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Camperdown Condominiums

PRELIMINARY STORMWATER MANAGEMENT REPORT

2220740 Ontario Inc. c/o Romspen Investment Corp.

File 117304 | October 8, 2020

Document Control

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Issue	Date	Description
1	June 9, 2020	Draft Plan Submission
2	October 8, 2020	Draft Plan Submission

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1 Introduction

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

1.1 SITE DESCRIPTION

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

1.2 GEOTECHNICAL INVESTIGATION & REPORTS

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

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

Further geotechnical investigations were completed on May 10, 2019 by Central Earth Engineering. The investigation included excavating 8 test pits across the site to provide recommendations for foundations, slab on grade, pavement structure, soil excavation, compaction and ground water control.

The test pits encountered a topsoil layer at the ground surface between 250 mm to 400 mm thick. Underlying the topsoil, the test pits encountered undisturbed native soils that extended down to the bedrock surface. The undisturbed soil primarily consisted of silt and clay with trace sand

extending to elevations ranging from 190.1 to 188.8 m). Bedrock was encountered beneath the overburden soils in each test pit at elevations ranging from 188.5 to 190.1 m. The upper 0.3 to 1.0 m of the bedrock is considered rippable, and the excavations were advanced until bucket refusal on bedrock at elevations of 189.5 to 188.2 m.

The geotechnical report has been submitted under separate cover.

1.3 EXISTING LAND USE

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

1.4 PROPOSED LAND USE

The current site plan prepared by Innovative Planning Solutions (IPS) illustrates the proposed development consisting of 33 residential units, a 18.0 m ROW, open space (non-developable land) and a stormwater management block.

2 Stormwater Management

2.1 STORMWATER MANAGEMENT OBJECTIVES AND BACKGROUND

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

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

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

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

2.2 STORMWATER MANAGEMENT CRITERIA

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

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

3 Pre-Development Conditions

3.1 EXISTING SITE CONDITIONS

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

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

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

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

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

Table 1: Pre-Development Hydrologic Parameters

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

3.2 PRE-DEVELOPMENT PEAK RUNOFF FLOW RATE ANALYSIS

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

Table 2: Pre-Development Peak Runoff Flow Rate Summary

Design Storm	4-Hour Chicago (m^3/s)	24-Hr SCS Type II (m^3/s)
25 mm	0.044	-
2-Year	0.051	0.199
5-Year	0.112	0.364
10-Year	0.164	0.496
25-Year	0.242	0.681
50-Year	0.305	0.828
100-Year	0.375	0.985
Regional	0.567	-

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

4 Post-Development Water Quantity Control

4.1 PROPOSED SITE CONDITIONS

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

The proposed 33-unit development will have a combination of impervious areas consisting of houses, driveways and the proposed road, while the remaining areas will consist of the SWM Pond block, open space (non-developable land) and grassed/lawn areas (see DP-2).

The proposed drainage conditions will include an enhanced low flow cut off swale along the south limit of the development. This swale will intercept drainage from the rear-yards above the Nipissing Ridge and the open space south of the development (Catchments 202 & 203) and convey the runoff around the proposed development directly to the Old Lakeshore Road roadside ditch. Catchment 201 consists of the lots on the south side of the internal road, the majority of the internal road and also accounts for the driveways and front half of the houses on lots 22, 24 and 26 through 33. Runoff from Catchment 201 will be directed to an end of pipe stormwater management facility via an internal storm sewer system (minor system) and overland flow through the roadway (major system). Controlled runoff from the SWM facility will be conveyed eastward via the roadside ditch along Old Lakeshore Road, ultimately discharging to the existing 1500 mm concrete box culvert, thereby combining with the intermittent watercourse.

Uncontrolled drainage from the remaining catchments (204, 205, 206 & 207) will be intercepted by the Old Lakeshore Road ditch and will ultimately outlet to the intermittent watercourse at the east limit of the property via the previously mentioned box culvert.

The Old Lakeshore Road ditch and culverts have been sized to convey the 100-year post development runoff from the site to the existing concrete box culvert. The 750 mm dia. culvert has a conveyance capacity of 0.43 m^3/s and the 900 mm dia. culvert has a conveyance capacity of 0.69 m^3/s

4.2 POST-DEVELOPMENT PEAK RUNOFF FLOW RATE ANALYSIS

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

Table 3: Post-Development Catchment Parameters

Catchment ID	Catchment Area (Ha)	Curve Number (CN)	% Impervious	% Impervious Directly Connect
Catchment 201	2.20	-	43.4	20.9
Catchment 202	1.63	44.1	-	-
Catchment 203	2.89	42.9	-	-
Catchment 204	0.64	48.1	-	-
Catchment 205	0.03	-	56.0	28.0
Catchment 206	0.73	-	31.8	12.7
Catchment 207	0.78	66.3	-	-

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

Table 4: Post-Development Peak Runoff Flow Rate Summary

Design Storm	Peak Runoff Flow Rate (m^3/s)	
	4-Hour Chicago	24-Hr SCS Type II
25 mm	0.039 (0.044)	-
2-Year	0.051 (0.051)	0.157 (0.199)
5-Year	0.106 (0.112)	0.281 (0.364)
10-Year	0.152 (0.164)	0.370 (0.496)
25-Year	0.212 (0.242)	0.491 (0.681)
50-Year	0.259 (0.305)	0.583 (0.828)
100-Year	0.310 (0.375)	0.682 (0.985)
Regional	0.390 (0.567)	-

(0.010) – Pre-development Flow Rates

4.3 STORMWATER MANAGEMENT FACILITY

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

The outlet control structure will be located at the northeast corner of the SWM facility. Discharge from the facility will be released by an outlet structure to the roadside ditch on Old Lakeshore Road where it will be conveyed to the existing 1500 mm x 1500 mm box culvert crossing Old Lakeshore Road at the northeast corner of the property.

Extended detention will be achieved utilizing a 300 mm diameter orifice. All flows up to and including the 100-year event will be safely conveyed through the outlet control chamber facility. The Regional storm event will be safely conveyed to Old Lakeshore Road via overland flow.

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

Table 5: Post-Development SWM Facility Volume Summary

Design Storm	Storage Volume Used (m^3)	Water Surface Elevation (m)
25 mm	41	189.14
2-year	219	189.72
5-year	339	189.97
10-year	422	190.15
25-year	614	190.37
50-year	711	190.50
100-year	813	190.60
Regional	1898	191.74

Detailed modelling results have been included in Appendix B for reference.

4.4 WATER QUALITY CONTROL

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

5 Siltation and Erosion Controls

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

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

6 Summary

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

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

TATHAM ENGINEERING

CAMPERDOWN CONDOMINIUMS

SITE LOCATION PLAN

SCALE: N.T.S.	DATE: NOV/19	DWG NO. FIG. 1

Drawing Name: 117304-FIG01.dwg, Plotted: Nov 06, 2019

Appendix A: Pre-Development Hydrological Analysis

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

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 101 **Area** 5.92 ha

WEIGHTED CN VALUE

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

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

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

Time to Peak	**0.17 hrs**

For Runoff Coefficients less than 0.4

Airport Method

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

Initial Abstraction	**7.7 mm**

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

Runoff Coefficient	**0.26**

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

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

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 102 **Area** 2.91 ha

WEIGHTED CN VALUE

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

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

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

For Runoff Coefficients less than 0.4

Airport Method

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

Time to Peak	**0.15 hrs**

Initial Abstraction	**7.2325 mm**

Runoff Coefficient	**0.36**

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

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

Ontario IDF CURVE LOOKUP

Active coordinate

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

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

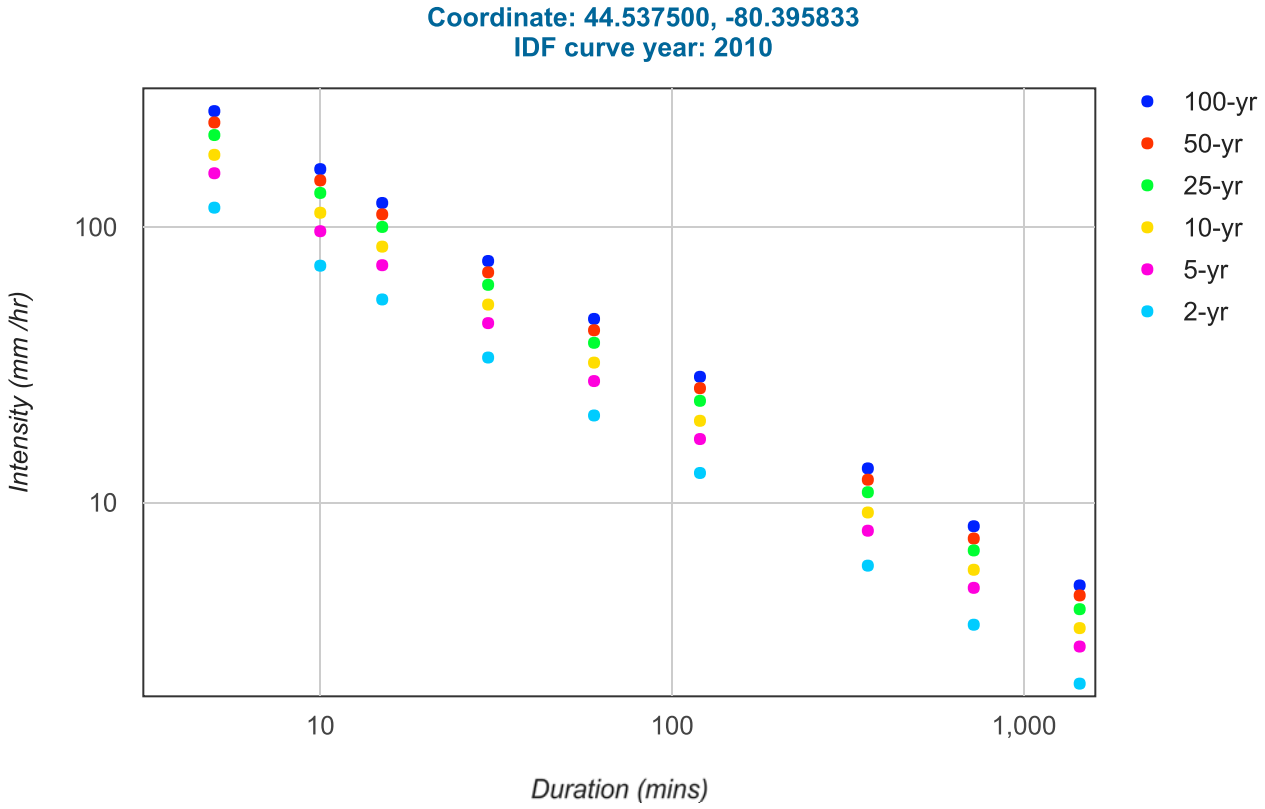
Location summary

These are the locations in the selection.

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

Results

An IDF curve was found.



Coefficient summary

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

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

Data year: 2010
IDF curve year: 2010

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

Statistics

Rainfall intensity (mm hr^{-1})

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

Rainfall depth (mm)

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

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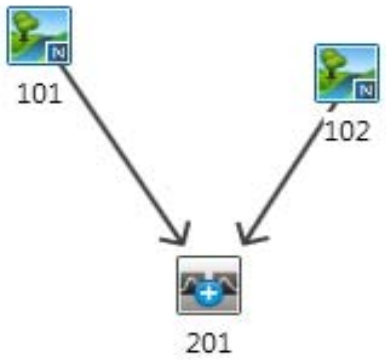
CAMPERDOWN CONDOMINIUM
PRE-DEVELOPMENT CONDITIONS



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

TATHAM ENGINEERING

Project:	Camperdown Condominium		
File No.:	117304		
Subject:	Otthymo Flow Schematic		
Date:	Nov 2019	**Figure:**	1

```
================================================================================
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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\072a7
622-91ba-426a-b460-64955a0e79ef\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\072a7
622-91ba-426a-b460-64955a0e79ef\scen


DATE: 11/06/2019                          TIME: 10:42:18

USER:


COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : Run 01                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                6.0
    [ Ptot= 24.97 mm ]
    fname :
C:\Users\aschoof\AppData\Local\Temp\341e2ecf-1ead-49b0-bcdf-2b5feaea94a3\395184f1-35
bb-4c48-8e68-693
    remark: OWEN SOUND 25 mm (from a 2 year-4hr storm)

*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.03  2.13   1.21 0.05   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.02  2.10   1.66 0.07   0.000
    [CN=59.7         ]
```



```
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.04  2.10   1.36  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\5f24e
3d2-8ab3-4143-9b38-ca5b6e82f73e\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\5f24e
3d2-8ab3-4143-9b38-ca5b6e82f73e\scen


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USER:


COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : Run 02                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM               15.0
    [ Ptot= 31.36 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.03  1.40   2.21 0.07   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.02  1.37   2.97 0.09   0.000
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
```

```
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.05  1.37   2.46  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\f421d
8f0-96b4-4a3d-8bbf-0ca22a158c6b\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\f421d
8f0-96b4-4a3d-8bbf-0ca22a158c6b\scen


DATE: 11/06/2019                          TIME: 10:42:18

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : Run 03                         **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                15.0
    [ Ptot= 41.81 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.07  1.37   4.40 0.11   0.000
    [CN=52.5        ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.05  1.33   5.79 0.14   0.000
    [CN=59.7        ]
    [ N = 3.0:Tp 0.15]
*
```



```
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.11  1.37   4.86  n/a   0.000
*
 FINISH

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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\9dc74
5c6-67cd-4763-9d84-bbb05ca214f6\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\9dc74
5c6-67cd-4763-9d84-bbb05ca214f6\scen


DATE: 11/06/2019                          TIME: 10:42:18

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : Run 04                         **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                15.0
    [ Ptot= 48.78 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.10  1.37   6.22 0.13   0.000
    [CN=52.5        ]
    [ N = 3.0:Tp 0.17]
*
```

```
 ** CALIB NASHYD         0102  1  2.0    2.91    0.07  1.33   8.09 0.17   0.000
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.16  1.37   6.84  n/a   0.000
*
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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M  M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\ae9eb
bb1-9df4-4a2c-84f5-56decb77878a\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\ae9eb
bb1-9df4-4a2c-84f5-56decb77878a\scen


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  ***********************************************
  ** SIMULATION : Run 05                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
   CHIC STORM               15.0
   [ Ptot= 57.56 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.14  1.37   8.88 0.15   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.10  1.33  11.40 0.20   0.000
```



```
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.24  1.37   9.71  n/a   0.000
*
================================================================================
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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\2a66f
c61-7e89-47f2-8b9e-736ee42e356e\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\2a66f
c61-7e89-47f2-8b9e-736ee42e356e\scen


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  ***********************************************
  ** SIMULATION : Run 06                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
   CHIC STORM               15.0
   [ Ptot= 63.93 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.18  1.37  11.04 0.17   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.13  1.33  14.06 0.22   0.000
    [CN=59.7         ]
```

```
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.31  1.37  12.04  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\bcc5d
207-9d45-42f4-af66-24f9ce52ad17\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\bcc5d
207-9d45-42f4-af66-24f9ce52ad17\scen


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USER:


COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : Run 07                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    CHIC STORM                15.0
    [ Ptot= 70.29 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.22  1.37  13.39 0.19   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.15  1.33  16.93 0.24   0.000
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
```



```
*
   ADD [  0101+  0102]  0201  3  2.0    8.83    0.38  1.33  14.55  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\a4614
08b-251c-4502-aee3-ceb22c683360\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\a4614
08b-251c-4502-aee3-ceb22c683360\scen


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USER:


COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : Run 08                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    READ STORM                12.0
    [ Ptot=193.00 mm ]
    fname :
C:\Users\aschoof\AppData\Local\Temp\341e2ecf-1ead-49b0-bcdf-2b5feaea94a3\4c311f83-81
af-42c6-ab26-d9d
    remark: TIMMINS REGIONAL 12 HOUR DURATION STORM

*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.36  7.00  82.67 0.43   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
```

```
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.21  7.00  96.49 0.50   0.000
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.57  7.00  87.23  n/a   0.000
*
```

```
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======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\67109
a76-acb2-47aa-8e2a-6345a87fc810\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\67109
a76-acb2-47aa-8e2a-6345a87fc810\scen


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USER:


COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : Run 01                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    MASS STORM                15.0
    [ Ptot= 53.74 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.12 11.83   7.68 0.14   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.08 11.80   9.91 0.18   0.000
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.20 11.83   8.41  n/a   0.000
*
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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\f393b
f5d-ff8f-4285-b409-7736cec83500\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\f393b
f5d-ff8f-4285-b409-7736cec83500\scen


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USER:


COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : Run 02                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    MASS STORM                15.0
    [ Ptot= 71.58 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.22 11.83  13.89 0.19   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.15 11.80  17.53 0.24   0.000
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.36 11.80  15.09  n/a   0.000
*
 FINISH
```

```
================================================================================
======================

================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\5180e
208-118e-4943-a8d0-2b76bca49467\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\5180e
208-118e-4943-a8d0-2b76bca49467\scen


DATE: 11/06/2019                          TIME: 10:44:49

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : Run 03                         **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    MASS STORM                15.0
    [ Ptot= 83.55 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.30 11.83  18.81 0.23   0.000
    [CN=52.5        ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.20 11.80  23.47 0.28   0.000
    [CN=59.7        ]
    [ N = 3.0:Tp 0.15]
*
```



```
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.50 11.80  20.34  n/a   0.000
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\6e6bc
7fb-557c-468c-a763-b8a630ebe11e\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\6e6bc
7fb-557c-468c-a763-b8a630ebe11e\scen


DATE: 11/06/2019                          TIME: 10:44:49

USER:


COMMENTS: _____________________________________________________________


  ************************************************
  ** SIMULATION : Run 04                         **
  ************************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

      START @  0.00 hrs
      --------------------
    MASS STORM                15.0
    [ Ptot= 98.60 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.41 11.83  25.75 0.26   0.000
    [CN=52.5        ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.27 11.80  31.72 0.32   0.000
    [CN=59.7        ]
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.68 11.80  27.72  n/a   0.000
```

```
*
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\de5e8
f76-c456-442a-82c1-bb8559fc12cf\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\de5e8
f76-c456-442a-82c1-bb8559fc12cf\scen


DATE: 11/06/2019                          TIME: 10:44:49

USER:


COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : Run 05                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    MASS STORM                15.0
    [ Ptot=109.47 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.50 11.83  31.22 0.29   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.33 11.80  38.14 0.35   0.000
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.83 11.80  33.50  n/a   0.000
*
```



```
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U A   A  L
         VV     I    SSSSS  UUUUU A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  S U M M A R Y   O U T P U T  *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\6bd8f
db0-be21-42f6-b312-abbedaeeeba6\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\6bd8f
db0-be21-42f6-b312-abbedaeeeba6\scen


DATE: 11/06/2019                          TIME: 10:44:49

USER:


COMMENTS: _____________________________________________________________


  ***********************************************
  ** SIMULATION : Run 06                       **
  ***********************************************

  W/E COMMAND             HYD ID   DT    AREA  ' Qpeak Tpeak   R.V. R.C.   Qbase
                                  min     ha   '  cms   hrs     mm          cms

     START @  0.00 hrs
     --------------------
    MASS STORM                15.0
    [ Ptot=120.44 mm ]
*
 ** CALIB NASHYD         0101  1  2.0    5.92    0.60 11.83  37.08 0.31   0.000
    [CN=52.5         ]
    [ N = 3.0:Tp 0.17]
*
 ** CALIB NASHYD         0102  1  2.0    2.91    0.39 11.80  44.96 0.37   0.000
    [CN=59.7         ]
    [ N = 3.0:Tp 0.15]
*
    ADD [  0101+  0102]  0201  3  2.0    8.83    0.98 11.80  39.68  n/a   0.000
*
```

Appendix B: Post-Development Hydrological Analysis

STORM SEWER DESIGN SHEET

Approved:

TATHAM ENGINEERING

Design Storm - OWEN SOUND MOE

5 YEAR
A - 1234.576
B - 8.297
C - 0.851

Runoff Coefficients
Residential 0.55
Open Space 0.25

Mannings "n"
Concrete 0.013
PVC 0.009

Project Name: Camperdown Condominiums
Project Number: 117304
Municipality: Town of The Blue Mountains
Designed By: AS
Date: March 2018
Checked By:
Date: March 2018
Revised By: AS
Date: October 2020
Checked By:

Location of Section	Type	Catchment ID	From Upstream	To Downstream	Tributary Area	Runoff Coefficient	Individual Aa x Ca	Cumulative Area	Cumulative A x C	Time of Concentration	Rainfall Intensity	Peak Flow	Manning's "n"	Slope	Diameter	Length	Full Flow Velocity	Full Flow Capacity	Actual Velocity	Time of Flow	Calculated Pipe Diameter	Time of Concentration to Next Segment	
			MH #	MH#	Aa	Ca	Aa x Ca	A=Sum Aa	A x C=	Tc	i	q		S	D	L	vf	Q	va	t=L/60xva	d	tf=Tc+t	
					ha			ha	Sum Aa x Ca	min	mm/hr	m3/s		m/m	mm	m	m/s	m3/s	m/s	min	mm	min	
Condo Road A		302	CBMH7	CBMH1	0.45	0.55	0.248	0.45	0.248	15.00	84.71	**0.06**	**0.009**	0.50%	**300**	64.7	1.40	**0.099**	1.36	0.79	246	15.79	
Condo Road A		303	CBMH1	CBMH2	0.37	0.55	0.204	0.82	0.451	15.79	82.34	**0.10**	**0.009**	0.50%	**375**	90.0	1.62	**0.179**	1.57	0.95	305	16.75	
Condo Road A		304	CBMH2	CBMH3	0.51	0.55	0.281	1.33	0.732	16.75	79.66	**0.16**	**0.013**	0.60%	**450**	69.6	1.39	**0.221**	1.39	0.84	400	17.58	
Condo Road A		305	CBMH3	CBMH4	0.38	0.55	0.209	1.71	0.941	17.58	77.46	**0.20**	**0.013**	0.50%	**525**	17.0	1.40	**0.304**	1.40	0.20	450	17.78	
SWM Pond		306	CBMH4	OGS	0.18	0.55	0.099	1.89	1.040	17.78	76.95	**0.22**	**0.013**	0.50%	**525**	13.1	1.40	**0.304**	1.40	0.16	467	17.94	

TATHAM ENGINEERING	Project: Camperdown Condominiums	Date: Oct 2020
	File No.: 117304	Designed: AS
	Subject: Impervious Calculations	Checked RS

Site Area (Catchment 201)	=	22,000	sq.m	
Impervious Area	=	9,545	sq.m	(Asphalt, Driveway, House, Pond)
Pervious Area	=	12,455	sq.m	
Directly Connected Area	=	4,605	sq.m	(Asphalt, Driveway, House)
% Impervious	=	43.4		
% Directly Connected	=	20.9		

Site Area (Catchment 205)	=	300	sq.m	
Impervious Area	=	168	sq.m	(Asphalt, Driveway, House)
Pervious Area	=	132	sq.m	
Directly Connected Area	=	84	sq.m	(Asphalt, Driveway, House)
% Impervious	=	56.0		
% Directly Connected	=	28.0		

Site Area (Catchment 206)	=	7,300	sq.m	
Impervious Area	=	2,319	sq.m	(Asphalt, Driveway, House)
Pervious Area	=	4,981	sq.m	
Directly Connected Area	=	927	sq.m	(Asphalt, Driveway, House)
% Impervious	=	31.8		
% Directly Connected	=	12.7		

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

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 202 **Area** 1.63 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
WSL	WATERLOO	A	Sand Loam	1	1.22	0.75	1.22	1	32	0		49	0		38	0		62	0		100	0		50	32
DUC	DUNEDIN	D	Clay Loam or Clay	3	0.41	0.25	0.29	0.7	79	0.12	0.3	84	0		81	0		86	0		100	0		50	80.5
	#N/A	#N/A	#N/A	#N/A	0.00		0.00		#N/A	0.00		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	**1.63**	**1.00**	**1.51**	**0.93**		**0.12**	**0.08**		**0**	**0**		**0**	**0**		**0**	**0**		**0**	**0**		**44.13**

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	1.63	ha
Time of Concentration (Minutes)	**6.22**	
Time of Concentration (Hours)	**0.10**	
Time to Peak (2/3 x Time of Concentration)	**0.07**	

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	1.63	ha
Time of Concentration (Minutes)	**15.30**	
Time of Concentration (Hours)	**0.25**	
Time to Peak (2/3 x Time of Concentration)	**0.17**	

Time to Peak	**0.17 hrs**

Initial Abstraction	**9.625 mm**

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

Runoff Coefficient	**0.27**

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

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

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 203 **Area** 2.89 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
TS	TECUMSETH	AB	Sand Loam	1	0.98	0.34	0.98	1	46	0		59	0		51	0		68	0		100	0		50	46
WSL	WATERLOO	A	Sand Loam	1	1.91	0.66	1.43	0.75	32	0.29	0.15	49	0		38	0		62	0.1907	0.1	100	0		50	41.35
	#N/A	#N/A	#N/A	#N/A	0.00				#N/A			#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	**2.89**	**1.00**	**2.41**	**0.84**		**0.29**	**0.10**		**0**	**0**		**0**	**0**		**0.19074**	**0.066**		**0**	**0**		**42.93**

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	2.89	ha
Time of Concentration (Minutes)	**5.87**	
Time of Concentration (Hours)	**0.10**	
Time to Peak (2/3 x Time of Concentration)	**0.07**	

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	223	m
Minimum Catchment Elevation	190.5	m
Catchment length	200	m
Catchment Slope	16%	
Catchment Area	2.89	ha
Time of Concentration (Minutes)	**15.90**	
Time of Concentration (Hours)	**0.26**	
Time to Peak (2/3 x Time of Concentration)	**0.18**	

Time to Peak	**0.18 hrs**

Initial Abstraction	**8.977 mm**

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

Runoff Coefficient	**0.23**

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

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

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 204 **Area** 0.64 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
TS	TECUMSETH	AB	Sand Loam	1	0.64	1.00	0.54	0.84	46	0.1024	0.16	59	0		51	0		68	0		100	0		50	48.08
	#N/A	#N/A	#N/A	#N/A	0.00		0.00		#N/A	0.00		#N/A	0		#N/A	0		#N/A	0	0.1	#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0.00				#N/A			#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	0.64	1.00	0.54	0.84		0.10	0.16		0	0		0	0		0	0		0	0		48.08

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	192	m
Minimum Catchment Elevation	190	m
Catchment length	115	m
Catchment Slope	2%	
Catchment Area	0.64	ha
Time of Concentration (Minutes)	**6.14**	
Time of Concentration (Hours)	**0.10**	
Time to Peak (2/3 x Time of Concentration)	**0.07**	

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	192	m
Minimum Catchment Elevation	190	m
Catchment length	115	m
Catchment Slope	2%	
Catchment Area	0.64	ha
Time of Concentration (Minutes)	**29.61**	
Time of Concentration (Hours)	**0.49**	
Time to Peak (2/3 x Time of Concentration)	**0.33**	

Time to Peak	**0.33 hrs**

Initial Abstraction	**9.2 mm**

Runoff Coefficient	**0.08**

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

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

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

CURVE NUMBER, INITIAL ABSTRACTION & TIME TO PEAK CALCULATIONS

Catchment 207 **Area** 0.78 ha

WEIGHTED CN VALUE

Soil Series	Soil Series	Hydrologic Soil Group	Soil Texture	Runoff Coefficient Type	Catchment Soil Characteristics		Forest/Woodland			Pasture/Lawns			Meadows			Cultivated			Impervious			Wetland/Lakes/SWMF			Average CN for Soil Type
					Area	Percent	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	Area	Percent	CN	
TS	TECUMSETH	AB	Sand Loam	1	0.78	1.00	0.08	0.1	46	0.538	0.69	59	0		51	0		68	0.164	0.21	100	0		50	66.31
	#N/A	#N/A	#N/A	#N/A	0.00		0.00		#N/A	0.00		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0.00				#N/A			#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
	#N/A	#N/A	#N/A	#N/A	0		0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0		#N/A	0
				Totals	**0.78**	**1.00**	**0.08**	**0.10**		**0.54**	**0.69**		**0**	**0**		**0**	**0**		**0.1638**	**0.21**		**0**	**0**		**66.31**

Time of Concentration Calculations

For Runoff Coefficients greater than 0.4

Bransby-Williams Formula

Maximum Catchment Elevation	191	m
Minimum Catchment Elevation	187	m
Catchment length	100	m
Catchment Slope	4%	
Catchment Area	0.78	ha
Time of Concentration (Minutes)	**4.43**	
Time of Concentration (Hours)	**0.07**	
Time to Peak (2/3 x Time of Concentration)	**0.05**	

Time to Peak **0.19 hrs**

For Runoff Coefficients less than 0.4

Airport Method

Maximum Catchment Elevation	191	m
Minimum Catchment Elevation	187	m
Catchment length	100	m
Catchment Slope	4%	
Catchment Area	0.78	ha
Time of Concentration (Minutes)	**16.99**	
Time of Concentration (Hours)	**0.28**	
Time to Peak (2/3 x Time of Concentration)	**0.19**	

Initial Abstraction **4.87 mm**

Runoff Coefficient **0.28**

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

Landuse Type	Soil Series				
	TS	0	0	0	0
	1	#N/A	#N/A	#N/A	#N/A
Forest/Woodland	0.08	#N/A	#N/A	#N/A	#N/A
Cultivated	0.22	#N/A	#N/A	#N/A	#N/A
Pasture/Lawn	0.1	#N/A	#N/A	#N/A	#N/A
Impervious	0.95	#N/A	#N/A	#N/A	#N/A
Wetland/Lake/SWMF	0.05	#N/A	#N/A	#N/A	#N/A
Meadows	0.09	#N/A	#N/A	#N/A	#N/A
Soil Series Total	0.277	#N/A	#N/A	#N/A	#N/A

Camperdown Condominiums
SWM Pond Volume Table

Designed: AS
Checked: RS
Date: Nov 2019

Wet Pond Characteristics:

Side Slope: 5 :1
Top Elevation: 190.80 m
Bottom Elev: 188.50 m
Permanent Pool: 189.50 m
Stage 0.1 m

Stormwater Management Pond								
Pond Geometry				Pond Volume (m^3)				
Elevation (m)	Depth (m)	Area (m^2)	Avg. Area (m)	Dead	Accum. Dead	Live	Accum. Live	Accum. Total
188.50	0.00	5.00	5.00	0.00	0.00		0.00	0.00
188.60	0.10	17.00	11.00	1.10	1.10		0.00	1.10
188.70	0.20	31.00	24.00	2.40	3.50		0.00	3.50
188.80	0.30	49.00	40.00	4.00	7.50		0.00	7.50
188.90	0.40	78.00	63.50	6.35	13.85		0.00	13.85
189.00	0.50	110.00	94.00	9.40	23.25		0.00	23.25
189.10	0.60	154.00	132.00	13.20	36.45		0.00	36.45
189.20	0.70	191.00	172.50	17.25	53.70		0.00	53.70
189.30	0.80	238.00	214.50	21.45	75.15		0.00	75.15
189.40	0.90	283.00	260.50	26.05	101.20		0.00	101.20
189.50	1.00	338.00	310.50	31.05	132.25	0.00	0.00	132.25
189.60	1.10	374.00	356.00		132.25	35.60	35.60	167.85
189.70	1.20	429.00	401.50		132.25	40.15	75.75	208.00
189.80	1.30	467.00	448.00		132.25	44.80	120.55	252.80
189.90	1.40	523.00	495.00		132.25	49.50	170.05	302.30
190.00	1.50	578.00	550.50		132.25	55.05	225.10	357.35
190.10	1.60	635.00	606.50		132.25	60.65	285.75	418.00
190.20	1.70	697.00	666.00		132.25	66.60	352.35	484.60
190.30	1.80	761.00	729.00		132.25	72.90	425.25	557.50
190.40	1.90	827.00	794.00		132.25	79.40	504.65	636.90
190.50	2.00	894.00	860.50		132.25	86.05	590.70	722.95
190.60	2.10	963.00	928.50		132.25	92.85	683.55	815.80
190.70	2.20	1034.00	998.50		132.25	99.85	783.40	915.65
190.80	2.30	1106.00	1070.00		132.25	107.00	890.40	1022.65

Camperdown Condominiums
SWM Pond Volume Table

Designed: AS
Checked: RS
Date: Nov 2019

Pond Discharge Table:

Orifice #1:		**Orifice #2:**			Overflow Weir:		
Diameter:	300	Diameter:	0	mm	Bottom Length:	3.5	m
Area:	0.0707	Area:	0.0000	m^2	Sill Elevation:	190.4	m
C:	0.63	C:	0.63		D/S Weir Length:	10	m
Invert:	189.50	Invert:		m	Side Slopes (H:V)	5	:1

	Orifice #1		Orifice #2		Overflow Weir			
Elevation (m)	Head (m)	Discharge (m)	Head (m)	Discharge (m)	Head (m)	Discharge (m)	Hydraulic Control	Discharge (m^3/s)
188.50	0.000	0.000	188.500	0.000	0	0	Orifice	0.000
188.60	0.000	0.000	188.600	0.000	0	0	Orifice	0.000
188.70	0.000	0.000	188.700	0.000	0	0	Orifice	0.000
188.80	0.000	0.000	188.800	0.000	0	0	Orifice	0.000
188.90	0.000	0.000	188.900	0.000	0	0	Orifice	0.000
189.00	0.000	0.000	189.000	0.000	0	0	Orifice	0.000
189.10	0.000	0.000	189.100	0.000	0	0	Orifice	0.000
189.20	0.000	0.000	189.200	0.000	0	0	Orifice	0.000
189.30	0.000	0.000	189.300	0.000	0	0	Orifice	0.000
189.40	0.000	0.000	189.400	0.000	0	0	Orifice	0.000
189.50	0.000	0.000	189.500	0.000	0	0	Orifice	0.000
189.60	0.000	0.000	189.600	0.000	0	0	Orifice	0.000
189.70	0.050	0.044	189.700	0.000	0	0	Orifice	0.044
189.80	0.150	0.076	189.800	0.000	0	0	Orifice	0.076
189.90	0.250	0.099	189.900	0.000	0	0	Orifice	0.099
190.00	0.350	0.117	190.000	0.000	0	0	Orifice	0.117
190.10	0.450	0.132	190.100	0.000	0	0	Orifice	0.132
190.20	0.550	0.146	190.200	0.000	0	0	Orifice	0.146
190.30	0.650	0.159	190.300	0.000	0	0	Orifice	0.159
190.40	0.750	0.171	190.400	0.000	0	0	Orifice	0.171
190.50	0.850	0.182	190.500	0.000	0.1	0.17	Orifice	0.352
190.60	0.950	0.192	190.600	0.000	0.20	0.53	Orifice/Weir	0.722
190.70	1.050	0.202	190.700	0.000	0.30	1.09	Orifice/Weir	1.292
190.80	1.150	0.212	190.800	0.000	0.40	1.85	Orifice/Weir	2.062

Comments:

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

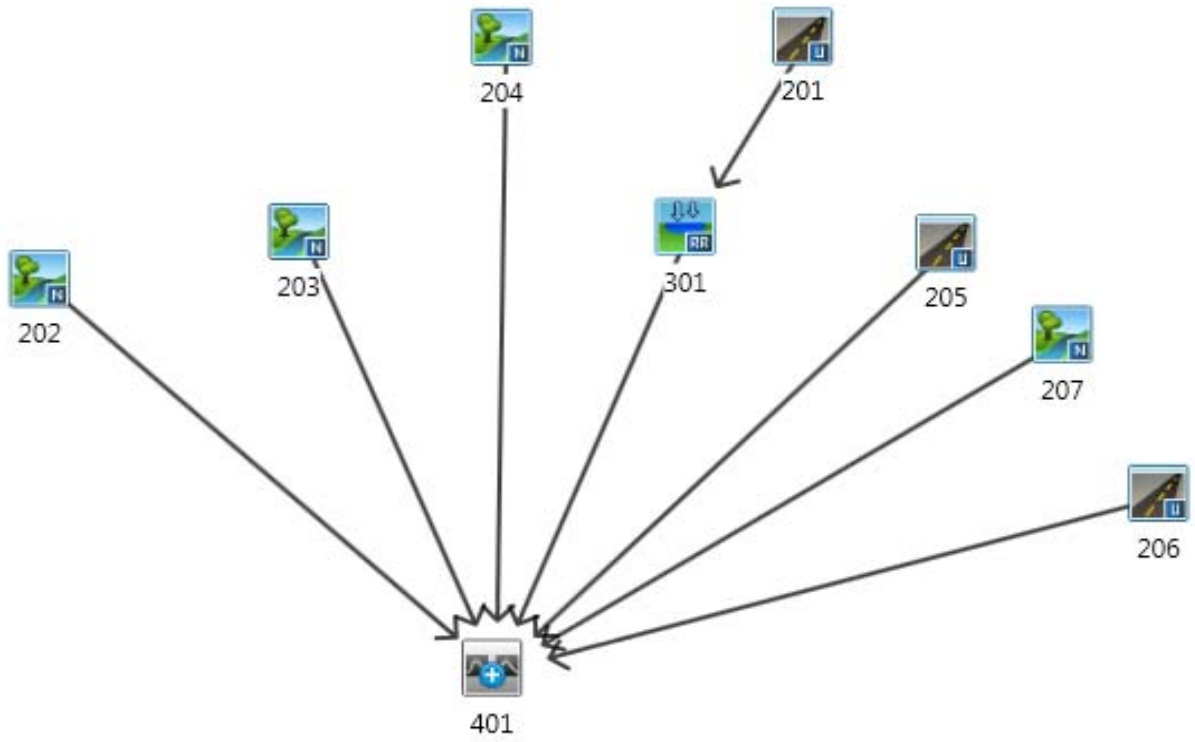
Where:
Q = flow rate (cms)
C = constant
A = area of opening(sq. m)
H = net head on the orifice
g = Acceleration due to gravity

Camperdown Condominiums
Stage-Storage-Discharge

Designed:	AS
Checked:	RS
Date:	Nov 2019

Stormwater Management Pond								
Pond Geometry				Pond Volume (m^3)				Discharge (m^3/s)
Elevation (m)	Depth (m)	Area (m^2)	Avg. Area (m)	Dead	Accum. Dead	Live	Accum. Live	
188.50	0.00	5.00	5.00	0.00	0.00	0.00	0.00	0.000
188.60	0.10	17.00	11.00	1.10	1.10	0.00	0.00	0.000
188.70	0.20	31.00	24.00	2.40	3.50	0.00	0.00	0.000
188.80	0.30	49.00	40.00	4.00	7.50	0.00	0.00	0.000
188.90	0.40	78.00	63.50	6.35	13.85	0.00	0.00	0.000
189.00	0.50	110.00	94.00	9.40	23.25	0.00	0.00	0.000
189.10	0.60	154.00	132.00	13.20	36.45	0.00	0.00	0.000
189.20	0.70	191.00	172.50	17.25	53.70	0.00	0.00	0.000
189.30	0.80	238.00	214.50	21.45	75.15	0.00	0.00	0.000
189.40	0.90	283.00	260.50	26.05	101.20	0.00	0.00	0.000
189.50	1.00	338.00	310.50	31.05	132.25	0.00	0.00	0.000
189.60	1.10	374.00	356.00	0.00	132.25	35.60	35.60	0.000
189.70	1.20	429.00	401.50	0.00	132.25	40.15	75.75	0.044
189.80	1.30	467.00	448.00	0.00	132.25	44.80	120.55	0.076
189.90	1.40	523.00	495.00	0.00	132.25	49.50	170.05	0.099
190.00	1.50	578.00	550.50	0.00	132.25	55.05	225.10	0.117
190.10	1.60	635.00	606.50	0.00	132.25	60.65	285.75	0.132
190.20	1.70	697.00	666.00	0.00	132.25	66.60	352.35	0.146
190.30	1.80	761.00	729.00	0.00	132.25	72.90	425.25	0.159
190.40	1.90	827.00	794.00	0.00	132.25	79.40	504.65	0.171
190.50	2.00	894.00	860.50	0.00	132.25	86.05	590.70	0.352
190.60	2.10	963.00	928.50	0.00	132.25	92.85	683.55	0.722
190.70	2.20	1034.00	998.50	0.00	132.25	99.85	783.40	1.292
190.80	2.30	1106.00	1070.00	0.00	132.25	107.00	890.40	2.062

CAMPERDOWN CONDOMINIUM
PROPOSED CONDITIONS



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

TATHAM ENGINEERING

Project:	Camperdown Condominium
File No.:	117304
Subject:	Otthymo Flow Schematic
Date:	Nov 2019 **Figure:** 1

```
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\faa30
3c6-b5d2-4c09-926e-f7cc23e787ce\scen
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C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\faa30
3c6-b5d2-4c09-926e-f7cc23e787ce\scen


DATE: 10/09/2020                          TIME: 05:30:25

USER:


COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
----------------------
  ***********************************************
  ** SIMULATION : Run 01                       **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\aschoof\AppD
|                  |              ata\Local\Temp\
|                  |              ef6ca355-8b23-4216-859d-d5ae6efa7ec3\395184f1
| Ptotal= 24.97 mm |    Comments: OWEN SOUND 25 mm (from a 2 year-4hr stor
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.10    1.29 |  1.10    2.81 |  2.10   13.05 |  3.10    2.04
               0.20    1.36 |  1.20    3.22 |  2.20    8.44 |  3.20    1.89
               0.30    1.44 |  1.30    3.77 |  2.30    6.21 |  3.30    1.76
               0.40    1.53 |  1.40    4.55 |  2.40    4.91 |  3.40    1.65
               0.50    1.63 |  1.50    5.77 |  2.50    4.06 |  3.50    1.55
               0.60    1.75 |  1.60    7.86 |  2.60    3.47 |  3.60    1.46
               0.70    1.89 |  1.70   12.27 |  2.70    3.03 |  3.70    1.39
               0.80    2.06 |  1.80   26.17 |  2.80    2.70 |  3.80    1.32
```



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

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

--------------------
| CALIB            |
| NASHYD   (  0203)|   Area    (ha)=   2.89   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

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

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

    Unit Hyd Qpeak  (cms)=   0.613

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

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

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

--------------------
| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   1.63   Curve Number   (CN)= 44.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.62   # of Linear Res.(N)= 3.00
```

```
--------------------   U.H. Tp(hrs)=   0.17

     Unit Hyd Qpeak  (cms)=   0.366

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

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

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

--------------------
| ADD HYD  (  0053)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     1.63   0.004     2.17     0.70
     + ID2= 2 (  0203):     2.89   0.007     2.17     0.72
       ================================================
       ID = 3 (  0053):     4.52   0.010     2.17     0.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0204)|   Area    (ha)=   0.64   Curve Number   (CN)= 48.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.33

     Unit Hyd Qpeak  (cms)=   0.074

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

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

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

--------------------
| ADD HYD  (  0054)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0204):     0.64   0.001     2.37     0.86
     + ID2= 2 (  0053):     4.52   0.010     2.17     0.71
       ================================================
       ID = 3 (  0054):     5.16   0.011     2.17     0.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  21.00
--------------------
                         IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.95         1.25
```



```
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n           =      0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    1.29 | 1.083    2.81 | 2.083   13.05 |  3.08    2.04
              0.167    1.35 | 1.167    3.14 | 2.167    9.36 |  3.17    1.92
              0.250    1.41 | 1.250    3.55 | 2.250    7.10 |  3.25    1.81
              0.333    1.48 | 1.333    4.08 | 2.333    5.69 |  3.33    1.72
              0.417    1.55 | 1.417    4.79 | 2.417    4.74 |  3.42    1.63
              0.500    1.63 | 1.500    5.77 | 2.500    4.06 |  3.50    1.55
              0.583    1.75 | 1.583    7.86 | 2.583    3.47 |  3.58    1.46
              0.667    1.86 | 1.667   11.39 | 2.667    3.12 |  3.67    1.40
              0.750    1.99 | 1.750   20.61 | 2.750    2.83 |  3.75    1.35
              0.833    2.14 | 1.833   44.73 | 2.833    2.59 |  3.83    1.30
              0.917    2.31 | 1.917   63.46 | 2.917    2.39 |  3.92    1.25
              1.000    2.50 | 2.000   26.96 | 3.000    2.22 |  4.00    1.20

     Max.Eff.Inten.(mm/hr)=      63.46        28.18
               over (min)        5.00        20.00
     Storage Coeff.  (min)=      3.44 (ii)   17.86 (ii)
     Unit Hyd. Tpeak (min)=      5.00        20.00
     Unit Hyd. peak  (cms)=      0.26         0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.07         0.05        0.087 (iii)
     TIME TO PEAK    (hrs)=      1.92         2.17          1.92
     RUNOFF VOLUME    (mm)=     23.97         5.08          9.05
     TOTAL RAINFALL   (mm)=     24.97        24.97         24.97
     RUNOFF COEFFICIENT   =      0.96         0.20          0.36

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

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

-------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.1680    |   0.1590     0.5570
                         0.0440     0.2080    |   0.3520     0.7230
                         0.0990     0.3020    |   1.2920     0.9160
                         0.1320     0.4180    |   2.0620     1.0230

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0201)     2.200     0.087      1.92       9.05
   OUTFLOW: ID= 1 (  0301)     2.200     0.000      0.00       0.00

            PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.00
            TIME SHIFT OF PEAK FLOW         (min)=******
```

MAXIMUM STORAGE USED (ha.m.)= 0.0041

ADD HYD (0055)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0301):		2.20	0.000	0.00	0.00
+ ID2= 2 (0054):		5.16	0.011	2.17	0.73
ID = 3 (0055):		7.36	0.011	2.17	0.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0205)	Area (ha)= 0.03			
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00	Dir. Conn.(%)= 28.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.02	0.01	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	1.00	
Length	(m)=	14.14	20.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		63.46	52.08	
over (min)		5.00	10.00	
Storage Coeff. (min)=		0.95 (ii)	8.39 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.12	

		TOTALS
PEAK FLOW	(cms)=	0.00 0.00 0.002 (iii)
TIME TO PEAK	(hrs)=	1.92 2.00 1.92
RUNOFF VOLUME	(mm)=	23.97 6.40 10.55
TOTAL RAINFALL	(mm)=	24.97 24.97 24.97
RUNOFF COEFFICIENT	=	0.96 0.26 0.42

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

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

ADD HYD (0056)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0205):		0.03	0.002	1.92	10.55
+ ID2= 2 (0055):		7.36	0.011	2.17	0.51
ID = 3 (0056):		7.39	0.012	2.13	0.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0207)	Area (ha)= 0.78	Curve Number (CN)= 66.3		
ID= 1 DT= 5.0 min	Ia (mm)= 4.87	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.19			

Unit Hyd Qpeak (cms)= 0.157

PEAK FLOW (cms)= 0.008 (i)
TIME TO PEAK (hrs)= 2.083
RUNOFF VOLUME (mm)= 2.701
TOTAL RAINFALL (mm)= 24.971
RUNOFF COEFFICIENT = 0.108

(i) 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 (0207):		0.78	0.008	2.08	2.70
+ ID2= 2 (0056):		7.39	0.012	2.13	0.55
ID = 3 (0057):		8.17	0.020	2.13	0.76

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0206)	Area (ha)= 0.73			
ID= 1 DT= 5.0 min	Total Imp(%)= 32.00	Dir. Conn.(%)= 13.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.23	0.50	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	69.76	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		63.46	22.44	
over (min)		5.00	20.00	
Storage Coeff. (min)=		2.47 (ii)	15.30 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.29	0.07	

		TOTALS
PEAK FLOW	(cms)=	0.02 0.02 0.020 (iii)
TIME TO PEAK	(hrs)=	1.92 2.17 1.92
RUNOFF VOLUME	(mm)=	23.97 4.39 6.93
TOTAL RAINFALL	(mm)=	24.97 24.97 24.97
RUNOFF COEFFICIENT	=	0.96 0.18 0.28

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

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

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

ADD HYD (0401)			AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0206):			0.73	0.020	1.92	6.93
+ ID2= 2 (0057):			8.17	0.020	2.13	0.76
ID = 3 (0401):			8.90	0.039	2.17	1.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

FINISH

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```
       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

Output filename:
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Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\9d8a2525-1597-4cef-bbf6-aa461870bb58\scen

DATE: 10/09/2020 TIME: 05:30:25

USER:

COMMENTS: _____

****

0.967	9.41	1.967	5.55	2.967	3.13	3.97	2.29
1.000	9.41	2.000	5.55	3.000	3.13	4.00	2.29

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.008 (i)
TIME TO PEAK (hrs)= 1.433
RUNOFF VOLUME (mm)= 1.391
TOTAL RAINFALL (mm)= 31.358
RUNOFF COEFFICIENT = 0.044

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

CALIB					
NASHYD (0202)	Area (ha)=	1.63	Curve Number (CN)=	44.1	
ID= 1 DT= 2.0 min	Ia (mm)=	9.62	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.17			

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 1.433
RUNOFF VOLUME (mm)= 1.375
TOTAL RAINFALL (mm)= 31.358
RUNOFF COEFFICIENT = 0.044

(i) 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 (0202):	1.63	0.004	1.43	1.38
+ ID2= 2 (0203):	2.89	0.008	1.43	1.39
ID = 3 (0053):	4.52	0.012	1.43	1.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0204)	Area (ha)=	0.64	Curve Number (CN)=	48.1	
ID= 1 DT= 2.0 min	Ia (mm)=	9.20	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.33			

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.002 (i)
TIME TO PEAK (hrs)= 1.700
RUNOFF VOLUME (mm)= 1.655
TOTAL RAINFALL (mm)= 31.358
RUNOFF COEFFICIENT = 0.053

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

ADD HYD (0054)	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3				
ID1= 1 (0204):	0.64	0.002	1.70	1.65
+ ID2= 2 (0053):	4.52	0.012	1.43	1.39
ID = 3 (0054):	5.16	0.013	1.47	1.42

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0201)	Area (ha)=	2.20			
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)=	21.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	1.25
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	121.11	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	2.99	1.083	54.55	2.083	4.58	3.08	2.85
0.167	2.99	1.167	54.55	2.167	4.58	3.17	2.85
0.250	2.99	1.250	54.55	2.250	4.58	3.25	2.85
0.333	3.70	1.333	11.55	2.333	3.93	3.33	2.63
0.417	3.70	1.417	11.55	2.417	3.93	3.42	2.63
0.500	3.70	1.500	11.55	2.500	3.93	3.50	2.63
0.583	5.06	1.583	7.28	2.583	3.47	3.58	2.45
0.667	5.06	1.667	7.28	2.667	3.47	3.67	2.45
0.750	5.06	1.750	7.28	2.750	3.47	3.75	2.45
0.833	9.41	1.833	5.55	2.833	3.13	3.83	2.29
0.917	9.41	1.917	5.55	2.917	3.13	3.92	2.29
1.000	9.41	2.000	5.55	3.000	3.13	4.00	2.29

				TOTALS
Max.Eff.Inten.(mm/hr)=		54.55	38.22	
over (min)		5.00	20.00	
Storage Coeff. (min)=		3.65 (ii)	16.42 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.25	0.06	
PEAK FLOW	(cms)=	0.07	0.06	0.102 (iii)
TIME TO PEAK	(hrs)=	1.25	1.42	1.25
RUNOFF VOLUME	(mm)=	30.36	6.89	11.82
TOTAL RAINFALL	(mm)=	31.36	31.36	31.36
RUNOFF COEFFICIENT	=	0.97	0.22	0.38

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

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

```
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.1680   |   0.1590      0.5570
                         0.0440     0.2080   |   0.3520      0.7230
                         0.0990     0.3020   |   1.2920      0.9160
                         0.1320     0.4180   |   2.0620      1.0230

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0201)     2.200      0.102      1.25      11.82
   OUTFLOW: ID= 1 (  0301)     2.200      0.000      0.00       0.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.00
                  TIME SHIFT OF PEAK FLOW         (min)=-75.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0061
```

```
| ADD HYD  (  0055)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0301):     2.20   0.000     0.00     0.00
     + ID2= 2 (  0054):     5.16   0.013     1.47     1.42
       ================================================
       ID = 3 (  0055):     7.36   0.013     1.47     0.99
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  28.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      14.14        20.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      54.55        61.43
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.01 (ii)    7.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.003 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.25           1.25
     RUNOFF VOLUME    (mm)=      30.36         8.18          12.94
     TOTAL RAINFALL   (mm)=      31.36        31.36          31.36
     RUNOFF COEFFICIENT   =       0.97         0.26           0.41

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

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
```


(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
| ADD HYD  (  0056)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.03   0.003     1.25    12.94
     + ID2= 2 (  0055):     7.36   0.013     1.47     0.99
       ================================================
       ID = 3 (  0056):     7.39   0.014     1.43     1.04
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.78   Curve Number   (CN)= 66.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.87   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.19

     Unit Hyd Qpeak  (cms)=   0.157

     PEAK FLOW       (cms)=   0.009 (i)
     TIME TO PEAK    (hrs)=   1.333
     RUNOFF VOLUME    (mm)=   4.498
     TOTAL RAINFALL   (mm)=  31.358
     RUNOFF COEFFICIENT   =   0.143
```

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

```
| ADD HYD  (  0057)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.009     1.33     4.50
     + ID2= 2 (  0056):     7.39   0.014     1.43     1.04
       ================================================
       ID = 3 (  0057):     8.17   0.023     1.40     1.37
```

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
-------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.23         0.50
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.76        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      54.55        31.69
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.62 (ii)   13.80 (ii)
```

```
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.02          0.032 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.33           1.25
     RUNOFF VOLUME    (mm)=      30.36         6.19           9.33
     TOTAL RAINFALL   (mm)=      31.36        31.36          31.36
     RUNOFF COEFFICIENT   =       0.97         0.20           0.30

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

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

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

--------------------
| ADD HYD  (  0401)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0206):     0.73   0.032     1.25     9.33
     + ID2= 2 (  0057):     8.17   0.023     1.40     1.37
       ================================================
       ID = 3 (  0401):     8.90   0.051     1.37     2.02

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
================================================================================
======================


       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\e0528
f64-f610-4af9-b2cc-c17c96b2f2f3\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\e0528
f64-f610-4af9-b2cc-c17c96b2f2f3\scen
```



```
DATE: 10/09/2020                          TIME: 05:30:25

USER:


COMMENTS: _____________________________________________________________

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  ***********************************************
  ** SIMULATION : Run 03                       **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 482.877
| Ptotal= 41.81 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 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
  0.25    3.98 |  1.25   72.74 |  2.25    6.10 |  3.25    3.80
  0.50    4.93 |  1.50   15.40 |  2.50    5.24 |  3.50    3.51
  0.75    6.75 |  1.75    9.71 |  2.75    4.63 |  3.75    3.26
  1.00   12.55 |  2.00    7.41 |  3.00    4.17 |  4.00    3.06


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0203)|   Area    (ha)=   2.89   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

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

                        ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.033    3.98 | 1.033   72.74 | 2.033    6.10 |  3.03    3.80
 0.067    3.98 | 1.067   72.74 | 2.067    6.10 |  3.07    3.80
 0.100    3.98 | 1.100   72.74 | 2.100    6.10 |  3.10    3.80
 0.133    3.98 | 1.133   72.74 | 2.133    6.10 |  3.13    3.80
 0.167    3.98 | 1.167   72.74 | 2.167    6.10 |  3.17    3.80
 0.200    3.98 | 1.200   72.74 | 2.200    6.10 |  3.20    3.80
 0.233    3.98 | 1.233   72.74 | 2.233    6.10 |  3.23    3.80
 0.267    4.46 | 1.267   44.07 | 2.267    5.67 |  3.27    3.66
 0.300    4.93 | 1.300   15.40 | 2.300    5.24 |  3.30    3.51
 0.333    4.93 | 1.333   15.40 | 2.333    5.24 |  3.33    3.51
 0.367    4.93 | 1.367   15.40 | 2.367    5.24 |  3.37    3.51
 0.400    4.93 | 1.400   15.40 | 2.400    5.24 |  3.40    3.51
 0.433    4.93 | 1.433   15.40 | 2.433    5.24 |  3.43    3.51
 0.467    4.93 | 1.467   15.40 | 2.467    5.24 |  3.47    3.51
 0.500    4.93 | 1.500   15.40 | 2.500    5.24 |  3.50    3.51
```

0.533	6.75	1.533	9.71	2.533	4.63	3.53	3.26
0.567	6.75	1.567	9.71	2.567	4.63	3.57	3.26
0.600	6.75	1.600	9.71	2.600	4.63	3.60	3.26
0.633	6.75	1.633	9.71	2.633	4.63	3.63	3.26
0.667	6.75	1.667	9.71	2.667	4.63	3.67	3.26
0.700	6.75	1.700	9.71	2.700	4.63	3.70	3.26
0.733	6.75	1.733	9.71	2.733	4.63	3.73	3.26
0.767	9.65	1.767	8.56	2.767	4.40	3.77	3.16
0.800	12.55	1.800	7.41	2.800	4.17	3.80	3.06
0.833	12.55	1.833	7.41	2.833	4.17	3.83	3.06
0.867	12.55	1.867	7.41	2.867	4.17	3.87	3.06
0.900	12.55	1.900	7.41	2.900	4.17	3.90	3.06
0.933	12.55	1.933	7.41	2.933	4.17	3.93	3.06
0.967	12.55	1.967	7.41	2.967	4.17	3.97	3.06
1.000	12.55	2.000	7.41	3.000	4.17	4.00	3.06

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 1.400
RUNOFF VOLUME (mm)= 2.909
TOTAL RAINFALL (mm)= 41.810
RUNOFF COEFFICIENT = 0.070

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

CALIB					
NASHYD (0202)	Area	(ha)=	1.63	Curve Number (CN)=	44.1
ID= 1 DT= 2.0 min	Ia	(mm)=	9.62	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.17		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 1.400
RUNOFF VOLUME (mm)= 2.928
TOTAL RAINFALL (mm)= 41.810
RUNOFF COEFFICIENT = 0.070

(i) 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 (0202):	1.63	0.011	1.40	2.93
+ ID2= 2 (0203):	2.89	0.019	1.40	2.91
ID = 3 (0053):	4.52	0.030	1.40	2.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0204)	Area	(ha)=	0.64	Curve Number (CN)=	48.1
ID= 1 DT= 2.0 min	Ia	(mm)=	9.20	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.33		

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.004 (i)
TIME TO PEAK (hrs)= 1.667
RUNOFF VOLUME (mm)= 3.464
TOTAL RAINFALL (mm)= 41.810
RUNOFF COEFFICIENT = 0.083

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

ADD HYD (0054)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0204):	0.64	0.004	1.67	3.46
+ ID2= 2 (0053):	4.52	0.030	1.40	2.92
ID = 3 (0054):	5.16	0.033	1.40	2.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0201)	Area	(ha)=	2.20		
ID= 1 DT= 5.0 min	Total Imp(%)=		43.00	Dir. Conn.(%)=	21.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.95	1.25
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	1.00
Length (m)=	121.11	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	3.98	1.083	72.74	2.083	6.10	3.08	3.80
0.167	3.98	1.167	72.74	2.167	6.10	3.17	3.80
0.250	3.98	1.250	72.74	2.250	6.10	3.25	3.80
0.333	4.93	1.333	15.40	2.333	5.24	3.33	3.51
0.417	4.93	1.417	15.40	2.417	5.24	3.42	3.51
0.500	4.93	1.500	15.40	2.500	5.24	3.50	3.51
0.583	6.75	1.583	9.71	2.583	4.63	3.58	3.26
0.667	6.75	1.667	9.71	2.667	4.63	3.67	3.26
0.750	6.75	1.750	9.71	2.750	4.63	3.75	3.26
0.833	12.55	1.833	7.41	2.833	4.17	3.83	3.06
0.917	12.55	1.917	7.41	2.917	4.17	3.92	3.06
1.000	12.55	2.000	7.41	3.000	4.17	4.00	3.06

			TOTALS
Max.Eff.Inten.(mm/hr)=	72.74	74.24	
over (min)	5.00	15.00	
Storage Coeff. (min)=	3.25 (ii)	13.04 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	0.27	0.08	
PEAK FLOW (cms)=	0.09	0.13	0.197 (iii)
TIME TO PEAK (hrs)=	1.25	1.33	1.25

```
     RUNOFF VOLUME    (mm)=      40.81        12.20          18.21
     TOTAL RAINFALL   (mm)=      41.81        41.81          41.81
     RUNOFF COEFFICIENT   =       0.98         0.29           0.44

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

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

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.1680   |   0.1590      0.5570
                          0.0440     0.2080   |   0.3520      0.7230
                          0.0990     0.3020   |   1.2920      0.9160
                          0.1320     0.4180   |   2.0620      1.0230

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0201)     2.200      0.197      1.25       18.21
   OUTFLOW: ID= 1 (  0301)     2.200      0.000      0.00        0.00

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.00
                 TIME SHIFT OF PEAK FLOW         (min)=-75.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.0096

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

--------------------
| ADD HYD  (  0055)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0301):     2.20   0.000     0.00     0.00
     + ID2= 2 (  0054):     5.16   0.033     1.40     2.98
       ================================================
       ID = 3 (  0055):     7.36   0.033     1.40     2.09

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  28.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      14.14        20.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      72.74        94.41
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       0.90 (ii)    6.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
```



```
     Unit Hyd. peak  (cms)=       0.34         0.14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.25           1.25
     RUNOFF VOLUME    (mm)=      40.81        14.53          20.64
     TOTAL RAINFALL   (mm)=      41.81        41.81          41.81
     RUNOFF COEFFICIENT   =       0.98         0.35           0.49

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

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

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

--------------------
| ADD HYD  (  0056)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.03   0.004     1.25    20.64
     + ID2= 2 (  0055):     7.36   0.033     1.40     2.09
       ================================================
       ID = 3 (  0056):     7.39   0.034     1.40     2.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.78   Curve Number   (CN)= 66.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.87   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.19

     Unit Hyd Qpeak  (cms)=   0.157

     PEAK FLOW       (cms)=   0.017 (i)
     TIME TO PEAK    (hrs)=   1.333
     RUNOFF VOLUME    (mm)=   8.198
     TOTAL RAINFALL   (mm)=  41.810
     RUNOFF COEFFICIENT   =   0.196

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

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

--------------------
| ADD HYD  (  0057)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.017     1.33     8.20
     + ID2= 2 (  0056):     7.39   0.034     1.40     2.17
       ================================================
       ID = 3 (  0057):     8.17   0.051     1.40     2.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
```

```
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.23         0.50
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.76        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      72.74        65.64
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.34 (ii)   10.69 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.05          0.059 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.33           1.25
     RUNOFF VOLUME    (mm)=      40.81        11.29          15.12
     TOTAL RAINFALL   (mm)=      41.81        41.81          41.81
     RUNOFF COEFFICIENT   =       0.98         0.27           0.36

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

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

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

--------------------
| ADD HYD  (  0401)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0206):     0.73   0.059     1.25    15.12
      + ID2= 2 (  0057):     8.17   0.051     1.40     2.74
        ==========================================================
        ID = 3 (  0401):     8.90   0.106     1.33     3.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

-------------------------------------------------------------------------------
===============================================================================
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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

Output filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\b69a1566-71c7-40a3-81c1-16e605128619\scen
Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\b69a1566-71c7-40a3-81c1-16e605128619\scen

DATE: 10/09/2020 TIME: 05:30:25

USER:

COMMENTS: _____

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-------------------------------------------------------------------------------
------------------------
  ***********************************************
  ** SIMULATION : Run 04                       **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 563.357
| Ptotal= 48.78 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 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
              0.25    4.65 |  1.25   84.86 |  2.25    7.12 |  3.25    4.44
              0.50    5.75 |  1.50   17.97 |  2.50    6.12 |  3.50    4.09
              0.75    7.87 |  1.75   11.33 |  2.75    5.40 |  3.75    3.81
              1.00   14.64 |  2.00    8.64 |  3.00    4.86 |  4.00    3.56


-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0203)|   Area    (ha)=   2.89   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

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


                          ---- TRANSFORMED HYETOGRAPH ----
              TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
               hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
             0.033    4.65 | 1.033   84.86 | 2.033    7.12 |  3.03    4.44
             0.067    4.65 | 1.067   84.86 | 2.067    7.12 |  3.07    4.44
```

0.100	4.65	1.100	84.86	2.100	7.12	3.10	4.44
0.133	4.65	1.133	84.86	2.133	7.12	3.13	4.44
0.167	4.65	1.167	84.86	2.167	7.12	3.17	4.44
0.200	4.65	1.200	84.86	2.200	7.12	3.20	4.44
0.233	4.65	1.233	84.86	2.233	7.12	3.23	4.44
0.267	5.20	1.267	51.41	2.267	6.62	3.27	4.26
0.300	5.75	1.300	17.97	2.300	6.12	3.30	4.09
0.333	5.75	1.333	17.97	2.333	6.12	3.33	4.09
0.367	5.75	1.367	17.97	2.367	6.12	3.37	4.09
0.400	5.75	1.400	17.97	2.400	6.12	3.40	4.09
0.433	5.75	1.433	17.97	2.433	6.12	3.43	4.09
0.467	5.75	1.467	17.97	2.467	6.12	3.47	4.09
0.500	5.75	1.500	17.97	2.500	6.12	3.50	4.09
0.533	7.87	1.533	11.33	2.533	5.40	3.53	3.81
0.567	7.87	1.567	11.33	2.567	5.40	3.57	3.81
0.600	7.87	1.600	11.33	2.600	5.40	3.60	3.81
0.633	7.87	1.633	11.33	2.633	5.40	3.63	3.81
0.667	7.87	1.667	11.33	2.667	5.40	3.67	3.81
0.700	7.87	1.700	11.33	2.700	5.40	3.70	3.81
0.733	7.87	1.733	11.33	2.733	5.40	3.73	3.81
0.767	11.26	1.767	9.99	2.767	5.13	3.77	3.69
0.800	14.64	1.800	8.64	2.800	4.86	3.80	3.56
0.833	14.64	1.833	8.64	2.833	4.86	3.83	3.56
0.867	14.64	1.867	8.64	2.867	4.86	3.87	3.56
0.900	14.64	1.900	8.64	2.900	4.86	3.90	3.56
0.933	14.64	1.933	8.64	2.933	4.86	3.93	3.56
0.967	14.64	1.967	8.64	2.967	4.86	3.97	3.56
1.000	14.64	2.000	8.64	3.000	4.86	4.00	3.56

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.029 (i)
TIME TO PEAK (hrs)= 1.400
RUNOFF VOLUME (mm)= 4.196
TOTAL RAINFALL (mm)= 48.779
RUNOFF COEFFICIENT = 0.086

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

CALIB			
NASHYD (0202)	Area (ha)= 1.63	Curve Number (CN)= 44.1	
ID= 1 DT= 2.0 min	Ia (mm)= 9.62	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.17		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.017 (i)
TIME TO PEAK (hrs)= 1.367
RUNOFF VOLUME (mm)= 4.249
TOTAL RAINFALL (mm)= 48.779
RUNOFF COEFFICIENT = 0.087

(i) 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 (0202):	1.63	0.017	1.37	4.25

+ ID2= 2 (0203):	2.89	0.029	1.40	4.20
ID = 3 (0053):	4.52	0.046	1.40	4.22

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0204)	Area (ha)= 0.64	Curve Number (CN)= 48.1	
ID= 1 DT= 2.0 min	Ia (mm)= 9.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.33		

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.005 (i)
TIME TO PEAK (hrs)= 1.633
RUNOFF VOLUME (mm)= 4.990
TOTAL RAINFALL (mm)= 48.779
RUNOFF COEFFICIENT = 0.102

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

ADD HYD (0054)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0204):	0.64	0.005	1.63	4.99
+ ID2= 2 (0053):	4.52	0.046	1.40	4.22
ID = 3 (0054):	5.16	0.050	1.40	4.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0201)	Area (ha)= 2.20		
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00	Dir. Conn.(%)= 21.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.95	1.25
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	1.00
Length (m)=	121.11	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	4.65	1.083	84.86	2.083	7.12	3.08	4.44
0.167	4.65	1.167	84.86	2.167	7.12	3.17	4.44
0.250	4.65	1.250	84.86	2.250	7.12	3.25	4.44
0.333	5.75	1.333	17.97	2.333	6.12	3.33	4.09
0.417	5.75	1.417	17.97	2.417	6.12	3.42	4.09
0.500	5.75	1.500	17.97	2.500	6.12	3.50	4.09
0.583	7.87	1.583	11.33	2.583	5.40	3.58	3.81
0.667	7.87	1.667	11.33	2.667	5.40	3.67	3.81

0.750	7.87	1.750	11.33	2.750	5.40	3.75	3.81
0.833	14.64	1.833	8.64	2.833	4.86	3.83	3.56
0.917	14.64	1.917	8.64	2.917	4.86	3.92	3.56
1.000	14.64	2.000	8.64	3.000	4.86	4.00	3.56

Max.Eff.Inten.(mm/hr)=		84.86	92.85	
over (min)		5.00	15.00	
Storage Coeff. (min)=		3.06 (ii)	12.01 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.27	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.11	0.18	0.252 (iii)
TIME TO PEAK	(hrs)=	1.25	1.33	1.25
RUNOFF VOLUME	(mm)=	47.78	16.73	23.25
TOTAL RAINFALL	(mm)=	48.78	48.78	48.78
RUNOFF COEFFICIENT	=	0.98	0.34	0.48

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

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

RESERVOIR(0301)| IN= 2---> OUT= 1 | DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.1680	0.1590	0.5570
	0.0440	0.2080	0.3520	0.7230
	0.0990	0.3020	1.2920	0.9160
	0.1320	0.4180	2.0620	1.0230

		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)		2.200	0.252	1.25	23.25
OUTFLOW: ID= 1 (0301)		2.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=-75.00
MAXIMUM STORAGE USED (ha.m.)= 0.0118

ADD HYD (0055)| 1 + 2 = 3 |	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0301):	2.20	0.000	0.00	0.00
+ ID2= 2 (0054):	5.16	0.050	1.40	4.31
ID = 3 (0055):	7.36	0.050	1.40	3.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB | STANDHYD (0205)|			
Area	(ha)=	0.03	

|ID= 1 DT= 5.0 min | Total Imp(%)= 56.00 Dir. Conn.(%)= 28.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.02	0.01
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	14.14	20.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)=		84.86	116.32	
over (min)		5.00	10.00	
Storage Coeff. (min)=		0.84 (ii)	6.24 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.00	0.005 (iii)
TIME TO PEAK	(hrs)=	1.25	1.25	1.25
RUNOFF VOLUME	(mm)=	47.78	20.23	27.14
TOTAL RAINFALL	(mm)=	48.78	48.78	48.78
RUNOFF COEFFICIENT	=	0.98	0.41	0.56

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

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

ADD HYD (0056)| 1 + 2 = 3 |	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0205):	0.03	0.005	1.25	27.14
+ ID2= 2 (0055):	7.36	0.050	1.40	3.02
ID = 3 (0056):	7.39	0.052	1.40	3.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB | NASHYD (0207)| ID= 1 DT= 5.0 min |				
Area	(ha)=	0.78	Curve Number (CN)=	66.3
Ia	(mm)=	4.87	# of Linear Res.(N)=	3.00
U.H. Tp(hrs)=		0.19		

Unit Hyd Qpeak (cms)= 0.157

PEAK FLOW	(cms)=	0.023 (i)
TIME TO PEAK	(hrs)=	1.333
RUNOFF VOLUME	(mm)=	11.117
TOTAL RAINFALL	(mm)=	48.779
RUNOFF COEFFICIENT	=	0.228

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

```
| ADD HYD  (  0057)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.023     1.33    11.12
     + ID2= 2 (  0056):     7.39   0.052     1.40     3.12
       ================================================
       ID = 3 (  0057):     8.17   0.075     1.37     3.88

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
-------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.23         0.50
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.76        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      84.86        82.84
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.20 (ii)    9.81 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.30         0.11
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.07          0.096 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.25           1.25
     RUNOFF VOLUME    (mm)=      47.78        15.35          19.56
     TOTAL RAINFALL   (mm)=      48.78        48.78          48.78
     RUNOFF COEFFICIENT   =       0.98         0.31           0.40

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

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

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-------------------
| ADD HYD  (  0401)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0206):     0.73   0.096     1.25    19.56
     + ID2= 2 (  0057):     8.17   0.075     1.37     3.88
       ================================================
       ID = 3 (  0401):     8.90   0.152     1.30     5.17

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\de882
b0a-435f-40f6-bc51-5789219b519e\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\de882
b0a-435f-40f6-bc51-5789219b519e\scen


DATE: 10/09/2020                          TIME: 05:30:25

USER:


COMMENTS: _____________________________________________________________

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  ***********************************************
  ** SIMULATION : Run 05                       **
  ***********************************************

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| CHICAGO STORM    |    IDF curve parameters: A= 664.831
| Ptotal= 57.56 mm |                          B=   0.000
-------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 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
              0.25    5.48 |  1.25  100.14 |  2.25    8.40 |  3.25    5.24
              0.50    6.79 |  1.50   21.21 |  2.50    7.22 |  3.50    4.83
              0.75    9.29 |  1.75   13.37 |  2.75    6.38 |  3.75    4.49
              1.00   17.28 |  2.00   10.20 |  3.00    5.74 |  4.00    4.21


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| CALIB             |
| NASHYD   (  0203)|   Area    (ha)=   2.89   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	5.48	1.033	100.14	2.033	8.40	3.03	5.24
0.067	5.48	1.067	100.14	2.067	8.40	3.07	5.24
0.100	5.48	1.100	100.14	2.100	8.40	3.10	5.24
0.133	5.48	1.133	100.14	2.133	8.40	3.13	5.24
0.167	5.48	1.167	100.14	2.167	8.40	3.17	5.24
0.200	5.48	1.200	100.14	2.200	8.40	3.20	5.24
0.233	5.48	1.233	100.14	2.233	8.40	3.23	5.24
0.267	6.14	1.267	60.67	2.267	7.81	3.27	5.03
0.300	6.79	1.300	21.21	2.300	7.22	3.30	4.83
0.333	6.79	1.333	21.21	2.333	7.22	3.33	4.83
0.367	6.79	1.367	21.21	2.367	7.22	3.37	4.83
0.400	6.79	1.400	21.21	2.400	7.22	3.40	4.83
0.433	6.79	1.433	21.21	2.433	7.22	3.43	4.83
0.467	6.79	1.467	21.21	2.467	7.22	3.47	4.83
0.500	6.79	1.500	21.21	2.500	7.22	3.50	4.83
0.533	9.29	1.533	13.37	2.533	6.38	3.53	4.49
0.567	9.29	1.567	13.37	2.567	6.38	3.57	4.49
0.600	9.29	1.600	13.37	2.600	6.38	3.60	4.49
0.633	9.29	1.633	13.37	2.633	6.38	3.63	4.49
0.667	9.29	1.667	13.37	2.667	6.38	3.67	4.49
0.700	9.29	1.700	13.37	2.700	6.38	3.70	4.49
0.733	9.29	1.733	13.37	2.733	6.38	3.73	4.49
0.767	13.28	1.767	11.78	2.767	6.06	3.77	4.35
0.800	17.28	1.800	10.20	2.800	5.74	3.80	4.21
0.833	17.28	1.833	10.20	2.833	5.74	3.83	4.21
0.867	17.28	1.867	10.20	2.867	5.74	3.87	4.21
0.900	17.28	1.900	10.20	2.900	5.74	3.90	4.21
0.933	17.28	1.933	10.20	2.933	5.74	3.93	4.21
0.967	17.28	1.967	10.20	2.967	5.74	3.97	4.21
1.000	17.28	2.000	10.20	3.000	5.74	4.00	4.21

```
    Unit Hyd Qpeak  (cms)=   0.613

    PEAK FLOW       (cms)=   0.044 (i)
    TIME TO PEAK    (hrs)=   1.400
    RUNOFF VOLUME    (mm)=   6.111
    TOTAL RAINFALL   (mm)=  57.565
    RUNOFF COEFFICIENT   =   0.106

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

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--------------------
| CALIB             |
| NASHYD   (  0202)|   Area    (ha)=   1.63   Curve Number   (CN)= 44.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.62   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

    Unit Hyd Qpeak  (cms)=   0.366

    PEAK FLOW       (cms)=   0.026 (i)
    TIME TO PEAK    (hrs)=   1.367
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    RUNOFF VOLUME    (mm)=   6.219
    TOTAL RAINFALL   (mm)=  57.565
    RUNOFF COEFFICIENT   =   0.108

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

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--------------------
| ADD HYD  (  0053)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     1.63   0.026     1.37     6.22
     + ID2= 2 (  0203):     2.89   0.044     1.40     6.11
       ================================================
       ID = 3 (  0053):     4.52   0.070     1.37     6.15

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  0204)|   Area    (ha)=   0.64   Curve Number   (CN)= 48.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.33

    Unit Hyd Qpeak  (cms)=   0.074

    PEAK FLOW       (cms)=   0.008 (i)
    TIME TO PEAK    (hrs)=   1.633
    RUNOFF VOLUME    (mm)=   7.249
    TOTAL RAINFALL   (mm)=  57.565
    RUNOFF COEFFICIENT   =   0.126

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

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--------------------
| ADD HYD  (  0054)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0204):     0.64   0.008     1.63     7.25
     + ID2= 2 (  0053):     4.52   0.070     1.37     6.15
       ================================================
       ID = 3 (  0054):     5.16   0.076     1.40     6.29

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0201)|   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  21.00
--------------------

                            IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       0.95         1.25
    Dep. Storage     (mm)=       1.00         1.50
    Average Slope     (%)=       1.00         1.00
    Length            (m)=     121.11        40.00
    Mannings n           =      0.013        0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	5.48	1.083	100.14	2.083	8.40	3.08	5.24
0.167	5.48	1.167	100.14	2.167	8.40	3.17	5.24
0.250	5.48	1.250	100.14	2.250	8.40	3.25	5.24
0.333	6.79	1.333	21.21	2.333	7.22	3.33	4.83
0.417	6.79	1.417	21.21	2.417	7.22	3.42	4.83
0.500	6.79	1.500	21.21	2.500	7.22	3.50	4.83
0.583	9.29	1.583	13.37	2.583	6.38	3.58	4.49
0.667	9.29	1.667	13.37	2.667	6.38	3.67	4.49
0.750	9.29	1.750	13.37	2.750	6.38	3.75	4.49
0.833	17.28	1.833	10.20	2.833	5.74	3.83	4.21
0.917	17.28	1.917	10.20	2.917	5.74	3.92	4.21
1.000	17.28	2.000	10.20	3.000	5.74	4.00	4.21

Max.Eff.Inten.(mm/hr)=		100.14	116.25	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.86 (ii)	11.05 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.28	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.13	0.24	0.323 (iii)
TIME TO PEAK	(hrs)=	1.25	1.33	1.25
RUNOFF VOLUME	(mm)=	56.56	23.86	30.73
TOTAL RAINFALL	(mm)=	57.56	57.56	57.56
RUNOFF COEFFICIENT	=	0.98	0.41	0.53

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

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

RESERVOIR(0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.1680	0.1590	0.5570
	0.0440	0.2080	0.3520	0.7230
	0.0990	0.3020	1.2920	0.9160
	0.1320	0.4180	2.0620	1.0230

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)	2.200	0.323	1.25	30.73
OUTFLOW: ID= 1 (0301)	2.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=-75.00
MAXIMUM STORAGE USED (ha.m.)= 0.0146

ADD HYD (0055)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0301):	2.20	0.000	0.00	0.00
+ ID2= 2 (0054):	5.16	0.076	1.40	6.29
ID = 3 (0055):	7.36	0.076	1.40	4.41

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0205)	Area (ha)= 0.03		
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00	Dir. Conn.(%)= 28.00	
		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.02	0.01
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	14.14	20.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)=		100.14	143.70	
over (min)		5.00	10.00	
Storage Coeff. (min)=		0.79 (ii)	5.75 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.00	0.007 (iii)
TIME TO PEAK	(hrs)=	1.25	1.25	1.25
RUNOFF VOLUME	(mm)=	56.56	28.04	35.73
TOTAL RAINFALL	(mm)=	57.56	57.56	57.56
RUNOFF COEFFICIENT	=	0.98	0.49	0.62

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

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

ADD HYD (0056)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0205):	0.03	0.007	1.25	35.73
+ ID2= 2 (0055):	7.36	0.076	1.40	4.41
ID = 3 (0056):	7.39	0.079	1.37	4.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0207)	Area (ha)= 0.78	Curve Number (CN)= 66.3	
ID= 1 DT= 5.0 min	Ia (mm)= 4.87	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.19		

```
     Unit Hyd Qpeak  (cms)=   0.157

     PEAK FLOW       (cms)=   0.033 (i)
     TIME TO PEAK    (hrs)=   1.333
     RUNOFF VOLUME    (mm)=  15.238
     TOTAL RAINFALL   (mm)=  57.565
     RUNOFF COEFFICIENT   =   0.265

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

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| ADD HYD  (  0057)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.033     1.33    15.24
     + ID2= 2 (  0056):     7.39   0.079     1.37     4.53
       ================================================
       ID = 3 (  0057):     8.17   0.111     1.37     5.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.23         0.50
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.76        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     100.14       104.47
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.06 (ii)    8.99 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.31         0.12
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.10          0.125 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.25           1.25
     RUNOFF VOLUME    (mm)=      56.56        21.84          26.35
     TOTAL RAINFALL   (mm)=      57.56        57.56          57.56
     RUNOFF COEFFICIENT   =       0.98         0.38           0.46

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

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

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| ADD HYD  (  0401)|
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|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0206):     0.73   0.125     1.25     26.35
     + ID2= 2 (  0057):     8.17   0.111     1.37      5.56
       ================================================
       ID = 3 (  0401):     8.90   0.212     1.30      7.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================
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      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
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e6d-ae35-4491-96bb-d4fad8984bd1\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\9aeee
e6d-ae35-4491-96bb-d4fad8984bd1\scen


DATE: 10/09/2020                          TIME: 05:30:25

USER:


COMMENTS: _____

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  ***********************************************
  ** SIMULATION : Run 06                       **
  ***********************************************

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| CHICAGO STORM    |    IDF curve parameters: A= 738.312
| Ptotal= 63.93 mm |                          B=   0.000
--------------------                          C=   0.699
                         used in:   INTENSITY =  A / (t + B)^C

                         Duration of storm  =  4.00 hrs
```

Storm time step = 15.00 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
0.25	6.09	1.25	111.21	2.25	9.33	3.25	5.82
0.50	7.54	1.50	23.55	2.50	8.02	3.50	5.36
0.75	10.32	1.75	14.85	2.75	7.08	3.75	4.99
1.00	19.19	2.00	11.32	3.00	6.37	4.00	4.67

CALIB NASHYD (0203) ID= 1 DT= 2.0 min			
	Area	(ha)= 2.89	Curve Number (CN)= 42.9
	Ia	(mm)= 8.98	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.18	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	6.09	1.033	111.21	2.033	9.33	3.03	5.82
0.067	6.09	1.067	111.21	2.067	9.33	3.07	5.82
0.100	6.09	1.100	111.21	2.100	9.33	3.10	5.82
0.133	6.09	1.133	111.21	2.133	9.33	3.13	5.82
0.167	6.09	1.167	111.21	2.167	9.33	3.17	5.82
0.200	6.09	1.200	111.21	2.200	9.33	3.20	5.82
0.233	6.09	1.233	111.21	2.233	9.33	3.23	5.82
0.267	6.82	1.267	67.38	2.267	8.67	3.27	5.59
0.300	7.54	1.300	23.55	2.300	8.02	3.30	5.36
0.333	7.54	1.333	23.55	2.333	8.02	3.33	5.36
0.367	7.54	1.367	23.55	2.367	8.02	3.37	5.36
0.400	7.54	1.400	23.55	2.400	8.02	3.40	5.36
0.433	7.54	1.433	23.55	2.433	8.02	3.43	5.36
0.467	7.54	1.467	23.55	2.467	8.02	3.47	5.36
0.500	7.54	1.500	23.55	2.500	8.02	3.50	5.36
0.533	10.32	1.533	14.85	2.533	7.08	3.53	4.99
0.567	10.32	1.567	14.85	2.567	7.08	3.57	4.99
0.600	10.32	1.600	14.85	2.600	7.08	3.60	4.99
0.633	10.32	1.633	14.85	2.633	7.08	3.63	4.99
0.667	10.32	1.667	14.85	2.667	7.08	3.67	4.99
0.700	10.32	1.700	14.85	2.700	7.08	3.70	4.99
0.733	10.32	1.733	14.85	2.733	7.08	3.73	4.99
0.767	14.75	1.767	13.09	2.767	6.73	3.77	4.83
0.800	19.19	1.800	11.32	2.800	6.37	3.80	4.67
0.833	19.19	1.833	11.32	2.833	6.37	3.83	4.67
0.867	19.19	1.867	11.32	2.867	6.37	3.87	4.67
0.900	19.19	1.900	11.32	2.900	6.37	3.90	4.67
0.933	19.19	1.933	11.32	2.933	6.37	3.93	4.67
0.967	19.19	1.967	11.32	2.967	6.37	3.97	4.67
1.000	19.19	2.000	11.32	3.000	6.37	4.00	4.67

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.057 (i)
TIME TO PEAK (hrs)= 1.367
RUNOFF VOLUME (mm)= 7.689
TOTAL RAINFALL (mm)= 63.927
RUNOFF COEFFICIENT = 0.120

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

CALIB NASHYD (0202) ID= 1 DT= 2.0 min			
	Area	(ha)= 1.63	Curve Number (CN)= 44.1
	Ia	(mm)= 9.62	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.17	

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.034 (i)
TIME TO PEAK (hrs)= 1.367
RUNOFF VOLUME (mm)= 7.844
TOTAL RAINFALL (mm)= 63.927
RUNOFF COEFFICIENT = 0.123

(i) 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 (0202):	1.63	0.034	1.37	7.84
+ ID2= 2 (0203):	2.89	0.057	1.37	7.69
ID = 3 (0053):	4.52	0.090	1.37	7.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB NASHYD (0204) ID= 1 DT= 2.0 min			
	Area	(ha)= 0.64	Curve Number (CN)= 48.1
	Ia	(mm)= 9.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.33	

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.010 (i)
TIME TO PEAK (hrs)= 1.600
RUNOFF VOLUME (mm)= 9.102
TOTAL RAINFALL (mm)= 63.927
RUNOFF COEFFICIENT = 0.142

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

ADD HYD (0054) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0204):	0.64	0.010	1.60	9.10
+ ID2= 2 (0053):	4.52	0.090	1.37	7.75
ID = 3 (0054):	5.16	0.098	1.40	7.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  21.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.95         1.25
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n           =      0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
               TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
              0.083    6.09 | 1.083  111.21 | 2.083    9.33 |  3.08    5.82
              0.167    6.09 | 1.167  111.21 | 2.167    9.33 |  3.17    5.82
              0.250    6.09 | 1.250  111.21 | 2.250    9.33 |  3.25    5.82
              0.333    7.54 | 1.333   23.55 | 2.333    8.02 |  3.33    5.36
              0.417    7.54 | 1.417   23.55 | 2.417    8.02 |  3.42    5.36
              0.500    7.54 | 1.500   23.55 | 2.500    8.02 |  3.50    5.36
              0.583   10.32 | 1.583   14.85 | 2.583    7.08 |  3.58    4.99
              0.667   10.32 | 1.667   14.85 | 2.667    7.08 |  3.67    4.99
              0.750   10.32 | 1.750   14.85 | 2.750    7.08 |  3.75    4.99
              0.833   19.19 | 1.833   11.32 | 2.833    6.37 |  3.83    4.67
              0.917   19.19 | 1.917   11.32 | 2.917    6.37 |  3.92    4.67
              1.000   19.19 | 2.000   11.32 | 3.000    6.37 |  4.00    4.67

     Max.Eff.Inten.(mm/hr)=     111.21       133.14
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.75 (ii)   10.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.14         0.28          0.376 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.33           1.25
     RUNOFF VOLUME    (mm)=      62.93        29.44          36.47
     TOTAL RAINFALL   (mm)=      63.93        63.93          63.93
     RUNOFF COEFFICIENT   =       0.98         0.46           0.57

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

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

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                         0.0000     0.1680   |   0.1590     0.5570
                         0.0440     0.2080   |   0.3520     0.7230
                         0.0990     0.3020   |   1.2920     0.9160
                         0.1320     0.4180   |   2.0620     1.0230
```



```
                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0201)      2.200     0.376      1.25       36.47
   OUTFLOW: ID= 1 (  0301)      2.200     0.000      0.00        0.00

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.00
                TIME SHIFT OF PEAK FLOW         (min)=-75.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0167

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--------------------
| ADD HYD  (  0055)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0301):      2.20   0.000     0.00     0.00
     + ID2= 2 (  0054):      5.16   0.098     1.40     7.91
       ================================================
       ID = 3 (  0055):      7.36   0.098     1.40     5.55

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  28.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      14.14        20.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     111.21       162.90
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.76 (ii)    5.47 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.01          0.008 (iii)
     TIME TO PEAK    (hrs)=       1.25         1.25           1.25
     RUNOFF VOLUME    (mm)=      62.93        34.06          42.14
     TOTAL RAINFALL   (mm)=      63.93        63.93          63.93
     RUNOFF COEFFICIENT   =       0.98         0.53           0.66

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

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

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--------------------
| ADD HYD  (  0056)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):      0.03   0.008     1.25    42.14
```

```
      + ID2= 2 (  0055):     7.36   0.098     1.40     5.55
        ========================================================
        ID = 3 (  0056):     7.39   0.102     1.37     5.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.78   Curve Number   (CN)= 66.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.87   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.19

     Unit Hyd Qpeak  (cms)=   0.157

     PEAK FLOW       (cms)=   0.041 (i)
     TIME TO PEAK    (hrs)=   1.333
     RUNOFF VOLUME    (mm)=  18.492
     TOTAL RAINFALL   (mm)=  63.927
     RUNOFF COEFFICIENT   =   0.289

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

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--------------------
| ADD HYD  (  0057)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0207):     0.78   0.041     1.33    18.49
      + ID2= 2 (  0056):     7.39   0.102     1.37     5.70
        ========================================================
        ID = 3 (  0057):     8.17   0.142     1.37     6.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
--------------------

                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.23         0.50
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     69.76        40.00
     Mannings n           =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    111.21       120.10
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      1.97 (ii)    8.53 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=      0.31         0.12
                                                        *TOTALS*
     PEAK FLOW       (cms)=      0.03         0.12          0.146 (iii)
     TIME TO PEAK    (hrs)=      1.25         1.25           1.25
     RUNOFF VOLUME    (mm)=     62.93        27.21          31.85
     TOTAL RAINFALL   (mm)=     63.93        63.93          63.93
     RUNOFF COEFFICIENT   =      0.98         0.43           0.50

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

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

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--------------------
| ADD HYD  (  0401)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0206):     0.73   0.146     1.25    31.85
      + ID2= 2 (  0057):     8.17   0.142     1.37     6.92
        ========================================================
        ID = 3 (  0401):     8.90   0.259     1.30     8.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\7b8f4
fbf-99ea-42f2-b2a9-8c05dc2d42f9\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\7b8f4
fbf-99ea-42f2-b2a9-8c05dc2d42f9\scen


DATE: 10/09/2020                          TIME: 05:30:25

USER:


COMMENTS: _____________________________________________________________
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  ***********************************************
  ** SIMULATION : Run 07                       **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 811.794
| Ptotal= 70.29 mm |                          B=   0.000
--------------------                          C=   0.699
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  =  4.00 hrs
                       Storm time step    = 15.00 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
                0.25    6.69 |  1.25  122.28 |  2.25   10.26 |  3.25    6.39
                0.50    8.29 |  1.50   25.89 |  2.50    8.82 |  3.50    5.90
                0.75   11.34 |  1.75   16.33 |  2.75    7.79 |  3.75    5.48
                1.00   21.10 |  2.00   12.45 |  3.00    7.01 |  4.00    5.14


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| CALIB            |
| NASHYD   (  0203)|   Area    (ha)=   2.89   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

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


                     ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    6.69 | 1.033  122.28 | 2.033   10.26 |  3.03    6.39
               0.067    6.69 | 1.067  122.28 | 2.067   10.26 |  3.07    6.39
               0.100    6.69 | 1.100  122.28 | 2.100   10.26 |  3.10    6.39
               0.133    6.69 | 1.133  122.28 | 2.133   10.26 |  3.13    6.39
               0.167    6.69 | 1.167  122.28 | 2.167   10.26 |  3.17    6.39
               0.200    6.69 | 1.200  122.28 | 2.200   10.26 |  3.20    6.39
               0.233    6.69 | 1.233  122.28 | 2.233   10.26 |  3.23    6.39
               0.267    7.49 | 1.267   74.09 | 2.267    9.54 |  3.27    6.15
               0.300    8.29 | 1.300   25.89 | 2.300    8.82 |  3.30    5.90
               0.333    8.29 | 1.333   25.89 | 2.333    8.82 |  3.33    5.90
               0.367    8.29 | 1.367   25.89 | 2.367    8.82 |  3.37    5.90
               0.400    8.29 | 1.400   25.89 | 2.400    8.82 |  3.40    5.90
               0.433    8.29 | 1.433   25.89 | 2.433    8.82 |  3.43    5.90
               0.467    8.29 | 1.467   25.89 | 2.467    8.82 |  3.47    5.90
               0.500    8.29 | 1.500   25.89 | 2.500    8.82 |  3.50    5.90
               0.533   11.34 | 1.533   16.33 | 2.533    7.79 |  3.53    5.48
               0.567   11.34 | 1.567   16.33 | 2.567    7.79 |  3.57    5.48
               0.600   11.34 | 1.600   16.33 | 2.600    7.79 |  3.60    5.48
               0.633   11.34 | 1.633   16.33 | 2.633    7.79 |  3.63    5.48
               0.667   11.34 | 1.667   16.33 | 2.667    7.79 |  3.67    5.48
               0.700   11.34 | 1.700   16.33 | 2.700    7.79 |  3.70    5.48
               0.733   11.34 | 1.733   16.33 | 2.733    7.79 |  3.73    5.48
               0.767   16.22 | 1.767   14.39 | 2.767    7.40 |  3.77    5.31
               0.800   21.10 | 1.800   12.45 | 2.800    7.01 |  3.80    5.14
               0.833   21.10 | 1.833   12.45 | 2.833    7.01 |  3.83    5.14
               0.867   21.10 | 1.867   12.45 | 2.867    7.01 |  3.87    5.14
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               0.900   21.10 | 1.900   12.45 | 2.900    7.01 |  3.90    5.14
               0.933   21.10 | 1.933   12.45 | 2.933    7.01 |  3.93    5.14
               0.967   21.10 | 1.967   12.45 | 2.967    7.01 |  3.97    5.14
               1.000   21.10 | 2.000   12.45 | 3.000    7.01 |  4.00    5.14

     Unit Hyd Qpeak  (cms)=   0.613

     PEAK FLOW       (cms)=   0.071 (i)
     TIME TO PEAK    (hrs)=   1.367
     RUNOFF VOLUME    (mm)=   9.421
     TOTAL RAINFALL   (mm)=  70.290
     RUNOFF COEFFICIENT   =   0.134

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

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--------------------
| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   1.63   Curve Number   (CN)= 44.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.62   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

     Unit Hyd Qpeak  (cms)=   0.366

     PEAK FLOW       (cms)=   0.042 (i)
     TIME TO PEAK    (hrs)=   1.367
     RUNOFF VOLUME    (mm)=   9.627
     TOTAL RAINFALL   (mm)=  70.290
     RUNOFF COEFFICIENT   =   0.137

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

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--------------------
| ADD HYD  (  0053)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     1.63   0.042     1.37     9.63
     + ID2= 2 (  0203):     2.89   0.071     1.37     9.42
       ================================================
       ID = 3 (  0053):     4.52   0.113     1.37     9.49

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

---------------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0204)|   Area    (ha)=   0.64   Curve Number   (CN)= 48.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.33

     Unit Hyd Qpeak  (cms)=   0.074

     PEAK FLOW       (cms)=   0.013 (i)
     TIME TO PEAK    (hrs)=   1.600
     RUNOFF VOLUME    (mm)=  11.126
     TOTAL RAINFALL   (mm)=  70.290
     RUNOFF COEFFICIENT   =   0.158

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

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--------------------
| ADD HYD  (  0054)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0204):     0.64   0.013     1.60    11.13
     + ID2= 2 (  0053):     4.52   0.113     1.37     9.49
       ================================================
       ID = 3 (  0054):     5.16   0.122     1.40     9.70

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  21.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.95         1.25
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n           =      0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.083    6.69 | 1.083  122.28 | 2.083   10.26 |  3.08    6.39
               0.167    6.69 | 1.167  122.28 | 2.167   10.26 |  3.17    6.39
               0.250    6.69 | 1.250  122.28 | 2.250   10.26 |  3.25    6.39
               0.333    8.29 | 1.333   25.89 | 2.333    8.82 |  3.33    5.90
               0.417    8.29 | 1.417   25.89 | 2.417    8.82 |  3.42    5.90
               0.500    8.29 | 1.500   25.89 | 2.500    8.82 |  3.50    5.90
               0.583   11.34 | 1.583   16.33 | 2.583    7.79 |  3.58    5.48
               0.667   11.34 | 1.667   16.33 | 2.667    7.79 |  3.67    5.48
               0.750   11.34 | 1.750   16.33 | 2.750    7.79 |  3.75    5.48
               0.833   21.10 | 1.833   12.45 | 2.833    7.01 |  3.83    5.14
               0.917   21.10 | 1.917   12.45 | 2.917    7.01 |  3.92    5.14
               1.000   21.10 | 2.000   12.45 | 3.000    7.01 |  4.00    5.14

     Max.Eff.Inten.(mm/hr)=     122.28       149.72
           over (min)          5.00        15.00
     Storage Coeff.  (min)=     2.64 (ii)   10.04 (ii)
     Unit Hyd. Tpeak (min)=     5.00        15.00
     Unit Hyd. peak  (cms)=     0.29         0.10
                                                        *TOTALS*
     PEAK FLOW       (cms)=     0.16         0.33          0.432 (iii)
     TIME TO PEAK    (hrs)=     1.25         1.33           1.25
     RUNOFF VOLUME    (mm)=    69.29        35.26          42.40
     TOTAL RAINFALL   (mm)=    70.29        70.29          70.29
     RUNOFF COEFFICIENT   =     0.99         0.50           0.60

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

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

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  0301)|
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.1680   |   0.1590     0.5570
                          0.0440     0.2080   |   0.3520     0.7230
                          0.0990     0.3020   |   1.2920     0.9160
                          0.1320     0.4180   |   2.0620     1.0230

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0201)      2.200      0.432      1.25      42.40
   OUTFLOW: ID= 1 (  0301)      2.200      0.000      0.00       0.00

                PEAK   FLOW   REDUCTION [Qout/Qin](%)=  0.00
                TIME SHIFT OF PEAK FLOW         (min)=-75.00
                MAXIMUM  STORAGE   USED       (ha.m.)=  0.0189

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--------------------
| ADD HYD  (  0055)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0301):     2.20   0.000     0.00     0.00
     + ID2= 2 (  0054):     5.16   0.122     1.40     9.70
       ================================================
       ID = 3 (  0055):     7.36   0.122     1.40     6.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  56.00   Dir. Conn.(%)=  28.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=      14.14        20.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     122.28       181.70
           over (min)          5.00        10.00
     Storage Coeff.  (min)=     0.73 (ii)    5.24 (ii)
     Unit Hyd. Tpeak (min)=     5.00        10.00
     Unit Hyd. peak  (cms)=     0.34         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=     0.00         0.01          0.009 (iii)
     TIME TO PEAK    (hrs)=     1.25         1.25           1.25
     RUNOFF VOLUME    (mm)=    69.29        40.28          48.36
     TOTAL RAINFALL   (mm)=    70.29        70.29          70.29
     RUNOFF COEFFICIENT   =     0.99         0.57           0.69

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

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
```

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

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-------------------
| ADD HYD  (  0056)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.03   0.009     1.25    48.36
     + ID2= 2 (  0055):     7.36   0.122     1.40     6.80
       ================================================
       ID = 3 (  0056):     7.39   0.127     1.37     6.97

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.78   Curve Number   (CN)= 66.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.87   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.19

    Unit Hyd Qpeak  (cms)=   0.157

    PEAK FLOW       (cms)=   0.049 (i)
    TIME TO PEAK    (hrs)=   1.333
    RUNOFF VOLUME    (mm)=  21.949
    TOTAL RAINFALL   (mm)=  70.290
    RUNOFF COEFFICIENT   =   0.312

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

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-------------------
| ADD HYD  (  0057)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.049     1.33    21.95
     + ID2= 2 (  0056):     7.39   0.127     1.37     6.97
       ================================================
       ID = 3 (  0057):     8.17   0.175     1.37     8.40

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
-------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
-------------------

                          IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      0.23         0.50
    Dep. Storage     (mm)=      1.00         1.50
    Average Slope     (%)=      1.00         2.00
    Length            (m)=     69.76        40.00
    Mannings n           =     0.013        0.250

    Max.Eff.Inten.(mm/hr)=    122.28       135.68
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          over (min)        5.00        10.00
    Storage Coeff.  (min)=      1.90 (ii)    8.15 (ii)
    Unit Hyd. Tpeak (min)=      5.00        10.00
    Unit Hyd. peak  (cms)=      0.32         0.13
                                                    *TOTALS*
    PEAK FLOW       (cms)=      0.03         0.14        0.168 (iii)
    TIME TO PEAK    (hrs)=      1.25         1.25         1.25
    RUNOFF VOLUME    (mm)=     69.29        32.82        37.56
    TOTAL RAINFALL   (mm)=     70.29        70.29        70.29
    RUNOFF COEFFICIENT   =      0.99         0.47         0.53

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

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

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

-------------------
| ADD HYD  (  0401)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0206):     0.73   0.168     1.25    37.56
     + ID2= 2 (  0057):     8.17   0.175     1.37     8.40
       ================================================
       ID = 3 (  0401):     8.90   0.310     1.33    10.78

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\ae8e6
add-3119-4302-958a-8c44339408e0\scen
  Summary filename:
```

C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\ae8e6add-3119-4302-958a-8c44339408e0\scen

DATE: 10/09/2020 TIME: 05:30:25

USER:

COMMENTS: _____

**** SIMULATION : Run 08 ****

READ STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\ef6ca355-8b23-4216-859d-d5ae6efa7ec3\4c311f83
Ptotal=193.00 mm	Comments: TIMMINS REGIONAL 12 HOUR DURATION STORM

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

CALIB			
NASHYD (0203)	Area (ha)=	2.89	Curve Number (CN)= 42.9
ID= 1 DT= 2.0 min	Ia (mm)=	8.98	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.18	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	15.00	3.033	3.00	6.033	43.00	9.03	13.00
0.067	15.00	3.067	3.00	6.067	43.00	9.07	13.00
0.100	15.00	3.100	3.00	6.100	43.00	9.10	13.00
0.133	15.00	3.133	3.00	6.133	43.00	9.13	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00

0.200	15.00	3.200	3.00	6.200	43.00	9.20	13.00
0.233	15.00	3.233	3.00	6.233	43.00	9.23	13.00
0.267	15.00	3.267	3.00	6.267	43.00	9.27	13.00
0.300	15.00	3.300	3.00	6.300	43.00	9.30	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.367	15.00	3.367	3.00	6.367	43.00	9.37	13.00
0.400	15.00	3.400	3.00	6.400	43.00	9.40	13.00
0.433	15.00	3.433	3.00	6.433	43.00	9.43	13.00
0.467	15.00	3.467	3.00	6.467	43.00	9.47	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.533	15.00	3.533	3.00	6.533	43.00	9.53	13.00
0.567	15.00	3.567	3.00	6.567	43.00	9.57	13.00
0.600	15.00	3.600	3.00	6.600	43.00	9.60	13.00
0.633	15.00	3.633	3.00	6.633	43.00	9.63	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.700	15.00	3.700	3.00	6.700	43.00	9.70	13.00
0.733	15.00	3.733	3.00	6.733	43.00	9.73	13.00
0.767	15.00	3.767	3.00	6.767	43.00	9.77	13.00
0.800	15.00	3.800	3.00	6.800	43.00	9.80	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.867	15.00	3.867	3.00	6.867	43.00	9.87	13.00
0.900	15.00	3.900	3.00	6.900	43.00	9.90	13.00
0.933	15.00	3.933	3.00	6.933	43.00	9.93	13.00
0.967	15.00	3.967	3.00	6.967	43.00	9.97	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.033	20.00	4.033	5.00	7.033	20.00	10.03	13.00
1.067	20.00	4.067	5.00	7.067	20.00	10.07	13.00
1.100	20.00	4.100	5.00	7.100	20.00	10.10	13.00
1.133	20.00	4.133	5.00	7.133	20.00	10.13	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00
1.200	20.00	4.200	5.00	7.200	20.00	10.20	13.00
1.233	20.00	4.233	5.00	7.233	20.00	10.23	13.00
1.267	20.00	4.267	5.00	7.267	20.00	10.27	13.00
1.300	20.00	4.300	5.00	7.300	20.00	10.30	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.367	20.00	4.367	5.00	7.367	20.00	10.37	13.00
1.400	20.00	4.400	5.00	7.400	20.00	10.40	13.00
1.433	20.00	4.433	5.00	7.433	20.00	10.43	13.00
1.467	20.00	4.467	5.00	7.467	20.00	10.47	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.533	20.00	4.533	5.00	7.533	20.00	10.53	13.00
1.567	20.00	4.567	5.00	7.567	20.00	10.57	13.00
1.600	20.00	4.600	5.00	7.600	20.00	10.60	13.00
1.633	20.00	4.633	5.00	7.633	20.00	10.63	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.700	20.00	4.700	5.00	7.700	20.00	10.70	13.00
1.733	20.00	4.733	5.00	7.733	20.00	10.73	13.00
1.767	20.00	4.767	5.00	7.767	20.00	10.77	13.00
1.800	20.00	4.800	5.00	7.800	20.00	10.80	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.867	20.00	4.867	5.00	7.867	20.00	10.87	13.00
1.900	20.00	4.900	5.00	7.900	20.00	10.90	13.00
1.933	20.00	4.933	5.00	7.933	20.00	10.93	13.00
1.967	20.00	4.967	5.00	7.967	20.00	10.97	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.033	10.00	5.033	20.00	8.033	23.00	11.03	8.00
2.067	10.00	5.067	20.00	8.067	23.00	11.07	8.00
2.100	10.00	5.100	20.00	8.100	23.00	11.10	8.00
2.133	10.00	5.133	20.00	8.133	23.00	11.13	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.200	10.00	5.200	20.00	8.200	23.00	11.20	8.00
2.233	10.00	5.233	20.00	8.233	23.00	11.23	8.00
2.267	10.00	5.267	20.00	8.267	23.00	11.27	8.00

2.300	10.00	5.300	20.00	8.300	23.00	11.30	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.367	10.00	5.367	20.00	8.367	23.00	11.37	8.00
2.400	10.00	5.400	20.00	8.400	23.00	11.40	8.00
2.433	10.00	5.433	20.00	8.433	23.00	11.43	8.00
2.467	10.00	5.467	20.00	8.467	23.00	11.47	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.533	10.00	5.533	20.00	8.533	23.00	11.53	8.00
2.567	10.00	5.567	20.00	8.567	23.00	11.57	8.00
2.600	10.00	5.600	20.00	8.600	23.00	11.60	8.00
2.633	10.00	5.633	20.00	8.633	23.00	11.63	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.700	10.00	5.700	20.00	8.700	23.00	11.70	8.00
2.733	10.00	5.733	20.00	8.733	23.00	11.73	8.00
2.767	10.00	5.767	20.00	8.767	23.00	11.77	8.00
2.800	10.00	5.800	20.00	8.800	23.00	11.80	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.867	10.00	5.867	20.00	8.867	23.00	11.87	8.00
2.900	10.00	5.900	20.00	8.900	23.00	11.90	8.00
2.933	10.00	5.933	20.00	8.933	23.00	11.93	8.00
2.967	10.00	5.967	20.00	8.967	23.00	11.97	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	7.99

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.136 (i)
TIME TO PEAK (hrs)= 7.033
RUNOFF VOLUME (mm)= 64.906
TOTAL RAINFALL (mm)= 192.999
RUNOFF COEFFICIENT = 0.336

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

CALIB					
NASHYD (0202)	Area (ha)=	1.63	Curve Number (CN)=	44.1	
ID= 1 DT= 2.0 min	Ia (mm)=	9.62	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.17			

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.079 (i)
TIME TO PEAK (hrs)= 7.000
RUNOFF VOLUME (mm)= 66.587
TOTAL RAINFALL (mm)= 192.999
RUNOFF COEFFICIENT = 0.345

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

ADD HYD (0053)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0202):	1.63	0.079	7.00	66.59
+ ID2= 2 (0203):	2.89	0.136	7.03	64.91
ID = 3 (0053):	4.52	0.215	7.00	65.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0204)	Area (ha)=	0.64	Curve Number (CN)=	48.1	
ID= 1 DT= 2.0 min	Ia (mm)=	9.20	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.33			

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.032 (i)
TIME TO PEAK (hrs)= 7.100
RUNOFF VOLUME (mm)= 73.745
TOTAL RAINFALL (mm)= 192.999
RUNOFF COEFFICIENT = 0.382

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

ADD HYD (0054)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0204):	0.64	0.032	7.10	73.74
+ ID2= 2 (0053):	4.52	0.215	7.00	65.51
ID = 3 (0054):	5.16	0.247	7.03	66.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0201)	Area (ha)=	2.20			
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)=	21.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	1.25
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	121.11	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	15.00	3.083	3.00	6.083	43.00	9.08	13.00
0.167	15.00	3.167	3.00	6.167	43.00	9.17	13.00
0.250	15.00	3.250	3.00	6.250	43.00	9.25	13.00
0.333	15.00	3.333	3.00	6.333	43.00	9.33	13.00
0.417	15.00	3.417	3.00	6.417	43.00	9.42	13.00
0.500	15.00	3.500	3.00	6.500	43.00	9.50	13.00
0.583	15.00	3.583	3.00	6.583	43.00	9.58	13.00
0.667	15.00	3.667	3.00	6.667	43.00	9.67	13.00
0.750	15.00	3.750	3.00	6.750	43.00	9.75	13.00
0.833	15.00	3.833	3.00	6.833	43.00	9.83	13.00
0.917	15.00	3.917	3.00	6.917	43.00	9.92	13.00
1.000	15.00	4.000	3.00	7.000	43.00	10.00	13.00
1.083	20.00	4.083	5.00	7.083	20.00	10.08	13.00
1.167	20.00	4.167	5.00	7.167	20.00	10.17	13.00

1.250	20.00	4.250	5.00	7.250	20.00	10.25	13.00
1.333	20.00	4.333	5.00	7.333	20.00	10.33	13.00
1.417	20.00	4.417	5.00	7.417	20.00	10.42	13.00
1.500	20.00	4.500	5.00	7.500	20.00	10.50	13.00
1.583	20.00	4.583	5.00	7.583	20.00	10.58	13.00
1.667	20.00	4.667	5.00	7.667	20.00	10.67	13.00
1.750	20.00	4.750	5.00	7.750	20.00	10.75	13.00
1.833	20.00	4.833	5.00	7.833	20.00	10.83	13.00
1.917	20.00	4.917	5.00	7.917	20.00	10.92	13.00
2.000	20.00	5.000	5.00	8.000	20.00	11.00	13.00
2.083	10.00	5.083	20.00	8.083	23.00	11.08	8.00
2.167	10.00	5.167	20.00	8.167	23.00	11.17	8.00
2.250	10.00	5.250	20.00	8.250	23.00	11.25	8.00
2.333	10.00	5.333	20.00	8.333	23.00	11.33	8.00
2.417	10.00	5.417	20.00	8.417	23.00	11.42	8.00
2.500	10.00	5.500	20.00	8.500	23.00	11.50	8.00
2.583	10.00	5.583	20.00	8.583	23.00	11.58	8.00
2.667	10.00	5.667	20.00	8.667	23.00	11.67	8.00
2.750	10.00	5.750	20.00	8.750	23.00	11.75	8.00
2.833	10.00	5.833	20.00	8.833	23.00	11.83	8.00
2.917	10.00	5.917	20.00	8.917	23.00	11.92	8.00
3.000	10.00	6.000	20.00	9.000	23.00	12.00	8.00

Max.Eff.Inten.(mm/hr)=	43.00	52.10		
over (min)	5.00	20.00		
Storage Coeff. (min)=	4.02 (ii)	15.30 (ii)		
Unit Hyd. Tpeak (min)=	5.00	20.00		
Unit Hyd. peak (cms)=	0.24	0.07		
			TOTALS	
PEAK FLOW (cms)=	0.06	0.18	0.232 (iii)	
TIME TO PEAK (hrs)=	6.92	7.00	7.00	
RUNOFF VOLUME (mm)=	192.00	115.25	131.36	
TOTAL RAINFALL (mm)=	193.00	193.00	193.00	
RUNOFF COEFFICIENT =	0.99	0.60	0.68	

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

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

RESERVOIR(0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.1680	0.1590	0.5570
	0.0440	0.2080	0.3520	0.7230
	0.0990	0.3020	1.2920	0.9160
	0.1320	0.4180	2.0620	1.0230

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)	2.200	0.232	7.00	131.36
OUTFLOW: ID= 1 (0301)	2.200	0.052	11.00	54.90

PEAK FLOW REDUCTION [Qout/Qin](%)= 22.58
TIME SHIFT OF PEAK FLOW (min)=240.00
MAXIMUM STORAGE USED (ha.m.)= 0.1898

ADD HYD (0055)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0301):	2.20	0.052	11.00	54.90
	+ ID2= 2 (0054):	5.16	0.247	7.03	66.53
	ID = 3 (0055):	7.36	0.247	7.03	63.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0205)	Area (ha)= 0.03		
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00	Dir. Conn.(%)= 28.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.02	0.01	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	1.00	
Length (m)=	14.14	20.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	43.00	62.86	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.11 (ii)	8.01 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.34	0.13	
		TOTALS	
PEAK FLOW (cms)=	0.00	0.00	0.003 (iii)
TIME TO PEAK (hrs)=	6.25	7.00	7.00
RUNOFF VOLUME (mm)=	192.00	125.73	144.09
TOTAL RAINFALL (mm)=	193.00	193.00	193.00
RUNOFF COEFFICIENT =	0.99	0.65	0.75

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

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

ADD HYD (0056)		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
1 + 2 = 3	ID1= 1 (0205):	0.03	0.003	7.00	144.09
	+ ID2= 2 (0055):	7.36	0.247	7.03	63.06
	ID = 3 (0056):	7.39	0.250	7.00	63.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
| CALIB              |
| NASHYD   (  0207)|   Area    (ha)=   0.78   Curve Number   (CN)= 66.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.87   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.19

     Unit Hyd Qpeak  (cms)=   0.157

     PEAK FLOW       (cms)=   0.063 (i)
     TIME TO PEAK    (hrs)=   7.000
     RUNOFF VOLUME    (mm)= 111.306
     TOTAL RAINFALL   (mm)= 193.000
     RUNOFF COEFFICIENT   =   0.577

     (i) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| ADD HYD  (  0057)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.063     7.00   111.31
     + ID2= 2 (  0056):     7.39   0.250     7.00    63.38
       ================================================
       ID = 3 (  0057):     8.17   0.313     7.00    67.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| CALIB              |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
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                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.23         0.50
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.76        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.00        47.51
                 over (min)       5.00        15.00
     Storage Coeff.  (min)=       2.88 (ii)   12.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.06          0.076 (iii)
     TIME TO PEAK    (hrs)=       6.83         7.00           7.00
     RUNOFF VOLUME    (mm)=     192.00       109.90         120.57
     TOTAL RAINFALL   (mm)=     193.00       193.00         193.00
     RUNOFF COEFFICIENT   =       0.99         0.57           0.62

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

       (i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
            Fo   (mm/hr)= 50.00          K  (1/hr)=  2.00
            Fc   (mm/hr)=  7.50     Cum.Inf.   (mm)=  0.00
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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| ADD HYD  (  0401)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0206):     0.73   0.076     7.00   120.57
     + ID2= 2 (  0057):     8.17   0.313     7.00    67.96
       ================================================
       ID = 3 (  0401):     8.90   0.390     7.00    72.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\0c294
54e-def1-4102-89c6-6aa30643fe2c\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\0c294
54e-def1-4102-89c6-6aa30643fe2c\scen


DATE: 10/09/2020                          TIME: 05:31:52

USER:


COMMENTS: _____________________________________________________________


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  ***********************************************
  ** SIMULATION : Run 01                       **
  ***********************************************


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| MASS STORM       |    Filename: C:\Users\aschoof\AppD
|                  |              ata\Local\Temp\
|                  |              d21eaacb-4cf1-4504-bf53-d3c44604e13d\bce6bd08
| Ptotal= 53.90 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------
                     Duration of storm    = 23.75 hrs
                     Mass curve time step = 15.00 min

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.25    0.65 |  6.25    1.08 | 12.25    7.76 | 18.25    0.86
               0.50    0.43 |  6.50    0.86 | 12.50    4.10 | 18.50    1.08
               0.75    0.65 |  6.75    1.08 | 12.75    3.88 | 18.75    0.86
               1.00    0.65 |  7.00    1.08 | 13.00    3.02 | 19.00    1.08
               1.25    0.65 |  7.25    1.29 | 13.25    2.80 | 19.25    0.86
               1.50    0.43 |  7.50    1.08 | 13.50    2.37 | 19.50    1.08
```



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               1.75    0.65 |  7.75    1.29 | 13.75    2.16 | 19.75    0.86
               2.00    0.65 |  8.00    1.29 | 14.00    1.72 | 20.00    0.65
               2.25    0.86 |  8.25    1.51 | 14.25    1.51 | 20.25    0.65
               2.50    0.65 |  8.50    1.51 | 14.50    1.72 | 20.50    0.65
               2.75    0.65 |  8.75    1.51 | 14.75    1.51 | 20.75    0.65
               3.00    0.65 |  9.00    1.72 | 15.00    1.72 | 21.00    0.65
               3.25    0.86 |  9.25    1.72 | 15.25    1.51 | 21.25    0.65
               3.50    0.65 |  9.50    1.94 | 15.50    1.72 | 21.50    0.65
               3.75    0.65 |  9.75    1.94 | 15.75    1.51 | 21.75    0.65
               4.00    0.86 | 10.00    2.37 | 16.00    1.08 | 22.00    0.65
               4.25    0.86 | 10.25    2.59 | 16.25    0.86 | 22.25    0.65
               4.50    0.86 | 10.50    3.23 | 16.50    1.08 | 22.50    0.65
               4.75    0.86 | 10.75    3.45 | 16.75    0.86 | 22.75    0.65
               5.00    0.86 | 11.00    5.17 | 17.00    1.08 | 23.00    0.65
               5.25    0.86 | 11.25    5.17 | 17.25    0.86 | 23.25    0.65
               5.50    0.86 | 11.50   15.95 | 17.50    1.08 | 23.50    0.65
               5.75    0.86 | 11.75   65.97 | 17.75    0.86 | 23.75    0.65
               6.00    0.86 | 12.00    7.76 | 18.00    1.08 |

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0202)|   Area    (ha)=   1.63   Curve Number   (CN)= 44.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.62   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.17

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

                              ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
               0.033    0.65 | 6.000    0.86 |11.967    7.76 | 17.93    1.08
               0.067    0.65 | 6.033    1.08 |12.000    7.76 | 17.97    1.08
               0.100    0.65 | 6.067    1.08 |12.033    7.76 | 18.00    1.08
               0.133    0.65 | 6.100    1.08 |12.067    7.76 | 18.03    0.86
               0.167    0.65 | 6.133    1.08 |12.100    7.76 | 18.07    0.86
               0.200    0.65 | 6.167    1.08 |12.133    7.76 | 18.10    0.86
               0.233    0.65 | 6.200    1.08 |12.167    7.76 | 18.13    0.86
               0.267    0.54 | 6.233    1.08 |12.200    7.76 | 18.17    0.86
               0.300    0.43 | 6.267    0.97 |12.233    7.76 | 18.20    0.86
               0.333    0.43 | 6.300    0.86 |12.267    5.92 | 18.23    0.86
               0.367    0.43 | 6.333    0.86 |12.300    4.10 | 18.27    0.97
               0.400    0.43 | 6.367    0.86 |12.333    4.10 | 18.30    1.08
               0.433    0.43 | 6.400    0.86 |12.367    4.10 | 18.33    1.08
               0.467    0.43 | 6.433    0.86 |12.400    4.10 | 18.37    1.08
               0.500    0.43 | 6.467    0.86 |12.433    4.10 | 18.40    1.08
               0.533    0.65 | 6.500    0.86 |12.467    4.10 | 18.43    1.08
               0.567    0.65 | 6.533    1.08 |12.500    4.10 | 18.47    1.08
               0.600    0.65 | 6.567    1.08 |12.533    3.88 | 18.50    1.08
               0.633    0.65 | 6.600    1.08 |12.567    3.88 | 18.53    0.86
               0.667    0.65 | 6.633    1.08 |12.600    3.88 | 18.57    0.86
               0.700    0.65 | 6.667    1.08 |12.633    3.88 | 18.60    0.86
               0.733    0.65 | 6.700    1.08 |12.667    3.88 | 18.63    0.86
               0.767    0.65 | 6.733    1.08 |12.700    3.88 | 18.67    0.86
               0.800    0.65 | 6.767    1.08 |12.733    3.88 | 18.70    0.86
               0.833    0.65 | 6.800    1.08 |12.767    3.45 | 18.73    0.86
               0.867    0.65 | 6.833    1.08 |12.800    3.02 | 18.77    0.97
               0.900    0.65 | 6.867    1.08 |12.833    3.02 | 18.80    1.08
               0.933    0.65 | 6.900    1.08 |12.867    3.02 | 18.83    1.08
               0.967    0.65 | 6.933    1.08 |12.900    3.02 | 18.87    1.08
               1.000    0.65 | 6.967    1.08 |12.933    3.02 | 18.90    1.08
               1.033    0.65 | 7.000    1.08 |12.967    3.02 | 18.93    1.08
```

1.067	0.65	7.033	1.29	13.000	3.02	18.97	1.08
1.100	0.65	7.067	1.29	13.033	2.80	19.00	1.08
1.133	0.65	7.100	1.29	13.067	2.80	19.03	0.86
1.167	0.65	7.133	1.29	13.100	2.80	19.07	0.86
1.200	0.65	7.167	1.29	13.133	2.80	19.10	0.86
1.233	0.65	7.200	1.29	13.167	2.80	19.13	0.86
1.267	0.54	7.233	1.29	13.200	2.80	19.17	0.86
1.300	0.43	7.267	1.19	13.233	2.80	19.20	0.86
1.333	0.43	7.300	1.08	13.267	2.59	19.23	0.86
1.367	0.43	7.333	1.08	13.300	2.37	19.27	0.97
1.400	0.43	7.367	1.08	13.333	2.37	19.30	1.08
1.433	0.43	7.400	1.08	13.367	2.37	19.33	1.08
1.467	0.43	7.433	1.08	13.400	2.37	19.37	1.08
1.500	0.43	7.467	1.08	13.433	2.37	19.40	1.08
1.533	0.65	7.500	1.08	13.467	2.37	19.43	1.08
1.567	0.65	7.533	1.29	13.500	2.37	19.47	1.08
1.600	0.65	7.567	1.29	13.533	2.16	19.50	1.08
1.633	0.65	7.600	1.29	13.567	2.16	19.53	0.86
1.667	0.65	7.633	1.29	13.600	2.16	19.57	0.86
1.700	0.65	7.667	1.29	13.633	2.16	19.60	0.86
1.733	0.65	7.700	1.29	13.667	2.16	19.63	0.86
1.767	0.65	7.733	1.29	13.700	2.16	19.67	0.86
1.800	0.65	7.767	1.29	13.733	2.16	19.70	0.86
1.833	0.65	7.800	1.29	13.767	1.94	19.73	0.86
1.867	0.65	7.833	1.29	13.800	1.72	19.77	0.75
1.900	0.65	7.867	1.29	13.833	1.72	19.80	0.65
1.933	0.65	7.900	1.29	13.867	1.72	19.83	0.65
1.967	0.65	7.933	1.29	13.900	1.72	19.87	0.65
2.000	0.65	7.967	1.29	13.933	1.72	19.90	0.65
2.033	0.86	8.000	1.29	13.967	1.72	19.93	0.65
2.067	0.86	8.033	1.51	14.000	1.72	19.97	0.65
2.100	0.86	8.067	1.51	14.033	1.51	20.00	0.65
2.133	0.86	8.100	1.51	14.067	1.51	20.03	0.65
2.167	0.86	8.133	1.51	14.100	1.51	20.07	0.65
2.200	0.86	8.167	1.51	14.133	1.51	20.10	0.65
2.233	0.86	8.200	1.51	14.167	1.51	20.13	0.65
2.267	0.75	8.233	1.51	14.200	1.51	20.17	0.65
2.300	0.65	8.267	1.51	14.233	1.51	20.20	0.65
2.333	0.65	8.300	1.51	14.267	1.62	20.23	0.65
2.367	0.65	8.333	1.51	14.300	1.72	20.27	0.65
2.400	0.65	8.367	1.51	14.333	1.72	20.30	0.65
2.433	0.65	8.400	1.51	14.367	1.72	20.33	0.65
2.467	0.65	8.433	1.51	14.400	1.72	20.37	0.65
2.500	0.65	8.467	1.51	14.433	1.72	20.40	0.65
2.533	0.65	8.500	1.51	14.467	1.72	20.43	0.65
2.567	0.65	8.533	1.51	14.500	1.72	20.47	0.65
2.600	0.65	8.567	1.51	14.533	1.51	20.50	0.65
2.633	0.65	8.600	1.51	14.567	1.51	20.53	0.65
2.667	0.65	8.633	1.51	14.600	1.51	20.57	0.65
2.700	0.65	8.667	1.51	14.633	1.51	20.60	0.65
2.733	0.65	8.700	1.51	14.667	1.51	20.63	0.65
2.767	0.65	8.733	1.51	14.700	1.51	20.67	0.65
2.800	0.65	8.767	1.62	14.733	1.51	20.70	0.65
2.833	0.65	8.800	1.72	14.767	1.62	20.73	0.65
2.867	0.65	8.833	1.72	14.800	1.72	20.77	0.65
2.900	0.65	8.867	1.72	14.833	1.72	20.80	0.65
2.933	0.65	8.900	1.72	14.867	1.72	20.83	0.65
2.967	0.65	8.933	1.72	14.900	1.72	20.87	0.65
3.000	0.65	8.967	1.72	14.933	1.72	20.90	0.65
3.033	0.86	9.000	1.72	14.967	1.72	20.93	0.65
3.067	0.86	9.033	1.72	15.000	1.72	20.97	0.65
3.100	0.86	9.067	1.72	15.033	1.51	21.00	0.65
3.133	0.86	9.100	1.72	15.067	1.51	21.03	0.65

3.167	0.86	9.133	1.72	15.100	1.51	21.07	0.65
3.200	0.86	9.167	1.72	15.133	1.51	21.10	0.65
3.233	0.86	9.200	1.72	15.167	1.51	21.13	0.65
3.267	0.75	9.233	1.72	15.200	1.51	21.17	0.65
3.300	0.65	9.267	1.83	15.233	1.51	21.20	0.65
3.333	0.65	9.300	1.94	15.267	1.62	21.23	0.65
3.367	0.65	9.333	1.94	15.300	1.72	21.27	0.65
3.400	0.65	9.367	1.94	15.333	1.72	21.30	0.65
3.433	0.65	9.400	1.94	15.367	1.72	21.33	0.65
3.467	0.65	9.433	1.94	15.400	1.72	21.37	0.65
3.500	0.65	9.467	1.94	15.433	1.72	21.40	0.65
3.533	0.65	9.500	1.94	15.467	1.72	21.43	0.65
3.567	0.65	9.533	1.94	15.500	1.72	21.47	0.65
3.600	0.65	9.567	1.94	15.533	1.51	21.50	0.65
3.633	0.65	9.600	1.94	15.567	1.51	21.53	0.65
3.667	0.65	9.633	1.94	15.600	1.51	21.57	0.65
3.700	0.65	9.667	1.94	15.633	1.51	21.60	0.65
3.733	0.65	9.700	1.94	15.667	1.51	21.63	0.65
3.767	0.75	9.733	1.94	15.700	1.51	21.67	0.65
3.800	0.86	9.767	2.16	15.733	1.51	21.70	0.65
3.833	0.86	9.800	2.37	15.767	1.29	21.73	0.65
3.867	0.86	9.833	2.37	15.800	1.08	21.77	0.65
3.900	0.86	9.867	2.37	15.833	1.08	21.80	0.65
3.933	0.86	9.900	2.37	15.867	1.08	21.83	0.65
3.967	0.86	9.933	2.37	15.900	1.08	21.87	0.65
4.000	0.86	9.967	2.37	15.933	1.08	21.90	0.65
4.033	0.86	10.000	2.37	15.967	1.08	21.93	0.65
4.067	0.86	10.033	2.59	16.000	1.08	21.97	0.65
4.100	0.86	10.067	2.59	16.033	0.86	22.00	0.65
4.133	0.86	10.100	2.59	16.067	0.86	22.03	0.65
4.167	0.86	10.133	2.59	16.100	0.86	22.07	0.65
4.200	0.86	10.167	2.59	16.133	0.86	22.10	0.65
4.233	0.86	10.200	2.59	16.167	0.86	22.13	0.65
4.267	0.86	10.233	2.59	16.200	0.86	22.17	0.65
4.300	0.86	10.267	2.91	16.233	0.86	22.20	0.65
4.333	0.86	10.300	3.23	16.267	0.97	22.23	0.65
4.367	0.86	10.333	3.23	16.300	1.08	22.27	0.65
4.400	0.86	10.367	3.23	16.333	1.08	22.30	0.65
4.433	0.86	10.400	3.23	16.367	1.08	22.33	0.65
4.467	0.86	10.433	3.23	16.400	1.08	22.37	0.65
4.500	0.86	10.467	3.23	16.433	1.08	22.40	0.65
4.533	0.86	10.500	3.23	16.467	1.08	22.43	0.65
4.567	0.86	10.533	3.45	16.500	1.08	22.47	0.65
4.600	0.86	10.567	3.45	16.533	0.86	22.50	0.65
4.633	0.86	10.600	3.45	16.567	0.86	22.53	0.65
4.667	0.86	10.633	3.45	16.600	0.86	22.57	0.65
4.700	0.86	10.667	3.45	16.633	0.86	22.60	0.65
4.733	0.86	10.700	3.45	16.667	0.86	22.63	0.65
4.767	0.86	10.733	3.45	16.700	0.86	22.67	0.65
4.800	0.86	10.767	4.31	16.733	0.86	22.70	0.65
4.833	0.86	10.800	5.17	16.767	0.97	22.73	0.65
4.867	0.86	10.833	5.17	16.800	1.08	22.77	0.65
4.900	0.86	10.867	5.17	16.833	1.08	22.80	0.65
4.933	0.86	10.900	5.17	16.867	1.08	22.83	0.65
4.967	0.86	10.933	5.17	16.900	1.08	22.87	0.65
5.000	0.86	10.967	5.17	16.933	1.08	22.90	0.65
5.033	0.86	11.000	5.17	16.967	1.08	22.93	0.65
5.067	0.86	11.033	5.17	17.000	1.08	22.97	0.65
5.100	0.86	11.067	5.17	17.033	0.86	23.00	0.65
5.133	0.86	11.100	5.17	17.067	0.86	23.03	0.65
5.167	0.86	11.133	5.17	17.100	0.86	23.07	0.65
5.200	0.86	11.167	5.17	17.133	0.86	23.10	0.65
5.233	0.86	11.200	5.17	17.167	0.86	23.13	0.65

5.267	0.86	11.233	5.17	17.200	0.86	23.17	0.65
5.300	0.86	11.267	10.58	17.233	0.86	23.20	0.65
5.333	0.86	11.300	15.95	17.267	0.97	23.23	0.65
5.367	0.86	11.333	15.95	17.300	1.08	23.27	0.65
5.400	0.86	11.367	15.95	17.333	1.08	23.30	0.65
5.433	0.86	11.400	15.95	17.367	1.08	23.33	0.65
5.467	0.86	11.433	15.95	17.400	1.08	23.37	0.65
5.500	0.86	11.467	15.95	17.433	1.08	23.40	0.65
5.533	0.86	11.500	16.01	17.467	1.08	23.43	0.65
5.567	0.86	11.533	65.97	17.500	1.08	23.47	0.65
5.600	0.86	11.567	65.97	17.533	0.86	23.50	0.65
5.633	0.86	11.600	65.97	17.567	0.86	23.53	0.65
5.667	0.86	11.633	65.97	17.600	0.86	23.57	0.65
5.700	0.86	11.667	65.97	17.633	0.86	23.60	0.65
5.733	0.86	11.700	65.97	17.667	0.86	23.63	0.65
5.767	0.86	11.733	65.97	17.700	0.86	23.67	0.65
5.800	0.86	11.767	36.79	17.733	0.86	23.70	0.65
5.833	0.86	11.800	7.76	17.767	0.97	23.73	0.65
5.867	0.86	11.833	7.76	17.800	1.08	23.77	0.32
5.900	0.86	11.867	7.76	17.833	1.08		
5.933	0.86	11.900	7.76	17.867	1.08		
5.967	0.86	11.933	7.76	17.900	1.08		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.022 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 5.321
TOTAL RAINFALL (mm)= 53.738
RUNOFF COEFFICIENT = 0.099

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

CALIB					
NASHYD (0203)	Area (ha)=	2.89	Curve Number (CN)=	42.9	
ID= 1 DT= 2.0 min	Ia (mm)=	8.98	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.18			

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.037 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 5.238
TOTAL RAINFALL (mm)= 53.738
RUNOFF COEFFICIENT = 0.097

(i) 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 (0202):	1.63	0.022	11.83	5.32
+ ID2= 2 (0203):	2.89	0.037	11.83	5.24
ID = 3 (0057):	4.52	0.059	11.83	5.27

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0204)	Area (ha)=	0.64	Curve Number (CN)=	48.1	
ID= 1 DT= 2.0 min	Ia (mm)=	9.20	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.33			

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 6.220
TOTAL RAINFALL (mm)= 53.738
RUNOFF COEFFICIENT = 0.116

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

ADD HYD (0058)

1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0204):	0.64	0.006	12.00	6.22
+ ID2= 2 (0057):	4.52	0.059	11.83	5.27
ID = 3 (0058):	5.16	0.064	11.83	5.39

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0201)	Area (ha)=	2.20			
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)=	21.00	

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	1.25
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	121.11	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.65	6.083	1.08	12.083	7.76	18.08	0.86
0.167	0.65	6.167	1.08	12.167	7.76	18.17	0.86
0.250	0.65	6.250	1.08	12.250	7.76	18.25	0.86
0.333	0.43	6.333	0.86	12.333	4.10	18.33	1.08
0.417	0.43	6.417	0.86	12.417	4.10	18.42	1.08
0.500	0.43	6.500	0.86	12.500	4.10	18.50	1.08
0.583	0.65	6.583	1.08	12.583	3.88	18.58	0.86
0.667	0.65	6.667	1.08	12.667	3.88	18.67	0.86
0.750	0.65	6.750	1.08	12.750	3.88	18.75	0.86
0.833	0.65	6.833	1.08	12.833	3.02	18.83	1.08
0.917	0.65	6.917	1.08	12.917	3.02	18.92	1.08
1.000	0.65	7.000	1.08	13.000	3.02	19.00	1.08
1.083	0.65	7.083	1.29	13.083	2.80	19.08	0.86
1.167	0.65	7.167	1.29	13.167	2.80	19.17	0.86

1.250	0.65	7.250	1.29	13.250	2.80	19.25	0.86
1.333	0.43	7.333	1.08	13.333	2.37	19.33	1.08
1.417	0.43	7.417	1.08	13.417	2.37	19.42	1.08
1.500	0.43	7.500	1.08	13.500	2.37	19.50	1.08
1.583	0.65	7.583	1.29	13.583	2.16	19.58	0.86
1.667	0.65	7.667	1.29	13.667	2.16	19.67	0.86
1.750	0.65	7.750	1.29	13.750	2.16	19.75	0.86
1.833	0.65	7.833	1.29	13.833	1.72	19.83	0.65
1.917	0.65	7.917	1.29	13.917	1.72	19.92	0.65
2.000	0.65	8.000	1.29	14.000	1.72	20.00	0.65
2.083	0.86	8.083	1.51	14.083	1.51	20.08	0.65
2.167	0.86	8.167	1.51	14.167	1.51	20.17	0.65
2.250	0.86	8.250	1.51	14.250	1.51	20.25	0.65
2.333	0.65	8.333	1.51	14.333	1.72	20.33	0.65
2.417	0.65	8.417	1.51	14.417	1.72	20.42	0.65
2.500	0.65	8.500	1.51	14.500	1.72	20.50	0.65
2.583	0.65	8.583	1.51	14.583	1.51	20.58	0.65
2.667	0.65	8.667	1.51	14.667	1.51	20.67	0.65
2.750	0.65	8.750	1.51	14.750	1.51	20.75	0.65
2.833	0.65	8.833	1.72	14.833	1.72	20.83	0.65
2.917	0.65	8.917	1.72	14.917	1.72	20.92	0.65
3.000	0.65	9.000	1.72	15.000	1.72	21.00	0.65
3.083	0.86	9.083	1.72	15.083	1.51	21.08	0.65
3.167	0.86	9.167	1.72	15.167	1.51	21.17	0.65
3.250	0.86	9.250	1.72	15.250	1.51	21.25	0.65
3.333	0.65	9.333	1.94	15.333	1.72	21.33	0.65
3.417	0.65	9.417	1.94	15.417	1.72	21.42	0.65
3.500	0.65	9.500	1.94	15.500	1.72	21.50	0.65
3.583	0.65	9.583	1.94	15.583	1.51	21.58	0.65
3.667	0.65	9.667	1.94	15.667	1.51	21.67	0.65
3.750	0.65	9.750	1.94	15.750	1.51	21.75	0.65
3.833	0.86	9.833	2.37	15.833	1.08	21.83	0.65
3.917	0.86	9.917	2.37	15.917	1.08	21.92	0.65
4.000	0.86	10.000	2.37	16.000	1.08	22.00	0.65
4.083	0.86	10.083	2.59	16.083	0.86	22.08	0.65
4.167	0.86	10.167	2.59	16.167	0.86	22.17	0.65
4.250	0.86	10.250	2.59	16.250	0.86	22.25	0.65
4.333	0.86	10.333	3.23	16.333	1.08	22.33	0.65
4.417	0.86	10.417	3.23	16.417	1.08	22.42	0.65
4.500	0.86	10.500	3.23	16.500	1.08	22.50	0.65
4.583	0.86	10.583	3.45	16.583	0.86	22.58	0.65
4.667	0.86	10.667	3.45	16.667	0.86	22.67	0.65
4.750	0.86	10.750	3.45	16.750	0.86	22.75	0.65
4.833	0.86	10.833	5.17	16.833	1.08	22.83	0.65
4.917	0.86	10.917	5.17	16.917	1.08	22.92	0.65
5.000	0.86	11.000	5.17	17.000	1.08	23.00	0.65
5.083	0.86	11.083	5.17	17.083	0.86	23.08	0.65
5.167	0.86	11.167	5.17	17.167	0.86	23.17	0.65
5.250	0.86	11.250	5.17	17.250	0.86	23.25	0.65
5.333	0.86	11.333	15.95	17.333	1.08	23.33	0.65
5.417	0.86	11.417	15.95	17.417	1.08	23.42	0.65
5.500	0.86	11.500	15.95	17.500	1.08	23.50	0.65
5.583	0.86	11.583	65.97	17.583	0.86	23.58	0.65
5.667	0.86	11.667	65.97	17.667	0.86	23.67	0.65
5.750	0.86	11.750	65.97	17.750	0.86	23.75	0.65
5.833	0.86	11.833	7.77	17.833	1.08		
5.917	0.86	11.917	7.76	17.917	1.08		
6.000	0.86	12.000	7.76	18.000	1.08		

Max.Eff.Inten.(mm/hr)=	65.97	79.19
over (min)	5.00	15.00
Storage Coeff. (min)=	3.38 (ii)	12.92 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00

Unit Hyd. peak (cms)=	0.26	0.08		
				TOTALS
PEAK FLOW (cms)=	0.08	0.16		0.217 (iii)
TIME TO PEAK (hrs)=	11.75	11.83		11.75
RUNOFF VOLUME (mm)=	52.74	14.47		22.51
TOTAL RAINFALL (mm)=	53.74	53.74		53.74
RUNOFF COEFFICIENT =	0.98	0.27		0.42

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

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

RESERVOIR(0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.1680	0.1590	0.5570
	0.0440	0.2080	0.3520	0.7230
	0.0990	0.3020	1.2920	0.9160
	0.1320	0.4180	2.0620	1.0230

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)	2.200	0.217	11.75	22.51
OUTFLOW: ID= 1 (0301)	2.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0219

ADD HYD (0059)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0301):	2.20	0.000	0.00	0.00
	+ ID2= 2 (0058):	5.16	0.064	11.83	5.39
	ID = 3 (0059):	7.36	0.064	11.83	3.78

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0205)	Area (ha)= 0.03		
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00	Dir. Conn.(%)= 28.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.02	0.01
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	1.00
Length (m)=	14.14	20.00
Mannings n =	0.013	0.250

```
     Max.Eff.Inten.(mm/hr)=      65.97        97.48
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      0.93 (ii)    6.72 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=      0.34         0.14
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=     11.75        11.75         11.75
     RUNOFF VOLUME    (mm)=     52.74        17.06         23.42
     TOTAL RAINFALL   (mm)=     53.74        53.74         53.74
     RUNOFF COEFFICIENT   =      0.98         0.32          0.44

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

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

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--------------------
| ADD HYD  (  0060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.03   0.005    11.75    23.42
     + ID2= 2 (  0059):     7.36   0.064    11.83     3.78
       ================================================
       ID = 3 (  0060):     7.39   0.067    11.83     3.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.78   Curve Number   (CN)= 66.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.87   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.19

     Unit Hyd Qpeak  (cms)=   0.157

     PEAK FLOW       (cms)=   0.027 (i)
     TIME TO PEAK    (hrs)=  11.833
     RUNOFF VOLUME    (mm)=  13.387
     TOTAL RAINFALL   (mm)=  53.738
     RUNOFF COEFFICIENT   =   0.249

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

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--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.027    11.83    13.39
     + ID2= 2 (  0060):     7.39   0.067    11.83     3.86
       ================================================
       ID = 3 (  0061):     8.17   0.093    11.83     4.77

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.23         0.50
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.76        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      65.97        71.30
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.43 (ii)   10.51 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=      0.30         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.02         0.06          0.067 (iii)
     TIME TO PEAK    (hrs)=     11.75        11.83         11.75
     RUNOFF VOLUME    (mm)=     52.74        13.20         18.34
     TOTAL RAINFALL   (mm)=     53.74        53.74         53.74
     RUNOFF COEFFICIENT   =      0.98         0.25          0.34

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

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

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--------------------
| ADD HYD  (  0401)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0206):     0.73   0.067    11.75    18.34
     + ID2= 2 (  0061):     8.17   0.093    11.83     4.77
       ================================================
       ID = 3 (  0401):     8.90   0.157    11.83     5.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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

```
       OOO     T      T    H   H    Y    M   M   OOO
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***** D E T A I L E D O U T P U T *****

Input filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

Output filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\7f5e0c8e-c343-4098-8160-ff3683dfafae\scen
Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\7f5e0c8e-c343-4098-8160-ff3683dfafae\scen

DATE: 10/09/2020 TIME: 05:31:52

USER:

COMMENTS: _____

****
** SIMULATION : Run 02 **
****

| MASS STORM | Filename: C:\Users\aschoof\AppData\Local\Temp\d21eaacb-4cf1-4504-bf53-d3c44604e13d\9fd102dc
| Ptotal= 71.80 mm | Comments: SCS Type II 24 HR MASS CURVE

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.86	6.25	1.44	12.25	10.34	18.25	1.15
0.50	0.57	6.50	1.15	12.50	5.46	18.50	1.44
0.75	0.86	6.75	1.44	12.75	5.17	18.75	1.15
1.00	0.86	7.00	1.44	13.00	4.02	19.00	1.44
1.25	0.86	7.25	1.72	13.25	3.73	19.25	1.15
1.50	0.57	7.50	1.44	13.50	3.16	19.50	1.44
1.75	0.86	7.75	1.72	13.75	2.87	19.75	1.15
2.00	0.86	8.00	1.72	14.00	2.30	20.00	0.86
2.25	1.15	8.25	2.01	14.25	2.01	20.25	0.86
2.50	0.86	8.50	2.01	14.50	2.30	20.50	0.86
2.75	0.86	8.75	2.01	14.75	2.01	20.75	0.86
3.00	0.86	9.00	2.30	15.00	2.30	21.00	0.86
3.25	1.15	9.25	2.30	15.25	2.01	21.25	0.86
3.50	0.86	9.50	2.58	15.50	2.30	21.50	0.86
3.75	0.86	9.75	2.58	15.75	2.01	21.75	0.86
4.00	1.15	10.00	3.16	16.00	1.44	22.00	0.86
4.25	1.15	10.25	3.45	16.25	1.15	22.25	0.86
4.50	1.15	10.50	4.31	16.50	1.44	22.50	0.86

4.75	1.15	10.75	4.60	16.75	1.15	22.75	0.86
5.00	1.15	11.00	6.89	17.00	1.44	23.00	0.86
5.25	1.15	11.25	6.89	17.25	1.15	23.25	0.86
5.50	1.15	11.50	21.25	17.50	1.44	23.50	0.86
5.75	1.15	11.75	87.88	17.75	1.15	23.75	0.86
6.00	1.15	12.00	10.34	18.00	1.44		

CALIB	
NASHYD (0202)	Area (ha)= 1.63 Curve Number (CN)= 44.1
ID= 1 DT= 2.0 min	Ia (mm)= 9.62 # of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.17

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	0.86	6.000	1.15	11.967	10.34	17.93	1.44
0.067	0.86	6.033	1.44	12.000	10.34	17.97	1.44
0.100	0.86	6.067	1.44	12.033	10.34	18.00	1.44
0.133	0.86	6.100	1.44	12.067	10.34	18.03	1.15
0.167	0.86	6.133	1.44	12.100	10.34	18.07	1.15
0.200	0.86	6.167	1.44	12.133	10.34	18.10	1.15
0.233	0.86	6.200	1.44	12.167	10.34	18.13	1.15
0.267	0.72	6.233	1.44	12.200	10.34	18.17	1.15
0.300	0.57	6.267	1.29	12.233	10.34	18.20	1.15
0.333	0.57	6.300	1.15	12.267	7.89	18.23	1.15
0.367	0.57	6.333	1.15	12.300	5.46	18.27	1.29
0.400	0.57	6.367	1.15	12.333	5.46	18.30	1.44
0.433	0.57	6.400	1.15	12.367	5.46	18.33	1.44
0.467	0.57	6.433	1.15	12.400	5.46	18.37	1.44
0.500	0.57	6.467	1.15	12.433	5.46	18.40	1.44
0.533	0.86	6.500	1.15	12.467	5.46	18.43	1.44
0.567	0.86	6.533	1.44	12.500	5.46	18.47	1.44
0.600	0.86	6.567	1.44	12.533	5.17	18.50	1.44
0.633	0.86	6.600	1.44	12.567	5.17	18.53	1.15
0.667	0.86	6.633	1.44	12.600	5.17	18.57	1.15
0.700	0.86	6.667	1.44	12.633	5.17	18.60	1.15
0.733	0.86	6.700	1.44	12.667	5.17	18.63	1.15
0.767	0.86	6.733	1.44	12.700	5.17	18.67	1.15
0.800	0.86	6.767	1.44	12.733	5.17	18.70	1.15
0.833	0.86	6.800	1.44	12.767	4.59	18.73	1.15
0.867	0.86	6.833	1.44	12.800	4.02	18.77	1.29
0.900	0.86	6.867	1.44	12.833	4.02	18.80	1.44
0.933	0.86	6.900	1.44	12.867	4.02	18.83	1.44
0.967	0.86	6.933	1.44	12.900	4.02	18.87	1.44
1.000	0.86	6.967	1.44	12.933	4.02	18.90	1.44
1.033	0.86	7.000	1.44	12.967	4.02	18.93	1.44
1.067	0.86	7.033	1.72	13.000	4.02	18.97	1.44
1.100	0.86	7.067	1.72	13.033	3.73	19.00	1.44
1.133	0.86	7.100	1.72	13.067	3.73	19.03	1.15
1.167	0.86	7.133	1.72	13.100	3.73	19.07	1.15
1.200	0.86	7.167	1.72	13.133	3.73	19.10	1.15
1.233	0.86	7.200	1.72	13.167	3.73	19.13	1.15
1.267	0.72	7.233	1.72	13.200	3.73	19.17	1.15
1.300	0.57	7.267	1.58	13.233	3.73	19.20	1.15
1.333	0.57	7.300	1.44	13.267	3.45	19.23	1.15
1.367	0.57	7.333	1.44	13.300	3.16	19.27	1.29
1.400	0.57	7.367	1.44	13.333	3.16	19.30	1.44
1.433	0.57	7.400	1.44	13.367	3.16	19.33	1.44

1.467	0.57	7.433	1.44	13.400	3.16	19.37	1.44
1.500	0.57	7.467	1.44	13.433	3.16	19.40	1.44
1.533	0.86	7.500	1.44	13.467	3.16	19.43	1.44
1.567	0.86	7.533	1.72	13.500	3.16	19.47	1.44
1.600	0.86	7.567	1.72	13.533	2.87	19.50	1.44
1.633	0.86	7.600	1.72	13.567	2.87	19.53	1.15
1.667	0.86	7.633	1.72	13.600	2.87	19.57	1.15
1.700	0.86	7.667	1.72	13.633	2.87	19.60	1.15
1.733	0.86	7.700	1.72	13.667	2.87	19.63	1.15
1.767	0.86	7.733	1.72	13.700	2.87	19.67	1.15
1.800	0.86	7.767	1.72	13.733	2.87	19.70	1.15
1.833	0.86	7.800	1.72	13.767	2.58	19.73	1.15
1.867	0.86	7.833	1.72	13.800	2.30	19.77	1.00
1.900	0.86	7.867	1.72	13.833	2.30	19.80	0.86
1.933	0.86	7.900	1.72	13.867	2.30	19.83	0.86
1.967	0.86	7.933	1.72	13.900	2.30	19.87	0.86
2.000	0.86	7.967	1.72	13.933	2.30	19.90	0.86
2.033	1.15	8.000	1.72	13.967	2.30	19.93	0.86
2.067	1.15	8.033	2.01	14.000	2.30	19.97	0.86
2.100	1.15	8.067	2.01	14.033	2.01	20.00	0.86
2.133	1.15	8.100	2.01	14.067	2.01	20.03	0.86
2.167	1.15	8.133	2.01	14.100	2.01	20.07	0.86
2.200	1.15	8.167	2.01	14.133	2.01	20.10	0.86
2.233	1.15	8.200	2.01	14.167	2.01	20.13	0.86
2.267	1.01	8.233	2.01	14.200	2.01	20.17	0.86
2.300	0.86	8.267	2.01	14.233	2.01	20.20	0.86
2.333	0.86	8.300	2.01	14.267	2.15	20.23	0.86
2.367	0.86	8.333	2.01	14.300	2.30	20.27	0.86
2.400	0.86	8.367	2.01	14.333	2.30	20.30	0.86
2.433	0.86	8.400	2.01	14.367	2.30	20.33	0.86
2.467	0.86	8.433	2.01	14.400	2.30	20.37	0.86
2.500	0.86	8.467	2.01	14.433	2.30	20.40	0.86
2.533	0.86	8.500	2.01	14.467	2.30	20.43	0.86
2.567	0.86	8.533	2.01	14.500	2.30	20.47	0.86
2.600	0.86	8.567	2.01	14.533	2.01	20.50	0.86
2.633	0.86	8.600	2.01	14.567	2.01	20.53	0.86
2.667	0.86	8.633	2.01	14.600	2.01	20.57	0.86
2.700	0.86	8.667	2.01	14.633	2.01	20.60	0.86
2.733	0.86	8.700	2.01	14.667	2.01	20.63	0.86
2.767	0.86	8.733	2.01	14.700	2.01	20.67	0.86
2.800	0.86	8.767	2.15	14.733	2.01	20.70	0.86
2.833	0.86	8.800	2.30	14.767	2.15	20.73	0.86
2.867	0.86	8.833	2.30	14.800	2.30	20.77	0.86
2.900	0.86	8.867	2.30	14.833	2.30	20.80	0.86
2.933	0.86	8.900	2.30	14.867	2.30	20.83	0.86
2.967	0.86	8.933	2.30	14.900	2.30	20.87	0.86
3.000	0.86	8.967	2.30	14.933	2.30	20.90	0.86
3.033	1.15	9.000	2.30	14.967	2.30	20.93	0.86
3.067	1.15	9.033	2.30	15.000	2.30	20.97	0.86
3.100	1.15	9.067	2.30	15.033	2.01	21.00	0.86
3.133	1.15	9.100	2.30	15.067	2.01	21.03	0.86
3.167	1.15	9.133	2.30	15.100	2.01	21.07	0.86
3.200	1.15	9.167	2.30	15.133	2.01	21.10	0.86
3.233	1.15	9.200	2.30	15.167	2.01	21.13	0.86
3.267	1.01	9.233	2.30	15.200	2.01	21.17	0.86
3.300	0.86	9.267	2.44	15.233	2.01	21.20	0.86
3.333	0.86	9.300	2.58	15.267	2.15	21.23	0.86
3.367	0.86	9.333	2.58	15.300	2.30	21.27	0.86
3.400	0.86	9.367	2.58	15.333	2.30	21.30	0.86
3.433	0.86	9.400	2.58	15.367	2.30	21.33	0.86
3.467	0.86	9.433	2.58	15.400	2.30	21.37	0.86
3.500	0.86	9.467	2.58	15.433	2.30	21.40	0.86
3.533	0.86	9.500	2.58	15.467	2.30	21.43	0.86

3.567	0.86	9.533	2.58	15.500	2.30	21.47	0.86
3.600	0.86	9.567	2.58	15.533	2.01	21.50	0.86
3.633	0.86	9.600	2.58	15.567	2.01	21.53	0.86
3.667	0.86	9.633	2.58	15.600	2.01	21.57	0.86
3.700	0.86	9.667	2.58	15.633	2.01	21.60	0.86
3.733	0.86	9.700	2.58	15.667	2.01	21.63	0.86
3.767	1.01	9.733	2.58	15.700	2.01	21.67	0.86
3.800	1.15	9.767	2.87	15.733	2.01	21.70	0.86
3.833	1.15	9.800	3.16	15.767	1.72	21.73	0.86
3.867	1.15	9.833	3.16	15.800	1.44	21.77	0.86
3.900	1.15	9.867	3.16	15.833	1.44	21.80	0.86
3.933	1.15	9.900	3.16	15.867	1.44	21.83	0.86
3.967	1.15	9.933	3.16	15.900	1.44	21.87	0.86
4.000	1.15	9.967	3.16	15.933	1.44	21.90	0.86
4.033	1.15	10.000	3.16	15.967	1.44	21.93	0.86
4.067	1.15	10.033	3.45	16.000	1.44	21.97	0.86
4.100	1.15	10.067	3.45	16.033	1.15	22.00	0.86
4.133	1.15	10.100	3.45	16.067	1.15	22.03	0.86
4.167	1.15	10.133	3.45	16.100	1.15	22.07	0.86
4.200	1.15	10.167	3.45	16.133	1.15	22.10	0.86
4.233	1.15	10.200	3.45	16.167	1.15	22.13	0.86
4.267	1.15	10.233	3.45	16.200	1.15	22.17	0.86
4.300	1.15	10.267	3.88	16.233	1.15	22.20	0.86
4.333	1.15	10.300	4.31	16.267	1.29	22.23	0.86
4.367	1.15	10.333	4.31	16.300	1.44	22.27	0.86
4.400	1.15	10.367	4.31	16.333	1.44	22.30	0.86
4.433	1.15	10.400	4.31	16.367	1.44	22.33	0.86
4.467	1.15	10.433	4.31	16.400	1.44	22.37	0.86
4.500	1.15	10.467	4.31	16.433	1.44	22.40	0.86
4.533	1.15	10.500	4.31	16.467	1.44	22.43	0.86
4.567	1.15	10.533	4.60	16.500	1.44	22.47	0.86
4.600	1.15	10.567	4.60	16.533	1.15	22.50	0.86
4.633	1.15	10.600	4.60	16.567	1.15	22.53	0.86
4.667	1.15	10.633	4.60	16.600	1.15	22.57	0.86
4.700	1.15	10.667	4.60	16.633	1.15	22.60	0.86
4.733	1.15	10.700	4.60	16.667	1.15	22.63	0.86
4.767	1.15	10.733	4.60	16.700	1.15	22.67	0.86
4.800	1.15	10.767	5.75	16.733	1.15	22.70	0.86
4.833	1.15	10.800	6.89	16.767	1.29	22.73	0.86
4.867	1.15	10.833	6.89	16.800	1.44	22.77	0.86
4.900	1.15	10.867	6.89	16.833	1.44	22.80	0.86
4.933	1.15	10.900	6.89	16.867	1.44	22.83	0.86
4.967	1.15	10.933	6.89	16.900	1.44	22.87	0.86
5.000	1.15	10.967	6.89	16.933	1.44	22.90	0.86
5.033	1.15	11.000	6.89	16.967	1.44	22.93	0.86
5.067	1.15	11.033	6.89	17.000	1.44	22.97	0.86
5.100	1.15	11.067	6.89	17.033	1.15	23.00	0.86
5.133	1.15	11.100	6.89	17.067	1.15	23.03	0.86
5.167	1.15	11.133	6.89	17.100	1.15	23.07	0.86
5.200	1.15	11.167	6.89	17.133	1.15	23.10	0.86
5.233	1.15	11.200	6.89	17.167	1.15	23.13	0.86
5.267	1.15	11.233	6.89	17.200	1.15	23.17	0.86
5.300	1.15	11.267	14.09	17.233	1.15	23.20	0.86
5.333	1.15	11.300	21.25	17.267	1.29	23.23	0.86
5.367	1.15	11.333	21.25	17.300	1.44	23.27	0.86
5.400	1.15	11.367	21.25	17.333	1.44	23.30	0.86
5.433	1.15	11.400	21.25	17.367	1.44	23.33	0.86
5.467	1.15	11.433	21.25	17.400	1.44	23.37	0.86
5.500	1.15	11.467	21.25	17.433	1.44	23.40	0.86
5.533	1.15	11.500	21.33	17.467	1.44	23.43	0.86
5.567	1.15	11.533	87.88	17.500	1.44	23.47	0.86
5.600	1.15	11.567	87.88	17.533	1.15	23.50	0.86
5.633	1.15	11.600	87.88	17.567	1.15	23.53	0.86

5.667	1.15	11.633	87.88	17.600	1.15	23.57	0.86
5.700	1.15	11.667	87.88	17.633	1.15	23.60	0.86
5.733	1.15	11.700	87.88	17.667	1.15	23.63	0.86
5.767	1.15	11.733	87.88	17.700	1.15	23.67	0.86
5.800	1.15	11.767	49.01	17.733	1.15	23.70	0.86
5.833	1.15	11.800	10.34	17.767	1.29	23.73	0.86
5.867	1.15	11.833	10.34	17.800	1.44	23.77	0.43
5.900	1.15	11.867	10.34	17.833	1.44		
5.933	1.15	11.900	10.34	17.867	1.44		
5.967	1.15	11.933	10.34	17.900	1.44		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.043 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 10.008
TOTAL RAINFALL (mm)= 71.584
RUNOFF COEFFICIENT = 0.140

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

CALIB			
NASHYD (0203)	Area (ha)=	2.89	Curve Number (CN)= 42.9
ID= 1 DT= 2.0 min	Ia (mm)=	8.98	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.18	

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.071 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 9.791
TOTAL RAINFALL (mm)= 71.584
RUNOFF COEFFICIENT = 0.137

(i) 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 (0202):	1.63	0.043	11.83	10.01
+ ID2= 2 (0203):	2.89	0.071	11.83	9.79
ID = 3 (0057):	4.52	0.114	11.83	9.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0204)	Area (ha)=	0.64	Curve Number (CN)= 48.1
ID= 1 DT= 2.0 min	Ia (mm)=	9.20	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.33	

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.012 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 11.558

TOTAL RAINFALL (mm)= 71.584
RUNOFF COEFFICIENT = 0.161

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

ADD HYD (0058)
1 + 2 = 3

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0204):	0.64	0.012	12.00	11.56
+ ID2= 2 (0057):	4.52	0.114	11.83	9.87
ID = 3 (0058):	5.16	0.124	11.83	10.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0201)	Area (ha)=	2.20	
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 21.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	1.25
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	121.11	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.86	6.083	1.44	12.083	10.34	18.08	1.15
0.167	0.86	6.167	1.44	12.167	10.34	18.17	1.15
0.250	0.86	6.250	1.44	12.250	10.34	18.25	1.15
0.333	0.57	6.333	1.15	12.333	5.46	18.33	1.44
0.417	0.57	6.417	1.15	12.417	5.46	18.42	1.44
0.500	0.57	6.500	1.15	12.500	5.46	18.50	1.44
0.583	0.86	6.583	1.44	12.583	5.17	18.58	1.15
0.667	0.86	6.667	1.44	12.667	5.17	18.67	1.15
0.750	0.86	6.750	1.44	12.750	5.17	18.75	1.15
0.833	0.86	6.833	1.44	12.833	4.02	18.83	1.44
0.917	0.86	6.917	1.44	12.917	4.02	18.92	1.44
1.000	0.86	7.000	1.44	13.000	4.02	19.00	1.44
1.083	0.86	7.083	1.72	13.083	3.73	19.08	1.15
1.167	0.86	7.167	1.72	13.167	3.73	19.17	1.15
1.250	0.86	7.250	1.72	13.250	3.73	19.25	1.15
1.333	0.57	7.333	1.44	13.333	3.16	19.33	1.44
1.417	0.57	7.417	1.44	13.417	3.16	19.42	1.44
1.500	0.57	7.500	1.44	13.500	3.16	19.50	1.44
1.583	0.86	7.583	1.72	13.583	2.87	19.58	1.15
1.667	0.86	7.667	1.72	13.667	2.87	19.67	1.15
1.750	0.86	7.750	1.72	13.750	2.87	19.75	1.15
1.833	0.86	7.833	1.72	13.833	2.30	19.83	0.86
1.917	0.86	7.917	1.72	13.917	2.30	19.92	0.86
2.000	0.86	8.000	1.72	14.000	2.30	20.00	0.86
2.083	1.15	8.083	2.01	14.083	2.01	20.08	0.86
2.167	1.15	8.167	2.01	14.167	2.01	20.17	0.86

2.250	1.15	8.250	2.01	14.250	2.01	20.25	0.86
2.333	0.86	8.333	2.01	14.333	2.30	20.33	0.86
2.417	0.86	8.417	2.01	14.417	2.30	20.42	0.86
2.500	0.86	8.500	2.01	14.500	2.30	20.50	0.86
2.583	0.86	8.583	2.01	14.583	2.01	20.58	0.86
2.667	0.86	8.667	2.01	14.667	2.01	20.67	0.86
2.750	0.86	8.750	2.01	14.750	2.01	20.75	0.86
2.833	0.86	8.833	2.30	14.833	2.30	20.83	0.86
2.917	0.86	8.917	2.30	14.917	2.30	20.92	0.86
3.000	0.86	9.000	2.30	15.000	2.30	21.00	0.86
3.083	1.15	9.083	2.30	15.083	2.01	21.08	0.86
3.167	1.15	9.167	2.30	15.167	2.01	21.17	0.86
3.250	1.15	9.250	2.30	15.250	2.01	21.25	0.86
3.333	0.86	9.333	2.58	15.333	2.30	21.33	0.86
3.417	0.86	9.417	2.58	15.417	2.30	21.42	0.86
3.500	0.86	9.500	2.58	15.500	2.30	21.50	0.86
3.583	0.86	9.583	2.58	15.583	2.01	21.58	0.86
3.667	0.86	9.667	2.58	15.667	2.01	21.67	0.86
3.750	0.86	9.750	2.58	15.750	2.01	21.75	0.86
3.833	1.15	9.833	3.16	15.833	1.44	21.83	0.86
3.917	1.15	9.917	3.16	15.917	1.44	21.92	0.86
4.000	1.15	10.000	3.16	16.000	1.44	22.00	0.86
4.083	1.15	10.083	3.45	16.083	1.15	22.08	0.86
4.167	1.15	10.167	3.45	16.167	1.15	22.17	0.86
4.250	1.15	10.250	3.45	16.250	1.15	22.25	0.86
4.333	1.15	10.333	4.31	16.333	1.44	22.33	0.86
4.417	1.15	10.417	4.31	16.417	1.44	22.42	0.86
4.500	1.15	10.500	4.31	16.500	1.44	22.50	0.86
4.583	1.15	10.583	4.60	16.583	1.15	22.58	0.86
4.667	1.15	10.667	4.60	16.667	1.15	22.67	0.86
4.750	1.15	10.750	4.60	16.750	1.15	22.75	0.86
4.833	1.15	10.833	6.89	16.833	1.44	22.83	0.86
4.917	1.15	10.917	6.89	16.917	1.44	22.92	0.86
5.000	1.15	11.000	6.89	17.000	1.44	23.00	0.86
5.083	1.15	11.083	6.89	17.083	1.15	23.08	0.86
5.167	1.15	11.167	6.89	17.167	1.15	23.17	0.86
5.250	1.15	11.250	6.89	17.250	1.15	23.25	0.86
5.333	1.15	11.333	21.25	17.333	1.44	23.33	0.86
5.417	1.15	11.417	21.25	17.417	1.44	23.42	0.86
5.500	1.15	11.500	21.25	17.500	1.44	23.50	0.86
5.583	1.15	11.583	87.88	17.583	1.15	23.58	0.86
5.667	1.15	11.667	87.88	17.667	1.15	23.67	0.86
5.750	1.15	11.750	87.88	17.750	1.15	23.75	0.86
5.833	1.15	11.833	10.35	17.833	1.44		
5.917	1.15	11.917	10.34	17.917	1.44		
6.000	1.15	12.000	10.34	18.000	1.44		

Max.Eff.Inten.(mm/hr)=		87.88	112.48	
over (min)		5.00	15.00	
Storage Coeff. (min)=		3.02 (ii)	11.31 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.27	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.11	0.25	0.336 (iii)
TIME TO PEAK	(hrs)=	11.75	11.83	11.75
RUNOFF VOLUME	(mm)=	70.58	24.66	34.30
TOTAL RAINFALL	(mm)=	71.58	71.58	71.58
RUNOFF COEFFICIENT	=	0.99	0.34	0.48

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

(i) HORTONS EQUATION SELECTED FOR PERVIOUS LOSSES:
Fo (mm/hr)= 50.00 K (1/hr)= 2.00

Fc (mm/hr)= 7.50 Cum.Inf. (mm)= 0.00
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.1680	0.1590	0.5570
	0.0440	0.2080	0.3520	0.7230
	0.0990	0.3020	1.2920	0.9160
	0.1320	0.4180	2.0620	1.0230

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)	2.200	0.336	11.75	34.30
OUTFLOW: ID= 1 (0301)	2.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0339

ADD HYD (0059)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0301):	2.20	0.000	0.00	0.00	
+ ID2= 2 (0058):	5.16	0.124	11.83	10.08	
ID = 3 (0059):	7.36	0.124	11.83	7.07	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0205)	Area (ha)= 0.03		
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00	Dir. Conn.(%)= 28.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.02	0.01	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	1.00	
Length	(m)=	14.14	20.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		87.88	135.56	
over (min)		5.00	10.00	
Storage Coeff. (min)=		0.83 (ii)	5.91 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.00	0.006 (iii)
TIME TO PEAK	(hrs)=	11.75	11.75	11.75
RUNOFF VOLUME	(mm)=	70.58	27.10	34.87
TOTAL RAINFALL	(mm)=	71.58	71.58	71.58
RUNOFF COEFFICIENT	=	0.99	0.38	0.49

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

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

ADD HYD (0060)|		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0205):			0.03	0.006	11.75	34.87
+ ID2= 2 (0059):			7.36	0.124	11.83	7.07
ID = 3 (0060):			7.39	0.128	11.83	7.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0207)	Area (ha)=	0.78	Curve Number (CN)=	66.3
ID= 1 DT= 5.0 min	Ia (mm)=	4.87	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.19		

Unit Hyd Qpeak (cms)= 0.157

PEAK FLOW (cms)= 0.046 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 22.676
TOTAL RAINFALL (mm)= 71.585
RUNOFF COEFFICIENT = 0.317

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

ADD HYD (0061)|		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0207):			0.78	0.046	11.83	22.68
+ ID2= 2 (0060):			7.39	0.128	11.83	7.18
ID = 3 (0061):			8.17	0.173	11.83	8.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
STANDHYD (0206)	Area (ha)=	0.73		
ID= 1 DT= 5.0 min	Total Imp(%)=	32.00	Dir. Conn.(%)=	13.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.23	0.50
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	69.76	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		87.88	102.37
over (min)		5.00	10.00
Storage Coeff. (min)=		2.17 (ii)	9.16 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		0.31	0.12

				TOTALS
PEAK FLOW	(cms)=	0.02	0.11	0.129 (iii)
TIME TO PEAK	(hrs)=	11.75	11.75	11.75
RUNOFF VOLUME	(mm)=	70.58	23.43	29.56
TOTAL RAINFALL	(mm)=	71.58	71.58	71.58
RUNOFF COEFFICIENT	=	0.99	0.33	0.41

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

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

ADD HYD (0401)|		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3			(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0206):			0.73	0.129	11.75	29.56
+ ID2= 2 (0061):			8.17	0.173	11.83	8.66
ID = 3 (0401):			8.90	0.281	11.80	10.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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V    V   I    SSSSS  U   U    A    L
V    V   I    SS     U   U   A A   L
 V  V    I     SS    U   U  AAAAA  L
 V  V    I      SS   U   U  A   A  L
  VV     I    SSSSS  UUUUU  A   A  LLLLL

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

Output filename:

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  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\e11a2aae-0f12-477c-b4d8-201ce77718da\scen

DATE: 10/09/2020 TIME: 05:31:52

USER:

COMMENTS: _____

****
** SIMULATION : Run 03 **
****

MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\d21eaacb-4cf1-4504-bf53-d3c44604e13d\7057d6bc
Ptotal= 83.80 mm	Comments: SCS Type II 24 HR MASS CURVE

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.01	6.25	1.68	12.25	12.07	18.25	1.34
0.50	0.67	6.50	1.34	12.50	6.37	18.50	1.68
0.75	1.01	6.75	1.68	12.75	6.03	18.75	1.34
1.00	1.01	7.00	1.68	13.00	4.69	19.00	1.68
1.25	1.01	7.25	2.01	13.25	4.36	19.25	1.34
1.50	0.67	7.50	1.68	13.50	3.69	19.50	1.68
1.75	1.01	7.75	2.01	13.75	3.35	19.75	1.34
2.00	1.01	8.00	2.01	14.00	2.68	20.00	1.01
2.25	1.34	8.25	2.35	14.25	2.35	20.25	1.01
2.50	1.01	8.50	2.35	14.50	2.68	20.50	1.01
2.75	1.01	8.75	2.35	14.75	2.35	20.75	1.01
3.00	1.01	9.00	2.68	15.00	2.68	21.00	1.01
3.25	1.34	9.25	2.68	15.25	2.35	21.25	1.01
3.50	1.01	9.50	3.02	15.50	2.68	21.50	1.01
3.75	1.01	9.75	3.02	15.75	2.35	21.75	1.01
4.00	1.34	10.00	3.69	16.00	1.68	22.00	1.01
4.25	1.34	10.25	4.02	16.25	1.34	22.25	1.01
4.50	1.34	10.50	5.03	16.50	1.68	22.50	1.01
4.75	1.34	10.75	5.36	16.75	1.34	22.75	1.01
5.00	1.34	11.00	8.04	17.00	1.68	23.00	1.01
5.25	1.34	11.25	8.04	17.25	1.34	23.25	1.01
5.50	1.34	11.50	24.80	17.50	1.68	23.50	1.01
5.75	1.34	11.75	102.57	17.75	1.34	23.75	1.01
6.00	1.34	12.00	12.07	18.00	1.68		

CALIB NASHYD (0202) ID= 1 DT= 2.0 min	Area (ha)= 1.63 Curve Number (CN)= 44.1
	Ia (mm)= 9.62 # of Linear Res.(N)= 3.00

---------- U.H. Tp(hrs)= 0.17

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.01	6.000	1.34	11.967	12.07	17.93	1.68
0.067	1.01	6.033	1.68	12.000	12.07	17.97	1.68
0.100	1.01	6.067	1.68	12.033	12.07	18.00	1.68
0.133	1.01	6.100	1.68	12.067	12.07	18.03	1.34
0.167	1.01	6.133	1.68	12.100	12.07	18.07	1.34
0.200	1.01	6.167	1.68	12.133	12.07	18.10	1.34
0.233	1.01	6.200	1.68	12.167	12.07	18.13	1.34
0.267	0.84	6.233	1.68	12.200	12.07	18.17	1.34
0.300	0.67	6.267	1.51	12.233	12.07	18.20	1.34
0.333	0.67	6.300	1.34	12.267	9.21	18.23	1.34
0.367	0.67	6.333	1.34	12.300	6.37	18.27	1.51
0.400	0.67	6.367	1.34	12.333	6.37	18.30	1.68
0.433	0.67	6.400	1.34	12.367	6.37	18.33	1.68
0.467	0.67	6.433	1.34	12.400	6.37	18.37	1.68
0.500	0.67	6.467	1.34	12.433	6.37	18.40	1.68
0.533	1.01	6.500	1.34	12.467	6.37	18.43	1.68
0.567	1.01	6.533	1.68	12.500	6.37	18.47	1.68
0.600	1.01	6.567	1.68	12.533	6.03	18.50	1.68
0.633	1.01	6.600	1.68	12.567	6.03	18.53	1.34
0.667	1.01	6.633	1.68	12.600	6.03	18.57	1.34
0.700	1.01	6.667	1.68	12.633	6.03	18.60	1.34
0.733	1.01	6.700	1.68	12.667	6.03	18.63	1.34
0.767	1.01	6.733	1.68	12.700	6.03	18.67	1.34
0.800	1.01	6.767	1.68	12.733	6.03	18.70	1.34
0.833	1.01	6.800	1.68	12.767	5.36	18.73	1.34
0.867	1.01	6.833	1.68	12.800	4.69	18.77	1.51
0.900	1.01	6.867	1.68	12.833	4.69	18.80	1.68
0.933	1.01	6.900	1.68	12.867	4.69	18.83	1.68
0.967	1.01	6.933	1.68	12.900	4.69	18.87	1.68
1.000	1.01	6.967	1.68	12.933	4.69	18.90	1.68
1.033	1.01	7.000	1.68	12.967	4.69	18.93	1.68
1.067	1.01	7.033	2.01	13.000	4.69	18.97	1.68
1.100	1.01	7.067	2.01	13.033	4.36	19.00	1.68
1.133	1.01	7.100	2.01	13.067	4.36	19.03	1.34
1.167	1.01	7.133	2.01	13.100	4.36	19.07	1.34
1.200	1.01	7.167	2.01	13.133	4.36	19.10	1.34
1.233	1.01	7.200	2.01	13.167	4.36	19.13	1.34
1.267	0.84	7.233	2.01	13.200	4.36	19.17	1.34
1.300	0.67	7.267	1.84	13.233	4.36	19.20	1.34
1.333	0.67	7.300	1.68	13.267	4.02	19.23	1.34
1.367	0.67	7.333	1.68	13.300	3.69	19.27	1.51
1.400	0.67	7.367	1.68	13.333	3.69	19.30	1.68
1.433	0.67	7.400	1.68	13.367	3.69	19.33	1.68
1.467	0.67	7.433	1.68	13.400	3.69	19.37	1.68
1.500	0.67	7.467	1.68	13.433	3.69	19.40	1.68
1.533	1.01	7.500	1.68	13.467	3.69	19.43	1.68
1.567	1.01	7.533	2.01	13.500	3.69	19.47	1.68
1.600	1.01	7.567	2.01	13.533	3.35	19.50	1.68
1.633	1.01	7.600	2.01	13.567	3.35	19.53	1.34
1.667	1.01	7.633	2.01	13.600	3.35	19.57	1.34
1.700	1.01	7.667	2.01	13.633	3.35	19.60	1.34
1.733	1.01	7.700	2.01	13.667	3.35	19.63	1.34
1.767	1.01	7.733	2.01	13.700	3.35	19.67	1.34
1.800	1.01	7.767	2.01	13.733	3.35	19.70	1.34
1.833	1.01	7.800	2.01	13.767	3.02	19.73	1.34

1.867	1.01	7.833	2.01	13.800	2.68	19.77	1.17
1.900	1.01	7.867	2.01	13.833	2.68	19.80	1.01
1.933	1.01	7.900	2.01	13.867	2.68	19.83	1.01
1.967	1.01	7.933	2.01	13.900	2.68	19.87	1.01
2.000	1.01	7.967	2.01	13.933	2.68	19.90	1.01
2.033	1.34	8.000	2.01	13.967	2.68	19.93	1.01
2.067	1.34	8.033	2.35	14.000	2.68	19.97	1.01
2.100	1.34	8.067	2.35	14.033	2.35	20.00	1.01
2.133	1.34	8.100	2.35	14.067	2.35	20.03	1.01
2.167	1.34	8.133	2.35	14.100	2.35	20.07	1.01
2.200	1.34	8.167	2.35	14.133	2.35	20.10	1.01
2.233	1.34	8.200	2.35	14.167	2.35	20.13	1.01
2.267	1.17	8.233	2.35	14.200	2.35	20.17	1.01
2.300	1.01	8.267	2.35	14.233	2.35	20.20	1.01
2.333	1.01	8.300	2.35	14.267	2.51	20.23	1.01
2.367	1.01	8.333	2.35	14.300	2.68	20.27	1.01
2.400	1.01	8.367	2.35	14.333	2.68	20.30	1.01
2.433	1.01	8.400	2.35	14.367	2.68	20.33	1.01
2.467	1.01	8.433	2.35	14.400	2.68	20.37	1.01
2.500	1.01	8.467	2.35	14.433	2.68	20.40	1.01
2.533	1.01	8.500	2.35	14.467	2.68	20.43	1.01
2.567	1.01	8.533	2.35	14.500	2.68	20.47	1.01
2.600	1.01	8.567	2.35	14.533	2.35	20.50	1.01
2.633	1.01	8.600	2.35	14.567	2.35	20.53	1.01
2.667	1.01	8.633	2.35	14.600	2.35	20.57	1.01
2.700	1.01	8.667	2.35	14.633	2.35	20.60	1.01
2.733	1.01	8.700	2.35	14.667	2.35	20.63	1.01
2.767	1.01	8.733	2.35	14.700	2.35	20.67	1.01
2.800	1.01	8.767	2.51	14.733	2.35	20.70	1.01
2.833	1.01	8.800	2.68	14.767	2.51	20.73	1.01
2.867	1.01	8.833	2.68	14.800	2.68	20.77	1.01
2.900	1.01	8.867	2.68	14.833	2.68	20.80	1.01
2.933	1.01	8.900	2.68	14.867	2.68	20.83	1.01
2.967	1.01	8.933	2.68	14.900	2.68	20.87	1.01
3.000	1.01	8.967	2.68	14.933	2.68	20.90	1.01
3.033	1.34	9.000	2.68	14.967	2.68	20.93	1.01
3.067	1.34	9.033	2.68	15.000	2.68	20.97	1.01
3.100	1.34	9.067	2.68	15.033	2.35	21.00	1.01
3.133	1.34	9.100	2.68	15.067	2.35	21.03	1.01
3.167	1.34	9.133	2.68	15.100	2.35	21.07	1.01
3.200	1.34	9.167	2.68	15.133	2.35	21.10	1.01
3.233	1.34	9.200	2.68	15.167	2.35	21.13	1.01
3.267	1.17	9.233	2.68	15.200	2.35	21.17	1.01
3.300	1.01	9.267	2.85	15.233	2.35	21.20	1.01
3.333	1.01	9.300	3.02	15.267	2.51	21.23	1.01
3.367	1.01	9.333	3.02	15.300	2.68	21.27	1.01
3.400	1.01	9.367	3.02	15.333	2.68	21.30	1.01
3.433	1.01	9.400	3.02	15.367	2.68	21.33	1.01
3.467	1.01	9.433	3.02	15.400	2.68	21.37	1.01
3.500	1.01	9.467	3.02	15.433	2.68	21.40	1.01
3.533	1.01	9.500	3.02	15.467	2.68	21.43	1.01
3.567	1.01	9.533	3.02	15.500	2.68	21.47	1.01
3.600	1.01	9.567	3.02	15.533	2.35	21.50	1.01
3.633	1.01	9.600	3.02	15.567	2.35	21.53	1.01
3.667	1.01	9.633	3.02	15.600	2.35	21.57	1.01
3.700	1.01	9.667	3.02	15.633	2.35	21.60	1.01
3.733	1.01	9.700	3.02	15.667	2.35	21.63	1.01
3.767	1.17	9.733	3.02	15.700	2.35	21.67	1.01
3.800	1.34	9.767	3.35	15.733	2.35	21.70	1.01
3.833	1.34	9.800	3.69	15.767	2.01	21.73	1.01
3.867	1.34	9.833	3.69	15.800	1.68	21.77	1.01
3.900	1.34	9.867	3.69	15.833	1.68	21.80	1.01
3.933	1.34	9.900	3.69	15.867	1.68	21.83	1.01

3.967	1.34	9.933	3.69	15.900	1.68	21.87	1.01
4.000	1.34	9.967	3.69	15.933	1.68	21.90	1.01
4.033	1.34	10.000	3.69	15.967	1.68	21.93	1.01
4.067	1.34	10.033	4.02	16.000	1.68	21.97	1.01
4.100	1.34	10.067	4.02	16.033	1.34	22.00	1.01
4.133	1.34	10.100	4.02	16.067	1.34	22.03	1.01
4.167	1.34	10.133	4.02	16.100	1.34	22.07	1.01
4.200	1.34	10.167	4.02	16.133	1.34	22.10	1.01
4.233	1.34	10.200	4.02	16.167	1.34	22.13	1.01
4.267	1.34	10.233	4.02	16.200	1.34	22.17	1.01
4.300	1.34	10.267	4.53	16.233	1.34	22.20	1.01
4.333	1.34	10.300	5.03	16.267	1.51	22.23	1.01
4.367	1.34	10.333	5.03	16.300	1.68	22.27	1.01
4.400	1.34	10.367	5.03	16.333	1.68	22.30	1.01
4.433	1.34	10.400	5.03	16.367	1.68	22.33	1.01
4.467	1.34	10.433	5.03	16.400	1.68	22.37	1.01
4.500	1.34	10.467	5.03	16.433	1.68	22.40	1.01
4.533	1.34	10.500	5.03	16.467	1.68	22.43	1.01
4.567	1.34	10.533	5.36	16.500	1.68	22.47	1.01
4.600	1.34	10.567	5.36	16.533	1.34	22.50	1.01
4.633	1.34	10.600	5.36	16.567	1.34	22.53	1.01
4.667	1.34	10.633	5.36	16.600	1.34	22.57	1.01
4.700	1.34	10.667	5.36	16.633	1.34	22.60	1.01
4.733	1.34	10.700	5.36	16.667	1.34	22.63	1.01
4.767	1.34	10.733	5.36	16.700	1.34	22.67	1.01
4.800	1.34	10.767	6.71	16.733	1.34	22.70	1.01
4.833	1.34	10.800	8.04	16.767	1.51	22.73	1.01
4.867	1.34	10.833	8.04	16.800	1.68	22.77	1.01
4.900	1.34	10.867	8.04	16.833	1.68	22.80	1.01
4.933	1.34	10.900	8.04	16.867	1.68	22.83	1.01
4.967	1.34	10.933	8.04	16.900	1.68	22.87	1.01
5.000	1.34	10.967	8.04	16.933	1.68	22.90	1.01
5.033	1.34	11.000	8.04	16.967	1.68	22.93	1.01
5.067	1.34	11.033	8.04	17.000	1.68	22.97	1.01
5.100	1.34	11.067	8.04	17.033	1.34	23.00	1.01
5.133	1.34	11.100	8.04	17.067	1.34	23.03	1.01
5.167	1.34	11.133	8.04	17.100	1.34	23.07	1.01
5.200	1.34	11.167	8.04	17.133	1.34	23.10	1.01
5.233	1.34	11.200	8.04	17.167	1.34	23.13	1.01
5.267	1.34	11.233	8.04	17.200	1.34	23.17	1.01
5.300	1.34	11.267	16.44	17.233	1.34	23.20	1.01
5.333	1.34	11.300	24.80	17.267	1.51	23.23	1.01
5.367	1.34	11.333	24.80	17.300	1.68	23.27	1.01
5.400	1.34	11.367	24.80	17.333	1.68	23.30	1.01
5.433	1.34	11.400	24.80	17.367	1.68	23.33	1.01
5.467	1.34	11.433	24.80	17.400	1.68	23.37	1.01
5.500	1.34	11.467	24.80	17.433	1.68	23.40	1.01
5.533	1.34	11.500	24.90	17.467	1.68	23.43	1.01
5.567	1.34	11.533	102.57	17.500	1.68	23.47	1.01
5.600	1.34	11.567	102.57	17.533	1.34	23.50	1.01
5.633	1.34	11.600	102.57	17.567	1.34	23.53	1.01
5.667	1.34	11.633	102.57	17.600	1.34	23.57	1.01
5.700	1.34	11.667	102.57	17.633	1.34	23.60	1.01
5.733	1.34	11.700	102.57	17.667	1.34	23.63	1.01
5.767	1.34	11.733	102.57	17.700	1.34	23.67	1.01
5.800	1.34	11.767	57.20	17.733	1.34	23.70	1.01
5.833	1.34	11.800	12.07	17.767	1.51	23.73	1.01
5.867	1.34	11.833	12.07	17.800	1.68	23.77	0.50
5.900	1.34	11.867	12.07	17.833	1.68		
5.933	1.34	11.900	12.07	17.867	1.68		
5.967	1.34	11.933	12.07	17.900	1.68		

Unit Hyd Qpeak (cms)= 0.366

```
     PEAK FLOW       (cms)=   0.059 (i)
     TIME TO PEAK    (hrs)=  11.833
     RUNOFF VOLUME    (mm)=  13.815
     TOTAL RAINFALL   (mm)=  83.548
     RUNOFF COEFFICIENT   =   0.165

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

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--------------------
| CALIB            |
| NASHYD   (  0203)|   Area    (ha)=   2.89   Curve Number   (CN)= 42.9
|ID= 1 DT= 2.0 min |   Ia      (mm)=   8.98   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.18

     Unit Hyd Qpeak  (cms)=   0.613

     PEAK FLOW       (cms)=   0.099 (i)
     TIME TO PEAK    (hrs)=  11.833
     RUNOFF VOLUME    (mm)=  13.487
     TOTAL RAINFALL   (mm)=  83.548
     RUNOFF COEFFICIENT   =   0.161

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

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--------------------
| ADD HYD  (  0057)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0202):     1.63   0.059    11.83    13.82
      + ID2= 2 (  0203):     2.89   0.099    11.83    13.49
        ================================================
        ID = 3 (  0057):     4.52   0.159    11.83    13.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  0204)|   Area    (ha)=   0.64   Curve Number   (CN)= 48.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.33

     Unit Hyd Qpeak  (cms)=   0.074

     PEAK FLOW       (cms)=   0.017 (i)
     TIME TO PEAK    (hrs)=  12.000
     RUNOFF VOLUME    (mm)=  15.854
     TOTAL RAINFALL   (mm)=  83.548
     RUNOFF COEFFICIENT   =   0.190

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

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--------------------
| ADD HYD  (  0058)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0204):     0.64   0.017    12.00    15.85
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      + ID2= 2 (  0057):     4.52   0.159    11.83    13.61
        ================================================
        ID = 3 (  0058):     5.16   0.173    11.83    13.88

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  21.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.95         1.25
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         1.00
     Length            (m)=     121.11        40.00
     Mannings n           =      0.013        0.250

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

                          ---- TRANSFORMED HYETOGRAPH ----
  TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
   hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.083    1.01 | 6.083    1.68 |12.083   12.07 | 18.08    1.34
 0.167    1.01 | 6.167    1.68 |12.167   12.07 | 18.17    1.34
 0.250    1.01 | 6.250    1.68 |12.250   12.07 | 18.25    1.34
 0.333    0.67 | 6.333    1.34 |12.333    6.37 | 18.33    1.68
 0.417    0.67 | 6.417    1.34 |12.417    6.37 | 18.42    1.68
 0.500    0.67 | 6.500    1.34 |12.500    6.37 | 18.50    1.68
 0.583    1.01 | 6.583    1.68 |12.583    6.03 | 18.58    1.34
 0.667    1.01 | 6.667    1.68 |12.667    6.03 | 18.67    1.34
 0.750    1.01 | 6.750    1.68 |12.750    6.03 | 18.75    1.34
 0.833    1.01 | 6.833    1.68 |12.833    4.69 | 18.83    1.68
 0.917    1.01 | 6.917    1.68 |12.917    4.69 | 18.92    1.68
 1.000    1.01 | 7.000    1.68 |13.000    4.69 | 19.00    1.68
 1.083    1.01 | 7.083    2.01 |13.083    4.36 | 19.08    1.34
 1.167    1.01 | 7.167    2.01 |13.167    4.36 | 19.17    1.34
 1.250    1.01 | 7.250    2.01 |13.250    4.36 | 19.25    1.34
 1.333    0.67 | 7.333    1.68 |13.333    3.69 | 19.33    1.68
 1.417    0.67 | 7.417    1.68 |13.417    3.69 | 19.42    1.68
 1.500    0.67 | 7.500    1.68 |13.500    3.69 | 19.50    1.68
 1.583    1.01 | 7.583    2.01 |13.583    3.35 | 19.58    1.34
 1.667    1.01 | 7.667    2.01 |13.667    3.35 | 19.67    1.34
 1.750    1.01 | 7.750    2.01 |13.750    3.35 | 19.75    1.34
 1.833    1.01 | 7.833    2.01 |13.833    2.68 | 19.83    1.01
 1.917    1.01 | 7.917    2.01 |13.917    2.68 | 19.92    1.01
 2.000    1.01 | 8.000    2.01 |14.000    2.68 | 20.00    1.01
 2.083    1.34 | 8.083    2.35 |14.083    2.35 | 20.08    1.01
 2.167    1.34 | 8.167    2.35 |14.167    2.35 | 20.17    1.01
 2.250    1.34 | 8.250    2.35 |14.250    2.35 | 20.25    1.01
 2.333    1.01 | 8.333    2.35 |14.333    2.68 | 20.33    1.01
 2.417    1.01 | 8.417    2.35 |14.417    2.68 | 20.42    1.01
 2.500    1.01 | 8.500    2.35 |14.500    2.68 | 20.50    1.01
 2.583    1.01 | 8.583    2.35 |14.583    2.35 | 20.58    1.01
 2.667    1.01 | 8.667    2.35 |14.667    2.35 | 20.67    1.01
 2.750    1.01 | 8.750    2.35 |14.750    2.35 | 20.75    1.01
 2.833    1.01 | 8.833    2.68 |14.833    2.68 | 20.83    1.01
 2.917    1.01 | 8.917    2.68 |14.917    2.68 | 20.92    1.01
 3.000    1.01 | 9.000    2.68 |15.000    2.68 | 21.00    1.01
 3.083    1.34 | 9.083    2.68 |15.083    2.35 | 21.08    1.01
 3.167    1.34 | 9.167    2.68 |15.167    2.35 | 21.17    1.01
```

3.250	1.34	9.250	2.68	15.250	2.35	21.25	1.01
3.333	1.01	9.333	3.02	15.333	2.68	21.33	1.01
3.417	1.01	9.417	3.02	15.417	2.68	21.42	1.01
3.500	1.01	9.500	3.02	15.500	2.68	21.50	1.01
3.583	1.01	9.583	3.02	15.583	2.35	21.58	1.01
3.667	1.01	9.667	3.02	15.667	2.35	21.67	1.01
3.750	1.01	9.750	3.02	15.750	2.35	21.75	1.01
3.833	1.34	9.833	3.69	15.833	1.68	21.83	1.01
3.917	1.34	9.917	3.69	15.917	1.68	21.92	1.01
4.000	1.34	10.000	3.69	16.000	1.68	22.00	1.01
4.083	1.34	10.083	4.02	16.083	1.34	22.08	1.01
4.167	1.34	10.167	4.02	16.167	1.34	22.17	1.01
4.250	1.34	10.250	4.02	16.250	1.34	22.25	1.01
4.333	1.34	10.333	5.03	16.333	1.68	22.33	1.01
4.417	1.34	10.417	5.03	16.417	1.68	22.42	1.01
4.500	1.34	10.500	5.03	16.500	1.68	22.50	1.01
4.583	1.34	10.583	5.36	16.583	1.34	22.58	1.01
4.667	1.34	10.667	5.36	16.667	1.34	22.67	1.01
4.750	1.34	10.750	5.36	16.750	1.34	22.75	1.01
4.833	1.34	10.833	8.04	16.833	1.68	22.83	1.01
4.917	1.34	10.917	8.04	16.917	1.68	22.92	1.01
5.000	1.34	11.000	8.04	17.000	1.68	23.00	1.01
5.083	1.34	11.083	8.04	17.083	1.34	23.08	1.01
5.167	1.34	11.167	8.04	17.167	1.34	23.17	1.01
5.250	1.34	11.250	8.04	17.250	1.34	23.25	1.01
5.333	1.34	11.333	24.80	17.333	1.68	23.33	1.01
5.417	1.34	11.417	24.80	17.417	1.68	23.42	1.01
5.500	1.34	11.500	24.80	17.500	1.68	23.50	1.01
5.583	1.34	11.583	102.56	17.583	1.34	23.58	1.01
5.667	1.34	11.667	102.57	17.667	1.34	23.67	1.01
5.750	1.34	11.750	102.57	17.750	1.34	23.75	1.01
5.833	1.34	11.833	12.08	17.833	1.68		
5.917	1.34	11.917	12.07	17.917	1.68		
6.000	1.34	12.000	12.07	18.000	1.68		

Max.Eff.Inten.(mm/hr)=		102.57	133.87	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.84 (ii)	10.57 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.28	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.13	0.31	0.414 (iii)
TIME TO PEAK	(hrs)=	11.75	11.83	11.75
RUNOFF VOLUME	(mm)=	82.55	31.41	42.15
TOTAL RAINFALL	(mm)=	83.55	83.55	83.55
RUNOFF COEFFICIENT	=	0.99	0.38	0.50

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

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

RESERVOIR(0301) IN= 2---> OUT= 1 DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.1680	0.1590	0.5570

0.0440	0.2080	0.3520	0.7230
0.0990	0.3020	1.2920	0.9160
0.1320	0.4180	2.0620	1.0230

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)	2.200	0.414	11.75	42.15
OUTFLOW: ID= 1 (0301)	2.200	0.000	0.00	0.00

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

ADD HYD (0059) 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0301):	2.20	0.000	0.00	0.00
+ ID2= 2 (0058):	5.16	0.173	11.83	13.88
ID = 3 (0059):	7.36	0.173	11.83	9.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB STANDHYD (0205) ID= 1 DT= 5.0 min	Area (ha)= 0.03 Total Imp(%)= 56.00 Dir. Conn.(%)= 28.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.02	0.01
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	14.14	20.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)=		102.57	160.03	
over (min)		5.00	10.00	
Storage Coeff. (min)=		0.78 (ii)	5.53 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.34	0.16	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.01	0.008 (iii)
TIME TO PEAK	(hrs)=	11.75	11.75	11.75
RUNOFF VOLUME	(mm)=	82.55	34.35	43.13
TOTAL RAINFALL	(mm)=	83.55	83.55	83.55
RUNOFF COEFFICIENT	=	0.99	0.41	0.52

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

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

```
| ADD HYD  (  0060)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0205):     0.03   0.008    11.75    43.13
     + ID2= 2 (  0059):     7.36   0.173    11.83     9.73
       ================================================
       ID = 3 (  0060):     7.39   0.177    11.83     9.87

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB           |
| NASHYD   (  0207)|   Area    (ha)=   0.78   Curve Number   (CN)= 66.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.87   # of Linear Res.(N)= 3.00
-------------------   U.H. Tp(hrs)=   0.19

    Unit Hyd Qpeak  (cms)=   0.157

    PEAK FLOW       (cms)=   0.060 (i)
    TIME TO PEAK    (hrs)=  11.833
    RUNOFF VOLUME    (mm)=  29.722
    TOTAL RAINFALL   (mm)=  83.549
    RUNOFF COEFFICIENT   =   0.356

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

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-------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.060    11.83    29.72
     + ID2= 2 (  0060):     7.39   0.177    11.83     9.87
       ================================================
       ID = 3 (  0061):     8.17   0.237    11.83    11.76

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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-------------------
| CALIB           |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
-------------------
                          IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=      0.23         0.50
    Dep. Storage     (mm)=      1.00         1.50
    Average Slope     (%)=      1.00         2.00
    Length            (m)=     69.76        40.00
    Mannings n           =     0.013        0.250

    Max.Eff.Inten.(mm/hr)=    102.57       122.50
              over (min)        5.00        10.00
    Storage Coeff.  (min)=      2.04 (ii)    8.54 (ii)
    Unit Hyd. Tpeak (min)=      5.00        10.00
    Unit Hyd. peak  (cms)=      0.31         0.12
                                                      *TOTALS*
    PEAK FLOW       (cms)=      0.03         0.13         0.158 (iii)
    TIME TO PEAK    (hrs)=     11.75        11.75         11.75
    RUNOFF VOLUME    (mm)=     82.55        29.97         36.80
    TOTAL RAINFALL   (mm)=     83.55        83.55         83.55
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    RUNOFF COEFFICIENT   =      0.99         0.36          0.44

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

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

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-------------------
| ADD HYD  (  0401)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0206):     0.73   0.158    11.75    36.80
     + ID2= 2 (  0061):     8.17   0.237    11.83    11.76
       ================================================
       ID = 3 (  0401):     8.90   0.370    11.80    13.82

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
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      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\6a967
8e7-13ef-4779-b86c-b151dfec042d\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\6a967
8e7-13ef-4779-b86c-b151dfec042d\scen
```

DATE: 10/09/2020 TIME: 05:31:52

USER:

COMMENTS: _____

**** SIMULATION : Run 04 ****

MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\d21eaacb-4cf1-4504-bf53-d3c44604e13d\8ae18c54
Ptotal= 98.90 mm	Comments: SCS Type II 24 HR MASS CURVE

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.19	6.25	1.98	12.25	14.24	18.25	1.58
0.50	0.79	6.50	1.58	12.50	7.52	18.50	1.98
0.75	1.19	6.75	1.98	12.75	7.12	18.75	1.58
1.00	1.19	7.00	1.98	13.00	5.54	19.00	1.98
1.25	1.19	7.25	2.37	13.25	5.14	19.25	1.58
1.50	0.79	7.50	1.98	13.50	4.35	19.50	1.98
1.75	1.19	7.75	2.37	13.75	3.96	19.75	1.58
2.00	1.19	8.00	2.37	14.00	3.16	20.00	1.19
2.25	1.58	8.25	2.77	14.25	2.77	20.25	1.19
2.50	1.19	8.50	2.77	14.50	3.16	20.50	1.19
2.75	1.19	8.75	2.77	14.75	2.77	20.75	1.19
3.00	1.19	9.00	3.16	15.00	3.16	21.00	1.19
3.25	1.58	9.25	3.16	15.25	2.77	21.25	1.19
3.50	1.19	9.50	3.56	15.50	3.16	21.50	1.19
3.75	1.19	9.75	3.56	15.75	2.77	21.75	1.19
4.00	1.58	10.00	4.35	16.00	1.98	22.00	1.19
4.25	1.58	10.25	4.75	16.25	1.58	22.25	1.19
4.50	1.58	10.50	5.93	16.50	1.98	22.50	1.19
4.75	1.58	10.75	6.33	16.75	1.58	22.75	1.19
5.00	1.58	11.00	9.49	17.00	1.98	23.00	1.19
5.25	1.58	11.25	9.49	17.25	1.58	23.25	1.19
5.50	1.58	11.50	29.27	17.50	1.98	23.50	1.19
5.75	1.58	11.75	121.05	17.75	1.58	23.75	1.19
6.00	1.58	12.00	14.24	18.00	1.98		

CALIB NASHYD (0202) ID= 1 DT= 2.0 min	Area (ha)= 1.63 Curve Number (CN)= 44.1 Ia (mm)= 9.62 # of Linear Res.(N)= 3.00 U.H. Tp(hrs)= 0.17

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.19	6.000	1.58	11.967	14.24	17.93	1.98
0.067	1.19	6.033	1.98	12.000	14.24	17.97	1.98
0.100	1.19	6.067	1.98	12.033	14.24	18.00	1.98
0.133	1.19	6.100	1.98	12.067	14.24	18.03	1.58
0.167	1.19	6.133	1.98	12.100	14.24	18.07	1.58
0.200	1.19	6.167	1.98	12.133	14.24	18.10	1.58
0.233	1.19	6.200	1.98	12.167	14.24	18.13	1.58
0.267	0.99	6.233	1.98	12.200	14.24	18.17	1.58
0.300	0.79	6.267	1.78	12.233	14.24	18.20	1.58
0.333	0.79	6.300	1.58	12.267	10.87	18.23	1.58
0.367	0.79	6.333	1.58	12.300	7.52	18.27	1.78
0.400	0.79	6.367	1.58	12.333	7.52	18.30	1.98
0.433	0.79	6.400	1.58	12.367	7.52	18.33	1.98
0.467	0.79	6.433	1.58	12.400	7.52	18.37	1.98
0.500	0.79	6.467	1.58	12.433	7.52	18.40	1.98
0.533	1.19	6.500	1.58	12.467	7.52	18.43	1.98
0.567	1.19	6.533	1.98	12.500	7.52	18.47	1.98
0.600	1.19	6.567	1.98	12.533	7.12	18.50	1.98
0.633	1.19	6.600	1.98	12.567	7.12	18.53	1.58
0.667	1.19	6.633	1.98	12.600	7.12	18.57	1.58
0.700	1.19	6.667	1.98	12.633	7.12	18.60	1.58
0.733	1.19	6.700	1.98	12.667	7.12	18.63	1.58
0.767	1.19	6.733	1.98	12.700	7.12	18.67	1.58
0.800	1.19	6.767	1.98	12.733	7.12	18.70	1.58
0.833	1.19	6.800	1.98	12.767	6.33	18.73	1.58
0.867	1.19	6.833	1.98	12.800	5.54	18.77	1.78
0.900	1.19	6.867	1.98	12.833	5.54	18.80	1.98
0.933	1.19	6.900	1.98	12.867	5.54	18.83	1.98
0.967	1.19	6.933	1.98	12.900	5.54	18.87	1.98
1.000	1.19	6.967	1.98	12.933	5.54	18.90	1.98
1.033	1.19	7.000	1.98	12.967	5.54	18.93	1.98
1.067	1.19	7.033	2.37	13.000	5.54	18.97	1.98
1.100	1.19	7.067	2.37	13.033	5.14	19.00	1.98
1.133	1.19	7.100	2.37	13.067	5.14	19.03	1.58
1.167	1.19	7.133	2.37	13.100	5.14	19.07	1.58
1.200	1.19	7.167	2.37	13.133	5.14	19.10	1.58
1.233	1.19	7.200	2.37	13.167	5.14	19.13	1.58
1.267	0.99	7.233	2.37	13.200	5.14	19.17	1.58
1.300	0.79	7.267	2.18	13.233	5.14	19.20	1.58
1.333	0.79	7.300	1.98	13.267	4.75	19.23	1.58
1.367	0.79	7.333	1.98	13.300	4.35	19.27	1.78
1.400	0.79	7.367	1.98	13.333	4.35	19.30	1.98
1.433	0.79	7.400	1.98	13.367	4.35	19.33	1.98
1.467	0.79	7.433	1.98	13.400	4.35	19.37	1.98
1.500	0.79	7.467	1.98	13.433	4.35	19.40	1.98
1.533	1.19	7.500	1.98	13.467	4.35	19.43	1.98
1.567	1.19	7.533	2.37	13.500	4.35	19.47	1.98
1.600	1.19	7.567	2.37	13.533	3.96	19.50	1.98
1.633	1.19	7.600	2.37	13.567	3.96	19.53	1.58
1.667	1.19	7.633	2.37	13.600	3.96	19.57	1.58
1.700	1.19	7.667	2.37	13.633	3.96	19.60	1.58
1.733	1.19	7.700	2.37	13.667	3.96	19.63	1.58
1.767	1.19	7.733	2.37	13.700	3.96	19.67	1.58
1.800	1.19	7.767	2.37	13.733	3.96	19.70	1.58
1.833	1.19	7.800	2.37	13.767	3.56	19.73	1.58
1.867	1.19	7.833	2.37	13.800	3.16	19.77	1.38
1.900	1.19	7.867	2.37	13.833	3.16	19.80	1.19
1.933	1.19	7.900	2.37	13.867	3.16	19.83	1.19
1.967	1.19	7.933	2.37	13.900	3.16	19.87	1.19
2.000	1.19	7.967	2.37	13.933	3.16	19.90	1.19
2.033	1.58	8.000	2.37	13.967	3.16	19.93	1.19
2.067	1.58	8.033	2.77	14.000	3.16	19.97	1.19

2.100	1.58	8.067	2.77	14.033	2.77	20.00	1.19
2.133	1.58	8.100	2.77	14.067	2.77	20.03	1.19
2.167	1.58	8.133	2.77	14.100	2.77	20.07	1.19
2.200	1.58	8.167	2.77	14.133	2.77	20.10	1.19
2.233	1.58	8.200	2.77	14.167	2.77	20.13	1.19
2.267	1.38	8.233	2.77	14.200	2.77	20.17	1.19
2.300	1.19	8.267	2.77	14.233	2.77	20.20	1.19
2.333	1.19	8.300	2.77	14.267	2.97	20.23	1.19
2.367	1.19	8.333	2.77	14.300	3.16	20.27	1.19
2.400	1.19	8.367	2.77	14.333	3.16	20.30	1.19
2.433	1.19	8.400	2.77	14.367	3.16	20.33	1.19
2.467	1.19	8.433	2.77	14.400	3.16	20.37	1.19
2.500	1.19	8.467	2.77	14.433	3.16	20.40	1.19
2.533	1.19	8.500	2.77	14.467	3.16	20.43	1.19
2.567	1.19	8.533	2.77	14.500	3.16	20.47	1.19
2.600	1.19	8.567	2.77	14.533	2.77	20.50	1.19
2.633	1.19	8.600	2.77	14.567	2.77	20.53	1.19
2.667	1.19	8.633	2.77	14.600	2.77	20.57	1.19
2.700	1.19	8.667	2.77	14.633	2.77	20.60	1.19
2.733	1.19	8.700	2.77	14.667	2.77	20.63	1.19
2.767	1.19	8.733	2.77	14.700	2.77	20.67	1.19
2.800	1.19	8.767	2.97	14.733	2.77	20.70	1.19
2.833	1.19	8.800	3.16	14.767	2.97	20.73	1.19
2.867	1.19	8.833	3.16	14.800	3.16	20.77	1.19
2.900	1.19	8.867	3.16	14.833	3.16	20.80	1.19
2.933	1.19	8.900	3.16	14.867	3.16	20.83	1.19
2.967	1.19	8.933	3.16	14.900	3.16	20.87	1.19
3.000	1.19	8.967	3.16	14.933	3.16	20.90	1.19
3.033	1.58	9.000	3.16	14.967	3.16	20.93	1.19
3.067	1.58	9.033	3.16	15.000	3.16	20.97	1.19
3.100	1.58	9.067	3.16	15.033	2.77	21.00	1.19
3.133	1.58	9.100	3.16	15.067	2.77	21.03	1.19
3.167	1.58	9.133	3.16	15.100	2.77	21.07	1.19
3.200	1.58	9.167	3.16	15.133	2.77	21.10	1.19
3.233	1.58	9.200	3.16	15.167	2.77	21.13	1.19
3.267	1.38	9.233	3.16	15.200	2.77	21.17	1.19
3.300	1.19	9.267	3.36	15.233	2.77	21.20	1.19
3.333	1.19	9.300	3.56	15.267	2.97	21.23	1.19
3.367	1.19	9.333	3.56	15.300	3.16	21.27	1.19
3.400	1.19	9.367	3.56	15.333	3.16	21.30	1.19
3.433	1.19	9.400	3.56	15.367	3.16	21.33	1.19
3.467	1.19	9.433	3.56	15.400	3.16	21.37	1.19
3.500	1.19	9.467	3.56	15.433	3.16	21.40	1.19
3.533	1.19	9.500	3.56	15.467	3.16	21.43	1.19
3.567	1.19	9.533	3.56	15.500	3.16	21.47	1.19
3.600	1.19	9.567	3.56	15.533	2.77	21.50	1.19
3.633	1.19	9.600	3.56	15.567	2.77	21.53	1.19
3.667	1.19	9.633	3.56	15.600	2.77	21.57	1.19
3.700	1.19	9.667	3.56	15.633	2.77	21.60	1.19
3.733	1.19	9.700	3.56	15.667	2.77	21.63	1.19
3.767	1.38	9.733	3.56	15.700	2.77	21.67	1.19
3.800	1.58	9.767	3.96	15.733	2.77	21.70	1.19
3.833	1.58	9.800	4.35	15.767	2.37	21.73	1.19
3.867	1.58	9.833	4.35	15.800	1.98	21.77	1.19
3.900	1.58	9.867	4.35	15.833	1.98	21.80	1.19
3.933	1.58	9.900	4.35	15.867	1.98	21.83	1.19
3.967	1.58	9.933	4.35	15.900	1.98	21.87	1.19
4.000	1.58	9.967	4.35	15.933	1.98	21.90	1.19
4.033	1.58	10.000	4.35	15.967	1.98	21.93	1.19
4.067	1.58	10.033	4.75	16.000	1.98	21.97	1.19
4.100	1.58	10.067	4.75	16.033	1.58	22.00	1.19
4.133	1.58	10.100	4.75	16.067	1.58	22.03	1.19
4.167	1.58	10.133	4.75	16.100	1.58	22.07	1.19

4.200	1.58	10.167	4.75	16.133	1.58	22.10	1.19
4.233	1.58	10.200	4.75	16.167	1.58	22.13	1.19
4.267	1.58	10.233	4.75	16.200	1.58	22.17	1.19
4.300	1.58	10.267	5.34	16.233	1.58	22.20	1.19
4.333	1.58	10.300	5.93	16.267	1.78	22.23	1.19
4.367	1.58	10.333	5.93	16.300	1.98	22.27	1.19
4.400	1.58	10.367	5.93	16.333	1.98	22.30	1.19
4.433	1.58	10.400	5.93	16.367	1.98	22.33	1.19
4.467	1.58	10.433	5.93	16.400	1.98	22.37	1.19
4.500	1.58	10.467	5.93	16.433	1.98	22.40	1.19
4.533	1.58	10.500	5.93	16.467	1.98	22.43	1.19
4.567	1.58	10.533	6.33	16.500	1.98	22.47	1.19
4.600	1.58	10.567	6.33	16.533	1.58	22.50	1.19
4.633	1.58	10.600	6.33	16.567	1.58	22.53	1.19
4.667	1.58	10.633	6.33	16.600	1.58	22.57	1.19
4.700	1.58	10.667	6.33	16.633	1.58	22.60	1.19
4.733	1.58	10.700	6.33	16.667	1.58	22.63	1.19
4.767	1.58	10.733	6.33	16.700	1.58	22.67	1.19
4.800	1.58	10.767	7.91	16.733	1.58	22.70	1.19
4.833	1.58	10.800	9.49	16.767	1.78	22.73	1.19
4.867	1.58	10.833	9.49	16.800	1.98	22.77	1.19
4.900	1.58	10.867	9.49	16.833	1.98	22.80	1.19
4.933	1.58	10.900	9.49	16.867	1.98	22.83	1.19
4.967	1.58	10.933	9.49	16.900	1.98	22.87	1.19
5.000	1.58	10.967	9.49	16.933	1.98	22.90	1.19
5.033	1.58	11.000	9.49	16.967	1.98	22.93	1.19
5.067	1.58	11.033	9.49	17.000	1.98	22.97	1.19
5.100	1.58	11.067	9.49	17.033	1.58	23.00	1.19
5.133	1.58	11.100	9.49	17.067	1.58	23.03	1.19
5.167	1.58	11.133	9.49	17.100	1.58	23.07	1.19
5.200	1.58	11.167	9.49	17.133	1.58	23.10	1.19
5.233	1.58	11.200	9.49	17.167	1.58	23.13	1.19
5.267	1.58	11.233	9.49	17.200	1.58	23.17	1.19
5.300	1.58	11.267	19.41	17.233	1.58	23.20	1.19
5.333	1.58	11.300	29.27	17.267	1.78	23.23	1.19
5.367	1.58	11.333	29.27	17.300	1.98	23.27	1.19
5.400	1.58	11.367	29.27	17.333	1.98	23.30	1.19
5.433	1.58	11.400	29.27	17.367	1.98	23.33	1.19
5.467	1.58	11.433	29.27	17.400	1.98	23.37	1.19
5.500	1.58	11.467	29.27	17.433	1.98	23.40	1.19
5.533	1.58	11.500	29.39	17.467	1.98	23.43	1.19
5.567	1.58	11.533	121.05	17.500	1.98	23.47	1.19
5.600	1.58	11.567	121.05	17.533	1.58	23.50	1.19
5.633	1.58	11.600	121.05	17.567	1.58	23.53	1.19
5.667	1.58	11.633	121.05	17.600	1.58	23.57	1.19
5.700	1.58	11.667	121.05	17.633	1.58	23.60	1.19
5.733	1.58	11.700	121.05	17.667	1.58	23.63	1.19
5.767	1.58	11.733	121.05	17.700	1.58	23.67	1.19
5.800	1.58	11.767	67.51	17.733	1.58	23.70	1.19
5.833	1.58	11.800	14.24	17.767	1.78	23.73	1.19
5.867	1.58	11.833	14.24	17.800	1.98	23.77	0.59
5.900	1.58	11.867	14.24	17.833	1.98		
5.933	1.58	11.900	14.24	17.867	1.98		
5.967	1.58	11.933	14.24	17.900	1.98		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.084 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 19.282
TOTAL RAINFALL (mm)= 98.603
RUNOFF COEFFICIENT = 0.196

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

CALIB					
NASHYD (0203)	Area	(ha)=	2.89	Curve Number (CN)=	42.9
ID= 1 DT= 2.0 min	Ia	(mm)=	8.98	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.18		

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.140 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 18.797
TOTAL RAINFALL (mm)= 98.603
RUNOFF COEFFICIENT = 0.191

(i) 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 (0202):	1.63	0.084	11.83	19.28
	+ ID2= 2 (0203):	2.89	0.140	11.83	18.80
	ID = 3 (0057):	4.52	0.223	11.83	18.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0204)	Area	(ha)=	0.64	Curve Number (CN)=	48.1
ID= 1 DT= 2.0 min	Ia	(mm)=	9.20	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=		0.33		

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.024 (i)
TIME TO PEAK (hrs)= 12.000
RUNOFF VOLUME (mm)= 21.976
TOTAL RAINFALL (mm)= 98.603
RUNOFF COEFFICIENT = 0.223

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

ADD HYD (0058)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0204):	0.64	0.024	12.00	21.98
	+ ID2= 2 (0057):	4.52	0.223	11.83	18.97
	ID = 3 (0058):	5.16	0.243	11.83	19.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0201)	Area	(ha)=	2.20		
ID= 1 DT= 5.0 min	Total Imp(%)=		43.00	Dir. Conn.(%)=	21.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.95	1.25
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	121.11	40.00
Mannings n	=	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.19	6.083	1.98	12.083	14.24	18.08	1.58
0.167	1.19	6.167	1.98	12.167	14.24	18.17	1.58
0.250	1.19	6.250	1.98	12.250	14.24	18.25	1.58
0.333	0.79	6.333	1.58	12.333	7.52	18.33	1.98
0.417	0.79	6.417	1.58	12.417	7.52	18.42	1.98
0.500	0.79	6.500	1.58	12.500	7.52	18.50	1.98
0.583	1.19	6.583	1.98	12.583	7.12	18.58	1.58
0.667	1.19	6.667	1.98	12.667	7.12	18.67	1.58
0.750	1.19	6.750	1.98	12.750	7.12	18.75	1.58
0.833	1.19	6.833	1.98	12.833	5.54	18.83	1.98
0.917	1.19	6.917	1.98	12.917	5.54	18.92	1.98
1.000	1.19	7.000	1.98	13.000	5.54	19.00	1.98
1.083	1.19	7.083	2.37	13.083	5.14	19.08	1.58
1.167	1.19	7.167	2.37	13.167	5.14	19.17	1.58
1.250	1.19	7.250	2.37	13.250	5.14	19.25	1.58
1.333	0.79	7.333	1.98	13.333	4.35	19.33	1.98
1.417	0.79	7.417	1.98	13.417	4.35	19.42	1.98
1.500	0.79	7.500	1.98	13.500	4.35	19.50	1.98
1.583	1.19	7.583	2.37	13.583	3.96	19.58	1.58
1.667	1.19	7.667	2.37	13.667	3.96	19.67	1.58
1.750	1.19	7.750	2.37	13.750	3.96	19.75	1.58
1.833	1.19	7.833	2.37	13.833	3.16	19.83	1.19
1.917	1.19	7.917	2.37	13.917	3.16	19.92	1.19
2.000	1.19	8.000	2.37	14.000	3.16	20.00	1.19
2.083	1.58	8.083	2.77	14.083	2.77	20.08	1.19
2.167	1.58	8.167	2.77	14.167	2.77	20.17	1.19
2.250	1.58	8.250	2.77	14.250	2.77	20.25	1.19
2.333	1.19	8.333	2.77	14.333	3.16	20.33	1.19
2.417	1.19	8.417	2.77	14.417	3.16	20.42	1.19
2.500	1.19	8.500	2.77	14.500	3.16	20.50	1.19
2.583	1.19	8.583	2.77	14.583	2.77	20.58	1.19
2.667	1.19	8.667	2.77	14.667	2.77	20.67	1.19
2.750	1.19	8.750	2.77	14.750	2.77	20.75	1.19
2.833	1.19	8.833	3.16	14.833	3.16	20.83	1.19
2.917	1.19	8.917	3.16	14.917	3.16	20.92	1.19
3.000	1.19	9.000	3.16	15.000	3.16	21.00	1.19
3.083	1.58	9.083	3.16	15.083	2.77	21.08	1.19
3.167	1.58	9.167	3.16	15.167	2.77	21.17	1.19
3.250	1.58	9.250	3.16	15.250	2.77	21.25	1.19
3.333	1.19	9.333	3.56	15.333	3.16	21.33	1.19
3.417	1.19	9.417	3.56	15.417	3.16	21.42	1.19
3.500	1.19	9.500	3.56	15.500	3.16	21.50	1.19
3.583	1.19	9.583	3.56	15.583	2.77	21.58	1.19
3.667	1.19	9.667	3.56	15.667	2.77	21.67	1.19
3.750	1.19	9.750	3.56	15.750	2.77	21.75	1.19

3.833	1.58	9.833	4.35	15.833	1.98	21.83	1.19
3.917	1.58	9.917	4.35	15.917	1.98	21.92	1.19
4.000	1.58	10.000	4.35	16.000	1.98	22.00	1.19
4.083	1.58	10.083	4.75	16.083	1.58	22.08	1.19
4.167	1.58	10.167	4.75	16.167	1.58	22.17	1.19
4.250	1.58	10.250	4.75	16.250	1.58	22.25	1.19
4.333	1.58	10.333	5.93	16.333	1.98	22.33	1.19
4.417	1.58	10.417	5.93	16.417	1.98	22.42	1.19
4.500	1.58	10.500	5.93	16.500	1.98	22.50	1.19
4.583	1.58	10.583	6.33	16.583	1.58	22.58	1.19
4.667	1.58	10.667	6.33	16.667	1.58	22.67	1.19
4.750	1.58	10.750	6.33	16.750	1.58	22.75	1.19
4.833	1.58	10.833	9.49	16.833	1.98	22.83	1.19
4.917	1.58	10.917	9.49	16.917	1.98	22.92	1.19
5.000	1.58	11.000	9.49	17.000	1.98	23.00	1.19
5.083	1.58	11.083	9.49	17.083	1.58	23.08	1.19
5.167	1.58	11.167	9.49	17.167	1.58	23.17	1.19
5.250	1.58	11.250	9.49	17.250	1.58	23.25	1.19
5.333	1.58	11.333	29.27	17.333	1.98	23.33	1.19
5.417	1.58	11.417	29.27	17.417	1.98	23.42	1.19
5.500	1.58	11.500	29.27	17.500	1.98	23.50	1.19
5.583	1.58	11.583	121.04	17.583	1.58	23.58	1.19
5.667	1.58	11.667	121.05	17.667	1.58	23.67	1.19
5.750	1.58	11.750	121.05	17.750	1.58	23.75	1.19
5.833	1.58	11.833	14.25	17.833	1.98		
5.917	1.58	11.917	14.24	17.917	1.98		
6.000	1.58	12.000	14.24	18.000	1.98		

Max.Eff.Inten.(mm/hr)=	121.05	159.96	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.65 (ii)	9.86 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.29	0.11	
			TOTALS
PEAK FLOW (cms)=	0.15	0.42	0.571 (iii)
TIME TO PEAK (hrs)=	11.75	11.75	11.75
RUNOFF VOLUME (mm)=	97.60	40.54	52.52
TOTAL RAINFALL (mm)=	98.60	98.60	98.60
RUNOFF COEFFICIENT =	0.99	0.41	0.53

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

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

RESERVOIR(0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.1680	0.1590	0.5570
	0.0440	0.2080	0.3520	0.7230
	0.0990	0.3020	1.2920	0.9160
	0.1320	0.4180	2.0620	1.0230

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)	2.200	0.571	11.75	52.52

OUTFLOW: ID= 1 (0301)	2.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0614

ADD HYD (0059)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 1 (0301):	2.20	0.000	0.00	0.00
+ ID2= 2 (0058):	5.16	0.243	11.83	19.34
ID = 3 (0059):	7.36	0.243	11.83	13.56

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB		
STANDHYD (0205)	Area (ha)= 0.03	
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00	Dir. Conn.(%)= 28.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.02	0.01
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	1.00
Length	(m)=	14.14	20.00
Mannings n	=	0.013	0.250

Max.Eff.Inten.(mm/hr)=	121.05	190.49		
over (min)	5.00	10.00		
Storage Coeff. (min)=	0.73 (ii)	5.16 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	0.34	0.16		
				TOTALS
PEAK FLOW (cms)=	0.00	0.01		0.009 (iii)
TIME TO PEAK (hrs)=	11.75	11.75		11.75
RUNOFF VOLUME (mm)=	97.60	43.67		53.51
TOTAL RAINFALL (mm)=	98.60	98.60		98.60
RUNOFF COEFFICIENT =	0.99	0.44		0.54

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

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

ADD HYD (0060)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID= 1 (0205):	0.03	0.009	11.75	53.51
+ ID2= 2 (0059):	7.36	0.243	11.83	13.56
ID = 3 (0060):	7.39	0.249	11.83	13.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD   (  0207)|   Area    (ha)=   0.78   Curve Number   (CN)= 66.3
|ID= 1 DT= 5.0 min |   Ia      (mm)=   4.87   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.19

     Unit Hyd Qpeak  (cms)=   0.157

     PEAK FLOW       (cms)=   0.080 (i)
     TIME TO PEAK    (hrs)=  11.833
     RUNOFF VOLUME    (mm)=  39.335
     TOTAL RAINFALL   (mm)=  98.603
     RUNOFF COEFFICIENT   =   0.399

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

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--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.080    11.83    39.33
     + ID2= 2 (  0060):     7.39   0.249    11.83    13.72
       ================================================
       ID = 3 (  0061):     8.17   0.329    11.83    16.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.23         0.50
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     69.76        40.00
     Mannings n           =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=    121.05       146.86
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      1.91 (ii)    7.96 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=      0.32         0.13
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.03         0.16        0.195 (iii)
     TIME TO PEAK    (hrs)=     11.75        11.75         11.75
     RUNOFF VOLUME    (mm)=     97.60        38.99         46.61
     TOTAL RAINFALL   (mm)=     98.60        98.60         98.60
     RUNOFF COEFFICIENT   =      0.99         0.40          0.47

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

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

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| ADD HYD  (  0401)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0206):     0.73   0.195    11.75    46.61
     + ID2= 2 (  0061):     8.17   0.329    11.83    16.17
       ================================================
       ID = 3 (  0401):     8.90   0.491    11.80    18.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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      V    V   I    SSSSS  U   U    A    L
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
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f1a-d53a-4d1f-8f1d-5a50c28eda5a\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\08796
f1a-d53a-4d1f-8f1d-5a50c28eda5a\scen


DATE: 10/09/2020                          TIME: 05:31:52

USER:


COMMENTS: _____________________________________________________________


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** SIMULATION : Run 05 **
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MASS STORM	Filename: C:\Users\aschoof\AppData\Local\Temp\d21eaacb-4cf1-4504-bf53-d3c44604e13d\00a83143
Ptotal=109.80 mm	Comments: SCS Type II 24 HR MASS CURVE

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

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.32	6.25	2.20	12.25	15.81	18.25	1.76
0.50	0.88	6.50	1.76	12.50	8.34	18.50	2.20
0.75	1.32	6.75	2.20	12.75	7.91	18.75	1.76
1.00	1.32	7.00	2.20	13.00	6.15	19.00	2.20
1.25	1.32	7.25	2.64	13.25	5.71	19.25	1.76
1.50	0.88	7.50	2.20	13.50	4.83	19.50	2.20
1.75	1.32	7.75	2.64	13.75	4.39	19.75	1.76
2.00	1.32	8.00	2.64	14.00	3.51	20.00	1.32
2.25	1.76	8.25	3.07	14.25	3.07	20.25	1.32
2.50	1.32	8.50	3.07	14.50	3.51	20.50	1.32
2.75	1.32	8.75	3.07	14.75	3.07	20.75	1.32
3.00	1.32	9.00	3.51	15.00	3.51	21.00	1.32
3.25	1.76	9.25	3.51	15.25	3.07	21.25	1.32
3.50	1.32	9.50	3.95	15.50	3.51	21.50	1.32
3.75	1.32	9.75	3.95	15.75	3.07	21.75	1.32
4.00	1.76	10.00	4.83	16.00	2.20	22.00	1.32
4.25	1.76	10.25	5.27	16.25	1.76	22.25	1.32
4.50	1.76	10.50	6.59	16.50	2.20	22.50	1.32
4.75	1.76	10.75	7.03	16.75	1.76	22.75	1.32
5.00	1.76	11.00	10.54	17.00	2.20	23.00	1.32
5.25	1.76	11.25	10.54	17.25	1.76	23.25	1.32
5.50	1.76	11.50	32.50	17.50	2.20	23.50	1.32
5.75	1.76	11.75	134.40	17.75	1.76	23.75	1.32
6.00	1.76	12.00	15.81	18.00	2.20		

CALIB NASHYD (0202) ID= 1 DT= 2.0 min	Area (ha)= 1.63	Curve Number (CN)= 44.1
	Ia (mm)= 9.62	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.17	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.32	6.000	1.76	11.967	15.81	17.93	2.20
0.067	1.32	6.033	2.20	12.000	15.81	17.97	2.20
0.100	1.32	6.067	2.20	12.033	15.81	18.00	2.20
0.133	1.32	6.100	2.20	12.067	15.81	18.03	1.76
0.167	1.32	6.133	2.20	12.100	15.81	18.07	1.76
0.200	1.32	6.167	2.20	12.133	15.81	18.10	1.76
0.233	1.32	6.200	2.20	12.167	15.81	18.13	1.76
0.267	1.10	6.233	2.20	12.200	15.81	18.17	1.76
0.300	0.88	6.267	1.98	12.233	15.81	18.20	1.76
0.333	0.88	6.300	1.76	12.267	12.07	18.23	1.76
0.367	0.88	6.333	1.76	12.300	8.34	18.27	1.98

0.400	0.88	6.367	1.76	12.333	8.34	18.30	2.20
0.433	0.88	6.400	1.76	12.367	8.34	18.33	2.20
0.467	0.88	6.433	1.76	12.400	8.34	18.37	2.20
0.500	0.88	6.467	1.76	12.433	8.34	18.40	2.20
0.533	1.32	6.500	1.76	12.467	8.34	18.43	2.20
0.567	1.32	6.533	2.20	12.500	8.34	18.47	2.20
0.600	1.32	6.567	2.20	12.533	7.91	18.50	2.20
0.633	1.32	6.600	2.20	12.567	7.91	18.53	1.76
0.667	1.32	6.633	2.20	12.600	7.91	18.57	1.76
0.700	1.32	6.667	2.20	12.633	7.91	18.60	1.76
0.733	1.32	6.700	2.20	12.667	7.91	18.63	1.76
0.767	1.32	6.733	2.20	12.700	7.91	18.67	1.76
0.800	1.32	6.767	2.20	12.733	7.91	18.70	1.76
0.833	1.32	6.800	2.20	12.767	7.02	18.73	1.76
0.867	1.32	6.833	2.20	12.800	6.15	18.77	1.98
0.900	1.32	6.867	2.20	12.833	6.15	18.80	2.20
0.933	1.32	6.900	2.20	12.867	6.15	18.83	2.20
0.967	1.32	6.933	2.20	12.900	6.15	18.87	2.20
1.000	1.32	6.967	2.20	12.933	6.15	18.90	2.20
1.033	1.32	7.000	2.20	12.967	6.15	18.93	2.20
1.067	1.32	7.033	2.64	13.000	6.15	18.97	2.20
1.100	1.32	7.067	2.64	13.033	5.71	19.00	2.20
1.133	1.32	7.100	2.64	13.067	5.71	19.03	1.76
1.167	1.32	7.133	2.64	13.100	5.71	19.07	1.76
1.200	1.32	7.167	2.64	13.133	5.71	19.10	1.76
1.233	1.32	7.200	2.64	13.167	5.71	19.13	1.76
1.267	1.10	7.233	2.64	13.200	5.71	19.17	1.76
1.300	0.88	7.267	2.42	13.233	5.71	19.20	1.76
1.333	0.88	7.300	2.20	13.267	5.27	19.23	1.76
1.367	0.88	7.333	2.20	13.300	4.83	19.27	1.98
1.400	0.88	7.367	2.20	13.333	4.83	19.30	2.20
1.433	0.88	7.400	2.20	13.367	4.83	19.33	2.20
1.467	0.88	7.433	2.20	13.400	4.83	19.37	2.20
1.500	0.88	7.467	2.20	13.433	4.83	19.40	2.20
1.533	1.32	7.500	2.20	13.467	4.83	19.43	2.20
1.567	1.32	7.533	2.64	13.500	4.83	19.47	2.20
1.600	1.32	7.567	2.64	13.533	4.39	19.50	2.20
1.633	1.32	7.600	2.64	13.567	4.39	19.53	1.76
1.667	1.32	7.633	2.64	13.600	4.39	19.57	1.76
1.700	1.32	7.667	2.64	13.633	4.39	19.60	1.76
1.733	1.32	7.700	2.64	13.667	4.39	19.63	1.76
1.767	1.32	7.733	2.64	13.700	4.39	19.67	1.76
1.800	1.32	7.767	2.64	13.733	4.39	19.70	1.76
1.833	1.32	7.800	2.64	13.767	3.95	19.73	1.76
1.867	1.32	7.833	2.64	13.800	3.51	19.77	1.54
1.900	1.32	7.867	2.64	13.833	3.51	19.80	1.32
1.933	1.32	7.900	2.64	13.867	3.51	19.83	1.32
1.967	1.32	7.933	2.64	13.900	3.51	19.87	1.32
2.000	1.32	7.967	2.64	13.933	3.51	19.90	1.32
2.033	1.76	8.000	2.64	13.967	3.51	19.93	1.32
2.067	1.76	8.033	3.07	14.000	3.51	19.97	1.32
2.100	1.76	8.067	3.07	14.033	3.07	20.00	1.32
2.133	1.76	8.100	3.07	14.067	3.07	20.03	1.32
2.167	1.76	8.133	3.07	14.100	3.07	20.07	1.32
2.200	1.76	8.167	3.07	14.133	3.07	20.10	1.32
2.233	1.76	8.200	3.07	14.167	3.07	20.13	1.32
2.267	1.54	8.233	3.07	14.200	3.07	20.17	1.32
2.300	1.32	8.267	3.07	14.233	3.07	20.20	1.32
2.333	1.32	8.300	3.07	14.267	3.30	20.23	1.32
2.367	1.32	8.333	3.07	14.300	3.51	20.27	1.32
2.400	1.32	8.367	3.07	14.333	3.51	20.30	1.32
2.433	1.32	8.400	3.07	14.367	3.51	20.33	1.32
2.467	1.32	8.433	3.07	14.400	3.51	20.37	1.32

2.500	1.32	8.467	3.07	14.433	3.51	20.40	1.32
2.533	1.32	8.500	3.07	14.467	3.51	20.43	1.32
2.567	1.32	8.533	3.07	14.500	3.51	20.47	1.32
2.600	1.32	8.567	3.07	14.533	3.07	20.50	1.32
2.633	1.32	8.600	3.07	14.567	3.07	20.53	1.32
2.667	1.32	8.633	3.07	14.600	3.07	20.57	1.32
2.700	1.32	8.667	3.07	14.633	3.07	20.60	1.32
2.733	1.32	8.700	3.07	14.667	3.07	20.63	1.32
2.767	1.32	8.733	3.07	14.700	3.07	20.67	1.32
2.800	1.32	8.767	3.29	14.733	3.07	20.70	1.32
2.833	1.32	8.800	3.51	14.767	3.30	20.73	1.32
2.867	1.32	8.833	3.51	14.800	3.51	20.77	1.32
2.900	1.32	8.867	3.51	14.833	3.51	20.80	1.32
2.933	1.32	8.900	3.51	14.867	3.51	20.83	1.32
2.967	1.32	8.933	3.51	14.900	3.51	20.87	1.32
3.000	1.32	8.967	3.51	14.933	3.51	20.90	1.32
3.033	1.76	9.000	3.51	14.967	3.51	20.93	1.32
3.067	1.76	9.033	3.51	15.000	3.51	20.97	1.32
3.100	1.76	9.067	3.51	15.033	3.07	21.00	1.32
3.133	1.76	9.100	3.51	15.067	3.07	21.03	1.32
3.167	1.76	9.133	3.51	15.100	3.07	21.07	1.32
3.200	1.76	9.167	3.51	15.133	3.07	21.10	1.32
3.233	1.76	9.200	3.51	15.167	3.07	21.13	1.32
3.267	1.54	9.233	3.51	15.200	3.07	21.17	1.32
3.300	1.32	9.267	3.73	15.233	3.07	21.20	1.32
3.333	1.32	9.300	3.95	15.267	3.30	21.23	1.32
3.367	1.32	9.333	3.95	15.300	3.51	21.27	1.32
3.400	1.32	9.367	3.95	15.333	3.51	21.30	1.32
3.433	1.32	9.400	3.95	15.367	3.51	21.33	1.32
3.467	1.32	9.433	3.95	15.400	3.51	21.37	1.32
3.500	1.32	9.467	3.95	15.433	3.51	21.40	1.32
3.533	1.32	9.500	3.95	15.467	3.51	21.43	1.32
3.567	1.32	9.533	3.95	15.500	3.51	21.47	1.32
3.600	1.32	9.567	3.95	15.533	3.07	21.50	1.32
3.633	1.32	9.600	3.95	15.567	3.07	21.53	1.32
3.667	1.32	9.633	3.95	15.600	3.07	21.57	1.32
3.700	1.32	9.667	3.95	15.633	3.07	21.60	1.32
3.733	1.32	9.700	3.95	15.667	3.07	21.63	1.32
3.767	1.54	9.733	3.95	15.700	3.07	21.67	1.32
3.800	1.76	9.767	4.39	15.733	3.07	21.70	1.32
3.833	1.76	9.800	4.83	15.767	2.63	21.73	1.32
3.867	1.76	9.833	4.83	15.800	2.20	21.77	1.32
3.900	1.76	9.867	4.83	15.833	2.20	21.80	1.32
3.933	1.76	9.900	4.83	15.867	2.20	21.83	1.32
3.967	1.76	9.933	4.83	15.900	2.20	21.87	1.32
4.000	1.76	9.967	4.83	15.933	2.20	21.90	1.32
4.033	1.76	10.000	4.83	15.967	2.20	21.93	1.32
4.067	1.76	10.033	5.27	16.000	2.19	21.97	1.32
4.100	1.76	10.067	5.27	16.033	1.76	22.00	1.32
4.133	1.76	10.100	5.27	16.067	1.76	22.03	1.32
4.167	1.76	10.133	5.27	16.100	1.76	22.07	1.32
4.200	1.76	10.167	5.27	16.133	1.76	22.10	1.32
4.233	1.76	10.200	5.27	16.167	1.76	22.13	1.32
4.267	1.76	10.233	5.27	16.200	1.76	22.17	1.32
4.300	1.76	10.267	5.93	16.233	1.76	22.20	1.32
4.333	1.76	10.300	6.59	16.267	1.98	22.23	1.32
4.367	1.76	10.333	6.59	16.300	2.20	22.27	1.32
4.400	1.76	10.367	6.59	16.333	2.20	22.30	1.32
4.433	1.76	10.400	6.59	16.367	2.20	22.33	1.32
4.467	1.76	10.433	6.59	16.400	2.20	22.37	1.32
4.500	1.76	10.467	6.59	16.433	2.20	22.40	1.32
4.533	1.76	10.500	6.59	16.467	2.20	22.43	1.32
4.567	1.76	10.533	7.03	16.500	2.19	22.47	1.32

4.600	1.76	10.567	7.03	16.533	1.76	22.50	1.32
4.633	1.76	10.600	7.03	16.567	1.76	22.53	1.32
4.667	1.76	10.633	7.03	16.600	1.76	22.57	1.32
4.700	1.76	10.667	7.03	16.633	1.76	22.60	1.32
4.733	1.76	10.700	7.03	16.667	1.76	22.63	1.32
4.767	1.76	10.733	7.03	16.700	1.76	22.67	1.32
4.800	1.76	10.767	8.79	16.733	1.76	22.70	1.32
4.833	1.76	10.800	10.54	16.767	1.98	22.73	1.32
4.867	1.76	10.833	10.54	16.800	2.20	22.77	1.32
4.900	1.76	10.867	10.54	16.833	2.20	22.80	1.32
4.933	1.76	10.900	10.54	16.867	2.20	22.83	1.32
4.967	1.76	10.933	10.54	16.900	2.20	22.87	1.32
5.000	1.76	10.967	10.54	16.933	2.20	22.90	1.32
5.033	1.76	11.000	10.54	16.967	2.20	22.93	1.32
5.067	1.76	11.033	10.54	17.000	2.19	22.97	1.32
5.100	1.76	11.067	10.54	17.033	1.76	23.00	1.32
5.133	1.76	11.100	10.54	17.067	1.76	23.03	1.32
5.167	1.76	11.133	10.54	17.100	1.76	23.07	1.32
5.200	1.76	11.167	10.54	17.133	1.76	23.10	1.32
5.233	1.76	11.200	10.54	17.167	1.76	23.13	1.32
5.267	1.76	11.233	10.54	17.200	1.76	23.17	1.32
5.300	1.76	11.267	21.55	17.233	1.76	23.20	1.32
5.333	1.76	11.300	32.50	17.267	1.98	23.23	1.32
5.367	1.76	11.333	32.50	17.300	2.20	23.27	1.32
5.400	1.76	11.367	32.50	17.333	2.20	23.30	1.32
5.433	1.76	11.400	32.50	17.367	2.20	23.33	1.32
5.467	1.76	11.433	32.50	17.400	2.20	23.37	1.32
5.500	1.76	11.467	32.50	17.433	2.20	23.40	1.32
5.533	1.76	11.500	32.62	17.467	2.20	23.43	1.32
5.567	1.76	11.533	134.40	17.500	2.19	23.47	1.32
5.600	1.76	11.567	134.40	17.533	1.76	23.50	1.32
5.633	1.76	11.600	134.40	17.567	1.76	23.53	1.32
5.667	1.76	11.633	134.40	17.600	1.76	23.57	1.32
5.700	1.76	11.667	134.40	17.633	1.76	23.60	1.32
5.733	1.76	11.700	134.40	17.667	1.76	23.63	1.32
5.767	1.76	11.733	134.40	17.700	1.76	23.67	1.32
5.800	1.76	11.767	74.95	17.733	1.76	23.70	1.32
5.833	1.76	11.800	15.81	17.767	1.98	23.73	1.32
5.867	1.76	11.833	15.81	17.800	2.20	23.77	0.66
5.900	1.76	11.867	15.81	17.833	2.20		
5.933	1.76	11.900	15.81	17.867	2.20		
5.967	1.76	11.933	15.81	17.900	2.20		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.103 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 23.653
TOTAL RAINFALL (mm)= 109.470
RUNOFF COEFFICIENT = 0.216

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

CALIB					
NASHYD (0203)	Area (ha)=	2.89	Curve Number (CN)=	42.9	
ID= 1 DT= 2.0 min	Ia (mm)=	8.98	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.18			

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.172 (i)

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     TIME TO PEAK    (hrs)=  11.833
     RUNOFF VOLUME    (mm)=  23.045
     TOTAL RAINFALL   (mm)= 109.470
     RUNOFF COEFFICIENT   =   0.211

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

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| ADD HYD  (  0057)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0202):     1.63   0.103    11.83    23.65
     + ID2= 2 (  0203):     2.89   0.172    11.83    23.05
       ================================================
       ID = 3 (  0057):     4.52   0.275    11.83    23.26

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| NASHYD   (  0204)|   Area    (ha)=   0.64   Curve Number   (CN)= 48.1
|ID= 1 DT= 2.0 min |   Ia      (mm)=   9.20   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.33

     Unit Hyd Qpeak  (cms)=   0.074

     PEAK FLOW       (cms)=   0.030 (i)
     TIME TO PEAK    (hrs)=  11.967
     RUNOFF VOLUME    (mm)=  26.841
     TOTAL RAINFALL   (mm)= 109.470
     RUNOFF COEFFICIENT   =   0.245

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

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| ADD HYD  (  0058)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0204):     0.64   0.030    11.97    26.84
     + ID2= 2 (  0057):     4.52   0.275    11.83    23.26
       ================================================
       ID = 3 (  0058):     5.16   0.300    11.83    23.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.20
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  21.00
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                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=      0.95         1.25
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         1.00
     Length            (m)=    121.11        40.00
     Mannings n           =     0.013        0.250
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NOTE: RAINFALL WAS TRANSFORMED TO 5.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.32	6.083	2.20	12.083	15.81	18.08	1.76
0.167	1.32	6.167	2.20	12.167	15.81	18.17	1.76
0.250	1.32	6.250	2.20	12.250	15.81	18.25	1.76
0.333	0.88	6.333	1.76	12.333	8.35	18.33	2.20
0.417	0.88	6.417	1.76	12.417	8.34	18.42	2.20
0.500	0.88	6.500	1.76	12.500	8.34	18.50	2.20
0.583	1.32	6.583	2.20	12.583	7.91	18.58	1.76
0.667	1.32	6.667	2.20	12.667	7.91	18.67	1.76
0.750	1.32	6.750	2.20	12.750	7.91	18.75	1.76
0.833	1.32	6.833	2.20	12.833	6.15	18.83	2.20
0.917	1.32	6.917	2.20	12.917	6.15	18.92	2.20
1.000	1.32	7.000	2.20	13.000	6.15	19.00	2.20
1.083	1.32	7.083	2.64	13.083	5.71	19.08	1.76
1.167	1.32	7.167	2.64	13.167	5.71	19.17	1.76
1.250	1.32	7.250	2.64	13.250	5.71	19.25	1.76
1.333	0.88	7.333	2.20	13.333	4.83	19.33	2.20
1.417	0.88	7.417	2.20	13.417	4.83	19.42	2.20
1.500	0.88	7.500	2.20	13.500	4.83	19.50	2.20
1.583	1.32	7.583	2.64	13.583	4.39	19.58	1.76
1.667	1.32	7.667	2.64	13.667	4.39	19.67	1.76
1.750	1.32	7.750	2.64	13.750	4.39	19.75	1.76
1.833	1.32	7.833	2.64	13.833	3.51	19.83	1.32
1.917	1.32	7.917	2.64	13.917	3.51	19.92	1.32
2.000	1.32	8.000	2.64	14.000	3.51	20.00	1.32
2.083	1.76	8.083	3.07	14.083	3.07	20.08	1.32
2.167	1.76	8.167	3.07	14.167	3.07	20.17	1.32
2.250	1.76	8.250	3.07	14.250	3.07	20.25	1.32
2.333	1.32	8.333	3.07	14.333	3.51	20.33	1.32
2.417	1.32	8.417	3.07	14.417	3.51	20.42	1.32
2.500	1.32	8.500	3.07	14.500	3.51	20.50	1.32
2.583	1.32	8.583	3.07	14.583	3.07	20.58	1.32
2.667	1.32	8.667	3.07	14.667	3.07	20.67	1.32
2.750	1.32	8.750	3.07	14.750	3.07	20.75	1.32
2.833	1.32	8.833	3.51	14.833	3.51	20.83	1.32
2.917	1.32	8.917	3.51	14.917	3.51	20.92	1.32
3.000	1.32	9.000	3.51	15.000	3.51	21.00	1.32
3.083	1.76	9.083	3.51	15.083	3.07	21.08	1.32
3.167	1.76	9.167	3.51	15.167	3.07	21.17	1.32
3.250	1.76	9.250	3.51	15.250	3.07	21.25	1.32
3.333	1.32	9.333	3.95	15.333	3.51	21.33	1.32
3.417	1.32	9.417	3.95	15.417	3.51	21.42	1.32
3.500	1.32	9.500	3.95	15.500	3.51	21.50	1.32
3.583	1.32	9.583	3.95	15.583	3.07	21.58	1.32
3.667	1.32	9.667	3.95	15.667	3.07	21.67	1.32
3.750	1.32	9.750	3.95	15.750	3.07	21.75	1.32
3.833	1.76	9.833	4.83	15.833	2.20	21.83	1.32
3.917	1.76	9.917	4.83	15.917	2.20	21.92	1.32
4.000	1.76	10.000	4.83	16.000	2.20	22.00	1.32
4.083	1.76	10.083	5.27	16.083	1.76	22.08	1.32
4.167	1.76	10.167	5.27	16.167	1.76	22.17	1.32
4.250	1.76	10.250	5.27	16.250	1.76	22.25	1.32
4.333	1.76	10.333	6.59	16.333	2.20	22.33	1.32
4.417	1.76	10.417	6.59	16.417	2.20	22.42	1.32
4.500	1.76	10.500	6.59	16.500	2.20	22.50	1.32
4.583	1.76	10.583	7.03	16.583	1.76	22.58	1.32
4.667	1.76	10.667	7.03	16.667	1.76	22.67	1.32
4.750	1.76	10.750	7.03	16.750	1.76	22.75	1.32

4.833	1.76	10.833	10.54	16.833	2.20	22.83	1.32
4.917	1.76	10.917	10.54	16.917	2.20	22.92	1.32
5.000	1.76	11.000	10.54	17.000	2.20	23.00	1.32
5.083	1.76	11.083	10.54	17.083	1.76	23.08	1.32
5.167	1.76	11.167	10.54	17.167	1.76	23.17	1.32
5.250	1.76	11.250	10.54	17.250	1.76	23.25	1.32
5.333	1.76	11.333	32.50	17.333	2.20	23.33	1.32
5.417	1.76	11.417	32.50	17.417	2.20	23.42	1.32
5.500	1.76	11.500	32.50	17.500	2.20	23.50	1.32
5.583	1.76	11.583	134.39	17.583	1.76	23.58	1.32
5.667	1.76	11.667	134.40	17.667	1.76	23.67	1.32
5.750	1.76	11.750	134.40	17.750	1.76	23.75	1.32
5.833	1.76	11.833	15.82	17.833	2.20		
5.917	1.76	11.917	15.81	17.917	2.20		
6.000	1.76	12.000	15.81	18.000	2.20		

Max.Eff.Inten.(mm/hr)=	134.40	178.62	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.55 (ii)	9.44 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	0.29	0.12	
			TOTALS
PEAK FLOW (cms)=	0.17	0.47	0.646 (iii)
TIME TO PEAK (hrs)=	11.75	11.75	11.75
RUNOFF VOLUME (mm)=	108.47	47.16	60.04
TOTAL RAINFALL (mm)=	109.47	109.47	109.47
RUNOFF COEFFICIENT =	0.99	0.43	0.55

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

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

RESERVOIR(0301)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.1680	0.1590	0.5570
	0.0440	0.2080	0.3520	0.7230
	0.0990	0.3020	1.2920	0.9160
	0.1320	0.4180	2.0620	1.0230

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)	2.200	0.646	11.75	60.04
OUTFLOW: ID= 1 (0301)	2.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0711

ADD HYD (0059)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)

ID1= 1 (0301):	2.20	0.000	0.00	0.00
+ ID2= 2 (0058):	5.16	0.300	11.83	23.71
ID = 3 (0059):	7.36	0.300	11.83	16.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0205)	Area (ha)= 0.03		
ID= 1 DT= 5.0 min	Total Imp(%)= 56.00	Dir. Conn.(%)= 28.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	0.02	0.01	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	1.00	
Length (m)=	14.14	20.00	
Mannings n =	0.013	0.250	
Max.Eff.Inten.(mm/hr)=	134.40	212.38	
over (min)	5.00	5.00	
Storage Coeff. (min)=	0.70 (ii)	4.94 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	0.34	0.22	
			TOTALS
PEAK FLOW (cms)=	0.00	0.01	0.011 (iii)
TIME TO PEAK (hrs)=	11.75	11.75	11.75
RUNOFF VOLUME (mm)=	108.47	50.53	61.22
TOTAL RAINFALL (mm)=	109.47	109.47	109.47
RUNOFF COEFFICIENT =	0.99	0.46	0.56

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

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

ADD HYD (0060)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0205):	0.03	0.011	11.75	61.22	
+ ID2= 2 (0059):	7.36	0.300	11.83	16.62	
ID = 3 (0060):	7.39	0.303	11.83	16.80	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB				
NASHYD (0207)	Area (ha)= 0.78	Curve Number (CN)= 66.3		
ID= 1 DT= 5.0 min	Ia (mm)= 4.87	# of Linear Res.(N)= 3.00		
	U.H. Tp(hrs)= 0.19			

Unit Hyd Qpeak (cms)= 0.157

```
     PEAK FLOW      (cms)=   0.095 (i)
     TIME TO PEAK   (hrs)=  11.833
     RUNOFF VOLUME   (mm)=  46.707
     TOTAL RAINFALL  (mm)= 109.471
     RUNOFF COEFFICIENT  =   0.427

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

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--------------------
| ADD HYD  (  0061)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0207):     0.78   0.095    11.83    46.71
     + ID2= 2 (  0060):     7.39   0.303    11.83    16.80
       ================================================
       ID = 3 (  0061):     8.17   0.398    11.83    19.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.23         0.50
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.76        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     134.40       164.18
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.83 (ii)    7.62 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.13
                                                        *TOTALS*
     PEAK FLOW      (cms)=       0.04         0.19          0.222 (iii)
     TIME TO PEAK   (hrs)=      11.75        11.75          11.75
     RUNOFF VOLUME   (mm)=     108.47        45.50          53.68
     TOTAL RAINFALL  (mm)=     109.47       109.47         109.47
     RUNOFF COEFFICIENT  =       0.99         0.42           0.49

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

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

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--------------------
| ADD HYD  (  0401)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
```



```
       ID1= 1 (  0206):     0.73   0.222    11.75    53.68
     + ID2= 2 (  0061):     8.17   0.398    11.83    19.66
       ================================================
       ID = 3 (  0401):     8.90   0.583    11.80    22.44

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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================================================================================
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       V    V   I    SSSSS  U   U    A    L
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 5.0\VO2\voin.dat

  Output  filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\86865
4d5-43f7-4ece-987b-dd28b1573297\scen
  Summary filename:
C:\Users\aschoof\AppData\Local\Civica\VH5\8194ef53-adad-4f15-90f7-c4eafb4675c3\86865
4d5-43f7-4ece-987b-dd28b1573297\scen


DATE: 10/09/2020                          TIME: 05:31:52

USER:


COMMENTS: _____________________________________________________________


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  ********************************************
  ** SIMULATION : Run 06                     **
  ********************************************

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| MASS STORM       |    Filename: C:\Users\aschoof\AppD
|                  |              ata\Local\Temp\
|                  |              d21eaacb-4cf1-4504-bf53-d3c44604e13d\4477bc98
| Ptotal=120.80 mm |    Comments: SCS Type II 24 HR MASS CURVE
--------------------
                       Duration of storm    = 23.75 hrs
                       Mass curve time step = 15.00 min
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.45	6.25	2.42	12.25	17.40	18.25	1.93
0.50	0.97	6.50	1.93	12.50	9.18	18.50	2.42
0.75	1.45	6.75	2.42	12.75	8.70	18.75	1.93
1.00	1.45	7.00	2.42	13.00	6.76	19.00	2.42
1.25	1.45	7.25	2.90	13.25	6.28	19.25	1.93
1.50	0.97	7.50	2.42	13.50	5.32	19.50	2.42
1.75	1.45	7.75	2.90	13.75	4.83	19.75	1.93
2.00	1.45	8.00	2.90	14.00	3.87	20.00	1.45
2.25	1.93	8.25	3.38	14.25	3.38	20.25	1.45
2.50	1.45	8.50	3.38	14.50	3.87	20.50	1.45
2.75	1.45	8.75	3.38	14.75	3.38	20.75	1.45
3.00	1.45	9.00	3.87	15.00	3.87	21.00	1.45
3.25	1.93	9.25	3.87	15.25	3.38	21.25	1.45
3.50	1.45	9.50	4.35	15.50	3.87	21.50	1.45
3.75	1.45	9.75	4.35	15.75	3.38	21.75	1.45
4.00	1.93	10.00	5.32	16.00	2.42	22.00	1.45
4.25	1.93	10.25	5.80	16.25	1.93	22.25	1.45
4.50	1.93	10.50	7.25	16.50	2.42	22.50	1.45
4.75	1.93	10.75	7.73	16.75	1.93	22.75	1.45
5.00	1.93	11.00	11.60	17.00	2.42	23.00	1.45
5.25	1.93	11.25	11.60	17.25	1.93	23.25	1.45
5.50	1.93	11.50	35.76	17.50	2.42	23.50	1.45
5.75	1.93	11.75	147.86	17.75	1.93	23.75	1.45
6.00	1.93	12.00	17.40	18.00	2.42		

CALIB			
NASHYD (0202)	Area (ha)=	1.63	Curve Number (CN)= 44.1
ID= 1 DT= 2.0 min	Ia (mm)=	9.62	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.17	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.033	1.45	6.000	1.93	11.967	17.40	17.93	2.42
0.067	1.45	6.033	2.42	12.000	17.40	17.97	2.42
0.100	1.45	6.067	2.42	12.033	17.40	18.00	2.41
0.133	1.45	6.100	2.42	12.067	17.40	18.03	1.93
0.167	1.45	6.133	2.42	12.100	17.40	18.07	1.93
0.200	1.45	6.167	2.42	12.133	17.40	18.10	1.93
0.233	1.45	6.200	2.42	12.167	17.40	18.13	1.93
0.267	1.21	6.233	2.42	12.200	17.40	18.17	1.93
0.300	0.97	6.267	2.17	12.233	17.40	18.20	1.93
0.333	0.97	6.300	1.93	12.267	13.28	18.23	1.93
0.367	0.97	6.333	1.93	12.300	9.18	18.27	2.18
0.400	0.97	6.367	1.93	12.333	9.18	18.30	2.42
0.433	0.97	6.400	1.93	12.367	9.18	18.33	2.42
0.467	0.97	6.433	1.93	12.400	9.18	18.37	2.42
0.500	0.97	6.467	1.93	12.433	9.18	18.40	2.42
0.533	1.45	6.500	1.93	12.467	9.18	18.43	2.42
0.567	1.45	6.533	2.42	12.500	9.18	18.47	2.42
0.600	1.45	6.567	2.42	12.533	8.70	18.50	2.42
0.633	1.45	6.600	2.42	12.567	8.70	18.53	1.93
0.667	1.45	6.633	2.42	12.600	8.70	18.57	1.93
0.700	1.45	6.667	2.42	12.633	8.70	18.60	1.93
0.733	1.45	6.700	2.42	12.667	8.70	18.63	1.93
0.767	1.45	6.733	2.42	12.700	8.70	18.67	1.93

0.800	1.45	6.767	2.42	12.733	8.70	18.70	1.93
0.833	1.45	6.800	2.42	12.767	7.73	18.73	1.93
0.867	1.45	6.833	2.42	12.800	6.76	18.77	2.18
0.900	1.45	6.867	2.42	12.833	6.76	18.80	2.42
0.933	1.45	6.900	2.42	12.867	6.76	18.83	2.42
0.967	1.45	6.933	2.42	12.900	6.76	18.87	2.42
1.000	1.45	6.967	2.42	12.933	6.76	18.90	2.42
1.033	1.45	7.000	2.42	12.967	6.76	18.93	2.42
1.067	1.45	7.033	2.90	13.000	6.76	18.97	2.42
1.100	1.45	7.067	2.90	13.033	6.28	19.00	2.42
1.133	1.45	7.100	2.90	13.067	6.28	19.03	1.93
1.167	1.45	7.133	2.90	13.100	6.28	19.07	1.93
1.200	1.45	7.167	2.90	13.133	6.28	19.10	1.93
1.233	1.45	7.200	2.90	13.167	6.28	19.13	1.93
1.267	1.21	7.233	2.90	13.200	6.28	19.17	1.93
1.300	0.97	7.267	2.66	13.233	6.28	19.20	1.93
1.333	0.97	7.300	2.42	13.267	5.80	19.23	1.93
1.367	0.97	7.333	2.42	13.300	5.32	19.27	2.18
1.400	0.97	7.367	2.42	13.333	5.32	19.30	2.42
1.433	0.97	7.400	2.42	13.367	5.32	19.33	2.42
1.467	0.97	7.433	2.42	13.400	5.32	19.37	2.42
1.500	0.97	7.467	2.42	13.433	5.32	19.40	2.42
1.533	1.45	7.500	2.42	13.467	5.32	19.43	2.42
1.567	1.45	7.533	2.90	13.500	5.31	19.47	2.42
1.600	1.45	7.567	2.90	13.533	4.83	19.50	2.42
1.633	1.45	7.600	2.90	13.567	4.83	19.53	1.93
1.667	1.45	7.633	2.90	13.600	4.83	19.57	1.93
1.700	1.45	7.667	2.90	13.633	4.83	19.60	1.93
1.733	1.45	7.700	2.90	13.667	4.83	19.63	1.93
1.767	1.45	7.733	2.90	13.700	4.83	19.67	1.93
1.800	1.45	7.767	2.90	13.733	4.83	19.70	1.93
1.833	1.45	7.800	2.90	13.767	4.35	19.73	1.93
1.867	1.45	7.833	2.90	13.800	3.87	19.77	1.69
1.900	1.45	7.867	2.90	13.833	3.87	19.80	1.45
1.933	1.45	7.900	2.90	13.867	3.87	19.83	1.45
1.967	1.45	7.933	2.90	13.900	3.87	19.87	1.45
2.000	1.45	7.967	2.90	13.933	3.87	19.90	1.45
2.033	1.93	8.000	2.90	13.967	3.87	19.93	1.45
2.067	1.93	8.033	3.38	14.000	3.86	19.97	1.45
2.100	1.93	8.067	3.38	14.033	3.38	20.00	1.45
2.133	1.93	8.100	3.38	14.067	3.38	20.03	1.45
2.167	1.93	8.133	3.38	14.100	3.38	20.07	1.45
2.200	1.93	8.167	3.38	14.133	3.38	20.10	1.45
2.233	1.93	8.200	3.38	14.167	3.38	20.13	1.45
2.267	1.69	8.233	3.38	14.200	3.38	20.17	1.45
2.300	1.45	8.267	3.38	14.233	3.38	20.20	1.45
2.333	1.45	8.300	3.38	14.267	3.63	20.23	1.45
2.367	1.45	8.333	3.38	14.300	3.87	20.27	1.45
2.400	1.45	8.367	3.38	14.333	3.87	20.30	1.45
2.433	1.45	8.400	3.38	14.367	3.87	20.33	1.45
2.467	1.45	8.433	3.38	14.400	3.87	20.37	1.45
2.500	1.45	8.467	3.38	14.433	3.87	20.40	1.45
2.533	1.45	8.500	3.38	14.467	3.87	20.43	1.45
2.567	1.45	8.533	3.38	14.500	3.86	20.47	1.45
2.600	1.45	8.567	3.38	14.533	3.38	20.50	1.45
2.633	1.45	8.600	3.38	14.567	3.38	20.53	1.45
2.667	1.45	8.633	3.38	14.600	3.38	20.57	1.45
2.700	1.45	8.667	3.38	14.633	3.38	20.60	1.45
2.733	1.45	8.700	3.38	14.667	3.38	20.63	1.45
2.767	1.45	8.733	3.38	14.700	3.38	20.67	1.45
2.800	1.45	8.767	3.62	14.733	3.38	20.70	1.45
2.833	1.45	8.800	3.87	14.767	3.63	20.73	1.45
2.867	1.45	8.833	3.87	14.800	3.87	20.77	1.45

2.900	1.45	8.867	3.87	14.833	3.87	20.80	1.45
2.933	1.45	8.900	3.87	14.867	3.87	20.83	1.45
2.967	1.45	8.933	3.87	14.900	3.87	20.87	1.45
3.000	1.45	8.967	3.87	14.933	3.87	20.90	1.45
3.033	1.93	9.000	3.87	14.967	3.87	20.93	1.45
3.067	1.93	9.033	3.87	15.000	3.86	20.97	1.45
3.100	1.93	9.067	3.87	15.033	3.38	21.00	1.45
3.133	1.93	9.100	3.87	15.067	3.38	21.03	1.45
3.167	1.93	9.133	3.87	15.100	3.38	21.07	1.45
3.200	1.93	9.167	3.87	15.133	3.38	21.10	1.45
3.233	1.93	9.200	3.87	15.167	3.38	21.13	1.45
3.267	1.69	9.233	3.87	15.200	3.38	21.17	1.45
3.300	1.45	9.267	4.11	15.233	3.38	21.20	1.45
3.333	1.45	9.300	4.35	15.267	3.63	21.23	1.45
3.367	1.45	9.333	4.35	15.300	3.87	21.27	1.45
3.400	1.45	9.367	4.35	15.333	3.87	21.30	1.45
3.433	1.45	9.400	4.35	15.367	3.87	21.33	1.45
3.467	1.45	9.433	4.35	15.400	3.87	21.37	1.45
3.500	1.45	9.467	4.35	15.433	3.87	21.40	1.45
3.533	1.45	9.500	4.35	15.467	3.87	21.43	1.45
3.567	1.45	9.533	4.35	15.500	3.86	21.47	1.45
3.600	1.45	9.567	4.35	15.533	3.38	21.50	1.45
3.633	1.45	9.600	4.35	15.567	3.38	21.53	1.45
3.667	1.45	9.633	4.35	15.600	3.38	21.57	1.45
3.700	1.45	9.667	4.35	15.633	3.38	21.60	1.45
3.733	1.45	9.700	4.35	15.667	3.38	21.63	1.45
3.767	1.69	9.733	4.35	15.700	3.38	21.67	1.45
3.800	1.93	9.767	4.83	15.733	3.38	21.70	1.45
3.833	1.93	9.800	5.32	15.767	2.90	21.73	1.45
3.867	1.93	9.833	5.32	15.800	2.42	21.77	1.45
3.900	1.93	9.867	5.32	15.833	2.42	21.80	1.45
3.933	1.93	9.900	5.32	15.867	2.42	21.83	1.45
3.967	1.93	9.933	5.32	15.900	2.42	21.87	1.45
4.000	1.93	9.967	5.32	15.933	2.42	21.90	1.45
4.033	1.93	10.000	5.32	15.967	2.42	21.93	1.45
4.067	1.93	10.033	5.80	16.000	2.41	21.97	1.45
4.100	1.93	10.067	5.80	16.033	1.93	22.00	1.45
4.133	1.93	10.100	5.80	16.067	1.93	22.03	1.45
4.167	1.93	10.133	5.80	16.100	1.93	22.07	1.45
4.200	1.93	10.167	5.80	16.133	1.93	22.10	1.45
4.233	1.93	10.200	5.80	16.167	1.93	22.13	1.45
4.267	1.93	10.233	5.80	16.200	1.93	22.17	1.45
4.300	1.93	10.267	6.52	16.233	1.93	22.20	1.45
4.333	1.93	10.300	7.25	16.267	2.18	22.23	1.45
4.367	1.93	10.333	7.25	16.300	2.42	22.27	1.45
4.400	1.93	10.367	7.25	16.333	2.42	22.30	1.45
4.433	1.93	10.400	7.25	16.367	2.42	22.33	1.45
4.467	1.93	10.433	7.25	16.400	2.42	22.37	1.45
4.500	1.93	10.467	7.25	16.433	2.42	22.40	1.45
4.533	1.93	10.500	7.25	16.467	2.42	22.43	1.45
4.567	1.93	10.533	7.73	16.500	2.41	22.47	1.45
4.600	1.93	10.567	7.73	16.533	1.93	22.50	1.45
4.633	1.93	10.600	7.73	16.567	1.93	22.53	1.45
4.667	1.93	10.633	7.73	16.600	1.93	22.57	1.45
4.700	1.93	10.667	7.73	16.633	1.93	22.60	1.45
4.733	1.93	10.700	7.73	16.667	1.93	22.63	1.45
4.767	1.93	10.733	7.73	16.700	1.93	22.67	1.45
4.800	1.93	10.767	9.67	16.733	1.93	22.70	1.45
4.833	1.93	10.800	11.60	16.767	2.18	22.73	1.45
4.867	1.93	10.833	11.60	16.800	2.42	22.77	1.45
4.900	1.93	10.867	11.60	16.833	2.42	22.80	1.45
4.933	1.93	10.900	11.60	16.867	2.42	22.83	1.45
4.967	1.93	10.933	11.60	16.900	2.42	22.87	1.45

5.000	1.93	10.967	11.60	16.933	2.42	22.90	1.45
5.033	1.93	11.000	11.60	16.967	2.42	22.93	1.45
5.067	1.93	11.033	11.60	17.000	2.41	22.97	1.45
5.100	1.93	11.067	11.60	17.033	1.93	23.00	1.45
5.133	1.93	11.100	11.60	17.067	1.93	23.03	1.45
5.167	1.93	11.133	11.60	17.100	1.93	23.07	1.45
5.200	1.93	11.167	11.60	17.133	1.93	23.10	1.45
5.233	1.93	11.200	11.60	17.167	1.93	23.13	1.45
5.267	1.93	11.233	11.60	17.200	1.93	23.17	1.45
5.300	1.93	11.267	23.70	17.233	1.93	23.20	1.45
5.333	1.93	11.300	35.76	17.267	2.18	23.23	1.45
5.367	1.93	11.333	35.76	17.300	2.42	23.27	1.45
5.400	1.93	11.367	35.76	17.333	2.42	23.30	1.45
5.433	1.93	11.400	35.76	17.367	2.42	23.33	1.45
5.467	1.93	11.433	35.76	17.400	2.42	23.37	1.45
5.500	1.93	11.467	35.76	17.433	2.42	23.40	1.45
5.533	1.93	11.500	35.89	17.467	2.42	23.43	1.45
5.567	1.93	11.533	147.86	17.500	2.41	23.47	1.45
5.600	1.93	11.567	147.86	17.533	1.93	23.50	1.45
5.633	1.93	11.600	147.86	17.567	1.93	23.53	1.45
5.667	1.93	11.633	147.86	17.600	1.93	23.57	1.45
5.700	1.93	11.667	147.86	17.633	1.93	23.60	1.45
5.733	1.93	11.700	147.86	17.667	1.93	23.63	1.45
5.767	1.93	11.733	147.86	17.700	1.93	23.67	1.45
5.800	1.93	11.767	82.46	17.733	1.93	23.70	1.45
5.833	1.93	11.800	17.40	17.767	2.18	23.73	1.45
5.867	1.93	11.833	17.40	17.800	2.42	23.77	0.73
5.900	1.93	11.867	17.40	17.833	2.42		
5.933	1.93	11.900	17.40	17.867	2.42		
5.967	1.93	11.933	17.40	17.900	2.42		

Unit Hyd Qpeak (cms)= 0.366

PEAK FLOW (cms)= 0.124 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 28.396
TOTAL RAINFALL (mm)= 120.437
RUNOFF COEFFICIENT = 0.236

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

CALIB					
NASHYD (0203)	Area	(ha)=	2.89	Curve Number	(CN)= 42.9
ID= 1 DT= 2.0 min	Ia	(mm)=	8.98	# of Linear Res.	(N)= 3.00
	U.H. Tp	(hrs)=	0.18		

Unit Hyd Qpeak (cms)= 0.613

PEAK FLOW (cms)= 0.207 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 27.658
TOTAL RAINFALL (mm)= 120.437
RUNOFF COEFFICIENT = 0.230

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

ADD HYD (0057)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0202):	1.63	0.124	11.83	28.40
+ ID2= 2 (0203):	2.89	0.207	11.83	27.66
ID = 3 (0057):	4.52	0.332	11.83	27.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
NASHYD (0204)	Area (ha)= 0.64	Curve Number (CN)= 48.1	
ID= 1 DT= 2.0 min	Ia (mm)= 9.20	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.33		

Unit Hyd Qpeak (cms)= 0.074

PEAK FLOW (cms)= 0.036 (i)
TIME TO PEAK (hrs)= 11.967
RUNOFF VOLUME (mm)= 32.094
TOTAL RAINFALL (mm)= 120.437
RUNOFF COEFFICIENT = 0.266

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

ADD HYD (0058)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0204):	0.64	0.036	11.97	32.09
+ ID2= 2 (0057):	4.52	0.332	11.83	27.92
ID = 3 (0058):	5.16	0.361	11.83	28.44

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB			
STANDHYD (0201)	Area (ha)= 2.20		
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00	Dir. Conn.(%)= 21.00	

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	0.95	1.25
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	1.00
Length (m)=	121.11	40.00
Mannings n =	0.013	0.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.45	6.083	2.42	12.083	17.40	18.08	1.93
0.167	1.45	6.167	2.42	12.167	17.40	18.17	1.93
0.250	1.45	6.250	2.42	12.250	17.40	18.25	1.93
0.333	0.97	6.333	1.93	12.333	9.18	18.33	2.42
0.417	0.97	6.417	1.93	12.417	9.18	18.42	2.42
0.500	0.97	6.500	1.93	12.500	9.18	18.50	2.42

0.583	1.45	6.583	2.42	12.583	8.70	18.58	1.93
0.667	1.45	6.667	2.42	12.667	8.70	18.67	1.93
0.750	1.45	6.750	2.42	12.750	8.70	18.75	1.93
0.833	1.45	6.833	2.42	12.833	6.77	18.83	2.42
0.917	1.45	6.917	2.42	12.917	6.76	18.92	2.42
1.000	1.45	7.000	2.42	13.000	6.76	19.00	2.42
1.083	1.45	7.083	2.90	13.083	6.28	19.08	1.93
1.167	1.45	7.167	2.90	13.167	6.28	19.17	1.93
1.250	1.45	7.250	2.90	13.250	6.28	19.25	1.93
1.333	0.97	7.333	2.42	13.333	5.32	19.33	2.42
1.417	0.97	7.417	2.42	13.417	5.32	19.42	2.42
1.500	0.97	7.500	2.42	13.500	5.32	19.50	2.42
1.583	1.45	7.583	2.90	13.583	4.83	19.58	1.93
1.667	1.45	7.667	2.90	13.667	4.83	19.67	1.93
1.750	1.45	7.750	2.90	13.750	4.83	19.75	1.93
1.833	1.45	7.833	2.90	13.833	3.87	19.83	1.45
1.917	1.45	7.917	2.90	13.917	3.87	19.92	1.45
2.000	1.45	8.000	2.90	14.000	3.87	20.00	1.45
2.083	1.93	8.083	3.38	14.083	3.38	20.08	1.45
2.167	1.93	8.167	3.38	14.167	3.38	20.17	1.45
2.250	1.93	8.250	3.38	14.250	3.38	20.25	1.45
2.333	1.45	8.333	3.38	14.333	3.87	20.33	1.45
2.417	1.45	8.417	3.38	14.417	3.87	20.42	1.45
2.500	1.45	8.500	3.38	14.500	3.87	20.50	1.45
2.583	1.45	8.583	3.38	14.583	3.38	20.58	1.45
2.667	1.45	8.667	3.38	14.667	3.38	20.67	1.45
2.750	1.45	8.750	3.38	14.750	3.38	20.75	1.45
2.833	1.45	8.833	3.87	14.833	3.87	20.83	1.45
2.917	1.45	8.917	3.87	14.917	3.87	20.92	1.45
3.000	1.45	9.000	3.87	15.000	3.87	21.00	1.45
3.083	1.93	9.083	3.87	15.083	3.38	21.08	1.45
3.167	1.93	9.167	3.87	15.167	3.38	21.17	1.45
3.250	1.93	9.250	3.87	15.250	3.38	21.25	1.45
3.333	1.45	9.333	4.35	15.333	3.87	21.33	1.45
3.417	1.45	9.417	4.35	15.417	3.87	21.42	1.45
3.500	1.45	9.500	4.35	15.500	3.87	21.50	1.45
3.583	1.45	9.583	4.35	15.583	3.38	21.58	1.45
3.667	1.45	9.667	4.35	15.667	3.38	21.67	1.45
3.750	1.45	9.750	4.35	15.750	3.38	21.75	1.45
3.833	1.93	9.833	5.32	15.833	2.42	21.83	1.45
3.917	1.93	9.917	5.32	15.917	2.42	21.92	1.45
4.000	1.93	10.000	5.32	16.000	2.42	22.00	1.45
4.083	1.93	10.083	5.80	16.083	1.93	22.08	1.45
4.167	1.93	10.167	5.80	16.167	1.93	22.17	1.45
4.250	1.93	10.250	5.80	16.250	1.93	22.25	1.45
4.333	1.93	10.333	7.25	16.333	2.42	22.33	1.45
4.417	1.93	10.417	7.25	16.417	2.42	22.42	1.45
4.500	1.93	10.500	7.25	16.500	2.42	22.50	1.45
4.583	1.93	10.583	7.73	16.583	1.93	22.58	1.45
4.667	1.93	10.667	7.73	16.667	1.93	22.67	1.45
4.750	1.93	10.750	7.73	16.750	1.93	22.75	1.45
4.833	1.93	10.833	11.60	16.833	2.42	22.83	1.45
4.917	1.93	10.917	11.60	16.917	2.42	22.92	1.45
5.000	1.93	11.000	11.60	17.000	2.42	23.00	1.45
5.083	1.93	11.083	11.60	17.083	1.93	23.08	1.45
5.167	1.93	11.167	11.60	17.167	1.93	23.17	1.45
5.250	1.93	11.250	11.60	17.250	1.93	23.25	1.45
5.333	1.93	11.333	35.75	17.333	2.42	23.33	1.45
5.417	1.93	11.417	35.76	17.417	2.42	23.42	1.45
5.500	1.93	11.500	35.76	17.500	2.42	23.50	1.45
5.583	1.93	11.583	147.85	17.583	1.93	23.58	1.45
5.667	1.93	11.667	147.86	17.667	1.93	23.67	1.45
5.750	1.93	11.750	147.86	17.750	1.93	23.75	1.45

5.833	1.93	11.833	17.41	17.833	2.42	
5.917	1.93	11.917	17.40	17.917	2.42	
6.000	1.93	12.000	17.40	18.000	2.42	

Max.Eff.Inten.(mm/hr)=		147.86	197.35	
over (min)		5.00	10.00	
Storage Coeff. (min)=		2.45 (ii)	9.07 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.30	0.12	
				TOTALS
PEAK FLOW	(cms)=	0.19	0.53	0.722 (iii)
TIME TO PEAK	(hrs)=	11.75	11.75	11.75
RUNOFF VOLUME	(mm)=	119.44	54.09	67.81
TOTAL RAINFALL	(mm)=	120.44	120.44	120.44
RUNOFF COEFFICIENT	=	0.99	0.45	0.56

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

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

RESERVOIR(0301)					
IN= 2---> OUT= 1					
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)	
	0.0000	0.1680	0.1590	0.5570	
	0.0440	0.2080	0.3520	0.7230	
	0.0990	0.3020	1.2920	0.9160	
	0.1320	0.4180	2.0620	1.0230	

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0201)	2.200	0.722	11.75	67.81
OUTFLOW: ID= 1 (0301)	2.200	0.000	0.00	0.00

PEAK FLOW REDUCTION [Qout/Qin](%)= 0.00
TIME SHIFT OF PEAK FLOW (min)=******
MAXIMUM STORAGE USED (ha.m.)= 0.0813

ADD HYD (0059)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0301):	2.20	0.000	0.00	0.00	
+ ID2= 2 (0058):	5.16	0.361	11.83	28.44	
ID = 3 (0059):	7.36	0.361	11.83	19.94	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (0205)	Area (ha)=	0.03			
ID= 1 DT= 5.0 min	Total Imp(%)=	56.00	Dir. Conn.(%)=	28.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.02	0.01	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	1.00	
Length	(m)=	14.14	20.00	
Mannings n	=	0.013	0.250	

Max.Eff.Inten.(mm/hr)=		147.86	234.43	
over (min)		5.00	5.00	
Storage Coeff. (min)=		0.68 (ii)	4.75 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		0.34	0.22	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.01	0.012 (iii)
TIME TO PEAK	(hrs)=	11.75	11.75	11.75
RUNOFF VOLUME	(mm)=	119.44	57.66	68.86
TOTAL RAINFALL	(mm)=	120.44	120.44	120.44
RUNOFF COEFFICIENT	=	0.99	0.48	0.57

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

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

ADD HYD (0060)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0205):	0.03	0.012	11.75	68.86	
+ ID2= 2 (0059):	7.36	0.361	11.83	19.94	
ID = 3 (0060):	7.39	0.365	11.83	20.14	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
NASHYD (0207)	Area (ha)=	0.78	Curve Number (CN)=	66.3	
ID= 1 DT= 5.0 min	Ia (mm)=	4.87	# of Linear Res.(N)=	3.00	
	U.H. Tp(hrs)=	0.19			

Unit Hyd Qpeak (cms)= 0.157

PEAK FLOW (cms)= 0.111 (i)
TIME TO PEAK (hrs)= 11.833
RUNOFF VOLUME (mm)= 54.459
TOTAL RAINFALL (mm)= 120.438
RUNOFF COEFFICIENT = 0.452

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

ADD HYD (0061)	

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|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0207):     0.78   0.111    11.83    54.46
      + ID2= 2 (  0060):     7.39   0.365    11.83    20.14
        ================================================
        ID = 3 (  0061):     8.17   0.477    11.83    23.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  13.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.23         0.50
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.76        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     147.86       181.54
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       1.76 (ii)    7.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.21          0.248 (iii)
     TIME TO PEAK    (hrs)=      11.75        11.75          11.75
     RUNOFF VOLUME    (mm)=     119.44        52.24          60.98
     TOTAL RAINFALL   (mm)=     120.44       120.44         120.44
     RUNOFF COEFFICIENT   =       0.99         0.43           0.51

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

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

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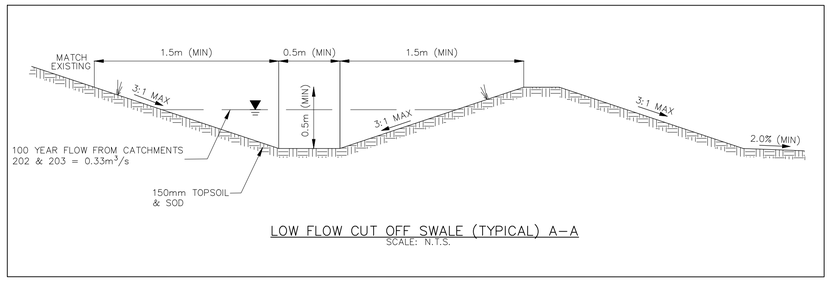
| ADD HYD  (  0401)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
-------------------           (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0206):     0.73   0.248    11.75    60.98
      + ID2= 2 (  0061):     8.17   0.477    11.83    23.41
        ================================================
        ID = 3 (  0401):     8.90   0.682    11.80    26.49

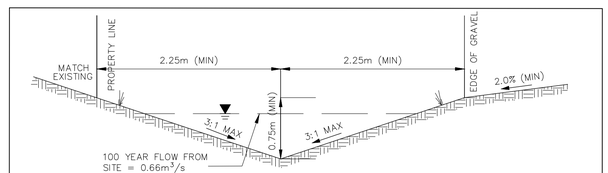
     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

KEY PLAN
N.T.S.



LOW FLOW CUT OFF SWALE (TYPICAL) A-A
SCALE: N.T.S.



OLD LAKESHORE ROAD DITCH CROSS-SECTION (TYPICAL)
SCALE: N.T.S.

LEGEND

- PROPERTY LINE
- PROPOSED CENTERLINE ROAD
- EXISTING EDGE OF GRAVEL ROAD
- PROPOSED OVERLAND FLOW DIRECTION
- PROPOSED/EXISTING ELEVATIONS 190.00 / 190.00
- PROPOSED SWALE
- PROPOSED GRADE/DIRECTION 1.0%

DISCLAIMER AND COPYRIGHT

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BENCHMARKS

TBM1 – ELEVATION 211.950
TOP NUT FIRE HYDRANT LOCATED AT THE SOUTH WEST CORNER OF LOT 11.

NOTES

LEGAL SURVEY, TOPOGRAPHIC INFORMATION AND LOT DIMENSIONS SHOWN ON THIS PLAN ARE TAKEN FROM A SURVEY PLAN PREPARED BY ZUBEK, EMO, PATTEN & THOMSEN, WHICH MAY NOT BE FINAL AND ARE NOT GUARANTEED. THE FINAL REGISTERED PLAN OF SUBDIVISION SHALL BE REFERRED TO FOR CONFIRMATION OF THE DATA.

No.	REVISION DESCRIPTION	DATE
1.	SUBMISSION FOR DRAFT PLAN APPROVAL	NOV/2019
2.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUNE/2020
3.	TOWN COMMENTS	OCT/2020

ENGINEER STAMP

LICENSED PROFESSIONAL ENGINEER
20 10 08
R. S. SIMPSON
PROVINCE OF ONTARIO

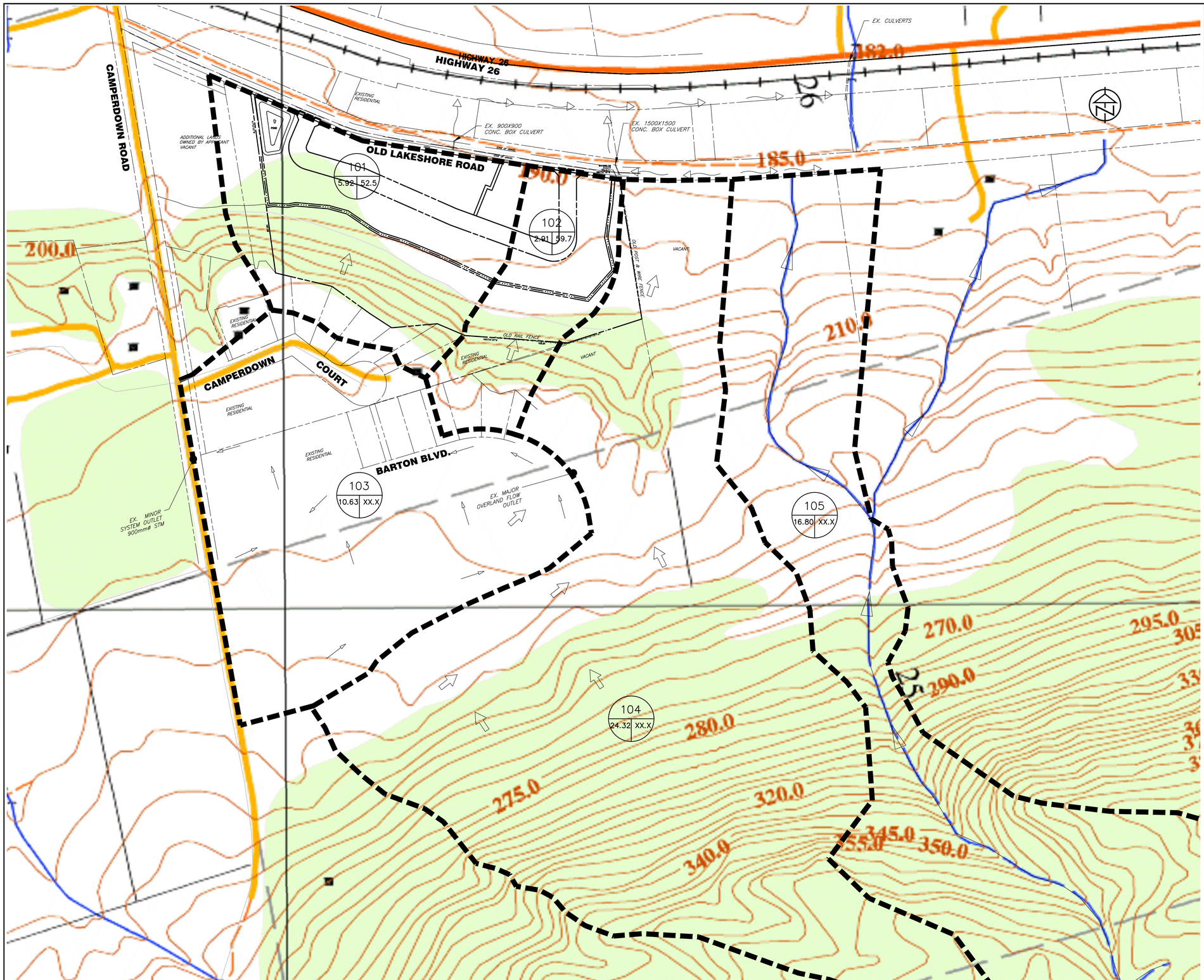
CAMPERDOWN CONDOMINIUMS
TOWN OF THE BLUE MOUNTAINS

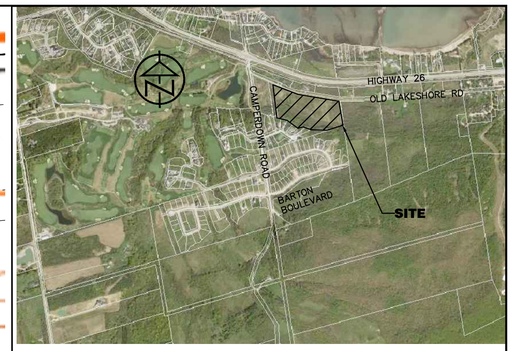
TATHAM ENGINEERING

SITE GRADING PLAN

DESIGN: AS	FILE: 117304	DWG: SG-1
DRAWN: RD/AC	DATE: DEC., 2017	
CHECK: RS	SCALE: 1:1000	

Drawing Name: 117304-SG01.dwg, Plotted: Oct 26, 2020





KEY PLAN
N.T.S.

LEGEND

- PROPERTY LINE
- EXISTING EDGE OF ASPHALT
- EXISTING DRAINAGE BOUNDARY
- EXISTING DRAINAGE AREA ID
- EXISTING DRAINAGE AREA (ha)
- EXISTING CN

(100 / 5.39 55.2)

- EXISTING MAJOR/OVERLAND FLOW DIRECTION
- EXISTING SWALE/DITCH
- EXISTING WATER COURSE
- EXISTING MINOR STORM FLOW DIRECTION

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BENCHMARKS

TBM1 – ELEVATION 211.950
TOP NUT FIRE HYDRANT LOCATED AT THE SOUTH WEST CORNER OF LOT 11.

NOTES

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No.	REVISION DESCRIPTION	DATE
1.	SUBMISSION FOR DRAFT PLAN APPROVAL	NOV/2019
2.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUNE/2020

ENGINEER STAMP

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TOWN OF THE BLUE MOUNTAINS

TATHAM ENGINEERING

PRE-DEVELOPMENT DRAINAGE PLAN

DESIGN: AS	FILE: 117304	DWG:	DP-1
DRAWN: RD/AC	DATE: DEC., 2017		
CHECK: RS	SCALE: 1:2000		

Drawing Name: 117304-DP01.dwg, Plotted: Jun 09, 2020

KEY PLAN

N.T.S.

LEGEND

- PROPERTY LINE
- EXISTING EDGE OF ASPHALT
- PROPOSED DRAINAGE BOUNDARY
- PROPOSED DRAINAGE AREA ID
- PROPOSED DRAINAGE AREA (ha)
- PROPOSED CN NUMBER / % IMPERVIOUS
- PROPOSED FLOW DIRECTION
- EXISTING SWALE/DITCH
- PROPOSED SWALE

Example: 100 | 5.39 | 55.2 / 100 | 5.39 | 55.2%

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BENCHMARKS

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TOP NUT FIRE HYDRANT LOCATED AT THE SOUTH WEST CORNER OF LOT 11.

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No.	REVISION DESCRIPTION	DATE
1.	SUBMISSION FOR DRAFT PLAN APPROVAL	NOV/2019
2.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUNE/2020
3.	TOWN COMMENTS	OCT/2020

ENGINEER STAMP

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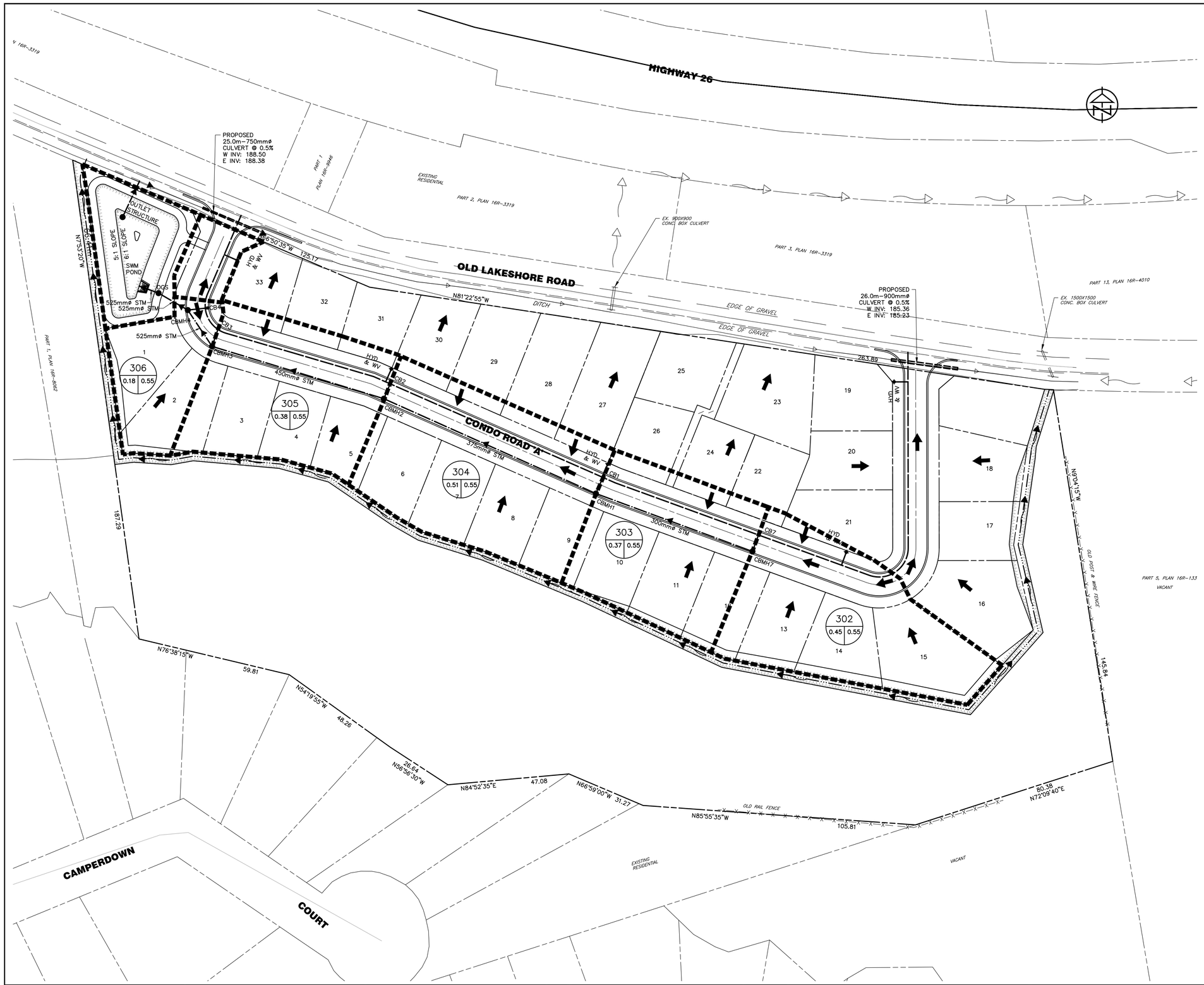
CAMPERDOWN CONDOMINIUMS
TOWN OF THE BLUE MOUNTAINS

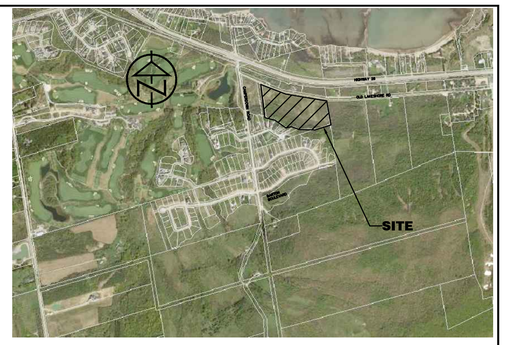
POST–DEVELOPMENT DRAINAGE PLAN

TATHAM ENGINEERING

DESIGN: AS	FILE: 117304	DWG: DP-2
DRAWN: RD/AC	DATE: DEC., 2017	
CHECK: RS	SCALE: 1:1000	

Drawing Name: 117304–DP02.dwg, Plotted: Oct 26, 2020





KEY PLAN

N.T.S.

LEGEND

- PROPERTY LINE
- EXISTING EDGE OF ASPHALT
- PROPOSED DRAINAGE BOUNDARY
- PROPOSED DRAINAGE AREA ID
- PROPOSED DRAINAGE AREA (ha)
- COMPOSITE RUNOFF COEFFICIENT
- OVERLAND FLOW DIRECTION
- EXISTING SWALE/DITCH
- PROPOSED SWALE

100 | 5.39 | .68

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BENCHMARKS

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TOP NUT FIRE HYDRANT LOCATED AT THE SOUTH WEST CORNER OF LOT 11.

NOTES

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1.	SUBMISSION FOR DRAFT PLAN APPROVAL	NOV/2019
2.	SUBMISSION FOR DRAFT PLAN APPROVAL	JUNE/2020
3.	TOWN COMMENTS	OCT/2020

ENGINEER STAMP

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PROVINCE OF ONTARIO

CAMPERDOWN CONDOMINIUMS
TOWN OF THE BLUE MOUNTAINS

STORMWATER CATCHMENT AREA PLAN

TATHAM ENGINEERING

DESIGN: AS	FILE: 117304	DWG:
DRAWN: RD/AC	DATE: DEC., 2017	STM-1
CHECK: RS	SCALE: 1:750	

Drawing Name: 117304–STM01.dwg, Plotted: Oct 26, 2020