

**FUNCTIONAL SERVICING AND STORMWATER  
MANAGEMENT REPORT**

**FOR**

**5868 COUNTY ROAD 65**

**MUNICIPALITY OF PORT HOPE**

**PROJECT NO. 122049**

**FEBRUARY 2023**

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# **D. G. Biddle & Associates Limited**

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February 21, 2023

Hill Street Developments Inc.  
2015 Altona Road  
Pickering ON L1V 1M8

Attention: Mr. Larry MacDonell

**Re: Draft Plan of Subdivision  
Functional Servicing & Stormwater Management Report  
5868 County Road 65, Osaca  
Municipality of Port Hope  
Our File: 122049**

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Dear Mr. MacDonell:

In support of the Draft Plan of Subdivision for the above referenced proposal, we herewith submit the following Functional Servicing and Stormwater Management Report. This report has been prepared to identify the method in which the proposed development will meet the Municipality of Port Hope, Northumberland County and Ganaraska Region Conservation Authority's stormwater management requirements and identify the existing infrastructure and the infrastructure required to service the proposed development.

We trust the Municipality of Port Hope will concur with our recommendations. Please provide positive comments on the Draft Plan of Subdivision to facilitate development. Should you have any questions on the foregoing, please do not hesitate to contact our office.

Yours truly,

D.G. BIDDLE & ASSOCIATES LIMITED

Matt Holmes, EIT  
Municipal Designer

David McNaull, P.Eng  
Municipal Engineer



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- 122049-LG-1 - Conceptual Grading and Servicing Plan
- 122049-ES-1 - Erosion and Sediment Control Plan
- 122049-SD-1 - Pre-Development Storm Drainage Plan
- 122049-SD-2 - Post-Development Storm Drainage Plan
- 122049-TC-1 - Pre-Development Time of Concentration Plan
- 122049-TC-2 - Post-Development Time of Concentration Plan

## **1.0 INTRODUCTION**

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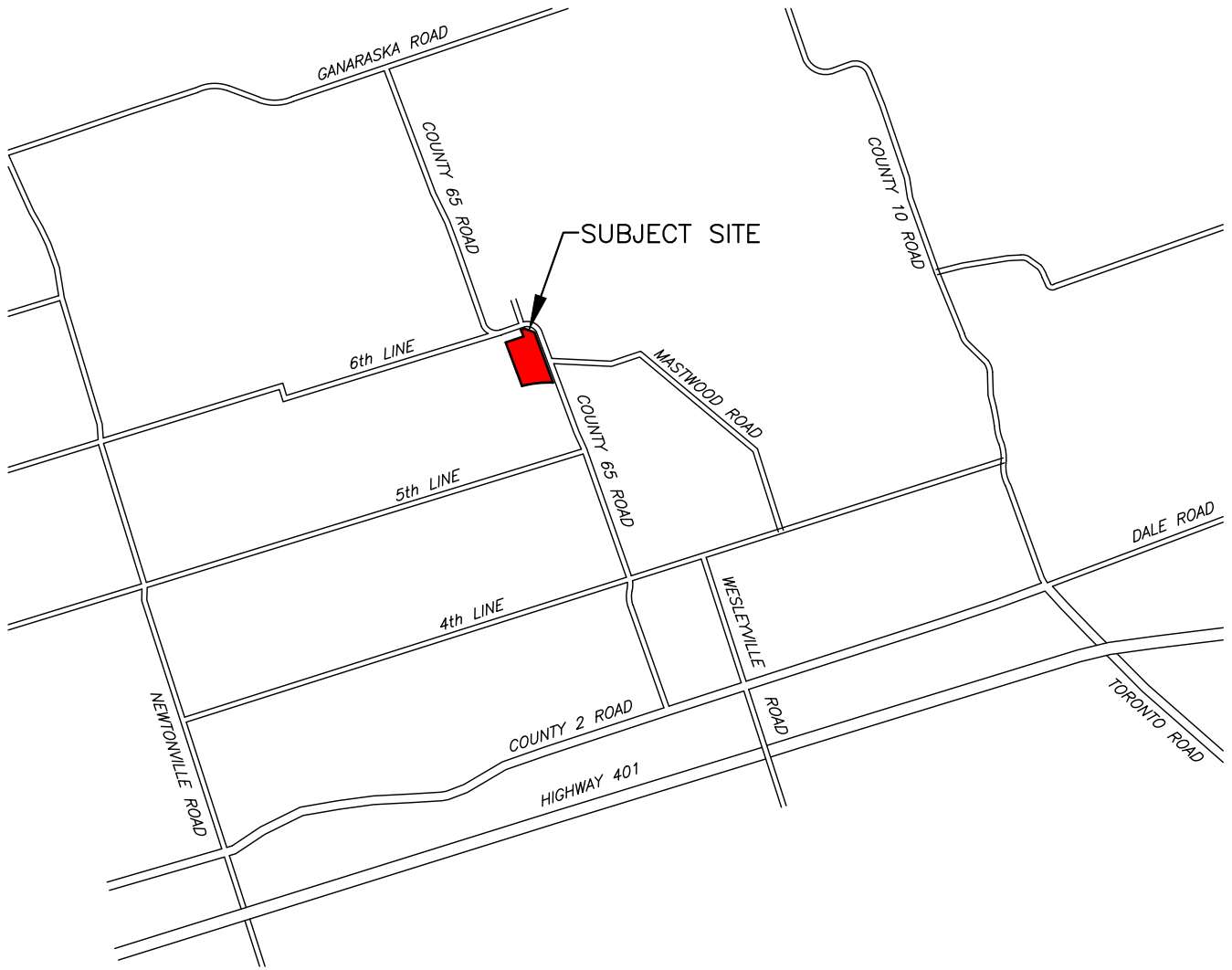
### **1.1 Purpose**

This Preliminary Functional Servicing and Stormwater Management Report has been prepared to satisfy the Conditions of Draft Approval for the proposed development. It will address sanitary services, watermain services, stormwater drainage works, and site grading required to proceed with the development. This report will also discuss the stormwater quality and quantity control objectives in accordance with the requirements of the local governing authorities.

### **1.2 Site Location and Description**

The subject property is located on the west side of County Road 65 within the Hamlet of Osaca located at 5868 County Road 65 in the Rural Area of the Municipality of Port Hope. The proposed development is bounded on the north and south by existing resident lands, west by agricultural/residential lands and on the east by County Road 65. A Site Location Plan is attached as Figure 1.

The drainage for the proposed development is divided into two areas draining to two unnamed creeks. Most of the site drains generally in a southerly direction, where it drains to an unnamed creek south of the property which flows to the east across County Road 65 via an existing culvert. The second unnamed creek runs through the north end of the property. The lands north of the second unnamed creek generally drain south to the creek before ultimately flowing to the east across County Road 65 via an existing culvert. The Pre-Development Drainage scheme is illustrated on the Pre-Development Storm Drainage Plan, drawing 122049-SD-1.



5868 COUNTY ROAD 65, PORT HOPE, ON

SITE LOCATION PLAN



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DRAWN	M.H.
DESIGN	M.H.
CHECKED	D.D.M.
DATE	JAN 2023

PROJECT  
122049

DWG

FIG 1

## **2.0 WATER SUPPLY AND DISTRIBUTION**

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### **2.1 Existing System**

Currently, the site is not serviced with a connection to a municipal water system. There is no municipal water infrastructure present on County Road 65.

### **2.2 Proposed System**

As there is no municipal water infrastructure present on County Road 65, domestic and firefighting water will be provided privately on-site. Domestic water supply for each dwelling will be supplied by individual water wells located on each lot installed by a well driller who has been licensed by the Ministry of Environment and Climate Change. On-site firefighting water supply will be provided through the implementation of a dry hydrant system and underground water supply tank located on Block 59. The dry hydrant system has been designed in accordance with the Ontario Building Code.

The layout of the dry hydrant system is illustrated on the Site Servicing Plan (Drawing 122049 SS-1) attached at the end of this report. Supporting calculations are appended in Schedule 1.



## **3.0 STORM SERVICING**

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### **3.1 Existing System**

Currently, the site is not serviced with a connection to a municipal storm system. There is no municipal storm infrastructure present on County Road 65.

### **3.2 Proposed System**

As mentioned above, there is no municipal storm infrastructure along County Road 65. In post-development conditions, stormwater runoff will continue to the conveyed tributaries (the two creeks north and south of the property) using an open ditch drainage system. These systems will include the use of culverts to maintain positive drainage to the site's outlets.

The proposed stormwater drainage system is illustrated on the attached Conceptual Grading and Servicing Plan, drawing 122049 LG-1, attached at the end of this report.

### **3.3 Stormwater Quantity Controls**

As mentioned above, stormwater drainage from the proposed development is to be conveyed to the North and South creeks using an open ditch drainage system. A storm sewer system is not proposed with this development.

In order to reduce the amount of stormwater runoff from the proposed development, several Low Impact Development (LID) techniques will be implemented. The grading of the proposed lots is arranged to optimize the area which drains towards the roadway. The grading of the front yards will be held at a 2.0% maximum where possible to allow for increased infiltration and cleansing prior to entering the roadside ditch system.

Along the open ditch system, there are three overland flow channels with infiltration galleries proposed to offset the increase in impervious area resulting from the presence of development of each lot. Each infiltration gallery is sized to accommodate the run-off from a 15mm storm event as per the Ministry of Environment Stormwater Management Planning and Design Manual, March 2003. These galleries will provide additional opportunity for infiltration and cleansing of the stormwater prior to discharging to the existing creeks. They also provide attenuation for the post-development flows to pre-development levels. The galleries are proposed to follow the grades of the overland flow channels. They are not proposed where ditch grades would exceed 2.0% due to the increased stone depth and reduced ability to infiltrate stormwater with increased flow velocities. The locations and sizing of the infiltration galleries are illustrated on the engineering drawings. The galleries were designed based on an infiltration rate of 30mm/hr which is a conservative assumption given the sandy composition of the native soil. Sizing calculations for the infiltration galleries are attached at the end of this report.

In addition to the infiltration galleries in the overland flow channels mentioned above, an infiltration gallery has been sized at each outlet to the site as illustrated on drawing 122049-LG-1, labelled A to G. Infiltration galleries A, B and C have been sized to store the 2-year storm flows, infiltration gallery D , E and F have been sized to store the 100-year flows and infiltration gallery G has been sized to store one quarter of the 2 year storm flows. The DUHYD sub-routine in the computer model Visual Otthymo 6.0 was used to simulate the minor flow (storm being stored in the corresponding infiltration gallery) being directed to the infiltration gallery, while the major flow (remaining flow once storm event being stored in the galleries was removed) was added to the total flows contributing to the southern and northern creek post-development flow rates. A schematic of the areas draining to each infiltration gallery is appended in Schedule 2. Sizing calculations for the infiltration galleries are attached at the end of this report.

The NASHYD sub-routine in the computer model Visual Otthymo 6.0 was used to simulate runoff volumes and post-development peak flows for the site. Peak flows were computed using 4-hour Chicago distribution rainfall for the 2-year to 100-year return frequency events. The 2-year to 100-year IDF parameters used are as per the “*Ganaraska Region Conservation Authority (GRCA) Technical and Engineering Guidelines for Stormwater Management Submissions, December 2014*”. The results for the flows calculated draining to the southern creek are appended at the end of this report. Tabulated below is a comparison of the post-development peak flows to the pre-development peak flows. Post-development flows were adjusted to account for the outflow of stormwater from the proposed infiltration galleries to the ground system in order to control stormwater quantity conditions. Supporting calculations are appended in Schedule 1.

**TABLE 1: POST-DEVELOPMENT PEAK FLOWS (SOUTHERN CREEK)**

RETURN FREQUENCY (YEARS)	*PRE-DEVELOPMENT PEAK FLOWS (L/s)	**POST-DEVELOPMENT PEAK FLOW (L/s)	% CHANGE
2	104	87	-16.3%
5	198	191	-3.5%
10	260	273	5.0%
25	464	508	9.5%
50	603	622	3.1%
100	754	778	3.2%

\*Refer to Figure 2 (Schedule 2) NasHyd 3

\*\*Refer to Figure 3 (Schedule 2) AddHyd11

As is reported above, all storm events except the 25-year flows are effectively reduced when compared to the pre-development levels. The use of LID measures provides for sufficient and frequent storm reductions such that, no adverse impacts are anticipated on

the existing downstream drainage network. The Visual Otthymo output files are appended in Schedule 2.

The results for the flows calculated draining to the northern creek are appended at the end of this report. Tabulated below is a comparison of the post-development peak flows to the pre-development peak flows. Post-development flows were adjusted to account for the outflow of stormwater from the proposed infiltration galleries to the ground system in order to control stormwater quantity conditions. Supporting calculations are appended in Schedule 1.

**TABLE 2: POST-DEVELOPMENT PEAK FLOWS (NORTHERN CREEK)**

<b>RETURN FREQUENCY (YEARS)</b>	<b>*PRE-DEVELOPMENT PEAK FLOWS (L/s)</b>	<b>**POST-DEVELOPMENT PEAK FLOW (L/s)</b>	<b>% Change</b>
2	187	163	-12.8%
5	352	336	-4.5%
10	464	450	-3.0%
25	822	824	0.2%
50	1041	1056	1.4%
100	1285	1311	2.0%

\*Refer to Figure 2 (Schedule 2) NasHyd4

\*\*Refer to Figure 3 (Schedule 3) AddHyd25

As is reported above, all post-development flows are effectively reduced when compared to the pre-development levels. The use of LID measures provides for sufficient and frequent storm reductions such that, no adverse impacts are anticipated on the existing downstream drainage network. The Visual Otthymo output files are appended in Schedule 2.

### **3.4 Stormwater Quality Controls**

As illustrated on the Conceptual Grading and Servicing Plan, drawing 122049 LG-1, most of the site will be covered with landscape area. As the proposed development is to be serviced by an open ditch system, quality treatment will occur as the stormwater runoff is conveyed through the grassed roadside ditches. In addition, stormwater quality controls will be provided for lot drainage through the implementation of the LID techniques mentioned above. These techniques will provide opportunity for infiltration and cleansing prior to discharging to the existing northern and southern creeks.

## **4.0 SANITARY SERVICING**

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### **4.1 Existing System**

Currently, the site is not serviced with a connection to a municipal sanitary system. There is no municipal sanitary infrastructure present on County Road 65.

### **4.2 Proposed System**

As noted above a sanitary sewer connection to a municipal system is not available, sanitary will be provided privately on-site. Individual septic systems will provide treatment of the sanitary sewage from the proposed dwellings. Detailed sizing of the individual septic systems will occur at building permit submission.

The approximate layout of the proposed individual septic systems are illustrated on the Conceptual Grading and Servicing Plan, drawing 122049 LG-1, attached at the end of this report.

## **5.0 SITE GRADING**

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In general, the site will be graded in a manner which will satisfy the following goals:

- Satisfy the Municipality of Port Hope boulevard and road grading criteria including:
  - Minimum Road Grade: 0.5%
  - Maximum Road Grade: 5.0%
  - Minimum Landscape Area Grade: 1.0%
  - Maximum Landscape Area Grade: 5.0%
- Provide continuous grades for overland flow conveyance.
- Minimize the volume of earth to be moved and minimize cut/fill differential.
- Achieve stormwater management objectives required for the site.

Details of the site grading design is illustrated on the Conceptual Grading and Servicing Plan, drawing 122049 LG-1, attached at the end of this report.

## **6.0 EROSION AND SEDIMENT CONTROLS**

During the construction period, the removal of natural vegetation causes the transport of large amounts of sediment during rainfall events. To minimize the sediment laden storm water leaving the site during construction, the following sediment control techniques are proposed to be implemented. These measures are detailed on the Erosion and Sediment Control Plan included in the site plan submission.

1. Construction Vehicle Access Route (Mud Mat)
2. Rock Check Dams
2. Perimeter Enviro Fence
3. Good Engineering Practices

The above techniques will be detailed on the Erosion and Sediment Control Plan (122049 Drawing ES-1).



## **7.0 CONCLUSIONS**

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The preceding report identifies the functional servicing and stormwater management requirements for the development proposal. The investigations into these requirements have resulted in the following conclusions for the development proposal:

- Sanitary servicing for each dwelling will be provided through individual septic systems on each lot. Detailed sizing of the individual septic systems will occur during the building permit process.
- On-site firefighting water supply will be provided through the implementation of a dry hydrant system and on-site underground water supply tank;
- Domestic water supply for each dwelling will be supplied by individual water wells located on each lot installed by a well driller who has been licensed by the Ministry of Environment and Climate Change;
- A formal end of pipe stormwater treatment facility for runoff quantity controls is not feasible in this vicinity. As such, LID techniques will be implemented to assist in offsetting the increase in stormwater runoff;
- Stormwater quality controls are implemented through the use of open ditches and the infiltration galleries located in the overland flow channels and in the ditches as illustrated on drawing 122049-LG-1;
- Temporary sediment controls during construction can be managed by the use of perimeter enviro fence, construction vehicle access route, rip rap check dams and good engineering practices;

# **SCHEDULE 1**

**GRCA RAINFALL INTENSITY FORMULAS**

**PRE-DEV TIME OF CONCENTRATION CALCULATIONS**

**POST-DEV TIME OF CONCENTRATION CALCULATIONS**

**FIRE FIGHTING CALCULATIONS**

**SWALE CAPACITY – BETWEEN LOTS 9 & 10**

**SWALE CAPACITY – BETWEEN LOTS 27 & 28**

**SWALE CAPACITY – BACK OF LOTS 33 & 51**

**SWALE CAPACITY – WEST OF LOT 32**

**SWALE CAPACITY – NORTH OF LOT 52**

**SWALE CAPACITY – SOUTH OF STREET C CUL-DE-SAC**

**CULVERT DESIGN – STREET A & B INTERSECTION TO OLF  
CHANNEL**

**CULVERT DESIGN – STREET A & D ENTRANCES AT  
COUNTY ROAD 65 INTERSECTION**

**CULVERT DESIGN – OLF CHANNEL AT LOTS 27 & 28**

**OLF CHANNEL INFILTRATION GALLERY SIZING DESIGN**

**SITE OUTLETS – INFILTRATION GALLERY SIZING DESIGN**

**DUHYD SUMMARY – INLET & OUTLET**

**Clarington Intensity Formulas**

IDF Equation	$I = a/(b+Td)$						Conservative
	Td --- Time in hour I -- Intensity in mm/Hr						$i = \frac{a}{(td + b)^c}$
Return Period Parameters	2 year	5 year	10 year	25 year	50 year	100 year	100year
a	1778	2464	2819	3886	4750	5588	1770
b	13	16	16	18	24	28	4
							0.82

**Rainfall Intensity Formulas (beyond Clarington)**

**Yarnell Equation**

Return Period Parameters	$I = a/(b+Td)$					
	Td --- Time in hour I -- Intensity in mm/Hr					
	2 year	5 year	10 year	25 year	50 year	100 year
a	1778	2464	2819	3886	4750	5588
b	13	16	16	18	24	28

**Time of Concentration & Time to Peak Calculation (Pre-Development)**

1)	Pre-Dev to Southern Creek	Slope =	$\frac{164.20-162.28}{481.00}$	=	0.40%
	Upstream Invert	164.20			
	Downstream Invert	162.28			
	Length (m)	481.00			
	*Assume Pasture*				
			<b>From Figure A.5.2 : Upland Method for Estimating Tc (SCS National Engineering Handbook, 1971)</b>		
			$v = 0.14 \text{ m/s}$		
			$t_c = \frac{481.00}{0.14}$	=	3435.72 s
				=	0.954367 h
			$t_{p1} = \frac{2 \times t_c}{3}$	=	0.636245 h

2)	Pre-Dev to Northern Creek	Slope =	$\frac{170.00-162.83}{323.00}$	=	2.22%
<b>Part 1</b>	Upstream Invert	170.00			
	Downstream Invert	162.83			
	Length (m)	323.00			
	*Assume Woodland, Fallow Contour*				
			<b>From Figure A.5.2 : Upland Method for Estimating Tc (SCS National Engineering Handbook, 1971)</b>		
			$v = 0.23 \text{ m/s}$		
			$t_c = \frac{323.00}{0.23}$	=	1404.35 s
				=	0.390096 h
			$t_{p1} = \frac{2 \times t_c}{3}$	=	0.260064 h

<b>Part 2</b>		Slope =	$\frac{162.83-157.61}{327.87}$	=	1.59%
	Upstream Invert	162.83			
	Downstream Invert	157.61			
	Length (m)	327.87			
	*Assume Grassed Waterway*				
			<b>From Figure A.5.2 : Upland Method for Estimating Tc (SCS National Engineering Handbook, 1971)</b>		
			$v = 0.16 \text{ m/s}$		
			$t_c = \frac{327.87}{0.16}$	=	2049.16 s
				=	0.569212 h
			$t_{p2} = \frac{2 \times t_c}{3}$	=	0.379475 h
	$t_{p \text{ TOTAL}} = t_{p1} + t_{p2} =$				0.639539 h

**Time of Concentration & Time to Peak Calculation (Post-Development)**

1)	West Side of Lot 25		Slope =	$\frac{163.42 - 162.34}{146.26}$	=	0.74%
	Upstream Invert	163.42				
	Downstream Invert	162.34				
	Length (m)	146.26				
	*Assume Woodland*					
			<b>From Figure A.5.2 : Upland Method for Estimating Tc</b>			
			<b>(SCS National Engineering Handbook, 1971)</b>			
			v =	0.14 m/s		
			t <sub>c</sub> =	$\frac{180.72}{0.14}$	=	1338.67 s
					=	0.371852 h
			t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.247901 h

2)	Between Lot 29 & 30		Slope =	$\frac{163.41 - 162.42}{114.62}$	=	0.86%
	Upstream Invert	163.41				
	Downstream Invert	162.42				
	Length (m)	114.62				
	*Assume Woodland*					
			<b>From Figure A.5.2 : Upland Method for Estimating Tc</b>			
			<b>(SCS National Engineering Handbook, 1971)</b>			
			v =	0.15 m/s		
			t <sub>c</sub> =	$\frac{114.62}{0.15}$	=	790.48 s
					=	0.219578 h
			t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.146385 h

3)	Between Lot 14 & 15		Slope =	$\frac{163.40 - 162.97}{48.47}$	=	0.89%
	Upstream Invert	163.40				
	Downstream Invert	162.97				
	Length (m)	48.47				
	*Assume Cultivated Straight Row*					
			<b>From Figure A.5.2 : Upland Method for Estimating Tc</b>			
			<b>(SCS National Engineering Handbook, 1971)</b>			
			v =	0.27 m/s		
			t <sub>c</sub> =	$\frac{48.47}{0.27}$	=	179.53 s
					=	0.049868 h
			t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.033245 h

4)	Between Lot 3 & 4		Slope =	$\frac{164.57 - 163.74}{77.22}$	=	1.07%
	Upstream Invert	164.57				
	Downstream Invert	163.74				
	Length (m)	77.22				
	*Assume Cultivated Straight Row*					
			<b>From Figure A.5.2 : Upland Method for Estimating Tc</b>			
			<b>(SCS National Engineering Handbook, 1971)</b>			
			v =	0.29 m/s		
			t <sub>c</sub> =	$\frac{77.22}{0.29}$	=	270.96 s
					=	0.075267 h
			t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.050178 h

5)	Between Lot 57 & 58		Slope =	$\frac{165.12 - 164.46}{45.83}$	=	1.44%
	Upstream Invert	165.12				
	Downstream Invert	164.46				
	Length (m)	45.83				
	*Assume Cultivated Straight Row*					
			<b>From Figure A.5.2 : Upland Method for Estimating Tc</b>			
			<b>(SCS National Engineering Handbook, 1971)</b>			
			v =	0.32 m/s		
			t <sub>c</sub> =	$\frac{45.83}{0.32}$	=	143.23 s
					=	0.039786 h
			t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.026524 h

**Time of Concentration & Time to Peak Calculation (Post-Development)**

6)	Along Lot 40 to OLF Swale along BLK 60	Slope =	$\frac{164.94 - 163.72}{91.83}$	=	1.33%
	Upstream Invert 164.94				
	Downstream Invert 163.72				
	Length (m) 91.83				
	*Assume Cultivated Straight Row*				
			<b>From Figure A.5.2 : Upland Method for Estimating Tc (SCS National Engineering Handbook, 1971)</b>		
		v =	0.30 m/s		
		t <sub>c</sub> =	$\frac{91.83}{0.30}$	=	311.28 s
				=	0.086468 h
		t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.057645 h

7)	BLK 60 to Swale long Lots 33 to 51	Slope =	$\frac{170.50 - 163.10}{473.79}$	=	1.56%
	Upstream Invert 170.50				
	Downstream Invert 163.10				
	Length (m) 473.79				
	*Assume Cultivated Straight Row*				
			<b>From Figure A.5.2 : Upland Method for Estimating Tc (SCS National Engineering Handbook, 1971)</b>		
		v =	0.34 m/s		
		t <sub>c</sub> =	$\frac{473.79}{0.34}$	=	1403.81 s
				=	0.389947 h
		t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.259965 h

8)	Open Space Flowing Directly into Creek	Slope =	$\frac{168.00 - 157.61}{591.97}$	=	1.76%
	Upstream Invert 168.00				
	Downstream Invert 157.61				
	Length (m) 591.97				
	*Assume Cultivated Straight Row*				
			<b>From Figure A.5.2 : Upland Method for Estimating Tc (SCS National Engineering Handbook, 1971)</b>		
		v =	0.37 m/s		
		t <sub>c</sub> =	$\frac{591.97}{0.37}$	=	1621.83 s
				=	0.450509 h
		t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.300339 h

9)	Lot 53 & 54 Rears	Slope =	$\frac{164.55 - 163.62}{74.67}$	=	1.24%
	Upstream Invert 164.55				
	Downstream Invert 163.62				
	Length (m) 74.67				
	*Assume Cultivated Straight Row*				
			<b>From Figure A.5.2 : Upland Method for Estimating Tc (SCS National Engineering Handbook, 1971)</b>		
		v =	0.30 m/s		
		t <sub>c</sub> =	$\frac{74.67}{0.30}$	=	248.91 s
				=	0.069141 h
		t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.046094 h

10)	Lot 56 & 57 Rears	Slope =	$\frac{162.09 - 161.82}{26.95}$	=	1.00%
	Upstream Invert 162.09				
	Downstream Invert 161.82				
	Length (m) 26.95				
	*Assume Cultivated Straight Row*				
			<b>From Figure A.5.2 : Upland Method for Estimating Tc (SCS National Engineering Handbook, 1971)</b>		
		v =	0.28 m/s		
		t <sub>c</sub> =	$\frac{26.95}{0.28}$	=	96.24 s
				=	0.026734 h
		t <sub>p</sub> =	$\frac{2 \times t_c}{3}$	=	0.017823 h

### DRY HYDRANT DESIGN WORKSHEET

<p>1. Fire Department <u>PORT HOPE FIRE STATION No. 3</u></p> <p>2. Dry hydrant location _____          Latitude/Longitude _____ / _____ Datum _____</p> <p>3. Dry hydrant ID number <u>DRY HYD A</u></p> <p>4. Design flow rate _____</p> <p>5. Elevation of site above sea level _____</p> <p>6. Normal atmospheric pressure [from Table L1(a)] _____</p> <p>7. Lift <u>984</u> ft × 0.484 _____</p> <p>8. Water temperature <u>50</u> °F          vapor pressure [from Table L1(b)] _____</p> <p>9. Pressure loss at pump intake _____</p> <p>Available site pressure _____</p> <p>10. Line 8 minus (line 7 + line 8 + line 9) _____</p> <p>11. Pressure loss in pipe and fittings          (from Dry Hydrant Hardware Layout Worksheet) _____</p> <p>12. Pressure loss from sudden reduction [from Table L1(d)]  <u>6"</u> × <u>6"</u> _____          _____ × _____ _____          _____ × _____ _____</p> <p>13. Velocity head [from Table L1(g)] _____</p> <p>14. Pressure loss in suction hose [from Table L1(h)]          Size <u>6</u> in.          No. of 10 ft length(s) <u>1</u> × <u>0.132</u> tabular value = _____</p> <p>15. Pressure needed to overcome piping and water movement loss          Add (line 11 + line 12 + line 13 + line 14) _____</p> <p>16. Resulting calculation of available site pressure          Enter line 10 minus line 15 _____</p> <p>17. Comments _____          _____          _____          _____</p>	<p><u>713.26</u> gpm</p> <p><u>539.70</u> ft</p> <p><u>14.430</u> psi</p> <p><u>4.271</u> psi</p> <p><u>0.180</u> psi</p> <p><u>5.0</u> psi</p> <p><u>4.979</u> psi</p> <p><u>1.011</u> psi</p> <p><u>0</u> psi</p> <p>_____ psi</p> <p><u>0.446</u> psi</p> <p><u>0.132</u> psi</p> <p><u>1.589</u> psi</p> <p><u>3.390</u> psi</p>
--	--

For SI units: 1 gal = 3.785 L; 1 ft = 0.305 m; 1 in. = 25.4 mm; 1 psi = 6.895 kPa.  
 © 2007 National Fire Protection Association

FIGURE L1(a) Dry Hydrant Design Worksheet.





5865 County Road 65  
Job File: 122049  
Municipality of Port Hope  
Water Storage Tank Design Calculations

1/2

**Building Classification from Table 3.1.2.1:** Type C - Residential Occupancies

**Water Supply Coefficient (K):** 18 (Table 1 - OBC Appendix A , Vol. 2)

**Building Volume**

\*Assume Average House Square Footage of 3500 ft<sup>2</sup> (325.16m<sup>2</sup>) and Average Building Height of 10m (3.00m basement, 3.00m 1st & second floors, 1.00m roof pitch)\*

$$\text{Average House Volume} = (325.16 \times 10) = 3251.61 \text{ m}^3$$

**Spatial Coefficient**

\*Assume an average exposure distance of 9.5m for distance between houses

$$S_{\text{side}} = 0.05 \text{ (From Figure 1 - OBC Appendix A, Vol. 2)}$$

$$S_{\text{side}} = 0.00 \text{ (Front \& Back of House)}$$

$$S_{\text{tot}} = 1.0 + [S_{\text{side}} + S_{\text{side2}} + S_{\text{side3}} + S_{\text{side4}}] = 1.0 + [0.05 + 0.05 + 0 + 0]$$

$$S_{\text{tot}} = 1.1$$

**Required Minimum Water Supply Flow Rate (L/min)**

$$Q = KVS_{\text{tot}} = (18 \times 3251.61 \times 1.1) = 64381.8 \text{ L}$$

As per Table 2 , since  $Q \leq 108,000 \text{ L}$ :

$$\text{Required Minimum Water Supply Flow Rate} = 2700 \text{ L/min}$$

**Minimum 30 Minute Water Supply Based on Table 2 Flow Rate**

$$\text{Water Supply Flow Rate} = 2700 \text{ L/min}$$

$$\text{Water Supply} = 65000 \text{ L}$$

**A minimum Water Supply of 30 minutes is required**

$$\text{Water Supply/Water Supply Flow Rate} = 65000/2700 = 24.07 \text{ minutes}$$

Since 24.07 minutes < 30 minutes required, a larger tank is required

$$\text{Required Water Supply} = 2700 \text{ L/min} \times 30 \text{ minutes} = 81000 \text{ L}$$

Therefore a storage tank is to be sized to hold 81,000 L (81 m<sup>3</sup>)

$$\text{Length: } 6.50$$

$$\text{Width: } 6.50$$

$$\text{Height: } 2.25$$

$$\text{Volume} = (6.50 \times 6.50 \times 2.25) = 95.06 \text{ m}^3$$

Since 95.06 m<sup>3</sup> > 81 m<sup>3</sup>, a storage tank 6.50m long, 6.50m wide and 2.25m deep will provide the required on site water supply for fire protection.

**4. Design Flow Rate (L/min to gpm)**

$$2700 \text{ L/min} = 713.26 \text{ gallons per minute}$$

**5. Elevation Above Sea Level**

$$164.50\text{m} = 539.70 \text{ ft}$$

**6. Normal Atmospheric Pressure [From Table I.1(a)]**

$$\begin{aligned} \text{Elevation Above Sea Level:} & \quad 539.70 \text{ feet} \\ \text{Normal Atmospheric Pressure @ 0 ft} & = 14.70 \text{ psi} \\ \text{Normal Atmospheric Pressure @ 1000 ft} & = 14.20 \text{ psi} \end{aligned}$$

**Normal Atmospheric Pressure @ 539.70 ft**

$$14.70 - [(539.7/1000)*(14.70-14.20)] = 14.43 \text{ psi}$$

**7. Lift**

Lift = Depth from FDC to Pipe Invert (Refer to Detail on Site Sevicng Drawing)

$$\text{Lift} = 2.10 + 0.3 + 0.6 = 3.00\text{m} = 9.84 \text{ ft}$$

$$\text{Lift} = 9.84 \text{ ft} \times 0.434 = 4.27 \text{ psi}$$

**8. Vapour Pressure**

\*Assume a water temperature of 50 Fahrenheit\*

$$\text{From Table I.1(b): Vapour Pressure} = 0.180 \text{ psi}$$

**10. Available Site Pressure**

$$\begin{aligned} \text{Atmospheric Pressure} - \text{Lift} - \text{Vapour Pressure} - \text{Pressure Loss @ Pump Intake} \\ = 14.43 - 4.27 - 0.18 - 5.0 = \mathbf{4.98 \text{ psi}} \end{aligned}$$

**11. Friction Loss Per Foot of Pipe (psi)**

\*Based on a Design Flow Rate of 713.26 gpm\*

$$\text{Friction Loss/Foot of Pipe} = 0.01678 \text{ psi} \quad [\text{From Table I.1(e)}]$$

**12. Pressure Loss from Sudden Reduction**

Since system is a 6" pipe, no reduction required.

$$\text{Pressure Loss} = 0 \text{ psi} \quad [\text{From Table I.1(f)}]$$

**13. Velocity in Suction Pipe**

\*Based on a Design Flow Rate of 713.26 gpm\*

$$\text{Velocity in Suction Pipe} = 0.446 \text{ psi} \quad [\text{From Table I.1(g)}]$$

**14. Pressure Loss in Suction Hose**

\*Based on a Design Flow Rate of 713.26 gpm\*

$$\text{Pressure Loss in Section Hose} = 0.132 \text{ psi} \quad [\text{From Table I.1(h)}]$$

**16. Available Site Pressure (ASP)**

$$\text{ASP} = 4.979 - 1.011 - 0 - 0.446 - 0.132 = \underline{\underline{\mathbf{3.39 \text{ psi}}}}$$

**PROJECT** 5868 County Road 65, Port Hope  
**PROJECT #** 122049  
**DATE** 2/21/2023

**Swale Capacity Calculation - OLF Channel Between Lots 9 & 10**

$$Q = 1/n * A * R^{2/3} * S^{1/2}$$

$$Q = 1/0.027 * 0.420 * 0.175^{(2/3)} * 0.005^{(1/2)}$$

$$Q = 0.344387269 \text{ m}^3/\text{s}$$

Channel Base Width =	0.5 m
Side Slope =	3 :1
Depth=	0.3 m
Manning's Coefficient	0.027
Channel Slope	0.005 m/m
A=Area	0.420 m <sup>2</sup>
P=Wetted Perimeter	2.397 m
R=Hydraulic Radius=A/P	0.175 m

**Flow to Swale**

Q<sub>100-PETERBOROUGH</sub> = 0.276 m<sup>3</sup>/s

Total Flow

Q<sub>INFLOW</sub> = 0.276 m<sup>3</sup>/s < Q<sub>CAPACITY</sub> = 0.344 m<sup>3</sup>/s

**PROJECT** 5868 County Road 65, Port Hope  
**PROJECT #** 122049  
**DATE** 2/21/2023

**Swale Capacity Calculation - OLF Channel Between Lots 27 & 28**

$$Q = 1/n * A * R^{2/3} * S^{1/2}$$

$$Q = 1/0.027 * 0.220 * 0.125^{2/3} * 0.005^{1/2}$$

$$Q = 0.143772941 \text{ m}^3/\text{s}$$

Channel Base Width =	0.5 m
Side Slope =	3 :1
Depth=	0.2 m
Manning's Coefficient	0.027
Channel Slope	0.005 m/m
A=Area	0.220 m <sup>2</sup>
P=Wetted Perimeter	1.765 m
R=Hydraulic Radius=A/P	0.125 m

**Flow to Swale**

Q<sub>100-PETERBOROUGH</sub> = 0.135 m<sup>3</sup>/s

Total Flow

Q<sub>INFLOW</sub> = 0.135 m<sup>3</sup>/s < Q<sub>CAPACITY</sub> = 0.144 m<sup>3</sup>/s

**PROJECT** 5868 County Road 65, Port Hope  
**PROJECT #** 122049  
**DATE** 2/21/2023

**Swale Capacity Calculation - Back of Lots 33 to 51 Along BLK 60**

$$Q = 1/n * A * R^{2/3} * S^{1/2}$$

$$Q = 1/0.027 * 1.020 * 0.232^{2/3} * 0.005^{1/2}$$

$$Q = 1.008462474 \text{ m}^3/\text{s}$$

Channel Base Width =	2.5 m
Side Slope =	3 :1
Depth=	0.3 m
Manning's Coefficient	0.027
Channel Slope	0.005 m/m
A=Area	1.020 m <sup>2</sup>
P=Wetted Perimeter	4.397 m
R=Hydraulic Radius=A/P	0.232 m

**Flow to Swale**

Q<sub>100-PETERBOROUGH</sub> = 0.878 m<sup>3</sup>/s

Total Flow

Q<sub>INFLOW</sub> = 0.878 m<sup>3</sup>/s < Q<sub>CAPACITY</sub> = 1.008 m<sup>3</sup>/s

**PROJECT** 5868 County Road 65, Port Hope  
**PROJECT #** 122049  
**DATE** 2/21/2023

**Swale Capacity Calculation - OLF Channel West of Lot 32**

$$Q = 1/n * A * R^{2/3} * S^{1/2}$$

$$Q = 1/0.027 * 0.220 * 0.125^{2/3} * 0.0075^{1/2}$$

$$Q = 0.176085172 \text{ m}^3/\text{s}$$

Channel Base Width =	0.5 m
Side Slope =	3 :1
Depth=	0.2 m
Manning's Coefficient	0.027
Channel Slope	0.0075 m/m
A=Area	0.220 m <sup>2</sup>
P=Wetted Perimeter	1.765 m
R=Hydraulic Radius=A/P	0.125 m

**Flow to Swale**

Q<sub>100-PETERBOROUGH</sub> = 0.120 m<sup>3</sup>/s

Total Flow

Q<sub>INFLOW</sub> = 0.120 m<sup>3</sup>/s < Q<sub>CAPACITY</sub> = 0.176 m<sup>3</sup>/s

**PROJECT** 5868 County Road 65, Port Hope  
**PROJECT #** 122049  
**DATE** 2/21/2023

**Swale Capacity Calculation - OLF Channel North of Lot 52**

$$Q = 1/n * A * R^{2/3} * S^{1/2}$$

$$Q = 1/0.027 * 0.354 * 0.160^{2/3} * 0.005^{1/2}$$

$$Q = 0.273251248 \text{ m}^3/\text{s}$$

Channel Base Width =	0.5 m
Side Slope =	3 :1
Depth=	0.27 m
Manning's Coefficient	0.027
Channel Slope	0.005 m/m
A=Area	0.354 m <sup>2</sup>
P=Wetted Perimeter	2.208 m
R=Hydraulic Radius=A/P	0.160 m

**Flow to Swale**

Q<sub>100-PETERBOROUGH</sub> = 0.261 m<sup>3</sup>/s

Total Flow

Q<sub>INFLOW</sub> = 0.261 m<sup>3</sup>/s < Q<sub>CAPACITY</sub> = 0.273 m<sup>3</sup>/s

**PROJECT** 5868 County Road 65, Port Hope  
**PROJECT #** 122049  
**DATE** 2/21/2023

**Swale Capacity Calculation - OLF Channel South of Street C Cul-de-Sac**

$$Q = 1/n * A * R^{2/3} * S^{1/2}$$

$$Q = 1/0.027 * 0.313 * 0.150^{2/3} * 0.005^{1/2}$$

$$Q = 0.231208558 \text{ m}^3/\text{s}$$

Channel Base Width =	0.5 m
Side Slope =	3 :1
Depth=	0.25 m
Manning's Coefficient	0.027
Channel Slope	0.005 m/m
A=Area	0.313 m <sup>2</sup>
P=Wetted Perimeter	2.081 m
R=Hydraulic Radius=A/P	0.150 m

**Flow to Swale**

Q<sub>100-PETERBOROUGH</sub> = 0.216 m<sup>3</sup>/s

Total Flow

Q<sub>INFLOW</sub> = 0.216 m<sup>3</sup>/s < Q<sub>CAPACITY</sub> = 0.231 m<sup>3</sup>/s



Job 5868 County Road 65 Subdivision  
 Job # 122049

2/17/2023

**Culvert Design Crossing Under Street A at BLK 59**

**Head (H)**  $H = H_e + H_v + H_f$

$H_v = V^2 / (2g)$

$H_e = k_e (V^2 / 2g)$

$H_f = ((19.6 n^2 L) / (R^4 / 3)) (V^2 / 2g)$

Sub and simplify

$H = d + (V_1^2 / 2g) + LS - h_0$

Inlet 163.42  
 Outlet 163.33  
 Q= 0.157 m<sup>3</sup>/s  
 D = 0.375  
 N = 2.00  
 H<sub>f</sub>/D = 0.85  
 k<sub>e</sub> = 0.9  
 LS = 0.08  
 d<sub>c</sub>/D 0.955

Since Both Culverts outlet to the same spot, we must total the headwater at the outlet and confirm depth is still adequate  
 Headwater at Outlet of East Culvert = 0.26 (See Culvert Design Crossing Under Street A at Lot 24 Culvert Spreadsheet)  
 Max WSE @ Inlet = **163.74**  
 Max WSE @ Outlet = Outlet + West Culvert HW + East Culvert HW = **163.94**  
 Height of Shoulder at Inlet = 163.84 > 163.74  
 Height of Shoulder at Outlet = 163.98 > 163.94

Since water surface elevation at inlet and outlet is less than the height of the shoulder, water will not overtop Street A at the outlet or inlet.

CULVERT DATA				Inlet Control		OUTLET CONTROL							GOV'G	
DESCRIP.	DIA.	NO.	Q/N	AREA	HW/D	HW	k <sub>e</sub>	H	d <sub>c</sub>	(d <sub>c</sub> +D)/2	h <sub>0</sub>	L*S	HW	HW
	(m)	N	(m <sup>3</sup> /s)	(m <sup>2</sup> )		(m)		(m)	(m)	(m)	(m)	(m)	(m)	(m)
7	8	9	10	11	13	14	15	16	17	18	20	21	22	23
375mm	0.375	2.00	0.08	0.11	0.85	0.32	0.90	0.15	0.20	0.29	0.29	0.08	0.35	0.35

- 9 NUMBER OF BARRELS 15 DESIGN CHART 2.35 21
- 10 COL. 1 / COL. 9 16 DESIGN CHART 2.35 22
- 11 AREA PER BARREL 17 DESIGN CHART 2.28 CHART 2.37 23
- 12 BOX CULVERT ONLY 18 (COL. 17+COL. 8)/2 24
- 13 DESIGN CHART 2.32 19 COL. 2 + COL. 3
- 14 COL. 8 x COL. 13 20 LARGER OF COL. 18 & 19

Job 5868 County Road 65 Subdivision  
 Job # 122049  
 Culvert Design Crossing Under Street D Entrance

2/17/2023

Head (H)  $H = H_e + H_v + H_f$

$H_v = V^2 / (2g)$

$H_e = k_e (V^2 / 2g)$

$H_f = ((19.6 n^2 L) / (R^4 / 3)) (V^2 / 2g)$

Sub and simplify

$H = d + (V_1^2 / 2g) + LS - h_0$

Inlet 161.03

Outlet 160.94

Q= 0.105 m<sup>3</sup>/s

D = 0.300

N = 1.00

H<sub>f</sub>/D = 1.80

k<sub>e</sub> = 0.9

LS = 0.07

d<sub>c</sub>/D = 0.667

Shoulder Elevation North side of Street D Intersection = 161.94

Max WSE @ Inlet = **161.57** < 161.94

Shoulder Elevation South side of Street D Intersection = 161.94

Max WSE @ Inlet = **161.82** < 161.94

Since water surface elevation at inlet and outlet is less than the height of the shoulder, water will not overtop Street D at the outlet or inlet.

CULVERT DATA					Inlet Control		OUTLET CONTROL						GOV'G	
DESCRIP.	DIA.	NO.	Q/N	AREA	HW/D	HW	k <sub>e</sub>	H	d <sub>c</sub>	(d <sub>c</sub> +D)/2	h <sub>0</sub>	L*S	HW	HW
	(m)	N	(m <sup>3</sup> /s)	(m <sup>2</sup> )		(m)		(m)	(m)	(m)	(m)	(m)	(m)	(m)
7	8	9	10	11	13	14	15	16	17	18	20	21	22	23
375mm	0.300	1.00	0.11	0.07	1.80	0.54	0.90	0.70	0.20	0.25	0.25	0.07	0.88	0.88

9 NUMBER OF BARRELS

10 COL. 1 / COL. 9

11 AREA PER BARREL

12 BOX CULVERT ONLY

13 DESIGN CHART 2.32

14 COL. 8 x COL. 13

15 DESIGN CHART 2.35

16 DESIGN CHART 2.35

17 DESIGN CHART 2.28

18 (COL. 17+COL. 8)/2

19 COL. 2 + COL. 3

20 LARGER OF COL. 18 & 19

21

22

CHART 2.37

23

24

Job 5868 County Road 65 Subdivision  
 Job # 122049  
 Culvert Design Crossing Under Street A Entrance

2/17/2023

Head (H)  $H = H_e + H_v + H_f$

$$H_v = V^2 / (2g)$$

$$H_e = k_e (V^2 / 2g)$$

$$H_f = ((19.6 n^2 L) / (R^4 / 3)) (V^2 / 2g)$$

Sub and simplify

$$H = d + (V_1^2 / 2g) + LS - h_0$$

Inlet 162.26

Outlet 162.20

Q = 1.03 m<sup>3</sup>/s

D = 0.525

N = 0.00

H<sub>f</sub>/D = 1.32

k<sub>e</sub> = 0.9

LS = 0.07

d<sub>c</sub>/D = 0.476

Shoulder Elevation North side of Street A Intersection = 163.00

Max WSE @ Inlet = 162.95 < 163.00

Shoulder Elevation South side of Street A Intersection = 163.00

Max WSE @ Inlet = 162.99 < 163.00

Since water surface elevation at inlet and outlet is less than the height of the shoulder, water will not overtop Street D at the outlet or inlet.

CULVERT DATA					Inlet Control		OUTLET CONTROL						GOV'G	
DESCRIP.	DIA.	NO.	Q/N	AREA	HW/D	HW	k <sub>e</sub>	H	d <sub>c</sub>	(d <sub>c</sub> +D)/2	h <sub>0</sub>	L*S	HW	HW
	(m)	N	(m <sup>3</sup> /s)	(m <sup>2</sup> )		(m)		(m)	(m)	(m)	(m)	(m)	(m)	(m)
7	8	9	10	11	13	14	15	16	17	18	20	21	22	23
525mm	0.525	3.00	0.34	0.22	1.32	0.69	0.90	0.48	0.25	0.39	0.39	0.07	0.79	0.79

9 NUMBER OF BARRELS

10 COL. 1 / COL. 9

11 AREA PER BARREL

12 BOX CULVERT ONLY

13 DESIGN CHART 2.32

14 COL. 8 x COL. 13

15 DESIGN CHART 2.35

16 DESIGN CHART 2.35

17 DESIGN CHART 2.28

18 (COL. 17+COL. 8)/2

19 COL. 2 + COL. 3

20 LARGER OF COL. 18 & 19

21

22

CHART 2.37

23

24

Job 5868 County Road 65 Subdivision  
 Job # 122049

2/17/2023

Culvert Design Crossing Under Street B on West side of Low Point at Lot 27/28

Head (H)  $H = H_e + H_v + H_f$

$H_v = V^2 / (2g)$

$H_e = k_e (V^2 / 2g)$

$H_f = ((19.6 n^2 L) / (R^4 / 3)) (V^2 / 2g)$

Sub and simplify

$H = d + (V_1^2 / 2g) + LS - h_0$

Inlet 163.38

Outlet 163.30

Q = 0.027 m<sup>3</sup>/s

D = 0.300

N = 1.00

H<sub>f</sub>/D = 0.53

k<sub>e</sub> = 0.9

LS = 0.07

d<sub>c</sub>/D = 0.333

Shoulder Elevation on North Side of the Road = 164.06

Max WSE @ Inlet = **163.54** < 164.06

Shoulder Elevation on South Side of the Road = 164.06

Max WSE @ Inlet = **163.46** < 164.06

Since water surface elevation at inlet and outlet is less than the height of the shoulder, water will not overtop Street B at the outlet or inlet.

CULVERT DATA					Inlet Control		OUTLET CONTROL						GOV'G	
DESCRIP.	DIA.	NO.	Q/N	AREA	HW/D	HW	k <sub>e</sub>	H	d <sub>c</sub>	(d <sub>c</sub> +D)/2	h <sub>0</sub>	L*S	HW	HW
	(m)	N	(m <sup>3</sup> /s)	(m <sup>2</sup> )		(m)		(m)	(m)	(m)	(m)	(m)	(m)	(m)
7	8	9	10	11	13	14	15	16	17	18	20	21	22	23
300mm	0.300	1.00	0.03	0.07	0.53	0.16	0.90	0.03	0.10	0.20	0.20	0.07	0.16	0.16

9 NUMBER OF BARRELS

10 COL. 1 / COL. 9

11 AREA PER BARREL

12 BOX CULVERT ONLY

13 DESIGN CHART 2.32

14 COL. 8 x COL. 13

15 DESIGN CHART 2.35

16 DESIGN CHART 2.35

17 DESIGN CHART 2.28

18 (COL. 17+COL. 8)/2

19 COL. 2 + COL. 3

20 LARGER OF COL. 18 & 19

21

22

CHART 2.37

23

24

Job 5868 County Road 65 Subdivision  
 Job # 122049

2/17/2023

Culvert Design Crossing Under Street B on East side of Low Point at Lot 27/28

Head (H)  $H = H_e + H_v + H_f$

$H_v = V^2 / (2g)$

$H_e = k_e (V^2 / 2g)$

$H_f = ((19.6 n^2 L) / (R^4 / 3)) (V^2 / 2g)$

Sub and simplify

$H = d + (V_1^2 / 2g) + LS - h_0$

Inlet 163.37

Outlet 163.30

Q= 0.046 m<sup>3</sup>/s

D = 0.300

N = 1.00

H<sub>f</sub>/D = 0.85

k<sub>e</sub> = 0.9

LS = 0.07

d<sub>c</sub>/D = 0.333

Shoulder Elevation on North Side of the Road = 164.06

Max WSE @ Inlet = **163.63** < 164.06

Shoulder Elevation on South Side of the Road = 164.06

Max WSE @ Inlet = **163.58** < 164.06

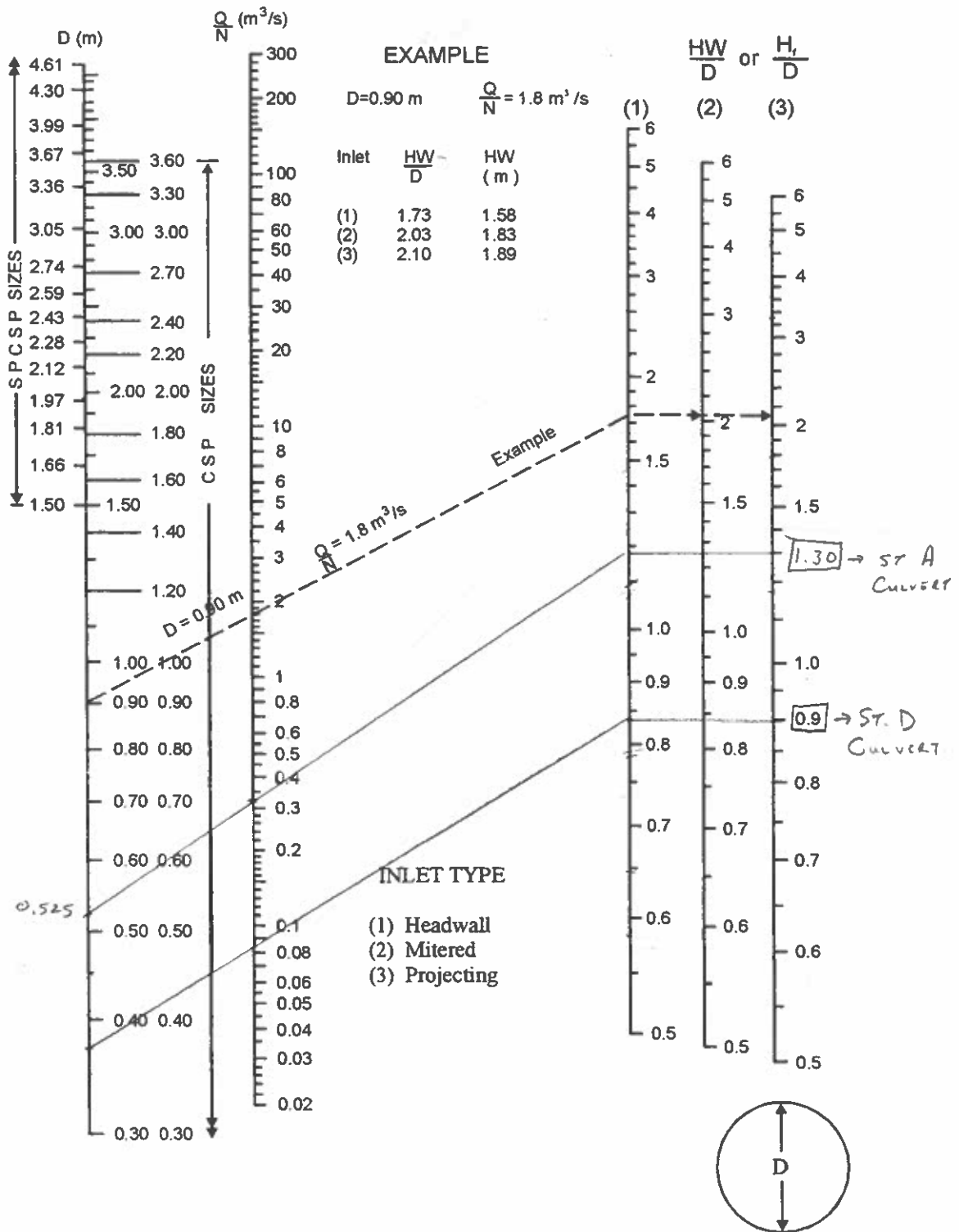
Since water surface elevation at inlet and outlet is less than the height of the shoulder, water will not overtop Street B at the outlet or inlet.

CULVERT DATA					Inlet Control		OUTLET CONTROL						GOV'G	
DESCRIP.	DIA.	NO.	Q/N	AREA	HW/D	HW	k <sub>e</sub>	H	d <sub>c</sub>	(d <sub>c</sub> +D)/2	h <sub>0</sub>	L*S	HW	HW
	(m)	N	(m <sup>3</sup> /s)	(m <sup>2</sup> )		(m)		(m)	(m)	(m)	(m)	(m)	(m)	(m)
7	8	9	10	11	13	14	15	16	17	18	20	21	22	23
300mm	0.300	1.00	0.05	0.07	0.85	0.26	0.90	0.15	0.10	0.20	0.20	0.07	0.28	0.28

- 9 NUMBER OF BARRELS
- 10 COL. 1 / COL. 9
- 11 AREA PER BARREL
- 12 BOX CULVERT ONLY
- 13 DESIGN CHART 2.32
- 14 COL. 8 x COL. 13

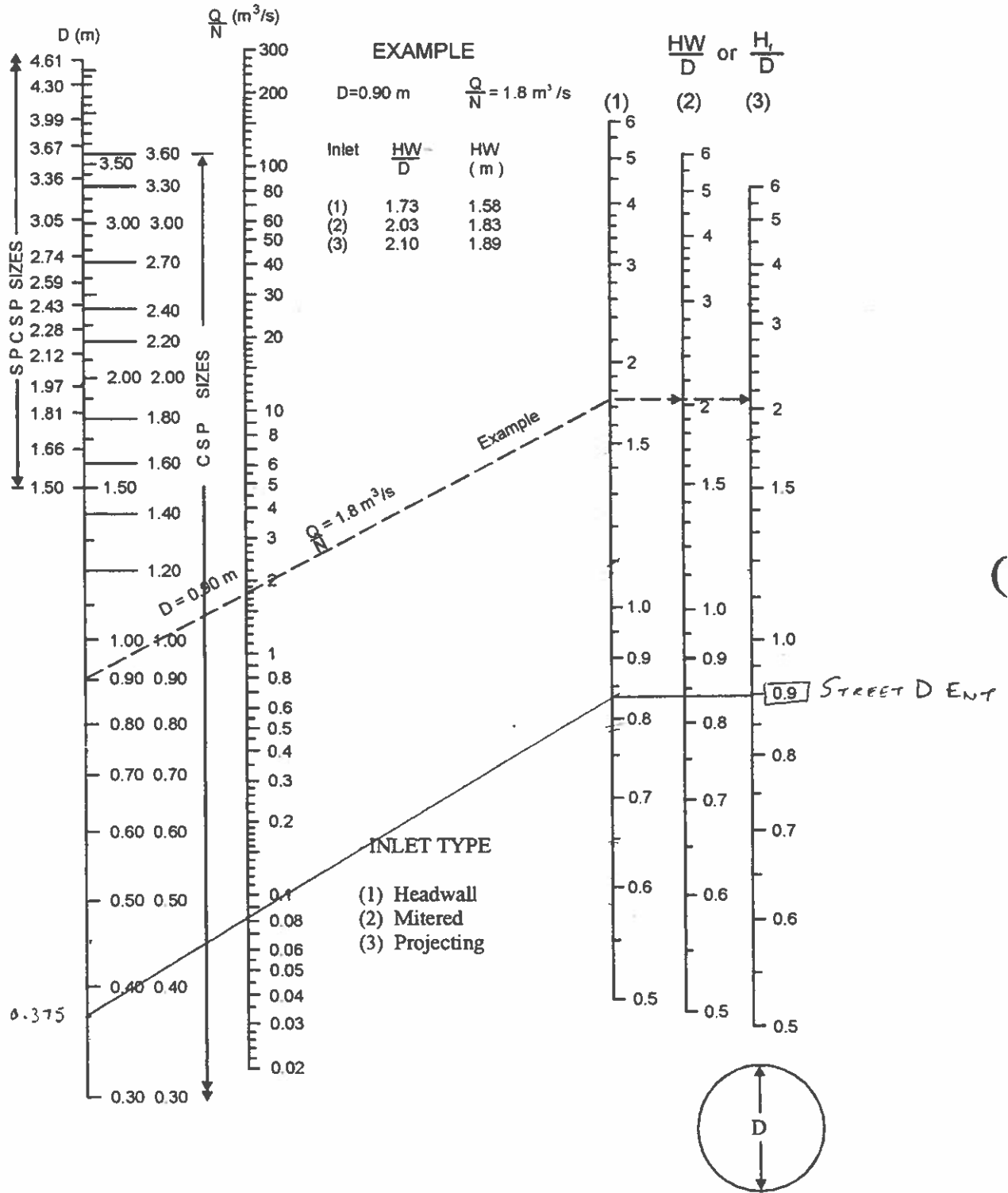
- 15 DESIGN CHART 2.35
- 16 DESIGN CHART 2.35
- 17 DESIGN CHART 2.28 CHART 2.37
- 18 (COL. 17+COL. 8)/2
- 19 COL. 2 + COL. 3
- 20 LARGER OF COL. 18 & 19
- 21
- 22
- 23
- 24

Design Chart 2.32: Inlet Control: Circular CSP and SPCSP Culverts



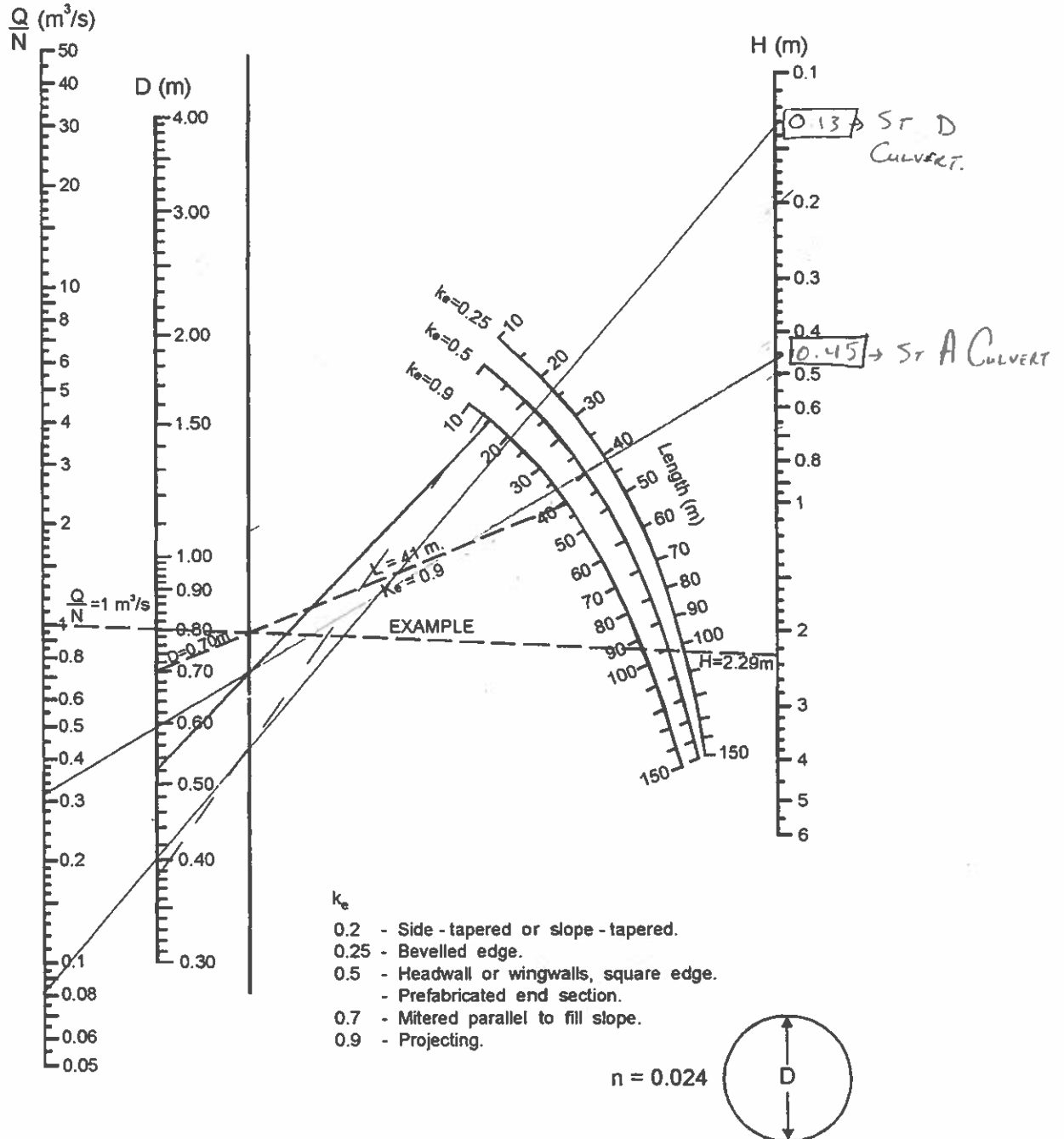
Source: Herr (1977)

**Design Chart 2.32: Inlet Control: Circular CSP and SPCSP Culverts**



Source: Herr (1977)

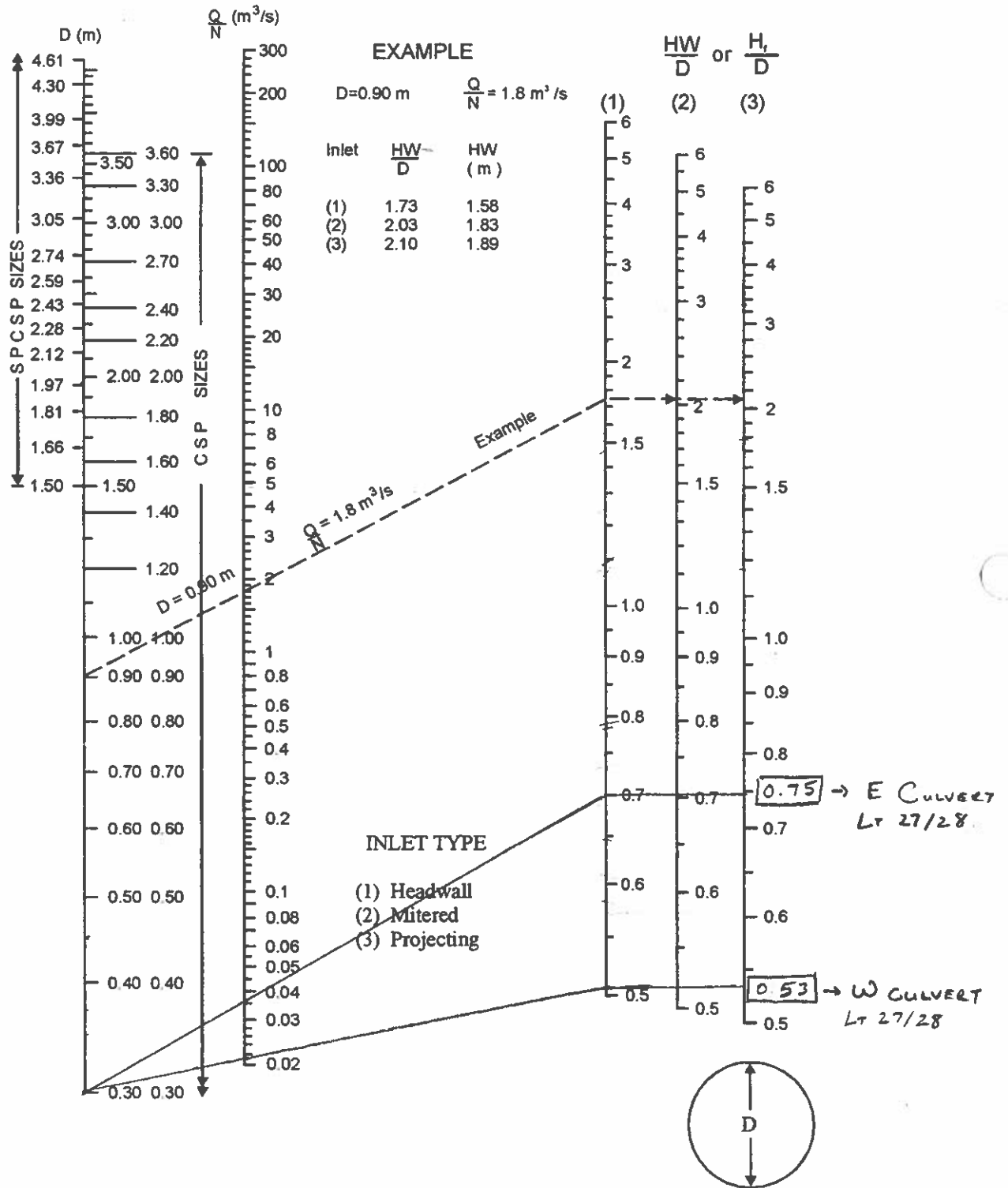
Design Chart 2.35: Outlet Control: CSP Culvert - Flowing Full



Source: Herr (1977)

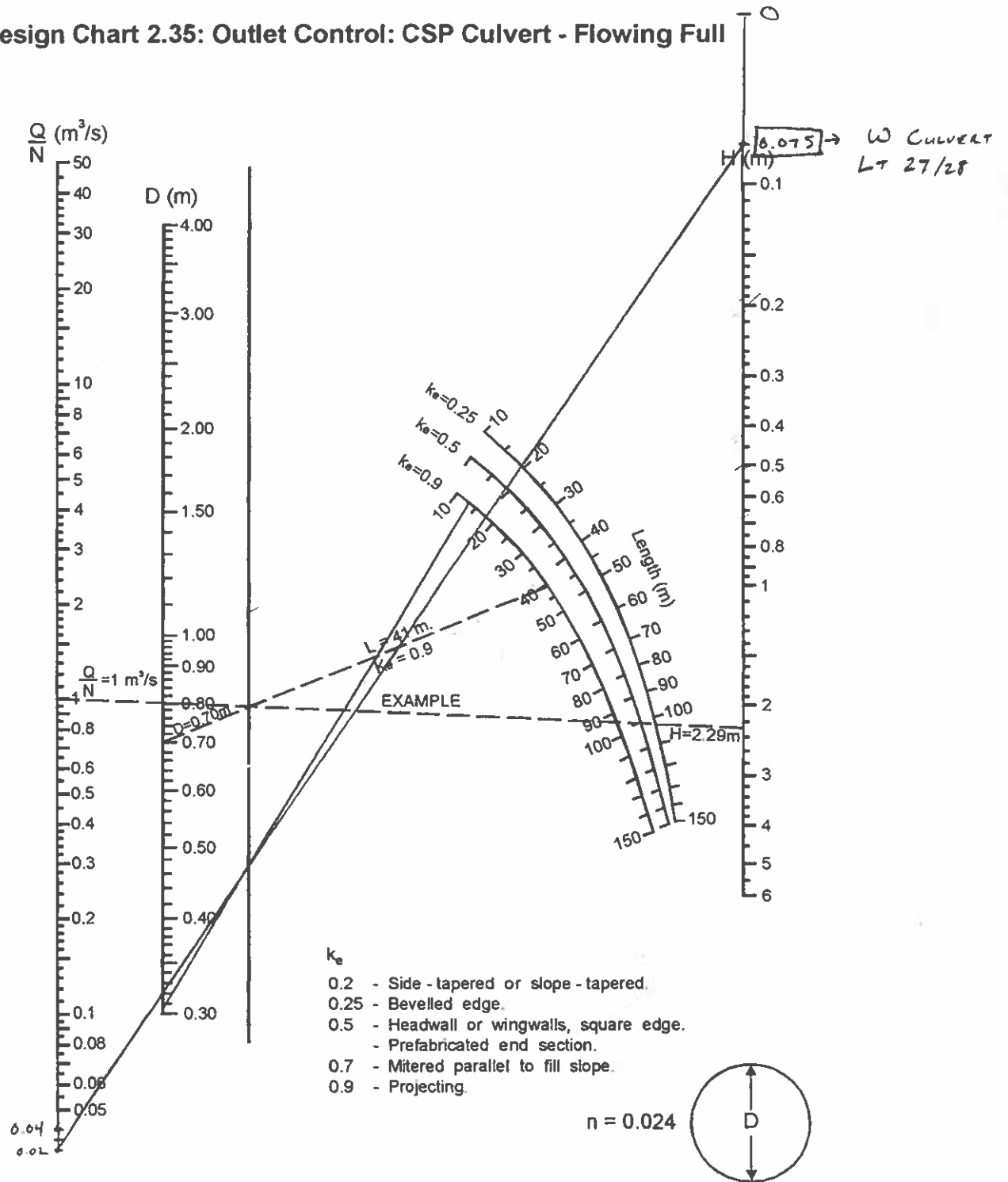


Design Chart 2.32: Inlet Control: Circular CSP and SPCSP Culverts



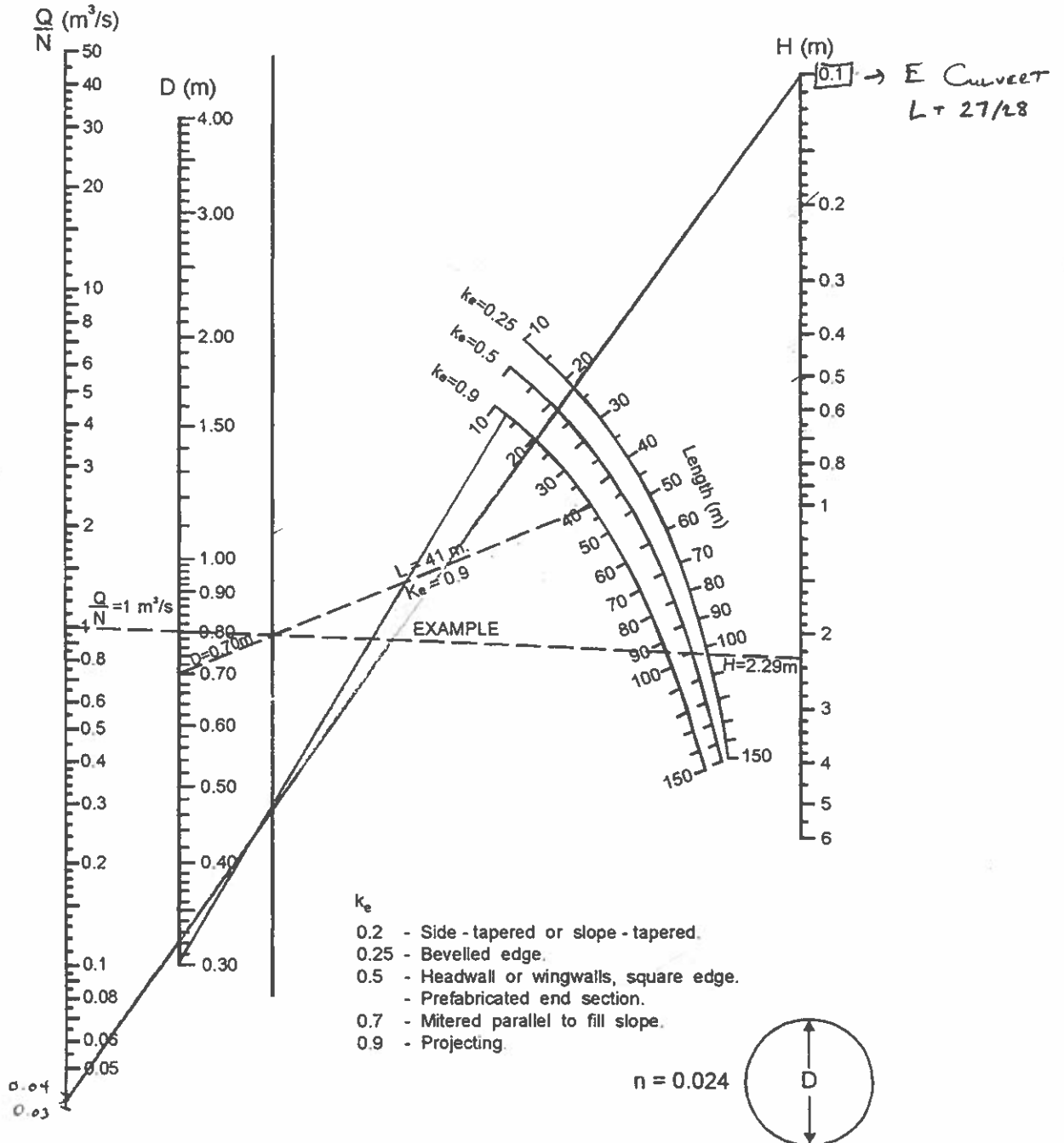
Source: Herr (1977)

Design Chart 2.35: Outlet Control: CSP Culvert - Flowing Full



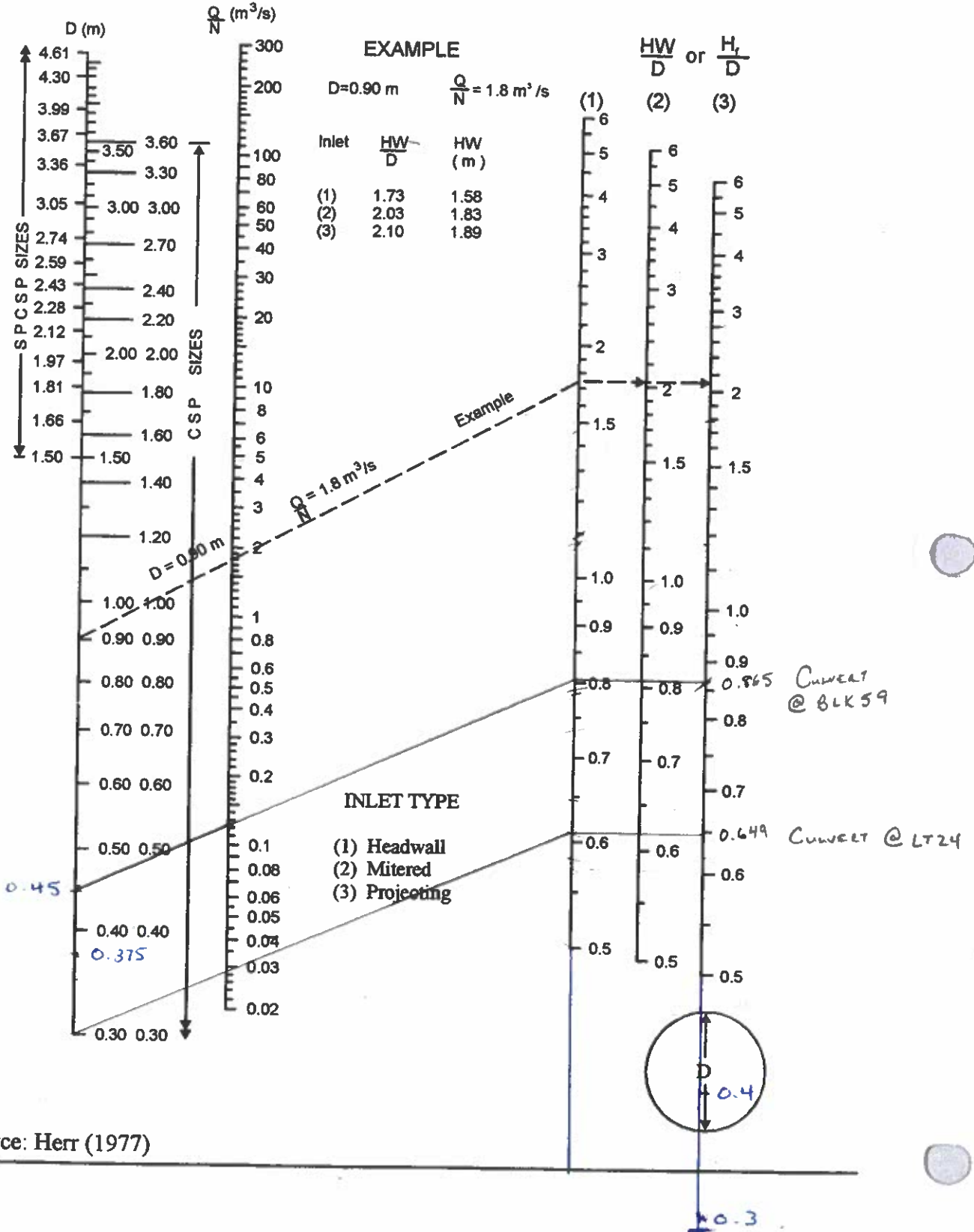
Source: Herr (1977)

Design Chart 2.35: Outlet Control: CSP Culvert - Flowing Full



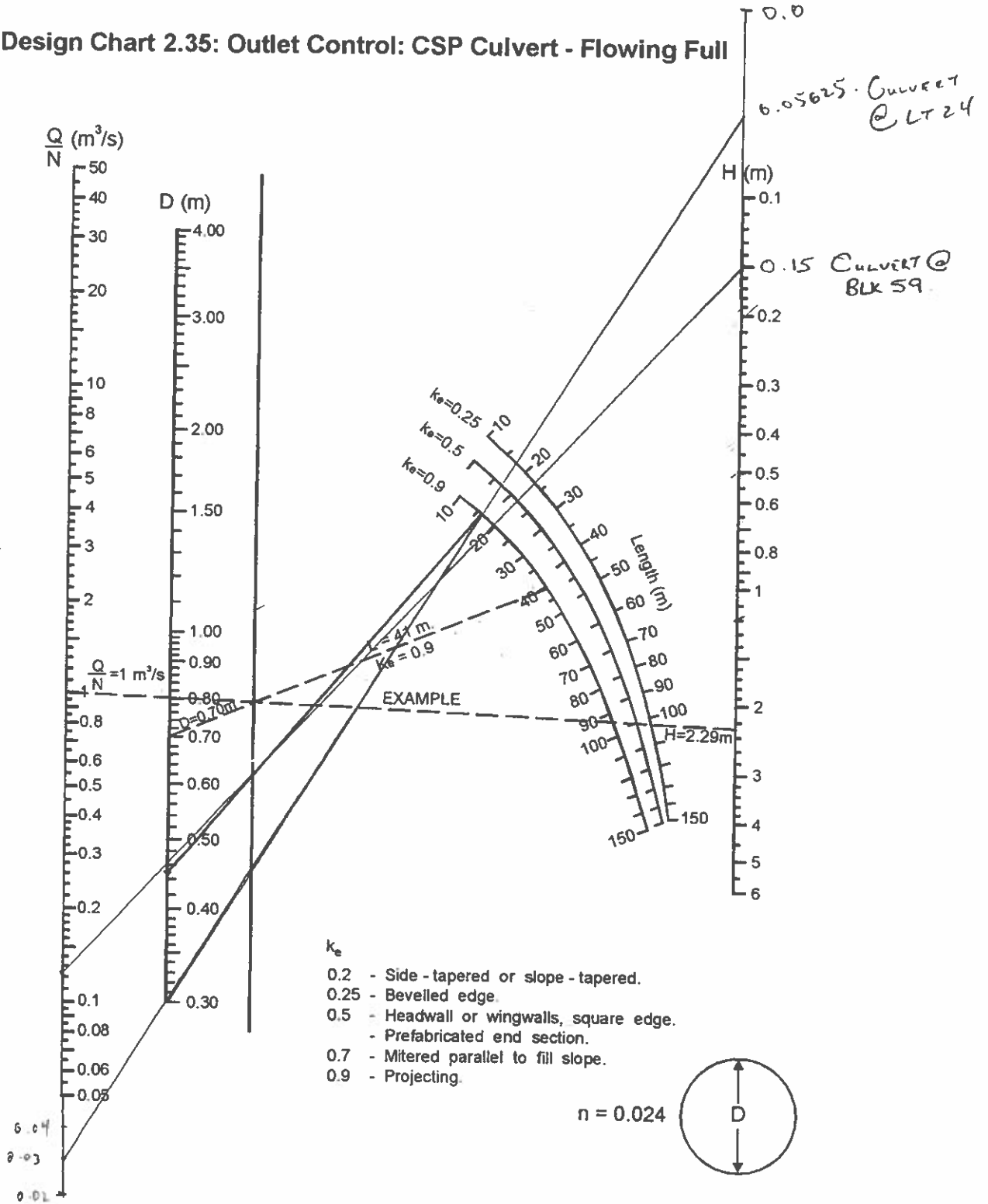
Source: Herr (1977)

Design Chart 2.32: Inlet Control: Circular CSP and SPCSP Culverts



Source: Herr (1977)

Design Chart 2.35: Outlet Control: CSP Culvert - Flowing Full



Source: Herr (1977)

**Infiltration Gallery A - Street C Outlet**

\* Size Infiltration gallery at Outlet to hold the 2 Year Storm\*

Area (ha)	1.358	IN meters	13580	m <sup>2</sup>
	Flow (m <sup>3</sup> /s)	RV (mm)	RV (m)*	
2 Year	0.065	7.67	0.00767	

\* RV from AddHyd-8 in "Inf Galleries at Outlets" section - VO Output

Volume Required to store to Hold 2 Yr = 104.1586 m<sup>3</sup>

$$\text{Stone Volume Required} = \frac{104.1586}{0.4} = 260.3965 \text{ m}^3$$

**Therefore, store the 2 year storm**

Length	46.3 m
Width	3.2 m
Depth	1.8 m
Volume =	266.688 m <sup>3</sup>

**Infiltration Gallery B - Street A Outlet**

\* Size Infiltration gallery at Outlet to hold the 2 Year Storm\*

Area (ha)	0.685	IN meters	6850	m <sup>2</sup>
	Flow (m <sup>3</sup> /s)	RV (mm)	RV (m)*	
2 Year	0.023	6.12	0.00612	

\*RV from Add-Hyd 3 in "Inf Galleries at Outlets" section- VO Output

Volume Required to store to Hold 2 Yr = 41.922 m<sup>3</sup>

$$\text{Stone Volume Required} = \frac{41.922}{0.4} = 104.805 \text{ m}^3$$

**Therefore, store the 2 year storm**

Length	35.0 m
Width	4.85 m
Depth	0.65 m
Volume =	110.3375 m <sup>3</sup>

**Infiltration Gallery C - Street B Outlet**

\* Size Infiltration gallery at Outlet to hold the 2 Year Storm\*

Area (ha) 0.726 IN meters 7260 m<sup>2</sup>

Flow (m<sup>3</sup>/s) RV (mm) RV(m) \*

2 Year 0.038 8.14 0.00814

\* RV from Add-Hyd 37 in "Inf Galleries at Outlets" section - VO Output

Volume Required to store to Hold 2 Yr = 59.0964 m<sup>3</sup>

$$\text{Stone Volume Required} = \frac{59.0964}{0.4} = 147.741 \text{ m}^3$$

**Therefore, store the 2 year storm**

Length	45.6 m
Width	3.2 m
Depth	1.6 m
Volume =	233.472 m <sup>3</sup>

**Infiltration Gallery D - Street A Outlet**

\* Size Infiltration gallery at Outlet to hold the 25 Year Storm\*

Area (ha) 1.25 IN meters 12500 m<sup>2</sup>

Flow (m<sup>3</sup>/s) RV (mm) RV (m)

100 Year 0.176 26.81 0.02681

Volume Required to store to Hold 25 Yr = 335.125 m<sup>3</sup>

$$\text{Stone Volume Required} = \frac{335.125}{0.4} = 837.8125 \text{ m}^3$$

**Therefore, store the 25 year storm**

Length	101.0 m
Width	3.2 m
Depth	2.6 m
Volume =	840.32 m <sup>3</sup>

Infiltration Gallery E - Street D Outlet

**South Side of Street D**

	Area (ha)	RC		
Impervious Area	0.069023	0.9	0.062121	
Pervious Area	0.068943	0.2	0.013789	
Total Area	0.137966	IN Meters	1379.66	m <sup>2</sup>

	Flow (m <sup>3</sup> /s)	RV (mm)	RV (m)
100 Yr	0.034	55.45	0.05545

Volume Required to store to Hold 100 Yr = 76.50213 m<sup>3</sup>

$$\text{Stone Volume} = \frac{76.50213}{0.4} = 191.2553 \text{ m}^3$$

**Therefore, store the 100 year storm**

Length	26.5 m
Width	4.85 m
Depth	1.5 m
Volume =	192.7875 m <sup>3</sup>

Infiltration Gallery F - Street D Outlet

**North Side of Street D**

	Area (ha)	RC		
Impervious Area	0.078804	0.9	0.070924	
Pervious Area	0.376768	0.2	0.075354	
Total Area	0.455572	IN Meters	4555.724	m <sup>2</sup>

	Flow (m <sup>3</sup> /s)	RV (mm)	RV (m)
100 Yr	0.034	40.85	0.04085

Volume Required to store to Hold 100 Yr = 186.1013 m<sup>3</sup>

$$\text{Stone Volume} = \frac{186.1013}{0.4} = 465.2534 \text{ m}^3$$

**Therefore, store the 100 year storm**

Length	60.0 m
Width	4.85 m
Depth	1.6 m
Volume =	465.6 m <sup>3</sup>



**Job: 5868 County Road 65 - Port Hope Subdivision**  
**Job #: 122049**

**Infiltration Gallery G - In Swale Along North Side of Lot 51**

\* Size Infiltration gallery at Outlet to hold the 2 Year Storm\*

Area (ha)            9.696 IN meters            96960 m<sup>2</sup>  
                           Flow (m<sup>3</sup>/s)   RV (mm)   RV (m)\*  
 2 Year                0.135            4.134   0.004134

\* RV from Add-Hyd 24 in "Overland Flow Swales" section of VO Output

Volume Required to store to Hold 2 Yr =    400.8326    m<sup>3</sup>

$$\text{Stone Volume Required} = \frac{400.8326}{0.4} = 1002.082 \text{ m}^3$$

**Therefore, store a quarter of the the 2 year storm**

$$\text{Stone Volume Required} = \frac{1002.082}{4} = 250.5204$$

Since we are storing 1/4 of the 2 year storm, flow to be used in DuHYD is:            0.03375 (m<sup>3</sup>/s)

Length	51.0 m
Width	2.5 m
Depth	2 m
Volume =	255 m <sup>3</sup>

**Infiltration Gallery H - OLF Channel Lot 9 & 10**

\* Size Infiltration gallery at Outlet to hold the 25 Year Storm\*

Area (ha)            1.891 IN meters        18910 m<sup>2</sup>  
                           Flow (m<sup>3</sup>/s)    RV (mm)    RV (m)\*  
 25 Year            0.218        23.53    0.02353

\* RV from AddHyd-8 in "*Inf Galleries at Outlets*" section - VO OutputVolume Required to store to Hold 100 Yr = 444.9523 m<sup>3</sup>

$$\text{Stone Volume Required} = \frac{444.9523}{0.4} = 1112.381 \text{ m}^3$$

**Therefore, store the 25 year storm**

Length	85.0 m
Width	6 m
Depth	2.2 m
Volume =	1122 m <sup>3</sup>

**Infiltration Gallery I - OLF Channel Lot 27 & 28**

\* Size Infiltration gallery at Outlet to hold the 100 Year Storm\*

Area (ha)            0.903 IN meters        9030 m<sup>2</sup>  
                           Flow (m<sup>3</sup>/s)    RV (mm)    RV (m)\*  
 100 Year            0.116        36.23    0.03623

\* RV from AddHyd-8 in "*Inf Galleries at Outlets*" section - VO OutputVolume Required to store to Hold 100 Yr = 327.1569 m<sup>3</sup>

$$\text{Stone Volume Required} = \frac{327.1569}{0.4} = 817.8923 \text{ m}^3$$

**Therefore, store the 100 year storm**

Length	110.0 m
Width	3 m
Depth	2.5 m
Volume =	825 m <sup>3</sup>

Job: 5868 County Road 65 - Port Hope Subdivision

Job #: 122049

**DuHyd Summary - Input & Output**

<b>Infiltration Gallery</b>	<b>Node</b>	<b>Storm Stored</b>	<b>Storm Flow (m<sup>3</sup>/s)</b>	<b>Number of Inlets</b>	<b>Inlet Capacity (m<sup>3</sup>/s)</b>
A	DuHyd-46	2 Year	0.065	1	0.065
B	DuHyd-56	2 Year	0.024	1	0.024
C	DuHyd-52	100 Year	0.126	1	0.126
D	DuHyd-59	25 Year	0.216	1	0.216
E	DuHyd-77	100 Year	0.034	1	0.034
F	DuHyd-74	100 Year	0.073	1	0.073
G	DuHyd-79	1/4 - 2year	0.135	1	0.03375
Lot 9 & 10	DuHyd-64	100 Year	0.279	1	0.279
Lot 27 & 28	DuHyd-62	100 Year	0.116	1	0.116

# **SCHEDULE 2**

**VISUAL OTTHYMO 6.2 SCHEMATIC  
AND OUTPUT FILES**



3

**Area Draining to South Creek**  
**AREA [ha] - 13.868**



4

**Area Draining to North Creek**  
**AREA [ha] - 16.925**

5868 COUNTY ROAD 65, PORT HOPE, ON

VISUAL OTTHYMO SCHEMATIC  
PRE-DEVELOPMENT FLOWS



**D.G. Biddle & Associates Limited**

consulting engineers and planners

96 KING STREET EAST • OSHAWA, ON • L1H 1B6

PHONE (905)576-8500 • FAX (905)576-9730

info@dgbiddle.com

SCALE N.T.S.  
DRAWN M.H.  
DESIGN M.H.  
CHECKED D.D.M.  
DATE FEB 2023

PROJECT  
122049

DWG

FIG 2

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=====
V V I SSSS U U A L (v 6.2.2001)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
WV I SSSS UUUU A A LLLLL

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

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

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DATE: 02/17/2023 TIME: 08:45:37

USER:

COMMENTS: \_\_\_\_\_

```

*****
** SIMULATION : 1) 2YR **
*****

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```

-----
| CHICAGO STORM | IDF curve parameters: A=1778.000
| Ptotal= 28.11 mm | B= 13.000
| | C= 1.000
used in: INTENSITY = A / (t + B)^C
Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.49	1.17	18.95	2.17	2.84	3.17	0.71
0.33	0.66	1.33	77.30	2.33	2.09	3.33	0.61
0.50	0.93	1.50	26.45	2.50	1.60	3.50	0.52
0.67	1.43	1.67	11.48	2.67	1.26	3.67	0.46
0.83	2.46	1.83	6.42	2.83	1.02	3.83	0.40
1.00	5.25	2.00	4.10	3.00	0.85	4.00	0.35

```

-----
| CALIB | NASHYD ( 0003) | Area (ha)= 13.87 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.64

```

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.833

PEAK FLOW (cms)= 0.104 (i)  
 TIME TO PEAK (hrs)= 2.083  
 RUNOFF VOLUME (mm)= 4.208  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.150

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

```

-----
| CALIB | NASHYD ( 0004) | Area (ha)= 16.92 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.37

```

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

```

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

```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 1.758

PEAK FLOW (cms)= 0.187 (i)  
 TIME TO PEAK (hrs)= 1.750  
 RUNOFF VOLUME (mm)= 4.208  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.150

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

```

=====
V V I SSSS U U A L (v 6.2.2001)
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V V I SS U U A A A A L
V V I SS U U A A L
WV I SSSS UUUU A A LLLLL

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

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

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DATE: 02/17/2023 TIME: 08:45:37

USER:

COMMENTS: \_\_\_\_\_

```

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*****

```

\*\* SIMULATION : 2) 5YR \*\*  
 \*\*\*\*\*

CHICAGO STORM | IDF curve parameters: A=2464.000  
 Ptotal= 38.49 mm | B= 16.000  
 C= 1.000  
 used in: INTENSITY = A / (t + B)^C  
 Duration of storm = 4.00 hrs  
 Storm time step = 10.00 min  
 Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.81	1.17	27.06	2.17	4.54	3.17	1.17
0.33	1.09	1.33	94.77	2.33	3.37	3.33	1.00
0.50	1.53	1.50	36.99	2.50	2.60	3.50	0.87
0.67	2.32	1.67	17.18	2.67	2.06	3.67	0.76
0.83	3.95	1.83	9.92	2.83	1.68	3.83	0.67
1.00	8.18	2.00	6.46	3.00	1.39	4.00	0.59

CALIB NASHYD ( 0003) | Area (ha)= 13.87 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.64

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.833

PEAK FLOW (cms)= 0.198 (i)  
 TIME TO PEAK (hrs)= 2.083  
 RUNOFF VOLUME (mm)= 8.173  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.212

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

CALIB NASHYD ( 0004) | Area (ha)= 16.92 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.37

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 1.758  
 PEAK FLOW (cms)= 0.352 (i)  
 TIME TO PEAK (hrs)= 1.750  
 RUNOFF VOLUME (mm)= 8.172  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.212

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

-----  
 V V I SSSS U U A L (v 6.2.2001)  
 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 SSSS UUUU A A LLLLL  
 OOO TTTT TTTT 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 H H Y M M OOO

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\*\*\*\*\* DETAILED OUTPUT \*\*\*\*\*

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 Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\vh5\171054d8-64b5-4298-a9dc-5cbfd415d770\d911

DATE: 02/17/2023 TIME: 08:45:37

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : 3) 10YR \*\*  
 \*\*\*\*\*

CHICAGO STORM | IDF curve parameters: A=2819.000  
 Ptotal= 44.04 mm | B= 16.000  
 C= 1.000  
 used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs  
 Storm time step = 10.00 min  
 Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.93	1.17	30.96	2.17	5.20	3.17	1.34
0.33	1.24	1.33	108.42	2.33	3.85	3.33	1.15
0.50	1.75	1.50	42.32	2.50	2.97	3.50	0.99
0.67	2.66	1.67	19.65	2.67	2.36	3.67	0.87
0.83	4.51	1.83	11.35	2.83	1.92	3.83	0.76
1.00	9.35	2.00	7.39	3.00	1.59	4.00	0.68

CALIB NASHYD ( 0003) | Area (ha)= 13.87 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.64

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.833

PEAK FLOW (cms)= 0.260 (i)  
 TIME TO PEAK (hrs)= 2.083  
 RUNOFF VOLUME (mm)= 10.673  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.242

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

CALIB NASHYD ( 0004) Area (ha)= 16.92 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.37

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 1.758

PEAK FLOW (cms)= 0.464 (i)  
 TIME TO PEAK (hrs)= 1.750  
 RUNOFF VOLUME (mm)= 10.671  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.242

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

V V I SSSSS U U A L (v 6.2.2001)  
 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  
 V V I SSSSS UUUU A A LLLLL

000 TTTT TTTT H H Y Y M M 000 TM  
 O O T T H H Y Y MM MM O O  
 O O T T H H Y Y M M O O  
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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voindat  
 Output filename: C:\Users\matthew.holmes\AppData\Local\Civica\5\171054d8-64b5-4298-a9dc-5cbfd415d770\cffa  
 Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\5\171054d8-64b5-4298-a9dc-5cbfd415d770\cffa

DATE: 02/17/2023

TIME: 08:45:37

USER:

COMMENTS:

\*\*\*\*\*  
 \*\* SIMULATION : 4) 2SYR \*\*  
 \*\*\*\*\*

CHICAGO STORM  
 Ptotal= 60.23 mm

IDF curve parameters: A=3886.000  
 B= 18.000  
 C= 1.000

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

Duration of storm = 4.00 hrs  
 Storm time step = 10.00 min  
 Time to peak ratio = 0.33

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	1.41	1.17	43.05	2.17	7.72	3.17	2.04
0.33	1.89	1.33	138.79	2.33	5.76	3.33	1.74
0.50	2.65	1.50	58.11	2.50	4.46	3.50	1.51
0.67	4.00	1.67	28.06	2.67	3.56	3.67	1.32
0.83	6.73	1.83	16.53	2.83	2.90	3.83	1.16
1.00	13.69	2.00	10.90	3.00	2.41	4.00	1.03

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

Area (ha)= 13.87 Curve Number (CN)= 71.0  
 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.64

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.833

PEAK FLOW (cms)= 0.464 (i)  
 TIME TO PEAK (hrs)= 2.083  
 RUNOFF VOLUME (mm)= 19.189  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.319

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

CALIB NASHYD ( 0004)  
 ID= 1 DT= 5.0 min

Area (ha)= 16.92 Curve Number (CN)= 71.0  
 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.37

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr



0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 1.758

PEAK FLOW (cms)= 0.822 (i)  
 TIME TO PEAK (hrs)= 1.750  
 RUNOFF VOLUME (mm)= 19.187  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.319

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

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V V I SSSSS U U A L (v 6.2.2001)
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 UUUU A A LLLLL

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000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voain.dat  
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 Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\H5\171054d8-64b5-4298-a9dc-5cbfd415d770\e33a

DATE: 02/17/2023 TIME: 08:45:37

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\* SIMULATION : 5) 50YR \*\*\*\*\*

CHICAGO STORM | IDF curve parameters: A=4750.000  
 | Ptotal= 71.95 mm | B= 24.000  
 | C= 1.000  
 used in: INTENSITY = A / (t + B)^C  
 Duration of storm = 4.00 hrs  
 Storm time step = 10.00 min  
 Time to peak ratio = 0.33

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	2.18	1.17	52.37	2.17	11.13	3.17	3.12
0.33	2.89	1.33	139.71	2.33	8.44	3.33	2.68
0.50	4.02	1.50	68.44	2.50	6.62	3.50	2.33
0.67	5.96	1.67	36.37	2.67	5.33	3.67	2.04
0.83	9.77	1.83	22.56	2.83	4.38	3.83	1.81
1.00	18.93	2.00	15.36	3.00	3.67	4.00	1.61

```

-----
| CALIB |
| NASHYD ( 0003) | Area (ha)= 13.87 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.64

```

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

```

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 2.18 1.083 52.37 2.083 11.13 3.08 3.12
0.167 2.18 1.167 52.37 2.167 11.13 3.17 3.12
0.250 2.89 1.250 139.71 2.250 8.44 3.25 2.68
0.333 2.89 1.333 139.71 2.333 8.44 3.33 2.68
0.417 4.02 1.417 68.44 2.417 6.62 3.42 2.33
0.500 4.02 1.500 68.44 2.500 6.62 3.50 2.33
0.583 5.96 1.583 36.37 2.583 5.33 3.58 2.04
0.667 5.96 1.667 36.37 2.667 5.33 3.67 2.04
0.750 9.77 1.750 22.56 2.750 4.38 3.75 1.81
0.833 9.77 1.833 22.56 2.833 4.38 3.83 1.81
0.917 18.93 1.917 15.36 2.917 3.67 3.92 1.61
1.000 18.93 2.000 15.36 3.000 3.67 4.00 1.61

```

Unit Hyd Qpeak (cms)= 0.833

PEAK FLOW (cms)= 0.603 (i)  
 TIME TO PEAK (hrs)= 2.167  
 RUNOFF VOLUME (mm)= 26.257  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.365

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

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-----
| CALIB |
| NASHYD ( 0004) | Area (ha)= 16.92 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
|-----|
| U.H. Tp(hrs)= 0.37

```

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

```

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 2.18 1.083 52.37 2.083 11.13 3.08 3.12
0.167 2.18 1.167 52.37 2.167 11.13 3.17 3.12
0.250 2.89 1.250 139.71 2.250 8.44 3.25 2.68
0.333 2.89 1.333 139.71 2.333 8.44 3.33 2.68
0.417 4.02 1.417 68.44 2.417 6.62 3.42 2.33
0.500 4.02 1.500 68.44 2.500 6.62 3.50 2.33
0.583 5.96 1.583 36.37 2.583 5.33 3.58 2.04
0.667 5.96 1.667 36.37 2.667 5.33 3.67 2.04
0.750 9.77 1.750 22.56 2.750 4.38 3.75 1.81
0.833 9.77 1.833 22.56 2.833 4.38 3.83 1.81
0.917 18.93 1.917 15.36 2.917 3.67 3.92 1.61
1.000 18.93 2.000 15.36 3.000 3.67 4.00 1.61

```

Unit Hyd Qpeak (cms)= 1.758

PEAK FLOW (cms)= 1.041 (i)  
 TIME TO PEAK (hrs)= 1.750  
 RUNOFF VOLUME (mm)= 26.253  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.365

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

FINISH

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-----
V V I SSSSS U U A L (v 6.2.2001)
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 UUUU A A LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voindat  
 Output filename: C:\Users\matthew.holmes\AppData\Local\Civica\XH5\171054d8-64b5-4298-a9dc-5cbfd415d770\4051  
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DATE: 02/17/2023 TIME: 08:45:37

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : 6) 100YR \*\*  
 \*\*\*\*\*

CHICAGO STORM | IDF curve parameters: A=5588.000  
 Ptotal= 83.38 mm | B= 28.000  
 C= 1.000  
 used in: INTENSITY = A / (t + B)^C  
 Duration of storm = 4.00 hrs  
 Storm time step = 10.00 min  
 Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.89	1.17	60.52	2.17	14.14	3.17	4.10
0.33	3.81	1.33	147.05	2.33	10.82	3.33	3.54
0.50	5.26	1.50	77.70	2.50	8.55	3.50	3.08
0.67	7.73	1.67	43.43	2.67	6.93	3.67	2.71
0.83	12.46	1.83	27.74	2.83	5.73	3.83	2.40
1.00	23.45	2.00	19.25	3.00	4.81	4.00	2.14

CALIB | Area (ha)= 13.87 Curve Number (CN)= 71.0  
 NASHYD ( 0003) | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 ID= 1 DT= 5.0 min | U.H. Tp(hrs)= 0.64

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.833  
 PEAK FLOW (cms)= 0.754 (i)  
 TIME TO PEAK (hrs)= 2.167  
 RUNOFF VOLUME (mm)= 33.728  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.405

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

CALIB | Area (ha)= 16.92 Curve Number (CN)= 71.0  
 NASHYD ( 0004) | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 ID= 1 DT= 5.0 min | U.H. Tp(hrs)= 0.37

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

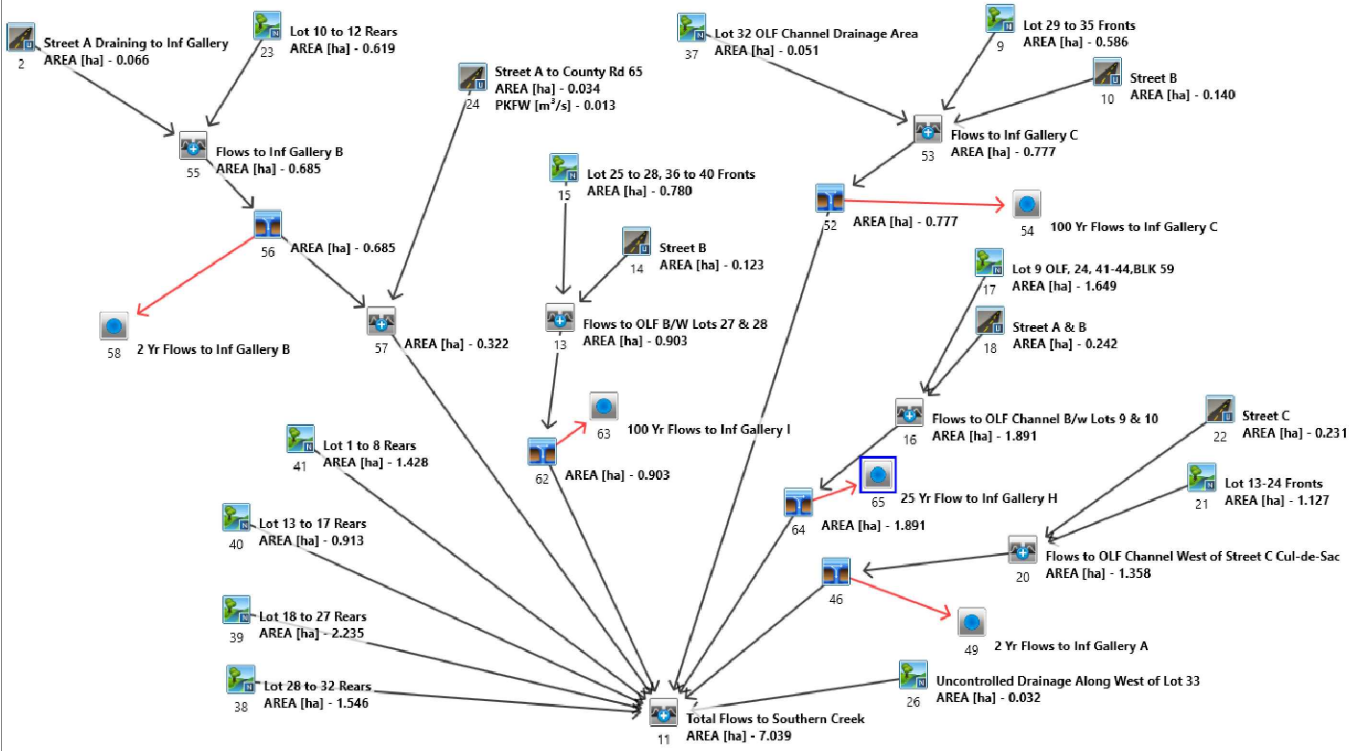
----- TRANSFORMED HYETOGRAPH -----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 1.758

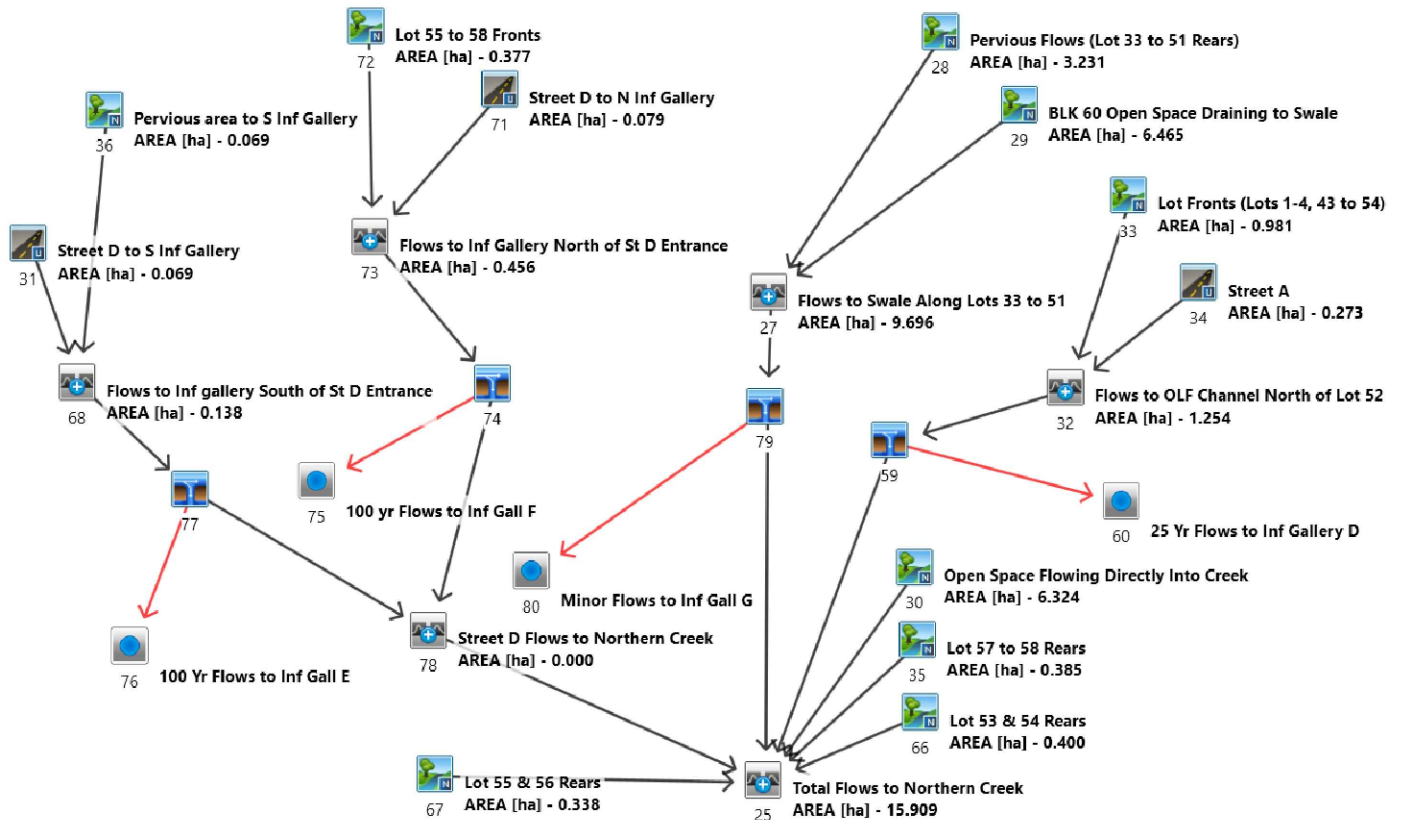
PEAK FLOW (cms)= 1.285 (i)  
 TIME TO PEAK (hrs)= 1.833  
 RUNOFF VOLUME (mm)= 33.723  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.404

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



5868 COUNTY ROAD 65, PORT HOPE, ON

VISUAL OTTHYMO SCHEMATIC  
 POST-DEVELOPMENT FLOWS TO  
 SOUTHERN CREEK



5868 COUNTY ROAD 65, PORT HOPE, ON

VISUAL OTTHYMO SCHEMATIC  
 POST-DEVELOPMENT FLOWS TO  
 NORTHERN CREEK



**D.G. Biddle & Associates Limited**

consulting engineers and planners

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info@dgbiddle.com

SCALE N.T.S.  
 DRAWN M.H.  
 DESIGN M.H.  
 CHECKED D.D.M.  
 DATE FEB 2023

PROJECT  
 122049

DWG

FIG 4



PEAK FLOW (cms)= 0.03 0.00 \*TOTALS\* 0.028 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 27.11 5.43 24.94  
 TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
 RUNOFF COEFFICIENT = 0.96 0.19 0.89

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0053)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0010):	0.14	0.028	1.33	24.94
+ ID2= 2 ( 0037):	0.05	0.001	1.42	4.13
=====				
ID = 3 ( 0053):	0.19	0.028	1.33	19.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0053)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0053):	0.19	0.028	1.33	19.37
+ ID2= 2 ( 0009):	0.59	0.012	1.42	4.13
=====				
ID = 1 ( 0053):	0.78	0.039	1.33	7.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0052)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.126				
#of Inlets= 1				
Total (cms)= 0.1				
=====				
TOTAL HYD. (ID= 1):	0.78	0.04	1.33	7.88
=====				
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.78	0.04	1.33	7.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0015)	Area (ha)	Curve Number (CN)
ID= 1 DT= 5.0 min	0.78	71.0
	Ia (mm)= 5.00	# of Linear Res. (N)= 3.00
	U.H. Tp (hrs)= 0.11	

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.268

PEAK FLOW (cms)= 0.016 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 4.134

TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.147

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

CALIB STANDHYD ( 0014)	Area (ha)	Dir. Conn. (%)
ID= 1 DT= 5.0 min	0.12	35.00
	Total Imp (%)= 50.00	
=====		
Surface Area (ha)=	0.06	0.06
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	28.63	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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Max. Eff. Inten. (mm/hr)= 77.30 18.00  
 over (min) 5.00 20.00  
 Storage Coeff. (min)= 1.34 (ii) 15.35 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 20.00  
 Unit Hyd. peak (cms)= 0.33 0.07

PEAK FLOW (cms)= 0.01 0.00 \*TOTALS\* 0.010 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.58 1.33  
 RUNOFF VOLUME (mm)= 27.11 6.80 13.82  
 TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
 RUNOFF COEFFICIENT = 0.96 0.24 0.49

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0013)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0014):	0.12	0.010	1.33	13.82
+ ID2= 2 ( 0015):	0.78	0.016	1.42	4.13
=====				
ID = 3 ( 0013):	0.90	0.023	1.33	5.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0062)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.116				
#of Inlets= 1				
Total (cms)= 0.1				
=====				
TOTAL HYD. (ID= 1):	0.90	0.02	1.33	5.45
=====				
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.90	0.02	1.33	5.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0017) | Area (ha)= 1.65 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.567

PEAK FLOW (cms)= 0.033 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 4.134  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.147

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

CALIB  
 STANDHYD ( 0018) | Area (ha)= 0.24  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.22 0.02  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 40.17 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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Max.Eff.Inten.(mm/hr)= 77.30 12.75  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 1.64 (ii) 4.89 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.32 0.22

\*TOTALS\*

PEAK FLOW (cms)= 0.05 0.00 0.048 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 27.11 5.43 24.94  
 TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
 RUNOFF COEFFICIENT = 0.96 0.19 0.89

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)  
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

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

ADD HYD ( 0016)  
 1 + 2 = 3

	AREA (ha)	OPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0017):	1.65	0.033	1.42	4.13
+ ID2= 2 ( 0018):	0.24	0.048	1.33	24.94
ID = 3 ( 0016):	1.89	0.076	1.33	6.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0064)  
 Inlet Cap.= 0.218  
 #of Inlets= 1  
 Total(cms)= 0.2

	AREA (ha)	OPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	1.89	0.08	1.33	6.80
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	1.89	0.08	1.33	6.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0021) | Area (ha)= 1.13 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.387

PEAK FLOW (cms)= 0.023 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 4.134  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.147

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

CALIB  
 STANDHYD ( 0022) | Area (ha)= 0.23  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.21 0.02  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 39.21 40.00  
 Mannings n = 0.013 0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr

0.083	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Max.Eff.Inten.(mm/hr)= 77.30 12.75  
over (min) 5.00 5.00  
Storage Coeff. (min)= 1.61 (ii) 4.86 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.32 0.22

\*TOTALS\*  
PEAK FLOW (cms)= 0.04 0.00 0.045 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33 1.33  
RUNOFF VOLUME (mm)= 27.11 5.43 24.94  
TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
RUNOFF COEFFICIENT = 0.96 0.19 0.89

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0020 )				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0021):	1.13	0.023	1.42	4.13
+ ID2= 2 ( 0022):	0.23	0.045	1.33	24.94
=====				
ID = 3 ( 0020):	1.36	0.065	1.33	7.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0046 )				
Inlet Cap.= 0.065				
#of Inlets= 1				
Total(cms)= 0.1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD.(ID= 1):	1.36	0.06	1.33	7.67
MAJOR SYS.(ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS.(ID= 3):	1.36	0.06	1.33	7.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD ( 0023 )			
ID= 1 DT= 5.0 min			
Area (ha)=	0.62	Curve Number (CN)=	71.0
Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.11		

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.213

PEAK FLOW (cms)= 0.012 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 4.134  
TOTAL RAINFALL (mm)= 28.106  
RUNOFF COEFFICIENT = 0.147

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

CALIB			
STANDHYD ( 0002 )			
ID= 1 DT= 5.0 min			
Area (ha)=	0.07	Total Imp(%)=	90.00
Dir. Conn.(%)=	90.00		

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	21.00	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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Max.Eff.Inten.(mm/hr)= 77.30 12.75  
over (min) 5.00 5.00  
Storage Coeff. (min)= 1.11 (ii) 4.36 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.34 0.23

\*TOTALS\*  
PEAK FLOW (cms)= 0.01 0.00 0.013 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33 1.33  
RUNOFF VOLUME (mm)= 27.11 5.43 24.67  
TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
RUNOFF COEFFICIENT = 0.96 0.19 0.88

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0055 )				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0002):	0.07	0.013	1.33	24.67
+ ID2= 2 ( 0023):	0.62	0.012	1.42	4.13
=====				
ID = 3 ( 0055):	0.68	0.024	1.33	6.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0056 )				
Inlet Cap.= 0.024				
#of Inlets= 1				
Total(cms)= 0.0				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD.(ID= 1):	0.68	0.02	1.33	6.12



MAJOR SYS.(ID= 2): 0.00 0.00 0.00 0.00  
 MINOR SYS.(ID= 3): 0.68 0.02 1.33 6.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 STANHYD ( 0024) Area (ha)= 0.03  
 ID= 1 DT= 5.0 min Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.03 0.00  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 15.13 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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Max.Eff.Inten.(mm/hr)= 77.30 12.75  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 0.91 (ii) 4.16 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.24

\*TOTALS\*  
 PEAK FLOW (cms)= 0.01 0.00 0.007 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 27.11 5.43 24.17  
 TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
 RUNOFF COEFFICIENT = 0.96 0.19 0.86

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0057)  
 1 + 2 = 3  
 AREA (ha) OPEAK (cms) TPEAK (hrs) R.V. (mm)  
 \*\*\* W A R N I N G : HYDROGRAPH 0056 <ID= 2> IS DRY.  
 \*\*\* W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001  
 ID1= 1 ( 0024): 0.03 0.007 1.33 24.17  
 + ID2= 2 ( 0056): 0.00 0.000 0.00 0.00  
 ID = 3 ( 0057): 0.03 0.007 1.33 24.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0026) Area (ha)= 0.03 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

0.083	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.001 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 4.120  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.147

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

CALIB  
 NASHYD ( 0038) Area (ha)= 1.55 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.15

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

--- TRANSFORMED HYETOGRAPH ---

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.403

PEAK FLOW (cms)= 0.029 (i)  
 TIME TO PEAK (hrs)= 1.500  
 RUNOFF VOLUME (mm)= 4.182  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.149

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

CALIB  
 NASHYD ( 0039) Area (ha)= 2.24 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.25

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.344

PEAK FLOW (cms)= 0.031 (i)  
TIME TO PEAK (hrs)= 1.583  
RUNOFF VOLUME (mm)= 4.205  
TOTAL RAINFALL (mm)= 28.106  
RUNOFF COEFFICIENT = 0.150

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

CALIB  
NASHYD ( 0040) | Area (ha)= 0.91 Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.03

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 1.049

PEAK FLOW (cms)= 0.014 (i)  
TIME TO PEAK (hrs)= 1.333  
RUNOFF VOLUME (mm)= 1.810  
TOTAL RAINFALL (mm)= 28.106  
RUNOFF COEFFICIENT = 0.064

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

CALIB  
NASHYD ( 0041) | Area (ha)= 1.43 Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.05

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 1.087

PEAK FLOW (cms)= 0.035 (i)  
TIME TO PEAK (hrs)= 1.333  
RUNOFF VOLUME (mm)= 3.220  
TOTAL RAINFALL (mm)= 28.106  
RUNOFF COEFFICIENT = 0.115

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

ADD HYD ( 0011) |  
1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 1 ( 0026): 0.03 0.001 1.42 4.12  
+ ID2= 2 ( 0038): 1.55 0.029 1.50 4.18  
=====  
ID = 3 ( 0011): 1.58 0.029 1.50 4.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 3 ( 0011): 1.58 0.029 1.50 4.18  
+ ID2= 2 ( 0039): 2.24 0.031 1.58 4.20  
=====  
ID = 1 ( 0011): 3.81 0.057 1.50 4.19

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 1 ( 0011): 3.81 0.057 1.50 4.19  
+ ID2= 2 ( 0040): 0.91 0.014 1.33 1.81  
=====  
ID = 3 ( 0011): 4.73 0.064 1.50 3.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 3 ( 0011): 4.73 0.064 1.50 3.73  
+ ID2= 2 ( 0041): 1.43 0.035 1.33 3.22  
=====  
ID = 1 ( 0011): 6.15 0.085 1.50 3.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
\*\*\* W A R N I N G : HYDROGRAPH 0046 <ID= 2> IS DRY.  
\*\*\* W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001  
ID1= 1 ( 0011): 6.15 0.085 1.50 3.62  
+ ID2= 2 ( 0046): 0.00 0.000 0.00 0.00  
=====  
ID = 3 ( 0011): 6.15 0.085 1.50 3.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
\*\*\* W A R N I N G : HYDROGRAPH 0052 <ID= 2> IS DRY.  
\*\*\* W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003  
ID1= 3 ( 0011): 6.15 0.085 1.50 3.62  
+ ID2= 2 ( 0052): 0.00 0.000 0.00 0.00  
=====  
ID = 1 ( 0011): 6.15 0.085 1.50 3.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 1 ( 0011): 6.15 0.085 1.50 3.62  
+ ID2= 2 ( 0057): 0.03 0.007 1.33 24.17  
=====  
ID = 3 ( 0011): 6.18 0.092 1.50 3.62

ID = 3 ( 0011): 6.19 0.087 1.50 3.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0011) |
| 3 + 2 = 1 |
-----
*** W A R N I N G : HYDROGRAPH 0062 <ID= 2> IS DRY.
*** W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003
ID1= 3 ( 0011): 6.19 0.087 1.50 3.73
+ ID2= 2 ( 0062): 0.00 0.000 0.00 0.00
-----
ID = 1 ( 0011): 6.19 0.087 1.50 3.73

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| ADD HYD ( 0011) |
| 1 + 2 = 3 |
-----
*** W A R N I N G : HYDROGRAPH 0064 <ID= 2> IS DRY.
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001
ID1= 1 ( 0011): 6.19 0.087 1.50 3.73
+ ID2= 2 ( 0064): 0.00 0.000 0.00 0.00
-----
ID = 3 ( 0011): 6.19 0.087 1.50 3.73

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB |
| NASHYD ( 0028) | Area (ha)= 3.23 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.06
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 2.141

```

PEAK FLOW (cms)= 0.082 (i)
TIME TO PEAK (hrs)= 1.333
RUNOFF VOLUME (mm)= 3.537
TOTAL RAINFALL (mm)= 28.106
RUNOFF COEFFICIENT = 0.126

```

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

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-----
| CALIB |
| NASHYD ( 0029) | Area (ha)= 6.46 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.26
-----

```

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61

0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.950

```

PEAK FLOW (cms)= 0.089 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 4.206
TOTAL RAINFALL (mm)= 28.106
RUNOFF COEFFICIENT = 0.150

```

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

```

-----
| ADD HYD ( 0027) |
| 1 + 2 = 3 |
-----
ID1= 1 ( 0028): 3.23 0.082 1.33 3.54
+ ID2= 2 ( 0029): 6.46 0.089 1.67 4.21
-----
ID = 3 ( 0027): 9.70 0.127 1.50 3.98

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| DUHYD ( 0079) |
| Inlet Cap.= 0.034 |
| #of Inlets= 1 |
| Total(cms)= 0.0 |
-----
TOTAL HYD.(ID= 1): AREA (ha)= 9.70 QPEAK (cms)= 0.13 TPEAK (hrs)= 1.50 R.V. (mm)= 3.98
MAJOR SYS.(ID= 2): 4.68 0.09 1.50 3.98
MINOR SYS.(ID= 3): 5.02 0.03 1.33 3.98

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

-----
| CALIB |
| NASHYD ( 0030) | Area (ha)= 6.32 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.30
-----

```

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.804

```

PEAK FLOW (cms)= 0.080 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 4.207
TOTAL RAINFALL (mm)= 28.106
RUNOFF COEFFICIENT = 0.150

```

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

| CALIB |

NASHYD ( 0033) | Area (ha)= 0.98 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.337

PEAK FLOW (cms)= 0.020 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 4.134  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.147

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

CALIB  
 STANDHYD ( 0034) | Area (ha)= 0.27  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.25	0.03
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	42.65	40.00
Mannings n =	0.013	0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Max.Eff.Inten.(mm/hr)= 77.30 12.75  
 over (min) = 5.00 5.00  
 Storage Coeff. (min)= 1.70 (ii) 4.95 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.32 0.22

\*TOTALS\*

PEAK FLOW (cms)= 0.05 0.00 0.054 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 27.11 5.43 24.94  
 TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
 RUNOFF COEFFICIENT = 0.96 0.19 0.89

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0032) | AREA QPEAK TPEAK R.V.  
 1 + 2 = 3 | (ha) (cms) (hrs) (mm)  
 ID1= 1 ( 0033): 0.98 0.020 1.42 4.13  
 + ID2= 2 ( 0034): 0.27 0.054 1.33 24.94  
 ID = 3 ( 0032): 1.25 0.071 1.33 8.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0059) |  
 Inlet Cap.= 0.176  
 #of Inlets= 1  
 Total(cms)= 0.2 | AREA QPEAK TPEAK R.V.  
 (ha) (cms) (hrs) (mm)  
 TOTAL HYD.(ID= 1): 1.25 0.07 1.33 8.66  
 MAJOR SYS.(ID= 2): 0.00 0.00 0.00 0.00  
 MINOR SYS.(ID= 3): 1.25 0.07 1.33 8.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0035) | Area (ha)= 0.38 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.03

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.003 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 0.982  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.035

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

CALIB  
 NASHYD ( 0036) | Area (ha)= 0.07 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46

0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.001 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 4.130  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.147

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

CALIB	Area (ha)=	0.07
STANDHYD ( 0031)	Total Imp(%)=	90.00
ID= 1 DT= 5.0 min	Dir. Conn.(%)=	90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	21.45	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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Max. Eff. Inten. (mm/hr)= 77.30 12.75  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 1.12 (ii) 4.37 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.23

\*TOTALS\*  
 PEAK FLOW (cms)= 0.01 0.00 0.014 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 27.11 5.43 24.67  
 TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
 RUNOFF COEFFICIENT = 0.96 0.19 0.88

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0068)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0031):	0.07	0.014	1.33	24.67
+ ID2= 2 ( 0036):	0.07	0.001	1.42	4.13
ID = 3 ( 0068):	0.14	0.015	1.33	14.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0077)	Inlet Cap.=	0.034
#of Inlets=	1	

Total(cms)= 0.01	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD. (ID= 1):	0.14	0.01	1.33	14.40
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.14	0.01	1.33	14.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)=	0.38	Curve Number (CN)=	71.0
NASHYD ( 0072)	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.11		

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.130

PEAK FLOW (cms)= 0.008 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 4.133  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.147

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

CALIB	Area (ha)=	0.08
STANDHYD ( 0071)	Total Imp(%)=	90.00
ID= 1 DT= 5.0 min	Dir. Conn.(%)=	90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.07	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	22.92	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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Max. Eff. Inten. (mm/hr)= 77.30 12.75  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 1.17 (ii) 4.42 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.23

\*TOTALS\*  
 PEAK FLOW (cms)= 0.02 0.00 0.016 (iii)

TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 27.11 5.43 24.75  
 TOTAL RAINFALL (mm)= 28.11 28.11 28.11  
 RUNOFF COEFFICIENT = 0.96 0.19 0.88

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0073 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0071 ):	0.08	0.016	1.33	24.75
+ ID2= 2 ( 0072 ):	0.38	0.008	1.42	4.13
=====				
ID = 3 ( 0073 ):	0.46	0.022	1.33	7.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0074 ) Inlet Cap.= 0.073 #of Inlets= 1 Total(cms)= 0.1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	0.46	0.02	1.33	7.70
=====				
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.46	0.02	1.33	7.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0078 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0074 <ID= 1> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0077 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0078 <ID= 3> IS ALSO DRY				

CALIB NASHYD ( 0066 ) ID= 1 DT= 5.0 min	Area (ha)	Ia (mm)	U.H. Tp(hrs)=	Curve Number (CN)=	# of Linear Res.(N)=
	0.40	5.00	0.05	71.0	3.00

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.331

PEAK FLOW (cms)= 0.009 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 2.981  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.106

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

CALIB NASHYD ( 0067 ) ID= 1 DT= 5.0 min	Area (ha)	Ia (mm)	U.H. Tp(hrs)=	Curve Number (CN)=	# of Linear Res.(N)=
	0.34	5.00	0.02	71.0	3.00

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	0.49	1.083	18.95	2.083	2.84	3.08	0.71
0.167	0.49	1.167	18.95	2.167	2.84	3.17	0.71
0.250	0.66	1.250	77.30	2.250	2.09	3.25	0.61
0.333	0.66	1.333	77.30	2.333	2.09	3.33	0.61
0.417	0.93	1.417	26.45	2.417	1.60	3.42	0.52
0.500	0.93	1.500	26.45	2.500	1.60	3.50	0.52
0.583	1.43	1.583	11.48	2.583	1.26	3.58	0.46
0.667	1.43	1.667	11.48	2.667	1.26	3.67	0.46
0.750	2.46	1.750	6.42	2.750	1.02	3.75	0.40
0.833	2.46	1.833	6.42	2.833	1.02	3.83	0.40
0.917	5.25	1.917	4.10	2.917	0.85	3.92	0.35
1.000	5.25	2.000	4.10	3.000	0.85	4.00	0.35

Unit Hyd Qpeak (cms)= 0.725

PEAK FLOW (cms)= 0.000 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 0.142  
 TOTAL RAINFALL (mm)= 28.106  
 RUNOFF COEFFICIENT = 0.005

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

ADD HYD ( 0025 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0030 ):	6.32	0.080	1.67	4.21
+ ID2= 2 ( 0035 ):	0.38	0.003	1.33	0.98
=====				
ID = 3 ( 0025 ):	6.71	0.081	1.67	4.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 ) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0059 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003				
ID1= 3 ( 0025 ):	6.71	0.081	1.67	4.02
+ ID2= 2 ( 0059 ):	0.00	0.000	0.00	0.00
=====				
ID = 1 ( 0025 ):	6.71	0.081	1.67	4.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0025 ):	6.71	0.081	1.67	4.02
+ ID2= 2 ( 0066 ):	0.40	0.009	1.33	2.98
=====				
ID = 3 ( 0025 ):	7.11	0.083	1.67	3.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 ) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0025 ):	7.11	0.083	1.67	3.96
+ ID2= 2 ( 0067 ):	0.34	0.000	1.33	0.14
=====				
ID = 1 ( 0025 ):	7.45	0.083	1.67	3.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

| ADD HYD ( 0025) |
| 1 + 2 = 3 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
*** W A R N I N G : HYDROGRAPH 0078 <ID= 2> IS DRY.
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001
ID1= 1 ( 0025): 7.45 0.083 1.67 3.79
+ ID2= 2 ( 0078): 0.00 0.000 0.00 7.70
-----
ID = 3 ( 0025): 7.45 0.083 1.67 3.79
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

| ADD HYD ( 0025) |
| 3 + 2 = 1 |
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 0025): 7.45 0.083 1.67 3.79
+ ID2= 2 ( 0079): 4.68 0.093 1.50 3.98
-----
ID = 1 ( 0025): 12.13 0.163 1.67 3.86
  
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| Junction Command(0049) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0046) 1.36 0.06 1.33 7.67
OUTFLOW: ID= 2( 0049) 1.36 0.06 1.33 7.67
  
```

| Junction Command(0054) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0052) 0.78 0.04 1.33 7.88
OUTFLOW: ID= 2( 0054) 0.78 0.04 1.33 7.88
  
```

| Junction Command(0058) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0056) 0.68 0.02 1.33 6.12
OUTFLOW: ID= 2( 0058) 0.68 0.02 1.33 6.12
  
```

| Junction Command(0060) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0059) 1.25 0.07 1.33 8.66
OUTFLOW: ID= 2( 0060) 1.25 0.07 1.33 8.66
  
```

| Junction Command(0063) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0062) 0.90 0.02 1.33 5.45
OUTFLOW: ID= 2( 0063) 0.90 0.02 1.33 5.45
  
```

| Junction Command(0065) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0064) 1.89 0.08 1.33 6.80
OUTFLOW: ID= 2( 0065) 1.89 0.08 1.33 6.80
  
```

| Junction Command(0075) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0074) 0.46 0.02 1.33 7.70
OUTFLOW: ID= 2( 0075) 0.46 0.02 1.33 7.70
  
```

| Junction Command(0076) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0077) 0.14 0.01 1.33 14.40
OUTFLOW: ID= 2( 0076) 0.14 0.01 1.33 14.40
  
```

| Junction Command(0080) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0079) 5.02 0.03 1.33 3.98
OUTFLOW: ID= 2( 0080) 5.02 0.03 1.33 3.98
  
```

FINISH

```

V V I SSSS U U A L (v 6.2.2001)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL
  
```

```

OOO TTTT TTTT H H Y Y M M OOO TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
OOO T T H H Y M M OOO
  
```

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat  
 Output filename: C:\Users\matthew.holmes\AppData\Local\Civica\vh5\171054d8-64b5-4298-a9dc-5cbfd415d770\aa85;  
 Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\vh5\171054d8-64b5-4298-a9dc-5cbfd415d770\aa85;

DATE: 02/21/2023

TIME: 11:39:44

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*

\*\* SIMULATION : 2) 5YR \*\*  
 \*\*\*\*\*

CHICAGO STORM  
 Ptotal= 38.49 mm

IDF curve parameters: A=2464.000  
 B= 16.000  
 C= 1.000

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

Duration of storm = 4.00 hrs  
 Storm time step = 10.00 min  
 Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.81	1.17	27.06	2.17	4.54	3.17	1.17
0.33	1.09	1.33	94.77	2.33	3.37	3.33	1.00
0.50	1.53	1.50	36.99	2.50	2.60	3.50	0.87
0.67	2.32	1.67	17.18	2.67	2.06	3.67	0.76
0.83	3.95	1.83	9.92	2.83	1.68	3.83	0.67
1.00	8.18	2.00	6.46	3.00	1.39	4.00	0.59

CALIB  
 NASHYD ( 0009)  
 ID= 1 DT= 5.0 min

Area (ha)= 0.59 Curve Number (CN)= 71.0  
 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.202

PEAK FLOW (cms)= 0.021 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.028  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.209

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

CALIB  
 NASHYD ( 0037)  
 ID= 1 DT= 5.0 min

Area (ha)= 0.05 Curve Number (CN)= 71.0  
 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.018

PEAK FLOW (cms)= 0.002 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.019  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.208

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

CALIB  
 STANDHYD ( 0010)  
 ID= 1 DT= 5.0 min

Area (ha)= 0.14  
 Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.13 0.01  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 30.55 40.00  
 Mannings n = 0.013 0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max. Eff. Inten. (mm/hr)= 94.77 20.72  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.28 (ii) 4.28 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.23

\*TOTALS\*  
 PEAK FLOW (cms)= 0.03 0.00 0.034 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 37.49 9.72 34.71  
 TOTAL RAINFALL (mm)= 38.49 38.49 38.49  
 RUNOFF COEFFICIENT = 0.97 0.25 0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)  
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.  
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0053)  
 1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0010):	0.14	0.034	1.33	34.71
+ ID2= 2 ( 0037):	0.05	0.002	1.42	8.02
ID = 3 ( 0053):	0.19	0.036	1.33	27.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0053)  
 3 + 2 = 1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0053):	0.19	0.036	1.33	27.57
+ ID2= 2 ( 0009):	0.59	0.021	1.42	8.03



ID = 1 ( 0053): 0.78 0.055 1.33 12.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0052)				
Inlet Cap.= 0.126				
#of Inlets= 1				
Total (cms)= 0.1				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
TOTAL HYD. (ID= 1):	0.78	0.05	1.33	12.83
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.78	0.05	1.33	12.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD ( 0015)				
ID= 1 DT= 5.0 min				
Area	(ha)=	0.78	Curve Number (CN)=	71.0
Ia	(mm)=	5.00	# of Linear Res. (N)=	3.00
U.H. Tp	(hrs)=	0.11		

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.268

PEAK FLOW (cms)= 0.029 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.028  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.209

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

CALIB				
STANDHYD ( 0014)				
ID= 1 DT= 5.0 min				
Area	(ha)=	0.12	Dir. Conn.(%)=	35.00
Total Imp	(%)=	50.00		

IMPERVIOUS			PERVIOUS (i)		
Surface Area	(ha)=	0.06			
Dep. Storage	(mm)=	1.00			
Average Slope	(%)=	1.00			
Length	(m)=	28.63			
Mannings n	=	0.013			

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max. Eff. Inten. (mm/hr)=	94.77	29.05	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.23 (ii)	12.80 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.33	0.08	
PEAK FLOW (cms)=	0.01	0.00	*TOTALS*
TIME TO PEAK (hrs)=	1.33	1.50	0.013 (iii)
RUNOFF VOLUME (mm)=	37.49	11.90	1.33
TOTAL RAINFALL (mm)=	38.49	38.49	20.79
RUNOFF COEFFICIENT =	0.97	0.31	38.49
			0.54

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0013)				
1 + 2 = 3				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
ID1= 1 ( 0014):	0.12	0.013	1.33	20.79
+ ID2= 2 ( 0015):	0.78	0.029	1.42	8.03
ID = 3 ( 0013):	0.90	0.038	1.33	9.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0062)				
Inlet Cap.= 0.116				
#of Inlets= 1				
Total (cms)= 0.1				
AREA	QPEAK	TPEAK	R.V.	
(ha)	(cms)	(hrs)	(mm)	
TOTAL HYD. (ID= 1):	0.90	0.04	1.33	9.77
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.90	0.04	1.33	9.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD ( 0017)				
ID= 1 DT= 5.0 min				
Area	(ha)=	1.65	Curve Number (CN)=	71.0
Ia	(mm)=	5.00	# of Linear Res. (N)=	3.00
U.H. Tp	(hrs)=	0.11		

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.567

PEAK FLOW (cms)= 0.060 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.028  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.209

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

CALIB  
STANDHYD ( 0018)  
ID= 1 DT= 5.0 min

Area (ha)= 0.24  
Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
Surface Area (ha)= 0.22 0.02  
Dep. Storage (mm)= 1.00 1.50  
Average Slope (%)= 1.00 2.00  
Length (m)= 40.17 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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max. Eff. Inten. (mm/hr)= 94.77 20.72  
over (min)= 5.00 5.00  
Storage Coeff. (min)= 1.51 (i) 4.50 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.33 0.23

\*TOTALS\*  
PEAK FLOW (cms)= 0.06 0.00 0.059 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33 1.33  
RUNOFF VOLUME (mm)= 37.49 9.72 34.71  
TOTAL RAINFALL (mm)= 38.49 38.49 38.49  
RUNOFF COEFFICIENT = 0.97 0.25 0.90

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0016)  
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0017):	1.65	0.060	1.42	8.03
+ ID2= 2 ( 0018):	0.24	0.059	1.33	34.71
ID = 3 ( 0016):	1.89	0.113	1.33	11.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0064)  
Inlet Cap.= 0.218  
#of Inlets= 1  
Total(cms)= 0.21

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	1.89	0.11	1.33	11.44
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	1.89	0.11	1.33	11.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
NASHYD ( 0021)  
ID= 1 DT= 5.0 min

Area (ha)= 1.13 Curve Number (CN)= 71.0  
Ia (mm)= 5.00 # of Linear Res. (N)= 3.00  
U.H. Tp(hrs)= 0.11

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.387

PEAK FLOW (cms)= 0.041 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 8.028  
TOTAL RAINFALL (mm)= 38.492  
RUNOFF COEFFICIENT = 0.209

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

CALIB  
STANDHYD ( 0022)  
ID= 1 DT= 5.0 min

Area (ha)= 0.23  
Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
Surface Area (ha)= 0.21 0.02  
Dep. Storage (mm)= 1.00 1.50  
Average Slope (%)= 1.00 2.00  
Length (m)= 39.21 40.00  
Mannings n = 0.013 0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max. Eff. Inten. (mm/hr)= 94.77 20.72  
over (min)= 5.00 5.00  
Storage Coeff. (min)= 1.49 (i) 4.48 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.33 0.23

\*TOTALS\*  
PEAK FLOW (cms)= 0.05 0.00 0.056 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33 1.33  
RUNOFF VOLUME (mm)= 37.49 9.72 34.71  
TOTAL RAINFALL (mm)= 38.49 38.49 38.49  
RUNOFF COEFFICIENT = 0.97 0.25 0.90

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0020 )				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0021):	1.13	0.041	1.42	8.03
+ ID2= 2 ( 0022):	0.23	0.056	1.33	34.71
=====				
ID = 3 ( 0020):	1.36	0.093	1.33	12.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0046 )				
Inlet Cap.= 0.065				
#of Inlets= 1				
Total(cms)= 0.1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD. (ID= 1):	1.36	0.09	1.33	12.56
=====				
MAJOR SYS. (ID= 2):	0.07	0.03	1.33	12.56
MINOR SYS. (ID= 3):	1.29	0.06	1.25	12.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD ( 0023 )			
ID= 1 DT= 5.0 min	Area (ha)=	0.62	Curve Number (CN)= 71.0
	Ia (mm)=	5.00	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)=	0.11	

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	0.750	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.213

PEAK FLOW (cms)= 0.023 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.028  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.209

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

CALIB			
STANDHYD ( 0002 )			
ID= 1 DT= 5.0 min	Area (ha)=	0.07	Dir. Conn.(%)= 90.00
	Total Imp(%)=	90.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	21.00	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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87

0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max. Eff. Inten. (mm/hr)= 94.77  
 over (min)= 5.00  
 Storage Coeff. (min)= 1.02 (ii) 4.02 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. Tpeak (cms)= 0.34

\*TOTALS\*  
 0.016 (iii)  
 1.33  
 34.71  
 38.49  
 0.90

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0055 )				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0002):	0.07	0.016	1.33	34.71
+ ID2= 2 ( 0023):	0.62	0.023	1.42	8.03
=====				
ID = 3 ( 0055):	0.68	0.036	1.33	10.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0056 )				
Inlet Cap.= 0.024				
#of Inlets= 1				
Total(cms)= 0.0				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD. (ID= 1):	0.68	0.04	1.33	10.61
=====				
MAJOR SYS. (ID= 2):	0.06	0.01	1.33	10.61
MINOR SYS. (ID= 3):	0.62	0.02	1.33	10.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD ( 0024 )			
ID= 1 DT= 5.0 min	Area (ha)=	0.03	Dir. Conn.(%)= 90.00
	Total Imp(%)=	90.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.03	0.00
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	15.13	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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max.Eff.Inten.(mm/hr)= 94.77 20.72  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 0.84 (ii) 3.83 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. peak (cms)= 0.34 0.25

\*TOTALS\*  
 PEAK FLOW (cms)= 0.01 0.00 0.008 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 37.49 9.72 34.10  
 TOTAL RAINFALL (mm)= 38.49 38.49 38.49  
 RUNOFF COEFFICIENT = 0.97 0.25 0.89

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0057)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0024):	0.03	0.008	1.33	34.10
+ ID2= 2 ( 0056):	0.06	0.012	1.33	10.61
ID = 3 ( 0057):	0.10	0.021	1.33	19.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0026)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	0.03	5.00	0.11	71.0	3.00

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.001 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.017  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.208

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

CALIB NASHYD ( 0038)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	1.55	5.00	0.15	71.0	3.00

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17

0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.403

PEAK FLOW (cms)= 0.053 (i)  
 TIME TO PEAK (hrs)= 1.500  
 RUNOFF VOLUME (mm)= 8.121  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.211

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

CALIB NASHYD ( 0039)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	2.24	5.00	0.25	71.0	3.00

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.344

PEAK FLOW (cms)= 0.058 (i)  
 TIME TO PEAK (hrs)= 1.583  
 RUNOFF VOLUME (mm)= 8.166  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.212

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

CALIB NASHYD ( 0040)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)=	# of Linear Res.(N)=
ID= 1 DT= 5.0 min	0.91	5.00	0.03	71.0	3.00

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 1.049

PEAK FLOW (cms)= 0.023 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 3.516  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.091

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

CALIB  
 NASHYD ( 0041) | Area (ha)= 1.43 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.05

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 1.087

PEAK FLOW (cms)= 0.061 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 6.254  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.162

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

ADD HYD ( 0011) |  
 1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 ID1= 1 ( 0026): 0.03 0.001 1.42 8.02  
 + ID2= 2 ( 0038): 1.55 0.053 1.50 8.12  
 ID = 3 ( 0011): 1.58 0.054 1.50 8.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
 3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 ID1= 3 ( 0011): 1.58 0.054 1.50 8.12  
 + ID2= 2 ( 0039): 2.24 0.058 1.58 8.17  
 ID = 1 ( 0011): 3.81 0.106 1.50 8.15

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
 1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 ID1= 1 ( 0011): 3.81 0.106 1.50 8.15  
 + ID2= 2 ( 0040): 0.91 0.023 1.33 3.52  
 ID = 3 ( 0011): 4.73 0.119 1.50 7.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
 3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 ID1= 3 ( 0011): 4.73 0.119 1.50 7.25  
 + ID2= 2 ( 0041): 1.43 0.061 1.33 6.25  
 ID = 1 ( 0011): 6.15 0.156 1.50 7.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
 1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 ID1= 1 ( 0011): 6.15 0.156 1.50 7.02  
 + ID2= 2 ( 0046): 0.07 0.028 1.33 12.56  
 ID = 3 ( 0011): 6.23 0.171 1.33 7.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
 3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 \*\*\* W A R N I N G : HYDROGRAPH 0052 <ID= 2> IS DRY.  
 \*\*\* W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003  
 ID1= 3 ( 0011): 6.23 0.171 1.33 7.08  
 + ID2= 2 ( 0052): 0.00 0.000 0.00 0.00  
 ID = 1 ( 0011): 6.23 0.171 1.33 7.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
 1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 ID1= 1 ( 0011): 6.23 0.171 1.33 7.08  
 + ID2= 2 ( 0057): 0.10 0.021 1.33 19.08  
 ID = 3 ( 0011): 6.32 0.191 1.33 7.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
 3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 \*\*\* W A R N I N G : HYDROGRAPH 0062 <ID= 2> IS DRY.  
 \*\*\* W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003  
 ID1= 3 ( 0011): 6.32 0.191 1.33 7.27  
 + ID2= 2 ( 0062): 0.00 0.000 0.00 0.00  
 ID = 1 ( 0011): 6.32 0.191 1.33 7.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011) |  
 1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 \*\*\* W A R N I N G : HYDROGRAPH 0064 <ID= 2> IS DRY.  
 \*\*\* W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001  
 ID1= 1 ( 0011): 6.32 0.191 1.33 7.27  
 + ID2= 2 ( 0064): 0.00 0.000 0.00 0.00  
 ID = 3 ( 0011): 6.32 0.191 1.33 7.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0028) | Area (ha)= 3.23 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.06

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 2.141

PEAK FLOW (cms)= 0.144 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 6.868  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.178

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

-----

CALIB	NASHYD ( 0029)	Area (ha)= 6.46	Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.26		

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.950

PEAK FLOW (cms)= 0.165 (i)  
 TIME TO PEAK (hrs)= 1.667  
 RUNOFF VOLUME (mm)= 8.168  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.212

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

-----

ADD HYD ( 0027)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0028):	3.23	0.144	1.33	6.87
+ ID2= 2 ( 0029):	6.46	0.165	1.67	8.17
ID = 3 ( 0027):	9.70	0.235	1.50	7.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

DUHYD ( 0079)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.034				
#of Inlets= 1				
Total(cms)= 0.01				
TOTAL HYD. (ID= 1):	9.70	0.24	1.50	7.73

MAJOR SYS.(ID= 2): 6.34 0.20 1.50 7.73  
 MINOR SYS.(ID= 3): 3.35 0.03 1.25 7.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

CALIB	Area (ha)= 6.32	Curve Number (CN)= 71.0
NASHYD ( 0030)	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.30	

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.804

PEAK FLOW (cms)= 0.149 (i)  
 TIME TO PEAK (hrs)= 1.667  
 RUNOFF VOLUME (mm)= 8.170  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.212

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

-----

CALIB	Area (ha)= 0.98	Curve Number (CN)= 71.0
NASHYD ( 0033)	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)= 0.11	

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.337

PEAK FLOW (cms)= 0.036 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.028  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.209

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

-----

CALIB	Area (ha)= 0.27	Dir. Conn.(%)= 90.00
STANDHYD ( 0034)	Total Imp(%)= 90.00	
ID= 1 DT= 5.0 min		

IMPERVIOUS PERVIOUS (i)

Surface Area (ha)= 0.25 0.03  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 42.65 40.00  
 Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max. Eff. Inten. (mm/hr)= 94.77 20.72  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.57 (ii) 4.56 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.23

\*TOTALS\*

PEAK FLOW (cms)= 0.06 0.00 0.066 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 37.49 9.72 34.71  
 TOTAL RAINFALL (mm)= 38.49 38.49 38.49  
 RUNOFF COEFFICIENT = 0.97 0.25 0.90

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0032 )				
ID	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0033):	0.98	0.036	1.42	8.03
+ ID2= 2 ( 0034):	0.27	0.066	1.33	34.71
ID = 3 ( 0032):	1.25	0.098	1.33	13.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0059 )				
MAJOR SYS. (ID= 2):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
MINOR SYS. (ID= 3):	1.25	0.10	1.33	13.84
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	1.25	0.10	1.33	13.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD ( 0035 )	Area (ha)=	Curve Number (CN)=	71.0
ID= 1 DT= 5.0 min	(mm)= 5.00	# of Linear Res. (N)=	3.00
	U.H. Tp (hrs)=		0.03

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87

0.083	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.005 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 1.907  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.050

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

CALIB			
NASHYD ( 0036 )	Area (ha)=	Curve Number (CN)=	71.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res. (N)=	3.00
	U.H. Tp (hrs)=		0.11

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.003 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.025  
 TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.208

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

CALIB			
STANDHYD ( 0031 )	Area (ha)=	Dir. Conn. (%) =	90.00
ID= 1 DT= 5.0 min	Total Imp (%) =	90.00	

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.06 0.01  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 21.45 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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87

0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max. Eff. Inten. (mm/hr)= 94.77 20.72  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.04 (ii) 4.03 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.24

\*TOTALS\*  
 PEAK FLOW (cms)= 0.02 0.00 0.017 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 37.49 9.72 34.71  
 TOTAL RAINFALL (mm)= 38.49 38.49 38.49  
 RUNOFF COEFFICIENT = 0.97 0.25 0.90

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0068)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0031):	0.07	0.017	1.33	34.71
+ ID2= 2 ( 0036):	0.07	0.003	1.42	8.02
=====				
ID = 3 ( 0068):	0.14	0.019	1.33	21.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0077)				
Inlet Cap.= 0.034				
#of Inlets= 1				
Total(cms)= 0.01				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD. (ID= 1):	0.14	0.02	1.33	21.38
=====				
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.14	0.02	1.33	21.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD ( 0072)			
ID= 1 DT= 5.0 min	Area (ha)=	0.38	Curve Number (CN)= 71.0
	Ia (mm)=	5.00	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)=	0.11	

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.130  
 PEAK FLOW (cms)= 0.014 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 8.027

TOTAL RAINFALL (mm)= 38.492  
 RUNOFF COEFFICIENT = 0.209

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

CALIB			
STANDHYD ( 0071)			
ID= 1 DT= 5.0 min	Area (ha)=	0.08	Dir. Conn.(%)= 90.00
	Total Imp(%)=	90.00	

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.07 0.01  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 22.92 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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Max. Eff. Inten. (mm/hr)= 94.77 20.72  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.08 (ii) 4.07 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.24

\*TOTALS\*  
 PEAK FLOW (cms)= 0.02 0.00 0.019 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 37.49 9.72 34.71  
 TOTAL RAINFALL (mm)= 38.49 38.49 38.49  
 RUNOFF COEFFICIENT = 0.97 0.25 0.90

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0073)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0071):	0.08	0.019	1.33	34.71
+ ID2= 2 ( 0072):	0.38	0.014	1.42	8.03
=====				
ID = 3 ( 0073):	0.46	0.031	1.33	12.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0074)				
Inlet Cap.= 0.073				
#of Inlets= 1				
Total(cms)= 0.1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD. (ID= 1):	0.46	0.03	1.33	12.64
=====				
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.46	0.03	1.33	12.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.



ADD HYD ( 0078 )  
1 + 2 = 3

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

\*\*\* W A R N I N G : HYDROGRAPH 0074 <ID= 1> IS DRY.  
\*\*\* W A R N I N G : HYDROGRAPH 0077 <ID= 2> IS DRY.  
\*\*\* W A R N I N G : HYDROGRAPH 0078 <ID= 3> IS ALSO DRY

CALIB  
NASHYD ( 0066 )  
ID= 1 DT= 5.0 min

Area (ha)= 0.40 Curve Number (CN)= 71.0  
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.05

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

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.331

PEAK FLOW (cms)= 0.016 (i)  
TIME TO PEAK (hrs)= 1.333  
RUNOFF VOLUME (mm)= 5.790  
TOTAL RAINFALL (mm)= 38.492  
RUNOFF COEFFICIENT = 0.150

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

CALIB  
NASHYD ( 0067 )  
ID= 1 DT= 5.0 min

Area (ha)= 0.34 Curve Number (CN)= 71.0  
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.02

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	0.81	1.083	27.06	2.083	4.54	3.08	1.17
0.167	0.81	1.167	27.06	2.167	4.54	3.17	1.17
0.250	1.09	1.250	94.77	2.250	3.37	3.25	1.00
0.333	1.09	1.333	94.77	2.333	3.37	3.33	1.00
0.417	1.53	1.417	36.99	2.417	2.60	3.42	0.87
0.500	1.53	1.500	36.99	2.500	2.60	3.50	0.87
0.583	2.32	1.583	17.18	2.583	2.06	3.58	0.76
0.667	2.32	1.667	17.18	2.667	2.06	3.67	0.76
0.750	3.95	1.750	9.92	2.750	1.68	3.75	0.67
0.833	3.95	1.833	9.92	2.833	1.68	3.83	0.67
0.917	8.18	1.917	6.46	2.917	1.39	3.92	0.59
1.000	8.18	2.000	6.46	3.000	1.39	4.00	0.59

Unit Hyd Qpeak (cms)= 0.725

PEAK FLOW (cms)= 0.001 (i)  
TIME TO PEAK (hrs)= 1.333  
RUNOFF VOLUME (mm)= 0.287  
TOTAL RAINFALL (mm)= 38.492  
RUNOFF COEFFICIENT = 0.007

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

ADD HYD ( 0025 )

1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 1 ( 0030 ): 6.32 0.149 1.67 8.17  
+ ID2= 2 ( 0035 ): 0.38 0.005 1.33 1.91  
===== ID = 3 ( 0025 ): 6.71 0.151 1.67 7.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 )  
3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
\*\*\* W A R N I N G : HYDROGRAPH 0059 <ID= 2> IS DRY.  
\*\*\* W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003  
ID1= 3 ( 0025 ): 6.71 0.151 1.67 7.81  
+ ID2= 2 ( 0059 ): 0.00 0.000 0.00 0.00  
===== ID = 1 ( 0025 ): 6.71 0.151 1.67 7.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 )  
1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 1 ( 0025 ): 6.71 0.151 1.67 7.81  
+ ID2= 2 ( 0066 ): 0.40 0.016 1.33 5.79  
===== ID = 3 ( 0025 ): 7.11 0.156 1.67 7.70

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 )  
3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 3 ( 0025 ): 7.11 0.156 1.67 7.70  
+ ID2= 2 ( 0067 ): 0.34 0.001 1.33 0.29  
===== ID = 1 ( 0025 ): 7.45 0.156 1.67 7.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 )  
1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
\*\*\* W A R N I N G : HYDROGRAPH 0078 <ID= 2> IS DRY.  
\*\*\* W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001  
ID1= 1 ( 0025 ): 7.45 0.156 1.67 7.36  
+ ID2= 2 ( 0078 ): 0.00 0.000 0.00 12.64  
===== ID = 3 ( 0025 ): 7.45 0.156 1.67 7.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 )  
3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 3 ( 0025 ): 7.45 0.156 1.67 7.36  
+ ID2= 2 ( 0079 ): 6.34 0.201 1.50 7.73  
===== ID = 1 ( 0025 ): 13.79 0.336 1.67 7.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

Junction Command(0049)

AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
INFLOW : ID= 1( 0046 ) 1.29 0.07 1.25 12.56  
OUTFLOW : ID= 2( 0049 ) 1.29 0.07 1.25 12.56

| Junction Command(0054) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0052)	0.78	0.05	1.33	12.83
OUTFLOW: ID= 2( 0054)	0.78	0.05	1.33	12.83

| Junction Command(0058) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0056)	0.62	0.02	1.33	10.61
OUTFLOW: ID= 2( 0058)	0.62	0.02	1.33	10.61

| Junction Command(0060) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0059)	1.25	0.10	1.33	13.84
OUTFLOW: ID= 2( 0060)	1.25	0.10	1.33	13.84

| Junction Command(0063) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0062)	0.90	0.04	1.33	9.77
OUTFLOW: ID= 2( 0063)	0.90	0.04	1.33	9.77

| Junction Command(0065) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0064)	1.89	0.11	1.33	11.44
OUTFLOW: ID= 2( 0065)	1.89	0.11	1.33	11.44

| Junction Command(0075) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0074)	0.46	0.03	1.33	12.64
OUTFLOW: ID= 2( 0075)	0.46	0.03	1.33	12.64

| Junction Command(0076) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0077)	0.14	0.02	1.33	21.38
OUTFLOW: ID= 2( 0076)	0.14	0.02	1.33	21.38

| Junction Command(0080) |

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

INFLOW : ID= 1( 0079) 3.35 0.03 1.25 7.73  
 OUTFLOW: ID= 2( 0080) 3.35 0.03 1.25 7.73

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V V I SSSS U U A L (v 6.2.2001)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
VV I SSSS UUUU A A LLLL
  
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000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y M M O O
O O T T H H Y M M O O
000 T T H H Y M M 000
  
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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat  
 Output filename: C:\Users\matthew.holmes\AppData\Local\Civica\vh5\171054d8-64b5-4298-a9dc-5cbfd415d770\A01d  
 Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\vh5\171054d8-64b5-4298-a9dc-5cbfd415d770\A01d

DATE: 02/21/2023 TIME: 11:39:43

USER:

COMMENTS:

\*\*\*\*\*  
 \*\* SIMULATION : 3) 10YR \*\*  
 \*\*\*\*\*

| CHICAGO STORM | IDF curve parameters: A=2819.000  
 | Ptotal= 44.04 mm | B= 16.000  
 C= 1.000  
 used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs  
 Storm time step = 10.00 min  
 Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	0.93	1.17	30.96	2.17	5.20	3.17	1.34
0.33	1.24	1.33	108.42	2.33	3.85	3.33	1.15
0.50	1.75	1.50	42.32	2.50	2.97	3.50	0.99
0.67	2.66	1.67	19.65	2.67	2.36	3.67	0.87
0.83	4.51	1.83	11.35	2.83	1.92	3.83	0.76
1.00	9.35	2.00	7.39	3.00	1.59	4.00	0.68

| CALIB |  
 | NASHYD ( 0009) | Area (ha)= 0.59 Curve Number (CN)= 71.0  
 | ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87

0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.202

PEAK FLOW (cms)= 0.028 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.483  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB							
NASHYD ( 0037)	Area (ha)=	0.05	Curve Number (CN)=	71.0			
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.11					

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.018

PEAK FLOW (cms)= 0.002 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.479  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB							
STANDHYD ( 0010)	Area (ha)=	0.14					
ID= 1 DT= 5.0 min	Total Imp(%)=	90.00	Dir. Conn.(%)=	90.00			

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.13	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	30.55	40.00
Mannings n	0.013	0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Max.Eff.Inten.(mm/hr)= 108.42 26.71

over (min)	5.00	5.00	
Storage Coeff. (min)=	1.21 (ii)	4.05 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.33	0.24	
PEAK FLOW (cms)=	0.04	0.00	0.039 (iii)
TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	43.04	12.37	39.97
TOTAL RAINFALL (mm)=	44.04	44.04	44.04
RUNOFF COEFFICIENT =	0.98	0.28	0.91

\*TOTALS\*

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0053)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0010):	0.14	0.039	1.33	39.97
+ ID2= 2 ( 0037):	0.05	0.002	1.42	10.48
ID = 3 ( 0053):	0.19	0.041	1.33	32.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0053)				
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0053):	0.19	0.041	1.33	32.08
+ ID2= 2 ( 0009):	0.59	0.028	1.42	10.48
ID = 1 ( 0053):	0.78	0.067	1.33	15.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0052)				
Inlet Cap.= 0.126				
#of Inlets= 1				
Total(cms)= 0.1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	0.78	0.07	1.33	15.79
MAJOR SYS.(ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS.(ID= 3):	0.78	0.07	1.33	15.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
NASHYD ( 0015)	Area (ha)=	0.78	Curve Number (CN)=	71.0			
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.11					

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.268

PEAK FLOW (cms)= 0.038 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.483  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB  
 STANDHYD ( 0014) | Area (ha)= 0.12  
 ID= 1 DT= 5.0 min | Total Imp(%)= 50.00 Dir. Conn.(%)= 35.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)= 0.06	0.06	0.06
Dep. Storage	(mm)= 1.00	1.50	1.50
Average Slope	(%)= 1.00	2.00	2.00
Length	(m)= 28.63	40.00	40.00
Mannings n	= 0.013	0.250	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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Max. Eff. Inten. (mm/hr)= 108.42 43.20  
 over (min)= 5.00 15.00  
 Storage Coeff. (min)= 1.17 (ii) 11.04 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 15.00  
 Unit Hyd. peak (cms)= 0.34 0.09

\*TOTALS\*  
 PEAK FLOW (cms)= 0.01 0.00 0.015 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.50 1.33  
 RUNOFF VOLUME (mm)= 43.04 14.99 24.74  
 TOTAL RAINFALL (mm)= 44.04 44.04 44.04  
 RUNOFF COEFFICIENT = 0.98 0.34 0.56

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0013)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0014):	0.12	0.015	1.33	24.74
+ ID2= 2 ( 0015):	0.78	0.038	1.42	10.48
ID = 3 ( 0013):	0.90	0.050	1.33	12.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0062)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.116				
#of Inlets= 1				
Total (cms)= 0.1				
TOTAL HYD. (ID= 1):	0.90	0.05	1.33	12.42
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.90	0.05	1.33	12.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)	Curve Number (CN)=
NASHYD ( 0017)	1.65	71.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)= 0.11	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.567

PEAK FLOW (cms)= 0.080 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.484  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB	Area (ha)	Dir. Conn.(%)=
STANDHYD ( 0018)	0.24	90.00
ID= 1 DT= 5.0 min	Total Imp(%)= 90.00	Dir. Conn.(%)= 90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)= 0.22	0.02
Dep. Storage	(mm)= 1.00	1.50
Average Slope	(%)= 1.00	2.00
Length	(m)= 40.17	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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Max. Eff. Inten. (mm/hr)= 108.42 26.71  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.43 (ii) 4.27 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.23

\*TOTALS\*  
 PEAK FLOW (cms)= 0.07 0.00 0.067 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 43.04 12.37 39.97  
 TOTAL RAINFALL (mm)= 44.04 44.04 44.04  
 RUNOFF COEFFICIENT = 0.98 0.28 0.91

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0016 )				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0017):	1.65	0.080	1.42	10.48
+ ID2= 2 ( 0018):	0.24	0.067	1.33	39.97
=====				
ID = 3 ( 0016):	1.89	0.141	1.33	14.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0064 )				
Inlet Cap.= 0.218				
#of Inlets= 1				
Total(cms)= 0.2				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	1.89	0.14	1.33	14.26
=====				
MAJOR SYS.(ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS.(ID= 3):	1.89	0.14	1.33	14.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD ( 0021 )			
ID= 1 DT= 5.0 min			
Area (ha)=	1.13	Curve Number (CN)=	71.0
Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.11		

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.387

PEAK FLOW (cms)= 0.055 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.484  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB			
STANDHYD ( 0022 )			
ID= 1 DT= 5.0 min			
Area (ha)=	0.23	Dir. Conn.(%)=	90.00
Total Imp(%)=	90.00		
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.21	0.02	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	39.21	40.00	
Mannings n =	0.013	0.250	

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

----- TRANSFORMED HYETOGRAPH -----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Max. Eff. Inten. (mm/hr)= 108.42 26.71  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.41 (ii) 4.25 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.24

PEAK FLOW (cms)= 0.06 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 0.064 (iii)  
 RUNOFF VOLUME (mm)= 43.04 12.37 1.33  
 TOTAL RAINFALL (mm)= 44.04 44.04 39.97  
 RUNOFF COEFFICIENT = 0.98 0.28 0.91

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0020 )				
1 + 2 = 3				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0021):	1.13	0.055	1.42	10.48
+ ID2= 2 ( 0022):	0.23	0.064	1.33	39.97
=====				
ID = 3 ( 0020):	1.36	0.114	1.33	15.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0046 )				
Inlet Cap.= 0.065				
#of Inlets= 1				
Total(cms)= 0.1				
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	1.36	0.11	1.33	15.49
=====				
MAJOR SYS.(ID= 2):	0.18	0.05	1.33	15.49
MINOR SYS.(ID= 3):	1.18	0.06	1.25	15.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD ( 0023 )			
ID= 1 DT= 5.0 min			
Area (ha)=	0.62	Curve Number (CN)=	71.0
Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.11		

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87

0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms) = 0.213

PEAK FLOW (cms) = 0.030 (i)  
 TIME TO PEAK (hrs) = 1.417  
 RUNOFF VOLUME (mm) = 10.483  
 TOTAL RAINFALL (mm) = 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB	Area (ha) = 0.07
STANDHYD ( 0002 )	Total Imp(%) = 90.00
ID= 1 DT= 5.0 min	Dir. Conn.(%) = 90.00

IMPERVIOUS		PERVIOUS (i)	
Surface Area (ha)	= 0.06		0.01
Dep. Storage (mm)	= 1.00		1.50
Average Slope (%)	= 1.00		2.00
Length (m)	= 21.00		40.00
Mannings n	= 0.013		0.250

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

--- TRANSFORMED HYETOGRAPH ---			
TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr
0.083	0.93	1.083	30.96
0.167	0.93	1.167	30.96
0.250	1.24	1.250	108.42
0.333	1.24	1.333	108.42
0.417	1.75	1.417	42.32
0.500	1.75	1.500	42.32
0.583	2.66	1.583	19.65
0.667	2.66	1.667	19.65
0.750	4.51	1.750	11.35
0.833	4.51	1.833	11.35
0.917	9.35	1.917	7.39
1.000	9.35	2.000	7.39

Max.Eff.Inten.(mm/hr) = 108.42  
 over (min) = 5.00  
 Storage Coeff. (min) = 0.97 (ii)  
 Unit Hyd. Tpeak (min) = 5.00  
 Unit Hyd. peak (cms) = 0.34

\*TOTALS\*  
 PEAK FLOW (cms) = 0.02  
 TIME TO PEAK (hrs) = 1.33  
 RUNOFF VOLUME (mm) = 43.04  
 TOTAL RAINFALL (mm) = 44.04  
 RUNOFF COEFFICIENT = 0.98

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0055 )	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0002 ):	0.07	0.018	1.33	39.97
+ ID2= 2 ( 0023 ):	0.62	0.030	1.42	10.48
ID = 3 ( 0055 ):	0.68	0.046	1.33	13.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0056 )	Inlet Cap. = 0.024
#of Inlets = 1	

Total(cms)= 0.01	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	0.68	0.05	1.33	13.33
MAJOR SYS.(ID= 2):	0.12	0.02	1.33	13.33
MINOR SYS.(ID= 3):	0.57	0.02	1.25	13.33

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha) = 0.03
STANDHYD ( 0024 )	Total Imp(%) = 90.00
ID= 1 DT= 5.0 min	Dir. Conn.(%) = 90.00

IMPERVIOUS		PERVIOUS (i)	
Surface Area (ha)	= 0.03		0.00
Dep. Storage (mm)	= 1.00		1.50
Average Slope (%)	= 1.00		2.00
Length (m)	= 15.13		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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Max.Eff.Inten.(mm/hr) = 108.42  
 over (min) = 5.00  
 Storage Coeff. (min) = 0.80 (ii)  
 Unit Hyd. Tpeak (min) = 5.00  
 Unit Hyd. peak (cms) = 0.34

\*TOTALS\*  
 PEAK FLOW (cms) = 0.01  
 TIME TO PEAK (hrs) = 1.33  
 RUNOFF VOLUME (mm) = 43.04  
 TOTAL RAINFALL (mm) = 44.04  
 RUNOFF COEFFICIENT = 0.98

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0057 )	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0024 ):	0.03	0.010	1.33	39.45
+ ID2= 2 ( 0056 ):	0.12	0.022	1.33	13.33
ID = 3 ( 0057 ):	0.15	0.031	1.33	19.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha) = 0.03	Curve Number (CN) = 71.0
NASHYD ( 0026 )	Ia (mm) = 5.00	# of Linear Res.(N) = 3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs) = 0.11	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.002 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.470  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB NASHYD ( 0038) Area (ha)= 1.55 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.15

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.403

PEAK FLOW (cms)= 0.069 (i)  
 TIME TO PEAK (hrs)= 1.500  
 RUNOFF VOLUME (mm)= 10.605  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.241

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

CALIB NASHYD ( 0039) Area (ha)= 2.24 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.25

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76

0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.344

PEAK FLOW (cms)= 0.077 (i)  
 TIME TO PEAK (hrs)= 1.583  
 RUNOFF VOLUME (mm)= 10.664  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.242

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

CALIB NASHYD ( 0040) Area (ha)= 0.91 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.03

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 1.049

PEAK FLOW (cms)= 0.031 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 4.591  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.104

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

CALIB NASHYD ( 0041) Area (ha)= 1.43 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.05

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 1.087

PEAK FLOW (cms)= 0.080 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 8.167  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.185

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

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0026):	0.03	0.002	1.42	10.47
+ ID2= 2 ( 0038):	1.55	0.069	1.50	10.61
ID = 3 ( 0011):	1.58	0.071	1.50	10.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0011):	1.58	0.071	1.50	10.60
+ ID2= 2 ( 0039):	2.24	0.077	1.58	10.66
ID = 1 ( 0011):	3.81	0.141	1.50	10.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0011):	3.81	0.141	1.50	10.64
+ ID2= 2 ( 0040):	0.91	0.031	1.33	4.59
ID = 3 ( 0011):	4.73	0.158	1.50	9.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0011):	4.73	0.158	1.50	9.47
+ ID2= 2 ( 0041):	1.43	0.080	1.33	8.17
ID = 1 ( 0011):	6.15	0.205	1.50	9.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0011):	6.15	0.205	1.50	9.17
+ ID2= 2 ( 0046):	0.18	0.049	1.33	15.49
ID = 3 ( 0011):	6.34	0.241	1.33	9.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0011):	6.34	0.241	1.33	9.35
+ ID2= 2 ( 0052):	0.00	0.000	0.00	0.00
ID = 1 ( 0011):	6.34	0.241	1.33	9.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0011):	6.34	0.241	1.33	9.35
+ ID2= 2 ( 0057):	0.15	0.031	1.33	19.16

ID = 3 ( 0011): 6.49 0.273 1.33 9.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
*** W A R N I N G : HYDROGRAPH 0062 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003				
ID1= 3 ( 0011):	6.49	0.273	1.33	9.58
+ ID2= 2 ( 0062):	0.00	0.000	0.00	0.00
ID = 1 ( 0011):	6.49	0.273	1.33	9.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
*** W A R N I N G : HYDROGRAPH 0064 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001				
ID1= 1 ( 0011):	6.49	0.273	1.33	9.58
+ ID2= 2 ( 0064):	0.00	0.000	0.00	0.00
ID = 3 ( 0011):	6.49	0.273	1.33	9.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHVD ( 0028)	Area (ha)	Curve Number (CN)
ID= 1 DT= 5.0 min	3.23	71.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.06	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 2.141

PEAK FLOW (cms)=	0.191 (i)
TIME TO PEAK (hrs)=	1.333
RUNOFF VOLUME (mm)=	8.969
TOTAL RAINFALL (mm)=	44.038
RUNOFF COEFFICIENT =	0.204

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

CALIB NASHVD ( 0029)	Area (ha)	Curve Number (CN)
ID= 1 DT= 5.0 min	6.46	71.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.26	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15



0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.950

PEAK FLOW (cms)= 0.217 (i)  
 TIME TO PEAK (hrs)= 1.667  
 RUNOFF VOLUME (mm)= 10.666  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.242

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

ADD HYD ( 0027 )				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0028 ):	3.23	0.191	1.33	8.97
+ ID2= 2 ( 0029 ):	6.46	0.217	1.67	10.67
=====				
ID = 3 ( 0027 ):	9.70	0.310	1.50	10.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0079 )				
Inlet Cap.= 0.034				
#of Inlets= 1				
Total(cms)= 0.01				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD. (ID= 1):	9.70	0.31	1.50	10.10
=====				
MAJOR SYS. (ID= 2):	6.91	0.28	1.50	10.10
MINOR SYS. (ID= 3):	2.78	0.03	1.25	10.10

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD ( 0030 )				
ID= 1 DT= 5.0 min				
	Area	(ha)=	6.32	Curve Number (CN)= 71.0
	Ia	(mm)=	5.00	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)=		0.30	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.804

PEAK FLOW (cms)= 0.197 (i)  
 TIME TO PEAK (hrs)= 1.667  
 RUNOFF VOLUME (mm)= 10.669  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.242

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

CALIB				
-------	--	--	--	--

NASHYD ( 0033 )				
ID= 1 DT= 5.0 min				
	Area	(ha)=	0.98	Curve Number (CN)= 71.0
	Ia	(mm)=	5.00	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)=		0.11	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.337

PEAK FLOW (cms)= 0.048 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.483  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB				
STANDHYD ( 0034 )				
ID= 1 DT= 5.0 min				
	Area	(ha)=	0.27	Dir. Conn.(%)= 90.00
	Total Imp(%)=		90.00	

IMPERVIOUS			PERVIOUS (i)	
Surface Area	(ha)=	0.25		0.03
Dep. Storage	(mm)=	1.00		1.50
Average Slope	(%)=	1.00		2.00
Length	(m)=	42.65		40.00
Mannings n	=	0.013		0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Max.Eff.Inten.(mm/hr)= 108.42 26.71  
 over (min) = 5.00 5.00  
 Storage Coeff. (min)= 1.48 (ii) 4.32 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.23

\*TOTALS\*

PEAK FLOW (cms)= 0.07 0.00 0.076 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 43.04 12.37 39.97  
 TOTAL RAINFALL (mm)= 44.04 44.04 44.04  
 RUNOFF COEFFICIENT = 0.98 0.28 0.91

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0032)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0033):	0.98	0.048	1.42	10.48
+ ID2= 2 ( 0034):	0.27	0.076	1.33	39.97
=====				
ID = 3 ( 0032):	1.25	0.119	1.33	16.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0059)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.176				
#of Inlets= 1				
Total(cms)= 0.2				
=====				
TOTAL HYD. (ID= 1):	1.25	0.12	1.33	16.90
=====				
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	1.25	0.12	1.33	16.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0035)	Area (ha)	Curve Number (CN)
ID= 1 DT= 5.0 min	0.38	71.0
	Ia (mm)= 5.00	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)= 0.03	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.007 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 2.490  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.057

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

CALIB NASHYD ( 0036)	Area (ha)	Curve Number (CN)
ID= 1 DT= 5.0 min	0.07	71.0
	Ia (mm)= 5.00	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)= 0.11	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87

0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.003 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.479  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB STANDHYD ( 0031)	Area (ha)	Dir. Conn. (%)
ID= 1 DT= 5.0 min	0.07	90.00

	IMPERVIOUS (ha)	PERVIOUS (i)
Surface Area	0.06	0.01
Dep. Storage	1.00	1.50
Average Slope	1.00	2.00
Length	21.45	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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Max. Eff. Inten. (mm/hr)= 108.42  
 over (min)= 5.00  
 Storage Coeff. (min)= 0.98 (ii) 3.82 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. peak (cms)= 0.34 0.25

PEAK FLOW (cms)= 0.02 0.00 \*TOTALS\* 0.019 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 43.04 12.37 39.97  
 TOTAL RAINFALL (mm)= 44.04 44.04 44.04  
 RUNOFF COEFFICIENT = 0.98 0.28 0.91

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0068)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0031):	0.07	0.019	1.33	39.97
+ ID2= 2 ( 0036):	0.07	0.003	1.42	10.48
=====				
ID = 3 ( 0068):	0.14	0.022	1.33	25.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0077)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.034				
#of Inlets= 1				

Total (cms)= 0.0	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	0.14	0.02	1.33	25.23
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.14	0.02	1.33	25.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0072)	Area (ha)= 0.38	Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.130

PEAK FLOW (cms)= 0.018 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 10.483  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.238

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

CALIB STANDHYD ( 0071)	Area (ha)= 0.08	Dir. Conn.(%)= 90.00
ID= 1 DT= 5.0 min	Total Imp(%)= 90.00	

	IMPERVIOUS (ha)	PERVIOUS (i)
Surface Area	0.07	0.01
Dep. Storage	1.00	1.50
Average Slope	1.00	2.00
Length	22.92	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	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Max.Eff.Inten.(mm/hr)= 108.42  
 over (min)= 5.00  
 Storage Coeff. (min)= 1.02 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. peak (cms)= 0.34

\*TOTALS\*  
 0.022 (iii)

PEAK FLOW (cms)= 0.02 0.00

TIME TO PEAK (hrs)=	1.33	1.33	1.33
RUNOFF VOLUME (mm)=	43.04	12.37	39.97
TOTAL RAINFALL (mm)=	44.04	44.04	44.04
RUNOFF COEFFICIENT =	0.98	0.28	0.91

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0073)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0071):	0.08	0.022	1.33	39.97
+ ID2= 2 ( 0072):	0.38	0.018	1.42	10.48
ID = 3 ( 0073):	0.46	0.039	1.33	15.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0074)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.073				
#of Inlets= 1				
Total(cms)= 0.1				
TOTAL HYD. (ID= 1):	0.46	0.04	1.33	15.58
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.46	0.04	1.33	15.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0078)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
*** W A R N I N G : HYDROGRAPH 0074 <ID= 1> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0077 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0078 <ID= 3> IS ALSO DRY				

CALIB NASHYD ( 0066)	Area (ha)= 0.40	Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.05	

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

--- TRANSFORMED HYETOGRAPH ---							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.93	1.083	30.96	2.083	5.20	3.08	1.34
0.167	0.93	1.167	30.96	2.167	5.20	3.17	1.34
0.250	1.24	1.250	108.42	2.250	3.85	3.25	1.15
0.333	1.24	1.333	108.42	2.333	3.85	3.33	1.15
0.417	1.75	1.417	42.32	2.417	2.97	3.42	0.99
0.500	1.75	1.500	42.32	2.500	2.97	3.50	0.99
0.583	2.66	1.583	19.65	2.583	2.36	3.58	0.87
0.667	2.66	1.667	19.65	2.667	2.36	3.67	0.87
0.750	4.51	1.750	11.35	2.750	1.92	3.75	0.76
0.833	4.51	1.833	11.35	2.833	1.92	3.83	0.76
0.917	9.35	1.917	7.39	2.917	1.59	3.92	0.68
1.000	9.35	2.000	7.39	3.000	1.59	4.00	0.68

Unit Hyd Qpeak (cms)= 0.331

PEAK FLOW (cms)= 0.021 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 7.561  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.172

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

CALIB  
 NASHYD ( 0067) Area (ha)= 0.34 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.02

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

--- TRANSFORMED HYETOGRAPH ---					
TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	0.93	1.083	30.96	2.083	5.20
0.167	0.93	1.167	30.96	2.167	5.20
0.250	1.24	1.250	108.42	2.250	3.85
0.333	1.24	1.333	108.42	2.333	3.85
0.417	1.75	1.417	42.32	2.417	2.97
0.500	1.75	1.500	42.32	2.500	2.97
0.583	2.66	1.583	19.65	2.583	2.36
0.667	2.66	1.667	19.65	2.667	2.36
0.750	4.51	1.750	11.35	2.750	1.92
0.833	4.51	1.833	11.35	2.833	1.92
0.917	9.35	1.917	7.39	2.917	1.59
1.000	9.35	2.000	7.39	3.000	1.59

Unit Hyd Qpeak (cms)= 0.725

PEAK FLOW (cms)= 0.001 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 0.379  
 TOTAL RAINFALL (mm)= 44.038  
 RUNOFF COEFFICIENT = 0.009

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

ADD HYD ( 0025)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0030):	6.32	0.197	1.67	10.67
+ ID2= 2 ( 0035):	0.38	0.007	1.33	2.49
=====				
ID = 3 ( 0025):	6.71	0.199	1.67	10.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
*** W A R N I N G : HYDROGRAPH 0059 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003				
ID1= 3 ( 0025):	6.71	0.199	1.67	10.20
+ ID2= 2 ( 0059):	0.00	0.000	0.00	0.00
=====				
ID = 1 ( 0025):	6.71	0.199	1.67	10.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0025):	6.71	0.199	1.67	10.20
+ ID2= 2 ( 0066):	0.40	0.021	1.33	7.56
=====				
ID = 3 ( 0025):	7.11	0.205	1.67	10.05

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 ( 0025):	7.11	0.205	1.67	10.05
+ ID2= 2 ( 0067):	0.34	0.001	1.33	0.38
=====				
ID = 1 ( 0025):	7.45	0.205	1.67	9.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
*** W A R N I N G : HYDROGRAPH 0078 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001				
ID1= 1 ( 0025):	7.45	0.205	1.67	9.61
+ ID2= 2 ( 0078):	0.00	0.000	0.00	15.58
=====				
ID = 3 ( 0025):	7.45	0.205	1.67	9.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 ( 0025):	7.45	0.205	1.67	9.61
+ ID2= 2 ( 0079):	6.91	0.276	1.50	10.10
=====				
ID = 1 ( 0025):	14.36	0.450	1.67	9.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| Junction Command(0049) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1( 0046)	1.18	0.07	1.25	15.49
OUTFLOW: ID= 2( 0049)	1.18	0.07	1.25	15.49

| Junction Command(0054) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1( 0052)	0.78	0.07	1.33	15.79
OUTFLOW: ID= 2( 0054)	0.78	0.07	1.33	15.79

| Junction Command(0058) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1( 0056)	0.57	0.02	1.25	13.33
OUTFLOW: ID= 2( 0058)	0.57	0.02	1.25	13.33

| Junction Command(0060) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1( 0059)	1.25	0.12	1.33	16.90
OUTFLOW: ID= 2( 0060)	1.25	0.12	1.33	16.90

| Junction Command(0063) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1( 0062)	0.90	0.05	1.33	12.42
OUTFLOW: ID= 2( 0063)	0.90	0.05	1.33	12.42

-----  
Junction Command(0065)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0064)	1.89	0.14	1.33	14.26
OUTFLOW: ID= 2( 0065)	1.89	0.14	1.33	14.26

-----  
Junction Command(0075)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0074)	0.46	0.04	1.33	15.58
OUTFLOW: ID= 2( 0075)	0.46	0.04	1.33	15.58

-----  
Junction Command(0076)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0077)	0.14	0.02	1.33	25.23
OUTFLOW: ID= 2( 0076)	0.14	0.02	1.33	25.23

-----  
Junction Command(0080)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0079)	2.78	0.03	1.25	10.10
OUTFLOW: ID= 2( 0080)	2.78	0.03	1.25	10.10

```

V V I SSSSS U U A L (v 6.2.2001)
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 UUUU A A LLLLL
  
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000 TTTT TTTT H H Y Y M M 000 TM
O O T T H H Y Y MM MM O O
O O T T H H Y M M O O
000 T T H H Y M M 000
  
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\*\*\*\*\* D E T A I L E D O U T P U T \*\*\*\*\*

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voim.dat  
 Output filename: C:\Users\matthew.holmes\AppData\Local\Civica\XH5\171054d8-64b5-4298-a9dc-5cbfd415d770\406d  
 Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\XH5\171054d8-64b5-4298-a9dc-5cbfd415d770\406d

DATE: 02/21/2023 TIME: 11:39:43

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : 4) 25YR \*\*  
 \*\*\*\*\*

CHICAGO STORM  
 Ptotal= 60.23 mm

IDF curve parameters: A=3886.000  
 B= 18.000  
 C= 1.000  
 used in: INTENSITY = A / (t + B)^C

Duration of storm = 4.00 hrs  
 Storm time step = 10.00 min  
 Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	1.41	1.17	43.05	2.17	7.72	3.17	2.04
0.33	1.89	1.33	138.79	2.33	5.76	3.33	1.74
0.50	2.65	1.50	58.11	2.50	4.46	3.50	1.51
0.67	4.00	1.67	28.06	2.67	3.56	3.67	1.32
0.83	6.73	1.83	16.53	2.83	2.90	3.83	1.16
1.00	13.69	2.00	10.90	3.00	2.41	4.00	1.03

CALIB  
 NASHYD ( 0009)  
 ID= 1 DT= 5.0 min

Area (ha)= 0.59 Curve Number (CN)= 71.0  
 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.202

PEAK FLOW (cms)= 0.050 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.849  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB  
 NASHYD ( 0037)  
 ID= 1 DT= 5.0 min

Area (ha)= 0.05 Curve Number (CN)= 71.0  
 Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.018

PEAK FLOW (cms)= 0.004 (i)

TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.841  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB  
 STANDHYD ( 0010) | Area (ha)= 0.14  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.13 0.01  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 30.55 40.00  
 Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Max.Eff.Inten.(mm/hr)= 138.79 43.97  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 1.10 (ii) 3.67 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.25

\*TOTALS\*  
 PEAK FLOW (cms)= 0.05 0.00 0.050 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 59.23 21.23 55.43  
 TOTAL RAINFALL (mm)= 60.23 60.23 60.23  
 RUNOFF COEFFICIENT = 0.98 0.35 0.92

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0053) |  
 1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 ID1= 1 ( 0010): 0.14 0.050 1.33 55.43  
 + ID2= 2 ( 0037): 0.05 0.004 1.42 18.84  
 ID = 3 ( 0053): 0.19 0.054 1.33 45.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0053) |  
 3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 ID1= 3 ( 0053): 0.19 0.054 1.33 45.64  
 + ID2= 2 ( 0009): 0.59 0.050 1.42 18.85  
 ID = 1 ( 0053): 0.78 0.101 1.33 25.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0052) |  
 Inlet Cap.= 0.126  
 #of Inlets= 1  
 Total(cms)= 0.1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
 TOTAL HYD.(ID= 1): 0.78 0.10 1.33 25.44  
 MAJOR SYS.(ID= 2): 0.00 0.00 0.00 0.00  
 MINOR SYS.(ID= 3): 0.78 0.10 1.33 25.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0015) | Area (ha)= 0.78 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.268

PEAK FLOW (cms)= 0.066 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.849  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB  
 STANDHYD ( 0014) | Area (ha)= 0.12  
 ID= 1 DT= 5.0 min | Total Imp(%)= 50.00 Dir. Conn.(%)= 35.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.06 0.06  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 28.63 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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Max.Eff.Inten.(mm/hr)= 138.79 69.53  
 over (min) 5.00 10.00  
 Storage Coeff. (min)= 1.06 (ii) 9.22 (ii)

Unit Hyd. Tpeak (min)= 5.00 10.00  
 Unit Hyd. peak (cms)= 0.34 0.12

PEAK FLOW (cms)= 0.02 0.01 0.023 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.42 1.33  
 RUNOFF VOLUME (mm)= 59.23 25.13 37.02  
 TOTAL RAINFALL (mm)= 60.23 60.23 60.23  
 RUNOFF COEFFICIENT = 0.98 0.42 0.61

\*TOTALS\*  
 (iii)

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0013)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0014):	0.12	0.023	1.33	37.02
+ ID2= 2 ( 0015):	0.78	0.066	1.42	18.85
ID = 3 ( 0013):	0.90	0.085	1.33	21.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0062)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.116				
#of Inlets= 1				
Total(cms)= 0.1				
TOTAL HYD. (ID= 1):	0.90	0.08	1.33	21.32
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.90	0.08	1.33	21.32

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0017)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)= 71.0	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	1.65	5.00	0.11		

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.567

PEAK FLOW (cms)= 0.140 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.849  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB STANDHYD ( 0018)	Area (ha)	Total Imp(%)	Dir. Conn.(%)
ID= 1 DT= 5.0 min	0.24	90.00	90.00

Surface Area (ha)= 0.22 IMPERVIOUS 0.02 PERVIOUS (i)  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 40.17 40.00  
 Mannings n = 0.013 0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Max.Eff.Inten.(mm/hr)= 138.79 43.97  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.30 (ii) 3.87 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

PEAK FLOW (cms)= 0.08 0.00 \*TOTALS\* 0.087 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 59.23 21.23 55.43  
 TOTAL RAINFALL (mm)= 60.23 60.23 60.23  
 RUNOFF COEFFICIENT = 0.98 0.35 0.92

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0016)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0017):	1.65	0.140	1.42	18.85
+ ID2= 2 ( 0018):	0.24	0.087	1.33	55.43
ID = 3 ( 0016):	1.89	0.218	1.33	23.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0064)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.218				
#of Inlets= 1				
Total(cms)= 0.2				
TOTAL HYD. (ID= 1):	1.89	0.22	1.33	23.53
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	1.89	0.22	1.33	23.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0021)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)= 71.0	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	1.13	5.00	0.11		

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.387

PEAK FLOW (cms)= 0.096 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.849  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB  
 STANDHYD ( 0022) | Area (ha)= 0.23  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.21 0.02  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 39.21 40.00  
 Mannings n = 0.013 0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Max. Eff. Inten. (mm/hr)= 138.79 43.97  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.28 (ii) 3.85 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

PEAK FLOW (cms)= 0.08 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 0.083 (iii)  
 RUNOFF VOLUME (mm)= 59.23 21.23 1.33  
 TOTAL RAINFALL (mm)= 60.23 60.23 55.43  
 RUNOFF COEFFICIENT = 0.98 0.35 0.92

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)  
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.  
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0020) | AREA QPEAK TPEAK R.V.  
 1 + 2 = 3 | (ha) (cms) (hrs) (mm)  
 ID1= 1 ( 0021): 1.13 0.096 1.42 18.85

+ ID2= 2 ( 0022): 0.23 0.083 1.33 55.43  
 ID = 3 ( 0020): 1.36 0.172 1.33 25.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0046)  
 Inlet Cap.= 0.065  
 #of Inlets= 1  
 Total(cms)= 0.1 | AREA QPEAK TPEAK R.V.  
 (ha) (cms) (hrs) (mm)  
 TOTAL HYD. (ID= 1): 1.36 0.17 1.33 25.06  
 MAJOR SYS. (ID= 2): 0.38 0.11 1.33 25.06  
 MINOR SYS. (ID= 3): 0.98 0.06 1.25 25.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0023) | Area (ha)= 0.62 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res. (N)= 3.00  
 U.H. Tp(hrs)= 0.11

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.213

PEAK FLOW (cms)= 0.052 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.849  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB  
 STANDHYD ( 0002) | Area (ha)= 0.07  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.06 0.01  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 21.00 40.00  
 Mannings n = 0.013 0.250

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16



0.917 13.69 | 1.917 10.90 | 2.917 2.41 | 3.92 1.03  
 1.000 13.69 | 2.000 10.90 | 3.000 2.41 | 4.00 1.03

Max.Eff.Inten.(mm/hr)= 138.79 43.97  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 0.88 (ii) 3.45 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.26

PEAK FLOW (cms)= 0.02 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 0.024 (iii)  
 RUNOFF VOLUME (mm)= 59.23 21.23 1.33  
 TOTAL RAINFALL (mm)= 60.23 60.23 60.23  
 RUNOFF COEFFICIENT = 0.98 0.35 0.92

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0055 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0002):	0.07	0.024	1.33	55.43
+ ID2= 2 ( 0023):	0.62	0.052	1.42	18.85
ID = 3 ( 0055):	0.68	0.073	1.33	22.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0056 ) Inlet Cap.= 0.024 #of Inlets= 1 Total(cms)= 0.0	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	0.68	0.07	1.33	22.38
MAJOR SYS. (ID= 2):	0.23	0.05	1.33	22.38
MINOR SYS. (ID= 3):	0.45	0.02	1.25	22.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD ( 0024 ) ID= 1 DT= 5.0 min	Area (ha)= 0.03	Total Imp(%)= 90.00	Dir. Conn.(%)= 90.00
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	IMPERVIOUS (ha)	PERVIOUS (i) (mm)
Surface Area	0.03	0.00
Dep. Storage	1.00	1.50
Average Slope	1.00	2.00
Length	15.13	40.00
Mannings n	0.013	0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Max.Eff.Inten.(mm/hr)= 138.79 43.97  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 0.72 (ii) 3.29 (ii)

Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.27

PEAK FLOW (cms)= 0.01 0.00 0.012 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 59.23 21.23 55.27  
 TOTAL RAINFALL (mm)= 60.23 60.23 60.23  
 RUNOFF COEFFICIENT = 0.98 0.35 0.92

\*TOTALS\*

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0057 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0024):	0.03	0.012	1.33	55.27
+ ID2= 2 ( 0056):	0.23	0.049	1.33	22.38
ID = 3 ( 0057):	0.27	0.061	1.33	26.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0026 ) ID= 1 DT= 5.0 min	Area (ha)= 0.03	Curve Number (CN)= 71.0
Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
U.H. Tp(hrs)= 0.11		

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.003 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.841  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB NASHYD ( 0038 ) ID= 1 DT= 5.0 min	Area (ha)= 1.55	Curve Number (CN)= 71.0
Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
U.H. Tp(hrs)= 0.15		

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

--- TRANSFORMED HYETOGRAPH ---							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51

0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.403

PEAK FLOW (cms)= 0.121 (i)  
 TIME TO PEAK (hrs)= 1.500  
 RUNOFF VOLUME (mm)= 19.068  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.317

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

CALIB							
NASHYD ( 0039)	Area (ha)=	2.24	Curve Number (CN)=	71.0			
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.25					

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.344

PEAK FLOW (cms)= 0.137 (i)  
 TIME TO PEAK (hrs)= 1.583  
 RUNOFF VOLUME (mm)= 19.174  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.318

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

CALIB							
NASHYD ( 0040)	Area (ha)=	0.91	Curve Number (CN)=	71.0			
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.03					

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 1.049

PEAK FLOW (cms)= 0.052 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 8.255

TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.137

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

CALIB							
NASHYD ( 0041)	Area (ha)=	1.43	Curve Number (CN)=	71.0			
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00			
	U.H. Tp(hrs)=	0.05					

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 1.087

PEAK FLOW (cms)= 0.137 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 14.684  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.244

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

ADD HYD ( 0011)							
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)			
ID1= 1 ( 0026):	0.03	0.003	1.42	18.84			
+ ID2= 2 ( 0038):	1.55	0.121	1.50	19.07			
ID = 3 ( 0011):	1.58	0.123	1.50	19.06			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)							
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)			
ID1= 3 ( 0011):	1.58	0.123	1.50	19.06			
+ ID2= 2 ( 0039):	2.24	0.137	1.58	19.17			
ID = 1 ( 0011):	3.81	0.248	1.50	19.13			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)							
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)			
ID1= 1 ( 0011):	3.81	0.248	1.50	19.13			
+ ID2= 2 ( 0040):	0.91	0.052	1.33	8.26			
ID = 3 ( 0011):	4.73	0.278	1.50	17.03			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)							
3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)			
ID1= 3 ( 0011):	4.73	0.278	1.50	17.03			

+ ID2= 2 ( 0041): 1.43 0.137 1.33 14.68  
 ID = 1 ( 0011): 6.15 0.359 1.50 16.48

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)  
 1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0011):	6.15	0.359	1.50	16.48
+ ID2= 2 ( 0046):	0.38	0.107	1.33	25.06
ID = 3 ( 0011):	6.53	0.447	1.33	16.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)  
 3 + 2 = 1

\*\*\* W A R N I N G : HYDROGRAPH 0052 <ID= 2> IS DRY.  
 \*\*\* W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0011):	6.53	0.447	1.33	16.98
+ ID2= 2 ( 0052):	0.00	0.000	0.00	0.00
ID = 1 ( 0011):	6.53	0.447	1.33	16.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)  
 1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0011):	6.53	0.447	1.33	16.98
+ ID2= 2 ( 0057):	0.27	0.061	1.33	26.58
ID = 3 ( 0011):	6.80	0.508	1.33	17.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)  
 3 + 2 = 1

\*\*\* W A R N I N G : HYDROGRAPH 0062 <ID= 2> IS DRY.  
 \*\*\* W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0011):	6.80	0.508	1.33	17.36
+ ID2= 2 ( 0062):	0.00	0.000	0.00	0.00
ID = 1 ( 0011):	6.80	0.508	1.33	17.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)  
 1 + 2 = 3

\*\*\* W A R N I N G : HYDROGRAPH 0064 <ID= 2> IS DRY.  
 \*\*\* W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0011):	6.80	0.508	1.33	17.36
+ ID2= 2 ( 0064):	0.00	0.000	0.00	0.00
ID = 3 ( 0011):	6.80	0.508	1.33	17.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0028) | Area (ha)= 3.23 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.06

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 2.141

PEAK FLOW (cms)= 0.328 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 16.125  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.268

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

CALIB  
 NASHYD ( 0029) | Area (ha)= 6.46 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.26

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.950

PEAK FLOW (cms)= 0.383 (i)  
 TIME TO PEAK (hrs)= 1.667  
 RUNOFF VOLUME (mm)= 19.177  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.318

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

ADD HYD ( 0027)  
 1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0028):	3.23	0.328	1.33	16.13
+ ID2= 2 ( 0029):	6.46	0.383	1.67	19.18
ID = 3 ( 0027):	9.70	0.547	1.50	18.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0079)  
 Inlet Cap.= 0.034  
 #of Inlets= 1  
 Total(cms)= 0.0

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	9.70	0.55	1.50	18.16
MAJOR SYS.(ID= 2):	7.80	0.51	1.50	18.16
MINOR SYS.(ID= 3):	1.89	0.03	1.17	18.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
NASHYD ( 0030) Area (ha)= 6.32 Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.30

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.804

PEAK FLOW (cms)= 0.348 (i)  
TIME TO PEAK (hrs)= 1.667  
RUNOFF VOLUME (mm)= 19.182  
TOTAL RAINFALL (mm)= 60.234  
RUNOFF COEFFICIENT = 0.318

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

CALIB  
NASHYD ( 0033) Area (ha)= 0.98 Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.11

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.337

PEAK FLOW (cms)= 0.083 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 18.849  
TOTAL RAINFALL (mm)= 60.234  
RUNOFF COEFFICIENT = 0.313

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

CALIB  
STANDHYD ( 0034) Area (ha)= 0.27 Dir. Conn.(%)= 90.00  
ID= 1 DT= 5.0 min Total Imp(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
Surface Area (ha)= 0.25 0.03  
Dep. Storage (mm)= 1.00 1.50  
Average Slope (%)= 1.00 2.00  
Length (m)= 42.65 40.00

Mannings n = 0.013 0.250

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Max. Eff. Inten. (mm/hr)= 138.79 43.97  
over (min)= 5.00 5.00  
Storage Coeff. (min)= 1.34 (ii) 3.91 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.33 0.25

PEAK FLOW (cms)= 0.09 0.00 \*TOTALS\*  
TIME TO PEAK (hrs)= 1.33 1.33 0.098 (iii)  
RUNOFF VOLUME (mm)= 59.23 21.23 55.43  
TOTAL RAINFALL (mm)= 60.23 60.23 60.23  
RUNOFF COEFFICIENT = 0.98 0.35 0.92

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)  
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.  
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0032)  
1 + 2 = 3  
ID1= 1 ( 0033): AREA (ha) 0.98 QPEAK (cms) 0.083 TPEAK (hrs) 1.42 R.V. (mm) 18.85  
+ ID2= 2 ( 0034): 0.27 0.098 1.33 55.43  
===== ID = 3 ( 0032): 1.25 0.176 1.33 26.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0059)  
Inlet Cap.= 0.176  
#of Inlets= 1  
Total(cms)= 0.2  
TOTAL HYD. (ID= 1): AREA (ha) 1.25 QPEAK (cms) 0.18 TPEAK (hrs) 1.33 R.V. (mm) 26.81  
MAJOR SYS. (ID= 2): 0.00 0.00 0.00 0.00  
MINOR SYS. (ID= 3): 1.25 0.18 1.33 26.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
NASHYD ( 0035) Area (ha)= 0.38 Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.03

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74

0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.012 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 4.477  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.074

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

CALIB							
NASHYD	( 0036)	Area (ha)=	0.07	Curve Number (CN)=	71.0		
ID= 1	DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00		
		U.H. Tp(hrs)=	0.11				

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.006 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.847  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB							
STANDHYD	( 0031)	Area (ha)=	0.07	Curve Number (CN)=	71.0		
ID= 1	DT= 5.0 min	Total Imp(%)=	90.00	Dir. Conn.(%)=	90.00		

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.06 0.01  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 21.45 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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16

0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Max.Eff.Inten.(mm/hr)= 138.79 43.97  
 over (min) = 5.00 5.00  
 Storage Coeff. (min)= 0.89 (ii) 3.46 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.26

\*TOTALS\*  
 PEAK FLOW (cms)= 0.02 0.00 0.025 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 59.23 21.23 55.43  
 TOTAL RAINFALL (mm)= 60.23 60.23 60.23  
 RUNOFF COEFFICIENT = 0.98 0.35 0.92

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)  
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.  
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0068)							
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)			
ID1= 1 ( 0031):	0.07	0.025	1.33	55.43			
+ ID2= 2 ( 0036):	0.07	0.006	1.42	18.85			
ID = 3 ( 0068):	0.14	0.030	1.33	37.15			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0077)							
Inlet Cap.= 0.034							
#of Inlets= 1							
Total(cms)= 0.0	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)			
TOTAL HYD.(ID= 1):	0.14	0.03	1.33	37.15			
MAJOR SYS.(ID= 2):	0.00	0.00	0.00	0.00			
MINOR SYS.(ID= 3):	0.14	0.03	1.33	37.15			

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB							
NASHYD	( 0072)	Area (ha)=	0.38	Curve Number (CN)=	71.0		
ID= 1	DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00		
		U.H. Tp(hrs)=	0.11				

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.130

PEAK FLOW (cms)= 0.032 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 18.849  
 TOTAL RAINFALL (mm)= 60.234  
 RUNOFF COEFFICIENT = 0.313

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

CALIB  
STANDHYD ( 0071) | Area (ha)= 0.08  
ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
Surface Area (ha)= 0.07 0.01  
Dep. Storage (mm)= 1.00 1.50  
Average Slope (%)= 1.00 2.00  
Length (m)= 22.92 40.00  
Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Max. Eff. Inten. (mm/hr)= 138.79 43.97  
over (min) 5.00 5.00  
Storage Coeff. (min)= 0.93 (ii) 3.50 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.34 0.26

\*TOTALS\*  
PEAK FLOW (cms)= 0.03 0.00 0.028 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33  
RUNOFF VOLUME (mm)= 59.23 21.23 55.43  
TOTAL RAINFALL (mm)= 60.23 60.23 60.23  
RUNOFF COEFFICIENT = 0.98 0.35 0.92

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0073)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0071):	0.08	0.028	1.33	55.43
+ ID2= 2 ( 0072):	0.38	0.032	1.42	18.85
ID = 3 ( 0073):	0.46	0.058	1.33	25.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0074)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.073				
#of Inlets= 1				
Total(cms)= 0.1				
TOTAL HYD. (ID= 1):	0.46	0.06	1.33	25.18
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.46	0.06	1.33	25.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0078)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				

(ha) (cms) (hrs) (mm)  
\*\*\* WARNING : HYDROGRAPH 0074 <ID= 1> IS DRY.  
\*\*\* WARNING : HYDROGRAPH 0077 <ID= 2> IS DRY.  
\*\*\* WARNING : HYDROGRAPH 0078 <ID= 3> IS ALSO DRY

CALIB  
NASHYD ( 0066) | Area (ha)= 0.40 Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.05

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

--- TRANSFORMED HYETOGRAPH ---							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.331

PEAK FLOW (cms)= 0.036 (i)  
TIME TO PEAK (hrs)= 1.333  
RUNOFF VOLUME (mm)= 13.595  
TOTAL RAINFALL (mm)= 60.234  
RUNOFF COEFFICIENT = 0.226

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

CALIB  
NASHYD ( 0067) | Area (ha)= 0.34 Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.02

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	1.41	1.083	43.05	2.083	7.72	3.08	2.04
0.167	1.41	1.167	43.05	2.167	7.72	3.17	2.04
0.250	1.89	1.250	138.79	2.250	5.76	3.25	1.74
0.333	1.89	1.333	138.79	2.333	5.76	3.33	1.74
0.417	2.65	1.417	58.11	2.417	4.46	3.42	1.51
0.500	2.65	1.500	58.11	2.500	4.46	3.50	1.51
0.583	4.00	1.583	28.06	2.583	3.56	3.58	1.32
0.667	4.00	1.667	28.06	2.667	3.56	3.67	1.32
0.750	6.73	1.750	16.53	2.750	2.90	3.75	1.16
0.833	6.73	1.833	16.53	2.833	2.90	3.83	1.16
0.917	13.69	1.917	10.90	2.917	2.41	3.92	1.03
1.000	13.69	2.000	10.90	3.000	2.41	4.00	1.03

Unit Hyd Qpeak (cms)= 0.725

PEAK FLOW (cms)= 0.002 (i)  
TIME TO PEAK (hrs)= 1.333  
RUNOFF VOLUME (mm)= 0.682  
TOTAL RAINFALL (mm)= 60.234  
RUNOFF COEFFICIENT = 0.011

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

ADD HYD ( 0025)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0030):	6.32	0.348	1.67	19.18
+ ID2= 2 ( 0035):	0.38	0.012	1.33	4.48

=====  
ID = 3 ( 0025): 6.71 0.351 1.67 18.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
| ADD HYD ( 0025) |  
3 + 2 = 1
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
\*\*\* W A R N I N G : HYDROGRAPH 0059 <ID= 2> IS DRY.  
\*\*\* W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003  
ID1= 3 ( 0025): 6.71 0.351 1.67 18.34  
+ ID2= 2 ( 0059): 0.00 0.000 0.00 0.00  
-----  
ID = 1 ( 0025): 6.71 0.351 1.67 18.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
| ADD HYD ( 0025) |  
1 + 2 = 3
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
+ ID1= 1 ( 0025): 6.71 0.351 1.67 18.34  
+ ID2= 2 ( 0066): 0.40 0.036 1.33 13.59  
-----  
ID = 3 ( 0025): 7.11 0.363 1.67 18.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
| ADD HYD ( 0025) |  
3 + 2 = 1
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
ID1= 3 ( 0025): 7.11 0.363 1.67 18.07  
+ ID2= 2 ( 0067): 0.34 0.002 1.33 0.68  
-----  
ID = 1 ( 0025): 7.45 0.363 1.67 17.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
| ADD HYD ( 0025) |  
1 + 2 = 3
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
\*\*\* W A R N I N G : HYDROGRAPH 0078 <ID= 2> IS DRY.  
\*\*\* W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001  
ID1= 1 ( 0025): 7.45 0.363 1.67 17.28  
+ ID2= 2 ( 0078): 0.00 0.000 0.00 25.18  
-----  
ID = 3 ( 0025): 7.45 0.363 1.67 17.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
| ADD HYD ( 0025) |  
3 + 2 = 1
AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
ID1= 3 ( 0025): 7.45 0.363 1.67 17.28  
+ ID2= 2 ( 0079): 7.80 0.513 1.50 18.16  
-----  
ID = 1 ( 0025): 15.25 0.824 1.50 17.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----  
Junction Command(0049)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0046) 0.98 0.07 1.25 25.06  
OUTFLOW: ID= 2( 0049) 0.98 0.07 1.25 25.06

-----  
Junction Command(0054)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0052) 0.78 0.10 1.33 25.44  
OUTFLOW: ID= 2( 0054) 0.78 0.10 1.33 25.44

-----  
Junction Command(0058)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0056) 0.45 0.02 1.25 22.38  
OUTFLOW: ID= 2( 0058) 0.45 0.02 1.25 22.38

-----  
Junction Command(0060)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0059) 1.25 0.18 1.33 26.81  
OUTFLOW: ID= 2( 0060) 1.25 0.18 1.33 26.81

-----  
Junction Command(0063)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0062) 0.90 0.08 1.33 21.32  
OUTFLOW: ID= 2( 0063) 0.90 0.08 1.33 21.32

-----  
Junction Command(0065)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0064) 1.89 0.22 1.33 23.53  
OUTFLOW: ID= 2( 0065) 1.89 0.22 1.33 23.53

-----  
Junction Command(0075)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0074) 0.46 0.06 1.33 25.18  
OUTFLOW: ID= 2( 0075) 0.46 0.06 1.33 25.18

-----  
Junction Command(0076)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0077) 0.14 0.03 1.33 37.15  
OUTFLOW: ID= 2( 0076) 0.14 0.03 1.33 37.15

-----  
Junction Command(0080)

AREA QPEAK TPEAK R.V.  
(ha) (cms) (hrs) (mm)  
INFLOW : ID= 1( 0079) 1.89 0.03 1.17 18.16  
OUTFLOW: ID= 2( 0080) 1.89 0.03 1.17 18.16

```

=====
V V I SSSS U U A L (v 6.2.2001)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
W I SSSS UUUU A A LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat  
 Output filename: C:\Users\matthew.holmes\AppData\Local\Civica\VH5\171054d8-64b5-4298-a9dc-5cbfd415d770\b012  
 Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\VH5\171054d8-64b5-4298-a9dc-5cbfd415d770\b012

DATE: 02/21/2023 TIME: 11:39:44

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : 5) 50YR \*\*  
 \*\*\*\*\*

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-----
| CHICAGO STORM | IDF curve parameters: A=4750.000
| Ptotal= 71.95 mm | B= 24.000
| | C= 1.000
| | used in: INTENSITY = A / (t + B)^C
| |
| | Duration of storm = 4.00 hrs
| | Storm time step = 10.00 min
| | Time to peak ratio = 0.33
| |
| | TIME RAIN | TIME RAIN | TIME RAIN | TIME RAIN
| | hrs mm/hr | hrs mm/hr | hrs mm/hr | hrs mm/hr
| |-----|-----|-----|-----|
| | 0.17 2.18 | 1.17 52.37 | 2.17 11.13 | 3.17 3.12
| | 0.33 2.89 | 1.33 139.71 | 2.33 8.44 | 3.33 2.68
| | 0.50 4.02 | 1.50 68.44 | 2.50 6.62 | 3.50 2.33
| | 0.67 5.96 | 1.67 36.37 | 2.67 5.33 | 3.67 2.04
| | 0.83 9.77 | 1.83 22.56 | 2.83 4.38 | 3.83 1.81
| | 1.00 18.93 | 2.00 15.36 | 3.00 3.67 | 4.00 1.61
| |-----|-----|-----|-----|

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-----
| CALIB |
| NASHYD ( 0009) | Area (ha)= 0.59 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.11
| |-----|

```

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.202

PEAK FLOW (cms)= 0.059 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.792  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

```

-----
| CALIB |
| NASHYD ( 0037) | Area (ha)= 0.05 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.11
| |-----|

```

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.018

PEAK FLOW (cms)= 0.005 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.786  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

```

-----
| CALIB |
| STANDHYD ( 0010) | Area (ha)= 0.14
| ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00
| |-----|

```

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.13	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	30.55	40.00
Mannings n =	0.013	0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max. Eff. Inten. (mm/hr)= 139.71 49.88  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.10 (ii) 3.66 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.25



\*TOTALS\*  
 PEAK FLOW (cms)= 0.05 0.00 0.051 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 70.95 28.49 66.70  
 TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
 RUNOFF COEFFICIENT = 0.99 0.40 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0053)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0010):	0.14	0.051	1.33	66.70
+ ID2= 2 ( 0037):	0.05	0.005	1.42	25.79
=====				
ID = 3 ( 0053):	0.19	0.056	1.33	55.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0053)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0053):	0.19	0.056	1.33	55.75
+ ID2= 2 ( 0009):	0.59	0.059	1.42	25.79
=====				
ID = 1 ( 0053):	0.78	0.111	1.33	33.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0052)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.126				
#of Inlets= 1				
Total(cms)= 0.1				
=====				
TOTAL HYD.(ID= 1):	0.78	0.11	1.33	33.16
=====				
MAJOR SYS.(ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS.(ID= 3):	0.78	0.11	1.33	33.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0015)	Area (ha)	Ia (mm)	U.H. Tp(hrs)	Curve Number (CN)= 71.0	# of Linear Res.(N)= 3.00
ID= 1 DT= 5.0 min	0.78	5.00	0.11		

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	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.268

PEAK FLOW (cms)= 0.079 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.792

TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

CALIB STANDHYD ( 0014)	Area (ha)	Total Imp(%)	Dir. Conn.(%)
ID= 1 DT= 5.0 min	0.12	50.00	35.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)	0.06	0.06
Dep. Storage (mm)	1.00	1.50
Average Slope (%)	1.00	2.00
Length (m)	28.63	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	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max. Eff. Inten. (mm/hr)= 139.71 78.03  
 over (min) 5.00 10.00  
 Storage Coeff. (min)= 1.06 (ii) 8.85 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 10.00  
 Unit Hyd. peak (cms)= 0.34 0.12

PEAK FLOW (cms)= 0.02 0.01 0.024 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.42 1.33  
 RUNOFF VOLUME (mm)= 70.95 33.28 46.42  
 TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
 RUNOFF COEFFICIENT = 0.99 0.46 0.65

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0013)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0014):	0.12	0.024	1.33	46.42
+ ID2= 2 ( 0015):	0.78	0.079	1.42	25.79
=====				
ID = 3 ( 0013):	0.90	0.098	1.33	28.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0062)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.116				
#of Inlets= 1				
Total(cms)= 0.1				
=====				
TOTAL HYD.(ID= 1):	0.90	0.10	1.33	28.60
=====				
MAJOR SYS.(ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS.(ID= 3):	0.90	0.10	1.33	28.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0017) | Area (ha)= 1.65 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.567

PEAK FLOW (cms)= 0.167 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.792  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

CALIB  
 STANDHYD ( 0018) | Area (ha)= 0.24  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.22 0.02  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 40.17 40.00  
 Mannings n = 0.013 0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max.Eff.Inten.(mm/hr)= 139.71 49.88  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.29 (ii) 3.86 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

\*TOTALS\*

PEAK FLOW (cms)= 0.08 0.00 0.088 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 70.95 28.49 66.70  
 TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
 RUNOFF COEFFICIENT = 0.99 0.40 0.93

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)  
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

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

ADD HYD ( 0016)  
 1 + 2 = 3

	AREA (ha)	OPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0017):	1.65	0.167	1.42	25.79
+ ID2= 2 ( 0018):	0.24	0.088	1.33	66.70
ID = 3 ( 0016):	1.89	0.243	1.33	31.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0064)  
 Inlet Cap.= 0.218  
 #of Inlets= 1  
 Total(cms)= 0.2

	AREA (ha)	OPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	1.89	0.24	1.33	31.03
MAJOR SYS. (ID= 2):	0.02	0.03	1.33	31.03
MINOR SYS. (ID= 3):	1.87	0.22	1.33	31.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0021) | Area (ha)= 1.13 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.387

PEAK FLOW (cms)= 0.114 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.792  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

CALIB  
 STANDHYD ( 0022) | Area (ha)= 0.23  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.21 0.02  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 39.21 40.00  
 Mannings n = 0.013 0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr

0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max.Eff.Inten.(mm/hr)= 139.71 49.88  
over (min) 5.00 5.00  
Storage Coeff. (min)= 1.27 (ii) 3.84 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.33 0.25

\*TOTALS\*  
PEAK FLOW (cms)= 0.08 0.00 0.084 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33 1.33  
RUNOFF VOLUME (mm)= 70.95 28.49 66.70  
TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
RUNOFF COEFFICIENT = 0.99 0.40 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0020 )				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0021):	1.13	0.114	1.42	25.79
+ ID2= 2 ( 0022):	0.23	0.084	1.33	66.70
=====				
ID = 3 ( 0020):	1.36	0.190	1.33	32.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0046 )				
Inlet Cap.= 0.065				
#of Inlets= 1				
Total(cms)= 0.1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD.(ID= 1):	1.36	0.19	1.33	32.74
=====				
MAJOR SYS.(ID= 2):	0.42	0.12	1.33	32.74
MINOR SYS.(ID= 3):	0.94	0.06	1.25	32.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD ( 0023 )			
ID= 1 DT= 5.0 min			
Area (ha)=	0.62	Curve Number (CN)=	71.0
Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=	0.11		

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.213

PEAK FLOW (cms)= 0.063 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 25.792  
TOTAL RAINFALL (mm)= 71.949  
RUNOFF COEFFICIENT = 0.358

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

CALIB			
STANDHYD ( 0002 )			
ID= 1 DT= 5.0 min			
Area (ha)=	0.07	Total Imp(%)=	90.00
Dir. Conn.(%)=	90.00		

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	21.00	40.00
Mannings n =	0.013	0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max.Eff.Inten.(mm/hr)= 139.71 49.88  
over (min) 5.00 5.00  
Storage Coeff. (min)= 0.88 (ii) 3.44 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.34 0.26

\*TOTALS\*  
PEAK FLOW (cms)= 0.02 0.00 0.024 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33 1.33  
RUNOFF VOLUME (mm)= 70.95 28.49 66.70  
TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
RUNOFF COEFFICIENT = 0.99 0.40 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0055 )				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0002):	0.07	0.024	1.33	66.70
+ ID2= 2 ( 0023):	0.62	0.063	1.42	25.79
=====				
ID = 3 ( 0055):	0.68	0.082	1.33	29.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0056 )				
Inlet Cap.= 0.024				
#of Inlets= 1				
Total(cms)= 0.0				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
TOTAL HYD.(ID= 1):	0.68	0.08	1.33	29.74

MAJOR SYS.(ID= 2): 0.26 0.06 1.33 29.74  
 MINOR SYS.(ID= 3): 0.43 0.02 1.25 29.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 STANDHYD ( 0024) | Area (ha)= 0.03  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.03 0.00  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 15.13 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	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max. Eff. Inten.(mm/hr)= 139.71 49.88  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 0.72 (ii) 3.28 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.27

\*TOTALS\*  
 PEAK FLOW (cms)= 0.01 0.00 0.012 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 70.95 28.49 66.70  
 TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
 RUNOFF COEFFICIENT = 0.99 0.40 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES: CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0057) | AREA OPEAK TPEAK R.V.  
 1 + 2 = 3 | (ha) (cms) (hrs) (mm)  
 ID1= 1 ( 0024): 0.03 0.012 1.33 66.70  
 + ID2= 2 ( 0056): 0.26 0.058 1.33 29.74  
 ID = 3 ( 0057): 0.29 0.071 1.33 34.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0026) | Area (ha)= 0.03 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12

0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.003 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.778  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

CALIB  
 NASHYD ( 0038) | Area (ha)= 1.55 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.15

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

--- TRANSFORMED HYETOGRAPH ---

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.403

PEAK FLOW (cms)= 0.147 (i)  
 TIME TO PEAK (hrs)= 1.500  
 RUNOFF VOLUME (mm)= 26.092  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.363

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

CALIB  
 NASHYD ( 0039) | Area (ha)= 2.24 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.25

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	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.344

PEAK FLOW (cms)= 0.169 (i)  
 TIME TO PEAK (hrs)= 1.583  
 RUNOFF VOLUME (mm)= 26.236  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.365

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

CALIB  
 NASHYD ( 0040) | Area (ha)= 0.91 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.03

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 1.049

PEAK FLOW (cms)= 0.058 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 11.296  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.157

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

CALIB  
 NASHYD ( 0041) | Area (ha)= 1.43 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.05

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 1.087

PEAK FLOW (cms)= 0.154 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 20.092  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.279

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

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0026):	0.03	0.003	1.42	25.78
+ ID2= 2 ( 0038):	1.55	0.147	1.50	26.09
ID = 3 ( 0011):	1.58	0.151	1.50	26.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0011):	1.58	0.151	1.50	26.09
+ ID2= 2 ( 0039):	2.24	0.169	1.58	26.24
ID = 1 ( 0011):	3.81	0.304	1.50	26.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0011):	3.81	0.304	1.50	26.17
+ ID2= 2 ( 0040):	0.91	0.058	1.33	11.30
ID = 3 ( 0011):	4.73	0.342	1.50	23.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0011):	4.73	0.342	1.50	23.30
+ ID2= 2 ( 0041):	1.43	0.154	1.33	20.09
ID = 1 ( 0011):	6.15	0.445	1.50	22.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0011):	6.15	0.445	1.50	22.56
+ ID2= 2 ( 0046):	0.42	0.125	1.33	32.74
ID = 3 ( 0011):	6.57	0.531	1.50	23.20

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
3 + 2 = 1				
ID1= 3 ( 0011):	6.57	0.531	1.50	23.20
+ ID2= 2 ( 0052):	0.00	0.000	0.00	0.00
ID = 1 ( 0011):	6.57	0.531	1.50	23.20

\*\*\* W A R N I N G : HYDROGRAPH 0052 <ID= 2> IS DRY.  
 \*\*\* W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0011)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0011):	6.57	0.531	1.50	23.20
+ ID2= 2 ( 0057):	0.29	0.071	1.33	34.07
ID = 3 ( 0011):	6.87	0.597	1.33	23.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

ADD HYD ( 0011)
3 + 2 = 1
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
*** W A R N I N G : HYDROGRAPH 0062 <ID= 2> IS DRY.
*** W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003
ID1= 3 ( 0011): 6.87 0.597 1.33 23.67
+ ID2= 2 ( 0062): 0.00 0.000 0.00 0.00
=====
ID = 1 ( 0011): 6.87 0.597 1.33 23.67

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

ADD HYD ( 0011)
1 + 2 = 3
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0011): 6.87 0.597 1.33 23.67
+ ID2= 2 ( 0064): 0.02 0.025 1.33 31.03
=====
ID = 3 ( 0011): 6.89 0.622 1.33 23.69

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

CALIB
NASHYD ( 0028) Area (ha)= 3.23 Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.06

```

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

```

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 2.18 1.083 52.37 2.083 11.13 3.08 3.12
0.167 2.18 1.167 52.37 2.167 11.13 3.17 3.12
0.250 2.89 1.250 139.71 2.250 8.44 3.25 2.68
0.333 2.89 1.333 139.71 2.333 8.44 3.33 2.68
0.417 4.02 1.417 68.44 2.417 6.62 3.42 2.33
0.500 4.02 1.500 68.44 2.500 6.62 3.50 2.33
0.583 5.96 1.583 36.37 2.583 5.33 3.58 2.04
0.667 5.96 1.667 36.37 2.667 5.33 3.67 2.04
0.750 9.77 1.750 22.56 2.750 4.38 3.75 1.81
0.833 9.77 1.833 22.56 2.833 4.38 3.83 1.81
0.917 18.93 1.917 15.36 2.917 3.67 3.92 1.61
1.000 18.93 2.000 15.36 3.000 3.67 4.00 1.61

```

Unit Hyd Qpeak (cms)= 2.141

```

PEAK FLOW (cms)= 0.372 (i)
TIME TO PEAK (hrs)= 1.333
RUNOFF VOLUME (mm)= 22.065
TOTAL RAINFALL (mm)= 71.949
RUNOFF COEFFICIENT = 0.307

```

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

```

CALIB
NASHYD ( 0029) Area (ha)= 6.46 Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.26

```

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

```

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 2.18 1.083 52.37 2.083 11.13 3.08 3.12
0.167 2.18 1.167 52.37 2.167 11.13 3.17 3.12
0.250 2.89 1.250 139.71 2.250 8.44 3.25 2.68
0.333 2.89 1.333 139.71 2.333 8.44 3.33 2.68
0.417 4.02 1.417 68.44 2.417 6.62 3.42 2.33
0.500 4.02 1.500 68.44 2.500 6.62 3.50 2.33
0.583 5.96 1.583 36.37 2.583 5.33 3.58 2.04
0.667 5.96 1.667 36.37 2.667 5.33 3.67 2.04
0.750 9.77 1.750 22.56 2.750 4.38 3.75 1.81
0.833 9.77 1.833 22.56 2.833 4.38 3.83 1.81

```

```

0.917 18.93 | 1.917 15.36 | 2.917 3.67 | 3.92 1.61
1.000 18.93 | 2.000 15.36 | 3.000 3.67 | 4.00 1.61

```

Unit Hyd Qpeak (cms)= 0.950

```

PEAK FLOW (cms)= 0.481 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 26.240
TOTAL RAINFALL (mm)= 71.949
RUNOFF COEFFICIENT = 0.365

```

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

```

ADD HYD ( 0027)
1 + 2 = 3
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
ID1= 1 ( 0028): 3.23 0.372 1.33 22.06
+ ID2= 2 ( 0029): 6.46 0.481 1.67 26.24
=====
ID = 3 ( 0027): 9.70 0.681 1.50 24.85

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

DUHYD ( 0079)
Inlet Cap.= 0.034
#of Inlets= 1
Total(cms)= 0.01
AREA      QPEAK      TPEAK      R.V.
(ha)      (cms)      (hrs)      (mm)
TOTAL HYD.(ID= 1): 9.70 0.68 1.50 24.85
MAJOR SYS.(ID= 2): 8.14 0.65 1.50 24.85
MINOR SYS.(ID= 3): 1.56 0.03 1.17 24.85

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

CALIB
NASHYD ( 0030) Area (ha)= 6.32 Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.30

```

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

```

----- TRANSFORMED HYETOGRAPH -----
TIME RAIN TIME RAIN TIME RAIN TIME RAIN
hrs mm/hr hrs mm/hr hrs mm/hr hrs mm/hr
0.083 2.18 1.083 52.37 2.083 11.13 3.08 3.12
0.167 2.18 1.167 52.37 2.167 11.13 3.17 3.12
0.250 2.89 1.250 139.71 2.250 8.44 3.25 2.68
0.333 2.89 1.333 139.71 2.333 8.44 3.33 2.68
0.417 4.02 1.417 68.44 2.417 6.62 3.42 2.33
0.500 4.02 1.500 68.44 2.500 6.62 3.50 2.33
0.583 5.96 1.583 36.37 2.583 5.33 3.58 2.04
0.667 5.96 1.667 36.37 2.667 5.33 3.67 2.04
0.750 9.77 1.750 22.56 2.750 4.38 3.75 1.81
0.833 9.77 1.833 22.56 2.833 4.38 3.83 1.81
0.917 18.93 1.917 15.36 2.917 3.67 3.92 1.61
1.000 18.93 2.000 15.36 3.000 3.67 4.00 1.61

```

Unit Hyd Qpeak (cms)= 0.804

```

PEAK FLOW (cms)= 0.436 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 26.248
TOTAL RAINFALL (mm)= 71.949
RUNOFF COEFFICIENT = 0.365

```

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

```

CALIB
NASHYD ( 0033) Area (ha)= 0.98 Curve Number (CN)= 71.0
ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
U.H. Tp(hrs)= 0.11

```

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.337

PEAK FLOW (cms)= 0.099 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.792  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

CALIB STANDHYD ( 0034) | Area (ha)= 0.27  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.25	0.03
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	42.65	40.00
Manning's n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max.Eff.Inten.(mm/hr)= 139.71 49.88  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 1.34 (ii) 3.90 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

\*TOTALS\*

PEAK FLOW (cms)= 0.10 0.00 0.099 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 70.95 28.49 66.70  
 TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
 RUNOFF COEFFICIENT = 0.99 0.40 0.93

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)  
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.  
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0032) | AREA QPEAK TPEAK R.V.  
 1 + 2 = 3

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0033):	0.98	0.099	1.42	25.79
+ ID2= 2 ( 0034):	0.27	0.099	1.33	66.70
ID = 3 ( 0032):	1.25	0.191	1.33	34.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0059) |  
 Inlet Cap.= 0.176 |  
 #of Inlets= 1 |  
 Total(cms)= 0.2 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	1.25	0.19	1.33	34.69
MAJOR SYS.(ID= 2):	0.01	0.02	1.33	34.69
MINOR SYS.(ID= 3):	1.24	0.18	1.33	34.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0035) | Area (ha)= 0.38 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.03

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.013 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 6.126  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.085

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

CALIB NASHYD ( 0036) | Area (ha)= 0.07 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.007 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.788  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

CALIB  
 STANDHYD ( 0031) | Area (ha)= 0.07  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.06	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	21.45	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max.Eff.Inten.(mm/hr)= 139.71 49.88  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 0.89 (ii) 3.45 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.26

\*TOTALS\*  
 PEAK FLOW (cms)= 0.02 0.00 0.025 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 70.95 28.49 66.70  
 TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
 RUNOFF COEFFICIENT = 0.99 0.40 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0068)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0031):	0.07	0.025	1.33	66.70
+ ID2= 2 ( 0036):	0.07	0.007	1.42	25.79
ID = 3 ( 0068):	0.14	0.032	1.33	46.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0077)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
Inlet Cap.= 0.034				
#of Inlets= 1				
Total(cms)= 0.01				
TOTAL HYD.(ID= 1):	0.14	0.03	1.33	46.26
MAJOR SYS.(ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS.(ID= 3):	0.14	0.03	1.33	46.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area (ha)	Curve Number (CN)
NASHYD ( 0072)	0.38	71.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.130

PEAK FLOW (cms)= 0.038 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 25.792  
 TOTAL RAINFALL (mm)= 71.949  
 RUNOFF COEFFICIENT = 0.358

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

CALIB	Area (ha)	Dir. Conn.(%)
STANDHYD ( 0071)	0.08	90.00
ID= 1 DT= 5.0 min	Total Imp(%)= 90.00	Dir. Conn.(%)= 90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.07	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	22.92	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Max.Eff.Inten.(mm/hr)= 139.71 49.88  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 0.92 (ii) 3.49 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.26

\*TOTALS\*  
 PEAK FLOW (cms)= 0.03 0.00 0.029 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 70.95 28.49 66.70  
 TOTAL RAINFALL (mm)= 71.95 71.95 71.95  
 RUNOFF COEFFICIENT = 0.99 0.40 0.93

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



- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0073 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0071):	0.08	0.029	1.33	66.70
+ ID2= 2 ( 0072):	0.38	0.038	1.42	25.79
=====				
ID = 3 ( 0073):	0.46	0.064	1.33	32.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0074 ) Inlet Cap.= 0.073 #of Inlets= 1 Total(cms)= 0.1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	0.46	0.06	1.33	32.87
=====				
MAJOR SYS.(ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS.(ID= 3):	0.46	0.06	1.33	32.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0078 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0074 <ID= 1> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0077 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0078 <ID= 3> IS ALSO DRY				

CALIB NASHYD ( 0066 ) ID= 1 DT= 5.0 min	Area (ha)=	Curve Number (CN)=	Ia (mm)=	# of Linear Res.(N)=	U.H. Tp(hrs)=
	0.40	71.0	5.00	3.00	0.05

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

---- TRANSFORMED HYETOGRAPH ----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.331

PEAK FLOW (cms)= 0.041 (i)  
TIME TO PEAK (hrs)= 1.333  
RUNOFF VOLUME (mm)= 18.602  
TOTAL RAINFALL (mm)= 71.949  
RUNOFF COEFFICIENT = 0.259

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

CALIB NASHYD ( 0067 ) ID= 1 DT= 5.0 min	Area (ha)=	Curve Number (CN)=	Ia (mm)=	# of Linear Res.(N)=	U.H. Tp(hrs)=
	0.34	71.0	5.00	3.00	0.02

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	2.18	1.083	52.37	2.083	11.13	3.08	3.12
0.167	2.18	1.167	52.37	2.167	11.13	3.17	3.12
0.250	2.89	1.250	139.71	2.250	8.44	3.25	2.68
0.333	2.89	1.333	139.71	2.333	8.44	3.33	2.68
0.417	4.02	1.417	68.44	2.417	6.62	3.42	2.33
0.500	4.02	1.500	68.44	2.500	6.62	3.50	2.33
0.583	5.96	1.583	36.37	2.583	5.33	3.58	2.04
0.667	5.96	1.667	36.37	2.667	5.33	3.67	2.04
0.750	9.77	1.750	22.56	2.750	4.38	3.75	1.81
0.833	9.77	1.833	22.56	2.833	4.38	3.83	1.81
0.917	18.93	1.917	15.36	2.917	3.67	3.92	1.61
1.000	18.93	2.000	15.36	3.000	3.67	4.00	1.61

Unit Hyd Qpeak (cms)= 0.725

PEAK FLOW (cms)= 0.002 (i)  
TIME TO PEAK (hrs)= 1.333  
RUNOFF VOLUME (mm)= 0.933  
TOTAL RAINFALL (mm)= 71.949  
RUNOFF COEFFICIENT = 0.013

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

ADD HYD ( 0025 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0030):	6.32	0.436	1.67	26.25
+ ID2= 2 ( 0035):	0.38	0.013	1.33	6.13
=====				
ID = 3 ( 0025):	6.71	0.441	1.67	25.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 ) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0025):	6.71	0.441	1.67	25.09
+ ID2= 2 ( 0059):	0.01	0.015	1.33	34.69
=====				
ID = 1 ( 0025):	6.72	0.441	1.67	25.11

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0025):	6.72	0.441	1.67	25.11
+ ID2= 2 ( 0066):	0.40	0.041	1.33	18.60
=====				
ID = 3 ( 0025):	7.12	0.457	1.67	24.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 ) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0025):	7.12	0.457	1.67	24.75
+ ID2= 2 ( 0067):	0.34	0.002	1.33	0.93
=====				
ID = 1 ( 0025):	7.46	0.458	1.67	23.67

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

```

*** W A R N I N G : HYDROGRAPH 0078 <ID= 2> IS DRY.
*** W A R N I N G : HYDROGRAPH 0003 = HYDROGRAPH 0001
ID1= 1 ( 0025): 7.46 0.458 1.67 23.67
+ ID2= 2 ( 0078): 0.00 0.000 0.00 32.87
=====
ID = 3 ( 0025): 7.46 0.458 1.67 23.67

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

| ADD HYD ( 0025) |
3 + 2 = 1
AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
ID1= 3 ( 0025): 7.46 0.458 1.67 23.67
+ ID2= 2 ( 0079): 8.14 0.647 1.50 24.85
=====
ID = 1 ( 0025): 15.60 1.056 1.67 24.28

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| Junction Command(0049) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0046) 0.94 0.07 1.25 32.74
OUTFLOW: ID= 2( 0049) 0.94 0.07 1.25 32.74

```

| Junction Command(0054) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0052) 0.78 0.11 1.33 33.16
OUTFLOW: ID= 2( 0054) 0.78 0.11 1.33 33.16

```

| Junction Command(0058) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0056) 0.43 0.02 1.25 29.74
OUTFLOW: ID= 2( 0058) 0.43 0.02 1.25 29.74

```

| Junction Command(0060) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0059) 1.24 0.18 1.33 34.69
OUTFLOW: ID= 2( 0060) 1.24 0.18 1.33 34.69

```

| Junction Command(0063) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0062) 0.90 0.10 1.33 28.60
OUTFLOW: ID= 2( 0063) 0.90 0.10 1.33 28.60

```

| Junction Command(0065) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0064) 1.87 0.22 1.33 31.03

```

```

OUTFLOW: ID= 2( 0065) 1.87 0.22 1.33 31.03

```

| Junction Command(0075) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0074) 0.46 0.06 1.33 32.87
OUTFLOW: ID= 2( 0075) 0.46 0.06 1.33 32.87

```

| Junction Command(0076) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0077) 0.14 0.03 1.33 46.26
OUTFLOW: ID= 2( 0076) 0.14 0.03 1.33 46.26

```

| Junction Command(0080) |

```

AREA QPEAK TPEAK R.V.
(ha) (cms) (hrs) (mm)
INFLOW : ID= 1( 0079) 1.56 0.03 1.17 24.85
OUTFLOW: ID= 2( 0080) 1.56 0.03 1.17 24.85

```

```

=====
V V I SSSS U U A L (v 6.2.2001)
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 SSSS UUUU A A LLLLL
000 TTTT TTTT H H Y Y M M 000 TM
0 0 T T H H Y Y MM MM 0 0
0 0 T T H H Y M M 0 0
000 T T H H Y M M 000

```

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

```

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\vo2\voin.dat
Output filename: C:\Users\matthew.holmes\AppData\Local\Civica\vh5\171054d8-64b5-4298-a9dc-5cbfd415d770\165c
Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\vh5\171054d8-64b5-4298-a9dc-5cbfd415d770\165c

```

DATE: 02/21/2023 TIME: 11:39:43

USER:

COMMENTS: \_\_\_\_\_

```

*****
** SIMULATION : 6) 100YR **
*****

```

```

| CHICAGO STORM | IDF curve parameters: A=5588.000
| Ptotal= 83.38 mm | B= 28.000
C= 1.000
used in: INTENSITY = A / (t + B)^AC
Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.17	2.89	1.17	60.52	2.17	14.14	3.17	4.10
0.33	3.81	1.33	147.05	2.33	10.82	3.33	3.54
0.50	5.26	1.50	77.70	2.50	8.55	3.50	3.08
0.67	7.73	1.67	43.43	2.67	6.93	3.67	2.71
0.83	12.46	1.83	27.74	2.83	5.73	3.83	2.40
1.00	23.45	2.00	19.25	3.00	4.81	4.00	2.14

CALIB  
NASHYD ( 0009) | Area (ha)= 0.59 | Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 | # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.11

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.202

PEAK FLOW (cms)= 0.071 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 33.130  
TOTAL RAINFALL (mm)= 83.375  
RUNOFF COEFFICIENT = 0.397

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

CALIB  
NASHYD ( 0037) | Area (ha)= 0.05 | Curve Number (CN)= 71.0  
ID= 1 DT= 5.0 min | Ia (mm)= 5.00 | # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.11

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.018

PEAK FLOW (cms)= 0.006 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 33.122  
TOTAL RAINFALL (mm)= 83.375  
RUNOFF COEFFICIENT = 0.397

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

CALIB  
STANDHYD ( 0010) | Area (ha)= 0.14  
ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 | Dir. Conn.(%)= 90.00

Surface Area (ha)= 0.13  
Dep. Storage (mm)= 1.00  
Average Slope (%)= 1.00  
Length (m)= 30.55  
Mannings n = 0.013

IMPERVIOUS PERVIOUS (i)  
0.13 0.01  
1.00 1.50  
2.00 2.00  
40.00 40.00  
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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97  
over (min) = 5.00 5.00  
Storage Coeff. (min)= 1.07 (ii) 3.59 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.34 0.26

\*TOTALS\*

PEAK FLOW (cms)= 0.05 0.00 0.054 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33 1.33  
RUNOFF VOLUME (mm)= 82.38 36.11 77.74  
TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0053) |  
1 + 2 = 3 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 1 ( 0010): 0.14 0.054 1.33 77.74  
+ ID2= 2 ( 0037): 0.05 0.006 1.42 33.12  
=====  
ID = 3 ( 0053): 0.19 0.060 1.33 65.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0053) |  
3 + 2 = 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
ID1= 3 ( 0053): 0.19 0.060 1.33 65.81  
+ ID2= 2 ( 0009): 0.59 0.071 1.42 33.13  
=====  
ID = 1 ( 0053): 0.78 0.126 1.33 41.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0052) |  
Inlet Cap.= 0.126 |  
#of Inlets= 1 | AREA (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)  
Total(cms)= 0.1 |  
=====  
TOTAL HYD. (ID= 1): 0.78 0.13 1.33 41.16

MAJOR SYS.(ID= 2): 0.00 0.00 0.00 0.00  
 MINOR SYS.(ID= 3): 0.78 0.13 1.33 41.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0015) | Area (ha)= 0.78 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.268

PEAK FLOW (cms)= 0.095 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB  
 STANDHYD ( 0014) | Area (ha)= 0.12  
 ID= 1 DT= 5.0 min | Total Imp(%)= 50.00 Dir. Conn.(%)= 35.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.06 0.06  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 28.63 40.00  
 Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten.(mm/hr)= 147.05 89.77  
 over (min)= 5.00 10.00  
 Storage Coeff. (min)= 1.03 (ii) 8.40 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 10.00  
 Unit Hyd. peak (cms)= 0.34 0.12

PEAK FLOW (cms)= 0.02 0.01 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.42 0.027 (iii)  
 RUNOFF VOLUME (mm)= 82.38 41.72 55.90  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.50 0.67

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0013) |  
 1 + 2 = 3 | AREA QPEAK TPEAK R.V.  
 (ha) (cms) (hrs) (mm)  
 ID1= 1 ( 0014): 0.12 0.027 1.33 55.90  
 + ID2= 2 ( 0015): 0.78 0.095 1.42 33.13  
 ID = 3 ( 0013): 0.90 0.116 1.42 36.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0062) |  
 Inlet Cap.= 0.116 |  
 #of Inlets= 1 | AREA QPEAK TPEAK R.V.  
 Total(cms)= 0.1 | (ha) (cms) (hrs) (mm)  
 TOTAL HYD. (ID= 1): 0.90 0.12 1.42 36.23  
 MAJOR SYS.(ID= 2): 0.00 0.00 0.00 0.00  
 MINOR SYS.(ID= 3): 0.90 0.12 1.42 36.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0017) | Area (ha)= 1.65 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.567

PEAK FLOW (cms)= 0.200 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB  
 STANDHYD ( 0018) | Area (ha)= 0.24  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.22 0.02  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 40.17 40.00  
 Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97  
 over (min) = 5.00 5.00  
 Storage Coeff. (min)= 1.27 (ii) 3.78 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

PEAK FLOW (cms)= 0.09 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 0.093 (iii)  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.74  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0016 )	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0017 ):	1.65	0.200	1.42	33.13
+ ID2= 2 ( 0018 ):	0.24	0.093	1.33	77.74
=====				
ID = 3 ( 0016 ):	1.89	0.279	1.33	38.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0064 )	AREA	QPEAK	TPEAK	R.V.
Inlet Cap.= 0.218	(ha)	(cms)	(hrs)	(mm)
#of Inlets= 1				
Total (cms)= 0.2				
TOTAL HYD. (ID= 1):	1.89	0.28	1.33	38.84
MAJOR SYS. (ID= 2):	0.09	0.06	1.33	38.84
MINOR SYS. (ID= 3):	1.80	0.22	1.33	38.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)=	Curve Number	(CN)=
NASHYD ( 0021 )				
ID= 1 DT= 5.0 min				
	Ia	(mm)=	5.00	# of Linear Res. (N)= 3.00
	U.H. Tp	(hrs)=	0.11	

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08

0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.387

PEAK FLOW (cms)= 0.137 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB	Area	(ha)=	Dir. Conn. (%) =
STANDHYD ( 0022 )			
ID= 1 DT= 5.0 min			
	Total Imp (%) =	90.00	90.00

IMPERVIOUS PERVIOUS (i)  
 Surface Area (ha)= 0.21 0.02  
 Dep. Storage (mm)= 1.00 1.50  
 Average Slope (%)= 1.00 2.00  
 Length (m)= 39.21 40.00  
 Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97  
 over (min) = 5.00 5.00  
 Storage Coeff. (min)= 1.25 (ii) 3.76 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

PEAK FLOW (cms)= 0.08 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 0.089 (iii)  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.74  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0020 )	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0021 ):	1.13	0.137	1.42	33.13
+ ID2= 2 ( 0022 ):	0.23	0.089	1.33	77.74
=====				
ID = 3 ( 0020 ):	1.36	0.216	1.33	40.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0046 )
----------------

Inlet Cap.= 0.065  
 #of Inlets= 1  
 Total(cms)= 0.1

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	1.36	0.22	1.33	40.71
MAJOR SYS. (ID= 2):	0.47	0.15	1.33	40.71
MINOR SYS. (ID= 3):	0.89	0.06	1.25	40.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0023) | Area (ha)= 0.62 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.213

PEAK FLOW (cms)= 0.075 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB  
 STANDHYD ( 0002) | Area (ha)= 0.07  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)	0.06	0.01
Dep. Storage (mm)	1.00	1.50
Average Slope (%)	1.00	2.00
Length (m)	21.00	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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05  
 over (min)= 5.00  
 Storage Coeff. (min)= 0.86 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 (ii)  
 Unit Hyd. peak (cms)= 0.34

\*TOTALS\*  
 PEAK FLOW (cms)= 0.02 0.00 0.025 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.75  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0055) |  
 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0002):	0.07	0.025	1.33	77.75
+ ID2= 2 ( 0023):	0.62	0.075	1.42	33.13
ID = 3 ( 0055):	0.68	0.095	1.33	37.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0056) |  
 Inlet Cap.= 0.024 |  
 #of Inlets= 1 |  
 Total(cms)= 0.0 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	0.68	0.10	1.33	37.44
MAJOR SYS. (ID= 2):	0.29	0.07	1.33	37.44
MINOR SYS. (ID= 3):	0.40	0.02	1.25	37.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 STANDHYD ( 0024) | Area (ha)= 0.03  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)	0.03	0.00
Dep. Storage (mm)	1.00	1.50
Average Slope (%)	1.00	2.00
Length (m)	15.13	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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97  
 over (min)= 5.00  
 Storage Coeff. (min)= 0.71 (ii) 3.22 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. peak (cms)= 0.34 0.27

\*TOTALS\*  
 PEAK FLOW (cms)= 0.01 0.00 0.013 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.75  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0057)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0024):	0.03	0.013	1.33	77.75
+ ID2= 2 ( 0056):	0.29	0.071	1.33	37.44
=====				
ID = 3 ( 0057):	0.32	0.085	1.33	41.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	Area	(ha)=	Curve Number	(CN)=
NASHYD ( 0026)	Ia	(mm)=	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.11		

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.011

PEAK FLOW (cms)= 0.004 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.122  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB	Area	(ha)=	Curve Number	(CN)=
NASHYD ( 0038)	Ia	(mm)=	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.15		

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.403

PEAK FLOW (cms)= 0.178 (i)  
 TIME TO PEAK (hrs)= 1.500  
 RUNOFF VOLUME (mm)= 33.515  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.402

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

CALIB	Area	(ha)=	Curve Number	(CN)=
NASHYD ( 0039)	Ia	(mm)=	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.25		

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.344

PEAK FLOW (cms)= 0.207 (i)  
 TIME TO PEAK (hrs)= 1.667  
 RUNOFF VOLUME (mm)= 33.701  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.404

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

CALIB	Area	(ha)=	Curve Number	(CN)=
NASHYD ( 0040)	Ia	(mm)=	# of Linear Res.(N)=	3.00
ID= 1 DT= 5.0 min	U.H. Tp(hrs)=	0.03		

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 1.049

PEAK FLOW (cms)= 0.067 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 14.510  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.174

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

CALIB

NASHYD ( 0041) | Area (ha)= 1.43 Curve Number (CN)= 71.0  
 |ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.05

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

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 1.087

PEAK FLOW (cms)= 0.180 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 25.808  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.310

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

-----

ADD HYD ( 0011) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0026):	0.03	0.004	1.42	33.12
+ ID2= 2 ( 0038):	1.55	0.178	1.50	33.51
ID = 3 ( 0011):	1.58	0.182	1.50	33.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0011) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0011):	1.58	0.182	1.50	33.51
+ ID2= 2 ( 0039):	2.24	0.207	1.67	33.70
ID = 1 ( 0011):	3.81	0.371	1.58	33.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0011) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0011):	3.81	0.371	1.58	33.62
+ ID2= 2 ( 0040):	0.91	0.067	1.33	14.51
ID = 3 ( 0011):	4.73	0.415	1.50	29.93

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0011) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0011):	4.73	0.415	1.50	29.93
+ ID2= 2 ( 0041):	1.43	0.180	1.33	25.81
ID = 1 ( 0011):	6.15	0.540	1.50	28.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0011) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0011):	6.15	0.540	1.50	28.97
+ ID2= 2 ( 0046):	0.47	0.151	1.33	40.71
ID = 3 ( 0011):	6.63	0.656	1.50	29.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0011) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0052 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003				
ID1= 3 ( 0011):	6.63	0.656	1.50	29.81
+ ID2= 2 ( 0052):	0.00	0.000	0.00	0.00
ID = 1 ( 0011):	6.63	0.656	1.50	29.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0011) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0011):	6.63	0.656	1.50	29.81
+ ID2= 2 ( 0057):	0.32	0.085	1.33	41.74
ID = 3 ( 0011):	6.95	0.725	1.50	30.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0011) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0062 <ID= 2> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0001 = HYDROGRAPH 0003				
ID1= 3 ( 0011):	6.95	0.725	1.50	30.36
+ ID2= 2 ( 0062):	0.00	0.000	0.00	0.00
ID = 1 ( 0011):	6.95	0.725	1.50	30.36

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

ADD HYD ( 0011) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0011):	6.95	0.725	1.50	30.36
+ ID2= 2 ( 0064):	0.09	0.061	1.33	38.84
ID = 3 ( 0011):	7.04	0.778	1.33	30.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-----

CALIB  
 NASHYD ( 0028) | Area (ha)= 3.23 Curve Number (CN)= 71.0  
 |ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.06

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40



0.917 23.45 | 1.917 19.25 | 2.917 4.81 | 3.92 2.14  
 1.000 23.45 | 2.000 19.25 | 3.000 4.81 | 4.00 2.14

Unit Hyd Qpeak (cms)= 2.141

PEAK FLOW (cms)= 0.434 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 28.342  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.340

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

CALIB  
 NASHYD ( 0029) | Area (ha)= 6.46 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.26

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.950

PEAK FLOW (cms)= 0.589 (i)  
 TIME TO PEAK (hrs)= 1.667  
 RUNOFF VOLUME (mm)= 33.705  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.404

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

ADD HYD ( 0027)  
 1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0028):	3.23	0.434	1.33	28.34
+ ID2= 2 ( 0029):	6.46	0.589	1.67	33.71
ID = 3 ( 0027):	9.70	0.831	1.50	31.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0079)  
 Inlet Cap.= 0.034  
 #of Inlets= 1  
 Total(cms)= 0.0

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD.(ID= 1):	9.70	0.83	1.50	31.92
MAJOR SYS.(ID= 2):	8.43	0.80	1.50	31.92
MINOR SYS.(ID= 3):	1.26	0.03	1.08	31.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0030) | Area (ha)= 6.32 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.30

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.804

PEAK FLOW (cms)= 0.535 (i)  
 TIME TO PEAK (hrs)= 1.667  
 RUNOFF VOLUME (mm)= 33.715  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.404

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

CALIB  
 NASHYD ( 0033) | Area (ha)= 0.98 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.11

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.337

PEAK FLOW (cms)= 0.119 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB  
 STANDHYD ( 0034) | Area (ha)= 0.27  
 ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.25	0.03
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	42.65	40.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10

0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97  
 over (min) = 5.00 5.00  
 Storage Coeff. (min)= 1.31 (ii) 3.82 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

\*TOTALS\*  
 PEAK FLOW (cms)= 0.10 0.00 0.105 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.74  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0032)				
1 + 2 = 3				
ID1= 1 ( 0033):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
+ ID2= 2 ( 0034):	0.98	0.119	1.42	33.13
	0.27	0.105	1.33	77.74
ID = 3 ( 0032):	1.25	0.216	1.33	42.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0059)				
Inlet Cap.= 0.176				
#of Inlets= 1				
Total (cms)= 0.21				
TOTAL HYD. (ID= 1):	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	1.25	0.22	1.33	42.84
MAJOR SYS. (ID= 2):	0.03	0.04	1.33	42.84
MINOR SYS. (ID= 3):	1.23	0.18	1.33	42.84

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB ( 0035)			
NASHYD ( 0035)			
ID= 1 DT= 5.0 min	Area (ha)= 0.38	Curve Number (CN)= 71.0	
	Ia (mm)= 5.00	# of Linear Res. (N)= 3.00	
	U.H. Tp (hrs)= 0.03		

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.554

PEAK FLOW (cms)= 0.015 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 7.868  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.094

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

CALIB ( 0036)			
NASHYD ( 0036)			
ID= 1 DT= 5.0 min	Area (ha)= 0.07	Curve Number (CN)= 71.0	
	Ia (mm)= 5.00	# of Linear Res. (N)= 3.00	
	U.H. Tp (hrs)= 0.11		

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.024

PEAK FLOW (cms)= 0.008 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.124  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB ( 0031)			
STANDHYD ( 0031)			
ID= 1 DT= 5.0 min	Area (ha)= 0.07	Dir. Conn. (%) = 90.00	
	Total Imp (%) = 90.00		

IMPERVIOUS			PERVIOUS (i)		
Surface Area (ha)=	0.06		0.01		
Dep. Storage (mm)=	1.00		1.50		
Average Slope (%)=	1.00		2.00		
Length (m)=	21.45		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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97  
 over (min) = 5.00 5.00  
 Storage Coeff. (min)= 0.87 (ii) 3.38 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.26

\*TOTALS\*  
 PEAK FLOW (cms)= 0.03 0.00 0.027 (iii)

TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.75  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0068 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0031):	0.07	0.027	1.33	77.75
+ ID2= 2 ( 0036):	0.07	0.008	1.42	33.12
=====				
ID = 3 ( 0068):	0.14	0.034	1.33	55.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0077 ) Inlet Cap.= 0.034 #of Inlets= 1 Total(cms)= 0.0	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	0.14	0.03	1.33	55.45
=====				
MAJOR SYS. (ID= 2):	0.00	0.00	1.33	55.45
MINOR SYS. (ID= 3):	0.14	0.03	1.33	55.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0072 ) ID= 1 DT= 5.0 min	Area (ha)	Curve Number (CN)= 71.0
	0.38	
	Ia (mm)= 5.00	# of Linear Res. (N)= 3.00
	U.H. Tp(hrs)= 0.11	

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.130

PEAK FLOW (cms)= 0.046 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB STANDHYD ( 0071 ) ID= 1 DT= 5.0 min	Area (ha)	Dir. Conn. (%) = 90.00
	0.08	
	Total Imp(%)= 90.00	
=====		
Surface Area (ha)=	0.07	PERVIOUS (i) 0.01
Dep. Storage (mm)=	1.00	1.50

Average Slope (%)= 1.00 2.00  
 Length (m)= 22.92 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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97  
 over (min)= 5.00 5.00  
 Storage Coeff. (min)= 0.90 (ii) 3.42 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.26

PEAK FLOW (cms)= 0.03 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 0.030 (iii)  
 RUNOFF VOLUME (mm)= 82.38 36.11 1.33  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0073 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0071):	0.08	0.030	1.33	77.74
+ ID2= 2 ( 0072):	0.38	0.046	1.42	33.13
=====				
ID = 3 ( 0073):	0.46	0.073	1.33	40.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

DUHYD ( 0074 ) Inlet Cap.= 0.073 #of Inlets= 1 Total(cms)= 0.1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
TOTAL HYD. (ID= 1):	0.46	0.07	1.33	40.85
=====				
MAJOR SYS. (ID= 2):	0.00	0.00	0.00	0.00
MINOR SYS. (ID= 3):	0.46	0.07	1.33	40.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0078 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
*** W A R N I N G : HYDROGRAPH 0074 <ID= 1> IS DRY.				
*** W A R N I N G : HYDROGRAPH 0078 = HYDROGRAPH 0077				
ID1= 1 ( 0074):	0.00	0.000	0.00	0.00
+ ID2= 2 ( 0077):	0.00	0.000	1.33	55.45
=====				
ID = 3 ( 0078):	0.00	0.000	1.33	55.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
 NASHYD ( 0066) Area (ha)= 0.40 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.05

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.331

PEAK FLOW (cms)= 0.047 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 23.894  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.287

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

CALIB  
 NASHYD ( 0067) Area (ha)= 0.34 Curve Number (CN)= 71.0  
 ID= 1 DT= 5.0 min Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
 U.H. Tp(hrs)= 0.02

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.725

PEAK FLOW (cms)= 0.002 (i)  
 TIME TO PEAK (hrs)= 1.333  
 RUNOFF VOLUME (mm)= 1.198  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.014

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

ADD HYD ( 0025)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0030):	6.32	0.535	1.67	33.72
+ ID2= 2 ( 0035):	0.38	0.015	1.33	7.87
ID = 3 ( 0025):	6.71	0.541	1.67	32.23

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)	AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1	(ha)	(cms)	(hrs)	(mm)
ID1= 3 ( 0025):	6.71	0.541	1.67	32.23
+ ID2= 2 ( 0059):	0.03	0.040	1.33	42.84
ID = 1 ( 0025):	6.74	0.541	1.67	32.28

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0025):	6.74	0.541	1.67	32.28
+ ID2= 2 ( 0066):	0.40	0.047	1.33	23.89
ID = 3 ( 0025):	7.14	0.561	1.67	31.81

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)	AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1	(ha)	(cms)	(hrs)	(mm)
ID1= 3 ( 0025):	7.14	0.561	1.67	31.81
+ ID2= 2 ( 0067):	0.34	0.002	1.33	1.20
ID = 1 ( 0025):	7.48	0.562	1.67	30.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0025):	7.48	0.562	1.67	30.42
+ ID2= 2 ( 0078):	0.00	0.000	1.33	55.45
ID = 3 ( 0025):	7.48	0.562	1.67	30.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0025)	AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1	(ha)	(cms)	(hrs)	(mm)
ID1= 3 ( 0025):	7.48	0.562	1.67	30.42
+ ID2= 2 ( 0079):	8.43	0.797	1.50	31.92
ID = 1 ( 0025):	15.91	1.311	1.67	31.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| Junction Command(0049) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1( 0046)	0.89	0.07	1.25	40.71
OUTFLOW: ID= 2( 0049)	0.89	0.07	1.25	40.71

| Junction Command(0054) |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 1( 0052)	0.78	0.13	1.33	41.16
OUTFLOW: ID= 2( 0054)	0.78	0.13	1.33	41.16

| Junction Command(0058) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0056)	0.40	0.02	1.25	37.44
OUTFLOW: ID= 2( 0058)	0.40	0.02	1.25	37.44

| Junction Command(0060) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0059)	1.23	0.18	1.33	42.84
OUTFLOW: ID= 2( 0060)	1.23	0.18	1.33	42.84

| Junction Command(0063) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0062)	0.90	0.12	1.42	36.23
OUTFLOW: ID= 2( 0063)	0.90	0.12	1.42	36.23

| Junction Command(0065) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0064)	1.80	0.22	1.33	38.84
OUTFLOW: ID= 2( 0065)	1.80	0.22	1.33	38.84

| Junction Command(0075) |

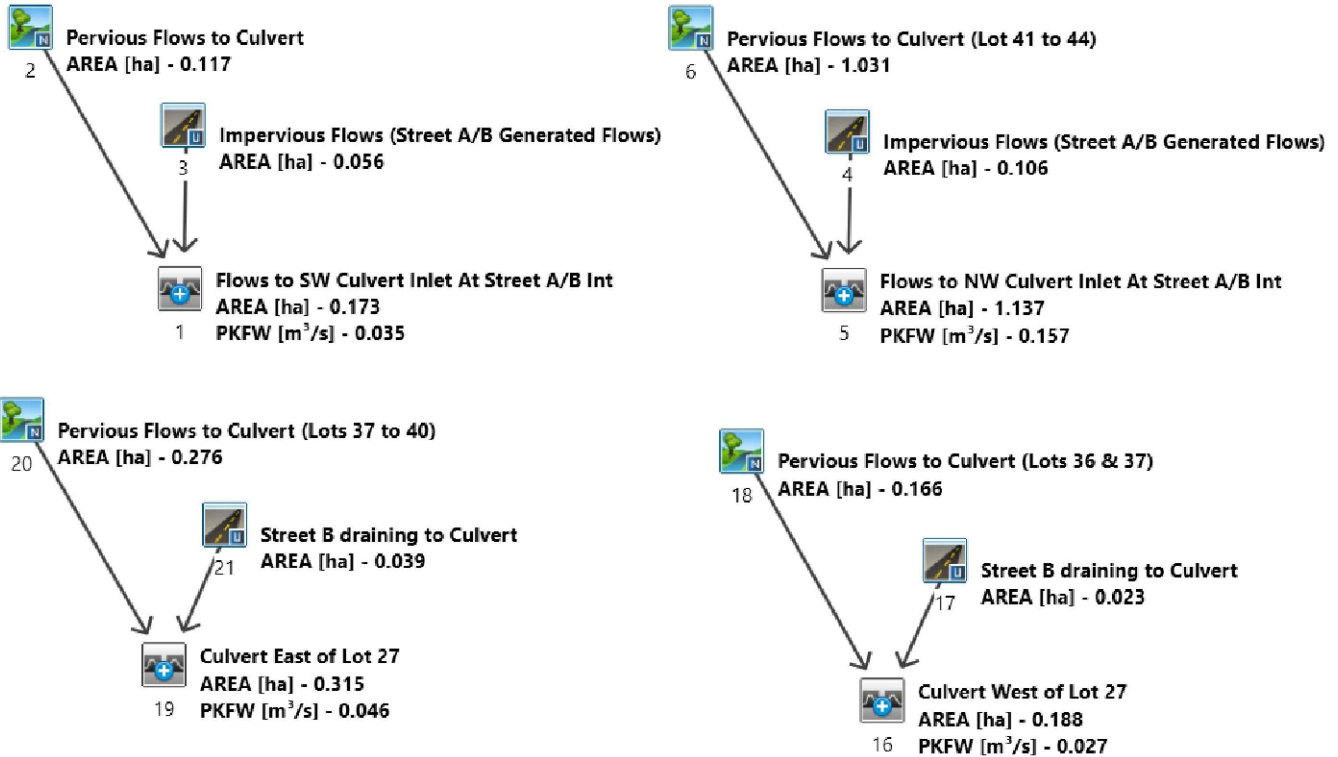
	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0074)	0.46	0.07	1.33	40.85
OUTFLOW: ID= 2( 0075)	0.46	0.07	1.33	40.85

| Junction Command(0076) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0077)	0.14	0.03	1.33	55.45
OUTFLOW: ID= 2( 0076)	0.14	0.03	1.33	55.45

| Junction Command(0080) |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 1( 0079)	1.26	0.03	1.08	31.92
OUTFLOW: ID= 2( 0080)	1.26	0.03	1.08	31.92



5868 COUNTY ROAD 65, PORT HOPE, ON

VISUAL OTTHYMO SCHEMATIC  
 POST-DEVELOPMENT FLOWS TO  
 INTERNAL CULVERTS

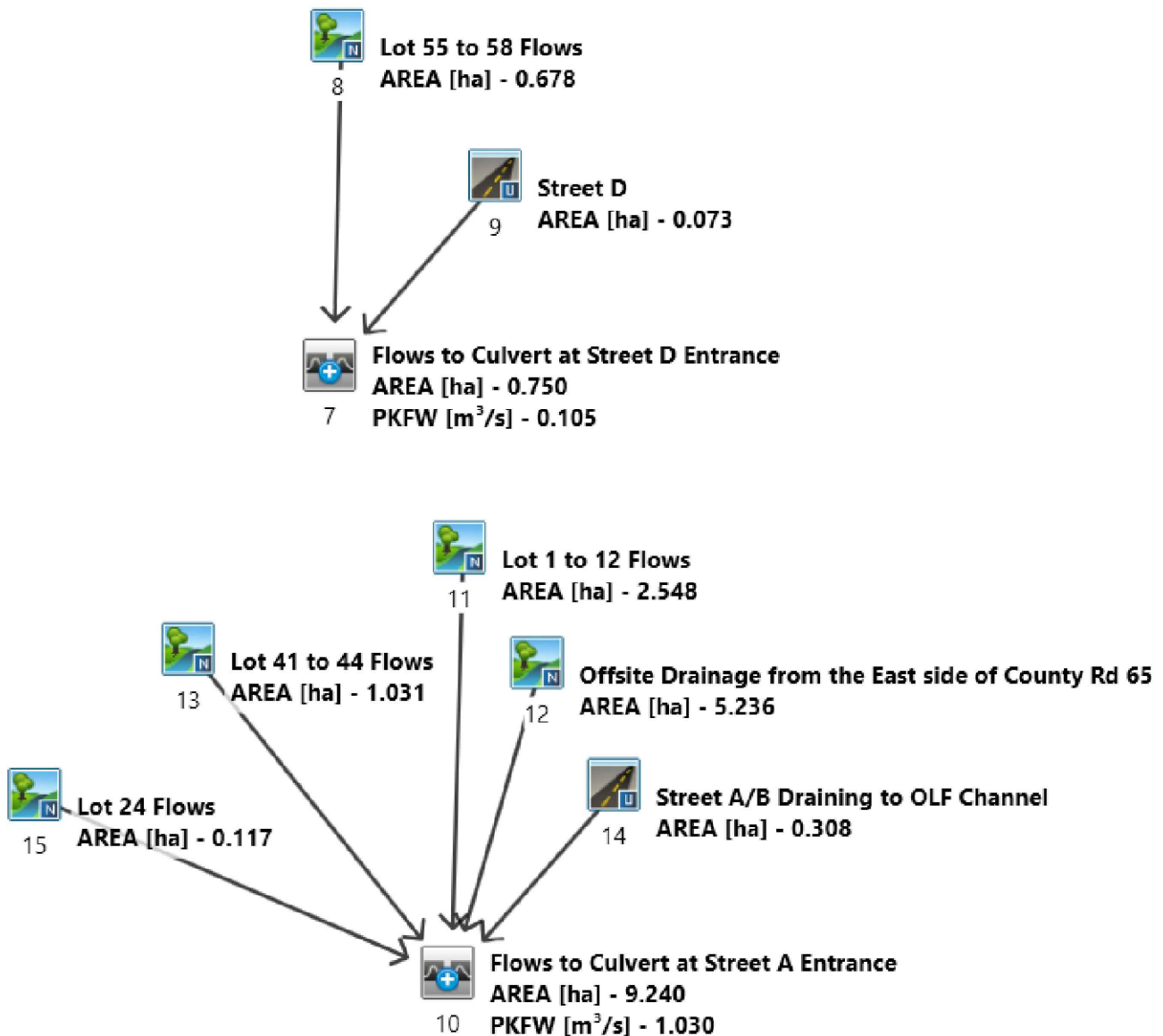


**D.G. Biddle & Associates Limited**  
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 PHONE (905)576-8500 • FAX (905)576-9730  
 info@dgbiddle.com

SCALE N.T.S.  
 DRAWN M.H.  
 DESIGN M.H.  
 CHECKED D.D.M.  
 DATE FEB 2023

PROJECT  
 122049

DWG  
 FIG 5



5868 COUNTY ROAD 65, PORT HOPE, ON

VISUAL OTTHYMO SCHEMATIC  
POST-DEVELOPMENT FLOWS TO  
CULVERTS UNDER STREET ENTRANCES



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PROJECT  
122049

DWG

FIG 6

```

=====
V V I SSSS U U A L (v 6.2.2001)
V V I SS U U A A L
V V I SS U U A A A A L
V V I SS U U A A L
W W I SSSS UUUU A A LLLLL

```

```

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

```

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\*\*\*\*\* DETAILED OUTPUT \*\*\*\*\*

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat  
 Output filename: C:\Users\matthew.holmes\AppData\Local\Civica\VHS\171054d8-64b5-4298-a9dc-5cbfd415d770\237b  
 Summary filename: C:\Users\matthew.holmes\AppData\Local\Civica\VHS\171054d8-64b5-4298-a9dc-5cbfd415d770\237b

DATE: 02/17/2023 TIME: 08:43:04

USER:

COMMENTS: \_\_\_\_\_

\*\*\*\*\*  
 \*\* SIMULATION : 100 Year \*\*  
 \*\*\*\*\*

```

| CHICAGO STORM | IDF curve parameters: A=5588.000
| Ptotal= 83.38 mm | B= 28.000
| | C= 1.000
used in: INTENSITY = A / (t + B)^C
Duration of storm = 4.00 hrs
Storm time step = 10.00 min
Time to peak ratio = 0.33

```

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.17	2.89	1.17	60.52	2.17	14.14	3.17	4.10
0.33	3.81	1.33	147.05	2.33	10.82	3.33	3.54
0.50	5.26	1.50	77.70	2.50	8.55	3.50	3.08
0.67	7.73	1.67	43.43	2.67	6.93	3.67	2.71
0.83	12.46	1.83	27.74	2.83	5.73	3.83	2.40
1.00	23.45	2.00	19.25	3.00	4.81	4.00	2.14

```

| CALIB |
| NASHYD ( 0002) | Area (ha)= 0.12 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.11

```

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

TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

```

Unit Hyd Qpeak (cms)= 0.040
PEAK FLOW (cms)= 0.014 (i)
TIME TO PEAK (hrs)= 1.417
RUNOFF VOLUME (mm)= 33.128
TOTAL RAINFALL (mm)= 83.375
RUNOFF COEFFICIENT = 0.397

```

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

```

| CALIB |
| STANDHYD ( 0003) | Area (ha)= 0.06
| ID= 1 DT= 5.0 min | Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

```

```

IMPERVIOUS PERVIOUS (i)
Surface Area (ha)= 0.05 0.01
Dep. Storage (mm)= 1.00 1.50
Average Slope (%)= 1.00 2.00
Length (m)= 19.31 40.00
Mannings n = 0.013 0.250

```

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

```

Max. Eff. Inten. (mm/hr)= 147.05 57.97
over (min) = 5.00 5.00
Storage Coeff. (min)= 0.82 (ii) 3.33 (ii)
Unit Hyd. Tpeak (min)= 5.00 5.00
Unit Hyd. peak (cms)= 0.34 0.26

```

```

*TOTALS*
PEAK FLOW (cms)= 0.02 0.00 0.022 (iii)
TIME TO PEAK (hrs)= 1.33 1.33 1.33
RUNOFF VOLUME (mm)= 82.38 36.11 77.75
TOTAL RAINFALL (mm)= 83.38 83.38 83.38
RUNOFF COEFFICIENT = 0.99 0.43 0.93

```

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

```

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 71.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```

```

| ADD HYD ( 0001) |
| 1 + 2 = 3 |
| | Area (ha) QPEAK (cms) TPEAK (hrs) R.V. (mm)
| ID1= 1 ( 0002): | 0.12 0.014 1.42 33.13
| + ID2= 2 ( 0003): | 0.06 0.022 1.33 77.75
| | =====
| ID = 3 ( 0001): | 0.17 0.035 1.33 47.53

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```

| CALIB |
| NASHYD ( 0006) | Area (ha)= 1.03 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| | U.H. Tp(hrs)= 0.11

```

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



----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.354

PEAK FLOW (cms)= 0.125 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB	STANDHYD ( 0004)	Area (ha)= 0.11	Total Imp(%)= 90.00	Dir. Conn.(%)= 90.00
ID= 1	DT= 5.0 min			

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.10	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	26.60	40.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max.Eff.Inten.(mm/hr)= 147.05 over (min)= 5.00  
 Storage Coeff. (min)= 0.99 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. peak (cms)= 0.34

\*TOTALS\*

PEAK FLOW (cms)= 0.04  
 TIME TO PEAK (hrs)= 1.33  
 RUNOFF VOLUME (mm)= 82.38  
 TOTAL RAINFALL (mm)= 83.38  
 RUNOFF COEFFICIENT = 0.99

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)  
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.  
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0005)	AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3				

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0004):	0.11	0.041	1.33	77.74
+ ID2= 2 ( 0006):	1.03	0.125	1.42	33.13
ID = 3 ( 0005):	1.14	0.157	1.33	37.30

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB	NASHYD ( 0008)	Area (ha)= 0.68	Curve Number (CN)= 71.0
ID= 1	DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
		U.H. Tp(hrs)= 0.11	

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.233

PEAK FLOW (cms)= 0.082 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB	STANDHYD ( 0009)	Area (ha)= 0.07	Total Imp(%)= 90.00	Dir. Conn.(%)= 90.00
ID= 1	DT= 5.0 min			

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.07	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	22.02	40.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max.Eff.Inten.(mm/hr)= 147.05 over (min)= 5.00  
 Storage Coeff. (min)= 0.88 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. peak (cms)= 0.34

\*TOTALS\*

PEAK FLOW (cms)= 0.03  
 TIME TO PEAK (hrs)= 1.33  
 RUNOFF VOLUME (mm)= 82.38

TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0007)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0008):	0.68	0.082	1.42	33.13
+ ID2= 2 ( 0009):	0.07	0.028	1.33	77.75
ID = 3 ( 0007):	0.75	0.105	1.33	37.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0011)	Area (ha)	Curve Number (CN)=
ID= 1 DT= 5.0 min	2.55	71.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.876

PEAK FLOW (cms)= 0.309 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB NASHYD ( 0012)	Area (ha)	Curve Number (CN)=
ID= 1 DT= 5.0 min	5.24	71.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.20	

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 1.000

PEAK FLOW (cms)= 0.534 (i)  
 TIME TO PEAK (hrs)= 1.583  
 RUNOFF VOLUME (mm)= 33.664  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.404

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

CALIB NASHYD ( 0013)	Area (ha)	Curve Number (CN)=
ID= 1 DT= 5.0 min	1.03	71.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.354

PEAK FLOW (cms)= 0.125 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB NASHYD ( 0015)	Area (ha)	Curve Number (CN)=
ID= 1 DT= 5.0 min	0.12	71.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.040

PEAK FLOW (cms)= 0.014 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.128  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB  
STANDHYD ( 0014)  
ID= 1 DT= 5.0 min

Area (ha)= 0.31  
Total Imp(%)= 90.00 Dir. Conn.(%)= 35.00

IMPERVIOUS PERVIOUS (i)

Surface Area (ha)= 0.28 0.03  
Dep. Storage (mm)= 1.00 1.50  
Average Slope (%)= 1.00 2.00  
Length (m)= 45.30 40.00  
Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max.Eff.Inten.(mm/hr)= 147.05 839.37  
over (min) 5.00 10.00  
Storage Coeff. (min)= 1.36 (ii) 5.03 (ii)  
Unit Hyd. Tpeak (min)= 5.00 10.00  
Unit Hyd. peak (cms)= 0.33 0.16

\*TOTALS\*

PEAK FLOW (cms)= 0.04 0.06 0.101 (iii)  
TIME TO PEAK (hrs)= 1.33 1.42 1.33  
RUNOFF VOLUME (mm)= 82.38 69.75 74.16  
TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
RUNOFF COEFFICIENT = 0.99 0.84 0.89

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0010)  
1 + 2 = 3

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

ID1= 1 ( 0011): 2.55 0.309 1.42 33.13  
+ ID2= 2 ( 0012): 5.24 0.534 1.58 33.66  
=====

ID = 3 ( 0010): 7.78 0.824 1.50 33.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0010)  
3 + 2 = 1

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

ID1= 3 ( 0010): 7.78 0.824 1.50 33.49  
+ ID2= 2 ( 0013): 1.03 0.125 1.42 33.13  
=====

ID = 1 ( 0010): 8.81 0.945 1.50 33.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0010)  
1 + 2 = 3

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

ID1= 1 ( 0010): 8.81 0.945 1.50 33.45  
+ ID2= 2 ( 0014): 0.31 0.101 1.33 74.16  
=====

ID = 3 ( 0010): 9.12 1.016 1.50 34.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0010)  
3 + 2 = 1

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

ID1= 3 ( 0010): 9.12 1.016 1.50 34.82  
+ ID2= 2 ( 0015): 0.12 0.014 1.42 33.13  
=====

ID = 1 ( 0010): 9.24 1.030 1.50 34.80

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
NASHYD ( 0018)  
ID= 1 DT= 5.0 min

Area (ha)= 0.17 Curve Number (CN)= 71.0  
Ia (mm)= 5.00 # of Linear Res.(N)= 3.00  
U.H. Tp(hrs)= 0.11

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.057

PEAK FLOW (cms)= 0.020 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 33.128  
TOTAL RAINFALL (mm)= 83.375  
RUNOFF COEFFICIENT = 0.397

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

CALIB  
STANDHYD ( 0017)  
ID= 1 DT= 5.0 min

Area (ha)= 0.02  
Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)

Surface Area (ha)= 0.02 0.00  
Dep. Storage (mm)= 1.00 1.50  
Average Slope (%)= 1.00 2.00  
Length (m)= 12.26 40.00  
Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max.Eff.Inten.(mm/hr)= 147.05 57.97

over (min) 5.00 5.00  
 Storage Coeff. (min)= 0.62 (ii) 3.13 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.27  
  
 PEAK FLOW (cms)= 0.01 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33 (iii)  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.75  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0016)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0017):	0.02	0.009	1.33	77.75
+ ID2= 2 ( 0018):	0.17	0.020	1.42	33.13
=====				
ID = 3 ( 0016):	0.19	0.027	1.33	38.47

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0020)	Area (ha)	Curve Number (CN)
ID= 1 DT= 5.0 min	0.28	71.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.11	

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.095

PEAK FLOW (cms)= 0.034 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB STANDHYD ( 0021)	Area (ha)	Dir. Conn.(%)
ID= 1 DT= 5.0 min	0.04	90.00
	Total Imp(%)= 90.00	Dir. Conn.(%)= 90.00

IMPERVIOUS		PERVIOUS (i)	
Surface Area (ha)=	0.04	0.00	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	16.12	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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97

over (min) 5.00 5.00  
 Storage Coeff. (min)= 0.73 (ii) 3.24 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.34 0.27

PEAK FLOW (cms)= 0.01 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33 (iii)  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.75  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

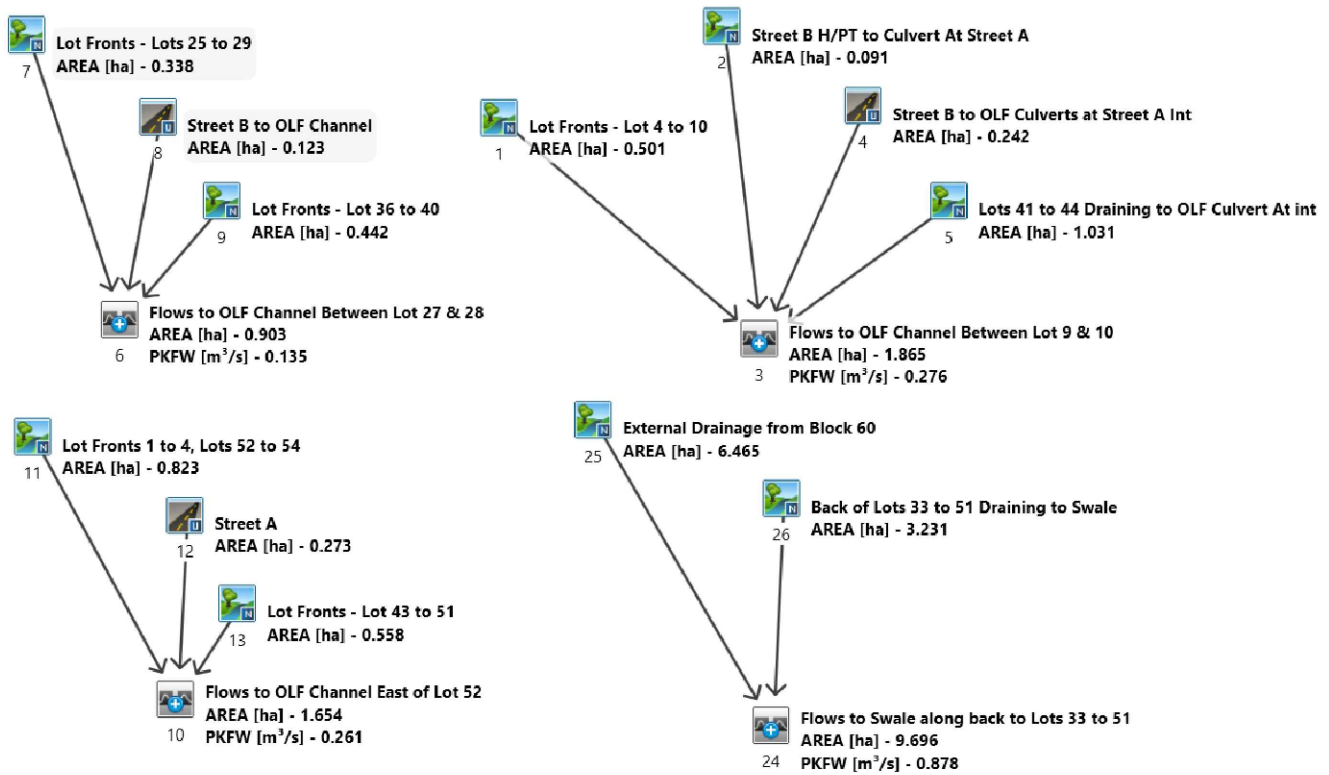
\*\*\*\*\* WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0019)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 ( 0020):	0.28	0.034	1.42	33.13
+ ID2= 2 ( 0021):	0.04	0.015	1.33	77.75
=====				
ID = 3 ( 0019):	0.32	0.046	1.33	38.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH



5868 COUNTY ROAD 65, PORT HOPE, ON

VISUAL OTTHYMO SCHEMATIC  
POST-DEVELOPMENT FLOWS TO  
OVERLAND FLOW SWALES



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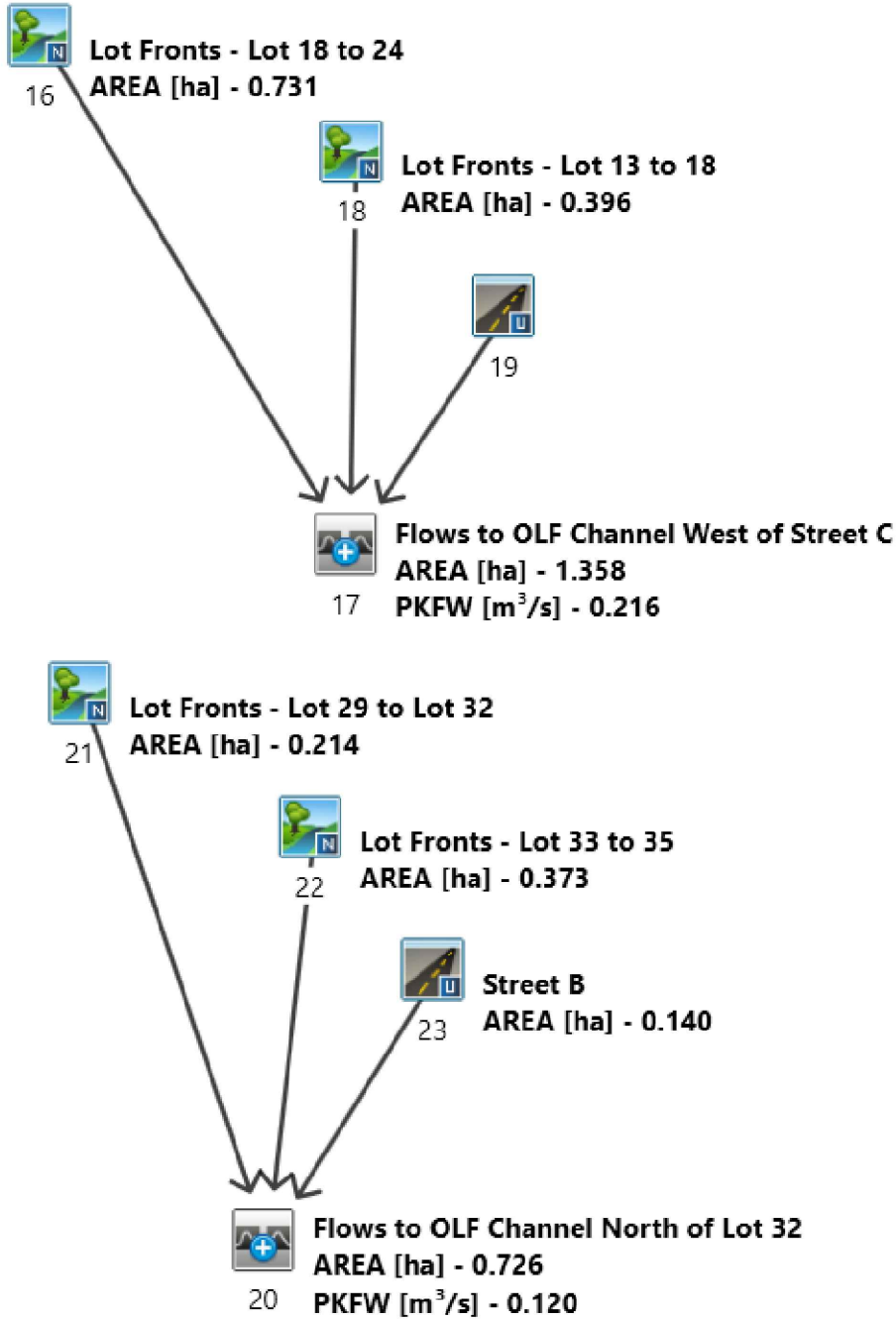
info@dgbiddle.com

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DESIGN M.H.  
CHECKED D.D.M.  
DATE JAN 2023

PROJECT  
122049

DWG

FIG 7



5868 COUNTY ROAD 65, PORT HOPE, ON

VISUAL OTTHYMO SCHEMATIC  
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 DATE FEB 2023

PROJECT  
 122049

DWG  
 FIG 8



CALIB  
STANDHYD ( 0004)  
ID= 1 DT= 5.0 min

Area (ha)= 0.24  
Total Imp(%)= 90.00 Dir. Conn.(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
Surface Area (ha)= 0.22 0.02  
Dep. Storage (mm)= 1.00 1.50  
Average Slope (%)= 1.00 2.00  
Length (m)= 40.17 40.00  
Mannings n = 0.013 0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05 57.97  
over (min) 5.00 5.00  
Storage Coeff. (min)= 1.27 (ii) 3.78 (ii)  
Unit Hyd. Tpeak (min)= 5.00 5.00  
Unit Hyd. peak (cms)= 0.33 0.25

\*TOTALS\*

PEAK FLOW (cms)= 0.09 0.00 0.093 (iii)  
TIME TO PEAK (hrs)= 1.33 1.33 1.33  
RUNOFF VOLUME (mm)= 82.38 36.11 77.74  
TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0003)  
1 + 2 = 3

ID	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0001):	0.50	0.061	1.42	33.13
+ ID2= 2 ( 0002):	0.09	0.011	1.42	33.13
===== ID = 3 ( 0003):	0.59	0.072	1.42	33.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0003)  
3 + 2 = 1

ID	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0003):	0.59	0.072	1.42	33.13
+ ID2= 2 ( 0004):	0.24	0.093	1.33	77.74
===== ID = 1 ( 0003):	0.83	0.160	1.33	46.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0003)  
1 + 2 = 3

ID	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0003):	0.83	0.160	1.33	46.07
+ ID2= 2 ( 0005):	1.03	0.125	1.42	33.13

ID = 3 ( 0003): 1.86 0.276 1.33 38.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB  
NASHYD ( 0007)  
ID= 1 DT= 5.0 min

Area (ha)= 0.34 Curve Number (CN)= 71.0  
Ia (mm)= 5.00 # of Linear Res. (N)= 3.00  
U.H. Tp(hrs)= 0.11

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.116

PEAK FLOW (cms)= 0.041 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 33.130  
TOTAL RAINFALL (mm)= 83.375  
RUNOFF COEFFICIENT = 0.397

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

CALIB  
NASHYD ( 0009)  
ID= 1 DT= 5.0 min

Area (ha)= 0.44 Curve Number (CN)= 71.0  
Ia (mm)= 5.00 # of Linear Res. (N)= 3.00  
U.H. Tp(hrs)= 0.11

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

----- TRANSFORMED HYETOGRAPH -----							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.152

PEAK FLOW (cms)= 0.054 (i)  
TIME TO PEAK (hrs)= 1.417  
RUNOFF VOLUME (mm)= 33.130  
TOTAL RAINFALL (mm)= 83.375  
RUNOFF COEFFICIENT = 0.397

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

CALIB  
STANDHYD ( 0008)  
ID= 1 DT= 5.0 min

Area (ha)= 0.12 Dir. Conn.(%)= 90.00  
Total Imp(%)= 90.00

IMPERVIOUS PERVIOUS (i)  
Surface Area (ha)= 0.11 0.01  
Dep. Storage (mm)= 1.00 1.50



Average Slope (%)= 1.00 2.00  
 Length (m)= 28.63 40.00  
 Mannings n = 0.013 0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max.Eff.Inten.(mm/hr)= 147.05 57.97  
 over (min) = 5.00 5.00  
 Storage Coeff. (min)= 1.03 (ii) 3.55 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. Tpeak (cms)= 0.34 0.26

PEAK FLOW (cms)= 0.05 0.00 \*TOTALS\*  
 TIME TO PEAK (hrs)= 1.33 1.33 0.047 (iii)  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.74  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0006 )				
1 + 2 = 3				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 ( 0007):	0.34	0.041	1.42	33.13
+ ID2= 2 ( 0008):	0.12	0.047	1.33	77.74
=====				
ID = 3 ( 0006):	0.46	0.085	1.33	45.04

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0006 )				
3 + 2 = 1				
	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 3 ( 0006):	0.46	0.085	1.33	45.04
+ ID2= 2 ( 0009):	0.44	0.054	1.42	33.13
=====				
ID = 1 ( 0006):	0.90	0.135	1.33	39.21

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD ( 0011 )				
ID= 1 DT= 5.0 min	Area	(ha)=	Curve Number	(CN)= 71.0
	Ia	(mm)=	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.11		

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40

0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.100 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB			
NASHYD ( 0013 )			
ID= 1 DT= 5.0 min	Area	(ha)=	Curve Number (CN)= 71.0
	Ia	(mm)=	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.11	

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.192

PEAK FLOW (cms)= 0.068 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB			
STANDHYD ( 0012 )			
ID= 1 DT= 5.0 min	Area	(ha)=	Dir. Conn.(%)= 90.00
	Total Imp	(%)=	90.00

IMPERVIOUS			PERVIOUS (i)		
Surface Area	(ha)=	0.25			0.03
Dep. Storage	(mm)=	1.00			1.50
Average Slope	(%)=	1.00			2.00
Length	(m)=	42.65			40.00
Mannings n	=	0.013			0.250

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

--- TRANSFORMED HYETOGRAPH ---							
TIME	RAIN	TIME	RAIN	TIME	RAIN	TIME	RAIN
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40

0.917 23.45 | 1.917 19.25 | 2.917 4.81 | 3.92 2.14  
 1.000 23.45 | 2.000 19.25 | 3.000 4.81 | 4.00 2.14

Max.Eff.Inten.(mm/hr)= 147.05 57.97  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 1.31 (ii) 3.82 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

\*TOTALS\*  
 PEAK FLOW (cms)= 0.10 0.00 0.105 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.74  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.
- (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0010 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0011):	0.82	0.100	1.42	33.13
+ ID2= 2 ( 0012):	0.27	0.105	1.33	77.74
=====				
ID = 3 ( 0010):	1.10	0.198	1.33	44.24

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0010 ) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0010):	1.10	0.198	1.33	44.24
+ ID2= 2 ( 0013):	0.56	0.068	1.42	33.13
=====				
ID = 1 ( 0010):	1.65	0.261	1.33	40.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0016 ) ID= 1 DT= 5.0 min	Area (ha)	(ha)= 0.73	Curve Number (CN)= 71.0
	Ia	(mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.11	

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.251

PEAK FLOW (cms)= 0.089 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB NASHYD ( 0018 ) ID= 1 DT= 5.0 min	Area (ha)	(ha)= 0.40	Curve Number (CN)= 71.0
	Ia	(mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.11	

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.136

PEAK FLOW (cms)= 0.048 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB STANDHYD ( 0019 ) ID= 1 DT= 5.0 min	Area Total	(ha)= 0.23	Dir. Conn.(%)= 90.00
	Imp(%)=	90.00	

IMPERVIOUS			PERVIOUS (i)		
Surface Area (ha)=	0.21	1.50	Dep. Storage (mm)=	1.00	2.00
Average Slope (%)=	39.21	40.00	Length (m)=	0.013	0.250
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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max.Eff.Inten.(mm/hr)= 147.05 57.97  
 over (min) 5.00 5.00  
 Storage Coeff. (min)= 1.25 (ii) 3.76 (ii)  
 Unit Hyd. Tpeak (min)= 5.00 5.00  
 Unit Hyd. peak (cms)= 0.33 0.25

\*TOTALS\*  
 PEAK FLOW (cms)= 0.08 0.00 0.089 (iii)  
 TIME TO PEAK (hrs)= 1.33 1.33 1.33  
 RUNOFF VOLUME (mm)= 82.38 36.11 77.74  
 TOTAL RAINFALL (mm)= 83.38 83.38 83.38  
 RUNOFF COEFFICIENT = 0.99 0.43 0.93

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

- (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)
- (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL

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

ADD HYD ( 0017 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0016 ):	0.73	0.089	1.42	33.13
+ ID2= 2 ( 0018 ):	0.40	0.048	1.42	33.13
-----				
ID = 3 ( 0017 ):	1.13	0.137	1.42	33.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0017 ) 3 + 2 = 1	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 3 ( 0017 ):	1.13	0.137	1.42	33.13
+ ID2= 2 ( 0019 ):	0.23	0.089	1.33	77.74
-----				
ID = 1 ( 0017 ):	1.36	0.216	1.33	40.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD ( 0021 ) ID= 1 DT= 5.0 min	Area (ha)=	Curve Number (CN)=	# of Linear Res. (N)=
	0.21	71.0	3.00
	Ia (mm)= 5.00		
	U.H. Tp(hrs)= 0.11		

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.073

PEAK FLOW (cms)= 0.026 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.129  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB NASHYD ( 0022 ) ID= 1 DT= 5.0 min	Area (ha)=	Curve Number (CN)=	# of Linear Res. (N)=
	0.37	71.0	3.00
	Ia (mm)= 5.00		
	U.H. Tp(hrs)= 0.11		

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	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71

0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Unit Hyd Qpeak (cms)= 0.128

PEAK FLOW (cms)= 0.045 (i)  
 TIME TO PEAK (hrs)= 1.417  
 RUNOFF VOLUME (mm)= 33.130  
 TOTAL RAINFALL (mm)= 83.375  
 RUNOFF COEFFICIENT = 0.397

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

CALIB STANDHYD ( 0023 ) ID= 1 DT= 5.0 min	Area (ha)=	Dir. Conn. (%) =
	0.14	90.00
	Total Imp (%) = 90.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.13	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	30.55	40.00
Mannings n =	0.013	0.250

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

----- TRANSFORMED HYETOGRAPH -----							
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.89	1.083	60.52	2.083	14.14	3.08	4.10
0.167	2.89	1.167	60.52	2.167	14.14	3.17	4.10
0.250	3.81	1.250	147.05	2.250	10.82	3.25	3.54
0.333	3.81	1.333	147.05	2.333	10.82	3.33	3.54
0.417	5.26	1.417	77.70	2.417	8.55	3.42	3.08
0.500	5.26	1.500	77.70	2.500	8.55	3.50	3.08
0.583	7.73	1.583	43.43	2.583	6.93	3.58	2.71
0.667	7.73	1.667	43.43	2.667	6.93	3.67	2.71
0.750	12.46	1.750	27.74	2.750	5.73	3.75	2.40
0.833	12.46	1.833	27.74	2.833	5.73	3.83	2.40
0.917	23.45	1.917	19.25	2.917	4.81	3.92	2.14
1.000	23.45	2.000	19.25	3.000	4.81	4.00	2.14

Max. Eff. Inten. (mm/hr)= 147.05  
 over (min)= 5.00  
 Storage Coeff. (min)= 1.07 (ii)  
 Unit Hyd. Tpeak (min)= 5.00  
 Unit Hyd. peak (cms)= 0.34

PEAK FLOW (cms)= 0.05  
 TIME TO PEAK (hrs)= 1.33  
 RUNOFF VOLUME (mm)= 82.38  
 TOTAL RAINFALL (mm)= 83.38  
 RUNOFF COEFFICIENT = 0.99

\*TOTALS\*  
 0.054 (iii)  
 1.33  
 77.74  
 83.38  
 0.93

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:  
 CN\* = 71.0 Ia = Dep. Storage (Above)  
 (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL  
 THAN THE STORAGE COEFFICIENT.  
 (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD ( 0020 ) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 ( 0021 ):	0.21	0.026	1.42	33.13
+ ID2= 2 ( 0022 ):	0.37	0.045	1.42	33.13
-----				
ID = 3 ( 0020 ):	0.59	0.071	1.42	33.13

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD ( 0020 ) 3 + 2 = 1	AREA	QPEAK	TPEAK	R.V.

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-----
              (ha)   (cms)   (hrs)   (mm)
ID1= 3 ( 0020):  0.59  0.071  1.42  33.13
+ ID2= 2 ( 0023):  0.14  0.054  1.33  77.74
-----
ID = 1 ( 0020):  0.73  0.120  1.33  41.73

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NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-----
| CALIB |
| NASHYD ( 0025) | Area (ha)= 6.46 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.26 |
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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-----
          ---- TRANSFORMED HYETOGRAPH ----
TIME     RAIN     TIME     RAIN     TIME     RAIN     TIME     RAIN
hrs      mm/hr    hrs      mm/hr    hrs      mm/hr    hrs      mm/hr
0.083    2.89    1.083    60.52   2.083    14.14   3.08    4.10
0.167    2.89    1.167    60.52   2.167    14.14   3.17    4.10
0.250    3.81    1.250   147.05   2.250    10.82   3.25    3.54
0.333    3.81    1.333   147.05   2.333    10.82   3.33    3.54
0.417    5.26    1.417    77.70   2.417    8.55    3.42    3.08
0.500    5.26    1.500    77.70   2.500    8.55    3.50    3.08
0.583    7.73    1.583    43.43   2.583    6.93    3.58    2.71
0.667    7.73    1.667    43.43   2.667    6.93    3.67    2.71
0.750   12.46    1.750    27.74   2.750    5.73    3.75    2.40
0.833   12.46    1.833    27.74   2.833    5.73    3.83    2.40
0.917   23.45    1.917    19.25   2.917    4.81    3.92    2.14
1.000   23.45    2.000    19.25   3.000    4.81    4.00    2.14

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Unit Hyd Qpeak (cms)= 0.950

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PEAK FLOW      (cms)= 0.589 (i)
TIME TO PEAK   (hrs)= 1.667
RUNOFF VOLUME  (mm)= 33.705
TOTAL RAINFALL (mm)= 83.375
RUNOFF COEFFICIENT = 0.404

```

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

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-----
| CALIB |
| NASHYD ( 0026) | Area (ha)= 3.23 Curve Number (CN)= 71.0
| ID= 1 DT= 5.0 min | Ia (mm)= 5.00 # of Linear Res.(N)= 3.00
| U.H. Tp(hrs)= 0.08 |
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

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          ---- TRANSFORMED HYETOGRAPH ----
TIME     RAIN     TIME     RAIN     TIME     RAIN     TIME     RAIN
hrs      mm/hr    hrs      mm/hr    hrs      mm/hr    hrs      mm/hr
0.083    2.89    1.083    60.52   2.083    14.14   3.08    4.10
0.167    2.89    1.167    60.52   2.167    14.14   3.17    4.10
0.250    3.81    1.250   147.05   2.250    10.82   3.25    3.54
0.333    3.81    1.333   147.05   2.333    10.82   3.33    3.54
0.417    5.26    1.417    77.70   2.417    8.55    3.42    3.08
0.500    5.26    1.500    77.70   2.500    8.55    3.50    3.08
0.583    7.73    1.583    43.43   2.583    6.93    3.58    2.71
0.667    7.73    1.667    43.43   2.667    6.93    3.67    2.71
0.750   12.46    1.750    27.74   2.750    5.73    3.75    2.40
0.833   12.46    1.833    27.74   2.833    5.73    3.83    2.40
0.917   23.45    1.917    19.25   2.917    4.81    3.92    2.14
1.000   23.45    2.000    19.25   3.000    4.81    4.00    2.14

```

Unit Hyd Qpeak (cms)= 1.500

```

PEAK FLOW      (cms)= 0.430 (i)
TIME TO PEAK   (hrs)= 1.333
RUNOFF VOLUME  (mm)= 31.991
TOTAL RAINFALL (mm)= 83.375
RUNOFF COEFFICIENT = 0.384

```

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

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| ADD HYD ( 0024) |
| 1 + 2 = 3 | AREA QPEAK TPEAK R.V.

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              (ha)   (cms)   (hrs)   (mm)
ID1= 1 ( 0025):  6.46  0.589  1.67  33.71
+ ID2= 2 ( 0026):  3.23  0.430  1.33  31.99
-----
ID = 3 ( 0024):  9.70  0.878  1.50  33.13

```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH