.34
0.733	4.13	1.733	8.75	2.733	3.48	3.73	2.34
0.767	4.39	1.767	8.18	2.767	3.41	3.77	2.32
0.800	4.66	1.800	7.61	2.800	3.34	3.80	2.29
0.833	4.66	1.833	7.61	2.833	3.34	3.83	2.29
0.867	5.38	1.867	6.77	2.867	3.20	3.87	2.23
0.900	5.38	1.900	6.77	2.900	3.20	3.90	2.23
0.933	5.91	1.933	6.44	2.933	3.14	3.93	2.21
0.967	6.43	1.967	6.12	2.967	3.08	3.97	2.18
1.000	6.43	2.000	6.12	3.000	3.08	4.00	2.18

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.005 (i)
TIME TO PEAK (hrs)= 1.600
RUNOFF VOLUME (mm)= 1.411
TOTAL RAINFALL (mm)= 31.649
RUNOFF COEFFICIENT = 0.045

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

| CALIB | NASHYD (0103) | Area (ha)= 2.80 Curve Number (CN)= 42.9
|ID= 1 DT= 2.0 min | Ia (mm)= 8.98 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.18

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 1.600
RUNOFF VOLUME (mm)= 1.426

TOTAL RAINFALL (mm)= 31.649
RUNOFF COEFFICIENT = 0.045

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

ADD HYD (0201)	1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
		ID1= 1 (0102):	1.58	0.005	1.60	1.41
		+ ID2= 2 (0103):	2.80	0.009	1.60	1.43
		ID = 3 (0201):	4.38	0.013	1.60	1.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| CALIB | STANDHYD (0101) | Area (ha)= 2.82
|ID= 1 DT= 5.0 min | Total Imp(%)= 38.00 Dir. Conn.(%)= 19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.07	1.75
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	137.11	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.31	1.083	8.17	2.083	5.60	3.08	2.98
0.167	2.44	1.167	11.68	2.167	5.17	3.17	2.87
0.250	2.58	1.250	24.71	2.250	4.81	3.25	2.78
0.333	2.74	1.333	109.98	2.333	4.51	3.33	2.70
0.417	2.92	1.417	31.54	2.417	4.25	3.42	2.62
0.500	3.14	1.500	17.91	2.500	4.02	3.50	2.54
0.583	3.40	1.583	13.00	2.583	3.82	3.58	2.47
0.667	3.73	1.667	10.39	2.667	3.64	3.67	2.41
0.750	4.13	1.750	8.75	2.750	3.48	3.75	2.34
0.833	4.66	1.833	7.61	2.833	3.34	3.83	2.29
0.917	5.38	1.917	6.77	2.917	3.20	3.92	2.23
1.000	6.43	2.000	6.12	3.000	3.08	4.00	2.18

Max.Eff.Inten.(mm/hr)=		109.98	35.47	
over (min)		5.00	20.00	
Storage Coeff. (min)=		2.97 (ii)	16.12 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.28	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.14	0.10	0.161 (iii)
TIME TO PEAK	(hrs)=	1.33	1.58	1.33
RUNOFF VOLUME	(mm)=	30.65	6.79	11.32
TOTAL RAINFALL	(mm)=	31.65	31.65	31.65
RUNOFF COEFFICIENT	=	0.97	0.21	0.36

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

***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0202)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0101):	2.82	0.161	1.33	11.32
+	ID2= 2 (0201):	4.38	0.013	1.60	1.42
	ID = 3 (0202):	7.20	0.163	1.33	5.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0301)	IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
			0.0000	0.4748	0.1280	1.3860
			0.0380	0.5498	0.3070	1.5223
			0.0720	0.7185	0.6740	1.6664
			0.0940	0.9133	1.2390	1.8182
			0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0202)	7.200	0.163	1.33	5.31
OUTFLOW: ID= 1 (0301)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=-80.00
MAXIMUM STORAGE USED (ha.m.)= 0.0047

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

CALIB	NASHYD (0104)	ID= 1 DT= 2.0 min	Area (ha)= 0.62	Curve Number (CN)= 48.1	Ia (mm)= 9.20	# of Linear Res.(N)= 3.00	U.H. Tp(hrs)= 0.33

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	2.31	1.033	8.17	2.033	5.60	3.03	2.98
0.067	2.31	1.067	8.17	2.067	5.60	3.07	2.98
0.100	2.37	1.100	9.92	2.100	5.38	3.10	2.93
0.133	2.44	1.133	11.68	2.133	5.17	3.13	2.87
0.167	2.44	1.167	11.68	2.167	5.17	3.17	2.87

0.200	2.58	1.200	24.71	2.200	4.81	3.20	2.78
0.233	2.58	1.233	24.71	2.233	4.81	3.23	2.78
0.267	2.66	1.267	67.34	2.267	4.66	3.27	2.74
0.300	2.74	1.300	109.98	2.300	4.51	3.30	2.70
0.333	2.74	1.333	109.98	2.333	4.51	3.33	2.70
0.367	2.92	1.367	31.54	2.367	4.25	3.37	2.62
0.400	2.92	1.400	31.54	2.400	4.25	3.40	2.62
0.433	3.03	1.433	24.73	2.433	4.13	3.43	2.58
0.467	3.14	1.467	17.91	2.467	4.02	3.47	2.54
0.500	3.14	1.500	17.91	2.500	4.02	3.50	2.54
0.533	3.40	1.533	13.00	2.533	3.82	3.53	2.47
0.567	3.40	1.567	13.00	2.567	3.82	3.57	2.47
0.600	3.56	1.600	11.69	2.600	3.73	3.60	2.44
0.633	3.73	1.633	10.39	2.633	3.64	3.63	2.41
0.667	3.73	1.667	10.39	2.667	3.64	3.67	2.41
0.700	4.13	1.700	8.75	2.700	3.48	3.70	2.34
0.733	4.13	1.733	8.75	2.733	3.48	3.73	2.34
0.767	4.39	1.767	8.18	2.767	3.41	3.77	2.32
0.800	4.66	1.800	7.61	2.800	3.34	3.80	2.29
0.833	4.66	1.833	7.61	2.833	3.34	3.83	2.29
0.867	5.38	1.867	6.77	2.867	3.20	3.87	2.23
0.900	5.38	1.900	6.77	2.900	3.20	3.90	2.23
0.933	5.91	1.933	6.44	2.933	3.14	3.93	2.21
0.967	6.43	1.967	6.12	2.967	3.08	3.97	2.18
1.000	6.43	2.000	6.12	3.000	3.08	4.00	2.18

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.002 (i)
TIME TO PEAK (hrs)= 1.867
RUNOFF VOLUME (mm)= 1.697
TOTAL RAINFALL (mm)= 31.649
RUNOFF COEFFICIENT = 0.054

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

CALIB	STANDHYD (0105)	ID= 1 DT= 5.0 min	Area (ha)= 0.20	Total Imp(%)= 38.00	Dir. Conn.(%)= 19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.12
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	36.51	20.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.31	1.083	8.17	2.083	5.60	3.08	2.98
0.167	2.44	1.167	11.68	2.167	5.17	3.17	2.87
0.250	2.58	1.250	24.71	2.250	4.81	3.25	2.78
0.333	2.74	1.333	109.98	2.333	4.51	3.33	2.70
0.417	2.92	1.417	31.54	2.417	4.25	3.42	2.62
0.500	3.14	1.500	17.91	2.500	4.02	3.50	2.54
0.583	3.40	1.583	13.00	2.583	3.82	3.58	2.47
0.667	3.73	1.667	10.39	2.667	3.64	3.67	2.41

0.750	4.13	1.750	8.75	2.750	3.48	3.75	2.34
0.833	4.66	1.833	7.61	2.833	3.34	3.83	2.29
0.917	5.38	1.917	6.77	2.917	3.20	3.92	2.23
1.000	6.43	2.000	6.12	3.000	3.08	4.00	2.18

Max.Eff.Inten.(mm/hr)=	109.98	53.21		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.34 (ii)	8.72 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.33	0.12		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.01	0.017 (iii)	
TIME TO PEAK (hrs)=	1.33	1.42	1.33	
RUNOFF VOLUME (mm)=	30.65	6.79	11.32	
TOTAL RAINFALL (mm)=	31.65	31.65	31.65	
RUNOFF COEFFICIENT =	0.97	0.21	0.36	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
STANDHYD (0106)	Area (ha)=	0.54			
ID= 1 DT= 5.0 min	Total Imp(%)=	28.00	Dir. Conn.(%)=	14.00	

		IMPERVIOUS	PERVIOUS (i)		
Surface Area (ha)=	0.15	0.39			
Dep. Storage (mm)=	1.00	1.50			
Average Slope (%)=	1.00	2.00			
Length (m)=	60.00	40.00			
Mannings n =	0.013	0.250			
Max.Eff.Inten.(mm/hr)=	109.98	44.18			
over (min)	5.00	15.00			
Storage Coeff. (min)=	1.81 (ii)	11.60 (ii)			
Unit Hyd. Tpeak (min)=	5.00	15.00			
Unit Hyd. peak (cms)=	0.32	0.09			
			TOTALS		
PEAK FLOW (cms)=	0.02	0.02	0.029 (iii)		
TIME TO PEAK (hrs)=	1.33	1.50	1.33		
RUNOFF VOLUME (mm)=	30.65	6.17	9.59		
TOTAL RAINFALL (mm)=	31.65	31.65	31.65		
RUNOFF COEFFICIENT =	0.97	0.19	0.30		

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0207)	Area (ha)=	0.32	Curve Number (CN)=	61.0	
ID= 1 DT= 5.0 min	Ia (mm)=	4.40	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.29			

Unit Hyd Qpeak (cms)= 0.042

PEAK FLOW (cms)= 0.003 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 3.911
TOTAL RAINFALL (mm)= 31.649
RUNOFF COEFFICIENT = 0.124

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

ADD HYD (0203)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0104):	0.62	0.002	1.87	1.70	
+ ID2= 2 (0105):	0.20	0.017	1.33	11.32	
ID = 3 (0203):	0.82	0.017	1.33	4.05	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)					
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 3 (0203):	0.82	0.017	1.33	4.05	
+ ID2= 2 (0106):	0.54	0.029	1.33	9.59	
ID = 1 (0203):	1.36	0.047	1.33	6.26	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0203):	1.36	0.047	1.33	6.26	
+ ID2= 2 (0207):	0.32	0.003	1.67	3.91	
ID = 3 (0203):	1.68	0.047	1.33	5.81	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

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  ID1= 3 (0203):     1.68   0.047     1.33     5.81
+ ID2= 2 (0301):     7.20   0.000     0.00     0.00
  ================================================
  ID = 1 (0203):     8.88   0.047     1.33     1.10
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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ** SIMULATION NUMBER:   3 **
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| CHICAGO STORM    |    IDF curve parameters: A= 565.766
| Ptotal= 42.60 mm |                          B=   1.503
--------------------                          C=   0.724
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.33
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The CORRELATION coefficient is = 0.9997

TIME (min)	INPUT INT. (mm/hr)	TAB. INT. (mm/hr)
5.	156.80	145.86
10.	96.60	96.52
15.	72.70	74.32
30.	44.80	46.54
60.	27.60	28.67
120.	17.00	17.51
360.	7.90	7.95
720.	4.90	4.82
1440.	3.00	2.92

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	3.16	1.08	11.06	2.08	7.60	3.08	4.06
0.17	3.32	1.17	15.78	2.17	7.02	3.17	3.92
0.25	3.51	1.25	33.18	2.25	6.54	3.25	3.79
0.33	3.73	1.33	145.86	2.33	6.13	3.33	3.68
0.42	3.98	1.42	42.28	2.42	5.78	3.42	3.57
0.50	4.28	1.50	24.13	2.50	5.47	3.50	3.47
0.58	4.64	1.58	17.55	2.58	5.20	3.58	3.37
0.67	5.07	1.67	14.05	2.67	4.96	3.67	3.28
0.75	5.62	1.75	11.84	2.75	4.74	3.75	3.20
0.83	6.33	1.83	10.31	2.83	4.54	3.83	3.12
0.92	7.30	1.92	9.18	2.92	4.37	3.92	3.05
1.00	8.73	2.00	8.30	3.00	4.20	4.00	2.98

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| CALIB            |
| NASHYD    (0102) |   Area    (ha)=   1.58   Curve Number   (CN)= 44.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.62   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17
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NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	3.16	1.033	11.06	2.033	7.60	3.03	4.06
0.067	3.16	1.067	11.06	2.067	7.60	3.07	4.06
0.100	3.24	1.100	13.42	2.100	7.31	3.10	3.99
0.133	3.32	1.133	15.78	2.133	7.02	3.13	3.92
0.167	3.32	1.167	15.78	2.167	7.02	3.17	3.92
0.200	3.51	1.200	33.18	2.200	6.54	3.20	3.79
0.233	3.51	1.233	33.18	2.233	6.54	3.23	3.79
0.267	3.62	1.267	89.52	2.267	6.34	3.27	3.73
0.300	3.73	1.300	145.86	2.300	6.13	3.30	3.68
0.333	3.73	1.333	145.86	2.333	6.13	3.33	3.68
0.367	3.98	1.367	42.28	2.367	5.78	3.37	3.57
0.400	3.98	1.400	42.28	2.400	5.78	3.40	3.57
0.433	4.13	1.433	33.20	2.433	5.62	3.43	3.52
0.467	4.28	1.467	24.13	2.467	5.47	3.47	3.47
0.500	4.28	1.500	24.13	2.500	5.47	3.50	3.47
0.533	4.64	1.533	17.55	2.533	5.20	3.53	3.37
0.567	4.64	1.567	17.55	2.567	5.20	3.57	3.37
0.600	4.85	1.600	15.80	2.600	5.08	3.60	3.33
0.633	5.07	1.633	14.05	2.633	4.96	3.63	3.28
0.667	5.07	1.667	14.05	2.667	4.96	3.67	3.28
0.700	5.62	1.700	11.84	2.700	4.74	3.70	3.20
0.733	5.62	1.733	11.84	2.733	4.74	3.73	3.20
0.767	5.97	1.767	11.08	2.767	4.64	3.77	3.16
0.800	6.33	1.800	10.31	2.800	4.54	3.80	3.12
0.833	6.33	1.833	10.31	2.833	4.54	3.83	3.12
0.867	7.30	1.867	9.18	2.867	4.37	3.87	3.05
0.900	7.30	1.900	9.18	2.900	4.37	3.90	3.05
0.933	8.02	1.933	8.74	2.933	4.28	3.93	3.01
0.967	8.73	1.967	8.30	2.967	4.20	3.97	2.98
1.000	8.73	2.000	8.30	3.000	4.20	4.00	2.98

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     Unit Hyd Qpeak  (cms)=   0.355

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   1.567
     RUNOFF VOLUME    (mm)=   3.067
     TOTAL RAINFALL   (mm)=  42.601
     RUNOFF COEFFICIENT   =   0.072

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| CALIB            |
| NASHYD    (0103) |   Area    (ha)=   2.80   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.594

     PEAK FLOW       (cms)=   0.021 (i)
     TIME TO PEAK    (hrs)=   1.567
     RUNOFF VOLUME    (mm)=   3.044
     TOTAL RAINFALL   (mm)=  42.601
     RUNOFF COEFFICIENT   =   0.071

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| ADD HYD   (0201) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0102):     1.58   0.012     1.57     3.07
       + ID2= 2 (0103):     2.80   0.021     1.57     3.04
         ====================================================
         ID = 3 (0201):     4.38   0.032     1.57     3.05

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0101) |   Area    (ha)=   2.82
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=  19.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       1.07         1.75
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     137.11        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    3.16 | 1.083   11.06 | 2.083    7.60 |  3.08    4.06
               0.167    3.32 | 1.167   15.78 | 2.167    7.02 |  3.17    3.92
               0.250    3.51 | 1.250   33.18 | 2.250    6.54 |  3.25    3.79
               0.333    3.73 | 1.333  145.86 | 2.333    6.13 |  3.33    3.68
               0.417    3.98 | 1.417   42.28 | 2.417    5.78 |  3.42    3.57
               0.500    4.28 | 1.500   24.13 | 2.500    5.47 |  3.50    3.47
               0.583    4.64 | 1.583   17.55 | 2.583    5.20 |  3.58    3.37
               0.667    5.07 | 1.667   14.05 | 2.667    4.96 |  3.67    3.28
               0.750    5.62 | 1.750   11.84 | 2.750    4.74 |  3.75    3.20
               0.833    6.33 | 1.833   10.31 | 2.833    4.54 |  3.83    3.12
               0.917    7.30 | 1.917    9.18 | 2.917    4.37 |  3.92    3.05
               1.000    8.73 | 2.000    8.30 | 3.000    4.20 |  4.00    2.98

     Max.Eff.Inten.(mm/hr)=     145.86        92.40
               over (min)          5.00        15.00
     Storage Coeff.  (min)=       2.65 (ii)   11.62 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.19         0.22          0.267 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.50           1.50
     RUNOFF VOLUME    (mm)=      41.60        12.52          18.05
     TOTAL RAINFALL   (mm)=      42.60        42.60          42.60
     RUNOFF COEFFICIENT   =       0.98         0.29           0.42

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
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         THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD   (0202) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0101):     2.82   0.267     1.50    18.05
       + ID2= 2 (0201):     4.38   0.032     1.57     3.05
         ====================================================
         ID = 3 (0202):     7.20   0.297     1.50     8.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
--------------------
| RESERVOIR (0301) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.4748   |   0.1280      1.3860
                          0.0380     0.5498   |   0.3070      1.5223
                          0.0720     0.7185   |   0.6740      1.6664
                          0.0940     0.9133   |   1.2390      1.8182
                          0.1130     1.1353   |   0.0000      0.0000

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (0202)      7.200      0.297      1.50       8.95
     OUTFLOW: ID= 1 (0301)      7.200      0.000      0.00       0.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.00
                  TIME SHIFT OF PEAK FLOW         (min)=-90.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0262

     **** WARNING : SELECTED ROUTING TIME STEP DENIED.
-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD    (0104) |   Area    (ha)=   0.62   Curve Number   (CN)= 48.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.33

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    3.16 | 1.033   11.06 | 2.033    7.60 |  3.03    4.06
               0.067    3.16 | 1.067   11.06 | 2.067    7.60 |  3.07    4.06
               0.100    3.24 | 1.100   13.42 | 2.100    7.31 |  3.10    3.99
               0.133    3.32 | 1.133   15.78 | 2.133    7.02 |  3.13    3.92
               0.167    3.32 | 1.167   15.78 | 2.167    7.02 |  3.17    3.92
               0.200    3.51 | 1.200   33.18 | 2.200    6.54 |  3.20    3.79
               0.233    3.51 | 1.233   33.18 | 2.233    6.54 |  3.23    3.79
               0.267    3.62 | 1.267   89.52 | 2.267    6.34 |  3.27    3.73
               0.300    3.73 | 1.300  145.86 | 2.300    6.13 |  3.30    3.68
               0.333    3.73 | 1.333  145.86 | 2.333    6.13 |  3.33    3.68
               0.367    3.98 | 1.367   42.28 | 2.367    5.78 |  3.37    3.57
               0.400    3.98 | 1.400   42.28 | 2.400    5.78 |  3.40    3.57
```

0.433	4.13	1.433	33.20	2.433	5.62	3.43	3.52
0.467	4.28	1.467	24.13	2.467	5.47	3.47	3.47
0.500	4.28	1.500	24.13	2.500	5.47	3.50	3.47
0.533	4.64	1.533	17.55	2.533	5.20	3.53	3.37
0.567	4.64	1.567	17.55	2.567	5.20	3.57	3.37
0.600	4.85	1.600	15.80	2.600	5.08	3.60	3.33
0.633	5.07	1.633	14.05	2.633	4.96	3.63	3.28
0.667	5.07	1.667	14.05	2.667	4.96	3.67	3.28
0.700	5.62	1.700	11.84	2.700	4.74	3.70	3.20
0.733	5.62	1.733	11.84	2.733	4.74	3.73	3.20
0.767	5.97	1.767	11.08	2.767	4.64	3.77	3.16
0.800	6.33	1.800	10.31	2.800	4.54	3.80	3.12
0.833	6.33	1.833	10.31	2.833	4.54	3.83	3.12
0.867	7.30	1.867	9.18	2.867	4.37	3.87	3.05
0.900	7.30	1.900	9.18	2.900	4.37	3.90	3.05
0.933	8.02	1.933	8.74	2.933	4.28	3.93	3.01
0.967	8.73	1.967	8.30	2.967	4.20	3.97	2.98
1.000	8.73	2.000	8.30	3.000	4.20	4.00	2.98

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 1.833
RUNOFF VOLUME (mm)= 3.625
TOTAL RAINFALL (mm)= 42.601
RUNOFF COEFFICIENT = 0.085

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

CALIB	
STANDHYD (0105)	Area (ha)= 0.20
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00 Dir. Conn.(%)= 19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.12
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	36.51	20.00
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	3.16	1.083	11.06	2.083	7.60	3.08	4.06
0.167	3.32	1.167	15.78	2.167	7.02	3.17	3.92
0.250	3.51	1.250	33.18	2.250	6.54	3.25	3.79
0.333	3.73	1.333	145.86	2.333	6.13	3.33	3.68
0.417	3.98	1.417	42.28	2.417	5.78	3.42	3.57
0.500	4.28	1.500	24.13	2.500	5.47	3.50	3.47
0.583	4.64	1.583	17.55	2.583	5.20	3.58	3.37
0.667	5.07	1.667	14.05	2.667	4.96	3.67	3.28
0.750	5.62	1.750	11.84	2.750	4.74	3.75	3.20
0.833	6.33	1.833	10.31	2.833	4.54	3.83	3.12
0.917	7.30	1.917	9.18	2.917	4.37	3.92	3.05
1.000	8.73	2.000	8.30	3.000	4.20	4.00	2.98

Max.Eff.Inten.(mm/hr)= 145.86 92.40
over (min) 5.00 10.00

Storage Coeff. (min)= 1.20 (ii) 7.12 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.33 0.14

				TOTALS
PEAK FLOW	(cms)=	0.02	0.02	0.028 (iii)
TIME TO PEAK	(hrs)=	1.33	1.42	1.42
RUNOFF VOLUME	(mm)=	41.60	12.52	18.05
TOTAL RAINFALL	(mm)=	42.60	42.60	42.60
RUNOFF COEFFICIENT	=	0.98	0.29	0.42

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0106)	Area (ha)= 0.54
ID= 1 DT= 5.0 min	Total Imp(%)= 28.00 Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	40.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)= 145.86 78.50
over (min) 5.00 10.00
Storage Coeff. (min)= 1.62 (ii) 9.39 (ii)
Unit Hyd. Tpeak (min)= 5.00 10.00
Unit Hyd. peak (cms)= 0.32 0.12

				TOTALS
PEAK FLOW	(cms)=	0.03	0.05	0.063 (iii)
TIME TO PEAK	(hrs)=	1.33	1.42	1.42
RUNOFF VOLUME	(mm)=	41.60	11.34	15.58
TOTAL RAINFALL	(mm)=	42.60	42.60	42.60
RUNOFF COEFFICIENT	=	0.98	0.27	0.37

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0207)	Area (ha)= 0.32 Curve Number (CN)= 61.0
ID= 1 DT= 5.0 min	Ia (mm)= 4.40 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)= 0.042

PEAK FLOW (cms)= 0.005 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 7.269
TOTAL RAINFALL (mm)= 42.601
RUNOFF COEFFICIENT = 0.171

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

ADD HYD (0203)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0104):	0.62	0.004	1.83	3.62
	+ ID2= 2 (0105):	0.20	0.028	1.42	18.05
	ID = 3 (0203):	0.82	0.029	1.40	7.14

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0203):	0.82	0.029	1.40	7.14
	+ ID2= 2 (0106):	0.54	0.063	1.42	15.58
	ID = 1 (0203):	1.36	0.090	1.40	10.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0203):	1.36	0.090	1.40	10.49
	+ ID2= 2 (0207):	0.32	0.005	1.67	7.27
	ID = 3 (0203):	1.68	0.092	1.40	9.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0203):	1.68	0.092	1.40	9.88
	+ ID2= 2 (0301):	7.20	0.000	0.00	0.00
	ID = 1 (0203):	8.88	0.092	1.40	1.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

**** SIMULATION NUMBER: 4 **

CHICAGO STORM	Ptotal= 49.48 mm

IDF curve parameters: A= 660.708
B= 1.501
C= 0.725
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.33

The CORRELATION coefficient is = 0.9997

TIME (min)	INPUT INT. (mm/hr)	TAB. INT. (mm/hr)
5.	182.90	170.06
10.	112.70	112.45
15.	84.90	86.56
30.	52.30	54.17
60.	32.20	33.35
120.	19.80	20.36
360.	9.20	9.23
720.	5.70	5.59
1440.	3.50	3.39

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	3.65	1.08	12.83	2.08	8.81	3.08	4.70
0.17	3.85	1.17	18.31	2.17	8.14	3.17	4.54
0.25	4.07	1.25	38.56	2.25	7.58	3.25	4.39
0.33	4.32	1.33	170.06	2.33	7.10	3.33	4.26
0.42	4.61	1.42	49.15	2.42	6.69	3.42	4.13
0.50	4.96	1.50	28.02	2.50	6.34	3.50	4.01
0.58	5.37	1.58	20.36	2.58	6.02	3.58	3.90
0.67	5.87	1.67	16.29	2.67	5.74	3.67	3.80
0.75	6.51	1.75	13.73	2.75	5.49	3.75	3.70
0.83	7.33	1.83	11.95	2.83	5.26	3.83	3.61
0.92	8.46	1.92	10.64	2.92	5.05	3.92	3.53
1.00	10.12	2.00	9.62	3.00	4.87	4.00	3.45

CALIB	NASHYD (0102)	ID= 1 DT= 2.0 min

Area (ha)= 1.58 Curve Number (CN)= 44.1
Ia (mm)= 9.62 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.17

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	3.65	1.033	12.83	2.033	8.81	3.03	4.70
0.067	3.65	1.067	12.83	2.067	8.81	3.07	4.70
0.100	3.75	1.100	15.57	2.100	8.47	3.10	4.62
0.133	3.85	1.133	18.31	2.133	8.14	3.13	4.54

0.167	3.85	1.167	18.31	2.167	8.14	3.17	4.54
0.200	4.07	1.200	38.56	2.200	7.58	3.20	4.39
0.233	4.07	1.233	38.56	2.233	7.58	3.23	4.39
0.267	4.19	1.267	104.31	2.267	7.34	3.27	4.32
0.300	4.32	1.300	170.06	2.300	7.10	3.30	4.26
0.333	4.32	1.333	170.06	2.333	7.10	3.33	4.26
0.367	4.61	1.367	49.15	2.367	6.69	3.37	4.13
0.400	4.61	1.400	49.15	2.400	6.69	3.40	4.13
0.433	4.78	1.433	38.58	2.433	6.51	3.43	4.07
0.467	4.96	1.467	28.02	2.467	6.34	3.47	4.01
0.500	4.96	1.500	28.02	2.500	6.34	3.50	4.01
0.533	5.37	1.533	20.36	2.533	6.02	3.53	3.90
0.567	5.37	1.567	20.36	2.567	6.02	3.57	3.90
0.600	5.62	1.600	18.33	2.600	5.88	3.60	3.85
0.633	5.87	1.633	16.29	2.633	5.74	3.63	3.80
0.667	5.87	1.667	16.29	2.667	5.74	3.67	3.80
0.700	6.51	1.700	13.73	2.700	5.49	3.70	3.70
0.733	6.51	1.733	13.73	2.733	5.49	3.73	3.70
0.767	6.92	1.767	12.84	2.767	5.37	3.77	3.66
0.800	7.33	1.800	11.95	2.800	5.26	3.80	3.61
0.833	7.33	1.833	11.95	2.833	5.26	3.83	3.61
0.867	8.46	1.867	10.64	2.867	5.05	3.87	3.53
0.900	8.46	1.900	10.64	2.900	5.05	3.90	3.53
0.933	9.29	1.933	10.13	2.933	4.96	3.93	3.49
0.967	10.12	1.967	9.62	2.967	4.87	3.97	3.45
1.000	10.12	2.000	9.62	3.000	4.87	4.00	3.45

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.018 (i)
TIME TO PEAK (hrs)= 1.567
RUNOFF VOLUME (mm)= 4.394
TOTAL RAINFALL (mm)= 49.478
RUNOFF COEFFICIENT = 0.089

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

CALIB					
NASHYD (0103)	Area (ha)=	2.80	Curve Number (CN)=	42.9	
ID= 1 DT= 2.0 min	Ia (mm)=	8.98	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.18			

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 1.567
RUNOFF VOLUME (mm)= 4.337
TOTAL RAINFALL (mm)= 49.478
RUNOFF COEFFICIENT = 0.088

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

ADD HYD (0201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0102):	1.58	0.018	1.57	4.39
+ ID2= 2 (0103):	2.80	0.031	1.57	4.34

ID = 3 (0201):	4.38	0.049	1.57	4.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0101)	Area (ha)=	2.82	
ID= 1 DT= 5.0 min	Total Imp(%)=	38.00	Dir. Conn.(%)= 19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.07	1.75
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	137.11	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	3.65	1.083	12.83	2.083	8.81	3.08	4.70
0.167	3.85	1.167	18.31	2.167	8.14	3.17	4.54
0.250	4.07	1.250	38.56	2.250	7.58	3.25	4.39
0.333	4.32	1.333	170.06	2.333	7.10	3.33	4.26
0.417	4.61	1.417	49.15	2.417	6.69	3.42	4.13
0.500	4.96	1.500	28.02	2.500	6.34	3.50	4.01
0.583	5.37	1.583	20.36	2.583	6.02	3.58	3.90
0.667	5.87	1.667	16.29	2.667	5.74	3.67	3.80
0.750	6.51	1.750	13.73	2.750	5.49	3.75	3.70
0.833	7.33	1.833	11.95	2.833	5.26	3.83	3.61
0.917	8.46	1.917	10.64	2.917	5.05	3.92	3.53
1.000	10.12	2.000	9.62	3.000	4.87	4.00	3.45

Max.Eff.Inten.(mm/hr)=	170.06	117.89		
over (min)	5.00	15.00		
Storage Coeff. (min)=	2.50 (ii)	10.63 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.29	0.09		
				TOTALS
PEAK FLOW (cms)=	0.23	0.30		0.352 (iii)
TIME TO PEAK (hrs)=	1.33	1.50		1.50
RUNOFF VOLUME (mm)=	48.48	17.09		23.05
TOTAL RAINFALL (mm)=	49.48	49.48		49.48
RUNOFF COEFFICIENT =	0.98	0.35		0.47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0202)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	2.82	0.352	1.50	23.05
+ ID2= 2 (0201):	4.38	0.049	1.57	4.36
ID = 3 (0202):	7.20	0.398	1.50	11.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0301) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.4748	0.1280	1.3860
	0.0380	0.5498	0.3070	1.5223
	0.0720	0.7185	0.6740	1.6664
	0.0940	0.9133	1.2390	1.8182
	0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0202)	7.200	0.398	1.50	11.71
OUTFLOW: ID= 1 (0301)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=-90.00
MAXIMUM STORAGE USED (ha.m.)= 0.0333

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

CALIB NASHYD (0104) ID= 1 DT= 2.0 min	Area (ha)= 0.62	Curve Number (CN)= 48.1
	Ia (mm)= 9.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.33	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	3.65	1.033	12.83	2.033	8.81	3.03	4.70
0.067	3.65	1.067	12.83	2.067	8.81	3.07	4.70
0.100	3.75	1.100	15.57	2.100	8.47	3.10	4.62
0.133	3.85	1.133	18.31	2.133	8.14	3.13	4.54
0.167	3.85	1.167	18.31	2.167	8.14	3.17	4.54
0.200	4.07	1.200	38.56	2.200	7.58	3.20	4.39
0.233	4.07	1.233	38.56	2.233	7.58	3.23	4.39
0.267	4.19	1.267	104.31	2.267	7.34	3.27	4.32
0.300	4.32	1.300	170.06	2.300	7.10	3.30	4.26
0.333	4.32	1.333	170.06	2.333	7.10	3.33	4.26
0.367	4.61	1.367	49.15	2.367	6.69	3.37	4.13
0.400	4.61	1.400	49.15	2.400	6.69	3.40	4.13
0.433	4.78	1.433	38.58	2.433	6.51	3.43	4.07
0.467	4.96	1.467	28.02	2.467	6.34	3.47	4.01
0.500	4.96	1.500	28.02	2.500	6.34	3.50	4.01
0.533	5.37	1.533	20.36	2.533	6.02	3.53	3.90
0.567	5.37	1.567	20.36	2.567	6.02	3.57	3.90
0.600	5.62	1.600	18.33	2.600	5.88	3.60	3.85
0.633	5.87	1.633	16.29	2.633	5.74	3.63	3.80

0.667	5.87	1.667	16.29	2.667	5.74	3.67	3.80
0.700	6.51	1.700	13.73	2.700	5.49	3.70	3.70
0.733	6.51	1.733	13.73	2.733	5.49	3.73	3.70
0.767	6.92	1.767	12.84	2.767	5.37	3.77	3.66
0.800	7.33	1.800	11.95	2.800	5.26	3.80	3.61
0.833	7.33	1.833	11.95	2.833	5.26	3.83	3.61
0.867	8.46	1.867	10.64	2.867	5.05	3.87	3.53
0.900	8.46	1.900	10.64	2.900	5.05	3.90	3.53
0.933	9.29	1.933	10.13	2.933	4.96	3.93	3.49
0.967	10.12	1.967	9.62	2.967	4.87	3.97	3.45
1.000	10.12	2.000	9.62	3.000	4.87	4.00	3.45

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 1.800
RUNOFF VOLUME (mm)= 5.156
TOTAL RAINFALL (mm)= 49.478
RUNOFF COEFFICIENT = 0.104

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

CALIB STANDHYD (0105) ID= 1 DT= 5.0 min	Area (ha)= 0.20	
	Total Imp(%)= 38.00	Dir. Conn.(%)= 19.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.08	0.12
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	1.00
Length (m)=	36.51	20.00
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	3.65	1.083	12.83	2.083	8.81	3.08	4.70
0.167	3.85	1.167	18.31	2.167	8.14	3.17	4.54
0.250	4.07	1.250	38.56	2.250	7.58	3.25	4.39
0.333	4.32	1.333	170.06	2.333	7.10	3.33	4.26
0.417	4.61	1.417	49.15	2.417	6.69	3.42	4.13
0.500	4.96	1.500	28.02	2.500	6.34	3.50	4.01
0.583	5.37	1.583	20.36	2.583	6.02	3.58	3.90
0.667	5.87	1.667	16.29	2.667	5.74	3.67	3.80
0.750	6.51	1.750	13.73	2.750	5.49	3.75	3.70
0.833	7.33	1.833	11.95	2.833	5.26	3.83	3.61
0.917	8.46	1.917	10.64	2.917	5.05	3.92	3.53
1.000	10.12	2.000	9.62	3.000	4.87	4.00	3.45

Max.Eff.Inten.(mm/hr)=	170.06	117.89	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.13 (ii)	6.50 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.14	
			TOTALS
PEAK FLOW (cms)=	0.02	0.03	0.037 (iii)
TIME TO PEAK (hrs)=	1.33	1.42	1.42
RUNOFF VOLUME (mm)=	48.48	17.09	23.05

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     TOTAL RAINFALL   (mm)=      49.48        49.48          49.48
     RUNOFF COEFFICIENT   =       0.98         0.35           0.47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0106) |   Area    (ha)=   0.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=  14.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.15         0.39
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      60.00        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     170.06       102.80
               over (min)          5.00        10.00
     Storage Coeff.  (min)=       1.52 (ii)    8.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.12
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.07          0.085 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.42
     RUNOFF VOLUME    (mm)=      48.48        15.55          20.16
     TOTAL RAINFALL   (mm)=      49.48        49.48          49.48
     RUNOFF COEFFICIENT   =       0.98         0.31           0.41

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0207) |   Area    (ha)=   0.32   Curve Number   (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

     Unit Hyd Qpeak  (cms)=   0.042

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=   1.667
     RUNOFF VOLUME    (mm)=   9.788
     TOTAL RAINFALL   (mm)=  49.478
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     RUNOFF COEFFICIENT   =   0.198

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

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| ADD HYD   (0203) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0104):     0.62   0.006     1.80     5.16
        + ID2= 2 (0105):     0.20   0.037     1.42    23.05
          ================================================
          ID = 3 (0203):     0.82   0.037     1.40     9.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 3 (0203):     0.82   0.037     1.40     9.52
        + ID2= 2 (0106):     0.54   0.085     1.42    20.16
          ================================================
          ID = 1 (0203):     1.36   0.119     1.40    13.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0203):     1.36   0.119     1.40    13.75
        + ID2= 2 (0207):     0.32   0.007     1.67     9.79
          ================================================
          ID = 3 (0203):     1.68   0.123     1.40    12.99

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 3 (0203):     1.68   0.123     1.40    12.99
        + ID2= 2 (0301):     7.20   0.000     0.00     0.00
          ================================================
          ID = 1 (0203):     8.88   0.123     1.40     2.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ***************************
  ** SIMULATION NUMBER:   5 **
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| CHICAGO STORM    |    IDF curve parameters: A= 781.516
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| Ptotal= 58.21 mm | B= 1.500 C= 0.726

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

Duration of storm = 4.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.33

The CORRELATION coefficient is = 0.9997

TIME (min)	INPUT INT. (mm/hr)	TAB. INT. (mm/hr)
5.	215.80	200.80
10.	133.00	132.70
15.	100.10	102.10
30.	61.70	63.85
60.	38.00	39.28
120.	23.40	23.96
360.	10.90	10.86
720.	6.70	6.57
1440.	4.10	3.98

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	4.28	1.08	15.07	2.08	10.34	3.08	5.51
0.17	4.51	1.17	21.52	2.17	9.55	3.17	5.32
0.25	4.77	1.25	45.39	2.25	8.89	3.25	5.15
0.33	5.06	1.33	200.80	2.33	8.34	3.33	4.99
0.42	5.41	1.42	57.88	2.42	7.85	3.42	4.84
0.50	5.81	1.50	32.95	2.50	7.43	3.50	4.70
0.58	6.30	1.58	23.94	2.58	7.06	3.58	4.58
0.67	6.89	1.67	19.15	2.67	6.73	3.67	4.46
0.75	7.64	1.75	16.13	2.75	6.44	3.75	4.34
0.83	8.61	1.83	14.04	2.83	6.17	3.83	4.24
0.92	9.93	1.92	12.49	2.92	5.93	3.92	4.13
1.00	11.88	2.00	11.29	3.00	5.71	4.00	4.04

CALIB	
NASHYD (0102)	Area (ha)= 1.58 Curve Number (CN)= 44.1
ID= 1 DT= 2.0 min	Ia (mm)= 9.62 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.17

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	4.28	1.033	15.07	2.033	10.34	3.03	5.51
0.067	4.28	1.067	15.07	2.067	10.34	3.07	5.51
0.100	4.40	1.100	18.29	2.100	9.94	3.10	5.41
0.133	4.51	1.133	21.52	2.133	9.55	3.13	5.32
0.167	4.51	1.167	21.52	2.167	9.55	3.17	5.32
0.200	4.77	1.200	45.39	2.200	8.89	3.20	5.15
0.233	4.77	1.233	45.39	2.233	8.89	3.23	5.15
0.267	4.92	1.267	123.09	2.267	8.62	3.27	5.07
0.300	5.06	1.300	200.80	2.300	8.34	3.30	4.99
0.333	5.06	1.333	200.80	2.333	8.34	3.33	4.99
0.367	5.41	1.367	57.88	2.367	7.85	3.37	4.84

0.400	5.41	1.400	57.88	2.400	7.85	3.40	4.84
0.433	5.61	1.433	45.41	2.433	7.64	3.43	4.77
0.467	5.81	1.467	32.95	2.467	7.43	3.47	4.70
0.500	5.81	1.500	32.95	2.500	7.43	3.50	4.70
0.533	6.30	1.533	23.94	2.533	7.06	3.53	4.58
0.567	6.30	1.567	23.94	2.567	7.06	3.57	4.58
0.600	6.59	1.600	21.54	2.600	6.90	3.60	4.52
0.633	6.89	1.633	19.15	2.633	6.73	3.63	4.46
0.667	6.89	1.667	19.15	2.667	6.73	3.67	4.46
0.700	7.64	1.700	16.13	2.700	6.44	3.70	4.34
0.733	7.64	1.733	16.13	2.733	6.44	3.73	4.34
0.767	8.12	1.767	15.08	2.767	6.30	3.77	4.29
0.800	8.61	1.800	14.04	2.800	6.17	3.80	4.24
0.833	8.61	1.833	14.04	2.833	6.17	3.83	4.24
0.867	9.93	1.867	12.49	2.867	5.93	3.87	4.13
0.900	9.93	1.900	12.49	2.900	5.93	3.90	4.13
0.933	10.91	1.933	11.89	2.933	5.82	3.93	4.09
0.967	11.88	1.967	11.29	2.967	5.71	3.97	4.04
1.000	11.88	2.000	11.29	3.000	5.71	4.00	4.04

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.027 (i)
TIME TO PEAK (hrs)= 1.533
RUNOFF VOLUME (mm)= 6.375
TOTAL RAINFALL (mm)= 58.205
RUNOFF COEFFICIENT = 0.110

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

CALIB	
NASHYD (0103)	Area (ha)= 2.80 Curve Number (CN)= 42.9
ID= 1 DT= 2.0 min	Ia (mm)= 8.98 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.18

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.047 (i)
TIME TO PEAK (hrs)= 1.567
RUNOFF VOLUME (mm)= 6.263
TOTAL RAINFALL (mm)= 58.205
RUNOFF COEFFICIENT = 0.108

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

ADD HYD (0201)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0102):	1.58	0.027	1.53	6.38
	+ ID2= 2 (0103):	2.80	0.047	1.57	6.26
	ID = 3 (0201):	4.38	0.074	1.53	6.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB

| STANDHYD (0101) | Area (ha)= 2.82
|ID= 1 DT= 5.0 min | Total Imp(%)= 38.00 Dir. Conn.(%)= 19.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.07	1.75
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	1.00
Length (m)=	137.11	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	4.28	1.083	15.07	2.083	10.34	3.08	5.51
0.167	4.51	1.167	21.52	2.167	9.55	3.17	5.32
0.250	4.77	1.250	45.39	2.250	8.89	3.25	5.15
0.333	5.06	1.333	200.80	2.333	8.34	3.33	4.99
0.417	5.41	1.417	57.88	2.417	7.85	3.42	4.84
0.500	5.81	1.500	32.95	2.500	7.43	3.50	4.70
0.583	6.30	1.583	23.94	2.583	7.06	3.58	4.58
0.667	6.89	1.667	19.15	2.667	6.73	3.67	4.46
0.750	7.64	1.750	16.13	2.750	6.44	3.75	4.34
0.833	8.61	1.833	14.04	2.833	6.17	3.83	4.24
0.917	9.93	1.917	12.49	2.917	5.93	3.92	4.13
1.000	11.88	2.000	11.29	3.000	5.71	4.00	4.04

			TOTALS
Max.Eff.Inten.(mm/hr)=	200.80	145.74	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.34 (ii)	9.81 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.30	0.11	
PEAK FLOW (cms)=	0.27	0.44	0.549 (iii)
TIME TO PEAK (hrs)=	1.33	1.42	1.42
RUNOFF VOLUME (mm)=	57.21	23.98	30.29
TOTAL RAINFALL (mm)=	58.21	58.21	58.21
RUNOFF COEFFICIENT =	0.98	0.41	0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0202)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	2.82	0.549	1.42	30.29
+ ID2= 2 (0201):	4.38	0.074	1.53	6.30
ID = 3 (0202):	7.20	0.582	1.40	15.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0301)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.4748	0.1280	1.3860
0.0380	0.5498	0.3070	1.5223
0.0720	0.7185	0.6740	1.6664
0.0940	0.9133	1.2390	1.8182
0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0202)	7.200	0.582	1.40	15.72
OUTFLOW: ID= 1 (0301)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=-84.00
MAXIMUM STORAGE USED (ha.m.)= 0.0311

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

CALIB
NASHYD (0104)
ID= 1 DT= 2.0 min

Area (ha)= 0.62 Curve Number (CN)= 48.1
Ia (mm)= 9.20 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.33

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	4.28	1.033	15.07	2.033	10.34	3.03	5.51
0.067	4.28	1.067	15.07	2.067	10.34	3.07	5.51
0.100	4.40	1.100	18.29	2.100	9.94	3.10	5.41
0.133	4.51	1.133	21.52	2.133	9.55	3.13	5.32
0.167	4.51	1.167	21.52	2.167	9.55	3.17	5.32
0.200	4.77	1.200	45.39	2.200	8.89	3.20	5.15
0.233	4.77	1.233	45.39	2.233	8.89	3.23	5.15
0.267	4.92	1.267	123.09	2.267	8.62	3.27	5.07
0.300	5.06	1.300	200.80	2.300	8.34	3.30	4.99
0.333	5.06	1.333	200.80	2.333	8.34	3.33	4.99
0.367	5.41	1.367	57.88	2.367	7.85	3.37	4.84
0.400	5.41	1.400	57.88	2.400	7.85	3.40	4.84
0.433	5.61	1.433	45.41	2.433	7.64	3.43	4.77
0.467	5.81	1.467	32.95	2.467	7.43	3.47	4.70
0.500	5.81	1.500	32.95	2.500	7.43	3.50	4.70
0.533	6.30	1.533	23.94	2.533	7.06	3.53	4.58
0.567	6.30	1.567	23.94	2.567	7.06	3.57	4.58
0.600	6.59	1.600	21.54	2.600	6.90	3.60	4.52
0.633	6.89	1.633	19.15	2.633	6.73	3.63	4.46
0.667	6.89	1.667	19.15	2.667	6.73	3.67	4.46
0.700	7.64	1.700	16.13	2.700	6.44	3.70	4.34
0.733	7.64	1.733	16.13	2.733	6.44	3.73	4.34
0.767	8.12	1.767	15.08	2.767	6.30	3.77	4.29
0.800	8.61	1.800	14.04	2.800	6.17	3.80	4.24
0.833	8.61	1.833	14.04	2.833	6.17	3.83	4.24
0.867	9.93	1.867	12.49	2.867	5.93	3.87	4.13

0.900	9.93	1.900	12.49	2.900	5.93	3.90	4.13
0.933	10.91	1.933	11.89	2.933	5.82	3.93	4.09
0.967	11.88	1.967	11.29	2.967	5.71	3.97	4.04
1.000	11.88	2.000	11.29	3.000	5.71	4.00	4.04

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.009 (i)
TIME TO PEAK (hrs)= 1.800
RUNOFF VOLUME (mm)= 7.427
TOTAL RAINFALL (mm)= 58.205
RUNOFF COEFFICIENT = 0.128

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

CALIB	
STANDHYD (0105)	Area (ha)= 0.20
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00 Dir. Conn.(%)= 19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.12
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	36.51	20.00
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	4.28	1.083	15.07	2.083	10.34	3.08	5.51
0.167	4.51	1.167	21.52	2.167	9.55	3.17	5.32
0.250	4.77	1.250	45.39	2.250	8.89	3.25	5.15
0.333	5.06	1.333	200.80	2.333	8.34	3.33	4.99
0.417	5.41	1.417	57.88	2.417	7.85	3.42	4.84
0.500	5.81	1.500	32.95	2.500	7.43	3.50	4.70
0.583	6.30	1.583	23.94	2.583	7.06	3.58	4.58
0.667	6.89	1.667	19.15	2.667	6.73	3.67	4.46
0.750	7.64	1.750	16.13	2.750	6.44	3.75	4.34
0.833	8.61	1.833	14.04	2.833	6.17	3.83	4.24
0.917	9.93	1.917	12.49	2.917	5.93	3.92	4.13
1.000	11.88	2.000	11.29	3.000	5.71	4.00	4.04

Max.Eff.Inten.(mm/hr)=		200.80	145.74	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.06 (ii)	5.99 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.02	0.04	0.047 (iii)
TIME TO PEAK	(hrs)=	1.33	1.42	1.42
RUNOFF VOLUME	(mm)=	57.21	23.98	30.29
TOTAL RAINFALL	(mm)=	58.21	58.21	58.21
RUNOFF COEFFICIENT	=	0.98	0.41	0.52

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0106)	Area (ha)= 0.54
ID= 1 DT= 5.0 min	Total Imp(%)= 28.00 Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	40.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)=		200.80	130.06	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.42 (ii)	7.78 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.33	0.13	
				TOTALS
PEAK FLOW	(cms)=	0.04	0.10	0.113 (iii)
TIME TO PEAK	(hrs)=	1.33	1.42	1.42
RUNOFF VOLUME	(mm)=	57.21	21.80	26.75
TOTAL RAINFALL	(mm)=	58.21	58.21	58.21
RUNOFF COEFFICIENT	=	0.98	0.37	0.46

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0207)	Area (ha)= 0.32 Curve Number (CN)= 61.0
ID= 1 DT= 5.0 min	Ia (mm)= 4.40 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)= 0.042

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 13.383
TOTAL RAINFALL (mm)= 58.205
RUNOFF COEFFICIENT = 0.230

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

ADD HYD (0203)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0104):		0.62	0.009	1.80	7.43
+ ID2= 2 (0105):		0.20	0.047	1.42	30.29
ID = 3 (0203):		0.82	0.048	1.40	13.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0203):		0.82	0.048	1.40	13.00
+ ID2= 2 (0106):		0.54	0.113	1.42	26.75
ID = 1 (0203):		1.36	0.156	1.40	18.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0203):		1.36	0.156	1.40	18.46
+ ID2= 2 (0207):		0.32	0.010	1.67	13.38
ID = 3 (0203):		1.68	0.161	1.40	17.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0203):		1.68	0.161	1.40	17.50
+ ID2= 2 (0301):		7.20	0.000	0.00	0.00
ID = 1 (0203):		8.88	0.161	1.40	3.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 6 **
****

CHICAGO STORM	
Ptotal= 64.92 mm	

IDF curve parameters: A= 866.887
B= 1.508
C= 0.725
used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.33

The CORRELATION coefficient is = 0.9997

TIME (min)	INPUT INT. (mm/hr)	TAB. INT. (mm/hr)
5.	239.70	222.95
10.	147.70	147.48
15.	111.20	113.54
30.	68.50	71.06
60.	42.20	43.75
120.	26.00	26.71
360.	12.10	12.12
720.	7.40	7.34
1440.	4.60	4.44

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	4.79	1.08	16.84	2.08	11.56	3.08	6.16
0.17	5.05	1.17	24.03	2.17	10.68	3.17	5.95
0.25	5.34	1.25	50.62	2.25	9.95	3.25	5.76
0.33	5.67	1.33	222.95	2.33	9.32	3.33	5.58
0.42	6.05	1.42	64.53	2.42	8.78	3.42	5.42
0.50	6.50	1.50	36.78	2.50	8.31	3.50	5.27
0.58	7.04	1.58	26.73	2.58	7.90	3.58	5.12
0.67	7.71	1.67	21.39	2.67	7.53	3.67	4.99
0.75	8.54	1.75	18.02	2.75	7.20	3.75	4.86
0.83	9.62	1.83	15.69	2.83	6.90	3.83	4.74
0.92	11.11	1.92	13.96	2.92	6.63	3.92	4.63
1.00	13.28	2.00	12.62	3.00	6.39	4.00	4.52

CALIB NASHYD (0102)					
ID= 1 DT= 2.0 min	Area (ha)=	1.58	Curve Number (CN)=	44.1	
	Ia (mm)=	9.62	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.17			

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	4.79	1.033	16.84	2.033	11.56	3.03	6.16
0.067	4.79	1.067	16.84	2.067	11.56	3.07	6.16
0.100	4.92	1.100	20.44	2.100	11.12	3.10	6.06
0.133	5.05	1.133	24.03	2.133	10.68	3.13	5.95
0.167	5.05	1.167	24.03	2.167	10.68	3.17	5.95
0.200	5.34	1.200	50.62	2.200	9.95	3.20	5.76
0.233	5.34	1.233	50.62	2.233	9.95	3.23	5.76
0.267	5.50	1.267	136.79	2.267	9.63	3.27	5.67
0.300	5.67	1.300	222.95	2.300	9.32	3.30	5.58
0.333	5.67	1.333	222.95	2.333	9.32	3.33	5.58
0.367	6.05	1.367	64.53	2.367	8.78	3.37	5.42
0.400	6.05	1.400	64.53	2.400	8.78	3.40	5.42
0.433	6.28	1.433	50.65	2.433	8.55	3.43	5.34
0.467	6.50	1.467	36.78	2.467	8.31	3.47	5.27
0.500	6.50	1.500	36.78	2.500	8.31	3.50	5.27
0.533	7.04	1.533	26.73	2.533	7.90	3.53	5.12
0.567	7.04	1.567	26.73	2.567	7.90	3.57	5.12
0.600	7.38	1.600	24.06	2.600	7.71	3.60	5.05

0.633	7.71	1.633	21.39	2.633	7.53	3.63	4.99
0.667	7.71	1.667	21.39	2.667	7.53	3.67	4.99
0.700	8.54	1.700	18.02	2.700	7.20	3.70	4.86
0.733	8.54	1.733	18.02	2.733	7.20	3.73	4.86
0.767	9.08	1.767	16.85	2.767	7.05	3.77	4.80
0.800	9.62	1.800	15.69	2.800	6.90	3.80	4.74
0.833	9.62	1.833	15.69	2.833	6.90	3.83	4.74
0.867	11.11	1.867	13.96	2.867	6.63	3.87	4.63
0.900	11.11	1.900	13.96	2.900	6.63	3.90	4.63
0.933	12.19	1.933	13.29	2.933	6.51	3.93	4.57
0.967	13.28	1.967	12.62	2.967	6.39	3.97	4.52
1.000	13.28	2.000	12.62	3.000	6.39	4.00	4.52

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.036 (i)
TIME TO PEAK (hrs)= 1.533
RUNOFF VOLUME (mm)= 8.111
TOTAL RAINFALL (mm)= 64.917
RUNOFF COEFFICIENT = 0.125

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

CALIB					
NASHYD (0103)	Area	(ha)=	2.80	Curve Number (CN)=	42.9
ID= 1 DT= 2.0 min	Ia	(mm)=	8.98	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.18		

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.060 (i)
TIME TO PEAK (hrs)= 1.533
RUNOFF VOLUME (mm)= 7.949
TOTAL RAINFALL (mm)= 64.917
RUNOFF COEFFICIENT = 0.122

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

ADD HYD (0201)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0102):	1.58	0.036	1.53	8.11
+ ID2= 2 (0103):	2.80	0.060	1.53	7.95
ID = 3 (0201):	4.38	0.096	1.53	8.01

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0101)	Area	(ha)=	2.82		
ID= 1 DT= 5.0 min	Total Imp(%)=		38.00	Dir. Conn.(%)=	19.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.07	1.75
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	1.00

Length (m)=	137.11	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	4.79	1.083	16.84	2.083	11.56	3.08	6.16
0.167	5.05	1.167	24.03	2.167	10.68	3.17	5.95
0.250	5.34	1.250	50.62	2.250	9.95	3.25	5.76
0.333	5.67	1.333	222.95	2.333	9.32	3.33	5.58
0.417	6.05	1.417	64.53	2.417	8.78	3.42	5.42
0.500	6.50	1.500	36.78	2.500	8.31	3.50	5.27
0.583	7.04	1.583	26.73	2.583	7.90	3.58	5.12
0.667	7.71	1.667	21.39	2.667	7.53	3.67	4.99
0.750	8.54	1.750	18.02	2.750	7.20	3.75	4.86
0.833	9.62	1.833	15.69	2.833	6.90	3.83	4.74
0.917	11.11	1.917	13.96	2.917	6.63	3.92	4.63
1.000	13.28	2.000	12.62	3.000	6.39	4.00	4.52

Max.Eff.Inten.(mm/hr)=	222.95	165.96	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.24 (ii)	9.34 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.30	0.12	
			TOTALS
PEAK FLOW (cms)=	0.30	0.52	0.643 (iii)
TIME TO PEAK (hrs)=	1.33	1.42	1.42
RUNOFF VOLUME (mm)=	63.92	29.75	36.24
TOTAL RAINFALL (mm)=	64.92	64.92	64.92
RUNOFF COEFFICIENT =	0.98	0.46	0.56

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0202)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	2.82	0.643	1.42	36.24
+ ID2= 2 (0201):	4.38	0.096	1.53	8.01
ID = 3 (0202):	7.20	0.690	1.40	19.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0301)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW	STORAGE	OUTFLOW	STORAGE

	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.4748	0.1280	1.3860
	0.0380	0.5498	0.3070	1.5223
	0.0720	0.7185	0.6740	1.6664
	0.0940	0.9133	1.2390	1.8182
	0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0202)	7.200	0.690	1.40	19.09
OUTFLOW: ID= 1 (0301)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=-84.00
MAXIMUM STORAGE USED (ha.m.)= 0.0366

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

CALIB					
NASHYD (0104)	Area	(ha)=	0.62	Curve Number (CN)=	48.1
ID= 1 DT= 2.0 min	Ia	(mm)=	9.20	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.33		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	4.79	1.033	16.84	2.033	11.56	3.03	6.16
0.067	4.79	1.067	16.84	2.067	11.56	3.07	6.16
0.100	4.92	1.100	20.44	2.100	11.12	3.10	6.06
0.133	5.05	1.133	24.03	2.133	10.68	3.13	5.95
0.167	5.05	1.167	24.03	2.167	10.68	3.17	5.95
0.200	5.34	1.200	50.62	2.200	9.95	3.20	5.76
0.233	5.34	1.233	50.62	2.233	9.95	3.23	5.76
0.267	5.50	1.267	136.79	2.267	9.63	3.27	5.67
0.300	5.67	1.300	222.95	2.300	9.32	3.30	5.58
0.333	5.67	1.333	222.95	2.333	9.32	3.33	5.58
0.367	6.05	1.367	64.53	2.367	8.78	3.37	5.42
0.400	6.05	1.400	64.53	2.400	8.78	3.40	5.42
0.433	6.28	1.433	50.65	2.433	8.55	3.43	5.34
0.467	6.50	1.467	36.78	2.467	8.31	3.47	5.27
0.500	6.50	1.500	36.78	2.500	8.31	3.50	5.27
0.533	7.04	1.533	26.73	2.533	7.90	3.53	5.12
0.567	7.04	1.567	26.73	2.567	7.90	3.57	5.12
0.600	7.38	1.600	24.06	2.600	7.71	3.60	5.05
0.633	7.71	1.633	21.39	2.633	7.53	3.63	4.99
0.667	7.71	1.667	21.39	2.667	7.53	3.67	4.99
0.700	8.54	1.700	18.02	2.700	7.20	3.70	4.86
0.733	8.54	1.733	18.02	2.733	7.20	3.73	4.86
0.767	9.08	1.767	16.85	2.767	7.05	3.77	4.80
0.800	9.62	1.800	15.69	2.800	6.90	3.80	4.74
0.833	9.62	1.833	15.69	2.833	6.90	3.83	4.74
0.867	11.11	1.867	13.96	2.867	6.63	3.87	4.63
0.900	11.11	1.900	13.96	2.900	6.63	3.90	4.63
0.933	12.19	1.933	13.29	2.933	6.51	3.93	4.57
0.967	13.28	1.967	12.62	2.967	6.39	3.97	4.52
1.000	13.28	2.000	12.62	3.000	6.39	4.00	4.52

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 1.767
RUNOFF VOLUME (mm)= 9.406
TOTAL RAINFALL (mm)= 64.917
RUNOFF COEFFICIENT = 0.145

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

CALIB					
STANDHYD (0105)	Area	(ha)=	0.20		
ID= 1 DT= 5.0 min	Total Imp(%)=	38.00	Dir. Conn.(%)=	19.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.12
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	36.51	20.00
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	4.79	1.083	16.84	2.083	11.56	3.08	6.16
0.167	5.05	1.167	24.03	2.167	10.68	3.17	5.95
0.250	5.34	1.250	50.62	2.250	9.95	3.25	5.76
0.333	5.67	1.333	222.95	2.333	9.32	3.33	5.58
0.417	6.05	1.417	64.53	2.417	8.78	3.42	5.42
0.500	6.50	1.500	36.78	2.500	8.31	3.50	5.27
0.583	7.04	1.583	26.73	2.583	7.90	3.58	5.12
0.667	7.71	1.667	21.39	2.667	7.53	3.67	4.99
0.750	8.54	1.750	18.02	2.750	7.20	3.75	4.86
0.833	9.62	1.833	15.69	2.833	6.90	3.83	4.74
0.917	11.11	1.917	13.96	2.917	6.63	3.92	4.63
1.000	13.28	2.000	12.62	3.000	6.39	4.00	4.52

Max.Eff.Inten.(mm/hr)=	222.95	165.96		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.01 (ii)	5.69 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.34	0.15		
			TOTALS	
PEAK FLOW (cms)=	0.02	0.05	0.055 (iii)	
TIME TO PEAK (hrs)=	1.33	1.42	1.42	
RUNOFF VOLUME (mm)=	63.92	29.75	36.24	
TOTAL RAINFALL (mm)=	64.92	64.92	64.92	
RUNOFF COEFFICIENT =	0.98	0.46	0.56	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| STANDHYD  (0106) |   Area    (ha)=   0.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=  14.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.15         0.39
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      60.00        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     222.95       148.76
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.36 (ii)    7.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.12          0.133 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42           1.42
     RUNOFF VOLUME    (mm)=      63.92        27.25          32.38
     TOTAL RAINFALL   (mm)=      64.92        64.92          64.92
     RUNOFF COEFFICIENT   =       0.98         0.42           0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0207) |   Area    (ha)=   0.32   Curve Number   (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

     Unit Hyd Qpeak  (cms)=   0.042

     PEAK FLOW       (cms)=   0.012 (i)
     TIME TO PEAK    (hrs)=   1.667
     RUNOFF VOLUME    (mm)=  16.420
     TOTAL RAINFALL   (mm)=  64.917
     RUNOFF COEFFICIENT   =   0.253

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

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--------------------
| ADD HYD   (0203) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0104):     0.62   0.011     1.77     9.41
       + ID2= 2 (0105):     0.20   0.055     1.42    36.24
         ================================================
         ID = 3 (0203):     0.82   0.057     1.40    15.95
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     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0203) |
|   3 +  2 =  1    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 3 (0203):     0.82   0.057     1.40    15.95
       + ID2= 2 (0106):     0.54   0.133     1.42    32.38
         ================================================
         ID = 1 (0203):     1.36   0.184     1.40    22.47

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0203):     1.36   0.184     1.40    22.47
       + ID2= 2 (0207):     0.32   0.012     1.67    16.42
         ================================================
         ID = 3 (0203):     1.68   0.190     1.40    21.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   3 +  2 =  1    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 3 (0203):     1.68   0.190     1.40    21.32
       + ID2= 2 (0301):     7.20   0.000     0.00     0.00
         ================================================
         ID = 1 (0203):     8.88   0.190     1.40     4.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ** SIMULATION NUMBER:   7 **
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| CHICAGO STORM    |    IDF curve parameters: A= 954.383
| Ptotal= 71.08 mm |                          B=   1.501
--------------------                          C=   0.726
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
                         Storm time step    =  5.00 min
                         Time to peak ratio =  0.33

                    The CORRELATION coefficient is = 0.9997

                     TIME       INPUT INT.           TAB. INT.
                    (min)        (mm/hr)              (mm/hr)
                       5.         263.60               245.19
                      10.         162.30               162.04
```

15.	122.30		124.68
30.	75.30		77.97
60.	46.40		47.97
120.	28.60		29.26
360.	13.30		13.26
720.	8.20		8.03
1440.	5.00		4.86

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	5.23	1.08	18.40	2.08	12.62	3.08	6.72
0.17	5.51	1.17	26.28	2.17	11.66	3.17	6.50
0.25	5.82	1.25	55.43	2.25	10.86	3.25	6.29
0.33	6.18	1.33	245.19	2.33	10.18	3.33	6.09
0.42	6.60	1.42	70.68	2.42	9.59	3.42	5.91
0.50	7.10	1.50	40.24	2.50	9.08	3.50	5.75
0.58	7.69	1.58	29.23	2.58	8.62	3.58	5.59
0.67	8.41	1.67	23.38	2.67	8.22	3.67	5.44
0.75	9.32	1.75	19.70	2.75	7.86	3.75	5.30
0.83	10.51	1.83	17.14	2.83	7.53	3.83	5.17
0.92	12.13	1.92	15.25	2.92	7.24	3.92	5.05
1.00	14.51	2.00	13.79	3.00	6.97	4.00	4.93

CALIB			
NASHYD (0102)	Area (ha)=	1.58	Curve Number (CN)= 44.1
ID= 1 DT= 2.0 min	Ia (mm)=	9.62	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.17	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	5.23	1.033	18.40	2.033	12.62	3.03	6.72
0.067	5.23	1.067	18.40	2.067	12.62	3.07	6.72
0.100	5.37	1.100	22.34	2.100	12.14	3.10	6.61
0.133	5.51	1.133	26.28	2.133	11.66	3.13	6.50
0.167	5.51	1.167	26.28	2.167	11.66	3.17	6.50
0.200	5.82	1.200	55.43	2.200	10.86	3.20	6.29
0.233	5.82	1.233	55.43	2.233	10.86	3.23	6.29
0.267	6.00	1.267	150.31	2.267	10.52	3.27	6.19
0.300	6.18	1.300	245.19	2.300	10.18	3.30	6.09
0.333	6.18	1.333	245.19	2.333	10.18	3.33	6.09
0.367	6.60	1.367	70.68	2.367	9.59	3.37	5.91
0.400	6.60	1.400	70.68	2.400	9.59	3.40	5.91
0.433	6.85	1.433	55.46	2.433	9.33	3.43	5.83
0.467	7.10	1.467	40.24	2.467	9.08	3.47	5.75
0.500	7.10	1.500	40.24	2.500	9.08	3.50	5.75
0.533	7.69	1.533	29.23	2.533	8.62	3.53	5.59
0.567	7.69	1.567	29.23	2.567	8.62	3.57	5.59
0.600	8.05	1.600	26.31	2.600	8.42	3.60	5.51
0.633	8.41	1.633	23.38	2.633	8.22	3.63	5.44
0.667	8.41	1.667	23.38	2.667	8.22	3.67	5.44
0.700	9.32	1.700	19.70	2.700	7.86	3.70	5.30
0.733	9.32	1.733	19.70	2.733	7.86	3.73	5.30
0.767	9.92	1.767	18.42	2.767	7.70	3.77	5.24
0.800	10.51	1.800	17.14	2.800	7.53	3.80	5.17
0.833	10.51	1.833	17.14	2.833	7.53	3.83	5.17

0.867	12.13	1.867	15.25	2.867	7.24	3.87	5.05
0.900	12.13	1.900	15.25	2.900	7.24	3.90	5.05
0.933	13.32	1.933	14.52	2.933	7.11	3.93	4.99
0.967	14.51	1.967	13.79	2.967	6.97	3.97	4.93
1.000	14.51	2.000	13.79	3.000	6.97	4.00	4.93

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.044 (i)
TIME TO PEAK (hrs)= 1.533
RUNOFF VOLUME (mm)= 9.859
TOTAL RAINFALL (mm)= 71.080
RUNOFF COEFFICIENT = 0.139

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

CALIB			
NASHYD (0103)	Area (ha)=	2.80	Curve Number (CN)= 42.9
ID= 1 DT= 2.0 min	Ia (mm)=	8.98	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.18	

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.075 (i)
TIME TO PEAK (hrs)= 1.533
RUNOFF VOLUME (mm)= 9.646
TOTAL RAINFALL (mm)= 71.080
RUNOFF COEFFICIENT = 0.136

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

ADD HYD (0201)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0102):	1.58	0.044	1.53	9.86
	+ ID2= 2 (0103):	2.80	0.075	1.53	9.65
	ID = 3 (0201):	4.38	0.119	1.53	9.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0101)	Area (ha)=	2.82	
ID= 1 DT= 5.0 min	Total Imp(%)=	38.00	Dir. Conn.(%)= 19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.07	1.75
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	137.11	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	5.23	1.083	18.40	2.083	12.62	3.08	6.72
0.167	5.51	1.167	26.28	2.167	11.66	3.17	6.50
0.250	5.82	1.250	55.43	2.250	10.86	3.25	6.29
0.333	6.18	1.333	245.19	2.333	10.18	3.33	6.09
0.417	6.60	1.417	70.68	2.417	9.59	3.42	5.91
0.500	7.10	1.500	40.24	2.500	9.08	3.50	5.75
0.583	7.69	1.583	29.23	2.583	8.62	3.58	5.59
0.667	8.41	1.667	23.38	2.667	8.22	3.67	5.44
0.750	9.32	1.750	19.70	2.750	7.86	3.75	5.30
0.833	10.51	1.833	17.14	2.833	7.53	3.83	5.17
0.917	12.13	1.917	15.25	2.917	7.24	3.92	5.05
1.000	14.51	2.000	13.79	3.000	6.97	4.00	4.93

Max.Eff.Inten.(mm/hr)=	245.19	185.49		
over (min)	5.00	10.00		
Storage Coeff. (min)=	2.16 (ii)	8.94 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.31	0.12		
			TOTALS	
PEAK FLOW (cms)=	0.34	0.61	0.737 (iii)	
TIME TO PEAK (hrs)=	1.33	1.42	1.42	
RUNOFF VOLUME (mm)=	70.08	35.34	41.94	
TOTAL RAINFALL (mm)=	71.08	71.08	71.08	
RUNOFF COEFFICIENT =	0.99	0.50	0.59	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0202)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0101):	2.82	0.737	1.42	41.94
+ ID2= 2 (0201):	4.38	0.119	1.53	9.72
ID = 3 (0202):	7.20	0.799	1.40	22.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0301) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.4748	0.1280	1.3860
	0.0380	0.5498	0.3070	1.5223
	0.0720	0.7185	0.6740	1.6664
	0.0940	0.9133	1.2390	1.8182
	0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0202)	7.200	0.799	1.40	22.37
OUTFLOW: ID= 1 (0301)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=-84.00
MAXIMUM STORAGE USED (ha.m.)= 0.0422

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

CALIB NASHYD (0104) ID= 1 DT= 2.0 min				
	Area	(ha)=	0.62	Curve Number (CN)= 48.1
	Ia	(mm)=	9.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=		0.33	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	5.23	1.033	18.40	2.033	12.62	3.03	6.72
0.067	5.23	1.067	18.40	2.067	12.62	3.07	6.72
0.100	5.37	1.100	22.34	2.100	12.14	3.10	6.61
0.133	5.51	1.133	26.28	2.133	11.66	3.13	6.50
0.167	5.51	1.167	26.28	2.167	11.66	3.17	6.50
0.200	5.82	1.200	55.43	2.200	10.86	3.20	6.29
0.233	5.82	1.233	55.43	2.233	10.86	3.23	6.29
0.267	6.00	1.267	150.31	2.267	10.52	3.27	6.19
0.300	6.18	1.300	245.19	2.300	10.18	3.30	6.09
0.333	6.18	1.333	245.19	2.333	10.18	3.33	6.09
0.367	6.60	1.367	70.68	2.367	9.59	3.37	5.91
0.400	6.60	1.400	70.68	2.400	9.59	3.40	5.91
0.433	6.85	1.433	55.46	2.433	9.33	3.43	5.83
0.467	7.10	1.467	40.24	2.467	9.08	3.47	5.75
0.500	7.10	1.500	40.24	2.500	9.08	3.50	5.75
0.533	7.69	1.533	29.23	2.533	8.62	3.53	5.59
0.567	7.69	1.567	29.23	2.567	8.62	3.57	5.59
0.600	8.05	1.600	26.31	2.600	8.42	3.60	5.51
0.633	8.41	1.633	23.38	2.633	8.22	3.63	5.44
0.667	8.41	1.667	23.38	2.667	8.22	3.67	5.44
0.700	9.32	1.700	19.70	2.700	7.86	3.70	5.30
0.733	9.32	1.733	19.70	2.733	7.86	3.73	5.30
0.767	9.92	1.767	18.42	2.767	7.70	3.77	5.24
0.800	10.51	1.800	17.14	2.800	7.53	3.80	5.17
0.833	10.51	1.833	17.14	2.833	7.53	3.83	5.17
0.867	12.13	1.867	15.25	2.867	7.24	3.87	5.05
0.900	12.13	1.900	15.25	2.900	7.24	3.90	5.05
0.933	13.32	1.933	14.52	2.933	7.11	3.93	4.99
0.967	14.51	1.967	13.79	2.967	6.97	3.97	4.93
1.000	14.51	2.000	13.79	3.000	6.97	4.00	4.93

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.014 (i)
TIME TO PEAK (hrs)= 1.767
RUNOFF VOLUME (mm)= 11.389
TOTAL RAINFALL (mm)= 71.080
RUNOFF COEFFICIENT = 0.160

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

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| CALIB            |
| STANDHYD  (0105) |   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=  19.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.12
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      36.51        20.00
     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    5.23 | 1.083   18.40 | 2.083   12.62 |  3.08    6.72
               0.167    5.51 | 1.167   26.28 | 2.167   11.66 |  3.17    6.50
               0.250    5.82 | 1.250   55.43 | 2.250   10.86 |  3.25    6.29
               0.333    6.18 | 1.333  245.19 | 2.333   10.18 |  3.33    6.09
               0.417    6.60 | 1.417   70.68 | 2.417    9.59 |  3.42    5.91
               0.500    7.10 | 1.500   40.24 | 2.500    9.08 |  3.50    5.75
               0.583    7.69 | 1.583   29.23 | 2.583    8.62 |  3.58    5.59
               0.667    8.41 | 1.667   23.38 | 2.667    8.22 |  3.67    5.44
               0.750    9.32 | 1.750   19.70 | 2.750    7.86 |  3.75    5.30
               0.833   10.51 | 1.833   17.14 | 2.833    7.53 |  3.83    5.17
               0.917   12.13 | 1.917   15.25 | 2.917    7.24 |  3.92    5.05
               1.000   14.51 | 2.000   13.79 | 3.000    6.97 |  4.00    4.93

     Max.Eff.Inten.(mm/hr)=     245.19       185.49
               over (min)        5.00        10.00
     Storage Coeff.  (min)=     0.97 (ii)    5.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.06         0.063 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42          1.42
     RUNOFF VOLUME    (mm)=      70.08        35.34         41.94
     TOTAL RAINFALL   (mm)=      71.08        71.08         71.08
     RUNOFF COEFFICIENT   =       0.99         0.50          0.59

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0106) |   Area    (ha)=   0.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=  14.00
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                          IMPERVIOUS    PERVIOUS (i)
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     Surface Area     (ha)=       0.15         0.39
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      60.00        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     245.19       166.79
               over (min)        5.00        10.00
     Storage Coeff.  (min)=     1.31 (ii)    7.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.14
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.14         0.153 (iii)
     TIME TO PEAK    (hrs)=       1.33         1.42          1.42
     RUNOFF VOLUME    (mm)=      70.08        32.63         37.87
     TOTAL RAINFALL   (mm)=      71.08        71.08         71.08
     RUNOFF COEFFICIENT   =       0.99         0.46          0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0207) |   Area    (ha)=   0.32   Curve Number   (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

     Unit Hyd Qpeak  (cms)=   0.042

     PEAK FLOW       (cms)=   0.014 (i)
     TIME TO PEAK    (hrs)=   1.667
     RUNOFF VOLUME    (mm)=  19.398
     TOTAL RAINFALL   (mm)=  71.080
     RUNOFF COEFFICIENT   =   0.273

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

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--------------------
| ADD HYD   (0203) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0104):     0.62   0.014     1.77    11.39
        + ID2= 2 (0105):     0.20   0.063     1.42    41.94
          ================================================
          ID = 3 (0203):     0.82   0.065     1.40    18.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0203) |
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3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0203):	0.82	0.065	1.40	18.84
+ ID2= 2 (0106):	0.54	0.153	1.42	37.87
ID = 1 (0203):	1.36	0.212	1.40	26.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0203):	1.36	0.212	1.40	26.40
+ ID2= 2 (0207):	0.32	0.014	1.67	19.40
ID = 3 (0203):	1.68	0.219	1.40	25.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0203)

3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0203):	1.68	0.219	1.40	25.06
+ ID2= 2 (0301):	7.20	0.000	0.00	0.00
ID = 1 (0203):	8.88	0.219	1.40	4.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 8 **
****

READ STORM | Ptotal=193.00 mm

Filename: C:\Users\aschoof\AppData\Local\Temp\993555fd-98be-4b3c-8617-8b58b7968691\6f9ee3e9

Comments: TIMMINS REGIONAL 12 HOUR DURATION STORM

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.20	15.00	3.20	3.00	6.20	43.00	9.20	13.00
0.40	15.00	3.40	3.00	6.40	43.00	9.40	13.00
0.60	15.00	3.60	3.00	6.60	43.00	9.60	13.00
0.80	15.00	3.80	3.00	6.80	43.00	9.80	13.00
1.00	15.00	4.00	3.00	7.00	43.00	10.00	13.00
1.20	20.00	4.20	5.00	7.20	20.00	10.20	13.00
1.40	20.00	4.40	5.00	7.40	20.00	10.40	13.00
1.60	20.00	4.60	5.00	7.60	20.00	10.60	13.00
1.80	20.00	4.80	5.00	7.80	20.00	10.80	13.00
2.00	20.00	5.00	5.00	8.00	20.00	11.00	13.00
2.20	10.00	5.20	20.00	8.20	23.00	11.20	8.00
2.40	10.00	5.40	20.00	8.40	23.00	11.40	8.00
2.60	10.00	5.60	20.00	8.60	23.00	11.60	8.00
2.80	10.00	5.80	20.00	8.80	23.00	11.80	8.00

3.00	10.00	6.00	20.00	9.00	23.00	12.00	8.00

CALIB
NASHYD (0102)
ID= 1 DT= 2.0 min

Area (ha)= 1.58 Curve Number (CN)= 44.1
Ia (mm)= 9.62 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.17

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	15.00	3.033	3.00	6.033	43.00	9.03	13.00
0.067	15.00	3.067	3.00	6.067	43.00	9.07	13.00
0.100	15.00	3.100	3.00	6.100	43.00	9.10	13.00
0.133	15.00	3.133	3.00	6.133	43.00	9.13	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.200	15.00	3.200	3.00	6.200	43.00	9.20	13.00
0.233	15.00	3.233	3.00	6.233	43.00	9.23	13.00
0.267	15.00	3.267	3.00	6.267	43.00	9.27	13.00
0.300	15.00	3.300	3.00	6.300	43.00	9.30	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.367	15.00	3.367	3.00	6.367	43.00	9.37	13.00
0.400	15.00	3.400	3.00	6.400	43.00	9.40	13.00
0.433	15.00	3.433	3.00	6.433	43.00	9.43	13.00
0.467	15.00	3.467	3.00	6.467	43.00	9.47	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.533	15.00	3.533	3.00	6.533	43.00	9.53	13.00
0.567	15.00	3.567	3.00	6.567	43.00	9.57	13.00
0.600	15.00	3.600	3.00	6.600	43.00	9.60	13.00
0.633	15.00	3.633	3.00	6.633	43.00	9.63	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.700	15.00	3.700	3.00	6.700	43.00	9.70	13.00
0.733	15.00	3.733	3.00	6.733	43.00	9.73	13.00
0.767	15.00	3.767	3.00	6.767	43.00	9.77	13.00
0.800	15.00	3.800	3.00	6.800	43.00	9.80	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.867	15.00	3.867	3.00	6.867	43.00	9.87	13.00
0.900	15.00	3.900	3.00	6.900	43.00	9.90	13.00
0.933	15.00	3.933	3.00	6.933	43.00	9.93	13.00
0.967	15.00	3.967	3.00	6.967	43.00	9.97	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.033	20.00	4.033	5.00	7.033	20.00	10.03	13.00
1.067	20.00	4.067	5.00	7.067	20.00	10.07	13.00
1.100	20.00	4.100	5.00	7.100	20.00	10.10	13.00
1.133	20.00	4.133	5.00	7.133	20.00	10.13	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.200	20.00	4.200	5.00	7.200	20.00	10.20	13.00
1.233	20.00	4.233	5.00	7.233	20.00	10.23	13.00
1.267	20.00	4.267	5.00	7.267	20.00	10.27	13.00
1.300	20.00	4.300	5.00	7.300	20.00	10.30	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.367	20.00	4.367	5.00	7.367	20.00	10.37	13.00
1.400	20.00	4.400	5.00	7.400	20.00	10.40	13.00
1.433	20.00	4.433	5.00	7.433	20.00	10.43	13.00
1.467	20.00	4.467	5.00	7.467	20.00	10.47	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.533	20.00	4.533	5.00	7.533	20.00	10.53	13.00
1.567	20.00	4.567	5.00	7.567	20.00	10.57	13.00

1.600	20.00	4.600	5.00	7.600	20.00	10.60	13.00
1.633	20.00	4.633	5.00	7.633	20.00	10.63	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.700	20.00	4.700	5.00	7.700	20.00	10.70	13.00
1.733	20.00	4.733	5.00	7.733	20.00	10.73	13.00
1.767	20.00	4.767	5.00	7.767	20.00	10.77	13.00
1.800	20.00	4.800	5.00	7.800	20.00	10.80	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.867	20.00	4.867	5.00	7.867	20.00	10.87	13.00
1.900	20.00	4.900	5.00	7.900	20.00	10.90	13.00
1.933	20.00	4.933	5.00	7.933	20.00	10.93	13.00
1.967	20.00	4.967	5.00	7.967	20.00	10.97	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.033	10.00	5.033	20.00	8.033	23.00	11.03	8.00
2.067	10.00	5.067	20.00	8.067	23.00	11.07	8.00
2.100	10.00	5.100	20.00	8.100	23.00	11.10	8.00
2.133	10.00	5.133	20.00	8.133	23.00	11.13	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.200	10.00	5.200	20.00	8.200	23.00	11.20	8.00
2.233	10.00	5.233	20.00	8.233	23.00	11.23	8.00
2.267	10.00	5.267	20.00	8.267	23.00	11.27	8.00
2.300	10.00	5.300	20.00	8.300	23.00	11.30	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.367	10.00	5.367	20.00	8.367	23.00	11.37	8.00
2.400	10.00	5.400	20.00	8.400	23.00	11.40	8.00
2.433	10.00	5.433	20.00	8.433	23.00	11.43	8.00
2.467	10.00	5.467	20.00	8.467	23.00	11.47	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.533	10.00	5.533	20.00	8.533	23.00	11.53	8.00
2.567	10.00	5.567	20.00	8.567	23.00	11.57	8.00
2.600	10.00	5.600	20.00	8.600	23.00	11.60	8.00
2.633	10.00	5.633	20.00	8.633	23.00	11.63	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.700	10.00	5.700	20.00	8.700	23.00	11.70	8.00
2.733	10.00	5.733	20.00	8.733	23.00	11.73	8.00
2.767	10.00	5.767	20.00	8.767	23.00	11.77	8.00
2.800	10.00	5.800	20.00	8.800	23.00	11.80	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.867	10.00	5.867	20.00	8.867	23.00	11.87	8.00
2.900	10.00	5.900	20.00	8.900	23.00	11.90	8.00
2.933	10.00	5.933	20.00	8.933	23.00	11.93	8.00
2.967	10.00	5.967	20.00	8.967	23.00	11.97	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	7.99

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.077 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 66.587
TOTAL RAINFALL (mm)= 192.999
RUNOFF COEFFICIENT = 0.345

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

CALIB					
NASHYD (0103)	Area (ha)=	2.80	Curve Number (CN)=	42.9	
ID= 1 DT= 2.0 min	Ia (mm)=	8.98	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.18			

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.132 (i)
TIME TO PEAK (hrs)= 7.033
RUNOFF VOLUME (mm)= 64.906
TOTAL RAINFALL (mm)= 192.999
RUNOFF COEFFICIENT = 0.336

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

ADD HYD (0201)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0102):	1.58	0.077	7.00	66.59
	+ ID2= 2 (0103):	2.80	0.132	7.03	64.91
	ID = 3 (0201):	4.38	0.208	7.00	65.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0101)	Area (ha)=	2.82			
ID= 1 DT= 5.0 min	Total Imp(%)=	38.00	Dir. Conn.(%)=	19.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.07	1.75
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	137.11	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	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00

2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Max.Eff.Inten.(mm/hr)=	43.00	48.68	
over (min)	5.00	20.00	
Storage Coeff. (min)=	4.33 (ii)	15.92 (ii)	
Unit Hyd. Tpeak (min)=	5.00	20.00	
Unit Hyd. peak (cms)=	0.23	0.07	
			TOTALS
PEAK FLOW (cms)=	0.06	0.23	0.294 (iii)
TIME TO PEAK (hrs)=	6.92	7.00	7.00
RUNOFF VOLUME (mm)=	192.00	111.34	126.66
TOTAL RAINFALL (mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT =	0.99	0.58	0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0202)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0101):	2.82	0.294	7.00	126.66
	+ ID2= 2 (0201):	4.38	0.208	7.00	65.51
	ID = 3 (0202):	7.20	0.503	7.00	89.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.4748	0.1280	1.3860
	0.0380	0.5498	0.3070	1.5223
	0.0720	0.7185	0.6740	1.6664
	0.0940	0.9133	1.2390	1.8182
	0.1130	1.1353	0.0000	0.0000

AREA QPEAK TPEAK R.V.

	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (0202)	7.200	0.503	7.00	89.46
OUTFLOW: ID= 1 (0301)	7.200	0.048	12.17	23.45

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.59
TIME SHIFT OF PEAK FLOW (min)=310.00
MAXIMUM STORAGE USED (ha.m.)= 0.3913

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

CALIB				
NASHYD (0104)	Area (ha)=	0.62	Curve Number (CN)=	48.1
ID= 1 DT= 2.0 min	Ia (mm)=	9.20	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.33		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	15.00	3.033	3.00	6.033	43.00	9.03	13.00
0.067	15.00	3.067	3.00	6.067	43.00	9.07	13.00
0.100	15.00	3.100	3.00	6.100	43.00	9.10	13.00
0.133	15.00	3.133	3.00	6.133	43.00	9.13	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.200	15.00	3.200	3.00	6.200	43.00	9.20	13.00
0.233	15.00	3.233	3.00	6.233	43.00	9.23	13.00
0.267	15.00	3.267	3.00	6.267	43.00	9.27	13.00
0.300	15.00	3.300	3.00	6.300	43.00	9.30	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.367	15.00	3.367	3.00	6.367	43.00	9.37	13.00
0.400	15.00	3.400	3.00	6.400	43.00	9.40	13.00
0.433	15.00	3.433	3.00	6.433	43.00	9.43	13.00
0.467	15.00	3.467	3.00	6.467	43.00	9.47	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.533	15.00	3.533	3.00	6.533	43.00	9.53	13.00
0.567	15.00	3.567	3.00	6.567	43.00	9.57	13.00
0.600	15.00	3.600	3.00	6.600	43.00	9.60	13.00
0.633	15.00	3.633	3.00	6.633	43.00	9.63	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.700	15.00	3.700	3.00	6.700	43.00	9.70	13.00
0.733	15.00	3.733	3.00	6.733	43.00	9.73	13.00
0.767	15.00	3.767	3.00	6.767	43.00	9.77	13.00
0.800	15.00	3.800	3.00	6.800	43.00	9.80	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.867	15.00	3.867	3.00	6.867	43.00	9.87	13.00
0.900	15.00	3.900	3.00	6.900	43.00	9.90	13.00
0.933	15.00	3.933	3.00	6.933	43.00	9.93	13.00
0.967	15.00	3.967	3.00	6.967	43.00	9.97	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.033	20.00	4.033	5.00	7.033	20.00	10.03	13.00
1.067	20.00	4.067	5.00	7.067	20.00	10.07	13.00
1.100	20.00	4.100	5.00	7.100	20.00	10.10	13.00
1.133	20.00	4.133	5.00	7.133	20.00	10.13	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.200	20.00	4.200	5.00	7.200	20.00	10.20	13.00
1.233	20.00	4.233	5.00	7.233	20.00	10.23	13.00
1.267	20.00	4.267	5.00	7.267	20.00	10.27	13.00
1.300	20.00	4.300	5.00	7.300	20.00	10.30	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.367	20.00	4.367	5.00	7.367	20.00	10.37	13.00

1.400	20.00	4.400	5.00	7.400	20.00	10.40	13.00
1.433	20.00	4.433	5.00	7.433	20.00	10.43	13.00
1.467	20.00	4.467	5.00	7.467	20.00	10.47	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.533	20.00	4.533	5.00	7.533	20.00	10.53	13.00
1.567	20.00	4.567	5.00	7.567	20.00	10.57	13.00
1.600	20.00	4.600	5.00	7.600	20.00	10.60	13.00
1.633	20.00	4.633	5.00	7.633	20.00	10.63	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.700	20.00	4.700	5.00	7.700	20.00	10.70	13.00
1.733	20.00	4.733	5.00	7.733	20.00	10.73	13.00
1.767	20.00	4.767	5.00	7.767	20.00	10.77	13.00
1.800	20.00	4.800	5.00	7.800	20.00	10.80	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.867	20.00	4.867	5.00	7.867	20.00	10.87	13.00
1.900	20.00	4.900	5.00	7.900	20.00	10.90	13.00
1.933	20.00	4.933	5.00	7.933	20.00	10.93	13.00
1.967	20.00	4.967	5.00	7.967	20.00	10.97	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.033	10.00	5.033	20.00	8.033	23.00	11.03	8.00
2.067	10.00	5.067	20.00	8.067	23.00	11.07	8.00
2.100	10.00	5.100	20.00	8.100	23.00	11.10	8.00
2.133	10.00	5.133	20.00	8.133	23.00	11.13	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.200	10.00	5.200	20.00	8.200	23.00	11.20	8.00
2.233	10.00	5.233	20.00	8.233	23.00	11.23	8.00
2.267	10.00	5.267	20.00	8.267	23.00	11.27	8.00
2.300	10.00	5.300	20.00	8.300	23.00	11.30	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.367	10.00	5.367	20.00	8.367	23.00	11.37	8.00
2.400	10.00	5.400	20.00	8.400	23.00	11.40	8.00
2.433	10.00	5.433	20.00	8.433	23.00	11.43	8.00
2.467	10.00	5.467	20.00	8.467	23.00	11.47	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.533	10.00	5.533	20.00	8.533	23.00	11.53	8.00
2.567	10.00	5.567	20.00	8.567	23.00	11.57	8.00
2.600	10.00	5.600	20.00	8.600	23.00	11.60	8.00
2.633	10.00	5.633	20.00	8.633	23.00	11.63	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.700	10.00	5.700	20.00	8.700	23.00	11.70	8.00
2.733	10.00	5.733	20.00	8.733	23.00	11.73	8.00
2.767	10.00	5.767	20.00	8.767	23.00	11.77	8.00
2.800	10.00	5.800	20.00	8.800	23.00	11.80	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.867	10.00	5.867	20.00	8.867	23.00	11.87	8.00
2.900	10.00	5.900	20.00	8.900	23.00	11.90	8.00
2.933	10.00	5.933	20.00	8.933	23.00	11.93	8.00
2.967	10.00	5.967	20.00	8.967	23.00	11.97	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	7.99

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.031 (i)
TIME TO PEAK (hrs)= 7.100
RUNOFF VOLUME (mm)= 73.744
TOTAL RAINFALL (mm)= 192.999
RUNOFF COEFFICIENT = 0.382

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

CALIB

STANDHYD (0105)	Area (ha)= 0.20
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00 Dir. Conn.(%)= 19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.12
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	36.51	20.00
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	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Max.Eff.Inten.(mm/hr)=		43.00	48.68	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.96 (ii)	9.60 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.31	0.11	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.02	0.021 (iii)
TIME TO PEAK	(hrs)=	6.42	7.00	7.00
RUNOFF VOLUME	(mm)=	192.00	111.34	126.64
TOTAL RAINFALL	(mm)=	193.00	193.00	193.00

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     RUNOFF COEFFICIENT   =       0.99         0.58          0.66

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0106) |   Area    (ha)=   0.54
|ID= 1 DT= 5.0 min |   Total Imp(%)=  28.00   Dir. Conn.(%)=  14.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.15         0.39
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      60.00        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.00        43.86
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.64 (ii)   12.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.05          0.056 (iii)
     TIME TO PEAK    (hrs)=       6.58         7.00           7.00
     RUNOFF VOLUME    (mm)=     192.00       104.95         117.12
     TOTAL RAINFALL   (mm)=     193.00       193.00         193.00
     RUNOFF COEFFICIENT   =       0.99         0.54           0.61

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| CALIB            |
| NASHYD    (0207) |   Area    (ha)=   0.32   Curve Number   (CN)= 61.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.40   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.29

     Unit Hyd Qpeak  (cms)=   0.042

     PEAK FLOW       (cms)=   0.023 (i)
     TIME TO PEAK    (hrs)=   7.000
     RUNOFF VOLUME    (mm)= 101.293
     TOTAL RAINFALL   (mm)= 193.000
     RUNOFF COEFFICIENT   =   0.525
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     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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| ADD HYD   (0203) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0104):     0.62   0.031     7.10    73.74
        + ID2= 2 (0105):     0.20   0.021     7.00   126.64
          ================================================
          ID = 3 (0203):     0.82   0.052     7.00    86.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 3 (0203):     0.82   0.052     7.00    86.65
        + ID2= 2 (0106):     0.54   0.056     7.00   117.12
          ================================================
          ID = 1 (0203):     1.36   0.108     7.00    98.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0203) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0203):     1.36   0.108     7.00    98.75
        + ID2= 2 (0207):     0.32   0.023     7.00   101.29
          ================================================
          ID = 3 (0203):     1.68   0.130     7.00    99.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0203) |
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 3 (0203):     1.68   0.130     7.00    99.23
        + ID2= 2 (0301):     7.20   0.048    12.17    23.45
          ================================================
          ID = 1 (0203):     8.88   0.130     7.00    37.79

     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)\VH Suite 3.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Temp\5d0218cc-8a0c-4e7b-a56e-a2c3d15794d1\Scenario.ou
t
  Summary filename:
C:\Users\aschoof\AppData\Local\Temp\5d0218cc-8a0c-4e7b-a56e-a2c3d15794d1\Scenario.su
m


DATE: 06/21/2018                          TIME: 01:12:11

USER:


COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
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  ***************************
  ** SIMULATION NUMBER:   1 **
  ***************************


--------------------
| MASS STORM       |    Filename: C:\Users\aschoof\AppD
|                  |              ata\Local\Temp\
|                  |              5d0218cc-8a0c-4e7b-a56e-a2c3d15794d1\3be3101d
| Ptotal= 53.90 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------
                       Duration of storm    = 23.75 hrs
                       Mass curve time step = 15.00 min
                       New Storm time step  =  5.00 min


                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                 0.08    0.22 |  6.08    0.93 | 12.08    7.76 | 18.08    1.01
                 0.17    0.43 |  6.17    1.01 | 12.17    7.76 | 18.17    0.93
                 0.25    0.65 |  6.25    1.08 | 12.25    7.76 | 18.25    0.86
                 0.33    0.57 |  6.33    1.01 | 12.33    6.54 | 18.33    0.93
```



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                0.42    0.50 |  6.42    0.93 | 12.42    5.32 | 18.42    1.01
                0.50    0.43 |  6.50    0.86 | 12.50    4.10 | 18.50    1.08
                0.58    0.50 |  6.58    0.93 | 12.58    4.02 | 18.58    1.01
                0.67    0.57 |  6.67    1.01 | 12.67    3.95 | 18.67    0.93
                0.75    0.65 |  6.75    1.08 | 12.75    3.88 | 18.75    0.86
                0.83    0.65 |  6.83    1.08 | 12.83    3.59 | 18.83    0.93
                0.92    0.65 |  6.92    1.08 | 12.92    3.31 | 18.92    1.01
                1.00    0.65 |  7.00    1.08 | 13.00    3.02 | 19.00    1.08
                1.08    0.65 |  7.08    1.15 | 13.08    2.95 | 19.08    1.01
                1.17    0.65 |  7.17    1.22 | 13.17    2.87 | 19.17    0.93
                1.25    0.65 |  7.25    1.29 | 13.25    2.80 | 19.25    0.86
                1.33    0.57 |  7.33    1.22 | 13.33    2.66 | 19.33    0.93
                1.42    0.50 |  7.42    1.15 | 13.42    2.52 | 19.42    1.01
                1.50    0.43 |  7.50    1.08 | 13.50    2.37 | 19.50    1.08
                1.58    0.50 |  7.58    1.15 | 13.58    2.30 | 19.58    1.01
                1.67    0.57 |  7.67    1.22 | 13.67    2.23 | 19.67    0.93
                1.75    0.65 |  7.75    1.29 | 13.75    2.16 | 19.75    0.86
                1.83    0.65 |  7.83    1.29 | 13.83    2.01 | 19.83    0.79
                1.92    0.65 |  7.92    1.29 | 13.92    1.87 | 19.92    0.72
                2.00    0.65 |  8.00    1.29 | 14.00    1.72 | 20.00    0.65
                2.08    0.72 |  8.08    1.37 | 14.08    1.65 | 20.08    0.65
                2.17    0.79 |  8.17    1.44 | 14.17    1.58 | 20.17    0.65
                2.25    0.86 |  8.25    1.51 | 14.25    1.51 | 20.25    0.65
                2.33    0.79 |  8.33    1.51 | 14.33    1.58 | 20.33    0.65
                2.42    0.72 |  8.42    1.51 | 14.42    1.65 | 20.42    0.65
                2.50    0.65 |  8.50    1.51 | 14.50    1.72 | 20.50    0.65
                2.58    0.65 |  8.58    1.51 | 14.58    1.65 | 20.58    0.65
                2.67    0.65 |  8.67    1.51 | 14.67    1.58 | 20.67    0.65
                2.75    0.65 |  8.75    1.51 | 14.75    1.51 | 20.75    0.65
                2.83    0.65 |  8.83    1.58 | 14.83    1.58 | 20.83    0.65
                2.92    0.65 |  8.92    1.65 | 14.92    1.65 | 20.92    0.65
                3.00    0.65 |  9.00    1.72 | 15.00    1.72 | 21.00    0.65
                3.08    0.72 |  9.08    1.72 | 15.08    1.65 | 21.08    0.65
                3.17    0.79 |  9.17    1.72 | 15.17    1.58 | 21.17    0.65
                3.25    0.86 |  9.25    1.72 | 15.25    1.51 | 21.25    0.65
                3.33    0.79 |  9.33    1.80 | 15.33    1.58 | 21.33    0.65
                3.42    0.72 |  9.42    1.87 | 15.42    1.65 | 21.42    0.65
                3.50    0.65 |  9.50    1.94 | 15.50    1.72 | 21.50    0.65
                3.58    0.65 |  9.58    1.94 | 15.58    1.65 | 21.58    0.65
                3.67    0.65 |  9.67    1.94 | 15.67    1.58 | 21.67    0.65
                3.75    0.65 |  9.75    1.94 | 15.75    1.51 | 21.75    0.65
                3.83    0.72 |  9.83    2.08 | 15.83    1.37 | 21.83    0.65
                3.92    0.79 |  9.92    2.23 | 15.92    1.22 | 21.92    0.65
                4.00    0.86 | 10.00    2.37 | 16.00    1.08 | 22.00    0.65
                4.08    0.86 | 10.08    2.44 | 16.08    1.01 | 22.08    0.65
                4.17    0.86 | 10.17    2.52 | 16.17    0.93 | 22.17    0.65
                4.25    0.86 | 10.25    2.59 | 16.25    0.86 | 22.25    0.65
                4.33    0.86 | 10.33    2.80 | 16.33    0.93 | 22.33    0.65
                4.42    0.86 | 10.42    3.02 | 16.42    1.01 | 22.42    0.65
                4.50    0.86 | 10.50    3.23 | 16.50    1.08 | 22.50    0.65
                4.58    0.86 | 10.58    3.31 | 16.58    1.01 | 22.58    0.65
                4.67    0.86 | 10.67    3.38 | 16.67    0.93 | 22.67    0.65
                4.75    0.86 | 10.75    3.45 | 16.75    0.86 | 22.75    0.65
                4.83    0.86 | 10.83    4.02 | 16.83    0.93 | 22.83    0.65
                4.92    0.86 | 10.92    4.60 | 16.92    1.01 | 22.92    0.65
                5.00    0.86 | 11.00    5.17 | 17.00    1.08 | 23.00    0.65
                5.08    0.86 | 11.08    5.17 | 17.08    1.01 | 23.08    0.65
                5.17    0.86 | 11.17    5.17 | 17.17    0.93 | 23.17    0.65
                5.25    0.86 | 11.25    5.17 | 17.25    0.86 | 23.25    0.65
                5.33    0.86 | 11.33    8.77 | 17.33    0.93 | 23.33    0.65
                5.42    0.86 | 11.42   12.36 | 17.42    1.01 | 23.42    0.65
                5.50    0.86 | 11.50   15.95 | 17.50    1.08 | 23.50    0.65
                5.58    0.86 | 11.58   32.63 | 17.58    1.01 | 23.58    0.65
```

5.67	0.86	11.67	49.30	17.67	0.93	23.67	0.65
5.75	0.86	11.75	65.97	17.75	0.86	23.75	0.65
5.83	0.86	11.83	46.57	17.83	0.93		
5.92	0.86	11.92	27.17	17.92	1.01		
6.00	0.86	12.00	7.76	18.00	1.08		

CALIB / STANDHYD (0034) / ID= 1 DT= 5.0 min	Area (ha)= 0.54	Total Imp(%)= 28.00	Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	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	0.22	6.083	0.93	12.083	7.76	18.08	1.01
0.167	0.43	6.167	1.01	12.167	7.76	18.17	0.93
0.250	0.65	6.250	1.08	12.250	7.76	18.25	0.86
0.333	0.57	6.333	1.01	12.333	6.54	18.33	0.93
0.417	0.50	6.417	0.93	12.417	5.32	18.42	1.01
0.500	0.43	6.500	0.86	12.500	4.10	18.50	1.08
0.583	0.50	6.583	0.93	12.583	4.02	18.58	1.01
0.667	0.57	6.667	1.01	12.667	3.95	18.67	0.93
0.750	0.65	6.750	1.08	12.750	3.88	18.75	0.86
0.833	0.65	6.833	1.08	12.833	3.59	18.83	0.93
0.917	0.65	6.917	1.08	12.917	3.31	18.92	1.01
1.000	0.65	7.000	1.08	13.000	3.02	19.00	1.08
1.083	0.65	7.083	1.15	13.083	2.95	19.08	1.01
1.167	0.65	7.167	1.22	13.167	2.87	19.17	0.93
1.250	0.65	7.250	1.29	13.250	2.80	19.25	0.86
1.333	0.57	7.333	1.22	13.333	2.66	19.33	0.93
1.417	0.50	7.417	1.15	13.417	2.52	19.42	1.01
1.500	0.43	7.500	1.08	13.500	2.37	19.50	1.08
1.583	0.50	7.583	1.15	13.583	2.30	19.58	1.01
1.667	0.57	7.667	1.22	13.667	2.23	19.67	0.93
1.750	0.65	7.750	1.29	13.750	2.16	19.75	0.86
1.833	0.65	7.833	1.29	13.833	2.01	19.83	0.79
1.917	0.65	7.917	1.29	13.917	1.87	19.92	0.72
2.000	0.65	8.000	1.29	14.000	1.72	20.00	0.65
2.083	0.72	8.083	1.37	14.083	1.65	20.08	0.65
2.167	0.79	8.167	1.44	14.167	1.58	20.17	0.65
2.250	0.86	8.250	1.51	14.250	1.51	20.25	0.65
2.333	0.79	8.333	1.51	14.333	1.58	20.33	0.65
2.417	0.72	8.417	1.51	14.417	1.65	20.42	0.65
2.500	0.65	8.500	1.51	14.500	1.72	20.50	0.65
2.583	0.65	8.583	1.51	14.583	1.65	20.58	0.65
2.667	0.65	8.667	1.51	14.667	1.58	20.67	0.65
2.750	0.65	8.750	1.51	14.750	1.51	20.75	0.65
2.833	0.65	8.833	1.58	14.833	1.58	20.83	0.65
2.917	0.65	8.917	1.65	14.917	1.65	20.92	0.65
3.000	0.65	9.000	1.72	15.000	1.72	21.00	0.65
3.083	0.72	9.083	1.72	15.083	1.65	21.08	0.65
3.167	0.79	9.167	1.72	15.167	1.58	21.17	0.65

3.250	0.86	9.250	1.72	15.250	1.51	21.25	0.65
3.333	0.79	9.333	1.80	15.333	1.58	21.33	0.65
3.417	0.72	9.417	1.87	15.417	1.65	21.42	0.65
3.500	0.65	9.500	1.94	15.500	1.72	21.50	0.65
3.583	0.65	9.583	1.94	15.583	1.65	21.58	0.65
3.667	0.65	9.667	1.94	15.667	1.58	21.67	0.65
3.750	0.65	9.750	1.94	15.750	1.51	21.75	0.65
3.833	0.72	9.833	2.08	15.833	1.37	21.83	0.65
3.917	0.79	9.917	2.23	15.917	1.22	21.92	0.65
4.000	0.86	10.000	2.37	16.000	1.08	22.00	0.65
4.083	0.86	10.083	2.44	16.083	1.01	22.08	0.65
4.167	0.86	10.167	2.52	16.167	0.93	22.17	0.65
4.250	0.86	10.250	2.59	16.250	0.86	22.25	0.65
4.333	0.86	10.333	2.80	16.333	0.93	22.33	0.65
4.417	0.86	10.417	3.02	16.417	1.01	22.42	0.65
4.500	0.86	10.500	3.23	16.500	1.08	22.50	0.65
4.583	0.86	10.583	3.31	16.583	1.01	22.58	0.65
4.667	0.86	10.667	3.38	16.667	0.93	22.67	0.65
4.750	0.86	10.750	3.45	16.750	0.86	22.75	0.65
4.833	0.86	10.833	4.02	16.833	0.93	22.83	0.65
4.917	0.86	10.917	4.60	16.917	1.01	22.92	0.65
5.000	0.86	11.000	5.17	17.000	1.08	23.00	0.65
5.083	0.86	11.083	5.17	17.083	1.01	23.08	0.65
5.167	0.86	11.167	5.17	17.167	0.93	23.17	0.65
5.250	0.86	11.250	5.17	17.250	0.86	23.25	0.65
5.333	0.86	11.333	8.77	17.333	0.93	23.33	0.65
5.417	0.86	11.417	12.36	17.417	1.01	23.42	0.65
5.500	0.86	11.500	15.95	17.500	1.08	23.50	0.65
5.583	0.86	11.583	32.62	17.583	1.01	23.58	0.65
5.667	0.86	11.667	49.30	17.667	0.93	23.67	0.65
5.750	0.86	11.750	65.97	17.750	0.86	23.75	0.00
5.833	0.86	11.833	46.57	17.833	0.93		
5.917	0.86	11.917	27.17	17.917	1.01		
6.000	0.86	12.000	7.77	18.000	1.08		

Max.Eff.Inten.(mm/hr)=	65.97	53.74		
over (min)	5.00	15.00		
Storage Coeff. (min)=	2.22 (ii)	11.27 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	0.30	0.09		
			TOTALS	
PEAK FLOW (cms)=	0.01	0.04	0.043 (iii)	
TIME TO PEAK (hrs)=	11.75	11.92	11.92	
RUNOFF VOLUME (mm)=	52.63	12.10	17.78	
TOTAL RAINFALL (mm)=	53.63	53.63	53.63	
RUNOFF COEFFICIENT =	0.98	0.23	0.33	

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB / NASHYD (0036) / ID= 1 DT= 5.0 min	Area (ha)= 0.32	Ia (mm)= 4.40	Curve Number (CN)= 61.0	# of Linear Res.(N)= 3.00

```
--------------------   U.H. Tp(hrs)=   0.29

     Unit Hyd Qpeak  (cms)=   0.042

     PEAK FLOW       (cms)=   0.007 (i)
     TIME TO PEAK    (hrs)=  12.000
     RUNOFF VOLUME    (mm)=  11.445
     TOTAL RAINFALL   (mm)=  53.631
     RUNOFF COEFFICIENT   =   0.213

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0038) |   Area    (ha)=   0.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=  19.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08          0.12
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          1.00
     Length            (m)=      36.51         20.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      65.97         61.55
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       1.65 (ii)     8.61 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.32          0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.02          0.021 (iii)
     TIME TO PEAK    (hrs)=      11.75         11.83          11.83
     RUNOFF VOLUME    (mm)=      52.63         13.30          20.26
     TOTAL RAINFALL   (mm)=      53.63         53.63          53.63
     RUNOFF COEFFICIENT   =       0.98          0.25           0.38

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
             YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| NASHYD    (0039) |   Area    (ha)=   0.62   Curve Number   (CN)= 48.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.33

         NOTE:  RAINFALL WAS TRANSFORMED TO   2.0 MIN. TIME STEP.


                        ---- TRANSFORMED HYETOGRAPH ----
   TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
    hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
  0.033    0.22 | 6.000    0.86 |11.967    7.76 | 17.93    1.04
  0.067    0.22 | 6.033    0.93 |12.000    7.76 | 17.97    1.08
```



```
  0.100    0.32 | 6.067    0.93 |12.033    7.76 | 18.00    1.08
  0.133    0.43 | 6.100    0.97 |12.067    7.76 | 18.03    1.01
  0.167    0.43 | 6.133    1.01 |12.100    7.76 | 18.07    1.01
  0.200    0.65 | 6.167    1.01 |12.133    7.76 | 18.10    0.97
  0.233    0.65 | 6.200    1.08 |12.167    7.76 | 18.13    0.93
  0.267    0.61 | 6.233    1.08 |12.200    7.76 | 18.17    0.93
  0.300    0.57 | 6.267    1.04 |12.233    7.76 | 18.20    0.86
  0.333    0.57 | 6.300    1.01 |12.267    7.15 | 18.23    0.86
  0.367    0.50 | 6.333    1.01 |12.300    6.54 | 18.27    0.90
  0.400    0.50 | 6.367    0.93 |12.333    6.54 | 18.30    0.93
  0.433    0.47 | 6.400    0.93 |12.367    5.32 | 18.33    0.93
  0.467    0.43 | 6.433    0.90 |12.400    5.32 | 18.37    1.01
  0.500    0.43 | 6.467    0.86 |12.433    4.71 | 18.40    1.01
  0.533    0.50 | 6.500    0.86 |12.467    4.10 | 18.43    1.04
  0.567    0.50 | 6.533    0.93 |12.500    4.10 | 18.47    1.08
  0.600    0.54 | 6.567    0.93 |12.533    4.02 | 18.50    1.08
  0.633    0.57 | 6.600    0.97 |12.567    4.02 | 18.53    1.01
  0.667    0.57 | 6.633    1.01 |12.600    3.99 | 18.57    1.01
  0.700    0.65 | 6.667    1.01 |12.633    3.95 | 18.60    0.97
  0.733    0.65 | 6.700    1.08 |12.667    3.95 | 18.63    0.93
  0.767    0.65 | 6.733    1.08 |12.700    3.88 | 18.67    0.93
  0.800    0.65 | 6.767    1.08 |12.733    3.88 | 18.70    0.86
  0.833    0.65 | 6.800    1.08 |12.767    3.74 | 18.73    0.86
  0.867    0.65 | 6.833    1.08 |12.800    3.59 | 18.77    0.90
  0.900    0.65 | 6.867    1.08 |12.833    3.59 | 18.80    0.93
  0.933    0.65 | 6.900    1.08 |12.867    3.31 | 18.83    0.93
  0.967    0.65 | 6.933    1.08 |12.900    3.31 | 18.87    1.01
  1.000    0.65 | 6.967    1.08 |12.933    3.16 | 18.90    1.01
  1.033    0.65 | 7.000    1.08 |12.967    3.02 | 18.93    1.04
  1.067    0.65 | 7.033    1.15 |13.000    3.02 | 18.97    1.08
  1.100    0.65 | 7.067    1.15 |13.033    2.95 | 19.00    1.08
  1.133    0.65 | 7.100    1.19 |13.067    2.95 | 19.03    1.01
  1.167    0.65 | 7.133    1.22 |13.100    2.91 | 19.07    1.01
  1.200    0.65 | 7.167    1.22 |13.133    2.87 | 19.10    0.97
  1.233    0.65 | 7.200    1.29 |13.167    2.87 | 19.13    0.93
  1.267    0.61 | 7.233    1.29 |13.200    2.80 | 19.17    0.93
  1.300    0.57 | 7.267    1.26 |13.233    2.80 | 19.20    0.86
  1.333    0.57 | 7.300    1.22 |13.267    2.73 | 19.23    0.86
  1.367    0.50 | 7.333    1.22 |13.300    2.66 | 19.27    0.90
  1.400    0.50 | 7.367    1.15 |13.333    2.66 | 19.30    0.93
  1.433    0.47 | 7.400    1.15 |13.367    2.52 | 19.33    0.93
  1.467    0.43 | 7.433    1.11 |13.400    2.52 | 19.37    1.01
  1.500    0.43 | 7.467    1.08 |13.433    2.44 | 19.40    1.01
  1.533    0.50 | 7.500    1.08 |13.467    2.37 | 19.43    1.04
  1.567    0.50 | 7.533    1.15 |13.500    2.37 | 19.47    1.08
  1.600    0.54 | 7.567    1.15 |13.533    2.30 | 19.50    1.08
  1.633    0.57 | 7.600    1.19 |13.567    2.30 | 19.53    1.01
  1.667    0.57 | 7.633    1.22 |13.600    2.26 | 19.57    1.01
  1.700    0.65 | 7.667    1.22 |13.633    2.23 | 19.60    0.97
  1.733    0.65 | 7.700    1.29 |13.667    2.23 | 19.63    0.93
  1.767    0.65 | 7.733    1.29 |13.700    2.16 | 19.67    0.93
  1.800    0.65 | 7.767    1.29 |13.733    2.16 | 19.70    0.86
  1.833    0.65 | 7.800    1.29 |13.767    2.08 | 19.73    0.86
  1.867    0.65 | 7.833    1.29 |13.800    2.01 | 19.77    0.83
  1.900    0.65 | 7.867    1.29 |13.833    2.01 | 19.80    0.79
  1.933    0.65 | 7.900    1.29 |13.867    1.87 | 19.83    0.79
  1.967    0.65 | 7.933    1.29 |13.900    1.87 | 19.87    0.72
  2.000    0.65 | 7.967    1.29 |13.933    1.80 | 19.90    0.72
  2.033    0.72 | 8.000    1.29 |13.967    1.72 | 19.93    0.68
  2.067    0.72 | 8.033    1.37 |14.000    1.72 | 19.97    0.65
  2.100    0.75 | 8.067    1.37 |14.033    1.65 | 20.00    0.65
  2.133    0.79 | 8.100    1.40 |14.067    1.65 | 20.03    0.65
  2.167    0.79 | 8.133    1.44 |14.100    1.62 | 20.07    0.65
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2.200	0.86	8.167	1.44	14.133	1.58	20.10	0.65
2.233	0.86	8.200	1.51	14.167	1.58	20.13	0.65
2.267	0.83	8.233	1.51	14.200	1.51	20.17	0.65
2.300	0.79	8.267	1.51	14.233	1.51	20.20	0.65
2.333	0.79	8.300	1.51	14.267	1.55	20.23	0.65
2.367	0.72	8.333	1.51	14.300	1.58	20.27	0.65
2.400	0.72	8.367	1.51	14.333	1.58	20.30	0.65
2.433	0.68	8.400	1.51	14.367	1.65	20.33	0.65
2.467	0.65	8.433	1.51	14.400	1.65	20.37	0.65
2.500	0.65	8.467	1.51	14.433	1.69	20.40	0.65
2.533	0.65	8.500	1.51	14.467	1.72	20.43	0.65
2.567	0.65	8.533	1.51	14.500	1.72	20.47	0.65
2.600	0.65	8.567	1.51	14.533	1.65	20.50	0.65
2.633	0.65	8.600	1.51	14.567	1.65	20.53	0.65
2.667	0.65	8.633	1.51	14.600	1.62	20.57	0.65
2.700	0.65	8.667	1.51	14.633	1.58	20.60	0.65
2.733	0.65	8.700	1.51	14.667	1.58	20.63	0.65
2.767	0.65	8.733	1.51	14.700	1.51	20.67	0.65
2.800	0.65	8.767	1.55	14.733	1.51	20.70	0.65
2.833	0.65	8.800	1.58	14.767	1.55	20.73	0.65
2.867	0.65	8.833	1.58	14.800	1.58	20.77	0.65
2.900	0.65	8.867	1.65	14.833	1.58	20.80	0.65
2.933	0.65	8.900	1.65	14.867	1.65	20.83	0.65
2.967	0.65	8.933	1.69	14.900	1.65	20.87	0.65
3.000	0.65	8.967	1.72	14.933	1.69	20.90	0.65
3.033	0.72	9.000	1.72	14.967	1.72	20.93	0.65
3.067	0.72	9.033	1.72	15.000	1.72	20.97	0.65
3.100	0.75	9.067	1.72	15.033	1.65	21.00	0.65
3.133	0.79	9.100	1.72	15.067	1.65	21.03	0.65
3.167	0.79	9.133	1.72	15.100	1.62	21.07	0.65
3.200	0.86	9.167	1.72	15.133	1.58	21.10	0.65
3.233	0.86	9.200	1.72	15.167	1.58	21.13	0.65
3.267	0.83	9.233	1.72	15.200	1.51	21.17	0.65
3.300	0.79	9.267	1.76	15.233	1.51	21.20	0.65
3.333	0.79	9.300	1.80	15.267	1.55	21.23	0.65
3.367	0.72	9.333	1.80	15.300	1.58	21.27	0.65
3.400	0.72	9.367	1.87	15.333	1.58	21.30	0.65
3.433	0.68	9.400	1.87	15.367	1.65	21.33	0.65
3.467	0.65	9.433	1.90	15.400	1.65	21.37	0.65
3.500	0.65	9.467	1.94	15.433	1.69	21.40	0.65
3.533	0.65	9.500	1.94	15.467	1.72	21.43	0.65
3.567	0.65	9.533	1.94	15.500	1.72	21.47	0.65
3.600	0.65	9.567	1.94	15.533	1.65	21.50	0.65
3.633	0.65	9.600	1.94	15.567	1.65	21.53	0.65
3.667	0.65	9.633	1.94	15.600	1.62	21.57	0.65
3.700	0.65	9.667	1.94	15.633	1.58	21.60	0.65
3.733	0.65	9.700	1.94	15.667	1.58	21.63	0.65
3.767	0.68	9.733	1.94	15.700	1.51	21.67	0.65
3.800	0.72	9.767	2.01	15.733	1.51	21.70	0.65
3.833	0.72	9.800	2.08	15.767	1.44	21.73	0.65
3.867	0.79	9.833	2.08	15.800	1.37	21.77	0.65
3.900	0.79	9.867	2.23	15.833	1.37	21.80	0.65
3.933	0.83	9.900	2.23	15.867	1.22	21.83	0.65
3.967	0.86	9.933	2.30	15.900	1.22	21.87	0.65
4.000	0.86	9.967	2.37	15.933	1.15	21.90	0.65
4.033	0.86	10.000	2.37	15.967	1.08	21.93	0.65
4.067	0.86	10.033	2.44	16.000	1.08	21.97	0.65
4.100	0.86	10.067	2.44	16.033	1.01	22.00	0.65
4.133	0.86	10.100	2.48	16.067	1.01	22.03	0.65
4.167	0.86	10.133	2.52	16.100	0.97	22.07	0.65
4.200	0.86	10.167	2.52	16.133	0.93	22.10	0.65
4.233	0.86	10.200	2.59	16.167	0.93	22.13	0.65
4.267	0.86	10.233	2.59	16.200	0.86	22.17	0.65

4.300	0.86	10.267	2.70	16.233	0.86	22.20	0.65
4.333	0.86	10.300	2.80	16.267	0.90	22.23	0.65
4.367	0.86	10.333	2.80	16.300	0.93	22.27	0.65
4.400	0.86	10.367	3.02	16.333	0.93	22.30	0.65
4.433	0.86	10.400	3.02	16.367	1.01	22.33	0.65
4.467	0.86	10.433	3.13	16.400	1.01	22.37	0.65
4.500	0.86	10.467	3.23	16.433	1.04	22.40	0.65
4.533	0.86	10.500	3.23	16.467	1.08	22.43	0.65
4.567	0.86	10.533	3.31	16.500	1.08	22.47	0.65
4.600	0.86	10.567	3.31	16.533	1.01	22.50	0.65
4.633	0.86	10.600	3.34	16.567	1.01	22.53	0.65
4.667	0.86	10.633	3.38	16.600	0.97	22.57	0.65
4.700	0.86	10.667	3.38	16.633	0.93	22.60	0.65
4.733	0.86	10.700	3.45	16.667	0.93	22.63	0.65
4.767	0.86	10.733	3.45	16.700	0.86	22.67	0.65
4.800	0.86	10.767	3.74	16.733	0.86	22.70	0.65
4.833	0.86	10.800	4.02	16.767	0.90	22.73	0.65
4.867	0.86	10.833	4.03	16.800	0.93	22.77	0.65
4.900	0.86	10.867	4.60	16.833	0.93	22.80	0.65
4.933	0.86	10.900	4.60	16.867	1.01	22.83	0.65
4.967	0.86	10.933	4.89	16.900	1.01	22.87	0.65
5.000	0.86	10.967	5.17	16.933	1.04	22.90	0.65
5.033	0.86	11.000	5.17	16.967	1.08	22.93	0.65
5.067	0.86	11.033	5.17	17.000	1.08	22.97	0.65
5.100	0.86	11.067	5.17	17.033	1.01	23.00	0.65
5.133	0.86	11.100	5.17	17.067	1.01	23.03	0.65
5.167	0.86	11.133	5.17	17.100	0.97	23.07	0.65
5.200	0.86	11.167	5.17	17.133	0.93	23.10	0.65
5.233	0.86	11.200	5.17	17.167	0.93	23.13	0.65
5.267	0.86	11.233	5.17	17.200	0.86	23.17	0.65
5.300	0.86	11.267	6.97	17.233	0.86	23.20	0.65
5.333	0.86	11.300	8.77	17.267	0.90	23.23	0.65
5.367	0.86	11.333	8.77	17.300	0.93	23.27	0.65
5.400	0.86	11.367	12.36	17.333	0.93	23.30	0.65
5.433	0.86	11.400	12.36	17.367	1.01	23.33	0.65
5.467	0.86	11.433	14.16	17.400	1.01	23.37	0.65
5.500	0.86	11.467	15.95	17.433	1.04	23.40	0.65
5.533	0.86	11.500	15.97	17.467	1.08	23.43	0.65
5.567	0.86	11.533	32.63	17.500	1.08	23.47	0.65
5.600	0.86	11.567	32.63	17.533	1.01	23.50	0.65
5.633	0.86	11.600	40.98	17.567	1.01	23.53	0.65
5.667	0.86	11.633	49.30	17.600	0.97	23.57	0.65
5.700	0.86	11.667	49.32	17.633	0.93	23.60	0.65
5.733	0.86	11.700	65.97	17.667	0.93	23.63	0.65
5.767	0.86	11.733	65.97	17.700	0.86	23.67	0.65
5.800	0.86	11.767	56.25	17.733	0.86	23.70	0.65
5.833	0.86	11.800	46.57	17.767	0.90	23.73	0.65
5.867	0.86	11.833	46.55	17.800	0.93	23.77	0.32
5.900	0.86	11.867	27.17	17.833	0.93		
5.933	0.86	11.900	27.17	17.867	1.01		
5.967	0.86	11.933	17.44	17.900	1.01		

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 12.100
RUNOFF VOLUME (mm)= 6.206
TOTAL RAINFALL (mm)= 53.684
RUNOFF COEFFICIENT = 0.116

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

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--------------------
| CALIB            |
| NASHYD    (0035) |   Area    (ha)=   1.58   Curve Number   (CN)= 44.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.62   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

     Unit Hyd Qpeak  (cms)=   0.355

     PEAK FLOW       (cms)=   0.020 (i)
     TIME TO PEAK    (hrs)=  11.933
     RUNOFF VOLUME    (mm)=   5.308
     TOTAL RAINFALL   (mm)=  53.684
     RUNOFF COEFFICIENT   =   0.099

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

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--------------------
| CALIB            |
| NASHYD    (0044) |   Area    (ha)=   2.80   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.594

     PEAK FLOW       (cms)=   0.033 (i)
     TIME TO PEAK    (hrs)=  11.933
     RUNOFF VOLUME    (mm)=   5.226
     TOTAL RAINFALL   (mm)=  53.684
     RUNOFF COEFFICIENT   =   0.097

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

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| ADD HYD   (0040) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0035):     1.58   0.020    11.93     5.31
       + ID2= 2 (0044):     2.80   0.033    11.93     5.23
         ================================================
         ID = 3 (0040):     4.38   0.053    11.93     5.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0041) |   Area    (ha)=   2.82
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=  19.00
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                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.07         1.75
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    137.11        40.00
     Mannings n           =     0.013        0.250

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


                          ---- TRANSFORMED HYETOGRAPH ----
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.22	6.083	0.93	12.083	7.76	18.08	1.01
0.167	0.43	6.167	1.01	12.167	7.76	18.17	0.93
0.250	0.65	6.250	1.08	12.250	7.76	18.25	0.86
0.333	0.57	6.333	1.01	12.333	6.54	18.33	0.93
0.417	0.50	6.417	0.93	12.417	5.32	18.42	1.01
0.500	0.43	6.500	0.86	12.500	4.10	18.50	1.08
0.583	0.50	6.583	0.93	12.583	4.02	18.58	1.01
0.667	0.57	6.667	1.01	12.667	3.95	18.67	0.93
0.750	0.65	6.750	1.08	12.750	3.88	18.75	0.86
0.833	0.65	6.833	1.08	12.833	3.59	18.83	0.93
0.917	0.65	6.917	1.08	12.917	3.31	18.92	1.01
1.000	0.65	7.000	1.08	13.000	3.02	19.00	1.08
1.083	0.65	7.083	1.15	13.083	2.95	19.08	1.01
1.167	0.65	7.167	1.22	13.167	2.87	19.17	0.93
1.250	0.65	7.250	1.29	13.250	2.80	19.25	0.86
1.333	0.57	7.333	1.22	13.333	2.66	19.33	0.93
1.417	0.50	7.417	1.15	13.417	2.52	19.42	1.01
1.500	0.43	7.500	1.08	13.500	2.37	19.50	1.08
1.583	0.50	7.583	1.15	13.583	2.30	19.58	1.01
1.667	0.57	7.667	1.22	13.667	2.23	19.67	0.93
1.750	0.65	7.750	1.29	13.750	2.16	19.75	0.86
1.833	0.65	7.833	1.29	13.833	2.01	19.83	0.79
1.917	0.65	7.917	1.29	13.917	1.87	19.92	0.72
2.000	0.65	8.000	1.29	14.000	1.72	20.00	0.65
2.083	0.72	8.083	1.37	14.083	1.65	20.08	0.65
2.167	0.79	8.167	1.44	14.167	1.58	20.17	0.65
2.250	0.86	8.250	1.51	14.250	1.51	20.25	0.65
2.333	0.79	8.333	1.51	14.333	1.58	20.33	0.65
2.417	0.72	8.417	1.51	14.417	1.65	20.42	0.65
2.500	0.65	8.500	1.51	14.500	1.72	20.50	0.65
2.583	0.65	8.583	1.51	14.583	1.65	20.58	0.65
2.667	0.65	8.667	1.51	14.667	1.58	20.67	0.65
2.750	0.65	8.750	1.51	14.750	1.51	20.75	0.65
2.833	0.65	8.833	1.58	14.833	1.58	20.83	0.65
2.917	0.65	8.917	1.65	14.917	1.65	20.92	0.65
3.000	0.65	9.000	1.72	15.000	1.72	21.00	0.65
3.083	0.72	9.083	1.72	15.083	1.65	21.08	0.65
3.167	0.79	9.167	1.72	15.167	1.58	21.17	0.65
3.250	0.86	9.250	1.72	15.250	1.51	21.25	0.65
3.333	0.79	9.333	1.80	15.333	1.58	21.33	0.65
3.417	0.72	9.417	1.87	15.417	1.65	21.42	0.65
3.500	0.65	9.500	1.94	15.500	1.72	21.50	0.65
3.583	0.65	9.583	1.94	15.583	1.65	21.58	0.65
3.667	0.65	9.667	1.94	15.667	1.58	21.67	0.65
3.750	0.65	9.750	1.94	15.750	1.51	21.75	0.65
3.833	0.72	9.833	2.08	15.833	1.37	21.83	0.65
3.917	0.79	9.917	2.23	15.917	1.22	21.92	0.65
4.000	0.86	10.000	2.37	16.000	1.08	22.00	0.65
4.083	0.86	10.083	2.44	16.083	1.01	22.08	0.65
4.167	0.86	10.167	2.52	16.167	0.93	22.17	0.65
4.250	0.86	10.250	2.59	16.250	0.86	22.25	0.65
4.333	0.86	10.333	2.80	16.333	0.93	22.33	0.65
4.417	0.86	10.417	3.02	16.417	1.01	22.42	0.65
4.500	0.86	10.500	3.23	16.500	1.08	22.50	0.65
4.583	0.86	10.583	3.31	16.583	1.01	22.58	0.65
4.667	0.86	10.667	3.38	16.667	0.93	22.67	0.65
4.750	0.86	10.750	3.45	16.750	0.86	22.75	0.65
4.833	0.86	10.833	4.02	16.833	0.93	22.83	0.65
4.917	0.86	10.917	4.60	16.917	1.01	22.92	0.65
5.000	0.86	11.000	5.17	17.000	1.08	23.00	0.65
5.083	0.86	11.083	5.17	17.083	1.01	23.08	0.65

5.167	0.86	11.167	5.17	17.167	0.93	23.17	0.65
5.250	0.86	11.250	5.17	17.250	0.86	23.25	0.65
5.333	0.86	11.333	8.77	17.333	0.93	23.33	0.65
5.417	0.86	11.417	12.36	17.417	1.01	23.42	0.65
5.500	0.86	11.500	15.95	17.500	1.08	23.50	0.65
5.583	0.86	11.583	32.62	17.583	1.01	23.58	0.65
5.667	0.86	11.667	49.30	17.667	0.93	23.67	0.65
5.750	0.86	11.750	65.97	17.750	0.86	23.75	0.00
5.833	0.86	11.833	46.57	17.833	0.93		
5.917	0.86	11.917	27.17	17.917	1.01		
6.000	0.86	12.000	7.77	18.000	1.08		

Max.Eff.Inten.(mm/hr)=	65.97	57.20	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.65 (ii)	14.51 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.25	0.08	
			TOTALS
PEAK FLOW (cms)=	0.09	0.17	0.219 (iii)
TIME TO PEAK (hrs)=	11.75	11.92	11.92
RUNOFF VOLUME (mm)=	52.63	13.30	20.77
TOTAL RAINFALL (mm)=	53.63	53.63	53.63
RUNOFF COEFFICIENT =	0.98	0.25	0.39

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0037)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	4.38	0.053	11.93	5.26
+ ID2= 2 (0041):	2.82	0.219	11.92	20.77
ID = 3 (0037):	7.20	0.269	11.90	11.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0042)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.4748	0.1280	1.3860
0.0380	0.5498	0.3070	1.5223
0.0720	0.7185	0.6740	1.6664
0.0940	0.9133	1.2390	1.8182
0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	7.200	0.269	11.90	11.33

OUTFLOW: ID= 1 (0042)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0283

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

ADD HYD (0043)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0034):	0.54	0.043	11.92	17.78
+ ID2= 2 (0036):	0.32	0.007	12.00	11.45
ID = 3 (0043):	0.86	0.049	11.92	15.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	0.86	0.049	11.92	15.42
+ ID2= 2 (0038):	0.20	0.021	11.83	20.26
ID = 1 (0043):	1.06	0.067	11.92	16.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0043):	1.06	0.067	11.92	16.33
+ ID2= 2 (0039):	0.62	0.006	12.10	6.21
ID = 3 (0043):	1.68	0.071	11.90	12.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)
3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	1.68	0.071	11.90	12.59
+ ID2= 2 (0042):	7.20	0.000	0.00	0.00
ID = 1 (0043):	8.88	0.071	11.90	2.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 2 **
****

MASS STORM Ptotal= 71.80 mm	Filename: C:\Users\aschoof\AppData\Local\Temp\5d0218cc-8a0c-4e7b-a56e-a2c3d15794d1\9ab0dd0f Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min
New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.29	6.08	1.24	12.08	10.34	18.08	1.34
0.17	0.57	6.17	1.34	12.17	10.34	18.17	1.24
0.25	0.86	6.25	1.44	12.25	10.34	18.25	1.15
0.33	0.77	6.33	1.34	12.33	8.71	18.33	1.24
0.42	0.67	6.42	1.24	12.42	7.08	18.42	1.34
0.50	0.57	6.50	1.15	12.50	5.46	18.50	1.44
0.58	0.67	6.58	1.24	12.58	5.36	18.58	1.34
0.67	0.77	6.67	1.34	12.67	5.27	18.67	1.24
0.75	0.86	6.75	1.44	12.75	5.17	18.75	1.15
0.83	0.86	6.83	1.44	12.83	4.79	18.83	1.24
0.92	0.86	6.92	1.44	12.92	4.40	18.92	1.34
1.00	0.86	7.00	1.44	13.00	4.02	19.00	1.44
1.08	0.86	7.08	1.53	13.08	3.93	19.08	1.34
1.17	0.86	7.17	1.63	13.17	3.83	19.17	1.24
1.25	0.86	7.25	1.72	13.25	3.73	19.25	1.15
1.33	0.77	7.33	1.63	13.33	3.54	19.33	1.24
1.42	0.67	7.42	1.53	13.42	3.35	19.42	1.34
1.50	0.57	7.50	1.44	13.50	3.16	19.50	1.44
1.58	0.67	7.58	1.53	13.58	3.06	19.58	1.34
1.67	0.77	7.67	1.63	13.67	2.97	19.67	1.24
1.75	0.86	7.75	1.72	13.75	2.87	19.75	1.15
1.83	0.86	7.83	1.72	13.83	2.68	19.83	1.05
1.92	0.86	7.92	1.72	13.92	2.49	19.92	0.96
2.00	0.86	8.00	1.72	14.00	2.30	20.00	0.86
2.08	0.96	8.08	1.82	14.08	2.20	20.08	0.86
2.17	1.05	8.17	1.91	14.17	2.11	20.17	0.86
2.25	1.15	8.25	2.01	14.25	2.01	20.25	0.86
2.33	1.05	8.33	2.01	14.33	2.11	20.33	0.86
2.42	0.96	8.42	2.01	14.42	2.20	20.42	0.86
2.50	0.86	8.50	2.01	14.50	2.30	20.50	0.86
2.58	0.86	8.58	2.01	14.58	2.20	20.58	0.86
2.67	0.86	8.67	2.01	14.67	2.11	20.67	0.86
2.75	0.86	8.75	2.01	14.75	2.01	20.75	0.86
2.83	0.86	8.83	2.11	14.83	2.11	20.83	0.86
2.92	0.86	8.92	2.20	14.92	2.20	20.92	0.86
3.00	0.86	9.00	2.30	15.00	2.30	21.00	0.86
3.08	0.96	9.08	2.30	15.08	2.20	21.08	0.86
3.17	1.05	9.17	2.30	15.17	2.11	21.17	0.86
3.25	1.15	9.25	2.30	15.25	2.01	21.25	0.86
3.33	1.05	9.33	2.39	15.33	2.11	21.33	0.86
3.42	0.96	9.42	2.49	15.42	2.20	21.42	0.86
3.50	0.86	9.50	2.58	15.50	2.30	21.50	0.86
3.58	0.86	9.58	2.58	15.58	2.20	21.58	0.86
3.67	0.86	9.67	2.58	15.67	2.11	21.67	0.86
3.75	0.86	9.75	2.58	15.75	2.01	21.75	0.86
3.83	0.96	9.83	2.78	15.83	1.82	21.83	0.86
3.92	1.05	9.92	2.97	15.92	1.63	21.92	0.86
4.00	1.15	10.00	3.16	16.00	1.44	22.00	0.86
4.08	1.15	10.08	3.25	16.08	1.34	22.08	0.86

4.17	1.15	10.17	3.35	16.17	1.24	22.17	0.86
4.25	1.15	10.25	3.45	16.25	1.15	22.25	0.86
4.33	1.15	10.33	3.73	16.33	1.24	22.33	0.86
4.42	1.15	10.42	4.02	16.42	1.34	22.42	0.86
4.50	1.15	10.50	4.31	16.50	1.44	22.50	0.86
4.58	1.15	10.58	4.40	16.58	1.34	22.58	0.86
4.67	1.15	10.67	4.50	16.67	1.24	22.67	0.86
4.75	1.15	10.75	4.60	16.75	1.15	22.75	0.86
4.83	1.15	10.83	5.36	16.83	1.24	22.83	0.86
4.92	1.15	10.92	6.13	16.92	1.34	22.92	0.86
5.00	1.15	11.00	6.89	17.00	1.44	23.00	0.86
5.08	1.15	11.08	6.89	17.08	1.34	23.08	0.86
5.17	1.15	11.17	6.89	17.17	1.24	23.17	0.86
5.25	1.15	11.25	6.89	17.25	1.15	23.25	0.86
5.33	1.15	11.33	11.68	17.33	1.24	23.33	0.86
5.42	1.15	11.42	16.47	17.42	1.34	23.42	0.86
5.50	1.15	11.50	21.25	17.50	1.44	23.50	0.86
5.58	1.15	11.58	43.46	17.58	1.34	23.58	0.86
5.67	1.15	11.67	65.67	17.67	1.24	23.67	0.86
5.75	1.15	11.75	87.88	17.75	1.15	23.75	0.86
5.83	1.15	11.83	62.04	17.83	1.24		
5.92	1.15	11.92	36.19	17.92	1.34		
6.00	1.15	12.00	10.34	18.00	1.44		

CALIB STANDHYD (0034) ID= 1 DT= 5.0 min	Area (ha)= 0.54 Total Imp(%)= 28.00 Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	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	0.29	6.083	1.24	12.083	10.34	18.08	1.34
0.167	0.57	6.167	1.34	12.167	10.34	18.17	1.24
0.250	0.86	6.250	1.44	12.250	10.34	18.25	1.15
0.333	0.77	6.333	1.34	12.333	8.71	18.33	1.24
0.417	0.67	6.417	1.24	12.417	7.08	18.42	1.34
0.500	0.57	6.500	1.15	12.500	5.46	18.50	1.44
0.583	0.67	6.583	1.24	12.583	5.36	18.58	1.34
0.667	0.77	6.667	1.34	12.667	5.27	18.67	1.24
0.750	0.86	6.750	1.44	12.750	5.17	18.75	1.15
0.833	0.86	6.833	1.44	12.833	4.79	18.83	1.24
0.917	0.86	6.917	1.44	12.917	4.40	18.92	1.34
1.000	0.86	7.000	1.44	13.000	4.02	19.00	1.44
1.083	0.86	7.083	1.53	13.083	3.93	19.08	1.34
1.167	0.86	7.167	1.63	13.167	3.83	19.17	1.24
1.250	0.86	7.250	1.72	13.250	3.73	19.25	1.15
1.333	0.77	7.333	1.63	13.333	3.54	19.33	1.24
1.417	0.67	7.417	1.53	13.417	3.35	19.42	1.34
1.500	0.57	7.500	1.44	13.500	3.16	19.50	1.44
1.583	0.67	7.583	1.53	13.583	3.06	19.58	1.34
1.667	0.77	7.667	1.63	13.667	2.97	19.67	1.24

1.750	0.86	7.750	1.72	13.750	2.87	19.75	1.15
1.833	0.86	7.833	1.72	13.833	2.68	19.83	1.05
1.917	0.86	7.917	1.72	13.917	2.49	19.92	0.96
2.000	0.86	8.000	1.72	14.000	2.30	20.00	0.86
2.083	0.96	8.083	1.82	14.083	2.20	20.08	0.86
2.167	1.05	8.167	1.91	14.167	2.11	20.17	0.86
2.250	1.15	8.250	2.01	14.250	2.01	20.25	0.86
2.333	1.05	8.333	2.01	14.333	2.11	20.33	0.86
2.417	0.96	8.417	2.01	14.417	2.20	20.42	0.86
2.500	0.86	8.500	2.01	14.500	2.30	20.50	0.86
2.583	0.86	8.583	2.01	14.583	2.20	20.58	0.86
2.667	0.86	8.667	2.01	14.667	2.11	20.67	0.86
2.750	0.86	8.750	2.01	14.750	2.01	20.75	0.86
2.833	0.86	8.833	2.11	14.833	2.11	20.83	0.86
2.917	0.86	8.917	2.20	14.917	2.20	20.92	0.86
3.000	0.86	9.000	2.30	15.000	2.30	21.00	0.86
3.083	0.96	9.083	2.30	15.083	2.20	21.08	0.86
3.167	1.05	9.167	2.30	15.167	2.11	21.17	0.86
3.250	1.15	9.250	2.30	15.250	2.01	21.25	0.86
3.333	1.05	9.333	2.39	15.333	2.11	21.33	0.86
3.417	0.96	9.417	2.49	15.417	2.20	21.42	0.86
3.500	0.86	9.500	2.58	15.500	2.30	21.50	0.86
3.583	0.86	9.583	2.58	15.583	2.20	21.58	0.86
3.667	0.86	9.667	2.58	15.667	2.11	21.67	0.86
3.750	0.86	9.750	2.58	15.750	2.01	21.75	0.86
3.833	0.96	9.833	2.78	15.833	1.82	21.83	0.86
3.917	1.05	9.917	2.97	15.917	1.63	21.92	0.86
4.000	1.15	10.000	3.16	16.000	1.44	22.00	0.86
4.083	1.15	10.083	3.25	16.083	1.34	22.08	0.86
4.167	1.15	10.167	3.35	16.167	1.24	22.17	0.86
4.250	1.15	10.250	3.45	16.250	1.15	22.25	0.86
4.333	1.15	10.333	3.73	16.333	1.24	22.33	0.86
4.417	1.15	10.417	4.02	16.417	1.34	22.42	0.86
4.500	1.15	10.500	4.31	16.500	1.44	22.50	0.86
4.583	1.15	10.583	4.40	16.583	1.34	22.58	0.86
4.667	1.15	10.667	4.50	16.667	1.24	22.67	0.86
4.750	1.15	10.750	4.60	16.750	1.15	22.75	0.86
4.833	1.15	10.833	5.36	16.833	1.24	22.83	0.86
4.917	1.15	10.917	6.13	16.917	1.34	22.92	0.86
5.000	1.15	11.000	6.89	17.000	1.44	23.00	0.86
5.083	1.15	11.083	6.89	17.083	1.34	23.08	0.86
5.167	1.15	11.167	6.89	17.167	1.24	23.17	0.86
5.250	1.15	11.250	6.89	17.250	1.15	23.25	0.86
5.333	1.15	11.333	11.68	17.333	1.24	23.33	0.86
5.417	1.15	11.417	16.47	17.417	1.34	23.42	0.86
5.500	1.15	11.500	21.25	17.500	1.44	23.50	0.86
5.583	1.15	11.583	43.46	17.583	1.34	23.58	0.86
5.667	1.15	11.667	65.67	17.667	1.24	23.67	0.86
5.750	1.15	11.750	87.88	17.750	1.15	23.75	0.00
5.833	1.15	11.833	62.04	17.833	1.24		
5.917	1.15	11.917	36.19	17.917	1.34		
6.000	1.15	12.000	10.35	18.000	1.44		

Max.Eff.Inten.(mm/hr)=	87.88	80.58	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.98 (ii)	9.67 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.31	0.11	
			TOTALS
PEAK FLOW (cms)=	0.02	0.07	0.079 (iii)
TIME TO PEAK (hrs)=	11.75	11.83	11.83
RUNOFF VOLUME (mm)=	70.44	21.85	28.65
TOTAL RAINFALL (mm)=	71.44	71.44	71.44

RUNOFF COEFFICIENT = 0.99 0.31 0.40

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0036)	Area (ha)= 0.32	Curve Number (CN)= 61.0	
ID= 1 DT= 5.0 min	Ia (mm)= 4.40	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.29		

Unit Hyd Qpeak (cms)= 0.042

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 19.578
TOTAL RAINFALL (mm)= 71.441
RUNOFF COEFFICIENT = 0.274

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

CALIB			
STANDHYD (0038)	Area (ha)= 0.20		
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00	Dir. Conn.(%)= 19.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.08	0.12	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	1.00	
Length	(m)=	36.51	20.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		87.88	90.15	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.47 (ii)	7.45 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.33	0.13	
				TOTALS
PEAK FLOW	(cms)=	0.01	0.03	0.033 (iii)
TIME TO PEAK	(hrs)=	11.75	11.83	11.83
RUNOFF VOLUME	(mm)=	70.44	23.54	31.84
TOTAL RAINFALL	(mm)=	71.44	71.44	71.44
RUNOFF COEFFICIENT	=	0.99	0.33	0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0039)	Area (ha)= 0.62	Curve Number (CN)= 48.1	
ID= 1 DT= 2.0 min	Ia (mm)= 9.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.33		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.29	6.000	1.15	11.967	10.34	17.93	1.39
0.067	0.29	6.033	1.24	12.000	10.34	17.97	1.44
0.100	0.43	6.067	1.24	12.033	10.34	18.00	1.44
0.133	0.57	6.100	1.29	12.067	10.34	18.03	1.34
0.167	0.57	6.133	1.34	12.100	10.34	18.07	1.34
0.200	0.86	6.167	1.34	12.133	10.34	18.10	1.29
0.233	0.86	6.200	1.44	12.167	10.34	18.13	1.24
0.267	0.81	6.233	1.44	12.200	10.34	18.17	1.24
0.300	0.77	6.267	1.39	12.233	10.34	18.20	1.15
0.333	0.77	6.300	1.34	12.267	9.52	18.23	1.15
0.367	0.67	6.333	1.34	12.300	8.71	18.27	1.20
0.400	0.67	6.367	1.24	12.333	8.71	18.30	1.24
0.433	0.62	6.400	1.24	12.367	7.08	18.33	1.24
0.467	0.57	6.433	1.20	12.400	7.08	18.37	1.34
0.500	0.57	6.467	1.15	12.433	6.27	18.40	1.34
0.533	0.67	6.500	1.15	12.467	5.46	18.43	1.39
0.567	0.67	6.533	1.24	12.500	5.46	18.47	1.44
0.600	0.72	6.567	1.24	12.533	5.36	18.50	1.44
0.633	0.77	6.600	1.29	12.567	5.36	18.53	1.34
0.667	0.77	6.633	1.34	12.600	5.31	18.57	1.34
0.700	0.86	6.667	1.34	12.633	5.27	18.60	1.29
0.733	0.86	6.700	1.44	12.667	5.27	18.63	1.24
0.767	0.86	6.733	1.44	12.700	5.17	18.67	1.24
0.800	0.86	6.767	1.44	12.733	5.17	18.70	1.15
0.833	0.86	6.800	1.44	12.767	4.98	18.73	1.15
0.867	0.86	6.833	1.44	12.800	4.79	18.77	1.20
0.900	0.86	6.867	1.44	12.833	4.79	18.80	1.24
0.933	0.86	6.900	1.44	12.867	4.40	18.83	1.24
0.967	0.86	6.933	1.44	12.900	4.40	18.87	1.34
1.000	0.86	6.967	1.44	12.933	4.21	18.90	1.34
1.033	0.86	7.000	1.44	12.967	4.02	18.93	1.39
1.067	0.86	7.033	1.53	13.000	4.02	18.97	1.44
1.100	0.86	7.067	1.53	13.033	3.93	19.00	1.44
1.133	0.86	7.100	1.58	13.067	3.93	19.03	1.34
1.167	0.86	7.133	1.63	13.100	3.88	19.07	1.34
1.200	0.86	7.167	1.63	13.133	3.83	19.10	1.29
1.233	0.86	7.200	1.72	13.167	3.83	19.13	1.24
1.267	0.81	7.233	1.72	13.200	3.73	19.17	1.24
1.300	0.77	7.267	1.68	13.233	3.73	19.20	1.15
1.333	0.77	7.300	1.63	13.267	3.64	19.23	1.15
1.367	0.67	7.333	1.63	13.300	3.54	19.27	1.20
1.400	0.67	7.367	1.53	13.333	3.54	19.30	1.24
1.433	0.62	7.400	1.53	13.367	3.35	19.33	1.24
1.467	0.57	7.433	1.48	13.400	3.35	19.37	1.34
1.500	0.57	7.467	1.44	13.433	3.25	19.40	1.34
1.533	0.67	7.500	1.44	13.467	3.16	19.43	1.39
1.567	0.67	7.533	1.53	13.500	3.16	19.47	1.44

1.600	0.72	7.567	1.53	13.533	3.06	19.50	1.44
1.633	0.77	7.600	1.58	13.567	3.06	19.53	1.34
1.667	0.77	7.633	1.63	13.600	3.02	19.57	1.34
1.700	0.86	7.667	1.63	13.633	2.97	19.60	1.29
1.733	0.86	7.700	1.72	13.667	2.97	19.63	1.24
1.767	0.86	7.733	1.72	13.700	2.87	19.67	1.24
1.800	0.86	7.767	1.72	13.733	2.87	19.70	1.15
1.833	0.86	7.800	1.72	13.767	2.78	19.73	1.15
1.867	0.86	7.833	1.72	13.800	2.68	19.77	1.10
1.900	0.86	7.867	1.72	13.833	2.68	19.80	1.05
1.933	0.86	7.900	1.72	13.867	2.49	19.83	1.05
1.967	0.86	7.933	1.72	13.900	2.49	19.87	0.96
2.000	0.86	7.967	1.72	13.933	2.39	19.90	0.96
2.033	0.96	8.000	1.72	13.967	2.30	19.93	0.91
2.067	0.96	8.033	1.82	14.000	2.30	19.97	0.86
2.100	1.01	8.067	1.82	14.033	2.20	20.00	0.86
2.133	1.05	8.100	1.87	14.067	2.20	20.03	0.86
2.167	1.05	8.133	1.91	14.100	2.15	20.07	0.86
2.200	1.15	8.167	1.91	14.133	2.11	20.10	0.86
2.233	1.15	8.200	2.01	14.167	2.11	20.13	0.86
2.267	1.10	8.233	2.01	14.200	2.01	20.17	0.86
2.300	1.05	8.267	2.01	14.233	2.01	20.20	0.86
2.333	1.05	8.300	2.01	14.267	2.06	20.23	0.86
2.367	0.96	8.333	2.01	14.300	2.11	20.27	0.86
2.400	0.96	8.367	2.01	14.333	2.11	20.30	0.86
2.433	0.91	8.400	2.01	14.367	2.20	20.33	0.86
2.467	0.86	8.433	2.01	14.400	2.20	20.37	0.86
2.500	0.86	8.467	2.01	14.433	2.25	20.40	0.86
2.533	0.86	8.500	2.01	14.467	2.30	20.43	0.86
2.567	0.86	8.533	2.01	14.500	2.30	20.47	0.86
2.600	0.86	8.567	2.01	14.533	2.20	20.50	0.86
2.633	0.86	8.600	2.01	14.567	2.20	20.53	0.86
2.667	0.86	8.633	2.01	14.600	2.15	20.57	0.86
2.700	0.86	8.667	2.01	14.633	2.11	20.60	0.86
2.733	0.86	8.700	2.01	14.667	2.11	20.63	0.86
2.767	0.86	8.733	2.01	14.700	2.01	20.67	0.86
2.800	0.86	8.767	2.06	14.733	2.01	20.70	0.86
2.833	0.86	8.800	2.11	14.767	2.06	20.73	0.86
2.867	0.86	8.833	2.11	14.800	2.11	20.77	0.86
2.900	0.86	8.867	2.20	14.833	2.11	20.80	0.86
2.933	0.86	8.900	2.20	14.867	2.20	20.83	0.86
2.967	0.86	8.933	2.25	14.900	2.20	20.87	0.86
3.000	0.86	8.967	2.30	14.933	2.25	20.90	0.86
3.033	0.96	9.000	2.30	14.967	2.30	20.93	0.86
3.067	0.96	9.033	2.30	15.000	2.30	20.97	0.86
3.100	1.01	9.067	2.30	15.033	2.20	21.00	0.86
3.133	1.05	9.100	2.30	15.067	2.20	21.03	0.86
3.167	1.05	9.133	2.30	15.100	2.15	21.07	0.86
3.200	1.15	9.167	2.30	15.133	2.11	21.10	0.86
3.233	1.15	9.200	2.30	15.167	2.11	21.13	0.86
3.267	1.10	9.233	2.30	15.200	2.01	21.17	0.86
3.300	1.05	9.267	2.35	15.233	2.01	21.20	0.86
3.333	1.05	9.300	2.39	15.267	2.06	21.23	0.86
3.367	0.96	9.333	2.39	15.300	2.11	21.27	0.86
3.400	0.96	9.367	2.49	15.333	2.11	21.30	0.86
3.433	0.91	9.400	2.49	15.367	2.20	21.33	0.86
3.467	0.86	9.433	2.54	15.400	2.20	21.37	0.86
3.500	0.86	9.467	2.58	15.433	2.25	21.40	0.86
3.533	0.86	9.500	2.58	15.467	2.30	21.43	0.86
3.567	0.86	9.533	2.58	15.500	2.30	21.47	0.86
3.600	0.86	9.567	2.58	15.533	2.20	21.50	0.86
3.633	0.86	9.600	2.58	15.567	2.20	21.53	0.86
3.667	0.86	9.633	2.58	15.600	2.15	21.57	0.86

3.700	0.86	9.667	2.58	15.633	2.11	21.60	0.86
3.733	0.86	9.700	2.58	15.667	2.11	21.63	0.86
3.767	0.91	9.733	2.58	15.700	2.01	21.67	0.86
3.800	0.96	9.767	2.68	15.733	2.01	21.70	0.86
3.833	0.96	9.800	2.78	15.767	1.91	21.73	0.86
3.867	1.05	9.833	2.78	15.800	1.82	21.77	0.86
3.900	1.05	9.867	2.97	15.833	1.82	21.80	0.86
3.933	1.10	9.900	2.97	15.867	1.63	21.83	0.86
3.967	1.15	9.933	3.06	15.900	1.63	21.87	0.86
4.000	1.15	9.967	3.16	15.933	1.53	21.90	0.86
4.033	1.15	10.000	3.16	15.967	1.44	21.93	0.86
4.067	1.15	10.033	3.25	16.000	1.44	21.97	0.86
4.100	1.15	10.067	3.25	16.033	1.34	22.00	0.86
4.133	1.15	10.100	3.30	16.067	1.34	22.03	0.86
4.167	1.15	10.133	3.35	16.100	1.29	22.07	0.86
4.200	1.15	10.167	3.35	16.133	1.24	22.10	0.86
4.233	1.15	10.200	3.45	16.167	1.24	22.13	0.86
4.267	1.15	10.233	3.45	16.200	1.15	22.17	0.86
4.300	1.15	10.267	3.59	16.233	1.15	22.20	0.86
4.333	1.15	10.300	3.73	16.267	1.20	22.23	0.86
4.367	1.15	10.333	3.73	16.300	1.24	22.27	0.86
4.400	1.15	10.367	4.02	16.333	1.24	22.30	0.86
4.433	1.15	10.400	4.02	16.367	1.34	22.33	0.86
4.467	1.15	10.433	4.16	16.400	1.34	22.37	0.86
4.500	1.15	10.467	4.31	16.433	1.39	22.40	0.86
4.533	1.15	10.500	4.31	16.467	1.44	22.43	0.86
4.567	1.15	10.533	4.40	16.500	1.44	22.47	0.86
4.600	1.15	10.567	4.40	16.533	1.34	22.50	0.86
4.633	1.15	10.600	4.45	16.567	1.34	22.53	0.86
4.667	1.15	10.633	4.50	16.600	1.29	22.57	0.86
4.700	1.15	10.667	4.50	16.633	1.24	22.60	0.86
4.733	1.15	10.700	4.60	16.667	1.24	22.63	0.86
4.767	1.15	10.733	4.60	16.700	1.15	22.67	0.86
4.800	1.15	10.767	4.98	16.733	1.15	22.70	0.86
4.833	1.15	10.800	5.36	16.767	1.20	22.73	0.86
4.867	1.15	10.833	5.36	16.800	1.24	22.77	0.86
4.900	1.15	10.867	6.13	16.833	1.24	22.80	0.86
4.933	1.15	10.900	6.13	16.867	1.34	22.83	0.86
4.967	1.15	10.933	6.51	16.900	1.34	22.87	0.86
5.000	1.15	10.967	6.89	16.933	1.39	22.90	0.86
5.033	1.15	11.000	6.89	16.967	1.44	22.93	0.86
5.067	1.15	11.033	6.89	17.000	1.44	22.97	0.86
5.100	1.15	11.067	6.89	17.033	1.34	23.00	0.86
5.133	1.15	11.100	6.89	17.067	1.34	23.03	0.86
5.167	1.15	11.133	6.89	17.100	1.29	23.07	0.86
5.200	1.15	11.167	6.89	17.133	1.24	23.10	0.86
5.233	1.15	11.200	6.89	17.167	1.24	23.13	0.86
5.267	1.15	11.233	6.89	17.200	1.15	23.17	0.86
5.300	1.15	11.267	9.29	17.233	1.15	23.20	0.86
5.333	1.15	11.300	11.68	17.267	1.20	23.23	0.86
5.367	1.15	11.333	11.68	17.300	1.24	23.27	0.86
5.400	1.15	11.367	16.47	17.333	1.24	23.30	0.86
5.433	1.15	11.400	16.47	17.367	1.34	23.33	0.86
5.467	1.15	11.433	18.86	17.400	1.34	23.37	0.86
5.500	1.15	11.467	21.25	17.433	1.39	23.40	0.86
5.533	1.15	11.500	21.28	17.467	1.44	23.43	0.86
5.567	1.15	11.533	43.46	17.500	1.44	23.47	0.86
5.600	1.15	11.567	43.46	17.533	1.34	23.50	0.86
5.633	1.15	11.600	54.59	17.567	1.34	23.53	0.86
5.667	1.15	11.633	65.67	17.600	1.29	23.57	0.86
5.700	1.15	11.667	65.70	17.633	1.24	23.60	0.86
5.733	1.15	11.700	87.88	17.667	1.24	23.63	0.86
5.767	1.15	11.733	87.88	17.700	1.15	23.67	0.86

5.800	1.15	11.767	74.93	17.733	1.15	23.70	0.86
5.833	1.15	11.800	62.04	17.767	1.20	23.73	0.86
5.867	1.15	11.833	62.00	17.800	1.24	23.77	0.43
5.900	1.15	11.867	36.19	17.833	1.24		
5.933	1.15	11.900	36.19	17.867	1.34		
5.967	1.15	11.933	23.23	17.900	1.34		

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 12.100
RUNOFF VOLUME (mm)= 11.534
TOTAL RAINFALL (mm)= 71.512
RUNOFF COEFFICIENT = 0.161

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

CALIB NASHYD (0035) ID= 1 DT= 2.0 min				
	Area (ha)=	1.58	Curve Number (CN)=	44.1
	Ia (mm)=	9.62	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.17		

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.038 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 9.987
TOTAL RAINFALL (mm)= 71.512
RUNOFF COEFFICIENT = 0.140

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

CALIB NASHYD (0044) ID= 1 DT= 2.0 min				
	Area (ha)=	2.80	Curve Number (CN)=	42.9
	Ia (mm)=	8.98	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.18		

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.064 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 9.770
TOTAL RAINFALL (mm)= 71.512
RUNOFF COEFFICIENT = 0.137

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

ADD HYD (0040)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0035):	1.58	0.038	11.93	9.99
+ ID2= 2 (0044):	2.80	0.064	11.93	9.77
ID = 3 (0040):	4.38	0.102	11.93	9.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD  (0041) |   Area    (ha)=   2.82
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=  19.00
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                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.07         1.75
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    137.11        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	0.29	6.083	1.24	12.083	10.34	18.08	1.34
0.167	0.57	6.167	1.34	12.167	10.34	18.17	1.24
0.250	0.86	6.250	1.44	12.250	10.34	18.25	1.15
0.333	0.77	6.333	1.34	12.333	8.71	18.33	1.24
0.417	0.67	6.417	1.24	12.417	7.08	18.42	1.34
0.500	0.57	6.500	1.15	12.500	5.46	18.50	1.44
0.583	0.67	6.583	1.24	12.583	5.36	18.58	1.34
0.667	0.77	6.667	1.34	12.667	5.27	18.67	1.24
0.750	0.86	6.750	1.44	12.750	5.17	18.75	1.15
0.833	0.86	6.833	1.44	12.833	4.79	18.83	1.24
0.917	0.86	6.917	1.44	12.917	4.40	18.92	1.34
1.000	0.86	7.000	1.44	13.000	4.02	19.00	1.44
1.083	0.86	7.083	1.53	13.083	3.93	19.08	1.34
1.167	0.86	7.167	1.63	13.167	3.83	19.17	1.24
1.250	0.86	7.250	1.72	13.250	3.73	19.25	1.15
1.333	0.77	7.333	1.63	13.333	3.54	19.33	1.24
1.417	0.67	7.417	1.53	13.417	3.35	19.42	1.34
1.500	0.57	7.500	1.44	13.500	3.16	19.50	1.44
1.583	0.67	7.583	1.53	13.583	3.06	19.58	1.34
1.667	0.77	7.667	1.63	13.667	2.97	19.67	1.24
1.750	0.86	7.750	1.72	13.750	2.87	19.75	1.15
1.833	0.86	7.833	1.72	13.833	2.68	19.83	1.05
1.917	0.86	7.917	1.72	13.917	2.49	19.92	0.96
2.000	0.86	8.000	1.72	14.000	2.30	20.00	0.86
2.083	0.96	8.083	1.82	14.083	2.20	20.08	0.86
2.167	1.05	8.167	1.91	14.167	2.11	20.17	0.86
2.250	1.15	8.250	2.01	14.250	2.01	20.25	0.86
2.333	1.05	8.333	2.01	14.333	2.11	20.33	0.86
2.417	0.96	8.417	2.01	14.417	2.20	20.42	0.86
2.500	0.86	8.500	2.01	14.500	2.30	20.50	0.86
2.583	0.86	8.583	2.01	14.583	2.20	20.58	0.86
2.667	0.86	8.667	2.01	14.667	2.11	20.67	0.86
2.750	0.86	8.750	2.01	14.750	2.01	20.75	0.86
2.833	0.86	8.833	2.11	14.833	2.11	20.83	0.86
2.917	0.86	8.917	2.20	14.917	2.20	20.92	0.86
3.000	0.86	9.000	2.30	15.000	2.30	21.00	0.86
3.083	0.96	9.083	2.30	15.083	2.20	21.08	0.86
3.167	1.05	9.167	2.30	15.167	2.11	21.17	0.86
3.250	1.15	9.250	2.30	15.250	2.01	21.25	0.86
3.333	1.05	9.333	2.39	15.333	2.11	21.33	0.86
3.417	0.96	9.417	2.49	15.417	2.20	21.42	0.86
3.500	0.86	9.500	2.58	15.500	2.30	21.50	0.86
3.583	0.86	9.583	2.58	15.583	2.20	21.58	0.86

3.667	0.86	9.667	2.58	15.667	2.11	21.67	0.86
3.750	0.86	9.750	2.58	15.750	2.01	21.75	0.86
3.833	0.96	9.833	2.78	15.833	1.82	21.83	0.86
3.917	1.05	9.917	2.97	15.917	1.63	21.92	0.86
4.000	1.15	10.000	3.16	16.000	1.44	22.00	0.86
4.083	1.15	10.083	3.25	16.083	1.34	22.08	0.86
4.167	1.15	10.167	3.35	16.167	1.24	22.17	0.86
4.250	1.15	10.250	3.45	16.250	1.15	22.25	0.86
4.333	1.15	10.333	3.73	16.333	1.24	22.33	0.86
4.417	1.15	10.417	4.02	16.417	1.34	22.42	0.86
4.500	1.15	10.500	4.31	16.500	1.44	22.50	0.86
4.583	1.15	10.583	4.40	16.583	1.34	22.58	0.86
4.667	1.15	10.667	4.50	16.667	1.24	22.67	0.86
4.750	1.15	10.750	4.60	16.750	1.15	22.75	0.86
4.833	1.15	10.833	5.36	16.833	1.24	22.83	0.86
4.917	1.15	10.917	6.13	16.917	1.34	22.92	0.86
5.000	1.15	11.000	6.89	17.000	1.44	23.00	0.86
5.083	1.15	11.083	6.89	17.083	1.34	23.08	0.86
5.167	1.15	11.167	6.89	17.167	1.24	23.17	0.86
5.250	1.15	11.250	6.89	17.250	1.15	23.25	0.86
5.333	1.15	11.333	11.68	17.333	1.24	23.33	0.86
5.417	1.15	11.417	16.47	17.417	1.34	23.42	0.86
5.500	1.15	11.500	21.25	17.500	1.44	23.50	0.86
5.583	1.15	11.583	43.46	17.583	1.34	23.58	0.86
5.667	1.15	11.667	65.67	17.667	1.24	23.67	0.86
5.750	1.15	11.750	87.88	17.750	1.15	23.75	0.00
5.833	1.15	11.833	62.04	17.833	1.24		
5.917	1.15	11.917	36.19	17.917	1.34		
6.000	1.15	12.000	10.35	18.000	1.44		

```
     Max.Eff.Inten.(mm/hr)=      87.88         90.15
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       3.25 (ii)    12.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.27          0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.12          0.29          0.354 (iii)
     TIME TO PEAK    (hrs)=      11.75         11.92          11.92
     RUNOFF VOLUME    (mm)=      70.44         23.54          32.45
     TOTAL RAINFALL   (mm)=      71.44         71.44          71.44
     RUNOFF COEFFICIENT   =       0.99          0.33           0.45

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
              YOU SHOULD CONSIDER SPLITTING THE AREA.

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD   (0037) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0040):     4.38   0.102    11.93     9.85
       + ID2= 2 (0041):     2.82   0.354    11.92    32.45
         ==========================================
         ID = 3 (0037):     7.20   0.451    11.90    18.69
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0042)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.4748	0.1280	1.3860
	0.0380	0.5498	0.3070	1.5223
	0.0720	0.7185	0.6740	1.6664
	0.0940	0.9133	1.2390	1.8182
	0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	7.200	0.451	11.90	18.69
OUTFLOW: ID= 1 (0042)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0472

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

ADD HYD (0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0034):	0.54	0.079	11.83	28.65
	+ ID2= 2 (0036):	0.32	0.012	12.00	19.58
	ID = 3 (0043):	0.86	0.087	11.83	25.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (0043):	0.86	0.087	11.83	25.27
	+ ID2= 2 (0038):	0.20	0.033	11.83	31.84
	ID = 1 (0043):	1.06	0.120	11.83	26.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0043):	1.06	0.120	11.83	26.51
	+ ID2= 2 (0039):	0.62	0.012	12.10	11.53
	ID = 3 (0043):	1.68	0.126	11.83	20.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (0043):	1.68	0.126	11.83	20.98
	+ ID2= 2 (0042):	7.20	0.000	0.00	0.00
	ID = 1 (0043):	8.88	0.126	11.83	3.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 3 **
****

MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\5d0218cc-8a0c-4e7b-a56e-a2c3d15794d1\1b1949c3
Ptotal= 83.80 mm	Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min
New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.34	6.08	1.45	12.08	12.07	18.08	1.56
0.17	0.67	6.17	1.56	12.17	12.07	18.17	1.45
0.25	1.01	6.25	1.68	12.25	12.07	18.25	1.34
0.33	0.89	6.33	1.56	12.33	10.17	18.33	1.45
0.42	0.78	6.42	1.45	12.42	8.27	18.42	1.56
0.50	0.67	6.50	1.34	12.50	6.37	18.50	1.68
0.58	0.78	6.58	1.45	12.58	6.26	18.58	1.56
0.67	0.89	6.67	1.56	12.67	6.15	18.67	1.45
0.75	1.01	6.75	1.68	12.75	6.03	18.75	1.34
0.83	1.01	6.83	1.68	12.83	5.59	18.83	1.45
0.92	1.01	6.92	1.68	12.92	5.14	18.92	1.56
1.00	1.01	7.00	1.68	13.00	4.69	19.00	1.68
1.08	1.01	7.08	1.79	13.08	4.58	19.08	1.56
1.17	1.01	7.17	1.90	13.17	4.47	19.17	1.45
1.25	1.01	7.25	2.01	13.25	4.36	19.25	1.34
1.33	0.89	7.33	1.90	13.33	4.13	19.33	1.45
1.42	0.78	7.42	1.79	13.42	3.91	19.42	1.56
1.50	0.67	7.50	1.68	13.50	3.69	19.50	1.68
1.58	0.78	7.58	1.79	13.58	3.58	19.58	1.56
1.67	0.89	7.67	1.90	13.67	3.46	19.67	1.45
1.75	1.01	7.75	2.01	13.75	3.35	19.75	1.34
1.83	1.01	7.83	2.01	13.83	3.13	19.83	1.23
1.92	1.01	7.92	2.01	13.92	2.91	19.92	1.12
2.00	1.01	8.00	2.01	14.00	2.68	20.00	1.01
2.08	1.12	8.08	2.12	14.08	2.57	20.08	1.01
2.17	1.23	8.17	2.23	14.17	2.46	20.17	1.01
2.25	1.34	8.25	2.35	14.25	2.35	20.25	1.01
2.33	1.23	8.33	2.35	14.33	2.46	20.33	1.01
2.42	1.12	8.42	2.35	14.42	2.57	20.42	1.01
2.50	1.01	8.50	2.35	14.50	2.68	20.50	1.01
2.58	1.01	8.58	2.35	14.58	2.57	20.58	1.01

2.67	1.01	8.67	2.35	14.67	2.46	20.67	1.01
2.75	1.01	8.75	2.35	14.75	2.35	20.75	1.01
2.83	1.01	8.83	2.46	14.83	2.46	20.83	1.01
2.92	1.01	8.92	2.57	14.92	2.57	20.92	1.01
3.00	1.01	9.00	2.68	15.00	2.68	21.00	1.01
3.08	1.12	9.08	2.68	15.08	2.57	21.08	1.01
3.17	1.23	9.17	2.68	15.17	2.46	21.17	1.01
3.25	1.34	9.25	2.68	15.25	2.35	21.25	1.01
3.33	1.23	9.33	2.79	15.33	2.46	21.33	1.01
3.42	1.12	9.42	2.91	15.42	2.57	21.42	1.01
3.50	1.01	9.50	3.02	15.50	2.68	21.50	1.01
3.58	1.01	9.58	3.02	15.58	2.57	21.58	1.01
3.67	1.01	9.67	3.02	15.67	2.46	21.67	1.01
3.75	1.01	9.75	3.02	15.75	2.35	21.75	1.01
3.83	1.12	9.83	3.24	15.83	2.12	21.83	1.01
3.92	1.23	9.92	3.46	15.92	1.90	21.92	1.01
4.00	1.34	10.00	3.69	16.00	1.68	22.00	1.01
4.08	1.34	10.08	3.80	16.08	1.56	22.08	1.01
4.17	1.34	10.17	3.91	16.17	1.45	22.17	1.01
4.25	1.34	10.25	4.02	16.25	1.34	22.25	1.01
4.33	1.34	10.33	4.36	16.33	1.45	22.33	1.01
4.42	1.34	10.42	4.69	16.42	1.56	22.42	1.01
4.50	1.34	10.50	5.03	16.50	1.68	22.50	1.01
4.58	1.34	10.58	5.14	16.58	1.56	22.58	1.01
4.67	1.34	10.67	5.25	16.67	1.45	22.67	1.01
4.75	1.34	10.75	5.36	16.75	1.34	22.75	1.01
4.83	1.34	10.83	6.26	16.83	1.45	22.83	1.01
4.92	1.34	10.92	7.15	16.92	1.56	22.92	1.01
5.00	1.34	11.00	8.04	17.00	1.68	23.00	1.01
5.08	1.34	11.08	8.04	17.08	1.56	23.08	1.01
5.17	1.34	11.17	8.04	17.17	1.45	23.17	1.01
5.25	1.34	11.25	8.04	17.25	1.34	23.25	1.01
5.33	1.34	11.33	13.63	17.33	1.45	23.33	1.01
5.42	1.34	11.42	19.22	17.42	1.56	23.42	1.01
5.50	1.34	11.50	24.80	17.50	1.68	23.50	1.01
5.58	1.34	11.58	50.72	17.58	1.56	23.58	1.01
5.67	1.34	11.67	76.65	17.67	1.45	23.67	1.01
5.75	1.34	11.75	102.57	17.75	1.34	23.75	1.01
5.83	1.34	11.83	72.41	17.83	1.45		
5.92	1.34	11.92	42.24	17.92	1.56		
6.00	1.34	12.00	12.07	18.00	1.68		

CALIB	
STANDHYD (0034)	Area (ha)= 0.54
ID= 1 DT= 5.0 min	Total Imp(%)= 28.00 Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	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	0.34	6.083	1.45	12.083	12.07	18.08	1.56
0.167	0.67	6.167	1.56	12.167	12.07	18.17	1.45

0.250	1.01	6.250	1.68	12.250	12.07	18.25	1.34
0.333	0.89	6.333	1.56	12.333	10.17	18.33	1.45
0.417	0.78	6.417	1.45	12.417	8.27	18.42	1.56
0.500	0.67	6.500	1.34	12.500	6.37	18.50	1.68
0.583	0.78	6.583	1.45	12.583	6.26	18.58	1.56
0.667	0.89	6.667	1.56	12.667	6.15	18.67	1.45
0.750	1.01	6.750	1.68	12.750	6.03	18.75	1.34
0.833	1.01	6.833	1.68	12.833	5.59	18.83	1.45
0.917	1.01	6.917	1.68	12.917	5.14	18.92	1.56
1.000	1.01	7.000	1.68	13.000	4.69	19.00	1.68
1.083	1.01	7.083	1.79	13.083	4.58	19.08	1.56
1.167	1.01	7.167	1.90	13.167	4.47	19.17	1.45
1.250	1.01	7.250	2.01	13.250	4.36	19.25	1.34
1.333	0.89	7.333	1.90	13.333	4.13	19.33	1.45
1.417	0.78	7.417	1.79	13.417	3.91	19.42	1.56
1.500	0.67	7.500	1.68	13.500	3.69	19.50	1.68
1.583	0.78	7.583	1.79	13.583	3.58	19.58	1.56
1.667	0.89	7.667	1.90	13.667	3.46	19.67	1.45
1.750	1.01	7.750	2.01	13.750	3.35	19.75	1.34
1.833	1.01	7.833	2.01	13.833	3.13	19.83	1.23
1.917	1.01	7.917	2.01	13.917	2.91	19.92	1.12
2.000	1.01	8.000	2.01	14.000	2.68	20.00	1.01
2.083	1.12	8.083	2.12	14.083	2.57	20.08	1.01
2.167	1.23	8.167	2.23	14.167	2.46	20.17	1.01
2.250	1.34	8.250	2.35	14.250	2.35	20.25	1.01
2.333	1.23	8.333	2.35	14.333	2.46	20.33	1.01
2.417	1.12	8.417	2.35	14.417	2.57	20.42	1.01
2.500	1.01	8.500	2.35	14.500	2.68	20.50	1.01
2.583	1.01	8.583	2.35	14.583	2.57	20.58	1.01
2.667	1.01	8.667	2.35	14.667	2.46	20.67	1.01
2.750	1.01	8.750	2.35	14.750	2.35	20.75	1.01
2.833	1.01	8.833	2.46	14.833	2.46	20.83	1.01
2.917	1.01	8.917	2.57	14.917	2.57	20.92	1.01
3.000	1.01	9.000	2.68	15.000	2.68	21.00	1.01
3.083	1.12	9.083	2.68	15.083	2.57	21.08	1.01
3.167	1.23	9.167	2.68	15.167	2.46	21.17	1.01
3.250	1.34	9.250	2.68	15.250	2.35	21.25	1.01
3.333	1.23	9.333	2.79	15.333	2.46	21.33	1.01
3.417	1.12	9.417	2.91	15.417	2.57	21.42	1.01
3.500	1.01	9.500	3.02	15.500	2.68	21.50	1.01
3.583	1.01	9.583	3.02	15.583	2.57	21.58	1.01
3.667	1.01	9.667	3.02	15.667	2.46	21.67	1.01
3.750	1.01	9.750	3.02	15.750	2.35	21.75	1.01
3.833	1.12	9.833	3.24	15.833	2.12	21.83	1.01
3.917	1.23	9.917	3.46	15.917	1.90	21.92	1.01
4.000	1.34	10.000	3.69	16.000	1.68	22.00	1.01
4.083	1.34	10.083	3.80	16.083	1.56	22.08	1.01
4.167	1.34	10.167	3.91	16.167	1.45	22.17	1.01
4.250	1.34	10.250	4.02	16.250	1.34	22.25	1.01
4.333	1.34	10.333	4.36	16.333	1.45	22.33	1.01
4.417	1.34	10.417	4.69	16.417	1.56	22.42	1.01
4.500	1.34	10.500	5.03	16.500	1.68	22.50	1.01
4.583	1.34	10.583	5.14	16.583	1.56	22.58	1.01
4.667	1.34	10.667	5.25	16.667	1.45	22.67	1.01
4.750	1.34	10.750	5.36	16.750	1.34	22.75	1.01
4.833	1.34	10.833	6.26	16.833	1.45	22.83	1.01
4.917	1.34	10.917	7.15	16.917	1.56	22.92	1.01
5.000	1.34	11.000	8.04	17.000	1.68	23.00	1.01
5.083	1.34	11.083	8.04	17.083	1.56	23.08	1.01
5.167	1.34	11.167	8.04	17.167	1.45	23.17	1.01
5.250	1.34	11.250	8.04	17.250	1.34	23.25	1.01
5.333	1.34	11.333	13.63	17.333	1.45	23.33	1.01
5.417	1.34	11.417	19.22	17.417	1.56	23.42	1.01

5.500	1.34	11.500	24.80	17.500	1.68	23.50	1.01
5.583	1.34	11.583	50.72	17.583	1.56	23.58	1.01
5.667	1.34	11.667	76.64	17.667	1.45	23.67	1.01
5.750	1.34	11.750	102.57	17.750	1.34	23.75	0.00
5.833	1.34	11.833	72.41	17.833	1.45		
5.917	1.34	11.917	42.24	17.917	1.56		
6.000	1.34	12.000	12.07	18.000	1.68		

Max.Eff.Inten.(mm/hr)=	102.57	97.50	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.86 (ii)	8.99 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.12	
			TOTALS
PEAK FLOW (cms)=	0.02	0.08	0.099 (iii)
TIME TO PEAK (hrs)=	11.75	11.83	11.83
RUNOFF VOLUME (mm)=	82.38	28.74	36.25
TOTAL RAINFALL (mm)=	83.38	83.38	83.38
RUNOFF COEFFICIENT =	0.99	0.34	0.43

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0036)	Area	(ha)=	0.32	Curve Number (CN)=	61.0
ID= 1 DT= 5.0 min	Ia	(mm)=	4.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.29		

Unit Hyd Qpeak (cms)= 0.042

PEAK FLOW (cms)= 0.015 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 25.830
TOTAL RAINFALL (mm)= 83.381
RUNOFF COEFFICIENT = 0.310

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

CALIB					
STANDHYD (0038)	Area	(ha)=	0.20		
ID= 1 DT= 5.0 min	Total Imp(%)=		38.00	Dir. Conn.(%)=	19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.12
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	36.51	20.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		102.57	108.28
over (min)		5.00	10.00

Storage Coeff. (min)=	1.38 (ii)	6.93 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.33	0.14	
			TOTALS
PEAK FLOW (cms)=	0.01	0.03	0.040 (iii)
TIME TO PEAK (hrs)=	11.75	11.83	11.83
RUNOFF VOLUME (mm)=	82.38	30.31	40.21
TOTAL RAINFALL (mm)=	83.38	83.38	83.38
RUNOFF COEFFICIENT =	0.99	0.36	0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0039)	Area	(ha)=	0.62	Curve Number (CN)=	48.1
ID= 1 DT= 2.0 min	Ia	(mm)=	9.20	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.33		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.34	6.000	1.34	11.967	12.07	17.93	1.62
0.067	0.34	6.033	1.45	12.000	12.07	17.97	1.68
0.100	0.50	6.067	1.45	12.033	12.07	18.00	1.68
0.133	0.67	6.100	1.51	12.067	12.07	18.03	1.56
0.167	0.67	6.133	1.56	12.100	12.07	18.07	1.56
0.200	1.01	6.167	1.56	12.133	12.07	18.10	1.51
0.233	1.01	6.200	1.68	12.167	12.07	18.13	1.45
0.267	0.95	6.233	1.68	12.200	12.07	18.17	1.45
0.300	0.89	6.267	1.62	12.233	12.07	18.20	1.34
0.333	0.89	6.300	1.56	12.267	11.11	18.23	1.34
0.367	0.78	6.333	1.56	12.300	10.17	18.27	1.40
0.400	0.78	6.367	1.45	12.333	10.17	18.30	1.45
0.433	0.73	6.400	1.45	12.367	8.27	18.33	1.45
0.467	0.67	6.433	1.40	12.400	8.27	18.37	1.56
0.500	0.67	6.467	1.34	12.433	7.32	18.40	1.56
0.533	0.78	6.500	1.34	12.467	6.37	18.43	1.62
0.567	0.78	6.533	1.45	12.500	6.37	18.47	1.68
0.600	0.84	6.567	1.45	12.533	6.26	18.50	1.68
0.633	0.89	6.600	1.51	12.567	6.26	18.53	1.56
0.667	0.89	6.633	1.56	12.600	6.20	18.57	1.56
0.700	1.01	6.667	1.56	12.633	6.15	18.60	1.51
0.733	1.01	6.700	1.68	12.667	6.15	18.63	1.45
0.767	1.01	6.733	1.68	12.700	6.03	18.67	1.45
0.800	1.01	6.767	1.68	12.733	6.03	18.70	1.34
0.833	1.01	6.800	1.68	12.767	5.81	18.73	1.34
0.867	1.01	6.833	1.68	12.800	5.59	18.77	1.40
0.900	1.01	6.867	1.68	12.833	5.59	18.80	1.45
0.933	1.01	6.900	1.68	12.867	5.14	18.83	1.45
0.967	1.01	6.933	1.68	12.900	5.14	18.87	1.56

1.000	1.01	6.967	1.68	12.933	4.92	18.90	1.56
1.033	1.01	7.000	1.68	12.967	4.69	18.93	1.62
1.067	1.01	7.033	1.79	13.000	4.69	18.97	1.68
1.100	1.01	7.067	1.79	13.033	4.58	19.00	1.68
1.133	1.01	7.100	1.84	13.067	4.58	19.03	1.56
1.167	1.01	7.133	1.90	13.100	4.53	19.07	1.56
1.200	1.01	7.167	1.90	13.133	4.47	19.10	1.51
1.233	1.01	7.200	2.01	13.167	4.47	19.13	1.45
1.267	0.95	7.233	2.01	13.200	4.36	19.17	1.45
1.300	0.89	7.267	1.96	13.233	4.36	19.20	1.34
1.333	0.89	7.300	1.90	13.267	4.25	19.23	1.34
1.367	0.78	7.333	1.90	13.300	4.13	19.27	1.40
1.400	0.78	7.367	1.79	13.333	4.13	19.30	1.45
1.433	0.73	7.400	1.79	13.367	3.91	19.33	1.45
1.467	0.67	7.433	1.73	13.400	3.91	19.37	1.56
1.500	0.67	7.467	1.68	13.433	3.80	19.40	1.56
1.533	0.78	7.500	1.68	13.467	3.69	19.43	1.62
1.567	0.78	7.533	1.79	13.500	3.69	19.47	1.68
1.600	0.84	7.567	1.79	13.533	3.58	19.50	1.68
1.633	0.89	7.600	1.84	13.567	3.58	19.53	1.56
1.667	0.89	7.633	1.90	13.600	3.52	19.57	1.56
1.700	1.01	7.667	1.90	13.633	3.46	19.60	1.51
1.733	1.01	7.700	2.01	13.667	3.46	19.63	1.45
1.767	1.01	7.733	2.01	13.700	3.35	19.67	1.45
1.800	1.01	7.767	2.01	13.733	3.35	19.70	1.34
1.833	1.01	7.800	2.01	13.767	3.24	19.73	1.34
1.867	1.01	7.833	2.01	13.800	3.13	19.77	1.28
1.900	1.01	7.867	2.01	13.833	3.13	19.80	1.23
1.933	1.01	7.900	2.01	13.867	2.91	19.83	1.23
1.967	1.01	7.933	2.01	13.900	2.91	19.87	1.12
2.000	1.01	7.967	2.01	13.933	2.79	19.90	1.12
2.033	1.12	8.000	2.01	13.967	2.68	19.93	1.06
2.067	1.12	8.033	2.12	14.000	2.68	19.97	1.01
2.100	1.17	8.067	2.12	14.033	2.57	20.00	1.01
2.133	1.23	8.100	2.18	14.067	2.57	20.03	1.01
2.167	1.23	8.133	2.23	14.100	2.51	20.07	1.01
2.200	1.34	8.167	2.23	14.133	2.46	20.10	1.01
2.233	1.34	8.200	2.35	14.167	2.46	20.13	1.01
2.267	1.28	8.233	2.35	14.200	2.35	20.17	1.01
2.300	1.23	8.267	2.35	14.233	2.35	20.20	1.01
2.333	1.23	8.300	2.35	14.267	2.40	20.23	1.01
2.367	1.12	8.333	2.35	14.300	2.46	20.27	1.01
2.400	1.12	8.367	2.35	14.333	2.46	20.30	1.01
2.433	1.06	8.400	2.35	14.367	2.57	20.33	1.01
2.467	1.01	8.433	2.35	14.400	2.57	20.37	1.01
2.500	1.01	8.467	2.35	14.433	2.63	20.40	1.01
2.533	1.01	8.500	2.35	14.467	2.68	20.43	1.01
2.567	1.01	8.533	2.35	14.500	2.68	20.47	1.01
2.600	1.01	8.567	2.35	14.533	2.57	20.50	1.01
2.633	1.01	8.600	2.35	14.567	2.57	20.53	1.01
2.667	1.01	8.633	2.35	14.600	2.51	20.57	1.01
2.700	1.01	8.667	2.35	14.633	2.46	20.60	1.01
2.733	1.01	8.700	2.35	14.667	2.46	20.63	1.01
2.767	1.01	8.733	2.35	14.700	2.35	20.67	1.01
2.800	1.01	8.767	2.40	14.733	2.35	20.70	1.01
2.833	1.01	8.800	2.46	14.767	2.40	20.73	1.01
2.867	1.01	8.833	2.46	14.800	2.46	20.77	1.01
2.900	1.01	8.867	2.57	14.833	2.46	20.80	1.01
2.933	1.01	8.900	2.57	14.867	2.57	20.83	1.01
2.967	1.01	8.933	2.63	14.900	2.57	20.87	1.01
3.000	1.01	8.967	2.68	14.933	2.63	20.90	1.01
3.033	1.12	9.000	2.68	14.967	2.68	20.93	1.01
3.067	1.12	9.033	2.68	15.000	2.68	20.97	1.01

3.100	1.17	9.067	2.68	15.033	2.57	21.00	1.01
3.133	1.23	9.100	2.68	15.067	2.57	21.03	1.01
3.167	1.23	9.133	2.68	15.100	2.51	21.07	1.01
3.200	1.34	9.167	2.68	15.133	2.46	21.10	1.01
3.233	1.34	9.200	2.68	15.167	2.46	21.13	1.01
3.267	1.28	9.233	2.68	15.200	2.35	21.17	1.01
3.300	1.23	9.267	2.74	15.233	2.35	21.20	1.01
3.333	1.23	9.300	2.79	15.267	2.40	21.23	1.01
3.367	1.12	9.333	2.79	15.300	2.46	21.27	1.01
3.400	1.12	9.367	2.91	15.333	2.46	21.30	1.01
3.433	1.06	9.400	2.91	15.367	2.57	21.33	1.01
3.467	1.01	9.433	2.96	15.400	2.57	21.37	1.01
3.500	1.01	9.467	3.02	15.433	2.63	21.40	1.01
3.533	1.01	9.500	3.02	15.467	2.68	21.43	1.01
3.567	1.01	9.533	3.02	15.500	2.68	21.47	1.01
3.600	1.01	9.567	3.02	15.533	2.57	21.50	1.01
3.633	1.01	9.600	3.02	15.567	2.57	21.53	1.01
3.667	1.01	9.633	3.02	15.600	2.51	21.57	1.01
3.700	1.01	9.667	3.02	15.633	2.46	21.60	1.01
3.733	1.01	9.700	3.02	15.667	2.46	21.63	1.01
3.767	1.06	9.733	3.02	15.700	2.35	21.67	1.01
3.800	1.12	9.767	3.13	15.733	2.35	21.70	1.01
3.833	1.12	9.800	3.24	15.767	2.23	21.73	1.01
3.867	1.23	9.833	3.24	15.800	2.12	21.77	1.01
3.900	1.23	9.867	3.46	15.833	2.12	21.80	1.01
3.933	1.28	9.900	3.46	15.867	1.90	21.83	1.01
3.967	1.34	9.933	3.58	15.900	1.90	21.87	1.01
4.000	1.34	9.967	3.69	15.933	1.79	21.90	1.01
4.033	1.34	10.000	3.69	15.967	1.68	21.93	1.01
4.067	1.34	10.033	3.80	16.000	1.68	21.97	1.01
4.100	1.34	10.067	3.80	16.033	1.56	22.00	1.01
4.133	1.34	10.100	3.85	16.067	1.56	22.03	1.01
4.167	1.34	10.133	3.91	16.100	1.51	22.07	1.01
4.200	1.34	10.167	3.91	16.133	1.45	22.10	1.01
4.233	1.34	10.200	4.02	16.167	1.45	22.13	1.01
4.267	1.34	10.233	4.02	16.200	1.34	22.17	1.01
4.300	1.34	10.267	4.19	16.233	1.34	22.20	1.01
4.333	1.34	10.300	4.36	16.267	1.40	22.23	1.01
4.367	1.34	10.333	4.36	16.300	1.45	22.27	1.01
4.400	1.34	10.367	4.69	16.333	1.45	22.30	1.01
4.433	1.34	10.400	4.69	16.367	1.56	22.33	1.01
4.467	1.34	10.433	4.86	16.400	1.56	22.37	1.01
4.500	1.34	10.467	5.03	16.433	1.62	22.40	1.01
4.533	1.34	10.500	5.03	16.467	1.68	22.43	1.01
4.567	1.34	10.533	5.14	16.500	1.68	22.47	1.01
4.600	1.34	10.567	5.14	16.533	1.56	22.50	1.01
4.633	1.34	10.600	5.20	16.567	1.56	22.53	1.01
4.667	1.34	10.633	5.25	16.600	1.51	22.57	1.01
4.700	1.34	10.667	5.25	16.633	1.45	22.60	1.01
4.733	1.34	10.700	5.36	16.667	1.45	22.63	1.01
4.767	1.34	10.733	5.36	16.700	1.34	22.67	1.01
4.800	1.34	10.767	5.81	16.733	1.34	22.70	1.01
4.833	1.34	10.800	6.26	16.767	1.40	22.73	1.01
4.867	1.34	10.833	6.26	16.800	1.45	22.77	1.01
4.900	1.34	10.867	7.15	16.833	1.45	22.80	1.01
4.933	1.34	10.900	7.15	16.867	1.56	22.83	1.01
4.967	1.34	10.933	7.60	16.900	1.56	22.87	1.01
5.000	1.34	10.967	8.04	16.933	1.62	22.90	1.01
5.033	1.34	11.000	8.04	16.967	1.68	22.93	1.01
5.067	1.34	11.033	8.04	17.000	1.68	22.97	1.01
5.100	1.34	11.067	8.04	17.033	1.56	23.00	1.01
5.133	1.34	11.100	8.04	17.067	1.56	23.03	1.01
5.167	1.34	11.133	8.04	17.100	1.51	23.07	1.01

5.200	1.34	11.167	8.04	17.133	1.45	23.10	1.01
5.233	1.34	11.200	8.04	17.167	1.45	23.13	1.01
5.267	1.34	11.233	8.04	17.200	1.34	23.17	1.01
5.300	1.34	11.267	10.84	17.233	1.34	23.20	1.01
5.333	1.34	11.300	13.63	17.267	1.40	23.23	1.01
5.367	1.34	11.333	13.64	17.300	1.45	23.27	1.01
5.400	1.34	11.367	19.22	17.333	1.45	23.30	1.01
5.433	1.34	11.400	19.22	17.367	1.56	23.33	1.01
5.467	1.34	11.433	22.02	17.400	1.56	23.37	1.01
5.500	1.34	11.467	24.80	17.433	1.62	23.40	1.01
5.533	1.34	11.500	24.84	17.467	1.68	23.43	1.01
5.567	1.34	11.533	50.72	17.500	1.68	23.47	1.01
5.600	1.34	11.567	50.72	17.533	1.56	23.50	1.01
5.633	1.34	11.600	63.72	17.567	1.56	23.53	1.01
5.667	1.34	11.633	76.65	17.600	1.51	23.57	1.01
5.700	1.34	11.667	76.68	17.633	1.45	23.60	1.01
5.733	1.34	11.700	102.57	17.667	1.45	23.63	1.01
5.767	1.34	11.733	102.57	17.700	1.34	23.67	1.01
5.800	1.34	11.767	87.45	17.733	1.34	23.70	1.01
5.833	1.34	11.800	72.41	17.767	1.40	23.73	1.01
5.867	1.34	11.833	72.37	17.800	1.45	23.77	0.50
5.900	1.34	11.867	42.24	17.833	1.45		
5.933	1.34	11.900	42.24	17.867	1.56		
5.967	1.34	11.933	27.11	17.900	1.56		

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.016 (i)
TIME TO PEAK (hrs)= 12.100
RUNOFF VOLUME (mm)= 15.822
TOTAL RAINFALL (mm)= 83.464
RUNOFF COEFFICIENT = 0.190

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

CALIB					
NASHYD (0035)	Area	(ha)= 1.58	Curve Number	(CN)= 44.1	
ID= 1 DT= 2.0 min	Ia	(mm)= 9.62	# of Linear Res.	(N)= 3.00	
	U.H. Tp(hrs)= 0.17				

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.053 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 13.787
TOTAL RAINFALL (mm)= 83.464
RUNOFF COEFFICIENT = 0.165

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

CALIB					
NASHYD (0044)	Area	(ha)= 2.80	Curve Number	(CN)= 42.9	
ID= 1 DT= 2.0 min	Ia	(mm)= 8.98	# of Linear Res.	(N)= 3.00	
	U.H. Tp(hrs)= 0.18				

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.089 (i)
TIME TO PEAK (hrs)= 11.933

RUNOFF VOLUME (mm)= 13.460
TOTAL RAINFALL (mm)= 83.464
RUNOFF COEFFICIENT = 0.161

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

ADD HYD (0040)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0035):	1.58	0.053	11.93	13.79
	+ ID2= 2 (0044):	2.80	0.089	11.93	13.46
	ID = 3 (0040):	4.38	0.141	11.93	13.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0041)	Area (ha)= 2.82		
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00	Dir. Conn.(%)= 19.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.07	1.75
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	137.11	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	0.34	6.083	1.45	12.083	12.07	18.08	1.56
0.167	0.67	6.167	1.56	12.167	12.07	18.17	1.45
0.250	1.01	6.250	1.68	12.250	12.07	18.25	1.34
0.333	0.89	6.333	1.56	12.333	10.17	18.33	1.45
0.417	0.78	6.417	1.45	12.417	8.27	18.42	1.56
0.500	0.67	6.500	1.34	12.500	6.37	18.50	1.68
0.583	0.78	6.583	1.45	12.583	6.26	18.58	1.56
0.667	0.89	6.667	1.56	12.667	6.15	18.67	1.45
0.750	1.01	6.750	1.68	12.750	6.03	18.75	1.34
0.833	1.01	6.833	1.68	12.833	5.59	18.83	1.45
0.917	1.01	6.917	1.68	12.917	5.14	18.92	1.56
1.000	1.01	7.000	1.68	13.000	4.69	19.00	1.68
1.083	1.01	7.083	1.79	13.083	4.58	19.08	1.56
1.167	1.01	7.167	1.90	13.167	4.47	19.17	1.45
1.250	1.01	7.250	2.01	13.250	4.36	19.25	1.34
1.333	0.89	7.333	1.90	13.333	4.13	19.33	1.45
1.417	0.78	7.417	1.79	13.417	3.91	19.42	1.56
1.500	0.67	7.500	1.68	13.500	3.69	19.50	1.68
1.583	0.78	7.583	1.79	13.583	3.58	19.58	1.56
1.667	0.89	7.667	1.90	13.667	3.46	19.67	1.45
1.750	1.01	7.750	2.01	13.750	3.35	19.75	1.34
1.833	1.01	7.833	2.01	13.833	3.13	19.83	1.23
1.917	1.01	7.917	2.01	13.917	2.91	19.92	1.12
2.000	1.01	8.000	2.01	14.000	2.68	20.00	1.01
2.083	1.12	8.083	2.12	14.083	2.57	20.08	1.01

2.167	1.23	8.167	2.23	14.167	2.46	20.17	1.01
2.250	1.34	8.250	2.35	14.250	2.35	20.25	1.01
2.333	1.23	8.333	2.35	14.333	2.46	20.33	1.01
2.417	1.12	8.417	2.35	14.417	2.57	20.42	1.01
2.500	1.01	8.500	2.35	14.500	2.68	20.50	1.01
2.583	1.01	8.583	2.35	14.583	2.57	20.58	1.01
2.667	1.01	8.667	2.35	14.667	2.46	20.67	1.01
2.750	1.01	8.750	2.35	14.750	2.35	20.75	1.01
2.833	1.01	8.833	2.46	14.833	2.46	20.83	1.01
2.917	1.01	8.917	2.57	14.917	2.57	20.92	1.01
3.000	1.01	9.000	2.68	15.000	2.68	21.00	1.01
3.083	1.12	9.083	2.68	15.083	2.57	21.08	1.01
3.167	1.23	9.167	2.68	15.167	2.46	21.17	1.01
3.250	1.34	9.250	2.68	15.250	2.35	21.25	1.01
3.333	1.23	9.333	2.79	15.333	2.46	21.33	1.01
3.417	1.12	9.417	2.91	15.417	2.57	21.42	1.01
3.500	1.01	9.500	3.02	15.500	2.68	21.50	1.01
3.583	1.01	9.583	3.02	15.583	2.57	21.58	1.01
3.667	1.01	9.667	3.02	15.667	2.46	21.67	1.01
3.750	1.01	9.750	3.02	15.750	2.35	21.75	1.01
3.833	1.12	9.833	3.24	15.833	2.12	21.83	1.01
3.917	1.23	9.917	3.46	15.917	1.90	21.92	1.01
4.000	1.34	10.000	3.69	16.000	1.68	22.00	1.01
4.083	1.34	10.083	3.80	16.083	1.56	22.08	1.01
4.167	1.34	10.167	3.91	16.167	1.45	22.17	1.01
4.250	1.34	10.250	4.02	16.250	1.34	22.25	1.01
4.333	1.34	10.333	4.36	16.333	1.45	22.33	1.01
4.417	1.34	10.417	4.69	16.417	1.56	22.42	1.01
4.500	1.34	10.500	5.03	16.500	1.68	22.50	1.01
4.583	1.34	10.583	5.14	16.583	1.56	22.58	1.01
4.667	1.34	10.667	5.25	16.667	1.45	22.67	1.01
4.750	1.34	10.750	5.36	16.750	1.34	22.75	1.01
4.833	1.34	10.833	6.26	16.833	1.45	22.83	1.01
4.917	1.34	10.917	7.15	16.917	1.56	22.92	1.01
5.000	1.34	11.000	8.04	17.000	1.68	23.00	1.01
5.083	1.34	11.083	8.04	17.083	1.56	23.08	1.01
5.167	1.34	11.167	8.04	17.167	1.45	23.17	1.01
5.250	1.34	11.250	8.04	17.250	1.34	23.25	1.01
5.333	1.34	11.333	13.63	17.333	1.45	23.33	1.01
5.417	1.34	11.417	19.22	17.417	1.56	23.42	1.01
5.500	1.34	11.500	24.80	17.500	1.68	23.50	1.01
5.583	1.34	11.583	50.72	17.583	1.56	23.58	1.01
5.667	1.34	11.667	76.64	17.667	1.45	23.67	1.01
5.750	1.34	11.750	102.57	17.750	1.34	23.75	0.00
5.833	1.34	11.833	72.41	17.833	1.45		
5.917	1.34	11.917	42.24	17.917	1.56		
6.000	1.34	12.000	12.07	18.000	1.68		

Max.Eff.Inten.(mm/hr)=	102.57	108.28	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.06 (ii)	11.47 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.27	0.09	
			TOTALS
PEAK FLOW (cms)=	0.14	0.37	0.438 (iii)
TIME TO PEAK (hrs)=	11.75	11.92	11.92
RUNOFF VOLUME (mm)=	82.38	30.31	40.21
TOTAL RAINFALL (mm)=	83.38	83.38	83.38
RUNOFF COEFFICIENT =	0.99	0.36	0.48

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0037)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	4.38	0.141	11.93	13.58
+ ID2= 2 (0041):	2.82	0.438	11.92	40.21
ID = 3 (0037):	7.20	0.576	11.90	24.00

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0042) / IN= 2---> OUT= 1 / DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.4748	0.1280	1.3860
	0.0380	0.5498	0.3070	1.5223
	0.0720	0.7185	0.6740	1.6664
	0.0940	0.9133	1.2390	1.8182
	0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	7.200	0.576	11.90	24.00
OUTFLOW: ID= 1 (0042)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0612

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

ADD HYD (0043)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0034):	0.54	0.099	11.83	36.25
+ ID2= 2 (0036):	0.32	0.015	12.00	25.83
ID = 3 (0043):	0.86	0.110	11.83	32.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	0.86	0.110	11.83	32.37

```
       + ID2= 2 (0038):     0.20   0.040    11.83    40.21
         ==================================================
         ID = 1 (0043):     1.06   0.150    11.83    33.85

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0043) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0043):     1.06   0.150    11.83    33.85
       + ID2= 2 (0039):     0.62   0.016    12.10    15.82
         ================================================
         ID = 3 (0043):     1.68   0.159    11.83    27.19

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| ADD HYD   (0043) |
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 3 (0043):     1.68   0.159    11.83    27.19
       + ID2= 2 (0042):     7.20   0.000     0.00     0.00
         ================================================
         ID = 1 (0043):     8.88   0.159    11.83     5.14

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ***************************
  ** SIMULATION NUMBER:   4 **
  ***************************

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| MASS STORM       |    Filename: C:\Users\aschoof\AppD
|                  |              ata\Local\Temp\
|                  |              5d0218cc-8a0c-4e7b-a56e-a2c3d15794d1\da21477b
| Ptotal= 98.90 mm |    Comments: SCS Type II 24 HR MASS CURVE
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                     Duration of storm    = 23.75 hrs
                     Mass curve time step = 15.00 min
                     New Storm time step  =  5.00 min


                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.08    0.40 |  6.08    1.71 | 12.08   14.24 | 18.08    1.85
                0.17    0.79 |  6.17    1.85 | 12.17   14.24 | 18.17    1.71
                0.25    1.19 |  6.25    1.98 | 12.25   14.24 | 18.25    1.58
                0.33    1.05 |  6.33    1.85 | 12.33   12.00 | 18.33    1.71
                0.42    0.92 |  6.42    1.71 | 12.42    9.76 | 18.42    1.85
                0.50    0.79 |  6.50    1.58 | 12.50    7.52 | 18.50    1.98
                0.58    0.92 |  6.58    1.71 | 12.58    7.38 | 18.58    1.85
                0.67    1.05 |  6.67    1.85 | 12.67    7.25 | 18.67    1.71
                0.75    1.19 |  6.75    1.98 | 12.75    7.12 | 18.75    1.58
                0.83    1.19 |  6.83    1.98 | 12.83    6.59 | 18.83    1.71
                0.92    1.19 |  6.92    1.98 | 12.92    6.07 | 18.92    1.85
                1.00    1.19 |  7.00    1.98 | 13.00    5.54 | 19.00    1.98
                1.08    1.19 |  7.08    2.11 | 13.08    5.41 | 19.08    1.85
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                1.17    1.19 |  7.17    2.24 | 13.17    5.27 | 19.17    1.71
                1.25    1.19 |  7.25    2.37 | 13.25    5.14 | 19.25    1.58
                1.33    1.05 |  7.33    2.24 | 13.33    4.88 | 19.33    1.71
                1.42    0.92 |  7.42    2.11 | 13.42    4.62 | 19.42    1.85
                1.50    0.79 |  7.50    1.98 | 13.50    4.35 | 19.50    1.98
                1.58    0.92 |  7.58    2.11 | 13.58    4.22 | 19.58    1.85
                1.67    1.05 |  7.67    2.24 | 13.67    4.09 | 19.67    1.71
                1.75    1.19 |  7.75    2.37 | 13.75    3.96 | 19.75    1.58
                1.83    1.19 |  7.83    2.37 | 13.83    3.69 | 19.83    1.45
                1.92    1.19 |  7.92    2.37 | 13.92    3.43 | 19.92    1.32
                2.00    1.19 |  8.00    2.37 | 14.00    3.16 | 20.00    1.19
                2.08    1.32 |  8.08    2.51 | 14.08    3.03 | 20.08    1.19
                2.17    1.45 |  8.17    2.64 | 14.17    2.90 | 20.17    1.19
                2.25    1.58 |  8.25    2.77 | 14.25    2.77 | 20.25    1.19
                2.33    1.45 |  8.33    2.77 | 14.33    2.90 | 20.33    1.19
                2.42    1.32 |  8.42    2.77 | 14.42    3.03 | 20.42    1.19
                2.50    1.19 |  8.50    2.77 | 14.50    3.16 | 20.50    1.19
                2.58    1.19 |  8.58    2.77 | 14.58    3.03 | 20.58    1.19
                2.67    1.19 |  8.67    2.77 | 14.67    2.90 | 20.67    1.19
                2.75    1.19 |  8.75    2.77 | 14.75    2.77 | 20.75    1.19
                2.83    1.19 |  8.83    2.90 | 14.83    2.90 | 20.83    1.19
                2.92    1.19 |  8.92    3.03 | 14.92    3.03 | 20.92    1.19
                3.00    1.19 |  9.00    3.16 | 15.00    3.16 | 21.00    1.19
                3.08    1.32 |  9.08    3.16 | 15.08    3.03 | 21.08    1.19
                3.17    1.45 |  9.17    3.16 | 15.17    2.90 | 21.17    1.19
                3.25    1.58 |  9.25    3.16 | 15.25    2.77 | 21.25    1.19
                3.33    1.45 |  9.33    3.30 | 15.33    2.90 | 21.33    1.19
                3.42    1.32 |  9.42    3.43 | 15.42    3.03 | 21.42    1.19
                3.50    1.19 |  9.50    3.56 | 15.50    3.16 | 21.50    1.19
                3.58    1.19 |  9.58    3.56 | 15.58    3.03 | 21.58    1.19
                3.67    1.19 |  9.67    3.56 | 15.67    2.90 | 21.67    1.19
                3.75    1.19 |  9.75    3.56 | 15.75    2.77 | 21.75    1.19
                3.83    1.32 |  9.83    3.82 | 15.83    2.51 | 21.83    1.19
                3.92    1.45 |  9.92    4.09 | 15.92    2.24 | 21.92    1.19
                4.00    1.58 | 10.00    4.35 | 16.00    1.98 | 22.00    1.19
                4.08    1.58 | 10.08    4.48 | 16.08    1.85 | 22.08    1.19
                4.17    1.58 | 10.17    4.62 | 16.17    1.71 | 22.17    1.19
                4.25    1.58 | 10.25    4.75 | 16.25    1.58 | 22.25    1.19
                4.33    1.58 | 10.33    5.14 | 16.33    1.71 | 22.33    1.19
                4.42    1.58 | 10.42    5.54 | 16.42    1.85 | 22.42    1.19
                4.50    1.58 | 10.50    5.93 | 16.50    1.98 | 22.50    1.19
                4.58    1.58 | 10.58    6.07 | 16.58    1.85 | 22.58    1.19
                4.67    1.58 | 10.67    6.20 | 16.67    1.71 | 22.67    1.19
                4.75    1.58 | 10.75    6.33 | 16.75    1.58 | 22.75    1.19
                4.83    1.58 | 10.83    7.38 | 16.83    1.71 | 22.83    1.19
                4.92    1.58 | 10.92    8.44 | 16.92    1.85 | 22.92    1.19
                5.00    1.58 | 11.00    9.49 | 17.00    1.98 | 23.00    1.19
                5.08    1.58 | 11.08    9.49 | 17.08    1.85 | 23.08    1.19
                5.17    1.58 | 11.17    9.49 | 17.17    1.71 | 23.17    1.19
                5.25    1.58 | 11.25    9.49 | 17.25    1.58 | 23.25    1.19
                5.33    1.58 | 11.33   16.09 | 17.33    1.71 | 23.33    1.19
                5.42    1.58 | 11.42   22.68 | 17.42    1.85 | 23.42    1.19
                5.50    1.58 | 11.50   29.27 | 17.50    1.98 | 23.50    1.19
                5.58    1.58 | 11.58   59.86 | 17.58    1.85 | 23.58    1.19
                5.67    1.58 | 11.67   90.46 | 17.67    1.71 | 23.67    1.19
                5.75    1.58 | 11.75  121.05 | 17.75    1.58 | 23.75    1.19
                5.83    1.58 | 11.83   85.45 | 17.83    1.71 |
                5.92    1.58 | 11.92   49.85 | 17.92    1.85 |
                6.00    1.58 | 12.00   14.25 | 18.00    1.98 |

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| CALIB            |
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| STANDHYD (0034) | Area (ha)= 0.54
|ID= 1 DT= 5.0 min | Total Imp(%)= 28.00 Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	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	0.40	6.083	1.71	12.083	14.24	18.08	1.85
0.167	0.79	6.167	1.85	12.167	14.24	18.17	1.71
0.250	1.19	6.250	1.98	12.250	14.24	18.25	1.58
0.333	1.05	6.333	1.85	12.333	12.00	18.33	1.71
0.417	0.92	6.417	1.71	12.417	9.76	18.42	1.85
0.500	0.79	6.500	1.58	12.500	7.52	18.50	1.98
0.583	0.92	6.583	1.71	12.583	7.38	18.58	1.85
0.667	1.05	6.667	1.85	12.667	7.25	18.67	1.71
0.750	1.19	6.750	1.98	12.750	7.12	18.75	1.58
0.833	1.19	6.833	1.98	12.833	6.59	18.83	1.71
0.917	1.19	6.917	1.98	12.917	6.07	18.92	1.85
1.000	1.19	7.000	1.98	13.000	5.54	19.00	1.98
1.083	1.19	7.083	2.11	13.083	5.41	19.08	1.85
1.167	1.19	7.167	2.24	13.167	5.27	19.17	1.71
1.250	1.19	7.250	2.37	13.250	5.14	19.25	1.58
1.333	1.05	7.333	2.24	13.333	4.88	19.33	1.71
1.417	0.92	7.417	2.11	13.417	4.62	19.42	1.85
1.500	0.79	7.500	1.98	13.500	4.35	19.50	1.98
1.583	0.92	7.583	2.11	13.583	4.22	19.58	1.85
1.667	1.05	7.667	2.24	13.667	4.09	19.67	1.71
1.750	1.19	7.750	2.37	13.750	3.96	19.75	1.58
1.833	1.19	7.833	2.37	13.833	3.69	19.83	1.45
1.917	1.19	7.917	2.37	13.917	3.43	19.92	1.32
2.000	1.19	8.000	2.37	14.000	3.16	20.00	1.19
2.083	1.32	8.083	2.51	14.083	3.03	20.08	1.19
2.167	1.45	8.167	2.64	14.167	2.90	20.17	1.19
2.250	1.58	8.250	2.77	14.250	2.77	20.25	1.19
2.333	1.45	8.333	2.77	14.333	2.90	20.33	1.19
2.417	1.32	8.417	2.77	14.417	3.03	20.42	1.19
2.500	1.19	8.500	2.77	14.500	3.16	20.50	1.19
2.583	1.19	8.583	2.77	14.583	3.03	20.58	1.19
2.667	1.19	8.667	2.77	14.667	2.90	20.67	1.19
2.750	1.19	8.750	2.77	14.750	2.77	20.75	1.19
2.833	1.19	8.833	2.90	14.833	2.90	20.83	1.19
2.917	1.19	8.917	3.03	14.917	3.03	20.92	1.19
3.000	1.19	9.000	3.16	15.000	3.16	21.00	1.19
3.083	1.32	9.083	3.16	15.083	3.03	21.08	1.19
3.167	1.45	9.167	3.16	15.167	2.90	21.17	1.19
3.250	1.58	9.250	3.16	15.250	2.77	21.25	1.19
3.333	1.45	9.333	3.30	15.333	2.90	21.33	1.19
3.417	1.32	9.417	3.43	15.417	3.03	21.42	1.19
3.500	1.19	9.500	3.56	15.500	3.16	21.50	1.19
3.583	1.19	9.583	3.56	15.583	3.03	21.58	1.19
3.667	1.19	9.667	3.56	15.667	2.90	21.67	1.19
3.750	1.19	9.750	3.56	15.750	2.77	21.75	1.19
3.833	1.32	9.833	3.82	15.833	2.51	21.83	1.19
3.917	1.45	9.917	4.09	15.917	2.24	21.92	1.19

4.000	1.58	10.000	4.35	16.000	1.98	22.00	1.19
4.083	1.58	10.083	4.48	16.083	1.85	22.08	1.19
4.167	1.58	10.167	4.62	16.167	1.71	22.17	1.19
4.250	1.58	10.250	4.75	16.250	1.58	22.25	1.19
4.333	1.58	10.333	5.14	16.333	1.71	22.33	1.19
4.417	1.58	10.417	5.54	16.417	1.85	22.42	1.19
4.500	1.58	10.500	5.93	16.500	1.98	22.50	1.19
4.583	1.58	10.583	6.07	16.583	1.85	22.58	1.19
4.667	1.58	10.667	6.20	16.667	1.71	22.67	1.19
4.750	1.58	10.750	6.33	16.750	1.58	22.75	1.19
4.833	1.58	10.833	7.38	16.833	1.71	22.83	1.19
4.917	1.58	10.917	8.44	16.917	1.85	22.92	1.19
5.000	1.58	11.000	9.49	17.000	1.98	23.00	1.19
5.083	1.58	11.083	9.49	17.083	1.85	23.08	1.19
5.167	1.58	11.167	9.49	17.167	1.71	23.17	1.19
5.250	1.58	11.250	9.49	17.250	1.58	23.25	1.19
5.333	1.58	11.333	16.09	17.333	1.71	23.33	1.19
5.417	1.58	11.417	22.68	17.417	1.85	23.42	1.19
5.500	1.58	11.500	29.27	17.500	1.98	23.50	1.19
5.583	1.58	11.583	59.86	17.583	1.85	23.58	1.19
5.667	1.58	11.667	90.45	17.667	1.71	23.67	1.19
5.750	1.58	11.750	121.05	17.750	1.58	23.75	0.00
5.833	1.58	11.833	85.46	17.833	1.71		
5.917	1.58	11.917	49.85	17.917	1.85		
6.000	1.58	12.000	14.25	18.000	1.98		

Max.Eff.Inten.(mm/hr)=		121.05	117.95	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.74 (ii)	8.35 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.32	0.12	
				TOTALS
PEAK FLOW	(cms)=	0.03	0.10	0.123 (iii)
TIME TO PEAK	(hrs)=	11.75	11.83	11.83
RUNOFF VOLUME	(mm)=	97.41	37.41	45.81
TOTAL RAINFALL	(mm)=	98.41	98.41	98.41
RUNOFF COEFFICIENT	=	0.99	0.38	0.47

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
NASHYD (0036)	Area (ha)= 0.32 Curve Number (CN)= 61.0
ID= 1 DT= 5.0 min	Ia (mm)= 4.40 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.29

Unit Hyd Qpeak (cms)=	0.042	
PEAK FLOW	(cms)=	0.021 (i)
TIME TO PEAK	(hrs)=	12.000
RUNOFF VOLUME	(mm)=	34.449
TOTAL RAINFALL	(mm)=	98.406
RUNOFF COEFFICIENT	=	0.350

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

CALIB					
STANDHYD (0038)	Area (ha)= 0.20				
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00	Dir. Conn.(%)= 19.00			

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.08	0.12	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	1.00	
Length	(m)=	36.51	20.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		121.05	130.13	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.29 (ii)	6.45 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.33	0.14	
				TOTALS
PEAK FLOW	(cms)=	0.01	0.04	0.049 (iii)
TIME TO PEAK	(hrs)=	11.75	11.83	11.83
RUNOFF VOLUME	(mm)=	97.41	39.33	50.36
TOTAL RAINFALL	(mm)=	98.41	98.41	98.41
RUNOFF COEFFICIENT	=	0.99	0.40	0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0039)	Area (ha)= 0.62	Curve Number (CN)= 48.1	
ID= 1 DT= 2.0 min	Ia (mm)= 9.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.33		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.40	6.000	1.58	11.967	14.25	17.93	1.91
0.067	0.40	6.033	1.71	12.000	14.25	17.97	1.98
0.100	0.59	6.067	1.71	12.033	14.24	18.00	1.98
0.133	0.79	6.100	1.78	12.067	14.24	18.03	1.85
0.167	0.79	6.133	1.85	12.100	14.24	18.07	1.85
0.200	1.19	6.167	1.85	12.133	14.24	18.10	1.78
0.233	1.19	6.200	1.98	12.167	14.24	18.13	1.71
0.267	1.12	6.233	1.98	12.200	14.24	18.17	1.71
0.300	1.05	6.267	1.91	12.233	14.24	18.20	1.58
0.333	1.05	6.300	1.85	12.267	13.12	18.23	1.58
0.367	0.92	6.333	1.85	12.300	12.00	18.27	1.65

0.400	0.92	6.367	1.71	12.333	12.00	18.30	1.71
0.433	0.86	6.400	1.71	12.367	9.76	18.33	1.71
0.467	0.79	6.433	1.65	12.400	9.76	18.37	1.85
0.500	0.79	6.467	1.58	12.433	8.63	18.40	1.85
0.533	0.92	6.500	1.58	12.467	7.52	18.43	1.91
0.567	0.92	6.533	1.71	12.500	7.52	18.47	1.98
0.600	0.99	6.567	1.71	12.533	7.38	18.50	1.98
0.633	1.05	6.600	1.78	12.567	7.38	18.53	1.85
0.667	1.05	6.633	1.85	12.600	7.32	18.57	1.85
0.700	1.19	6.667	1.85	12.633	7.25	18.60	1.78
0.733	1.19	6.700	1.98	12.667	7.25	18.63	1.71
0.767	1.19	6.733	1.98	12.700	7.12	18.67	1.71
0.800	1.19	6.767	1.98	12.733	7.12	18.70	1.58
0.833	1.19	6.800	1.98	12.767	6.86	18.73	1.58
0.867	1.19	6.833	1.98	12.800	6.59	18.77	1.65
0.900	1.19	6.867	1.98	12.833	6.59	18.80	1.71
0.933	1.19	6.900	1.98	12.867	6.07	18.83	1.71
0.967	1.19	6.933	1.98	12.900	6.07	18.87	1.85
1.000	1.19	6.967	1.98	12.933	5.80	18.90	1.85
1.033	1.19	7.000	1.98	12.967	5.54	18.93	1.91
1.067	1.19	7.033	2.11	13.000	5.54	18.97	1.98
1.100	1.19	7.067	2.11	13.033	5.41	19.00	1.98
1.133	1.19	7.100	2.18	13.067	5.41	19.03	1.85
1.167	1.19	7.133	2.24	13.100	5.34	19.07	1.85
1.200	1.19	7.167	2.24	13.133	5.27	19.10	1.78
1.233	1.19	7.200	2.37	13.167	5.27	19.13	1.71
1.267	1.12	7.233	2.37	13.200	5.14	19.17	1.71
1.300	1.05	7.267	2.31	13.233	5.14	19.20	1.58
1.333	1.05	7.300	2.24	13.267	5.01	19.23	1.58
1.367	0.92	7.333	2.24	13.300	4.88	19.27	1.65
1.400	0.92	7.367	2.11	13.333	4.88	19.30	1.71
1.433	0.86	7.400	2.11	13.367	4.62	19.33	1.71
1.467	0.79	7.433	2.04	13.400	4.62	19.37	1.85
1.500	0.79	7.467	1.98	13.433	4.48	19.40	1.85
1.533	0.92	7.500	1.98	13.467	4.35	19.43	1.91
1.567	0.92	7.533	2.11	13.500	4.35	19.47	1.98
1.600	0.99	7.567	2.11	13.533	4.22	19.50	1.98
1.633	1.05	7.600	2.18	13.567	4.22	19.53	1.85
1.667	1.05	7.633	2.24	13.600	4.15	19.57	1.85
1.700	1.19	7.667	2.24	13.633	4.09	19.60	1.78
1.733	1.19	7.700	2.37	13.667	4.09	19.63	1.71
1.767	1.19	7.733	2.37	13.700	3.96	19.67	1.71
1.800	1.19	7.767	2.37	13.733	3.96	19.70	1.58
1.833	1.19	7.800	2.37	13.767	3.82	19.73	1.58
1.867	1.19	7.833	2.37	13.800	3.69	19.77	1.52
1.900	1.19	7.867	2.37	13.833	3.69	19.80	1.45
1.933	1.19	7.900	2.37	13.867	3.43	19.83	1.45
1.967	1.19	7.933	2.37	13.900	3.43	19.87	1.32
2.000	1.19	7.967	2.37	13.933	3.30	19.90	1.32
2.033	1.32	8.000	2.37	13.967	3.16	19.93	1.25
2.067	1.32	8.033	2.51	14.000	3.16	19.97	1.19
2.100	1.38	8.067	2.51	14.033	3.03	20.00	1.19
2.133	1.45	8.100	2.57	14.067	3.03	20.03	1.19
2.167	1.45	8.133	2.64	14.100	2.97	20.07	1.19
2.200	1.58	8.167	2.64	14.133	2.90	20.10	1.19
2.233	1.58	8.200	2.77	14.167	2.90	20.13	1.19
2.267	1.52	8.233	2.77	14.200	2.77	20.17	1.19
2.300	1.45	8.267	2.77	14.233	2.77	20.20	1.19
2.333	1.45	8.300	2.77	14.267	2.84	20.23	1.19
2.367	1.32	8.333	2.77	14.300	2.90	20.27	1.19
2.400	1.32	8.367	2.77	14.333	2.90	20.30	1.19
2.433	1.25	8.400	2.77	14.367	3.03	20.33	1.19
2.467	1.19	8.433	2.77	14.400	3.03	20.37	1.19

2.500	1.19	8.467	2.77	14.433	3.10	20.40	1.19
2.533	1.19	8.500	2.77	14.467	3.16	20.43	1.19
2.567	1.19	8.533	2.77	14.500	3.16	20.47	1.19
2.600	1.19	8.567	2.77	14.533	3.03	20.50	1.19
2.633	1.19	8.600	2.77	14.567	3.03	20.53	1.19
2.667	1.19	8.633	2.77	14.600	2.97	20.57	1.19
2.700	1.19	8.667	2.77	14.633	2.90	20.60	1.19
2.733	1.19	8.700	2.77	14.667	2.90	20.63	1.19
2.767	1.19	8.733	2.77	14.700	2.77	20.67	1.19
2.800	1.19	8.767	2.84	14.733	2.77	20.70	1.19
2.833	1.19	8.800	2.90	14.767	2.84	20.73	1.19
2.867	1.19	8.833	2.90	14.800	2.90	20.77	1.19
2.900	1.19	8.867	3.03	14.833	2.90	20.80	1.19
2.933	1.19	8.900	3.03	14.867	3.03	20.83	1.19
2.967	1.19	8.933	3.10	14.900	3.03	20.87	1.19
3.000	1.19	8.967	3.16	14.933	3.10	20.90	1.19
3.033	1.32	9.000	3.16	14.967	3.16	20.93	1.19
3.067	1.32	9.033	3.16	15.000	3.16	20.97	1.19
3.100	1.38	9.067	3.16	15.033	3.03	21.00	1.19
3.133	1.45	9.100	3.16	15.067	3.03	21.03	1.19
3.167	1.45	9.133	3.16	15.100	2.97	21.07	1.19
3.200	1.58	9.167	3.16	15.133	2.90	21.10	1.19
3.233	1.58	9.200	3.16	15.167	2.90	21.13	1.19
3.267	1.52	9.233	3.16	15.200	2.77	21.17	1.19
3.300	1.45	9.267	3.23	15.233	2.77	21.20	1.19
3.333	1.45	9.300	3.30	15.267	2.84	21.23	1.19
3.367	1.32	9.333	3.30	15.300	2.90	21.27	1.19
3.400	1.32	9.367	3.43	15.333	2.90	21.30	1.19
3.433	1.25	9.400	3.43	15.367	3.03	21.33	1.19
3.467	1.19	9.433	3.49	15.400	3.03	21.37	1.19
3.500	1.19	9.467	3.56	15.433	3.10	21.40	1.19
3.533	1.19	9.500	3.56	15.467	3.16	21.43	1.19
3.567	1.19	9.533	3.56	15.500	3.16	21.47	1.19
3.600	1.19	9.567	3.56	15.533	3.03	21.50	1.19
3.633	1.19	9.600	3.56	15.567	3.03	21.53	1.19
3.667	1.19	9.633	3.56	15.600	2.97	21.57	1.19
3.700	1.19	9.667	3.56	15.633	2.90	21.60	1.19
3.733	1.19	9.700	3.56	15.667	2.90	21.63	1.19
3.767	1.25	9.733	3.56	15.700	2.77	21.67	1.19
3.800	1.32	9.767	3.69	15.733	2.77	21.70	1.19
3.833	1.32	9.800	3.82	15.767	2.64	21.73	1.19
3.867	1.45	9.833	3.82	15.800	2.51	21.77	1.19
3.900	1.45	9.867	4.09	15.833	2.50	21.80	1.19
3.933	1.52	9.900	4.09	15.867	2.24	21.83	1.19
3.967	1.58	9.933	4.22	15.900	2.24	21.87	1.19
4.000	1.58	9.967	4.35	15.933	2.11	21.90	1.19
4.033	1.58	10.000	4.35	15.967	1.98	21.93	1.19
4.067	1.58	10.033	4.48	16.000	1.98	21.97	1.19
4.100	1.58	10.067	4.48	16.033	1.85	22.00	1.19
4.133	1.58	10.100	4.55	16.067	1.85	22.03	1.19
4.167	1.58	10.133	4.62	16.100	1.78	22.07	1.19
4.200	1.58	10.167	4.62	16.133	1.71	22.10	1.19
4.233	1.58	10.200	4.75	16.167	1.71	22.13	1.19
4.267	1.58	10.233	4.75	16.200	1.58	22.17	1.19
4.300	1.58	10.267	4.95	16.233	1.58	22.20	1.19
4.333	1.58	10.300	5.14	16.267	1.65	22.23	1.19
4.367	1.58	10.333	5.14	16.300	1.71	22.27	1.19
4.400	1.58	10.367	5.54	16.333	1.71	22.30	1.19
4.433	1.58	10.400	5.54	16.367	1.85	22.33	1.19
4.467	1.58	10.433	5.74	16.400	1.85	22.37	1.19
4.500	1.58	10.467	5.93	16.433	1.91	22.40	1.19
4.533	1.58	10.500	5.93	16.467	1.98	22.43	1.19
4.567	1.58	10.533	6.07	16.500	1.98	22.47	1.19

4.600	1.58	10.567	6.07	16.533	1.85	22.50	1.19
4.633	1.58	10.600	6.13	16.567	1.85	22.53	1.19
4.667	1.58	10.633	6.20	16.600	1.78	22.57	1.19
4.700	1.58	10.667	6.20	16.633	1.71	22.60	1.19
4.733	1.58	10.700	6.33	16.667	1.71	22.63	1.19
4.767	1.58	10.733	6.33	16.700	1.58	22.67	1.19
4.800	1.58	10.767	6.86	16.733	1.58	22.70	1.19
4.833	1.58	10.800	7.38	16.767	1.65	22.73	1.19
4.867	1.58	10.833	7.39	16.800	1.71	22.77	1.19
4.900	1.58	10.867	8.44	16.833	1.71	22.80	1.19
4.933	1.58	10.900	8.44	16.867	1.85	22.83	1.19
4.967	1.58	10.933	8.97	16.900	1.85	22.87	1.19
5.000	1.58	10.967	9.49	16.933	1.91	22.90	1.19
5.033	1.58	11.000	9.49	16.967	1.98	22.93	1.19
5.067	1.58	11.033	9.49	17.000	1.98	22.97	1.19
5.100	1.58	11.067	9.49	17.033	1.85	23.00	1.19
5.133	1.58	11.100	9.49	17.067	1.85	23.03	1.19
5.167	1.58	11.133	9.49	17.100	1.78	23.07	1.19
5.200	1.58	11.167	9.49	17.133	1.71	23.10	1.19
5.233	1.58	11.200	9.49	17.167	1.71	23.13	1.19
5.267	1.58	11.233	9.49	17.200	1.58	23.17	1.19
5.300	1.58	11.267	12.80	17.233	1.58	23.20	1.19
5.333	1.58	11.300	16.09	17.267	1.65	23.23	1.19
5.367	1.58	11.333	16.09	17.300	1.71	23.27	1.19
5.400	1.58	11.367	22.68	17.333	1.71	23.30	1.19
5.433	1.58	11.400	22.68	17.367	1.85	23.33	1.19
5.467	1.58	11.433	25.98	17.400	1.85	23.37	1.19
5.500	1.58	11.467	29.27	17.433	1.91	23.40	1.19
5.533	1.58	11.500	29.31	17.467	1.98	23.43	1.19
5.567	1.58	11.533	59.86	17.500	1.98	23.47	1.19
5.600	1.58	11.567	59.86	17.533	1.85	23.50	1.19
5.633	1.58	11.600	75.20	17.567	1.85	23.53	1.19
5.667	1.58	11.633	90.46	17.600	1.78	23.57	1.19
5.700	1.58	11.667	90.50	17.633	1.71	23.60	1.19
5.733	1.58	11.700	121.05	17.667	1.71	23.63	1.19
5.767	1.58	11.733	121.05	17.700	1.58	23.67	1.19
5.800	1.58	11.767	103.21	17.733	1.58	23.70	1.19
5.833	1.58	11.800	85.45	17.767	1.65	23.73	1.19
5.867	1.58	11.833	85.41	17.800	1.71	23.77	0.59
5.900	1.58	11.867	49.85	17.833	1.71		
5.933	1.58	11.900	49.85	17.867	1.85		
5.967	1.58	11.933	32.00	17.900	1.85		

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.023 (i)
TIME TO PEAK (hrs)= 12.100
RUNOFF VOLUME (mm)= 21.933
TOTAL RAINFALL (mm)= 98.504
RUNOFF COEFFICIENT = 0.223

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

CALIB			
NASHYD (0035)	Area (ha)= 1.58	Curve Number (CN)= 44.1	
ID= 1 DT= 2.0 min	Ia (mm)= 9.62	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.17		

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.074 (i)

```
     TIME TO PEAK    (hrs)=  11.933
     RUNOFF VOLUME    (mm)=  19.244
     TOTAL RAINFALL   (mm)=  98.504
     RUNOFF COEFFICIENT   =   0.195

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

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--------------------
| CALIB            |
| NASHYD    (0044) |   Area    (ha)=   2.80   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.594

     PEAK FLOW       (cms)=   0.125 (i)
     TIME TO PEAK    (hrs)=  11.933
     RUNOFF VOLUME    (mm)=  18.760
     TOTAL RAINFALL   (mm)=  98.504
     RUNOFF COEFFICIENT   =   0.190

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

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--------------------
| ADD HYD   (0040) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0035):     1.58   0.074    11.93    19.24
        + ID2= 2 (0044):     2.80   0.125    11.93    18.76
          ================================================
          ID = 3 (0040):     4.38   0.199    11.93    18.93

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD  (0041) |   Area    (ha)=   2.82
|ID= 1 DT= 5.0 min |   Total Imp(%)=  38.00   Dir. Conn.(%)=  19.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      1.07         1.75
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    137.11        40.00
     Mannings n           =     0.013        0.250

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


                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    0.40 | 6.083    1.71 |12.083   14.24 | 18.08    1.85
 0.167    0.79 | 6.167    1.85 |12.167   14.24 | 18.17    1.71
 0.250    1.19 | 6.250    1.98 |12.250   14.24 | 18.25    1.58
 0.333    1.05 | 6.333    1.85 |12.333   12.00 | 18.33    1.71
 0.417    0.92 | 6.417    1.71 |12.417    9.76 | 18.42    1.85
 0.500    0.79 | 6.500    1.58 |12.500    7.52 | 18.50    1.98
 0.583    0.92 | 6.583    1.71 |12.583    7.38 | 18.58    1.85
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 0.667    1.05 | 6.667    1.85 |12.667    7.25 | 18.67    1.71
 0.750    1.19 | 6.750    1.98 |12.750    7.12 | 18.75    1.58
 0.833    1.19 | 6.833    1.98 |12.833    6.59 | 18.83    1.71
 0.917    1.19 | 6.917    1.98 |12.917    6.07 | 18.92    1.85
 1.000    1.19 | 7.000    1.98 |13.000    5.54 | 19.00    1.98
 1.083    1.19 | 7.083    2.11 |13.083    5.41 | 19.08    1.85
 1.167    1.19 | 7.167    2.24 |13.167    5.27 | 19.17    1.71
 1.250    1.19 | 7.250    2.37 |13.250    5.14 | 19.25    1.58
 1.333    1.05 | 7.333    2.24 |13.333    4.88 | 19.33    1.71
 1.417    0.92 | 7.417    2.11 |13.417    4.62 | 19.42    1.85
 1.500    0.79 | 7.500    1.98 |13.500    4.35 | 19.50    1.98
 1.583    0.92 | 7.583    2.11 |13.583    4.22 | 19.58    1.85
 1.667    1.05 | 7.667    2.24 |13.667    4.09 | 19.67    1.71
 1.750    1.19 | 7.750    2.37 |13.750    3.96 | 19.75    1.58
 1.833    1.19 | 7.833    2.37 |13.833    3.69 | 19.83    1.45
 1.917    1.19 | 7.917    2.37 |13.917    3.43 | 19.92    1.32
 2.000    1.19 | 8.000    2.37 |14.000    3.16 | 20.00    1.19
 2.083    1.32 | 8.083    2.51 |14.083    3.03 | 20.08    1.19
 2.167    1.45 | 8.167    2.64 |14.167    2.90 | 20.17    1.19
 2.250    1.58 | 8.250    2.77 |14.250    2.77 | 20.25    1.19
 2.333    1.45 | 8.333    2.77 |14.333    2.90 | 20.33    1.19
 2.417    1.32 | 8.417    2.77 |14.417    3.03 | 20.42    1.19
 2.500    1.19 | 8.500    2.77 |14.500    3.16 | 20.50    1.19
 2.583    1.19 | 8.583    2.77 |14.583    3.03 | 20.58    1.19
 2.667    1.19 | 8.667    2.77 |14.667    2.90 | 20.67    1.19
 2.750    1.19 | 8.750    2.77 |14.750    2.77 | 20.75    1.19
 2.833    1.19 | 8.833    2.90 |14.833    2.90 | 20.83    1.19
 2.917    1.19 | 8.917    3.03 |14.917    3.03 | 20.92    1.19
 3.000    1.19 | 9.000    3.16 |15.000    3.16 | 21.00    1.19
 3.083    1.32 | 9.083    3.16 |15.083    3.03 | 21.08    1.19
 3.167    1.45 | 9.167    3.16 |15.167    2.90 | 21.17    1.19
 3.250    1.58 | 9.250    3.16 |15.250    2.77 | 21.25    1.19
 3.333    1.45 | 9.333    3.30 |15.333    2.90 | 21.33    1.19
 3.417    1.32 | 9.417    3.43 |15.417    3.03 | 21.42    1.19
 3.500    1.19 | 9.500    3.56 |15.500    3.16 | 21.50    1.19
 3.583    1.19 | 9.583    3.56 |15.583    3.03 | 21.58    1.19
 3.667    1.19 | 9.667    3.56 |15.667    2.90 | 21.67    1.19
 3.750    1.19 | 9.750    3.56 |15.750    2.77 | 21.75    1.19
 3.833    1.32 | 9.833    3.82 |15.833    2.51 | 21.83    1.19
 3.917    1.45 | 9.917    4.09 |15.917    2.24 | 21.92    1.19
 4.000    1.58 |10.000    4.35 |16.000    1.98 | 22.00    1.19
 4.083    1.58 |10.083    4.48 |16.083    1.85 | 22.08    1.19
 4.167    1.58 |10.167    4.62 |16.167    1.71 | 22.17    1.19
 4.250    1.58 |10.250    4.75 |16.250    1.58 | 22.25    1.19
 4.333    1.58 |10.333    5.14 |16.333    1.71 | 22.33    1.19
 4.417    1.58 |10.417    5.54 |16.417    1.85 | 22.42    1.19
 4.500    1.58 |10.500    5.93 |16.500    1.98 | 22.50    1.19
 4.583    1.58 |10.583    6.07 |16.583    1.85 | 22.58    1.19
 4.667    1.58 |10.667    6.20 |16.667    1.71 | 22.67    1.19
 4.750    1.58 |10.750    6.33 |16.750    1.58 | 22.75    1.19
 4.833    1.58 |10.833    7.38 |16.833    1.71 | 22.83    1.19
 4.917    1.58 |10.917    8.44 |16.917    1.85 | 22.92    1.19
 5.000    1.58 |11.000    9.49 |17.000    1.98 | 23.00    1.19
 5.083    1.58 |11.083    9.49 |17.083    1.85 | 23.08    1.19
 5.167    1.58 |11.167    9.49 |17.167    1.71 | 23.17    1.19
 5.250    1.58 |11.250    9.49 |17.250    1.58 | 23.25    1.19
 5.333    1.58 |11.333   16.09 |17.333    1.71 | 23.33    1.19
 5.417    1.58 |11.417   22.68 |17.417    1.85 | 23.42    1.19
 5.500    1.58 |11.500   29.27 |17.500    1.98 | 23.50    1.19
 5.583    1.58 |11.583   59.86 |17.583    1.85 | 23.58    1.19
 5.667    1.58 |11.667   90.45 |17.667    1.71 | 23.67    1.19
 5.750    1.58 |11.750  121.05 |17.750    1.58 | 23.75    0.00
 5.833    1.58 |11.833   85.46 |17.833    1.71 |
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5.917	1.58	11.917	49.85	17.917	1.85
6.000	1.58	12.000	14.25	18.000	1.98

Max.Eff.Inten.(mm/hr)=	121.05	130.13	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.86 (ii)	10.68 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.28	0.09	
			TOTALS
PEAK FLOW (cms)=	0.17	0.46	0.542 (iii)
TIME TO PEAK (hrs)=	11.75	11.92	11.92
RUNOFF VOLUME (mm)=	97.41	39.33	50.36
TOTAL RAINFALL (mm)=	98.41	98.41	98.41
RUNOFF COEFFICIENT =	0.99	0.40	0.51

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0037)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0040):		4.38	0.199	11.93	18.93
+ ID2= 2 (0041):		2.82	0.542	11.92	50.36
ID = 3 (0037):		7.20	0.737	11.90	31.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0042)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.4748	0.1280	1.3860
	0.0380	0.5498	0.3070	1.5223
	0.0720	0.7185	0.6740	1.6664
	0.0940	0.9133	1.2390	1.8182
	0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	7.200	0.737	11.90	31.24
OUTFLOW: ID= 1 (0042)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0809

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

ADD HYD (0043)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0034):		0.54	0.123	11.83	45.81
+ ID2= 2 (0036):		0.32	0.021	12.00	34.45
ID = 3 (0043):		0.86	0.138	11.83	41.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)					
3 + 2 = 1		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0043):		0.86	0.138	11.83	41.58
+ ID2= 2 (0038):		0.20	0.049	11.83	50.36
ID = 1 (0043):		1.06	0.187	11.83	43.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0043):		1.06	0.187	11.83	43.24
+ ID2= 2 (0039):		0.62	0.023	12.10	21.93
ID = 3 (0043):		1.68	0.200	11.83	35.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)					
3 + 2 = 1		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (0043):		1.68	0.200	11.83	35.37
+ ID2= 2 (0042):		7.20	0.000	0.00	0.00
ID = 1 (0043):		8.88	0.200	11.83	6.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 5 **
****

MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\5d0218cc-8a0c-4e7b-a56e-a2c3d15794d1\cc4aad37
Ptotal=109.80 mm	Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min

New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.44	6.08	1.90	12.08	15.81	18.08	2.05
0.17	0.88	6.17	2.05	12.17	15.81	18.17	1.90
0.25	1.32	6.25	2.20	12.25	15.81	18.25	1.76
0.33	1.17	6.33	2.05	12.33	13.32	18.33	1.90
0.42	1.02	6.42	1.90	12.42	10.83	18.42	2.05
0.50	0.88	6.50	1.76	12.50	8.35	18.50	2.20
0.58	1.02	6.58	1.90	12.58	8.20	18.58	2.05
0.67	1.17	6.67	2.05	12.67	8.05	18.67	1.90
0.75	1.32	6.75	2.20	12.75	7.91	18.75	1.76
0.83	1.32	6.83	2.20	12.83	7.32	18.83	1.90
0.92	1.32	6.92	2.20	12.92	6.73	18.92	2.05
1.00	1.32	7.00	2.20	13.00	6.15	19.00	2.20
1.08	1.32	7.08	2.34	13.08	6.00	19.08	2.05
1.17	1.32	7.17	2.49	13.17	5.86	19.17	1.90
1.25	1.32	7.25	2.64	13.25	5.71	19.25	1.76
1.33	1.17	7.33	2.49	13.33	5.42	19.33	1.90
1.42	1.02	7.42	2.34	13.42	5.12	19.42	2.05
1.50	0.88	7.50	2.20	13.50	4.83	19.50	2.20
1.58	1.02	7.58	2.34	13.58	4.68	19.58	2.05
1.67	1.17	7.67	2.49	13.67	4.54	19.67	1.90
1.75	1.32	7.75	2.64	13.75	4.39	19.75	1.76
1.83	1.32	7.83	2.64	13.83	4.10	19.83	1.61
1.92	1.32	7.92	2.64	13.92	3.81	19.92	1.46
2.00	1.32	8.00	2.64	14.00	3.51	20.00	1.32
2.08	1.46	8.08	2.78	14.08	3.37	20.08	1.32
2.17	1.61	8.17	2.93	14.17	3.22	20.17	1.32
2.25	1.76	8.25	3.07	14.25	3.07	20.25	1.32
2.33	1.61	8.33	3.07	14.33	3.22	20.33	1.32
2.42	1.46	8.42	3.07	14.42	3.37	20.42	1.32
2.50	1.32	8.50	3.07	14.50	3.51	20.50	1.32
2.58	1.32	8.58	3.07	14.58	3.37	20.58	1.32
2.67	1.32	8.67	3.07	14.67	3.22	20.67	1.32
2.75	1.32	8.75	3.07	14.75	3.07	20.75	1.32
2.83	1.32	8.83	3.22	14.83	3.22	20.83	1.32
2.92	1.32	8.92	3.37	14.92	3.37	20.92	1.32
3.00	1.32	9.00	3.51	15.00	3.51	21.00	1.32
3.08	1.46	9.08	3.51	15.08	3.37	21.08	1.32
3.17	1.61	9.17	3.51	15.17	3.22	21.17	1.32
3.25	1.76	9.25	3.51	15.25	3.07	21.25	1.32
3.33	1.61	9.33	3.66	15.33	3.22	21.33	1.32
3.42	1.46	9.42	3.81	15.42	3.37	21.42	1.32
3.50	1.32	9.50	3.95	15.50	3.51	21.50	1.32
3.58	1.32	9.58	3.95	15.58	3.37	21.58	1.32
3.67	1.32	9.67	3.95	15.67	3.22	21.67	1.32
3.75	1.32	9.75	3.95	15.75	3.07	21.75	1.32
3.83	1.46	9.83	4.25	15.83	2.78	21.83	1.32
3.92	1.61	9.92	4.54	15.92	2.49	21.92	1.32
4.00	1.76	10.00	4.83	16.00	2.20	22.00	1.32
4.08	1.76	10.08	4.98	16.08	2.05	22.08	1.32
4.17	1.76	10.17	5.12	16.17	1.90	22.17	1.32
4.25	1.76	10.25	5.27	16.25	1.76	22.25	1.32
4.33	1.76	10.33	5.71	16.33	1.90	22.33	1.32
4.42	1.76	10.42	6.15	16.42	2.05	22.42	1.32
4.50	1.76	10.50	6.59	16.50	2.20	22.50	1.32
4.58	1.76	10.58	6.73	16.58	2.05	22.58	1.32
4.67	1.76	10.67	6.88	16.67	1.90	22.67	1.32
4.75	1.76	10.75	7.03	16.75	1.76	22.75	1.32
4.83	1.76	10.83	8.20	16.83	1.90	22.83	1.32

4.92	1.76	10.92	9.37	16.92	2.05	22.92	1.32
5.00	1.76	11.00	10.54	17.00	2.20	23.00	1.32
5.08	1.76	11.08	10.54	17.08	2.05	23.08	1.32
5.17	1.76	11.17	10.54	17.17	1.90	23.17	1.32
5.25	1.76	11.25	10.54	17.25	1.76	23.25	1.32
5.33	1.76	11.33	17.86	17.33	1.90	23.33	1.32
5.42	1.76	11.42	25.18	17.42	2.05	23.42	1.32
5.50	1.76	11.50	32.50	17.50	2.20	23.50	1.32
5.58	1.76	11.58	66.46	17.58	2.05	23.58	1.32
5.67	1.76	11.67	100.43	17.67	1.90	23.67	1.32
5.75	1.76	11.75	134.39	17.75	1.76	23.75	1.32
5.83	1.76	11.83	94.87	17.83	1.90		
5.92	1.76	11.92	55.34	17.92	2.05		
6.00	1.76	12.00	15.82	18.00	2.20		

CALIB STANDHYD (0034) ID= 1 DT= 5.0 min	Area (ha)= 0.54 Total Imp(%)= 28.00 Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	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	0.44	6.083	1.90	12.083	15.81	18.08	2.05
0.167	0.88	6.167	2.05	12.167	15.81	18.17	1.90
0.250	1.32	6.250	2.20	12.250	15.81	18.25	1.76
0.333	1.17	6.333	2.05	12.333	13.32	18.33	1.90
0.417	1.02	6.417	1.90	12.417	10.83	18.42	2.05
0.500	0.88	6.500	1.76	12.500	8.35	18.50	2.20
0.583	1.02	6.583	1.90	12.583	8.20	18.58	2.05
0.667	1.17	6.667	2.05	12.667	8.05	18.67	1.90
0.750	1.32	6.750	2.20	12.750	7.91	18.75	1.76
0.833	1.32	6.833	2.20	12.833	7.32	18.83	1.90
0.917	1.32	6.917	2.20	12.917	6.73	18.92	2.05
1.000	1.32	7.000	2.20	13.000	6.15	19.00	2.20
1.083	1.32	7.083	2.34	13.083	6.00	19.08	2.05
1.167	1.32	7.167	2.49	13.167	5.86	19.17	1.90
1.250	1.32	7.250	2.64	13.250	5.71	19.25	1.76
1.333	1.17	7.333	2.49	13.333	5.42	19.33	1.90
1.417	1.02	7.417	2.34	13.417	5.12	19.42	2.05
1.500	0.88	7.500	2.20	13.500	4.83	19.50	2.20
1.583	1.02	7.583	2.34	13.583	4.68	19.58	2.05
1.667	1.17	7.667	2.49	13.667	4.54	19.67	1.90
1.750	1.32	7.750	2.64	13.750	4.39	19.75	1.76
1.833	1.32	7.833	2.64	13.833	4.10	19.83	1.61
1.917	1.32	7.917	2.64	13.917	3.81	19.92	1.46
2.000	1.32	8.000	2.64	14.000	3.51	20.00	1.32
2.083	1.46	8.083	2.78	14.083	3.37	20.08	1.32
2.167	1.61	8.167	2.93	14.167	3.22	20.17	1.32
2.250	1.76	8.250	3.07	14.250	3.07	20.25	1.32
2.333	1.61	8.333	3.07	14.333	3.22	20.33	1.32
2.417	1.46	8.417	3.07	14.417	3.37	20.42	1.32

2.500	1.32	8.500	3.07	14.500	3.51	20.50	1.32
2.583	1.32	8.583	3.07	14.583	3.37	20.58	1.32
2.667	1.32	8.667	3.07	14.667	3.22	20.67	1.32
2.750	1.32	8.750	3.07	14.750	3.07	20.75	1.32
2.833	1.32	8.833	3.22	14.833	3.22	20.83	1.32
2.917	1.32	8.917	3.37	14.917	3.37	20.92	1.32
3.000	1.32	9.000	3.51	15.000	3.51	21.00	1.32
3.083	1.46	9.083	3.51	15.083	3.37	21.08	1.32
3.167	1.61	9.167	3.51	15.167	3.22	21.17	1.32
3.250	1.76	9.250	3.51	15.250	3.07	21.25	1.32
3.333	1.61	9.333	3.66	15.333	3.22	21.33	1.32
3.417	1.46	9.417	3.81	15.417	3.37	21.42	1.32
3.500	1.32	9.500	3.95	15.500	3.51	21.50	1.32
3.583	1.32	9.583	3.95	15.583	3.37	21.58	1.32
3.667	1.32	9.667	3.95	15.667	3.22	21.67	1.32
3.750	1.32	9.750	3.95	15.750	3.07	21.75	1.32
3.833	1.46	9.833	4.25	15.833	2.78	21.83	1.32
3.917	1.61	9.917	4.54	15.917	2.49	21.92	1.32
4.000	1.76	10.000	4.83	16.000	2.20	22.00	1.32
4.083	1.76	10.083	4.98	16.083	2.05	22.08	1.32
4.167	1.76	10.167	5.12	16.167	1.90	22.17	1.32
4.250	1.76	10.250	5.27	16.250	1.76	22.25	1.32
4.333	1.76	10.333	5.71	16.333	1.90	22.33	1.32
4.417	1.76	10.417	6.15	16.417	2.05	22.42	1.32
4.500	1.76	10.500	6.59	16.500	2.20	22.50	1.32
4.583	1.76	10.583	6.73	16.583	2.05	22.58	1.32
4.667	1.76	10.667	6.88	16.667	1.90	22.67	1.32
4.750	1.76	10.750	7.03	16.750	1.76	22.75	1.32
4.833	1.76	10.833	8.20	16.833	1.90	22.83	1.32
4.917	1.76	10.917	9.37	16.917	2.05	22.92	1.32
5.000	1.76	11.000	10.54	17.000	2.20	23.00	1.32
5.083	1.76	11.083	10.54	17.083	2.05	23.08	1.32
5.167	1.76	11.167	10.54	17.167	1.90	23.17	1.32
5.250	1.76	11.250	10.54	17.250	1.76	23.25	1.32
5.333	1.76	11.333	17.86	17.333	1.90	23.33	1.32
5.417	1.76	11.417	25.18	17.417	2.05	23.42	1.32
5.500	1.76	11.500	32.50	17.500	2.20	23.50	1.32
5.583	1.76	11.583	66.46	17.583	2.05	23.58	1.32
5.667	1.76	11.667	100.42	17.667	1.90	23.67	1.32
5.750	1.76	11.750	134.39	17.750	1.76	23.75	0.00
5.833	1.76	11.833	94.88	17.833	1.90		
5.917	1.76	11.917	55.35	17.917	2.05		
6.000	1.76	12.000	15.82	18.000	2.20		

Max.Eff.Inten.(mm/hr)=	134.39	132.25	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.67 (ii)	7.98 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.32	0.13	
			TOTALS
PEAK FLOW (cms)=	0.03	0.12	0.140 (iii)
TIME TO PEAK (hrs)=	11.75	11.83	11.83
RUNOFF VOLUME (mm)=	108.25	43.99	52.99
TOTAL RAINFALL (mm)=	109.25	109.25	109.25
RUNOFF COEFFICIENT =	0.99	0.40	0.49

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00

(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0036)	Area	(ha)=	0.32	Curve Number (CN)=	61.0
ID= 1 DT= 5.0 min	Ia	(mm)=	4.40	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.29		

Unit Hyd Qpeak (cms)= 0.042

PEAK FLOW (cms)= 0.025 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 41.118
TOTAL RAINFALL (mm)= 109.251
RUNOFF COEFFICIENT = 0.376

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

CALIB					
STANDHYD (0038)	Area	(ha)=	0.20		
ID= 1 DT= 5.0 min	Total Imp(%)=		38.00	Dir. Conn.(%)=	19.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.08	0.12	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	1.00	
Length	(m)=	36.51	20.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		134.39	145.61	
over (min)		5.00	10.00	
Storage Coeff. (min)=		1.24 (ii)	6.17 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.33	0.15	
				TOTALS
PEAK FLOW (cms)=		0.01	0.05	0.055 (iii)
TIME TO PEAK (hrs)=		11.75	11.83	11.83
RUNOFF VOLUME (mm)=		108.25	45.90	57.75
TOTAL RAINFALL (mm)=		109.25	109.25	109.25
RUNOFF COEFFICIENT =		0.99	0.42	0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB					
NASHYD (0039)	Area	(ha)=	0.62	Curve Number (CN)=	48.1
ID= 1 DT= 2.0 min	Ia	(mm)=	9.20	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.33		

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.44	6.000	1.76	11.967	15.82	17.93	2.12
0.067	0.44	6.033	1.90	12.000	15.82	17.97	2.20
0.100	0.66	6.067	1.90	12.033	15.81	18.00	2.20
0.133	0.88	6.100	1.98	12.067	15.81	18.03	2.05
0.167	0.88	6.133	2.05	12.100	15.81	18.07	2.05
0.200	1.32	6.167	2.05	12.133	15.81	18.10	1.98
0.233	1.32	6.200	2.20	12.167	15.81	18.13	1.90
0.267	1.24	6.233	2.20	12.200	15.81	18.17	1.90
0.300	1.17	6.267	2.12	12.233	15.81	18.20	1.76
0.333	1.17	6.300	2.05	12.267	14.56	18.23	1.76
0.367	1.02	6.333	2.05	12.300	13.32	18.27	1.83
0.400	1.02	6.367	1.90	12.333	13.32	18.30	1.90
0.433	0.95	6.400	1.90	12.367	10.83	18.33	1.90
0.467	0.88	6.433	1.83	12.400	10.83	18.37	2.05
0.500	0.88	6.467	1.76	12.433	9.59	18.40	2.05
0.533	1.02	6.500	1.76	12.467	8.35	18.43	2.12
0.567	1.02	6.533	1.90	12.500	8.34	18.47	2.20
0.600	1.10	6.567	1.90	12.533	8.20	18.50	2.20
0.633	1.17	6.600	1.98	12.567	8.20	18.53	2.05
0.667	1.17	6.633	2.05	12.600	8.12	18.57	2.05
0.700	1.32	6.667	2.05	12.633	8.05	18.60	1.98
0.733	1.32	6.700	2.20	12.667	8.05	18.63	1.90
0.767	1.32	6.733	2.20	12.700	7.91	18.67	1.90
0.800	1.32	6.767	2.20	12.733	7.91	18.70	1.76
0.833	1.32	6.800	2.20	12.767	7.61	18.73	1.76
0.867	1.32	6.833	2.20	12.800	7.32	18.77	1.83
0.900	1.32	6.867	2.20	12.833	7.32	18.80	1.90
0.933	1.32	6.900	2.20	12.867	6.73	18.83	1.90
0.967	1.32	6.933	2.20	12.900	6.73	18.87	2.05
1.000	1.32	6.967	2.20	12.933	6.44	18.90	2.05
1.033	1.32	7.000	2.20	12.967	6.15	18.93	2.12
1.067	1.32	7.033	2.34	13.000	6.15	18.97	2.20
1.100	1.32	7.067	2.34	13.033	6.00	19.00	2.20
1.133	1.32	7.100	2.42	13.067	6.00	19.03	2.05
1.167	1.32	7.133	2.49	13.100	5.93	19.07	2.05
1.200	1.32	7.167	2.49	13.133	5.86	19.10	1.98
1.233	1.32	7.200	2.64	13.167	5.86	19.13	1.90
1.267	1.24	7.233	2.64	13.200	5.71	19.17	1.90
1.300	1.17	7.267	2.56	13.233	5.71	19.20	1.76
1.333	1.17	7.300	2.49	13.267	5.56	19.23	1.76
1.367	1.02	7.333	2.49	13.300	5.42	19.27	1.83
1.400	1.02	7.367	2.34	13.333	5.42	19.30	1.90
1.433	0.95	7.400	2.34	13.367	5.12	19.33	1.90
1.467	0.88	7.433	2.27	13.400	5.12	19.37	2.05
1.500	0.88	7.467	2.20	13.433	4.98	19.40	2.05
1.533	1.02	7.500	2.20	13.467	4.83	19.43	2.12
1.567	1.02	7.533	2.34	13.500	4.83	19.47	2.20
1.600	1.10	7.567	2.34	13.533	4.68	19.50	2.20
1.633	1.17	7.600	2.42	13.567	4.68	19.53	2.05
1.667	1.17	7.633	2.49	13.600	4.61	19.57	2.05
1.700	1.32	7.667	2.49	13.633	4.54	19.60	1.98
1.733	1.32	7.700	2.64	13.667	4.54	19.63	1.90
1.767	1.32	7.733	2.64	13.700	4.39	19.67	1.90
1.800	1.32	7.767	2.64	13.733	4.39	19.70	1.76
1.833	1.32	7.800	2.64	13.767	4.25	19.73	1.76
1.867	1.32	7.833	2.64	13.800	4.10	19.77	1.68

1.900	1.32	7.867	2.64	13.833	4.10	19.80	1.61
1.933	1.32	7.900	2.64	13.867	3.81	19.83	1.61
1.967	1.32	7.933	2.64	13.900	3.81	19.87	1.46
2.000	1.32	7.967	2.64	13.933	3.66	19.90	1.46
2.033	1.46	8.000	2.64	13.967	3.51	19.93	1.39
2.067	1.46	8.033	2.78	14.000	3.51	19.97	1.32
2.100	1.54	8.067	2.78	14.033	3.37	20.00	1.32
2.133	1.61	8.100	2.85	14.067	3.37	20.03	1.32
2.167	1.61	8.133	2.93	14.100	3.29	20.07	1.32
2.200	1.76	8.167	2.93	14.133	3.22	20.10	1.32
2.233	1.76	8.200	3.07	14.167	3.22	20.13	1.32
2.267	1.68	8.233	3.07	14.200	3.07	20.17	1.32
2.300	1.61	8.267	3.07	14.233	3.07	20.20	1.32
2.333	1.61	8.300	3.07	14.267	3.15	20.23	1.32
2.367	1.46	8.333	3.07	14.300	3.22	20.27	1.32
2.400	1.46	8.367	3.07	14.333	3.22	20.30	1.32
2.433	1.39	8.400	3.07	14.367	3.37	20.33	1.32
2.467	1.32	8.433	3.07	14.400	3.37	20.37	1.32
2.500	1.32	8.467	3.07	14.433	3.44	20.40	1.32
2.533	1.32	8.500	3.07	14.467	3.51	20.43	1.32
2.567	1.32	8.533	3.07	14.500	3.51	20.47	1.32
2.600	1.32	8.567	3.07	14.533	3.37	20.50	1.32
2.633	1.32	8.600	3.07	14.567	3.37	20.53	1.32
2.667	1.32	8.633	3.07	14.600	3.29	20.57	1.32
2.700	1.32	8.667	3.07	14.633	3.22	20.60	1.32
2.733	1.32	8.700	3.07	14.667	3.22	20.63	1.32
2.767	1.32	8.733	3.07	14.700	3.07	20.67	1.32
2.800	1.32	8.767	3.15	14.733	3.07	20.70	1.32
2.833	1.32	8.800	3.22	14.767	3.15	20.73	1.32
2.867	1.32	8.833	3.22	14.800	3.22	20.77	1.32
2.900	1.32	8.867	3.37	14.833	3.22	20.80	1.32
2.933	1.32	8.900	3.37	14.867	3.37	20.83	1.32
2.967	1.32	8.933	3.44	14.900	3.37	20.87	1.32
3.000	1.32	8.967	3.51	14.933	3.44	20.90	1.32
3.033	1.46	9.000	3.51	14.967	3.51	20.93	1.32
3.067	1.46	9.033	3.51	15.000	3.51	20.97	1.32
3.100	1.54	9.067	3.51	15.033	3.37	21.00	1.32
3.133	1.61	9.100	3.51	15.067	3.37	21.03	1.32
3.167	1.61	9.133	3.51	15.100	3.29	21.07	1.32
3.200	1.76	9.167	3.51	15.133	3.22	21.10	1.32
3.233	1.76	9.200	3.51	15.167	3.22	21.13	1.32
3.267	1.68	9.233	3.51	15.200	3.07	21.17	1.32
3.300	1.61	9.267	3.59	15.233	3.07	21.20	1.32
3.333	1.61	9.300	3.66	15.267	3.15	21.23	1.32
3.367	1.46	9.333	3.66	15.300	3.22	21.27	1.32
3.400	1.46	9.367	3.81	15.333	3.22	21.30	1.32
3.433	1.39	9.400	3.81	15.367	3.37	21.33	1.32
3.467	1.32	9.433	3.88	15.400	3.37	21.37	1.32
3.500	1.32	9.467	3.95	15.433	3.44	21.40	1.32
3.533	1.32	9.500	3.95	15.467	3.51	21.43	1.32
3.567	1.32	9.533	3.95	15.500	3.51	21.47	1.32
3.600	1.32	9.567	3.95	15.533	3.37	21.50	1.32
3.633	1.32	9.600	3.95	15.567	3.37	21.53	1.32
3.667	1.32	9.633	3.95	15.600	3.29	21.57	1.32
3.700	1.32	9.667	3.95	15.633	3.22	21.60	1.32
3.733	1.32	9.700	3.95	15.667	3.22	21.63	1.32
3.767	1.39	9.733	3.95	15.700	3.07	21.67	1.32
3.800	1.46	9.767	4.10	15.733	3.07	21.70	1.32
3.833	1.46	9.800	4.25	15.767	2.93	21.73	1.32
3.867	1.61	9.833	4.25	15.800	2.78	21.77	1.32
3.900	1.61	9.867	4.54	15.833	2.78	21.80	1.32
3.933	1.68	9.900	4.54	15.867	2.49	21.83	1.32
3.967	1.76	9.933	4.68	15.900	2.49	21.87	1.32

4.000	1.76	9.967	4.83	15.933	2.34	21.90	1.32
4.033	1.76	10.000	4.83	15.967	2.20	21.93	1.32
4.067	1.76	10.033	4.98	16.000	2.20	21.97	1.32
4.100	1.76	10.067	4.98	16.033	2.05	22.00	1.32
4.133	1.76	10.100	5.05	16.067	2.05	22.03	1.32
4.167	1.76	10.133	5.12	16.100	1.98	22.07	1.32
4.200	1.76	10.167	5.12	16.133	1.90	22.10	1.32
4.233	1.76	10.200	5.27	16.167	1.90	22.13	1.32
4.267	1.76	10.233	5.27	16.200	1.76	22.17	1.32
4.300	1.76	10.267	5.49	16.233	1.76	22.20	1.32
4.333	1.76	10.300	5.71	16.267	1.83	22.23	1.32
4.367	1.76	10.333	5.71	16.300	1.90	22.27	1.32
4.400	1.76	10.367	6.15	16.333	1.90	22.30	1.32
4.433	1.76	10.400	6.15	16.367	2.05	22.33	1.32
4.467	1.76	10.433	6.37	16.400	2.05	22.37	1.32
4.500	1.76	10.467	6.59	16.433	2.12	22.40	1.32
4.533	1.76	10.500	6.59	16.467	2.20	22.43	1.32
4.567	1.76	10.533	6.73	16.500	2.20	22.47	1.32
4.600	1.76	10.567	6.73	16.533	2.05	22.50	1.32
4.633	1.76	10.600	6.81	16.567	2.05	22.53	1.32
4.667	1.76	10.633	6.88	16.600	1.98	22.57	1.32
4.700	1.76	10.667	6.88	16.633	1.90	22.60	1.32
4.733	1.76	10.700	7.03	16.667	1.90	22.63	1.32
4.767	1.76	10.733	7.03	16.700	1.76	22.67	1.32
4.800	1.76	10.767	7.61	16.733	1.76	22.70	1.32
4.833	1.76	10.800	8.20	16.767	1.83	22.73	1.32
4.867	1.76	10.833	8.20	16.800	1.90	22.77	1.32
4.900	1.76	10.867	9.37	16.833	1.90	22.80	1.32
4.933	1.76	10.900	9.37	16.867	2.05	22.83	1.32
4.967	1.76	10.933	9.96	16.900	2.05	22.87	1.32
5.000	1.76	10.967	10.54	16.933	2.12	22.90	1.32
5.033	1.76	11.000	10.54	16.967	2.20	22.93	1.32
5.067	1.76	11.033	10.54	17.000	2.20	22.97	1.32
5.100	1.76	11.067	10.54	17.033	2.05	23.00	1.32
5.133	1.76	11.100	10.54	17.067	2.05	23.03	1.32
5.167	1.76	11.133	10.54	17.100	1.98	23.07	1.32
5.200	1.76	11.167	10.54	17.133	1.90	23.10	1.32
5.233	1.76	11.200	10.54	17.167	1.90	23.13	1.32
5.267	1.76	11.233	10.54	17.200	1.76	23.17	1.32
5.300	1.76	11.267	14.21	17.233	1.76	23.20	1.32
5.333	1.76	11.300	17.86	17.267	1.83	23.23	1.32
5.367	1.76	11.333	17.87	17.300	1.90	23.27	1.32
5.400	1.76	11.367	25.18	17.333	1.90	23.30	1.32
5.433	1.76	11.400	25.18	17.367	2.05	23.33	1.32
5.467	1.76	11.433	28.85	17.400	2.05	23.37	1.32
5.500	1.76	11.467	32.50	17.433	2.12	23.40	1.32
5.533	1.76	11.500	32.54	17.467	2.20	23.43	1.32
5.567	1.76	11.533	66.46	17.500	2.20	23.47	1.32
5.600	1.76	11.567	66.46	17.533	2.05	23.50	1.32
5.633	1.76	11.600	83.49	17.567	2.05	23.53	1.32
5.667	1.76	11.633	100.43	17.600	1.98	23.57	1.32
5.700	1.76	11.667	100.47	17.633	1.90	23.60	1.32
5.733	1.76	11.700	134.39	17.667	1.90	23.63	1.32
5.767	1.76	11.733	134.39	17.700	1.76	23.67	1.32
5.800	1.76	11.767	114.58	17.733	1.76	23.70	1.32
5.833	1.76	11.800	94.87	17.767	1.83	23.73	1.32
5.867	1.76	11.833	94.82	17.800	1.90	23.77	0.66
5.900	1.76	11.867	55.34	17.833	1.90		
5.933	1.76	11.900	55.34	17.867	2.05		
5.967	1.76	11.933	35.53	17.900	2.05		

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.028 (i)
TIME TO PEAK (hrs)= 12.100
RUNOFF VOLUME (mm)= 26.790
TOTAL RAINFALL (mm)= 109.360
RUNOFF COEFFICIENT = 0.245

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

CALIB			
NASHYD (0035)	Area (ha)= 1.58	Curve Number (CN)= 44.1	
ID= 1 DT= 2.0 min	Ia (mm)= 9.62	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.17		

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.092 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 23.607
TOTAL RAINFALL (mm)= 109.360
RUNOFF COEFFICIENT = 0.216

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

CALIB			
NASHYD (0044)	Area (ha)= 2.80	Curve Number (CN)= 42.9	
ID= 1 DT= 2.0 min	Ia (mm)= 8.98	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.18		

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.154 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 23.001
TOTAL RAINFALL (mm)= 109.360
RUNOFF COEFFICIENT = 0.210

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

ADD HYD (0040)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0035):	1.58	0.092	11.93	23.61
+ ID2= 2 (0044):	2.80	0.154	11.93	23.00
ID = 3 (0040):	4.38	0.245	11.93	23.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0041)	Area (ha)= 2.82		
ID= 1 DT= 5.0 min	Total Imp(%)= 38.00	Dir. Conn.(%)= 19.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	1.07	1.75

Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	137.11	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	0.44	6.083	1.90	12.083	15.81	18.08	2.05
0.167	0.88	6.167	2.05	12.167	15.81	18.17	1.90
0.250	1.32	6.250	2.20	12.250	15.81	18.25	1.76
0.333	1.17	6.333	2.05	12.333	13.32	18.33	1.90
0.417	1.02	6.417	1.90	12.417	10.83	18.42	2.05
0.500	0.88	6.500	1.76	12.500	8.35	18.50	2.20
0.583	1.02	6.583	1.90	12.583	8.20	18.58	2.05
0.667	1.17	6.667	2.05	12.667	8.05	18.67	1.90
0.750	1.32	6.750	2.20	12.750	7.91	18.75	1.76
0.833	1.32	6.833	2.20	12.833	7.32	18.83	1.90
0.917	1.32	6.917	2.20	12.917	6.73	18.92	2.05
1.000	1.32	7.000	2.20	13.000	6.15	19.00	2.20
1.083	1.32	7.083	2.34	13.083	6.00	19.08	2.05
1.167	1.32	7.167	2.49	13.167	5.86	19.17	1.90
1.250	1.32	7.250	2.64	13.250	5.71	19.25	1.76
1.333	1.17	7.333	2.49	13.333	5.42	19.33	1.90
1.417	1.02	7.417	2.34	13.417	5.12	19.42	2.05
1.500	0.88	7.500	2.20	13.500	4.83	19.50	2.20
1.583	1.02	7.583	2.34	13.583	4.68	19.58	2.05
1.667	1.17	7.667	2.49	13.667	4.54	19.67	1.90
1.750	1.32	7.750	2.64	13.750	4.39	19.75	1.76
1.833	1.32	7.833	2.64	13.833	4.10	19.83	1.61
1.917	1.32	7.917	2.64	13.917	3.81	19.92	1.46
2.000	1.32	8.000	2.64	14.000	3.51	20.00	1.32
2.083	1.46	8.083	2.78	14.083	3.37	20.08	1.32
2.167	1.61	8.167	2.93	14.167	3.22	20.17	1.32
2.250	1.76	8.250	3.07	14.250	3.07	20.25	1.32
2.333	1.61	8.333	3.07	14.333	3.22	20.33	1.32
2.417	1.46	8.417	3.07	14.417	3.37	20.42	1.32
2.500	1.32	8.500	3.07	14.500	3.51	20.50	1.32
2.583	1.32	8.583	3.07	14.583	3.37	20.58	1.32
2.667	1.32	8.667	3.07	14.667	3.22	20.67	1.32
2.750	1.32	8.750	3.07	14.750	3.07	20.75	1.32
2.833	1.32	8.833	3.22	14.833	3.22	20.83	1.32
2.917	1.32	8.917	3.37	14.917	3.37	20.92	1.32
3.000	1.32	9.000	3.51	15.000	3.51	21.00	1.32
3.083	1.46	9.083	3.51	15.083	3.37	21.08	1.32
3.167	1.61	9.167	3.51	15.167	3.22	21.17	1.32
3.250	1.76	9.250	3.51	15.250	3.07	21.25	1.32
3.333	1.61	9.333	3.66	15.333	3.22	21.33	1.32
3.417	1.46	9.417	3.81	15.417	3.37	21.42	1.32
3.500	1.32	9.500	3.95	15.500	3.51	21.50	1.32
3.583	1.32	9.583	3.95	15.583	3.37	21.58	1.32
3.667	1.32	9.667	3.95	15.667	3.22	21.67	1.32
3.750	1.32	9.750	3.95	15.750	3.07	21.75	1.32
3.833	1.46	9.833	4.25	15.833	2.78	21.83	1.32
3.917	1.61	9.917	4.54	15.917	2.49	21.92	1.32
4.000	1.76	10.000	4.83	16.000	2.20	22.00	1.32
4.083	1.76	10.083	4.98	16.083	2.05	22.08	1.32
4.167	1.76	10.167	5.12	16.167	1.90	22.17	1.32
4.250	1.76	10.250	5.27	16.250	1.76	22.25	1.32
4.333	1.76	10.333	5.71	16.333	1.90	22.33	1.32

4.417	1.76	10.417	6.15	16.417	2.05	22.42	1.32
4.500	1.76	10.500	6.59	16.500	2.20	22.50	1.32
4.583	1.76	10.583	6.73	16.583	2.05	22.58	1.32
4.667	1.76	10.667	6.88	16.667	1.90	22.67	1.32
4.750	1.76	10.750	7.03	16.750	1.76	22.75	1.32
4.833	1.76	10.833	8.20	16.833	1.90	22.83	1.32
4.917	1.76	10.917	9.37	16.917	2.05	22.92	1.32
5.000	1.76	11.000	10.54	17.000	2.20	23.00	1.32
5.083	1.76	11.083	10.54	17.083	2.05	23.08	1.32
5.167	1.76	11.167	10.54	17.167	1.90	23.17	1.32
5.250	1.76	11.250	10.54	17.250	1.76	23.25	1.32
5.333	1.76	11.333	17.86	17.333	1.90	23.33	1.32
5.417	1.76	11.417	25.18	17.417	2.05	23.42	1.32
5.500	1.76	11.500	32.50	17.500	2.20	23.50	1.32
5.583	1.76	11.583	66.46	17.583	2.05	23.58	1.32
5.667	1.76	11.667	100.42	17.667	1.90	23.67	1.32
5.750	1.76	11.750	134.39	17.750	1.76	23.75	0.00
5.833	1.76	11.833	94.88	17.833	1.90		
5.917	1.76	11.917	55.35	17.917	2.05		
6.000	1.76	12.000	15.82	18.000	2.20		

Max.Eff.Inten.(mm/hr)=		134.39	145.61
over (min)		5.00	15.00
Storage Coeff. (min)=		2.74 (ii)	10.22 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00
Unit Hyd. peak (cms)=		0.28	0.09
			TOTALS
PEAK FLOW	(cms)=	0.19	0.52	0.615 (iii)
TIME TO PEAK	(hrs)=	11.75	11.92	11.92
RUNOFF VOLUME	(mm)=	108.25	45.90	57.75
TOTAL RAINFALL	(mm)=	109.25	109.25	109.25
RUNOFF COEFFICIENT	=	0.99	0.42	0.53

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0037)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0040):	4.38	0.245	11.93	23.22
	+ ID2= 2 (0041):	2.82	0.615	11.92	57.75
	ID = 3 (0037):	7.20	0.856	11.90	36.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0042)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)

0.0000	0.4748	|	0.1280	1.3860
0.0380	0.5498	|	0.3070	1.5223
0.0720	0.7185	|	0.6740	1.6664
0.0940	0.9133	|	1.2390	1.8182
0.1130	1.1353	|	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	7.200	0.856	11.90	36.73
OUTFLOW: ID= 1 (0042)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0961

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

ADD HYD (0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0034):	0.54	0.140	11.83	52.99
	+ ID2= 2 (0036):	0.32	0.025	12.00	41.12
	ID = 3 (0043):	0.86	0.158	11.83	48.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (0043):	0.86	0.158	11.83	48.57
	+ ID2= 2 (0038):	0.20	0.055	11.83	57.75
	ID = 1 (0043):	1.06	0.213	11.83	50.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0043):	1.06	0.213	11.83	50.30
	+ ID2= 2 (0039):	0.62	0.028	12.10	26.79
	ID = 3 (0043):	1.68	0.230	11.83	41.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1	ID1= 3 (0043):	1.68	0.230	11.83	41.62
	+ ID2= 2 (0042):	7.20	0.000	0.00	0.00

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID = 1 (0043):	8.88	0.230	11.83	7.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****
** SIMULATION NUMBER: 6 **
****

MASS STORM
Ptotal=120.80 mm

Filename: C:\Users\aschoof\AppData\Local\Temp\5d0218cc-8a0c-4e7b-a56e-a2c3d15794d1\a6ce3910
Comments: SCS Type II 24 HR MASS CURVE

Duration of storm = 23.75 hrs
Mass curve time step = 15.00 min
New Storm time step = 5.00 min

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.08	0.48	6.08	2.09	12.08	17.40	18.08	2.25
0.17	0.97	6.17	2.25	12.17	17.40	18.17	2.09
0.25	1.45	6.25	2.42	12.25	17.40	18.25	1.93
0.33	1.29	6.33	2.25	12.33	14.66	18.33	2.09
0.42	1.13	6.42	2.09	12.42	11.92	18.42	2.25
0.50	0.97	6.50	1.93	12.50	9.18	18.50	2.42
0.58	1.13	6.58	2.09	12.58	9.02	18.58	2.25
0.67	1.29	6.67	2.25	12.67	8.86	18.67	2.09
0.75	1.45	6.75	2.42	12.75	8.70	18.75	1.93
0.83	1.45	6.83	2.42	12.83	8.05	18.83	2.09
0.92	1.45	6.92	2.42	12.92	7.41	18.92	2.25
1.00	1.45	7.00	2.42	13.00	6.76	19.00	2.42
1.08	1.45	7.08	2.58	13.08	6.60	19.08	2.25
1.17	1.45	7.17	2.74	13.17	6.44	19.17	2.09
1.25	1.45	7.25	2.90	13.25	6.28	19.25	1.93
1.33	1.29	7.33	2.74	13.33	5.96	19.33	2.09
1.42	1.13	7.42	2.58	13.42	5.64	19.42	2.25
1.50	0.97	7.50	2.42	13.50	5.32	19.50	2.42
1.58	1.13	7.58	2.58	13.58	5.15	19.58	2.25
1.67	1.29	7.67	2.74	13.67	4.99	19.67	2.09
1.75	1.45	7.75	2.90	13.75	4.83	19.75	1.93
1.83	1.45	7.83	2.90	13.83	4.51	19.83	1.77
1.92	1.45	7.92	2.90	13.92	4.19	19.92	1.61
2.00	1.45	8.00	2.90	14.00	3.87	20.00	1.45
2.08	1.61	8.08	3.06	14.08	3.70	20.08	1.45
2.17	1.77	8.17	3.22	14.17	3.54	20.17	1.45
2.25	1.93	8.25	3.38	14.25	3.38	20.25	1.45
2.33	1.77	8.33	3.38	14.33	3.54	20.33	1.45
2.42	1.61	8.42	3.38	14.42	3.70	20.42	1.45
2.50	1.45	8.50	3.38	14.50	3.87	20.50	1.45
2.58	1.45	8.58	3.38	14.58	3.70	20.58	1.45
2.67	1.45	8.67	3.38	14.67	3.54	20.67	1.45
2.75	1.45	8.75	3.38	14.75	3.38	20.75	1.45
2.83	1.45	8.83	3.54	14.83	3.54	20.83	1.45
2.92	1.45	8.92	3.70	14.92	3.70	20.92	1.45
3.00	1.45	9.00	3.87	15.00	3.87	21.00	1.45
3.08	1.61	9.08	3.87	15.08	3.70	21.08	1.45
3.17	1.77	9.17	3.87	15.17	3.54	21.17	1.45
3.25	1.93	9.25	3.87	15.25	3.38	21.25	1.45
3.33	1.77	9.33	4.03	15.33	3.54	21.33	1.45

3.42	1.61	9.42	4.19	15.42	3.70	21.42	1.45
3.50	1.45	9.50	4.35	15.50	3.87	21.50	1.45
3.58	1.45	9.58	4.35	15.58	3.70	21.58	1.45
3.67	1.45	9.67	4.35	15.67	3.54	21.67	1.45
3.75	1.45	9.75	4.35	15.75	3.38	21.75	1.45
3.83	1.61	9.83	4.67	15.83	3.06	21.83	1.45
3.92	1.77	9.92	4.99	15.92	2.74	21.92	1.45
4.00	1.93	10.00	5.32	16.00	2.42	22.00	1.45
4.08	1.93	10.08	5.48	16.08	2.25	22.08	1.45
4.17	1.93	10.17	5.64	16.17	2.09	22.17	1.45
4.25	1.93	10.25	5.80	16.25	1.93	22.25	1.45
4.33	1.93	10.33	6.28	16.33	2.09	22.33	1.45
4.42	1.93	10.42	6.76	16.42	2.25	22.42	1.45
4.50	1.93	10.50	7.25	16.50	2.42	22.50	1.45
4.58	1.93	10.58	7.41	16.58	2.25	22.58	1.45
4.67	1.93	10.67	7.57	16.67	2.09	22.67	1.45
4.75	1.93	10.75	7.73	16.75	1.93	22.75	1.45
4.83	1.93	10.83	9.02	16.83	2.09	22.83	1.45
4.92	1.93	10.92	10.31	16.92	2.25	22.92	1.45
5.00	1.93	11.00	11.60	17.00	2.42	23.00	1.45
5.08	1.93	11.08	11.60	17.08	2.25	23.08	1.45
5.17	1.93	11.17	11.60	17.17	2.09	23.17	1.45
5.25	1.93	11.25	11.60	17.25	1.93	23.25	1.45
5.33	1.93	11.33	19.65	17.33	2.09	23.33	1.45
5.42	1.93	11.42	27.70	17.42	2.25	23.42	1.45
5.50	1.93	11.50	35.76	17.50	2.42	23.50	1.45
5.58	1.93	11.58	73.12	17.58	2.25	23.58	1.45
5.67	1.93	11.67	110.49	17.67	2.09	23.67	1.45
5.75	1.93	11.75	147.86	17.75	1.93	23.75	1.45
5.83	1.93	11.83	104.38	17.83	2.09		
5.92	1.93	11.92	60.89	17.92	2.25		
6.00	1.93	12.00	17.40	18.00	2.42		

CALIB
STANDHYD (0034)
ID= 1 DT= 5.0 min

Area (ha)= 0.54
Total Imp(%)= 28.00 Dir. Conn.(%)= 14.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.15	0.39
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	60.00	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	0.48	6.083	2.09	12.083	17.40	18.08	2.25
0.167	0.97	6.167	2.25	12.167	17.40	18.17	2.09
0.250	1.45	6.250	2.42	12.250	17.40	18.25	1.93
0.333	1.29	6.333	2.25	12.333	14.66	18.33	2.09
0.417	1.13	6.417	2.09	12.417	11.92	18.42	2.25
0.500	0.97	6.500	1.93	12.500	9.18	18.50	2.42
0.583	1.13	6.583	2.09	12.583	9.02	18.58	2.25
0.667	1.29	6.667	2.25	12.667	8.86	18.67	2.09
0.750	1.45	6.750	2.42	12.750	8.70	18.75	1.93
0.833	1.45	6.833	2.42	12.833	8.05	18.83	2.09
0.917	1.45	6.917	2.42	12.917	7.41	18.92	2.25

1.000	1.45	7.000	2.42	13.000	6.77	19.00	2.42
1.083	1.45	7.083	2.58	13.083	6.60	19.08	2.25
1.167	1.45	7.167	2.74	13.167	6.44	19.17	2.09
1.250	1.45	7.250	2.90	13.250	6.28	19.25	1.93
1.333	1.29	7.333	2.74	13.333	5.96	19.33	2.09
1.417	1.13	7.417	2.58	13.417	5.64	19.42	2.25
1.500	0.97	7.500	2.42	13.500	5.32	19.50	2.42
1.583	1.13	7.583	2.58	13.583	5.15	19.58	2.25
1.667	1.29	7.667	2.74	13.667	4.99	19.67	2.09
1.750	1.45	7.750	2.90	13.750	4.83	19.75	1.93
1.833	1.45	7.833	2.90	13.833	4.51	19.83	1.77
1.917	1.45	7.917	2.90	13.917	4.19	19.92	1.61
2.000	1.45	8.000	2.90	14.000	3.87	20.00	1.45
2.083	1.61	8.083	3.06	14.083	3.70	20.08	1.45
2.167	1.77	8.167	3.22	14.167	3.54	20.17	1.45
2.250	1.93	8.250	3.38	14.250	3.38	20.25	1.45
2.333	1.77	8.333	3.38	14.333	3.54	20.33	1.45
2.417	1.61	8.417	3.38	14.417	3.70	20.42	1.45
2.500	1.45	8.500	3.38	14.500	3.87	20.50	1.45
2.583	1.45	8.583	3.38	14.583	3.70	20.58	1.45
2.667	1.45	8.667	3.38	14.667	3.54	20.67	1.45
2.750	1.45	8.750	3.38	14.750	3.38	20.75	1.45
2.833	1.45	8.833	3.54	14.833	3.54	20.83	1.45
2.917	1.45	8.917	3.70	14.917	3.70	20.92	1.45
3.000	1.45	9.000	3.87	15.000	3.87	21.00	1.45
3.083	1.61	9.083	3.87	15.083	3.70	21.08	1.45
3.167	1.77	9.167	3.87	15.167	3.54	21.17	1.45
3.250	1.93	9.250	3.87	15.250	3.38	21.25	1.45
3.333	1.77	9.333	4.03	15.333	3.54	21.33	1.45
3.417	1.61	9.417	4.19	15.417	3.70	21.42	1.45
3.500	1.45	9.500	4.35	15.500	3.87	21.50	1.45
3.583	1.45	9.583	4.35	15.583	3.70	21.58	1.45
3.667	1.45	9.667	4.35	15.667	3.54	21.67	1.45
3.750	1.45	9.750	4.35	15.750	3.38	21.75	1.45
3.833	1.61	9.833	4.67	15.833	3.06	21.83	1.45
3.917	1.77	9.917	4.99	15.917	2.74	21.92	1.45
4.000	1.93	10.000	5.32	16.000	2.42	22.00	1.45
4.083	1.93	10.083	5.48	16.083	2.26	22.08	1.45
4.167	1.93	10.167	5.64	16.167	2.09	22.17	1.45
4.250	1.93	10.250	5.80	16.250	1.93	22.25	1.45
4.333	1.93	10.333	6.28	16.333	2.09	22.33	1.45
4.417	1.93	10.417	6.76	16.417	2.25	22.42	1.45
4.500	1.93	10.500	7.25	16.500	2.42	22.50	1.45
4.583	1.93	10.583	7.41	16.583	2.26	22.58	1.45
4.667	1.93	10.667	7.57	16.667	2.09	22.67	1.45
4.750	1.93	10.750	7.73	16.750	1.93	22.75	1.45
4.833	1.93	10.833	9.02	16.833	2.09	22.83	1.45
4.917	1.93	10.917	10.31	16.917	2.25	22.92	1.45
5.000	1.93	11.000	11.60	17.000	2.42	23.00	1.45
5.083	1.93	11.083	11.60	17.083	2.25	23.08	1.45
5.167	1.93	11.167	11.60	17.167	2.09	23.17	1.45
5.250	1.93	11.250	11.60	17.250	1.93	23.25	1.45
5.333	1.93	11.333	19.65	17.333	2.09	23.33	1.45
5.417	1.93	11.417	27.70	17.417	2.25	23.42	1.45
5.500	1.93	11.500	35.76	17.500	2.42	23.50	1.45
5.583	1.93	11.583	73.12	17.583	2.25	23.58	1.45
5.667	1.93	11.667	110.48	17.667	2.09	23.67	1.45
5.750	1.93	11.750	147.85	17.750	1.93	23.75	0.00
5.833	1.93	11.833	104.38	17.833	2.09		
5.917	1.93	11.917	60.89	17.917	2.25		
6.000	1.93	12.000	17.41	18.000	2.42		

Max.Eff.Inten.(mm/hr)= 147.85 146.52

over (min)		5.00	10.00	
Storage Coeff. (min)=		1.61 (ii)	7.67 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.32	0.13	
				TOTALS
PEAK FLOW	(cms)=	0.03	0.13	0.156 (iii)
TIME TO PEAK	(hrs)=	11.75	11.83	11.83
RUNOFF VOLUME	(mm)=	119.20	50.63	60.23
TOTAL RAINFALL	(mm)=	120.20	120.20	120.20
RUNOFF COEFFICIENT	=	0.99	0.42	0.50

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0036)	Area (ha)=	0.32	Curve Number (CN)= 61.0
ID= 1 DT= 5.0 min	Ia (mm)=	4.40	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.29	

Unit Hyd Qpeak	(cms)=	0.042
PEAK FLOW	(cms)=	0.029 (i)
TIME TO PEAK	(hrs)=	12.000
RUNOFF VOLUME	(mm)=	48.177
TOTAL RAINFALL	(mm)=	120.197
RUNOFF COEFFICIENT	=	0.401

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

CALIB				
STANDHYD (0038)	Area (ha)=	0.20		
ID= 1 DT= 5.0 min	Total Imp(%)=	38.00	Dir. Conn.(%)=	19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.08	0.12
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	36.51	20.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		147.85	161.11
over (min)		5.00	10.00
Storage Coeff. (min)=		1.19 (ii)	5.93 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		0.33	0.15

				TOTALS
PEAK FLOW	(cms)=	0.02	0.05	0.061 (iii)
TIME TO PEAK	(hrs)=	11.75	11.83	11.83
RUNOFF VOLUME	(mm)=	119.20	52.71	65.34
TOTAL RAINFALL	(mm)=	120.20	120.20	120.20
RUNOFF COEFFICIENT	=	0.99	0.44	0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
NASHYD (0039)	Area (ha)=	0.62	Curve Number (CN)= 48.1
ID= 1 DT= 2.0 min	Ia (mm)=	9.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.33	

NOTE: RAINFALL WAS TRANSFORMED TO 2.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.48	6.000	1.93	11.967	17.40	17.93	2.34
0.067	0.48	6.033	2.09	12.000	17.40	17.97	2.42
0.100	0.72	6.067	2.09	12.033	17.40	18.00	2.42
0.133	0.97	6.100	2.17	12.067	17.40	18.03	2.25
0.167	0.97	6.133	2.25	12.100	17.40	18.07	2.25
0.200	1.45	6.167	2.25	12.133	17.40	18.10	2.17
0.233	1.45	6.200	2.42	12.167	17.40	18.13	2.09
0.267	1.37	6.233	2.42	12.200	17.40	18.17	2.09
0.300	1.29	6.267	2.34	12.233	17.40	18.20	1.93
0.333	1.29	6.300	2.25	12.267	16.02	18.23	1.93
0.367	1.13	6.333	2.25	12.300	14.66	18.27	2.01
0.400	1.13	6.367	2.09	12.333	14.65	18.30	2.09
0.433	1.05	6.400	2.09	12.367	11.92	18.33	2.09
0.467	0.97	6.433	2.01	12.400	11.92	18.37	2.25
0.500	0.97	6.467	1.93	12.433	10.55	18.40	2.25
0.533	1.13	6.500	1.93	12.467	9.18	18.43	2.34
0.567	1.13	6.533	2.09	12.500	9.18	18.47	2.42
0.600	1.21	6.567	2.09	12.533	9.02	18.50	2.42
0.633	1.29	6.600	2.17	12.567	9.02	18.53	2.25
0.667	1.29	6.633	2.25	12.600	8.94	18.57	2.25
0.700	1.45	6.667	2.25	12.633	8.86	18.60	2.17
0.733	1.45	6.700	2.42	12.667	8.86	18.63	2.09
0.767	1.45	6.733	2.42	12.700	8.70	18.67	2.09
0.800	1.45	6.767	2.42	12.733	8.70	18.70	1.93
0.833	1.45	6.800	2.42	12.767	8.37	18.73	1.93
0.867	1.45	6.833	2.42	12.800	8.05	18.77	2.01
0.900	1.45	6.867	2.42	12.833	8.05	18.80	2.09
0.933	1.45	6.900	2.42	12.867	7.41	18.83	2.09
0.967	1.45	6.933	2.42	12.900	7.41	18.87	2.25
1.000	1.45	6.967	2.42	12.933	7.09	18.90	2.25
1.033	1.45	7.000	2.42	12.967	6.76	18.93	2.34
1.067	1.45	7.033	2.58	13.000	6.76	18.97	2.42
1.100	1.45	7.067	2.58	13.033	6.60	19.00	2.42
1.133	1.45	7.100	2.66	13.067	6.60	19.03	2.25
1.167	1.45	7.133	2.74	13.100	6.52	19.07	2.25
1.200	1.45	7.167	2.74	13.133	6.44	19.10	2.17
1.233	1.45	7.200	2.90	13.167	6.44	19.13	2.09
1.267	1.37	7.233	2.90	13.200	6.28	19.17	2.09

1.300	1.29	7.267	2.82	13.233	6.28	19.20	1.93
1.333	1.29	7.300	2.74	13.267	6.12	19.23	1.93
1.367	1.13	7.333	2.74	13.300	5.96	19.27	2.01
1.400	1.13	7.367	2.58	13.333	5.96	19.30	2.09
1.433	1.05	7.400	2.58	13.367	5.64	19.33	2.09
1.467	0.97	7.433	2.50	13.400	5.64	19.37	2.25
1.500	0.97	7.467	2.42	13.433	5.48	19.40	2.25
1.533	1.13	7.500	2.42	13.467	5.32	19.43	2.34
1.567	1.13	7.533	2.58	13.500	5.31	19.47	2.42
1.600	1.21	7.567	2.58	13.533	5.15	19.50	2.42
1.633	1.29	7.600	2.66	13.567	5.15	19.53	2.25
1.667	1.29	7.633	2.74	13.600	5.07	19.57	2.25
1.700	1.45	7.667	2.74	13.633	4.99	19.60	2.17
1.733	1.45	7.700	2.90	13.667	4.99	19.63	2.09
1.767	1.45	7.733	2.90	13.700	4.83	19.67	2.09
1.800	1.45	7.767	2.90	13.733	4.83	19.70	1.93
1.833	1.45	7.800	2.90	13.767	4.67	19.73	1.93
1.867	1.45	7.833	2.90	13.800	4.51	19.77	1.85
1.900	1.45	7.867	2.90	13.833	4.51	19.80	1.77
1.933	1.45	7.900	2.90	13.867	4.19	19.83	1.77
1.967	1.45	7.933	2.90	13.900	4.19	19.87	1.61
2.000	1.45	7.967	2.90	13.933	4.03	19.90	1.61
2.033	1.61	8.000	2.90	13.967	3.87	19.93	1.53
2.067	1.61	8.033	3.06	14.000	3.87	19.97	1.45
2.100	1.69	8.067	3.06	14.033	3.70	20.00	1.45
2.133	1.77	8.100	3.14	14.067	3.70	20.03	1.45
2.167	1.77	8.133	3.22	14.100	3.62	20.07	1.45
2.200	1.93	8.167	3.22	14.133	3.54	20.10	1.45
2.233	1.93	8.200	3.38	14.167	3.54	20.13	1.45
2.267	1.85	8.233	3.38	14.200	3.38	20.17	1.45
2.300	1.77	8.267	3.38	14.233	3.38	20.20	1.45
2.333	1.77	8.300	3.38	14.267	3.46	20.23	1.45
2.367	1.61	8.333	3.38	14.300	3.54	20.27	1.45
2.400	1.61	8.367	3.38	14.333	3.54	20.30	1.45
2.433	1.53	8.400	3.38	14.367	3.70	20.33	1.45
2.467	1.45	8.433	3.38	14.400	3.70	20.37	1.45
2.500	1.45	8.467	3.38	14.433	3.79	20.40	1.45
2.533	1.45	8.500	3.38	14.467	3.87	20.43	1.45
2.567	1.45	8.533	3.38	14.500	3.87	20.47	1.45
2.600	1.45	8.567	3.38	14.533	3.70	20.50	1.45
2.633	1.45	8.600	3.38	14.567	3.70	20.53	1.45
2.667	1.45	8.633	3.38	14.600	3.62	20.57	1.45
2.700	1.45	8.667	3.38	14.633	3.54	20.60	1.45
2.733	1.45	8.700	3.38	14.667	3.54	20.63	1.45
2.767	1.45	8.733	3.38	14.700	3.38	20.67	1.45
2.800	1.45	8.767	3.46	14.733	3.38	20.70	1.45
2.833	1.45	8.800	3.54	14.767	3.46	20.73	1.45
2.867	1.45	8.833	3.54	14.800	3.54	20.77	1.45
2.900	1.45	8.867	3.70	14.833	3.54	20.80	1.45
2.933	1.45	8.900	3.70	14.867	3.70	20.83	1.45
2.967	1.45	8.933	3.79	14.900	3.70	20.87	1.45
3.000	1.45	8.967	3.87	14.933	3.79	20.90	1.45
3.033	1.61	9.000	3.87	14.967	3.87	20.93	1.45
3.067	1.61	9.033	3.87	15.000	3.87	20.97	1.45
3.100	1.69	9.067	3.87	15.033	3.70	21.00	1.45
3.133	1.77	9.100	3.87	15.067	3.70	21.03	1.45
3.167	1.77	9.133	3.87	15.100	3.62	21.07	1.45
3.200	1.93	9.167	3.87	15.133	3.54	21.10	1.45
3.233	1.93	9.200	3.87	15.167	3.54	21.13	1.45
3.267	1.85	9.233	3.87	15.200	3.38	21.17	1.45
3.300	1.77	9.267	3.95	15.233	3.38	21.20	1.45
3.333	1.77	9.300	4.03	15.267	3.46	21.23	1.45
3.367	1.61	9.333	4.03	15.300	3.54	21.27	1.45

3.400	1.61	9.367	4.19	15.333	3.54	21.30	1.45
3.433	1.53	9.400	4.19	15.367	3.70	21.33	1.45
3.467	1.45	9.433	4.27	15.400	3.70	21.37	1.45
3.500	1.45	9.467	4.35	15.433	3.79	21.40	1.45
3.533	1.45	9.500	4.35	15.467	3.87	21.43	1.45
3.567	1.45	9.533	4.35	15.500	3.87	21.47	1.45
3.600	1.45	9.567	4.35	15.533	3.70	21.50	1.45
3.633	1.45	9.600	4.35	15.567	3.70	21.53	1.45
3.667	1.45	9.633	4.35	15.600	3.62	21.57	1.45
3.700	1.45	9.667	4.35	15.633	3.54	21.60	1.45
3.733	1.45	9.700	4.35	15.667	3.54	21.63	1.45
3.767	1.53	9.733	4.35	15.700	3.38	21.67	1.45
3.800	1.61	9.767	4.51	15.733	3.38	21.70	1.45
3.833	1.61	9.800	4.67	15.767	3.22	21.73	1.45
3.867	1.77	9.833	4.67	15.800	3.06	21.77	1.45
3.900	1.77	9.867	4.99	15.833	3.06	21.80	1.45
3.933	1.85	9.900	4.99	15.867	2.74	21.83	1.45
3.967	1.93	9.933	5.15	15.900	2.74	21.87	1.45
4.000	1.93	9.967	5.32	15.933	2.58	21.90	1.45
4.033	1.93	10.000	5.32	15.967	2.42	21.93	1.45
4.067	1.93	10.033	5.48	16.000	2.42	21.97	1.45
4.100	1.93	10.067	5.48	16.033	2.25	22.00	1.45
4.133	1.93	10.100	5.56	16.067	2.25	22.03	1.45
4.167	1.93	10.133	5.64	16.100	2.17	22.07	1.45
4.200	1.93	10.167	5.64	16.133	2.09	22.10	1.45
4.233	1.93	10.200	5.80	16.167	2.09	22.13	1.45
4.267	1.93	10.233	5.80	16.200	1.93	22.17	1.45
4.300	1.93	10.267	6.04	16.233	1.93	22.20	1.45
4.333	1.93	10.300	6.28	16.267	2.01	22.23	1.45
4.367	1.93	10.333	6.28	16.300	2.09	22.27	1.45
4.400	1.93	10.367	6.76	16.333	2.09	22.30	1.45
4.433	1.93	10.400	6.76	16.367	2.25	22.33	1.45
4.467	1.93	10.433	7.01	16.400	2.25	22.37	1.45
4.500	1.93	10.467	7.25	16.433	2.34	22.40	1.45
4.533	1.93	10.500	7.25	16.467	2.42	22.43	1.45
4.567	1.93	10.533	7.41	16.500	2.42	22.47	1.45
4.600	1.93	10.567	7.41	16.533	2.25	22.50	1.45
4.633	1.93	10.600	7.49	16.567	2.25	22.53	1.45
4.667	1.93	10.633	7.57	16.600	2.17	22.57	1.45
4.700	1.93	10.667	7.57	16.633	2.09	22.60	1.45
4.733	1.93	10.700	7.73	16.667	2.09	22.63	1.45
4.767	1.93	10.733	7.73	16.700	1.93	22.67	1.45
4.800	1.93	10.767	8.38	16.733	1.93	22.70	1.45
4.833	1.93	10.800	9.02	16.767	2.01	22.73	1.45
4.867	1.93	10.833	9.02	16.800	2.09	22.77	1.45
4.900	1.93	10.867	10.31	16.833	2.09	22.80	1.45
4.933	1.93	10.900	10.31	16.867	2.25	22.83	1.45
4.967	1.93	10.933	10.95	16.900	2.25	22.87	1.45
5.000	1.93	10.967	11.60	16.933	2.34	22.90	1.45
5.033	1.93	11.000	11.60	16.967	2.42	22.93	1.45
5.067	1.93	11.033	11.60	17.000	2.42	22.97	1.45
5.100	1.93	11.067	11.60	17.033	2.25	23.00	1.45
5.133	1.93	11.100	11.60	17.067	2.25	23.03	1.45
5.167	1.93	11.133	11.60	17.100	2.17	23.07	1.45
5.200	1.93	11.167	11.60	17.133	2.09	23.10	1.45
5.233	1.93	11.200	11.60	17.167	2.09	23.13	1.45
5.267	1.93	11.233	11.60	17.200	1.93	23.17	1.45
5.300	1.93	11.267	15.63	17.233	1.93	23.20	1.45
5.333	1.93	11.300	19.65	17.267	2.01	23.23	1.45
5.367	1.93	11.333	19.66	17.300	2.09	23.27	1.45
5.400	1.93	11.367	27.70	17.333	2.09	23.30	1.45
5.433	1.93	11.400	27.70	17.367	2.25	23.33	1.45
5.467	1.93	11.433	31.74	17.400	2.25	23.37	1.45

5.500	1.93	11.467	35.76	17.433	2.34	23.40	1.45
5.533	1.93	11.500	35.80	17.467	2.42	23.43	1.45
5.567	1.93	11.533	73.12	17.500	2.42	23.47	1.45
5.600	1.93	11.567	73.12	17.533	2.25	23.50	1.45
5.633	1.93	11.600	91.85	17.567	2.25	23.53	1.45
5.667	1.93	11.633	110.49	17.600	2.17	23.57	1.45
5.700	1.93	11.667	110.54	17.633	2.09	23.60	1.45
5.733	1.93	11.700	147.86	17.667	2.09	23.63	1.45
5.767	1.93	11.733	147.86	17.700	1.93	23.67	1.45
5.800	1.93	11.767	126.06	17.733	1.93	23.70	1.45
5.833	1.93	11.800	104.38	17.767	2.01	23.73	1.45
5.867	1.93	11.833	104.32	17.800	2.09	23.77	0.73
5.900	1.93	11.867	60.89	17.833	2.09		
5.933	1.93	11.900	60.89	17.867	2.25		
5.967	1.93	11.933	39.08	17.900	2.25		

Unit Hyd Qpeak (cms)= 0.072

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 12.067
RUNOFF VOLUME (mm)= 32.035
TOTAL RAINFALL (mm)= 120.316
RUNOFF COEFFICIENT = 0.266

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

CALIB					
NASHYD (0035)	Area (ha)=	1.58	Curve Number (CN)=	44.1	
ID= 1 DT= 2.0 min	Ia (mm)=	9.62	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.17			

Unit Hyd Qpeak (cms)= 0.355

PEAK FLOW (cms)= 0.110 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 28.342
TOTAL RAINFALL (mm)= 120.316
RUNOFF COEFFICIENT = 0.236

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

CALIB					
NASHYD (0044)	Area (ha)=	2.80	Curve Number (CN)=	42.9	
ID= 1 DT= 2.0 min	Ia (mm)=	8.98	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.18			

Unit Hyd Qpeak (cms)= 0.594

PEAK FLOW (cms)= 0.185 (i)
TIME TO PEAK (hrs)= 11.933
RUNOFF VOLUME (mm)= 27.606
TOTAL RAINFALL (mm)= 120.316
RUNOFF COEFFICIENT = 0.229

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

ADD HYD (0040)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0035):	1.58	0.110	11.93	28.34
	+ ID2= 2 (0044):	2.80	0.185	11.93	27.61
	ID = 3 (0040):	4.38	0.296	11.93	27.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0041)	Area (ha)=	2.82		
ID= 1 DT= 5.0 min	Total Imp(%)=	38.00	Dir. Conn.(%)=	19.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	1.07	1.75
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	137.11	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	0.48	6.083	2.09	12.083	17.40	18.08	2.25
0.167	0.97	6.167	2.25	12.167	17.40	18.17	2.09
0.250	1.45	6.250	2.42	12.250	17.40	18.25	1.93
0.333	1.29	6.333	2.25	12.333	14.66	18.33	2.09
0.417	1.13	6.417	2.09	12.417	11.92	18.42	2.25
0.500	0.97	6.500	1.93	12.500	9.18	18.50	2.42
0.583	1.13	6.583	2.09	12.583	9.02	18.58	2.25
0.667	1.29	6.667	2.25	12.667	8.86	18.67	2.09
0.750	1.45	6.750	2.42	12.750	8.70	18.75	1.93
0.833	1.45	6.833	2.42	12.833	8.05	18.83	2.09
0.917	1.45	6.917	2.42	12.917	7.41	18.92	2.25
1.000	1.45	7.000	2.42	13.000	6.77	19.00	2.42
1.083	1.45	7.083	2.58	13.083	6.60	19.08	2.25
1.167	1.45	7.167	2.74	13.167	6.44	19.17	2.09
1.250	1.45	7.250	2.90	13.250	6.28	19.25	1.93
1.333	1.29	7.333	2.74	13.333	5.96	19.33	2.09
1.417	1.13	7.417	2.58	13.417	5.64	19.42	2.25
1.500	0.97	7.500	2.42	13.500	5.32	19.50	2.42
1.583	1.13	7.583	2.58	13.583	5.15	19.58	2.25
1.667	1.29	7.667	2.74	13.667	4.99	19.67	2.09
1.750	1.45	7.750	2.90	13.750	4.83	19.75	1.93
1.833	1.45	7.833	2.90	13.833	4.51	19.83	1.77
1.917	1.45	7.917	2.90	13.917	4.19	19.92	1.61
2.000	1.45	8.000	2.90	14.000	3.87	20.00	1.45
2.083	1.61	8.083	3.06	14.083	3.70	20.08	1.45
2.167	1.77	8.167	3.22	14.167	3.54	20.17	1.45
2.250	1.93	8.250	3.38	14.250	3.38	20.25	1.45
2.333	1.77	8.333	3.38	14.333	3.54	20.33	1.45
2.417	1.61	8.417	3.38	14.417	3.70	20.42	1.45
2.500	1.45	8.500	3.38	14.500	3.87	20.50	1.45
2.583	1.45	8.583	3.38	14.583	3.70	20.58	1.45
2.667	1.45	8.667	3.38	14.667	3.54	20.67	1.45
2.750	1.45	8.750	3.38	14.750	3.38	20.75	1.45
2.833	1.45	8.833	3.54	14.833	3.54	20.83	1.45

2.917	1.45	8.917	3.70	14.917	3.70	20.92	1.45
3.000	1.45	9.000	3.87	15.000	3.87	21.00	1.45
3.083	1.61	9.083	3.87	15.083	3.70	21.08	1.45
3.167	1.77	9.167	3.87	15.167	3.54	21.17	1.45
3.250	1.93	9.250	3.87	15.250	3.38	21.25	1.45
3.333	1.77	9.333	4.03	15.333	3.54	21.33	1.45
3.417	1.61	9.417	4.19	15.417	3.70	21.42	1.45
3.500	1.45	9.500	4.35	15.500	3.87	21.50	1.45
3.583	1.45	9.583	4.35	15.583	3.70	21.58	1.45
3.667	1.45	9.667	4.35	15.667	3.54	21.67	1.45
3.750	1.45	9.750	4.35	15.750	3.38	21.75	1.45
3.833	1.61	9.833	4.67	15.833	3.06	21.83	1.45
3.917	1.77	9.917	4.99	15.917	2.74	21.92	1.45
4.000	1.93	10.000	5.32	16.000	2.42	22.00	1.45
4.083	1.93	10.083	5.48	16.083	2.26	22.08	1.45
4.167	1.93	10.167	5.64	16.167	2.09	22.17	1.45
4.250	1.93	10.250	5.80	16.250	1.93	22.25	1.45
4.333	1.93	10.333	6.28	16.333	2.09	22.33	1.45
4.417	1.93	10.417	6.76	16.417	2.25	22.42	1.45
4.500	1.93	10.500	7.25	16.500	2.42	22.50	1.45
4.583	1.93	10.583	7.41	16.583	2.26	22.58	1.45
4.667	1.93	10.667	7.57	16.667	2.09	22.67	1.45
4.750	1.93	10.750	7.73	16.750	1.93	22.75	1.45
4.833	1.93	10.833	9.02	16.833	2.09	22.83	1.45
4.917	1.93	10.917	10.31	16.917	2.25	22.92	1.45
5.000	1.93	11.000	11.60	17.000	2.42	23.00	1.45
5.083	1.93	11.083	11.60	17.083	2.25	23.08	1.45
5.167	1.93	11.167	11.60	17.167	2.09	23.17	1.45
5.250	1.93	11.250	11.60	17.250	1.93	23.25	1.45
5.333	1.93	11.333	19.65	17.333	2.09	23.33	1.45
5.417	1.93	11.417	27.70	17.417	2.25	23.42	1.45
5.500	1.93	11.500	35.76	17.500	2.42	23.50	1.45
5.583	1.93	11.583	73.12	17.583	2.25	23.58	1.45
5.667	1.93	11.667	110.48	17.667	2.09	23.67	1.45
5.750	1.93	11.750	147.85	17.750	1.93	23.75	0.00
5.833	1.93	11.833	104.38	17.833	2.09		
5.917	1.93	11.917	60.89	17.917	2.25		
6.000	1.93	12.000	17.41	18.000	2.42		

Max.Eff.Inten.(mm/hr)=	147.85	161.11	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.64 (ii)	9.82 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.29	0.11	
			TOTALS
PEAK FLOW (cms)=	0.21	0.61	0.774 (iii)
TIME TO PEAK (hrs)=	11.75	11.83	11.83
RUNOFF VOLUME (mm)=	119.20	52.71	65.34
TOTAL RAINFALL (mm)=	120.20	120.20	120.20
RUNOFF COEFFICIENT =	0.99	0.44	0.54

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!
***** WARNING:FOR AREAS WITH IMPERVIOUS RATIOS BELOW 20%
YOU SHOULD CONSIDER SPLITTING THE AREA.

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00
Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (0037)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0040):	4.38	0.296	11.93	27.87
+ ID2= 2 (0041):	2.82	0.774	11.83	65.34
ID = 3 (0037):	7.20	1.027	11.83	42.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0042)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.4748	0.1280	1.3860
	0.0380	0.5498	0.3070	1.5223
	0.0720	0.7185	0.6740	1.6664
	0.0940	0.9133	1.2390	1.8182
	0.1130	1.1353	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0037)	7.200	1.027	11.83	42.54
OUTFLOW: ID= 1 (0042)	7.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0986

**** WARNING : SELECTED ROUTING TIME STEP DENIED.

ADD HYD (0043)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0034):	0.54	0.156	11.83	60.23
+ ID2= 2 (0036):	0.32	0.029	12.00	48.18
ID = 3 (0043):	0.86	0.178	11.83	55.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 (0043):	0.86	0.178	11.83	55.74
+ ID2= 2 (0038):	0.20	0.061	11.83	65.34
ID = 1 (0043):	1.06	0.240	11.83	57.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

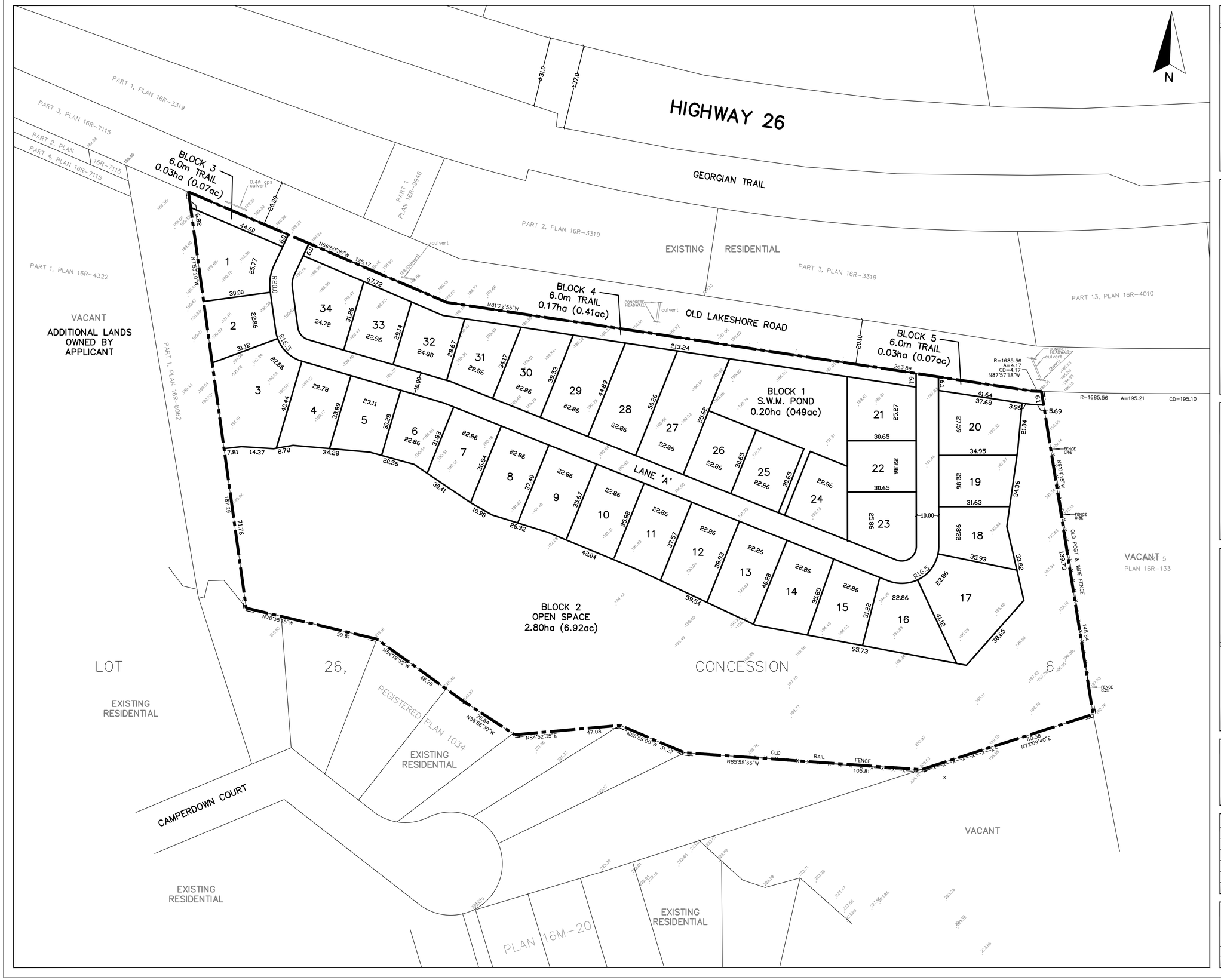
ADD HYD (0043)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0043):	1.06	0.240	11.83	57.55
	+ ID2= 2 (0039):	0.62	0.034	12.07	32.03
	ID = 3 (0043):	1.68	0.260	11.83	48.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0043)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (0043):	1.68	0.260	11.83	48.13
	+ ID2= 2 (0042):	7.20	0.000	0.00	0.00
	ID = 1 (0043):	8.88	0.260	11.83	9.11

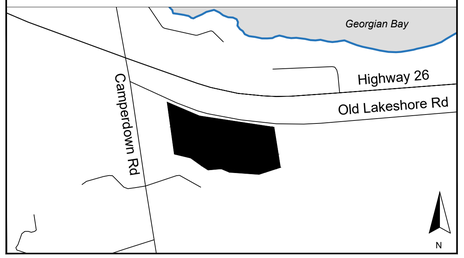
NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH



KEY MAP

Scale 1:10,000



DRAFT PLAN OF SUBDIVISION

PART OF LOT 26, CONCESSION 6
(FORMER TOWNSHIP OF COLLINGWOOD)
IN THE
TOWN OF THE BLUE MOUNTAINS
COUNTY OF GREY

Scale 1:750

0 5 10 15 20 30 40 60 80m

LAND USE SCHEDULE

	LOTS/BLOCKS	UNITS	ha	ac	%
RESIDENTIAL (22.86m)	1-34	34	2.956	7.31	44.7
STORMWATER MANAGEMENT	Block 1		0.197	0.49	3.0
OPEN SPACE	Block 2		2.800	6.92	42.3
6.0m TRAIL	Blocks 3 - 5		0.224	0.55	3.4
10.0m LANE	Lane 'A'		0.434	1.07	6.6
TOTAL		34	6.611	16.34	100

OWNER'S CERTIFICATE

I HEREBY AUTHORIZE INNOVATIVE PLANNING SOLUTIONS TO PREPARE AND SUBMIT THIS DRAFT PLAN OF SUBDIVISION FOR APPROVAL.

DATE

SIGNING OFFICER

SURVEYOR'S CERTIFICATE

I CERTIFY THAT THE BOUNDARIES OF THE LANDS TO BE SUBDIVIDED AND THEIR RELATIONSHIP TO ADJACENT LANDS ARE ACCURATELY AND CORRECTLY SHOWN.

DATE

DINO R.S. ASTRI, O.L.S.

ADDITIONAL INFORMATION REQUIRED UNDER **SECTION 51(17)** OF THE PLANNING ACT

a) SHOWN ON PLAN
b) SHOWN ON PLAN
c) SHOWN ON PLAN
d) RESIDENTIAL & OPEN SPACE
e) SHOWN ON PLAN
f) SHOWN ON PLAN
f1) NONE
g) SHOWN ON PLAN
h) MUNICIPAL WATER
i) TECUMSETH SAND
j) SHOWN ON PLAN
k) ALL MUNICIPAL SERVICES
l) NONE

SCHEDULE OF REVISIONS

No.	Date	Description	By

IPS INNOVATIVE PLANNING SOLUTIONS
PLANNERS • PROJECT MANAGERS • LAND DEVELOPERS
150 DUNLOP STREET EAST, SUITE 201, BARRIE, ONTARIO L4M 1B1
tel: 705 • 812 • 3281 fax: 705 • 812 • 3434 e: info@ipsconsultinginc.com www.ipsconsultinginc.com

Date:	April 24, 2018	Drawn By:	AM
File:	17-699	Checked By:	DV

HIGHWAY 26

OLD LAKESHORE ROAD

CAMPERDOWN ROAD

CAMPERDOWN COURT

BARTON BLVD.

ADDITIONAL LANDS OWNED BY APPLICANT

EXISTING RESIDENTIAL

EX. 900X900 CONC. BOX CULVERT

EX. 1500X1500 CONC. BOX CULVERT

EX. CULVERTS

101
5.92 | 52.5
DEVELOPMENT SPACE(3.58ha)

102
2.91 | 59.7

103
10.63 | XX.X

104
24.32 | XX.X

105
16.80 | XX.X

OPEN SPACE (2.80ha)

OLD POST & WIRE FENCE

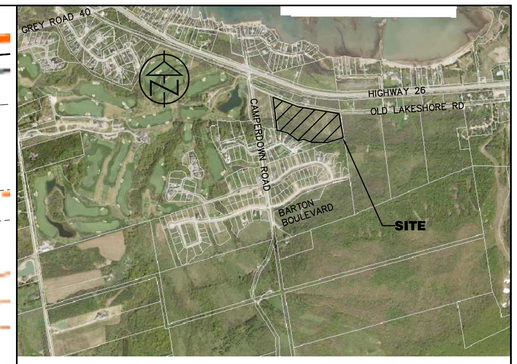
OLD RAIL FENCE

VACANT

EX. MINOR SYSTEM OUTLET 900mmø STM

EX. MAJOR OVERLAND FLOW OUTLET

182.0
185.0
190.0
200.0
210.0
270.0
280.0
290.0
295.0
305
320.0
340.0
345.0
350.0



KEY PLAN
N.T.S.

LEGEND

PROPERTY LINE

EXISTING EDGE OF ASPHALT

EXISTING DRAINAGE BOUNDARY

EXISTING DRAINAGE AREA ID — 100

EXISTING DRAINAGE AREA (ha) — 5.39

EXISTING CN — 55.2

EXISTING MAJOR/OVERLAND FLOW DIRECTION

EXISTING SWALE/DITCH

EXISTING WATER COURSE

EXISTING MINOR STORM FLOW DIRECTION

LEGEND

CONTRACT DRAWINGS

CONTRACTOR MUST VERIFY ALL DIMENSIONS AND BE RESPONSIBLE FOR SAME. ANY DISCREPANCIES MUST BE REPORTED TO THE ENGINEER BEFORE COMMENCING WORK. DRAWINGS ARE NOT TO BE SCALED.

CONTRACT DRAWINGS

LEGAL SURVEY INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A CONCEPT PLAN PREPARED BY IPS INNOVATIVE PLANNING SOLUTIONS, DATED APRIL 21, 2017 WHICH MAY NOT BE FINAL AND ARE NOT GUARANTEED. THE FINAL REGISTERED PLAN OF SUBDIVISION SHALL BE REFERRED TO FOR CONFIRMATION OF THE DATA. TOPOGRAPHIC INFORMATION SHOWN ON THIS PLAN TAKEN FROM ONTARIO BASE MAPPING (OBM) SHEET# 1017545049300 (DD38)

NO.	REVISIONS	DATE	INITIAL

APPROVED

LICENSED PROFESSIONAL ENGINEER
18 Dec 21
R.S. SIMPSON
PROVINCE OF ONTARIO

CAMPERDOWN CONDOMINIUMS
TOWN OF THE BLUE MOUNTAINS

PRE-DEVELOPMENT DRAINAGE PLAN

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

SCALE: 1:2000		JOB NO.	117304
DESIGN: AS	CHECKED: DDH	DWG.	DP-1
DRAWN: RD	DATE: DEC/17		

Drawing Name: 117304-DP01.dwg, Plotted: Jun 21, 2018

KEY PLAN

N.T.S.

LEGEND

- PROPERTY LINE
- EXISTING EDGE OF ASPHALT
- PROPOSED DRAINAGE BOUNDARY
- PROPOSED DRAINAGE AREA ID / PROPOSED DRAINAGE AREA (ha) / PROPOSED CN NUMBER / % IMPERVIOUS (e.g. 100 | 5.39 | 55.2)
- PROPOSED FLOW DIRECTION
- EXISTING SWALE/DITCH
- PROPOSED SWALE

LEGEND

CONTRACT DRAWINGS

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CONTRACT DRAWINGS

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NO.	REVISIONS	DATE	INITIAL

APPROVED

LICENSED PROFESSIONAL ENGINEER — R.S. SIMPSON — PROVINCE OF ONTARIO

CAMPERDOWN CONDOMINIUMS

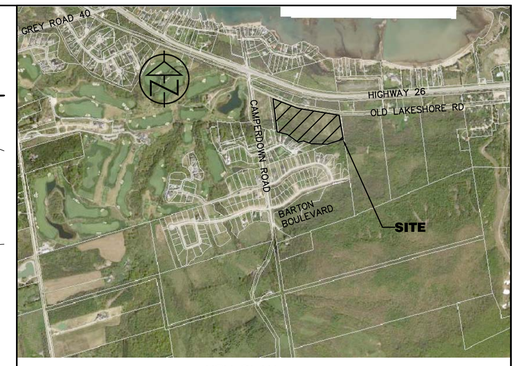
TOWN OF THE BLUE MOUNTAINS

POST–DEVELOPMENT DRAINAGE PLAN

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

SCALE: 1:1000		JOB NO. 117304	
DESIGN: AS	CHECKED: DDH	DWG.	DP-2
DRAWN: RD	DATE: DEC/17		

Drawing Name: 117304-DP02.dwg, Plotted: Jun 21, 2018



KEY PLAN
N.T.S.

HIGHWAY 26

GEORGIAN TRAIL

OLD LAKESHORE ROAD

6.0m WALKWAY

RE-GRADE ROAD @ 0.5% MIN.

DEVELOPMENT SPACE(1.55ha)

CONDO ROAD 'A'

OPEN SPACE
(2.80ha)

CAMPERDOWN COURT

EXISTING RESIDENTIAL

VACANT

EX. 900X900 CONC. BOX CULVERT

EX. 1500X1500 CONC. BOX CULVERT

LEGEND

PROPERTY LINE	
PROPOSED CENTERLINE ROAD	
EXISTING EDGE OF GRAVEL ROAD	
PROPOSED FLOW DIRECTION	→
PROPOSED/EXISTING ELEVATIONS	190.00 / +190.00
PROPOSED SWALE	⇝
PROPOSED GRADE/DIRECTION	1.0% →

LEGEND

CONTRACT DRAWINGS

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CONTRACT DRAWINGS

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NO.	REVISIONS	DATE	INITIAL

APPROVED

LICENSED PROFESSIONAL ENGINEER 18 Oct 21 PROVINCE OF ONTARIO

PRELIMINARY

CAMPERDOWN CONDOMINIUMS
TOWN OF THE BLUE MOUNTAINS

SITE GRADING PLAN

C.C. Tatham & Associates Ltd.
Consulting Engineers
Collingwood Bracebridge Orillia Barrie Ottawa

SCALE: 1:750		JOB NO. 117304	
DESIGN: AS	CHECKED: DDH	DWG.	SG-1
DRAWN: RD	DATE: DEC/17		

Drawing Name: 117304-SG01.dwg, Plotted: Jun 21, 2018