Functional Servicing and Preliminary Stormwater Management Report

Rinomato group
80 Big Bay Point Road

City of Barrie
County of Simcoe

PEARSON ENGINEERING

PEARSONENG.COM

August 2021
(Revised February 2023)
20033

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Functional Servicing Report & Preliminary SWM report

Rinomato Group – 80 Big Bay Point Road

1. INTRODUCTION

PEARSON Engineering Ltd. (PEARSON) has been retained by Rinomato Group (Client) to prepare a Functional Servicing Report & Preliminary Stormwater Management (SWM) Report (FSR) in support of the proposed Industrial Subdivision located at 80 Big Bay Point Road (BBPR) the City of Barrie (City), in the County of Simcoe (County). This FSR is provided to the City in support of the Draft Plan Approval.

The Project Lands comprise of a total area of approximately 15.6 ha, to be developed into 26 general industrial lots, environmental protection lands and a SWM Pond block. The Project Lands are currently partially treed pasture lands and is bound by BBPR, existing railroad tracks and existing industrial development to the south, Bayview Drive to the west, The Source site to the north and existing industrial development to the east. The Project lands are on the boundary between Whiskey Creek to the north and Lovers Creek to the south. Whiskey Creek traverses the west and northern boundaries of the site, and the majority of the property generally slopes from south to north, with a small portion draining south. Refer to Figure 1 – Site Location Plan for the location of the site.

This FSR assesses the required municipal services to support development of the Project Lands, complete with preliminary grading, servicing and SWM design and associated calculations. The Project will connect to a combination of existing and proposed municipal services located on BBPR and Bayview Drive and a proposed SWM Pond at the northeast corner of the site.

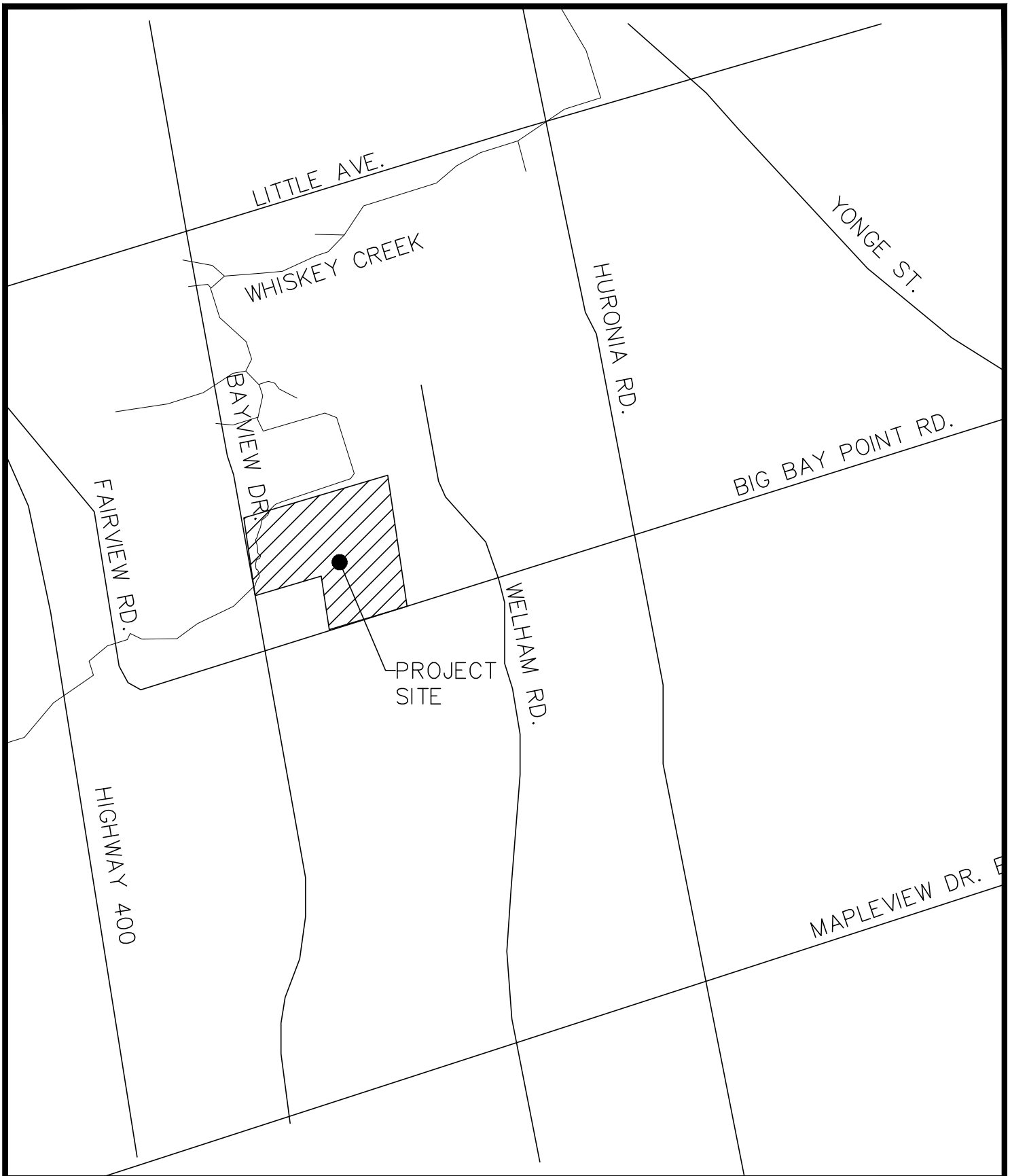
2. SUPPORTING DOCUMENTS

The following documents have been referenced in the preparation of this report:

- Ministry of the Environment, Design Guidelines for Sewage Works – 2008
- Ministry of the Environment, Design Guidelines for Drinking-Water Systems - 2008
- The Ministry of the Environment Stormwater Management Planning and Design Manual, March 2003.
- City of Barrie, Sanitary Sewage Collection System Policies and Design Guidelines
- City of Barrie, Storm Drainage and Stormwater Management Policies and Design Guidelines, February 2022.
- City of Barrie, Water Transmission and Distribution Design Standard, August 2021
- City of Barrie, Lot Grading and Drainage Standards and Design Manual, 2019
- Lake Simcoe Region Conservation Authority Technical Guidelines for Stormwater Management Submissions, September 2016

3. WATER SUPPLY AND DISTRIBUTION

The site is to have a general industrial land use area of approximately 9.42 ha. Utilizing the City of Barrie Engineering Design Criteria for industrial water demand of 35,000 L/ha/day, an Average Day Demand (ADD) of 3.81 L/s was calculated. A Peak Rate factor of 4.00 was used in calculating a Peak Hour Demand of 15.26 L/s for the proposed development. Calculations for the domestic water requirements for the site can be found in Appendix A.



RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

SITE LOCATION PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC	HORIZ SCALE	NTS	PROJECT #	20033
DRAWN BY	AMC	VERT SCALE	NTS	DRAWING #	FIG1
CHECKED BY	GMP	DATE	MAY 2021	REVISION #	0

The Project Lands are proposed to be serviced by connecting to existing 400 mm watermain located on the west side of Bayview Drive and the 300 mm watermain on the north side of BBPR. The proposed 300 mm watermain will connect to the Bayview Drive watermain and extend through the Project site within the proposed road allowances and through an easement to the BBPR watermain. A secondary 250 mm watermain loop through the site is also proposed.

Each proposed industrial lot will receive a domestic and fire water service. Internal fire hydrants will be proposed to provide adequate firefighting coverage as per City Standards. The proposed water system can be seen on Figure 2 – Water Servicing Plan.

Vipond Inc. completed water pressure tests on May 14, 2021, on the existing fire hydrants closest to the driveway entrance on Bayview and at the southeast property corner on BBPR. A static pressure of 54 psi was observed at the existing hydrant on BBPR and 48 psi at the existing Bayview Drive hydrant. The results from this flow test are included in Appendix A and were used to determine the availability of fire flow and domestic flow for the Project as well as the effect that the additional flows from the proposed development would have on the existing watermains.

The water model was completed using a peak domestic demand flow of 0.49 L/s for each industrial lot. This results in a minimum pressure of 48.6 psi occurring at the intersection within the Project Lands. The pressures for the proposed industrial lots range from 48.7 psi to 53.9 psi. Therefore, the proposed water servicing layout meets the domestic needs of the development. Model results can be found on Figure 9 and in Appendix A.

The required fire flow was calculated as per the Fire Underwriters Survey (FUS) assessment and was calculated to be approximately 333 L/s. However, as per the City of Barrie Water Guidelines, industry land use requires a minimum fire flow of 333 L/s. The model determined the lowest flow available was 356 L/s for the lots in the northeast corner of the site. Therefore, the available flow meets the required fire flow as per the City of Barrie requirements. Provided fire flow information from the water model can be found in Appendix A.

4. SANITARY SERVICING

4.1. SANITARY DESIGN CRITERIA

Utilizing the MECP and City of Barrie Guidelines for industrial sewer use of 35,000 L/ha/d, an Average Daily Flow (ADF) of 3.81 L/s. is calculated. Using a Peaking Factor of 4.00 for this project, a Peak Flow of 15.26 L/s is calculated for the entire development. The peak flow including an infiltration allowance of 0.10 L/s/ha was calculated to be 16.20 L/s.

An existing 300 mm sanitary sewer stub is located at the southeast corner of the site and connects to the existing BBPR sanitary sewer. It is proposed to extend the sanitary sewer through a servicing easement into the Project site.

The proposed 250 mm sanitary sewer will convey flow to the existing sewer on BBPR and has a capacity of 42.06 L/s at 0.5% slope and a maximum velocity of 0.86 m/s and therefore meets the City of Barrie's minimum requirement of 0.60 m/s. The existing 300 mm stub has 0.3% grade with a design capacity of 52.97 L/s. The proposed peak flow is approximately 30.6% of the pipe capacity therefore the existing 300 mm diameter sanitary sewer is sufficient to convey the sanitary design flows. Sanitary design flow calculations can be found in Appendix B.

It is proposed that the sanitary sewers be constructed in accordance with the City of Barrie and the MECP guidelines to service the Project. The proposed sewers will consist of a minimum diameter of 250 mm and will be designed to meet minimum design grades and the required minimum and maximum velocities under flow conditions. The proposed sanitary sewer system for the site can be seen on Figure 3.

BLOCK NO. 33
ENVIRONMENTAL
PROTECTION
(2.5HA)

STORMWATER
MANAGEMENT
POND

BAYVIEW DR.

PROP. ROAD WIDENING

CONNECT TO EX 400mmø WATERMAIN

PROP 300mmø WATERMAIN

300mm TO 250mm
TO 300mm MANUFACTURED
TEE

EX BLDG
323 BAYVIEW DR

CHAIN LINK FENCE

PROP 250mmø WATERMAIN

PROP 250mmø WATERMAIN

PROP 250mmø WATERMAIN

PROP 300mmø WATERMAIN

300mm TO 250mm
TO 300mm MANUFACTURED
TEE

CHAIN LINK FENCE

PROP 300mmø WATERMAIN

CONNECT TO EX. 300mmø
WATERMAIN

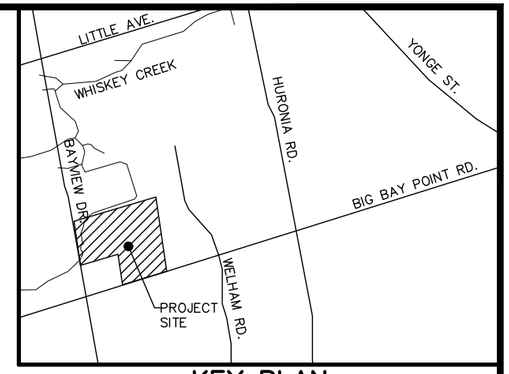
EX 300mmø PVC WM (BY OTHERS)

EX BUILDING
333 BAYVIEW DR

BIG BAY POINT RD.

H&V

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 16 17 18 19 20 21 22 23 24 25 26



KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- FIRE HYDRANT
- WATER VALVE
- WATERMAIN

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

WATER SERVICING PLAN

NO.	REVISION NOTE	DATE	BY
2	CITY COMMENTS & REVISED SWM BLOCK	15/02/23	AMC
1	AS PER CITY AND LSRCA COMMENTS	22/06/22	JP

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC	HORIZ SCALE 1:2000	PROJECT # 20033
DRAWN BY	AMC	VERT SCALE	DRAWING # FIG2
CHECKED BY	GMP	DATE MAY 2021	REVISION # 1

BAYVIEW DR.

PROP. ROAD WIDENING

BLOCK NO. 33
ENVIRONMENTAL
PROTECTION
(2.5HA)

STORMWATER
MANAGEMENT
POND

10.00m SETBACK

H–2115

J1

CONNECT TO EX 400mmø WATERMAIN

P2

J2

PROP 300mmø WATERMAIN

P3

J3

P4

J4

PROP 250mmø WATERMAIN

P5

J5

P6

J6

H&V

P7

J7

PROP 250mmø WATERMAIN

P8

J8

PROP 250mmø WATERMAIN

P9

J9

P10

J10

P11

J11

PROP 300mmø WATERMAIN

P12

300mm TO 250mm
TO 300mm MANUFACTURED
TEE

300mm TO 250mm
TO 300mm MANUFACTURED
TEE

P13

J12

P14

J13

PROP 300mmø WATERMAIN

P15

CONNECT TO EX. 300mmø
WATERMAIN

EX 300mmø PVC WM (BY OTHERS)

J14

P16

H–2129

P17

J15

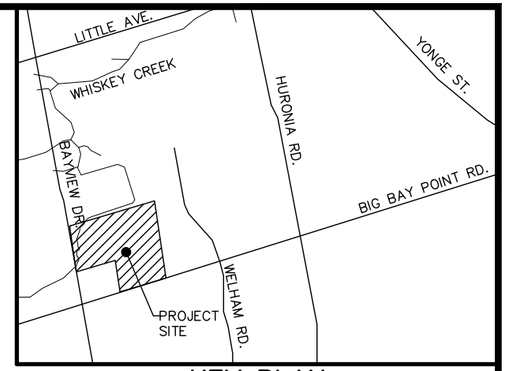
CHAIN LINK FENCE

EX BLDG
323 BAYVIEW DR

EX BUILDING
333 BAYVIEW DR

BIG BAY POINT RD.

15 14 13 12 11 10 9 8 7 6 5 4 3 2 1 16 17 18 19 20 21 22 23 24 25 26



KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- H&V FIRE HYDRANT
- WATER VALVE
- WATERMAIN

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

WATER SERVICING PLAN – WATERCAD MODEL LAYOUT

NO.	REVISION NOTE	DATE	BY
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BLOCK NO. 33
ENVIRONMENTAL
PROTECTION
(2.5HA)

STORMWATER
MANAGEMENT
POND

BAYVIEW DR.

PROP. ROAD WIDENING

EX BLDG
323 BAYVIEW DR

EX BUILDING
333 BAYVIEW DR

CHAIN LINK FENCE

BIG BAY POINT RD.

9A
T/G 271.93
SW INV. 268.43
E INV. 268.38

14.5m – 250mmø SAN. @ 0.50%

86.9m – 250mmø SAN. @ 0.50%

10A
T/G 272.02
S INV. 268.56
NE INV. 268.50

54.8m – 250mmø SAN. @ 0.50%

8A
T/G 271.51
W INV. 267.95
E INV. 267.94

11A
T/G 272.39
S INV. 268.86
N INV. 268.83

32.1m – 250mmø SAN. @ 1.30%

12A
T/G 272.59
N INV. 269.28

7A
T/G 270.97
W INV. 267.47
SE INV. 267.40

25.0m – 250mmø SAN. @ 0.50%

6A
T/G 271.15
NW INV. 267.28
S INV. 267.25

66.1m – 250mmø SAN. @ 0.50%

5A
T/G 271.49
N INV. 266.92
S INV. 266.89

71.5m – 250mmø SAN. @ 0.50%

14A
T/G 272.17
E INV. 268.61
W INV. 268.64

13A
T/G 272.60
E INV. 269.50

86.2m – 250mmø SAN. @ 1.00%

4A
T/G 271.86
N INV. 266.53
S INV. 266.50
W INV. 267.75

59.6m – 250mmø SAN. @ 0.50%

86.2m – 250mmø SAN. @ 1.00%

73.3m – 250mmø SAN. @ 0.50%

2A
T/G 267.16
S INV. 265.71
W INV. 265.77

14.5m – 250mmø SAN. @ 1.00%

15A
T/G 272.24
NE INV. 269.00

3A
T/G 272.11
N INV. 266.20
SW INV. 268.75
E INV. 266.14

100.7m – 300mmø SAN. @ 0.50%

15.1m – 300mmø SAN. @ 0.50%

1A
T/G 270.99
S INV. 265.18
N INV. 265.21

16.4m – 300mmø SAN. @ 0.50%

CONNECT TO EX 300mmø
SAN. SEWER INVERT
AT CAP INV. 265.10

EX. SAN. MH SAP11009
T/G 270.75
NW INV. 265.02

Ex.600mmø SAN. SEW.

Ex.600mmø SAN. SEW.

Ex.600mmø SAN. SEW.

Ex. 300mm SAN. SEW. @ 0.3%

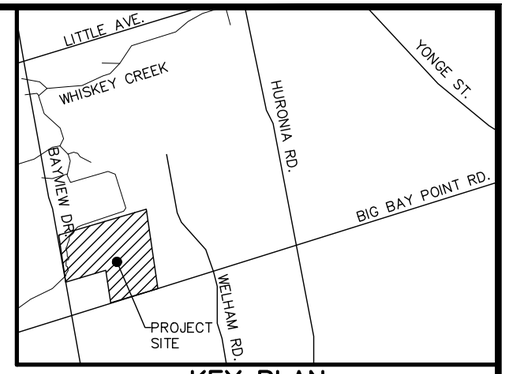
Ex. SAN. MH SAP11008
T/G 270.52
W. INV. 264.73
S. INV. 264.63
N. INV. 265.02

Ex. SAN. MH SAP11010
W. INV. 266.66
E. INV. 265.80

Ex.675mmø SAN. SEW.

Ex. SAN. MH SAP11012

Ex. SAN. MH SAP11011



KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- MH — EX SAN MANHOLE
- SAN MH — PROP SAN MANHOLE
- SANITARY SEWER

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

SANITARY SERVICING PLAN

NO.	REVISION NOTE	DATE	BY
2	CITY COMMENTS & REVISED SWM BLOCK	15/02/23	AMC
1	AS PER CITY AND LSRCA COMMENTS	22/06/22	JP

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5. STORMWATER MANAGEMENT

5.1. OVERVIEW

A key component of developing the Project Lands is the need to address Stormwater Management (SWM) issues as well as related environmental concerns. SWM parameters are developed from an understanding of the site's natural systems. This FSR focuses on the necessary measures to satisfy the MECP's SWM requirements.

- It is understood the objectives of the SWM plan are to:
- Protect life and property from flooding and erosion;
- Maintain water quality for ecological integrity, recreational opportunities, etc.;
- Protect and maintain groundwater flow regime(s);
- Protect aquatic and fishery communities and habitats; and
- Maintain and protect significant natural features.

5.2. ANALYSIS METHODOLOGY

The design of the SWM Facilities for this site has been conducted in accordance with:

- The Ministry of the Environment Stormwater Management Planning and Design Manual, March 2003.
- City of Barrie, Storm Drainage and Stormwater Management Policies and Design Guidelines, February 2022
- Lake Simcoe Region Conservation Authority Technical Guidelines for Stormwater Management Submissions, September 2016

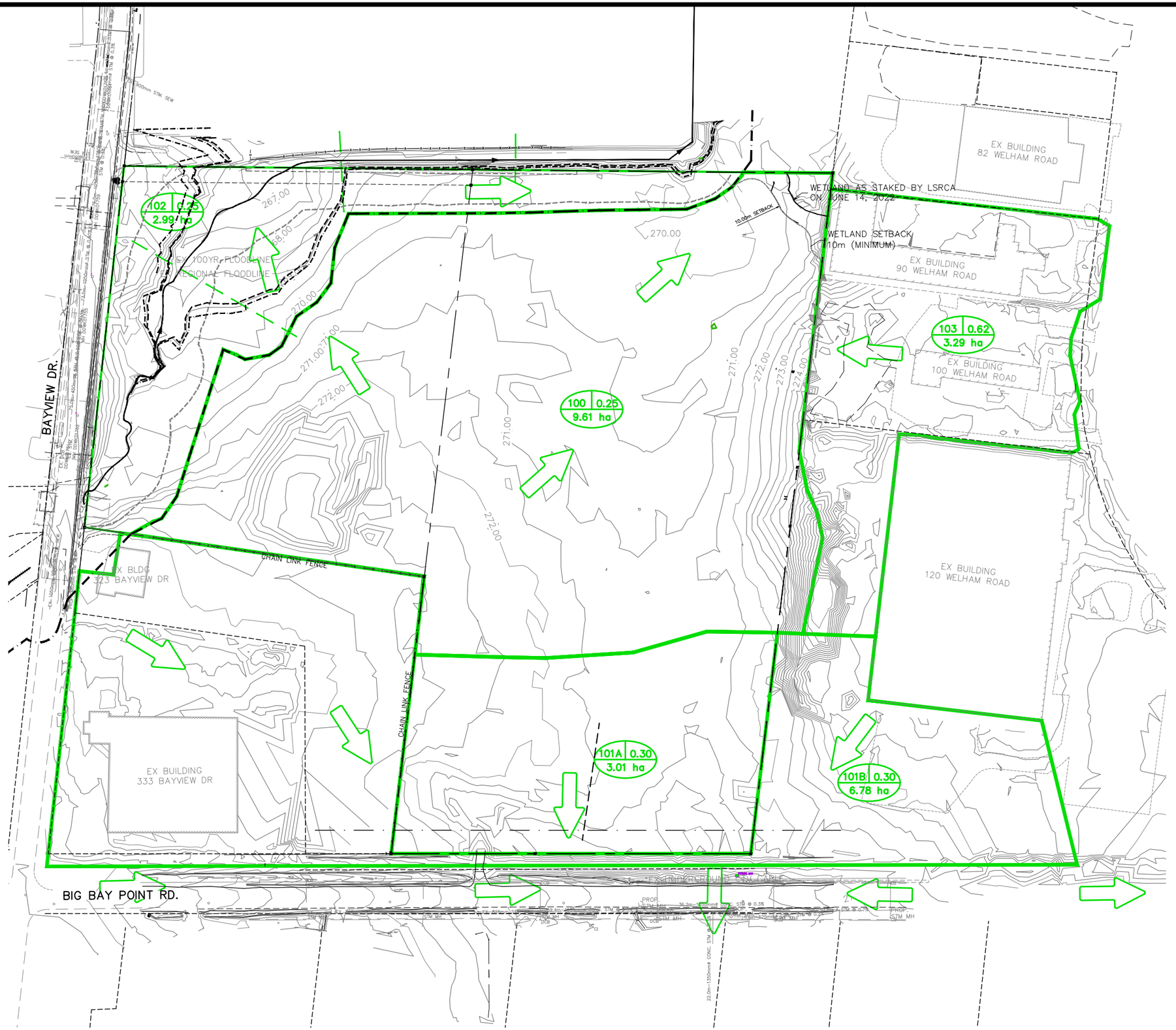
In order to design the facilities to meet these requirements, it is essential to select the appropriate modeling methodology for the storm system design. Given the size of the site and the number of catchment areas, the computer model Visual OTTHYMO is appropriate for the design for the SWM system.

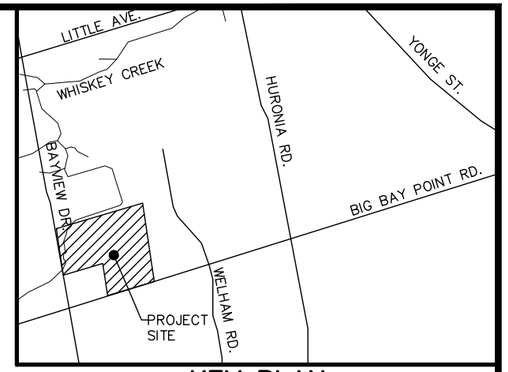
Through communications with City staff the following alternative pipe slopes and cover have been reviewed and approved for this development.

Pipe Diameter (mm)	Minimum Slope (%)	Minimum Cover (m)
600 or smaller	0.5	1.2[1]
750-825	0.4	1.2[1]
900 and greater	0.3	1.2[1]

1 – maintaining a minimum of 1.5m to spring line.

Velocity requirements will be maintained and convey the 5-year design flow as per City Standards. The reduced pipe slope as per above guidelines will be used on approximately 65% of the proposed storm sewers and the balance of the storm sewer is designed at minimum of 0.5% slope. Approximately 35% of the storm sewers within the site will achieve the City standard of 1.5m of cover while the remaining 65% will vary from 1.2m to 1.5m of cover with 1.2m of cover used at the downstream start of the system only.





KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA: 1 | 0.75 | 1.00 ha — RUNOFF COEFFICIENT; AREA IN HECTARES
- CATCHMENT BOUNDARY
- EXISTING 100 YR FLOODLINE
- EXISTING REGIONAL FLOODLINE

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

PRE DEVELOPMENT STORM DRAINAGE PLAN

NO.	REVISION NOTE	DATE	BY
2	CITY COMMENTS & REVISED SWM BLOCK	15/02/23	AMC
1	AS PER CITY AND LSRCA COMMENTS	22/06/22	JP

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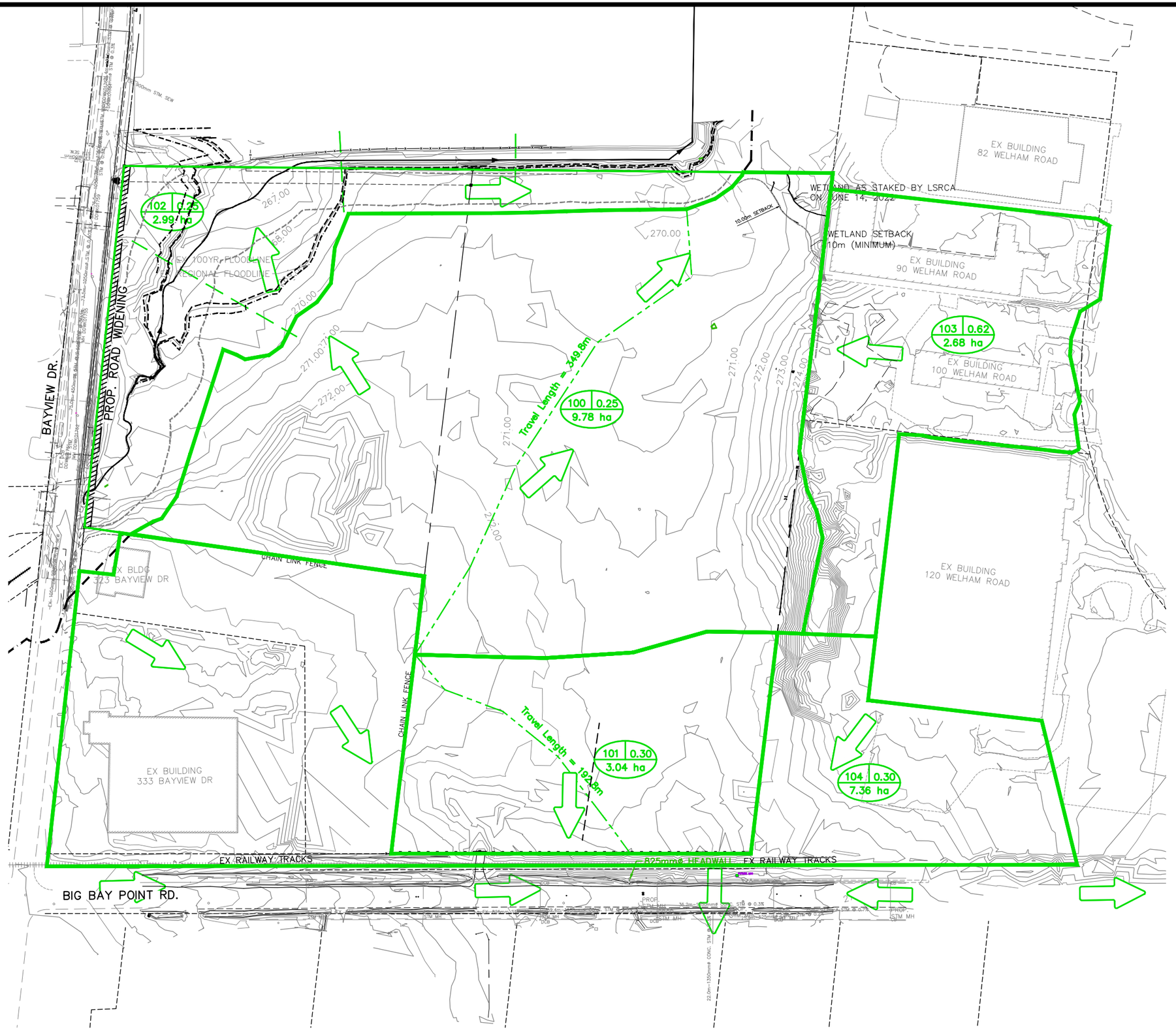

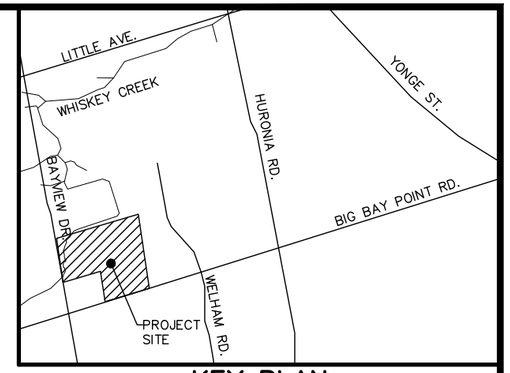

KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA — 1 | 0.75 | 1.00 ha — RUNOFF COEFFICIENT
- AREA IN HECTARES
- CATCHMENT BOUNDARY
- EXISTING 100 YR FLOODLINE
- EXISTING REGIONAL FLOODLINE

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

TIME OF CONCENTRATION PLAN

NO.	REVISION NOTE	DATE	BY
2	CITY COMMENTS & REVISED SWM BLOCK	15/02/23	AMC
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DRAWN BY	AMC	VERT SCALE		DRAWING #	FIG5
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5.3. EXISTING DRAINAGE CONDITIONS

The Project Lands are mostly pasture lands and are located on the boundary of the Whiskey Creek and Lovers Creek watersheds. The site currently drains in two directions, with 9.78 ha draining north to the Whiskey Creek watershed and 3.04 ha draining south to the Lovers Creek watershed. Whiskey Creek crosses under Bayview Drive at the southwest corner of the site and drains through the site and drains east along the north property line and ultimately around the The Source property to the north and through Lackie's Bush. The area draining south is conveyed through a 600 mm CSP culvert which crosses the BCRY railroad and ultimately to Lovers Creek. The majority of the properties east of the site drain east to west and drain through the site and south to the culvert crossing.

The pre-development Storm Drainage Plan (Figure 4) shows the existing storm drainage patterns for the development. The pre-development peak flows from the site were calculated using Visual OTTHYMO and are provided in Table 1 below. The peak flow calculations and the Visual OTTHYMO Parameter calculations can be found in Appendix D.

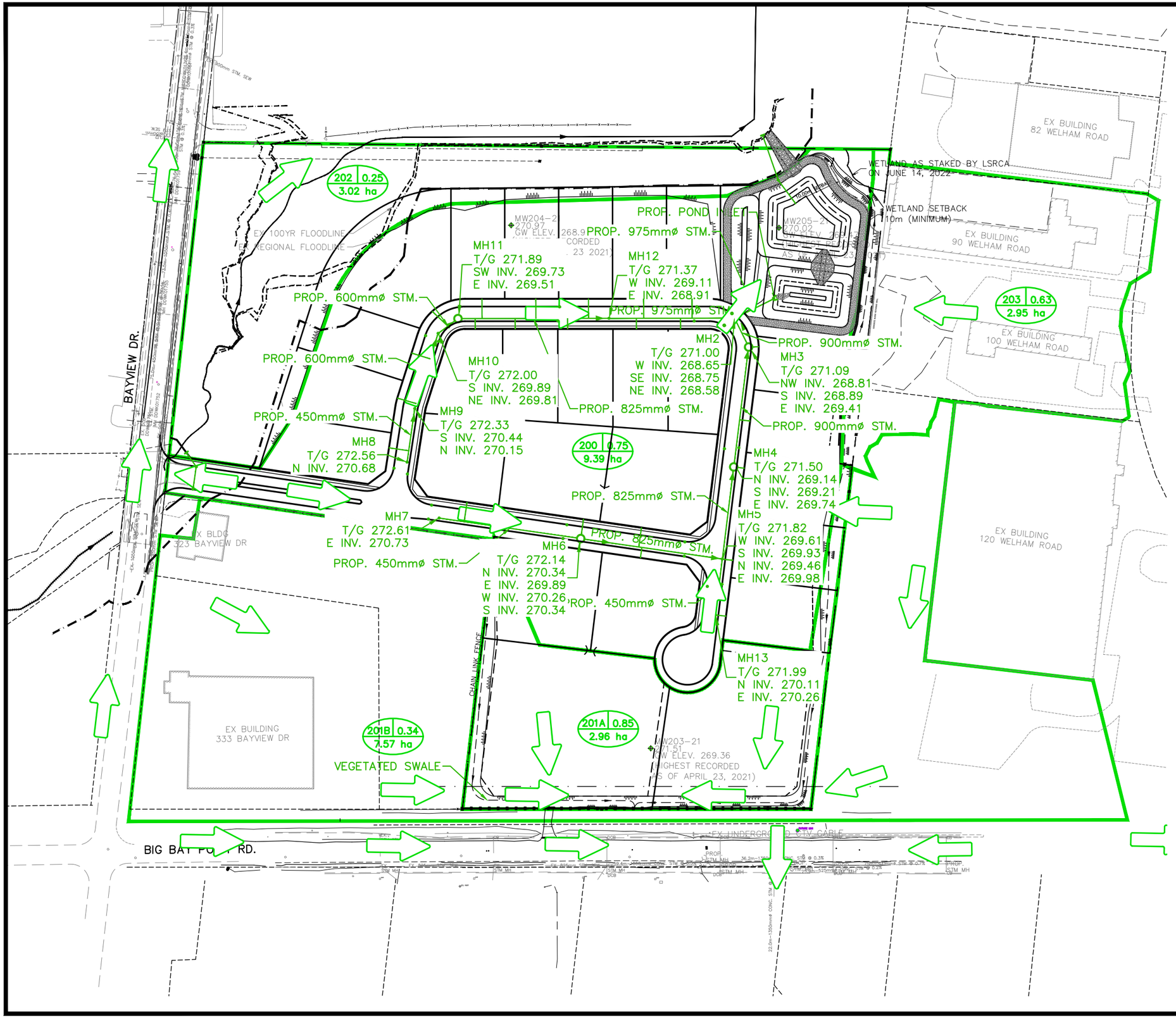
Table 1: Pre-Development Peak Flows

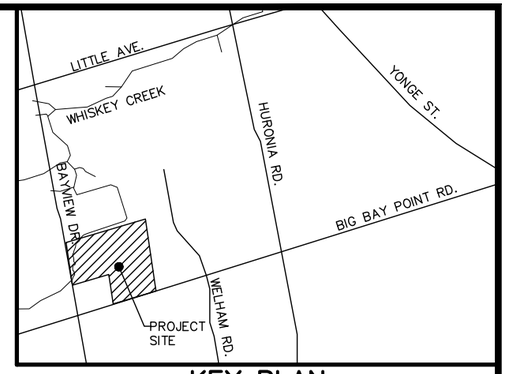
	25 mm Storm	2 Year Storm	5 Year Storm	10 Year Storm	25 Year Storm	100 Year Storm	Regional Storm Hazel
Lover's Creek Watershed							
4-Hour Chicago Storm (m^3/s)	0.01	0.02	0.04	0.05	0.08	0.12	-
24-Hour SCS Storm (m^3/s)	-	0.04	0.07	0.10	0.14	0.21	0.25
Whiskey Creek Watershed							
4-Hour Chicago Storm (m^3/s)	0.01	0.04	0.08	0.11	0.16	0.25	-
24-Hour SCS Storm (m^3/s)	-	0.07	0.14	0.20	0.29	0.43	0.70

5.4. PROPOSED DRAINAGE CONDITIONS

The post development drainage for the site will generally follow pre-development drainage patterns. The watershed boundary between Lover's and Whiskey will be adjusted slightly to accommodate the subdivision layout, however the difference in area will be less than 1 hectare as per LSRCA guidelines and the peak flows to both watersheds will be maintained. A storm sewer sized for the 5 year storm will convey the majority of the site to a SWM Pond located in the north east corner of the site. In the event of a storm greater than the 5 year storm, an overland flow route will convey water through the project's roadways to the proposed pond. Lots 3 and 4 on the south side of the site will be graded to drain south towards Lover's Creek to maintain the current watershed boundary and will be provided on site quantity and quality control. A small portion of the proposed road will drain uncontrolled to Bayview Drive.

A swale along the eastern property line will convey external drainage from the properties east of the site. The swale will split flows to the north and south to match pre-development drainage patterns as closely as possible. The following sections describe the drainage for the areas draining to Lover's Creek and Whiskey Creek. Refer to Figure 6 – Post Development Storm Drainage Plan for post-development drainage patterns.





KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- OVERLAND FLOW DIRECTION
- CATCHMENT AREA (1 | 0.75 | 1.00 ha) — RUNOFF COEFFICIENT — AREA IN HECTARES
- CATCHMENT BOUNDARY
- 1 / ⌖270 GW — BOREHOLE NUMBER, ELEVATION AT GRADE, GROUNDWATER ELEVATION

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

POST DEVELOPMENT STORM DRAINAGE PLAN

NO.	REVISION NOTE	DATE	BY
2	CITY COMMENTS & REVISED SWM BLOCK	15/02/23	AMC
1	AS PER CITY AND LSRCA COMMENTS	22/06/22	JP

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5.4.1. Lover's Creek Watershed

Lots 3 and 4 will be graded to drain south to the Lover's Creek watershed and will require onsite SWM quantity and quality controls to meet City, LSRCA and MECP approvals as well as onsite volume control and LID design to meet Phosphorus and Water Balance requirements. A pre-development coefficient of 0.25 was calculated for the catchment area. At the site plan design stage for each individual lot, onsite quantity controls will be designed to control flows to the pre-development peak flows. Preliminary calculations have been completed which demonstrate that the southern catchment requires a total of approximately 700 m^3 of storage to reduce post-development peak flows to pre-development values. An estimated storage volume for each lot was then calculated by prorating the total storage based on area resulting in a volume of 393 m^3 for Lot 3 and 307 m^3 for Lot 4. Both lots will be provided an individual OGS unit for quality control. Rooftop infiltration and permeable pavers will provide water balance and phosphorous reduction for each lot. Additional information regarding LID can be seen in sections 5.7 – 5.10.

5.4.2. Whiskey Creek Watershed

The northern 9.76 ha of the development will be serviced by a SWM Pond to be located at the northeast corner of the site. The proposed SWM Pond has been located in the northeast corner of the Project Lands, and will provide quantity and quality control for the development lots. Onsite LID design features including rooftop infiltration, volume control and phosphorus reducing features will be required at site plan design. Additional lot level quantity/quality controls will be required if the post development runoff coefficient of 0.85 is exceeded. The site grading allows the major system to drain to the SWM pond via overland flow. The rear portion of the lots backing on to the EP lands will flow uncontrolled towards the existing creek as per existing conditions.

The Project's storm sewer will be sized for the minor storm, defined as all storms up to and including the 5-year storm event. The storm sewer has been designed to convey the runoff from the majority of the Industrial blocks and road right of way to the proposed SWM pond in the northeast corner of the site and will outlet directly in the forebay of the SWM pond. In the event of a storm event greater than the 5-year storm, the storm sewer will overflow, and the water will be conveyed overland towards the SWM Pond, bypassing the forebay and directly to the main cell. The SWM Pond which will provide both quality and quantity controls up to the allowable runoff coefficient for the area draining north to Whiskey Creek.

5.5. Quantity Control

The proposed development will increase the imperviousness of the site and as such the post-development peak flows will increase. Preliminary calculations indicate a runoff coefficient for the area contributing to the wet pond is 0.77. A post development runoff coefficient of 0.85 has been provided for the Industrial blocks and 0.70 for the right-of-way.

The proposed drainage from the project draining north to Whiskey Creek will be conveyed to a wet pond at the northeast corner of the development, which has been designed to provide quantity control by retaining flows and releasing them below pre-development values. The proposed SWM Pond will outlet to the existing Whiskey Creek channel.

The stormwater management pond is designed with 4:1 internal side slopes and 3.0 m wide 7:1 safety shelf on either side of the permanent pool elevation as per MECP guidelines. Rip rap will be placed on the inlet location to prevent erosion. The SWM pond has also been designed to meet all requirements in section 4.7 of the City of Barrie Storm Drainage and Stormwater Management Policies and Design Guidelines to ensure the SWM Pond geometry will fit within the proposed SWM Block such as sediment drying area, overland flow route past the forebay and directly to the main cell component, and 5 m wide access road. Refer to Appendix C for the full list of requirements and proposed design outline.

A reverse slope outlet pipe complete with orifice tube connected to the control structure and emergency overflow weir will reduce the flows leaving the pond. A minimum of 0.30 m of freeboard will be maintained as per MECP and LSRCA guidelines. Preliminary pond outflow and corresponding storage requirement can be seen in Table 2 below and the pond drawing Figure 7 has been included in Appendix G.

Table 2 - SWM Pond Outflow and Storage

	25mm Storm (m3/s)	2 year (m3/s)	5 year (m3/s)	10 year (m3/s)	25 year (m3/s)	50 year (m3/s)	100 year (m3/s)	Regional Storm (m3/s)
4 Hour Chicago Storm Events								
Peak Flow (m^3/s)	0.02	0.04	0.07	0.09	0.12	0.16	0.20	0.35
Storage Volume (m^3)	1,349	2,092	2,912	3,460	4,152	4,596	5,013	6,306
24 Hour SCS Storm Events								
Peak Flow (m^3/s)	-	0.05	0.09	0.13	0.2	0.28	0.42	0.35
Storage Volume (m^3)	-	2,444	3,476	4,194	5,021	5,620	6,149	6,306

Table 3 below summarizes the post-development peak flows for the site and demonstrates that the total site peak flow is at or below pre-development for the area draining to Whiskey Creek. As previously mentioned, Lots 3 and 4 will require onsite quantity controls to reduce post-development peak flows to pre-development values which will be determined at the site plan stage for the individual lots. Preliminary layout for stormwater servicing can be found on Figure 6 – Post Development Storm Drainage Plan.

Table 3: Post Development Peak Flows

	25 mm Storm	2 Year Storm	5 Year Storm	10 Year Storm	25 Year Storm	100 Year Storm	Regional Storm Hazel
Whiskey Creek Watershed							
4-Hour Chicago Storm (m^3/s)	0.02	0.04	0.07	0.09	0.12	0.20	-
24-Hour SCS Storm (m^3/s)	-	0.05	0.09	0.13	0.20	0.42	0.45

5.6. Quality Control

The MECP in March 2003 issued a “Stormwater Management Planning and Design Manual”. This manual has been adopted by a variety of agencies including the City of Barrie. The objective of the Stormwater Quality Control will be to ensure Enhanced Protection quality control as stated in the MECP manual is achieved. To achieve Enhanced Protection, permanent and temporary control of erosion and sediment transport are proposed.

The development's roadways pose a risk to stormwater quality through the collection of grit, salt, sand, and oils on the paved surface. The MECP standard stipulates a Total Suspended Solids (TSS) removal of at least 80%.

The area draining north to Whiskey Creek will be conveyed to a SWM Pond complete with quality control forebay and wet cell which have been sized to provide 6,399 m^3 of quality storage, exceeding the calculated required 6,188 m^3 as per MECP Table 3.2. Detailed calculations can be seen in Appendix C. Onsite quality controls for the lots draining south to Lovers Creek will be required such as OGS units or LID features to achieve a minimum TSS removal rate of 80%.

During construction, earth grading and excavation will create the potential for soil erosion and sedimentation. It is imperative that effective environmental and sedimentation controls are in place and maintained throughout the duration of construction activities to ensure stormwater runoff's quality.

Therefore, the following recommendations shall be implemented and maintained during construction to achieve acceptable stormwater runoff quality:

- Installation of silt fence along the entire perimeter of the site to reduce sediment migration onto surrounding properties.
- Installation of a construction entrance mat at the entrance to minimize transportation of sediment onto roadways.
- Restoration of exposed surfaces with vegetative and non-vegetative material as soon as construction schedules permit;
- Installation of filter strips where applicable.
- Reduce stormwater drainage velocities where possible;
- Ensure that disturbed areas are vegetated and stabilized as quickly as possible;

5.7. Low Impact Development

Modern Stormwater Management (SWM) practices have evolved over recent years, with Low Impact Development (LID) techniques being widely used as the preferred method of Stormwater Management. When properly implemented, LID techniques enhance runoff infiltration into the shallow soil regime. It is proposed that LID techniques such as rooftop infiltration and permeable pavers be implemented in portions of the Project Lands with appropriate soil conditions and groundwater levels to be determined at detailed design. Additional details regarding preliminary LID sizing can be seen in the following sections.

5.8. Volume Control

Since the project site meets the definition of Major Development as per LSRCA Guidelines, considerations were taken to meet the volume control criteria detailed in section 2.2.2. The LSRCA guidelines state that for a new development that creates 500 m^2 or more of impervious surfaces, 25 mm of runoff over the total impervious area of the site is to be retained and treated on site, with flexible alternatives if this criterion cannot be met.

Storage for the 25 mm storm for each Industrial lot can be provided in a combination of underground storage chambers and permeable pavers. The proposed drainage from the rooftop area of all buildings should be conveyed through a roof leader to separate underground storage chambers for each building, sized for the 25 mm storm event for infiltration.

Grading parking lot areas to direct stormwater towards permeable pavers will provide additional storage. The pavers will provide treatment via filtration and are wrapped in an impermeable liner and include a perforated underdrain which is connected to the storm sewer system.

Each Industrial block should be designed to meet the LSRCA volume control guidelines. Preliminary calculations show that approximately 12.5% of the parking lot area will consist of permeable pavers assuming a paver structure depth consisting of 0.50 m of clear stone to meet volume control criteria. Permeable pavers should generally be located in parking spaces or where passenger vehicles travel and not where transport trucks will be driving/turning. Due to the industrial nature of the project, site constraints may result in the need to design to Alternative #1 from LSRCA guidelines section 2.2.2.2 which is to retain runoff from a 12.5 mm event from all impervious surfaces. Volume control calculations will be reviewed further at the detailed design of each lot.

5.9. Water Balance

Since the post-development state will increase the imperviousness of the site, considerations will be taken in regard to groundwater recharge to satisfy the City's and LSRCA's water balance criteria. The post-development conditions will reduce the amount of infiltration across the site and therefore infiltration facilities are proposed in order to offset the deficit. Under pre-development conditions, the majority of the project site consists of pasture and forest land uses, which infiltrates approximately 11,521 m^3 annually. With the assumed level of increased imperviousness of the site, this recharge will be reduced to 1,971 m^3, resulting in a deficit volume of 9,550 m^3. Detailed calculations can be found in Appendix C.

According to the Preliminary Geotechnical Investigation Report completed by Cambium Inc. dated July 20, 2021, the project site is comprised of sand and therefore it is assumed that the existing soils have adequate infiltration rates. The water table fluctuates throughout the project site, ranging from 1 m to 4 m below existing ground. Infiltration options and in-situ infiltration rates will be reviewed further at detailed design of each Industrial block, however preliminary calculations have been completed based on assumed 30% building area for each Industrial block.

In order to infiltrate the deficit volume of 9,550 m^3 annually, it is required to infiltrate the first 4 mm from the rooftop drainage area in underground infiltration galleries. Additionally, it is required to provide retention for the first 5 mm of rainfall over the site area as per City of Barrie Guidelines or the 25 mm storm over the site's impervious areas to meet the LSRCA's volume control requirement, whichever is greater. The City of Barrie's criteria results in a total volume of 617 m^3 which governs for the project. Based on these requirements, a chart has been provided in Appendix C specifying the minimum infiltration volume requirement for each block.

5.10. Phosphorus Calculations

Local conservation authorities have determined the importance of reducing phosphorus levels in water courses in this area. The reduction was based on conservative values derived from the LSRCA. As such, best efforts are to be employed in order to reduce phosphorus levels to pre-development levels or better.

The existing site is in the Barrie Creeks Subwatershed and generates approximately 0.76 kg of phosphorus annually and the proposed Project will generate approximately 19.23 kg of phosphorus annually if uncontrolled. Best efforts will be used in order to reduce the phosphorus loading as much as is reasonably possible.

Each Industrial Block will require detailed design and it is recommended they utilize a treatment train approach to minimize the amount of phosphorus discharged from the site. The following are the recommended removal approaches with reduction based on LSRCA Phosphorus Loading Development Tool:

- Rooftop infiltration (60% typical phosphorus reduction),
- Permeable pavers with impermeable liner and perforated underdrain providing filtration (45% typical phosphorus reduction) and
- Wet detention pond (63% typical phosphorus reduction).

Table 4 details the anticipated phosphorus loadings for pre and post-development conditions for the total site based on the above noted treatment train approach. Detailed phosphorous loading calculations for the project can be found in Appendix C, as well as a summary table demonstrating the portion of the total phosphorous load for each lot.

Table 4: Phosphorus Loadings

	Total P (kg)
Pre-Development	0.76
Uncontrolled Post-Development	19.23
Controlled Post-Development	6.46

6. Whiskey Creek Floodline Delineation

Whiskey Creek was reviewed as part of the City of Barrie Drainage Master Plan (DMP) completed in March 2019 by Tatham Engineering. Part of those works listed in the DMP are the upgrade of the culverts where Whiskey Creek crosses Bayview Drive. Whiskey Creek currently crosses Bayview Drive through twin 1,650 mm x 1,050 mm elliptical concrete culverts that convey the 1:25 year flood. The proposed upgrade is to install twin 2,400 mm x 900 mm concrete box culverts to convey the 1:50 year flood. In the event of a regulatory event an overtopping of 0.57 m is expected.

The potential relocation of the existing channel downstream of Bayview Drive will be evaluated at detailed design. Improvements to the existing channel to improve the flow conditions and therefore reduce the existing flooding is desirable for the Project Lands as well as neighboring properties currently being impacted. The City of Barrie has identified concerns with flooding at 279 Bayview Drive (The Source) which will also be reviewed as part of the channel evaluation.

The LSRCA provided the HEC-RAS Hydraulic model used to calculated the floodlines for Whiskey Creek which is based on their digital elevation model (DEM). The HEC-RAS model contained cross sections for Whiskey Creek located along the channel through the proposed development property. The floodline location on the property is shown on Figure 4 and 5 and the 100-year and Regional floodline elevations can be found in Table 4 below.

Table 5 – Whiskey Creek Floodlines

Section	Elevations (m)	
	100-Year	Regional
4207	268.94	269.10
4100	268.51	269.04
3946	268.34	268.83
3701	267.25	267.58

*Elevations adjusted based on existing site elevations

7. Grading

A preliminary grading design has been completed for the project and has been designed to generally drain storm runoff to the northeast corner of the property at an average grade of 0.5%, allowing the majority of the site to be conveyed to the proposed SWM pond. A small portion of the proposed road will drain uncontrolled to Bayview Drive. Lots 3 and 4 will be graded to the south with the cul-de-sac draining north to the pond. Lots have generally been designed at 1% slopes draining rear to front and are self contained where possible. Refer to Figure 8 – Site Grading for details of the preliminary grading design.

8. Secondary Utilities

Consultation with existing Utility companies is currently underway to confirm the serviceability for secondary utilities. Based on the expanding development and upgrades currently underway for both Big Bay Point Road and Bayview Drive it is expected that there is available capacity with little to no upgrades to the existing systems.

9. Conclusions

The Project Lands can be serviced by extending services from Big Bay Point Road and Bayview Drive as follows:

- Extension of the Internal Road network off Bayview Drive.
- Municipal water extended from the proposed municipal watermains on Big Bay Point Road looped to the existing watermain on Bayview Drive.
- Gravity sanitary sewer system from the existing municipal system on Big Bay Point Road.
- Construction of a new SWM Pond at the northeast corner of the property to provide quantity and quality control that will outlet to the existing Whiskey Creek.
- On-site controls for the area draining south towards Lovers Creek.
- LID techniques where soil infiltration and groundwater conditions allow.

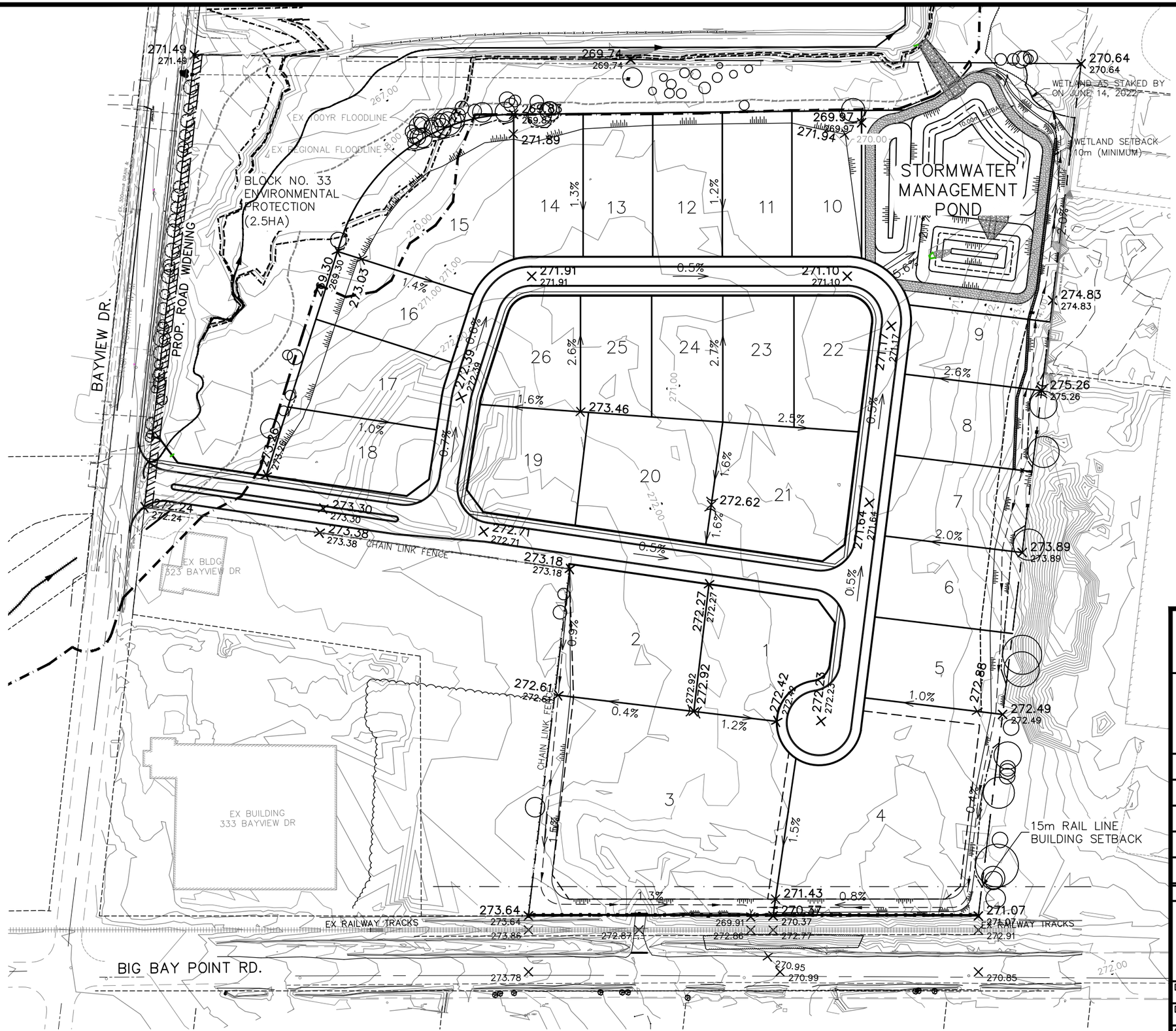
The analysis and conceptual designs outlined in this report demonstrates that the servicing is feasible.

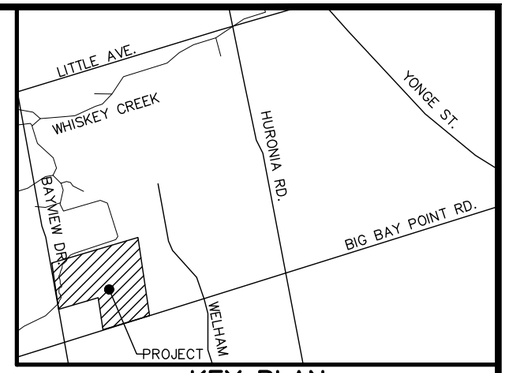
All of which is respectfully submitted,

Pearson Engineering Ltd.

Gary Pearson, P. Eng.
Principal

Mike Dejean, P. Eng.
Partner, Manager of Engineering Services





KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- 254.63 / 254.09 — PROPOSED ELEVATION / EXISTING ELEVATION
- 1.5% — PROPOSED GRADE
- EXISTING 100 YR FLOODLINE
- EXISTING REGIONAL FLOODLINE
- LIMITS OF GRADING AND TREE PRESERVATION FENCING LOCATION REFER TO TREE PRESERVATION PLAN TP100 BY SBK

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

GRADING PLAN

NO.	REVISION NOTE	DATE	BY
2	CITY COMMENTS & REVISED SWM BLOCK	15/02/23	AMC
1	AS PER CITY AND LSRCA COMMENTS	22/06/22	JP

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC	HORIZ SCALE 1:2000	PROJECT # 20033
DRAWN BY	AMC	VERT SCALE	DRAWING # FIG8
CHECKED BY	GMP	DATE MAY 2021	REVISION # 1

BAYVIEW DR.

PROP. ROAD WIDENING

EX 100YR FLOODLINE

EX REGIONAL FLOODLINE

BLOCK NO. 33 ENVIRONMENTAL PROTECTION (2.5HA)

HURONBOTTOM DRAIN

10.00m SETBACK

SILT FENCE TO BE INSTALLED AS PER BSD-1233

TEMPORARY SEDIMENT CONTROL POND

TOPSOIL STOCKPILE

CHANNELS TO BE DISBURSED AS SHEET FLOW

CHAIN LINK FENCE

CONSTRUCTION ENTRANCE MAT TO BE INSTALLED AS PER BSD-23D STARTING AT EX. EDGE OF ASPHALT

EX BLDG 323 BAYVIEW DR

NOTE BIG BAY POINT ROAD ACCESS WILL BE USED AS AN EXIT ONLY. HAUL ROUTE TO BE CONSTRUCTED FOLLOWING EXISTING SITE ACCESS ROUTE TO MINIMIZE ANY DISTURBANCE TO SURROUNDING AREAS.

EX BUILDING 333 BAYVIEW DR

CONSTRUCTION ENTRANCE MAT TO BE INSTALLED AS PER BSD-23D AT THE EXISTING GRAVEL ACCESS LOCATION.

8.00m

30.00m

EX RAILWAY TRACKS

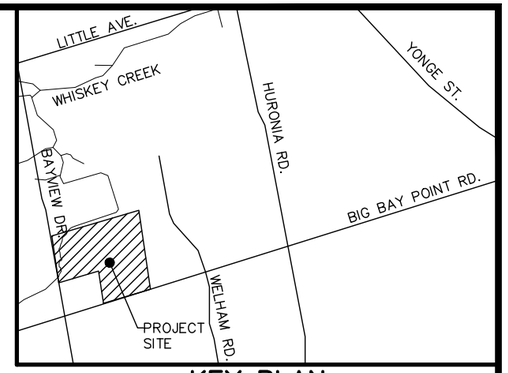
BIG BAY POINT RD.

STRAW BALE BARRIER TO BE INSTALLED TO PROTECT EX. CULVERT AS PER OPSD-219.100 (AS NECESSARY)

VEGETATED CUT OFF SWALE TO CONVEY EX. EXTERNAL FLOWS AS REQUIRED

PROP. DRAINAGE SWALE TO BE CONSTRUCTED AS SPECIFIED IN THE "CITY OF BARRIE STOCKPILES ADJACENT TO PROPERTY LIMITS" DETAIL

TREE PRESERVATION FENCING TO BE INSTALLED AS PER BSD-1232



KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- EXISTING 100 YR FLOODLINE
- EXISTING REGIONAL FLOODLINE
- ROCK CHECK DAM
- SWALE
- SILT FENCE

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

ENVIRONMENTAL PROTECTION PLAN

NO.	REVISION NOTE	DATE	BY
2	CITY COMMENTS & REVISED SWM BLOCK	15/02/23	AMC
1	AS PER CITY AND LSRCA COMMENTS	22/06/22	JP

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC	HORIZ SCALE 1:2000	PROJECT # 20033
DRAWN BY	AMC	VERT SCALE	DRAWING # FIG10
CHECKED BY	GMP	DATE MAY 2021	REVISION # 1

Appendix A

Water and Fire Flow Calculations and Supporting Documents

80 Big Bay Point Road, Barrie
Water Flow Calculations

Design Criteria

Demand per capita (Q):	225	L/cap/day
Peak Rate Factor (Max. Hour)	4.13	(Table 3-3: Peaking Factors, MOE Design Guidelines for Drinking-Water Systems)
Max. Day Factor	2.75	(Table 3-3: Peaking Factors, MOE Design Guidelines for Drinking-Water Systems)

Site Data

Description	Density		Units		Flow Rate		Peaking Factors	
Industrial (General)	9.42	ha	1	unit	35,000	L/ha/d	MAX DAY FACTOR*	2.00
							PEAK RATE FACTOR*	4.00
							*From MOE Manual based on Industrial Land Use	

Calculate Average Day Demand (ADD)

ADD	=	35,000	x	9.42
ADD	=	329,526	L/day	
ADD	=	3.81	L/s	

Calculate Max Day Flow

MDF	=	3.81	x	2.00
MDF	=	7.63	L/s	

Calculate Peak Hour Demand

PHD	=	3.81	x	4.00
PHD	=	15.26	L/s	

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80 Big Bay Point Road, Barrie
Fire Flow Calculations

Location:	80 Big Bay Point Road, Barrie Ont
OBC Occupancy	Industrial Occupencies
Building Foot Print:	2,876 m^2 **
# of Stories:	1 — **Industrial Building**

**Building Footprint Assumed to be 70% of Lot 21

Project: Rinomato, Big Bay Point Road
Project Number: 20033

Construction Class	Charge
Wood Frame	1.5
Ordinary	1.0
Non-Combustible	0.8
Fire Resistive	0.6

Construction Class: Wood Frame

Automated Sprinkler Protection		Credit	Total
NFPA 13 sprinkler standard	Yes	30%	
Standard Water Supply	Yes	10%	50%
Fully Supervised System	Yes	10%	

Contents	Charge
Non-Combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Contents Factor: Combustible — **Charge:** 0%

Exposure 1 (north)	Distance to Exposure Building (m)	14.0	15%
Exposure 2 (east)	Distance to Exposure Building (m)	10.0	20%
Exposure 3 (south)	Distance to Exposure Building (m)	34.0	5%
Exposure 4 (west)	Distance to Exposure Building (m)	6.0	20%

Separation	Charge
0 - 3.0 m	25%
3.1 - 10.0 m	20%
10.1 - 20.0 m	15%
20.1 - 30.0 m	10%
30.1 - 45.0 m	5%
> 45.1 m	0%

*based on minimum setbacks

Total: 60% *no more than 75%

Are Buildings Contigious? Yes

Fire Resistant Building: Are vertical openings and exterior vertical communications protected with a minimum one (1) hr rating?

Calculations: C = 1.5 — Wood Frame

RFF = 220 x C x √A A = 2,876 m²

Where: *RFF* = required fire flow in liters per minute
C = Coefficient related to the type of construction
A = the total floor area in square meters (excluding basements in building considered

RFF = 17,698 L/min
Round to Nearest 1000 L/min RFF = 18,000 L/min *Must be > 2000 L/min or < 45,000 L/min

Correction Factors:

Occupancy		0	L/min
Fire Flow Adjusted for Occupancy	**E =**	18,000	L/min
Reduction For Sprinkler	**F =**	9,000	L/min
Fire Flow w/ Sprinkler Reduction		9,000	L/min
Exposure Charge	**G =**	10,800	L/min
Fire Flow w/ Exposure Charge		19,800	L/min

As per "Water Supply for Public Fire Protection" pg.20 note H:

E	F	G
18,000	9,000	10,800

RFF= 7,000 L/min - 3,500 L/min + 4,200 L/min

Required Fire Flow: RFF = 19,800 L/min — **RFF = 19,800 L/min**

Round to Nearest 1,000 L/min **RFF = 20,000 L/min**

RFF= 5,280 GPM

RFF = 333 L/s

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80 Big Bay Point Road, Barrie
WaterCAD FlexTable: Junction Table - Domestic Report

Label	Elevation (m)	Head (m)	Demand (L/s)	Pressure (psi)
H-2115 (Bayview Drive)	272.2	-	-	-
J-1 (Bayview Drive)	271.8	34.21	0.00	48.6
J-2 (Bayview Drive)	271.7	34.36	0.00	48.8
J-3	272.5	33.80	0.00	48.0
J-4 (Lots 17, 18, 19)	271.8	34.51	1.48	49.0
J-5 (Lots 14, 15, 16, 20)	271.1	35.23	1.97	50.0
J-6 (Lots 12, 13, 21, 22)	270.5	35.86	1.97	50.9
J-7 (Lots 10, 11, 23)	269.9	36.50	1.48	51.8
J-8 (Lots 8, 9, 24)	270.0	36.46	1.48	51.8
J-9 (Lots 6, 7, 25, 26)	270.9	35.60	1.97	50.5
J-10	271.2	35.35	0.00	50.2
J-11 (1, 27)	272.0	34.43	0.98	48.9
J-12 (2, 5)	271.8	34.90	0.98	49.5
J-13 (Lots 3, 4)	272.5	34.30	0.98	48.7
J-14 (Big Bay Point Road)	269.4	37.66	0.00	53.5
J-15 (Big Bay Point Road)	269.4	37.99	0.00	53.9
H-2129 (Big Bay Point Road)	269.4	-	-	-

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80 Big Bay Point Road, Barrie
WaterCAD FlexTable: Pipe Table - Domestic Report

Label	Diameter (mm)	Hazen-Williams C	Material	Velocity (m/s)	Headloss (m)	Headloss Gradient (m/m)	Water Age (Hours)	Start Node	Pressure (Start) (psi)	Stop Node	Pressure (Stop) (psi)
P-1	300	120	PVC	0.61	0.02	0.002	(N/A)	7059: H-2145	434.3	7057: J-1	48.6
P-2	300	120	PVC	0.61	0.05	0.002	(N/A)	7057: J-1	48.6	7021: J-2	48.8
P-3	300	120	PVC	0.61	0.24	0.002	(N/A)	7021: J-2	48.8	7022: J-3	48.0
P-4	250	110	PVC	0.17	0.01	0.000	(N/A)	7022: J-3	48.0	7026: J-4	49.0
P-5	250	110	PVC	0.20	0.02	0.000	(N/A)	7026: J-4	49.0	7029: J-5	50.0
P-6	250	110	PVC	0.24	0.03	0	(N/A)	7029: J-5	50.0	7032: J-6	50.9
P-7	250	110	PVC	0.28	0.04	0.001	(N/A)	7032: J-6	50.9	7035: J-7	51.8
P-8	250	110	PVC	0.31	0.06	0.001	(N/A)	7035: J-7	51.8	7044: J-8	51.8
P-9	250	110	PVC	0.34	0.04	0.001	(N/A)	7047: J-9	50.5	7044: J-8	51.8
P-10	250	110	PVC	0.38	0.05	0.001	(N/A)	7063: J-10	50.2	7047: J-9	50.5
P-11	300	120	PVC	0.51	0.12	0.001	(N/A)	7053: J-11	48.9	7063: J-10	50.2
P-12	300	120	PVC	0.50	0.13	0.001	(N/A)	7022: J-3	48.0	7053: J-11	48.9
P-13	300	120	PVC	0.77	0.16	0.002	(N/A)	7063: J-10	50.2	7081: J-12	49.5
P-14	300	120	PVC	0.79	0.10	0.003	(N/A)	7081: J-12	49.5	7086: J-13	48.7
P-15	300	120	PVC	0.80	0.26	0.003	(N/A)	7086: J-13	48.7	7078: J-14	53.5
P-16	300	120	PVC	0.80	0.33	0.003	(N/A)	7078: J-14	53.5	7067: J-15	53.9
P-17	300	120	PVC	0.80	0.02	0.003	(N/A)	7067: J-15	53.9	7062: H-2129	54.0

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80 Big Bay Point Road, Barrie
WaterCAD FlexTable: Fire Flow Report

Label	Satisfies Fire Flow Constraints?	Fire Flow (Required) (L/s)	Fire Flow (Available)* (Upper Limit) (L/s)	Pressure Required (Residual Lower Limit) (psi)	Pressure (Calculated Residual @ Total Flow Needed) (psi)
H-2115 (Bayview Drive)	-	-	-	-	-
J-1 (Bayview Drive)	TRUE	333	500	20.0	45.4
J-2 (Bayview Drive)	TRUE	333	500	20.0	45.4
J-3	TRUE	333	500	20.0	43.7
J-4 (Lots 17, 18, 19)	TRUE	333	457	20.0	42.7
J-5 (Lots 14, 15, 16, 20)	TRUE	333	374	20.0	41.6
J-6 (Lots 12, 13, 21, 22)	TRUE	333	356	20.0	41.6
J-7 (Lots 10, 11, 23)	TRUE	333	364	20.0	42.6
J-8 (Lots 8, 9, 24)	TRUE	333	401	20.0	43.6
J-9 (Lots 6, 7, 25, 26)	TRUE	333	450	20.0	43.8
J-10	TRUE	333	500	20.0	45.8
J-11 (1, 27)	TRUE	333	500	20.0	44.1
J-12 (2, 5)	TRUE	333	500	20.0	45.2
J-13 (Lots 3, 4)	TRUE	333	500	20.0	44.4
J-14 (Big Bay Point Road)	TRUE	333	500	20.0	49.5
J-15 (Big Bay Point Road)	TRUE	333	500	20.0	54.3
H-2129 (Big Bay Point Road)	-	-	-	-	-

FLOW TEST RESULTS

FIRST FOR FIRE, LIFE SAFETY & SECURITY
VIPOND INC
est. 1945

DATE : MAY 14, 2021 TIME : 9:00 AM

LOCATION : BAYVIEW DR
CITY OF BARRIE
ONTARIO

TEST BY : VIPOND FIRE PROTECTION AND LOCAL PUC

STATIC PRESSURE : 48 PSI

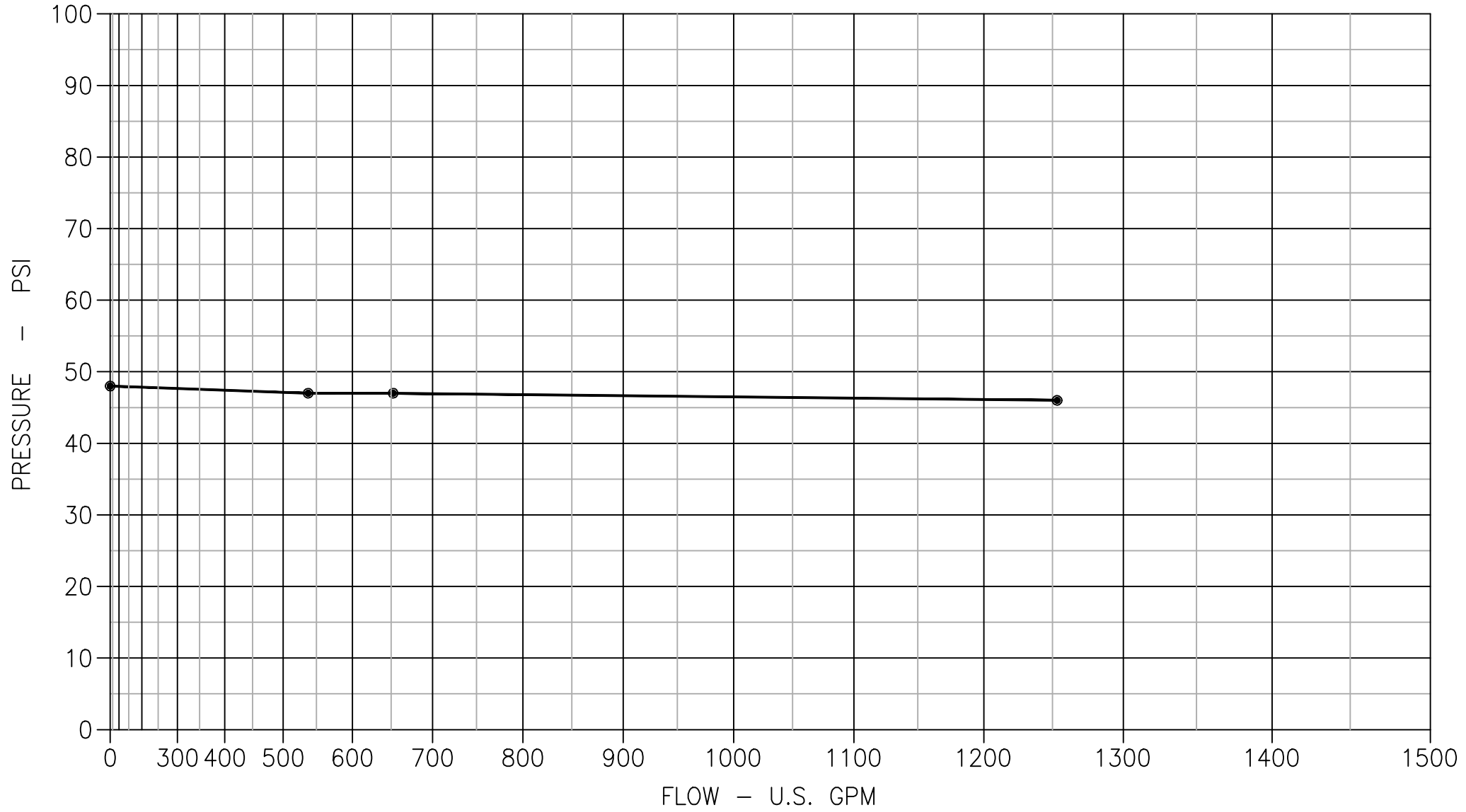
TEST NO.	NO. OF NOZZLES	NOZZLE DIAMETER (INCHES)	DISCHARGE CO-EFFICIENT	RESIDUAL PRESSURE (PSI)	PITOT PRESSURE (PSI)	DISCHARGE (U.S.GPM)
1	1	1-3/4	0.995	47	34	519
2	1	2-1/2	0.90	47	15	653
3	2	2-1/2	0.90	46	14	1262

FIRST FOR FIRE, LIFE SAFETY & SECURITY

VIPOND INC est. 1945

BAYVIEW DR.	BY : LEN K./RILEY P.
CITY OF BARRIE	OFFICE : BARRIE
ONTARIO	TEST BY : VIPOND & PUC
	DATE : MAY 14, 2021

STATIC:	RESIDUAL:		FLOW:
48 PSI	TEST#1	47 PSI @	519 GPM
	TEST#2	47 PSI @	653 GPM
	TEST#3	46 PSI @	1262 GPM



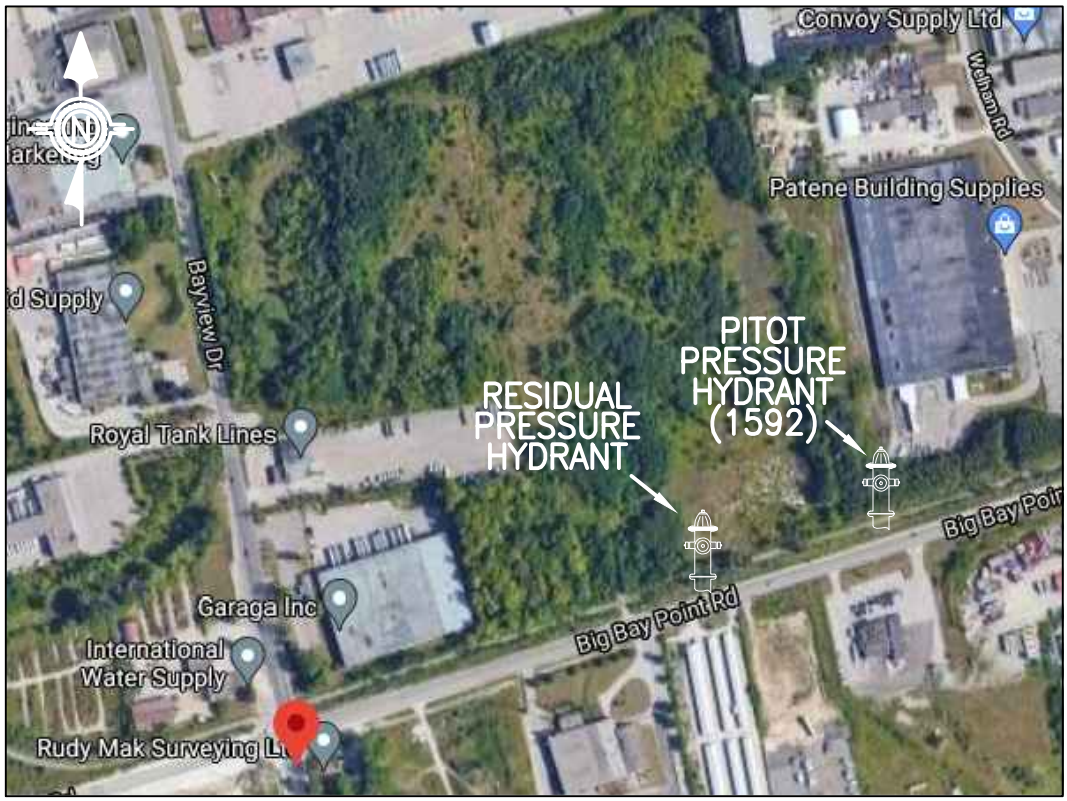
FLOW TEST RESULTS

FIRST FOR FIRE, LIFE SAFETY & SECURITY
VIPOND INC
est. 1945

DATE : MAY 14, 2021 TIME : 9:00 AM

LOCATION : BIG BAY POINT RD
CITY OF BARRIE
ONTARIO

TEST BY : VIPOND FIRE PROTECTION AND LOCAL PUC



STATIC PRESSURE : 54 PSI

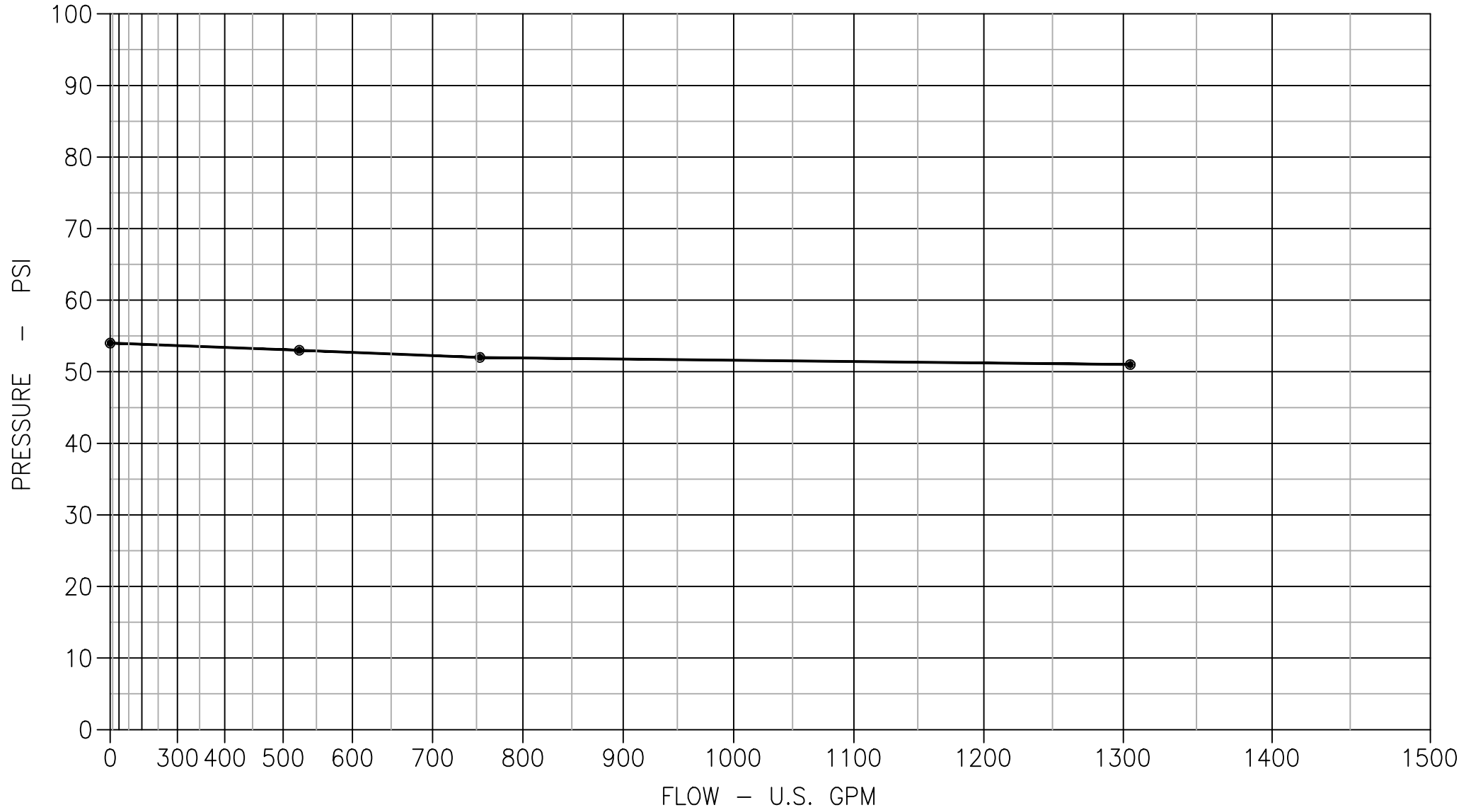
TEST NO.	NO. OF NOZZLES	NOZZLE DIAMETER (INCHES)	DISCHARGE CO-EFFICIENT	RESIDUAL PRESSURE (PSI)	PITOT PRESSURE (PSI)	DISCHARGE (U.S.GPM)
1	1	1-3/4	0.995	53	35	527
2	1	2-1/2	0.90	52	20	754
3	2	2-1/2	0.90	51	15	1306

FIRST FOR FIRE, LIFE SAFETY & SECURITY

VIPOND INC est. 1945

BIG BAY POINT RD	BY : LEN K./RILEY P.
CITY OF BARRIE	OFFICE : BARRIE
ONTARIO	TEST BY : VIPOND & PUC
	DATE : MAY 14, 2021

STATIC:	RESIDUAL:		FLOW:
54 PSI	TEST#1 53 PSI	@	527 GPM
	TEST#2 52 PSI	@	754 GPM
	TEST#3 51 PSI	@	1306 GPM



Appendix B

Sanitary Calculations and Supporting Documents

PEARSON ENGINEERING

80 Big Bay Point Road, Barrie
Sanitary Flow Calculations

Design Criteria

Flow per Capita (Q):	225	L/cap/day		
Peak Flow:	Qp = P * Q * M / 86400 + I * A			
Peaking Factor (Harmon Formula):	M = 1 + (14 / (4 + (P / 1000) ^ 0.5))		Where:	2.0 <= "M" <= 4.0
Peak Extraneous Flow (I):	0.10	L/s/ha		

Site Data

Description		Density		Units	Flow Rate	
Industrial	9.42	ha	1	unit	35,000	L/ha/d

Calculate Average Daily Flows

ADF	=	35,000	x	9.42
ADF	=	329,526	L/day	
ADF	=	3.81	L/s	

Calculate Peaking Factor

$$M = 1 + \frac{14.00}{4 + \left(\frac{9.42}{1000.00}\right)^{0.50}} + 0.10 * 0.12$$

M	=	4.00	*Max Peaking Factor as per City of Barrie Sanitary Sewage Collection System Policies and Design Guidelines

Calculate Peak Flow

Qp	=	3.81	x	4.00
	=	15.26	L/s	
Infiltration Allowance	=	0.10	x	9.42
	=	0.94	L/s	
Qp (Inc. Infiltration Allowance)	=	16.20	L/s	

80 Big Bay Point Road, Barrie
Sanitary Sewer Pipe Design Sheet

n = 0.013

$Q_{Industrial}$ = 35,000*A/86.4 (Q = 35,000 L/day/ha)

M = 4.00 (Max Peaking Factor as per City of Barrie Sanitary Design Guidelines)

Q_i = 0.10 L/s/ha

$Q_{tot} = Q_{Industrial} + Q_{Infiltration}$

Date: 14-Feb-23

File: 19105

Contract/Project: 821 Big Bay Point Road

Areas	Manhole		Area	M	Industrial Flow	Length	$Q_{Infiltration}$	Total Q	D	S	Q Full	V Full	Percent Full
	From	To	(ha)		(L/s)	(m)	(L/s)	(L/s)	(mm)	(%)	(L/s)	(m/s)	(%)
3	SAN MH12A	SAN MH11A	0.36	4.00	0.58	32.1	0.04	0.62	250	1.30	67.82	1.38	0.91
4	SAN MH11A	SAN MH10A	0.67	4.00	1.09	54.8	0.07	1.77	250	0.50	42.06	0.86	4.21
5	SAN MH10A	SAN MH9A	0.60	4.00	0.97	14.5	0.06	2.80	250	0.50	42.06	0.86	6.67
6	SAN MH9A	SAN MH8A	1.67	4.00	2.71	86.9	0.17	5.68	250	0.50	42.06	0.86	13.50
7	SAN MH8A	SAN MH7A	1.19	4.00	1.93	94.8	0.12	7.72	250	0.50	42.06	0.86	18.37
-	SAN MH7A	SAN MH6A	0.00	4.00	0.00	25.0	0.05	7.77	250	0.50	42.06	0.86	18.49
8	SAN MH6A	SAN MH5A	0.67	4.00	1.09	66.1	0.07	8.93	250	0.50	42.06	0.86	21.23
9	SAN MH5A	SAN MH4A	0.73	4.00	1.18	71.5	0.07	10.18	250	0.50	42.06	0.86	24.21
1	SAN MH13A	SAN MH14A	1.39	4.00	2.25	86.2	0.14	2.39	250	0.50	42.06	0.86	5.69
2	SAN MH14A	SAN MH4A	1.01	4.00	1.64	86.2	0.10	4.13	250	0.50	42.06	0.86	9.82
10	SAN MH4A	SAN MH3A	0.40	4.00	0.65	59.6	0.04	15.00	250	0.50	42.06	0.86	35.67
11	SAN MH15A	SAN MH3A	2.47	4.00	3.99	24.5	0.25	4.24	250	1.00	59.48	1.21	7.13
-	SAN MH3A	SAN MH2A	0.00	0.00	0.00	73.3	0.00	19.24	250	0.50	42.06	0.86	45.75
-	SAN MH2A	SAN MH1A	0.00	0.00	0.00	100.7	0.00	19.24	300	0.50	68.39	0.97	28.13
-	SAN MH1A	FUT MH1	0.00	0.00	0.00	15.1	0.00	19.24	300	0.50	68.39	0.97	28.13
-	FUT MH1	EX. MH SAP11009	0.00	0.00	0.00	16.4	0.00	19.24	300	0.50	68.39	0.97	28.13

Appendix C

Stormwater Management Calculations and Supporting Documents

PEARSON ENGINEERING

80 Big Bay Point Road
Calculation of Runoff Coefficients

Runoff Coefficient	=	0.15	0.12	0.70	0.95	0.95	0.85	0.60		Weighted
Surface Cover	=	Grass	Forest	ROW	Asphalt	Building	Block	Gravel		Runoff Coefficient
PROJECT SITE										
Pre-Development	Total Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)		
100	978515	919590	58925	0	0	0	0	0		0.15
101	30440	18209	12231	0	0	0	0	0		0.14
Pre Total	1008955	937799	71156	0	0	0	0	0		0.15
Post-Development	Total Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)		
200	97348	9770	0	20404	0	0	67174	0		0.75
201	26115	0	0	0	0	0	26115	0		0.85
Post Total	123463	9770	0	20404	0	0	93289	0		0.77
EXTERNAL AREA										
Pre Development	Total Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)		
102	29940	29940	0	0	0	0	0	0		0.15
103	26825	4049	1500	0	11803	5198	0	4275		0.73
104	73435	39544	10201	0	16422	7268	0	0		0.40
105	2227	2227	0	0	0	0	0	0		0.15
Post Total	132427	75760	11701	0	28225	12466	0	4275		0.41
Post Development	Total Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)	Area (m^2)		
202	30612	30612	0	0	0	0	0	0		0.15
203	30005	7229	1500	0	11803	5198	0	4275		0.67
204	72272	38381	10201	0	16422	7268	0	0		0.41
205	2351	2351	0	0	0	0	0	0		0.15
Post Total	135240	78573	11701	0	28225	12466	0	4275		0.40

NOTE: Assumes runoff coefficient of 0.70 for ROW and 0.85 for blocks.

PEARSON ENGINEERING

80 Big Bay Point Road
Conceptual Stage-Storage-Discharge Table

Elevation (m)	Area (m^2)	Volume (m^3)	Cum. Vol. (m^3)	Total Flow (m^3/s)
266.70	62	0	0	0.000
266.80	765	41	41	0.000
266.90	837	80	121	0.000
267.00	913	88	209	0.000
267.10	990	95	304	0.000
267.20	1070	103	407	0.000
267.30	1154	111	518	0.000
267.40	1239	120	638	0.000
267.50	1327	128	766	0.000
267.60	1417	137	904	0.000
267.70	1511	146	1050	0.000
267.80	1606	156	1206	0.000
267.90	1704	166	1371	0.000
268.00	1806	175	1547	0.000
268.10	1908	186	1732	0.000
268.20	2212	206	1938	0.000
268.20	2212	0	0	0.000
268.30	2524	237	237	0.010
268.40	2732	263	500	0.013
268.50	2944	284	783	0.016
268.60	3159	305	1088	0.020
268.70	3317	324	1412	0.026
268.80	3450	338	1751	0.034
268.90	3585	352	2102	0.040
269.00	3722	365	2468	0.053
269.10	3860	379	2847	0.067
269.20	4000	393	3240	0.080
269.30	4143	407	3647	0.100
269.40	4287	421	4068	0.120
269.50	4432	436	4504	0.150
269.60	4580	451	4955	0.200
269.70	4729	465	5420	0.250
269.80	4880	480	5901	0.325
269.90	5039	496	6397	0.450
270.00	5229	513	6910	3.000
270.10	5393	531	7441	4.500
270.20	5558	548	7989	6.000
270.30	5723	564	8553	9.000

Note: Storage volumes are calculated based on preliminary SWM Pond Geometry. Peak flows used in the model are conceptual. Orifice and weir will be sized at detailed design. Highlighted rows used in Visual OTTHYMO Model.

80 Big Bay Point Road
Quality Control Calculations

Find Wet Cell Volumes Required for Proposed Subdivision

Area	=	9.73	ha.
% Total Impervious	=	73%	

From MOE SWMPPD Manual Table 3.2

Level 1 Quality Volumes for a wet pond:

70%	=	225	m^3/ha.
85%	=	250	m^3/ha.

Therefore,

73%	=	231	m^3/ha.

40 m³/ha is for extended detention, therefore, permanent pool volume is 231m³/ha. - 40 m³/ha. = 191 m³/ha.

Volume	=	Area		x	Volume Req'd
	=	9.73		x	191
	=	1855	m^3		

Forebay 1 Calculations for proposed Subdivision

Settling Calculations as per MOE Equation 4.5

Length to Width Ratio of Forebay (r)	=	2.00	
Peak Flow (2 year) from pond (Q)	=	0.04	m^3/s
Settling Velocity (V)	=	0.0003	m/s
Forebay Length (D)	=	$\frac{\sqrt{(rQ)}}{V}$	
	=	16	m
Provided	=	20	m

Dispersion Length as per MOE Equation 4.6

5 Year Inlet Flow Rate (Q)	=	1.95	m^3/s
Depth of Permanent Pool (d)	=	1.50	m
Desired Velocity (V)	=	0.5	m/s
Dispersion Length	=	$\frac{8Q}{dV}$	
	=	21	m
Provided	=	20	m

Minimum Forebay Deep Zone Bottom Width as per MOE Equation 4.7

Dispersion Length	=	21	m
Width	=	Dispersion Length/8	
	=	2.6	m
Provided	=	2.6	m

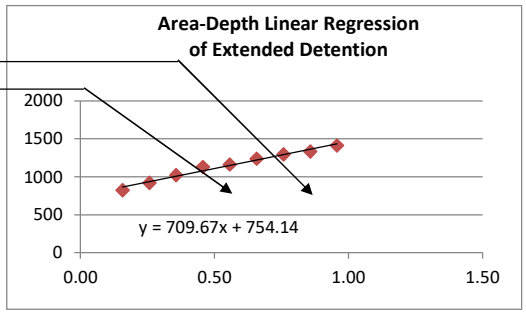
PEARSON ENGINEERING

80 Big Bay Point Road
Extended Detention Drawdown Time

Orifice Invert Elevation	=	268.40	m
Size of Orifice	=	85	mm
Orifice Centroid	=	268.44	m
Orifice Constant	=	0.80	

Elevation (m)	Area (m^2)	Volume (m^3)	Cum. Volume (m^3)	Depth over Orifice (m)	Head (m)	Flow (m^3/s)
268.40	639			0.00	0.00	0.0000
268.50	729	68	68	0.10	0.06	0.0048
268.60	823	78	146	0.20	0.16	0.0080
268.70	921	87	233	0.30	0.26	0.0102
268.80	1024	97	330	0.40	0.36	0.0120
268.90	1130	108	438	0.50	0.46	0.0136
269.00	1165	115	553	0.60	0.56	0.0150
269.10	1240	120	673	0.70	0.66	0.0163
269.20	1297	127	800	0.80	0.76	0.0175
269.30	1335	132	932	0.90	0.86	0.0186
269.40	1413	137	1069	1.00	0.96	0.0197

Elevation of Perm. Pool	268.40	m
Intercept of Regression	754.14	C_3
Slope of Regression	709.67	C_2
Elevation of 25mm Storm	269.1	m
Depth over Orifice Centroid	0.66	m
Orifice Area	0.00567	sq.m
Drawdown Time	26.22	hrs.



PEARSON ENGINEERING

80 Big Bay Point Road
Pre-Development OTTHYMO Parameters

Drainage ID	**=**	**100**	
Grassed Area	=	3.88	ha
Forest Area	=	5.90	ha
Total Area	=	9.78	ha

According to GeoSpec Engineering Limited, Hydrogeological Assessment, the assumed Soil Group is:

Hydrologic Soils Group: = AB

CN Value is as follows:

CN	=	59	(Pasture as per NVCA Guidelines)
CN	=	46	(Forest as per NVCA Guidelines)
CN	=	$\frac{59 \times 3.70 + 46 \times 5.61}{9.78}$	
CN	=	51.2	

IA Value is as follows:

IA	=	5	(Pasture as per NVCA Guidelines)
IA	=	10	(Forest as per NVCA Guidelines)
IA	=	$\frac{5 \times 3.70 + 10 \times 5.61}{9.78}$	
IA	=	8.02	

Runoff Coefficient Value is as follows:

C	=	0.15	(Pasture as per NVCA Guidelines)
C	=	0.10	(Forest as per NVCA Guidelines)
C	=	$\frac{0.15 \times 3.70 + 0.1 \times 5.61}{9.78}$	
C	=	0.12	

Find Time to Peak using Airport Equation and Uplands Method

Airport Equation $T_c = 3.26(1.1 - c)L^{0.5}S_w^{-0.33}$

Length (L)	=	349.8	m
Elevation 1 (El_1)	=	272.87	m
Elevation 2 (El_2)	=	269.93	m
Slope (S)	=	0.008	m/m
Time of Concentration (T_c)	=	61.37	mins
Total Time of Concentration (T_c)	=	61.37	mins
	=	1.02	hrs

Uplands Method

Section	=	1	
Land Cover	=	Pasture & Wood	
Length	=	349.8	m
Slope	=	0.008	m/m
Velocity	=	0.21	m/s
Time of Concentration (T_c)	=	0.46	hrs
Total Time of Concentration (T_c)	=	0.46	hrs

Governing Time to Peak

Airport Equation

T_c	=	1.02	hrs
T_p (Tp = 2/3 Tc)	=	0.68	hrs
D_T (1/5 T_p)	=	8.2	mins

Drainage ID = **101**

Grassed Area	=	1.82	ha
Forest Area	=	1.22	ha
Total Area	=	3.04	ha

According to GeoSpec Engineering Limited, Hydrogeological Assessment, the assumed Soil Group is:

Hydrologic Soils Group: = AB

CN Value is as follows:

CN	=	59	(Pasture as per NVCA Guidelines)
CN	=	46	(Forest as per NVCA Guidelines)
CN	=	$\frac{59 \times 1.82 + 46 \times 1.22}{3.04}$	
CN	=	53.8	

IA Value is as follows:

IA	=	5	(Pasture as per NVCA Guidelines)
IA	=	10	(Forest as per NVCA Guidelines)
IA	=	$\frac{5 \times 1.82 + 10 \times 1.22}{3.04}$	
IA	=	7.00	

Runoff Coefficient Value is as follows:

C	=	0.15	(Pasture as per NVCA Guidelines)
C	=	0.10	(Forest as per NVCA Guidelines)
C	=	$\frac{0.15 \times 1.82 + 0.1 \times 1.22}{3.04}$	
C	=	0.13	

Find Time to Peak using Airport Equation and Uplands Method

Airport Equation $T_c = 3.26(1.1 - c)L^{0.5}S_w^{-0.33}$

Length (L)	=	192.8	m
Elevation 1 (El_1)	=	273.13	m
Elevation 2 (El_2)	=	270.05	m
Slope (S)	=	0.016	m/m
Time of Concentration (T_c)	=	36.79	mins
Total Time of Concentration (T_c)	=	36.79	mins
	=	0.61	hrs

Uplands Method

Section	=	1	
Land Cover	=	Pasture & Wood	
Length	=	192.8	m
Slope	=	0.016	m/m
Velocity	=	0.29	m/s
Time of Concentration (T_c)	=	0.18	hrs
Total Time of Concentration (T_c)	=	0.18	hrs

Governing Time to Peak

Airport Equation

T_c	=	0.61	hrs
T_p (Tp = 2/3 Tc)	=	0.41	hrs
D_T (1/5 T_p)	=	4.9	mins

80 Big Bay Point Road
Phosphorus Budget

Barrie Creeks	Hay / Pasture	High Intensity Industrial	Forest	Open Water
Phosphorus Export (kg/ha/year)	0.07	1.82	0.05	0.26

Pre-Development Condition

	Hay / Pasture	High Intensity Industrial	Forest	Open Water
Area (ha)	93.78	0.00	7.12	0.00
Total P (kg)	6.56	0.00	0.36	0.00
Total Pre-Development P (kg)		**6.92**		

Post-Development Condition (Uncontrolled):

	Hay / Pasture	High Intensity Industrial	Forest	Open Water
Area (ha):	0.98	10.39	0.00	0.98
Total P (kg) :	0.07	18.91	0.00	0.25
Total Uncontrolled Post-Development (kg):		**19.23**		

Post-Development Condition (Controlled):

Untreated Area	Hay / Pasture	High Intensity Industrial	Forest	Open Water
Area (ha):	0.98	0.00	0.00	0.00
Total P (kg) :	0.07	0.00	0.00	0.00

Area from Rooftop Draining to Infiltration	Hay / Pasture	High Intensity Industrial	Forest	Open Water
Area (ha):	0.00	3.27	0.00	0.00
Total P (kg) :	0.00	5.94	0.00	0.00

Soakaway Infiltration	
Total P (kg):	5.94
Soakaway Infiltration Proficiency (%):	60
P Removed (kg):	3.57
P Remaining (kg):	2.38

Area Draining to Permeable Pavers	Hay / Pasture	High Intensity Industrial	Forest	Open Water
Area (ha):	0.00	4.55	0.00	0.00
Total P (kg) :	0.00	8.28	0.00	0.00

Sand or Media Filters	
Total P (kg):	8.28
Sand or Media Filters Proficiency (%):	45
P Removed (kg):	3.72
P Remaining (kg):	4.55

Area Draining to Wet Detention Pond not Previously Treated	Hay / Pasture	High Intensity Industrial	Forest	Open Water
Area (ha):	0.00	3.56	0.00	0.98
Total P (kg) :	0.00	6.47	0.00	0.25

Wet Detention Ponds	
P Remaing from Pavers (kg):	4.55
Total P (kg):	11.02
Wet Detention Ponds Proficiency (%):	63
P Removed (kg):	6.95
P Remaining (kg):	4.08

Total Post-Development P (kg):	**6.46**

NOTE:
1. Area of rooftops assumed to be 35% of total block area.
2. Area draining to pavers assumed to be 75% of the block's impervious area (not including rooftops).

PEARSON ENGINEERING

80 Big Bay Point Road
Pre Development Water Balance

Catchment Designation	Site			
	Grassed	Forest	Total	
Area	937799	71156	1008955	
Pervious Area	937799	71156	1008955	
Impervious Area	0	0	0	
Infiltration Factors				
Topography Infiltration Factor	0.3	0.3		(From MOE Table 3.1 for Rolling Land)
Soil Infiltration Factor	0.3	0.3		(From MOE Table 3.1 for an average value between Medium combinations of clay and loam and Open sandy loam)
Land Cover Infiltration Factor	0.0	0.2		
MOE Infiltration Factor	0.6	0.8		
Actual Infiltration Factor	0.6	0.8		
Run-Off Coeffiecient	0.4	1.0		
Runoff from Impervious Surfaces*	0.0	0.8		
Inputs (per Unit Area)				
Precipitation	932.9	932.9		(Precipitation values from Environment Canada)
Run-On	0.0	0.0		
Other Inputs	0.0	0.0		
Total Inputs	932.9	932.9		
Outputs (per Unit Area)				
Precipitation Surplus	336.2	336.2	336	
Net Surplus	336.2	336.2	336	
Evapotranspiration	596.7	596.7	597	(Evapotranspiration values from Table 5-2 in the City of Barrie Tier Three Recharge Estimation, dated June 2012)
Infiltration	201.7	0.0	187	
Rooftop Infiltration	0.0	0.0	0	
Total Infiltration	201.7	0.0	202	
Runoff Pervious Areas	134.5	0.0	134	
Runoff Impervious Areas	0.0	336.2	336	
Total Runoff	134.5	336.2	471	
Total Outputs	932.9	932.9	1866	
Difference (Inputs - Outputs)	0.0	0.0	0	
Inputs (Volumes)				
Precipitation	874873	66381	941254	
Run-On	0	0	0	
Other Inputs	0	0	0	
Total Inputs	874873	66381	941254	
Outputs (Volumes)				
Precipitation Surplus	315243	23919	339163	
Net Surplus	315243	23919	339163	
Evapotranspiration	559629	42462	602092	
Infiltration	189146	0	189146	
Rooftop Infiltration	0	0	0	
Total Infiltration	189146	0	189146	
Runoff Pervious Areas	126097	0	126097	
Runoff Impervious Areas	0	23919	23919	
Total Runoff	126097	23919	150017	
Total Outputs	874873	66381	941254	
Difference (Inputs - Outputs)	0	0	0	

Note: Highlighted cells are input cells.

PEARSON ENGINEERING

80 Big Bay Point Road
Post Development Water Balance (No Infiltration)

Catchment Designation	Site				
	Grassed	Impervious	Building (With Infiltration) *based on assumed 35% building footprint	Total	
Area	9770	20404	32651	62825	
Pervious Area	9770	0	0	9770	
Impervious Area	0	20404	32651	53055	
Infiltration Factors					
Topography Infiltration Factor	0.3	0.0	0.0		(From MOE Table 3.1 for Rolling Land)
Soil Infiltration Factor	0.3	0.0	0.0		(From MOE Table 3.1 for an average value between Medium combinations of clay and loam and Open sandy loam)
Land Cover Infiltration Factor	0.0	0.0	0.0		
MOE Infiltration Factor	0.6	0.0	0.0		
Actual Infiltration Factor	0.6	0.0	0.0		
Run-Off Coeffiecient	0.4	1.0	1.0		
Runoff from Impervious Surfaces*	0.0	0.8	0.8		
Inputs (per Unit Area)					
Precipitation	932.9	932.9	932.9	932.9	(Precipitation values from Environment Canada)
Run-On	0	0	0	0	
Other Inputs	0	0	0	0	
Total Inputs	932.9	932.9	932.9	932.9	
Outputs (per Unit Area)					
Precipitation Surplus	336.2	746.3	746.3	682.5	
Net Surplus	336.2	746.3	746.3	682.5	
Evapotranspiration	596.7	186.6	186.6	250.4	(Evapotranspiration values from Table 5-2 in the City of Barrie Tier Three Recharge Estimation, dated June 2012)
Infiltration	201.7	0.0	0.0	31.4	
Rooftop Infiltration	0.0	0.0	0.0	0.0	
Total Infiltration	201.7	0.0	0.0	31.4	
Runoff Pervious Areas	134.5	0.0	0.0	20.9	
Runoff Impervious Areas	0.0	746.3	746.3	630.3	
Total Runoff	134.5	746.3	746.3	651.2	
Total Outputs	932.9	932.9	932.9	932.9	
Difference (Inputs - Outputs)	0.0	0.0	0.0		
Inputs (Volumes)					
Precipitation	9114	19035	30460	58610	
Run-On	0	0	0	0	
Other Inputs	0	0	0	0	
Total Inputs	9114	19035	30460	58610	
Outputs (Volumes)					
Precipitation Surplus	3284	15228	24368	42880	
Net Surplus	3284	15228	24368	42880	
Evapotranspiration	5830	3807	6092	15729	
Infiltration	1971	0	0	1971	
Rooftop Infiltration	0	0	0	0	
Total Infiltration	1971	0	0	1971	
Runoff Pervious Areas	1314	0	0	1314	
Runoff Impervious Areas	0	15228	24368	39596	
Total Runoff	1314	15228	24368	40910	
Total Outputs	9114	19035	30460	58610	
Difference (Inputs - Outputs)	0	0	0	0	

Note: Highlighted cells are input cells.

PEARSON ENGINEERING

80 Big Bay Point Road
Post Development Water Balance (With Infiltration)

Catchment Designation	Site				
	Grassed	Impervious	Building (With Infiltration) *based on assumed 35% building footprint	Total	
Area	9770	20404	32651	62825	
Pervious Area	9770	0	0	9770	
Impervious Area	0	20404	32651	53055	
Infiltration Factors					
Topography Infiltration Factor	0.3	0	0		(From MOE Table 3.1 for Rolling Land)
Soil Infiltration Factor	0.3	0	0		(From MOE Table 3.1 for an average value between Medium combinations of clay and loam and Open sandy loam)
Land Cover Infiltration Factor	0.1	0	0		
MOE Infiltration Factor	0.7	0	0		
Actual Infiltration Factor	0.7	0	0		
Run-Off Coeffiecient	0.3	1	1		
Runoff from Impervious Surfaces*	0	0.8	0.8		
Inputs (per Unit Area)					(Precipitation values from Environment Canada)
Precipitation	932.9	932.9	932.9	932.9	
Run-On	0	0	0	0	
Other Inputs	0	0	0	0	
Total Inputs	932.9	932.9	932.9	932.9	
Outputs (per Unit Area)					
Precipitation Surplus	336.2	746.3	746.3	682.5	
Net Surplus	336.2	746.3	746.3	682.5	
Evapotranspiration	596.7	186.6	186.6	250.4	(Evapotranspiration values from Table 5-2 in the City of Barrie Tier Three Recharge Estimation, dated June 2012)
Infiltration	235.3	0.0	0.0	36.6	
Rooftop Infiltration	0.0	0.0	**270.0**	140.3	Depth of rainfall over the rooftop required to be infiltrated to achieve water balance.
Total Infiltration	235.3	0.0	270.0	176.9	
Runoff Pervious Areas	100.8	0.0	0.0	15.7	
Runoff Impervious Areas	0.0	746.3	476.3	489.9	
Total Runoff	100.8	746.3	476.3	505.6	
Total Outputs	932.9	932.9	932.9	932.9	
Difference (Inputs - Outputs)	0.0	0.0	0.0	0.0	
Inputs (Volumes)					
Precipitation	9114	19035	30460	58610	
Run-On	0	0	0	0	
Other Inputs	0	0	0	0	
Total Inputs	9114	19035	30460	58610	
Outputs (Volumes)					
Precipitation Surplus	3284	15228	24368	42880	
Net Surplus	3284	15228	24368	42880	
Evapotranspiration	5830	3807	6092	15729	
Infiltration	2299	0	0	2299	
Rooftop Infiltration	0	0	8816	8816	
Total Infiltration	2299	0	8816	11115	
Runoff Pervious Areas	985	0	0	985	
Runoff Impervious Areas	0	15228	15552	30780	
Total Runoff	985	15228	15552	31766	
Total Outputs	9114	19035	30460	58610	
Difference (Inputs - Outputs)	0	0	0	0	

Note: Highlighted cells are input cells.

PEARSON ENGINEERING

80 Big Bay Point Road
Water Balance Calculations

Annual Rainfall Depth Required

Depth of Rainfall Required	=	270.0	mm	(From Post-Development Water Balance (With Infiltration))

Find Percent of Annual Rainfall that Required Rainfall Depth represents:

Annual Rainfall for Study Area	=	932.9	mm	
% Annual Rainfall	=	270.0	mm	
		932.9	mm	
	=	29%		

From MOE Figure C-2, 29% of annual rainfall occurs for storm events of 4mm or less.

Find storage volume required for rainfall events of 7 mm to Rooftop Infiltration Gallery:

Roof Top Area	=	7,141	m^2		*based on assumed 35% building area for each block
Rainfall Depth	=	4	mm		
Storage Volume Required	=	A	x	D	
	=	7,141	x	4	
	=	29	m^3		

Minimum Infiltration Volume as per City of Barrie Storm Drainage and Stormwater Management Policies and Design Guidelines Section 4.1.3 is as follows:

Storage Volume Required	=	Site Area	x	5	mm
	=	123,463	x	0.005	
	=	617.3	m^3		

It is proposed to infiltrate the 25 mm storm event over the assumed 35% rooftop area per block, resulting in an anticipated storage volume of 818m^3 exceeding the City of Barrie Criteria. Therefore, water balance for the site is achieved.

PEARSON ENGINEERING

80 Big Bay Point Road
Industrial Block Water Balance and Phosphorus Reduction Allocations

Block #	Block Area (m^2)	% of Total Req	Minimum Infiltration Volume Req'd (m^3)	Post Development Phosphorus Portion (kg)
1	4782	5%	29.9	0.31
2	3788	4%	23.7	0.25
3	13257	13%	82.9	0.87
4	10325	10%	64.6	0.68
5	2976	3%	18.6	0.19
6	2967	3%	18.6	0.19
7	2962	3%	18.5	0.19
8	2954	3%	18.5	0.19
9	3378	3%	21.1	0.22
10	2672	3%	16.7	0.17
11	2651	3%	16.6	0.17
12	2640	3%	16.5	0.17
13	2627	3%	16.4	0.17
14	2609	3%	16.3	0.17
15	5691	6%	35.6	0.37
16	2669	3%	16.7	0.17
17	3060	3%	19.1	0.20
18	2840	3%	17.8	0.19
19	3143	3%	19.7	0.21
20	2483	3%	15.5	0.16
21	2220	2%	13.9	0.15
22	2316	2%	14.5	0.15
23	2413	2%	15.1	0.16
24	2525	3%	15.8	0.17
25	4566	5%	28.6	0.30
26	4155	4%	26.0	0.27
TOTAL	**98670.36**		**617.3**	**6.46**

Notes

Block Area ÷ Total Site Area = % of total required

Total Storage Volume required for Water Balance x % required = Minimum Infiltration Volume for each block

Post Development Phosphorus x % required = Phosphorus Portion for each block

PEARSON ENGINEERING

80 Big Bay Point Road
Swale Capacity Peak Flows

Barrie

Storm Event (yrs)	Coeff A	Coeff B	Coeff C
2	675.59	4.68	0.78
5	843.02	4.58	0.76
10	976.89	4.75	0.76
25	1133.12	4.73	0.76
50	1251.47	4.85	0.75
100	1383.63	4.91	0.75

Modified Rational Method
Q = CiCIA / 360

Where:
- Q - Flow Rate (m^3/s)
- C - Rational Method Runoff Coefficient
- I - Storm Intensity (mm/hr)
- A - Area (ha.)
- Ci - Peaking Coefficient

Area Number	1	2	3	4
Area	3.00 ha	2.66 ha	4.39 ha	0.02 ha
Runoff Coefficient	0.67	0.35	0.60	0.15
Time of Concentration	10 min	10 min	10 min	10 min
Return Rate	2 year	2 year	2 year	2 year
Peaking Coefficient (Ci)	1.00	1.00	1.00	1.00
Rainfall Intensity	83.1 mm/hr	83.1 mm/hr	83.1 mm/hr	83.1 mm/hr
Post-Development Peak Flow	0.464 m^3/s	0.215 m^3/s	0.608 m^3/s	0.001 m^3/s
Return Rate	5 year	5 year	5 year	5 year
Peaking Coefficient (Ci)	1.00	1.00	1.00	1.00
Rainfall Intensity	109.1 mm/hr	109.1 mm/hr	109.1 mm/hr	109.1 mm/hr
Post-Development Peak Flow	0.609 m^3/s	0.282 m^3/s	0.798 m^3/s	0.001 m^3/s
Return Rate	10 year	10 year	10 year	10 year
Peaking Coefficient (Ci)	1.00	1.00	1.00	1.00
Rainfall Intensity	126.4 mm/hr	126.4 mm/hr	126.4 mm/hr	126.4 mm/hr
Post-Development Peak Flow	0.706 m^3/s	0.327 m^3/s	0.925 m^3/s	0.001 m^3/s
Return Rate	25 year	25 year	25 year	25 year
Peaking Coefficient (Ci)	1.10	1.10	1.10	1.10
Rainfall Intensity	148.3 mm/hr	148.3 mm/hr	148.3 mm/hr	148.3 mm/hr
Post-Development Peak Flow	0.911 m^3/s	0.422 m^3/s	1.193 m^3/s	0.002 m^3/s
Return Rate	50 year	50 year	50 year	50 year
Peaking Coefficient (Ci)	1.20	1.20	1.20	1.20
Rainfall Intensity	164.1 mm/hr	164.1 mm/hr	164.1 mm/hr	164.1 mm/hr
Post-Development Peak Flow	1.100 m^3/s	0.509 m^3/s	1.441 m^3/s	0.002 m^3/s
Return Rate	100 year	100 year	100 year	100 year
Peaking Coefficient (Ci)	1.25	1.25	1.25	1.25
Rainfall Intensity	180.4 mm/hr	180.4 mm/hr	180.4 mm/hr	180.4 mm/hr
Post-Development Peak Flow	1.259 m^3/s	0.583 m^3/s	2.200 m^3/s	0.012 m^3/s

80 Big Bay Point Road
Swale Capacity Calculations

Catchment Area 1

Left Bank Slope	=	33.00	%
Right Bank Slope	=	33.00	%
Bottom Width	=	0.00	m
Longitudinal Slope	=	0.30	%
Manning's "n"	=	0.035	
Assumed Depth of Flow	=	0.75	m
Left Bank Length	=	2.27	m
Right Bank Length	=	2.27	m
Top Width	=	4.55	
Wetted Area	=	1.705	sq.m.
Wetted Perimeter	=	4.787	m
Hydraulic Radius	=	0.356	
Velocity	=	0.786	m/s
Flow Passing	=	1.34	m^3/s

Catchment Area 2

Left Bank Slope	=	33.33	%
Right Bank Slope	=	33.00	%
Bottom Width	=	0.00	m
Longitudinal Slope	=	0.30	%
Manning's "n"	=	0.030	
Assumed Depth of Flow	=	0.53	m
Left Bank Length	=	1.59	m
Right Bank Length	=	1.61	m
Top Width	=	3.20	
Wetted Area	=	0.847	sq.m.
Wetted Perimeter	=	3.367	m
Hydraulic Radius	=	0.252	
Velocity	=	0.727	m/s
Flow Passing	=	0.62	m^3/s

Catchment Area 3

Left Bank Slope	=	33.00	%
Right Bank Slope	=	33.00	%
Bottom Width	=	0.00	m
Longitudinal Slope	=	0.30	%
Manning's "n"	=	0.030	
Assumed Depth of Flow	=	0.86	m
Left Bank Length	=	2.61	m
Right Bank Length	=	2.61	m
Top Width	=	5.21	
Wetted Area	=	2.241	sq.m.
Wetted Perimeter	=	5.489	m
Hydraulic Radius	=	0.408	
Velocity	=	1.005	m/s
Flow Passing	=	2.25	m^3/s

Catchment Area 4

Left Bank Slope	=	33.00	%
Right Bank Slope	=	33.00	%
Bottom Width	=	0.00	m
Longitudinal Slope	=	0.30	%
Manning's "n"	=	0.030	
Assumed Depth of Flow	=	0.15	m
Left Bank Length	=	0.45	m
Right Bank Length	=	0.45	m
Top Width	=	0.91	
Wetted Area	=	0.068	sq.m.
Wetted Perimeter	=	0.957	m
Hydraulic Radius	=	0.071	
Velocity	=	0.314	m/s
Flow Passing	=	0.02	m^3/s

20033 - Rinomato, Big Bay Point Road
Quantity Control Volume Calculations

DATE:	15-Feb-23
FILE:	20033
CONTRACT/PROJECT:	Rinomato, Big Bay Point Road
COMPLETED BY:	AV

Modified Rational Method Parameters

Pre Development Area (ha)	Post Development Area (ha)	Time of Concentration (min)	Time Increments (min)	Pre Development Runoff Coefficient	Post Development Runoff Coefficient
3.040	2.610	10	1	0.25	0.85

Note: Refer to page Calculation of Runoff Coefficients for detailed calculations of Modified Rational Method parameters.

Pre-Development Runoff Rate

	2 Year	5 Year	10 Year	25 Year	50 Year	100 Year
C	0.25	0.25	0.25	0.28	0.30	0.30
I	83.11	108.92	126.55	148.15	164.22	180.15
A	3.04	3.04	3.04	3.04	3.04	3.04
Q	0.175	0.230	0.267	0.344	0.416	0.456

Note: Q= 0.00278CIA

Rainfall Station	Barrie

SWM Pond Design Input

Storm Event (yrs)	Chicago Storm Coefficient	Chicago Storm Coefficient	Chicago Storm Coefficient	Allowable Outflow	Post Development Runoff Coefficient
	A	B	C	(m3/s)	
2	678.09	4.70	0.78	0.175	0.85
5	853.61	4.70	0.77	0.230	0.85
10	975.87	4.70	0.76	0.267	0.85
25	1146.28	4.92	0.76	0.344	0.935
50	1236.15	4.70	0.75	0.416	1
100	1426.41	5.27	0.76	0.456	1

Results

Storm Event (yrs)	Storage m^3	Time min
2	261	29
5	350	31
10	410	31
25	538	32
50	626	32
100	699	32

Note: Storage volume calculated as per Hydrology Handbook, Second Edition, American Society of Civil Engineers, 1996

Time (min)	2 Year Intensity mm/hr	2 Year Inflow m^3/s	2 Year Outflow m^3/s	2 Year Storage m^3	Difference	5 Year Intensity mm/hr	5 Year Inflow m^3/s	5 Year Outflow m^3/s	5 Year Storage m^3	Difference	10 Year Intensity mm/hr	10 Year Inflow m^3/s	10 Year Outflow m^3/s	10 Year Storage m^3	Difference
1	174.18	1.074	0.175	7	44	225.07	1.387	0.230	7	57	260.01	1.602	0.267	8	66
2	153.52	0.947	0.175	50	34	198.85	1.225	0.230	64	44	229.94	1.417	0.267	74	51
3	137.71	0.849	0.175	84	27	178.75	1.102	0.230	109	36	206.87	1.275	0.267	125	41
4	125.19	0.772	0.175	112	22	162.79	1.003	0.230	144	29	188.54	1.162	0.267	167	34
5	114.99	0.709	0.175	134	18	149.77	0.923	0.230	173	24	173.57	1.070	0.267	201	28
6	106.50	0.657	0.175	152	16	138.93	0.856	0.230	198	21	161.10	0.993	0.267	229	24
7	99.33	0.613	0.175	168	13	129.73	0.799	0.230	219	18	150.52	0.928	0.267	253	21
8	93.16	0.575	0.175	181	11	121.83	0.751	0.230	236	15	141.42	0.872	0.267	274	18
9	87.81	0.542	0.175	192	10	114.96	0.708	0.230	251	13	133.51	0.823	0.267	292	16
10	83.11	0.513	0.175	202	9	108.92	0.671	0.230	265	12	126.55	0.780	0.267	308	14
11	78.94	0.487	0.175	211	7	103.57	0.638	0.230	276	10	120.37	0.742	0.267	321	12
12	75.23	0.464	0.175	218	7	98.78	0.609	0.230	287	9	114.85	0.708	0.267	333	11
13	71.88	0.443	0.175	225	6	94.48	0.582	0.230	295	8	109.89	0.677	0.267	344	9
14	68.86	0.425	0.175	230	5	90.58	0.558	0.230	303	7	105.39	0.649	0.267	353	8
15	66.12	0.408	0.175	235	4	87.04	0.536	0.230	310	6	101.30	0.624	0.267	361	7
16	63.61	0.392	0.175	240	4	83.80	0.516	0.230	316	5	97.56	0.601	0.267	369	6
17	61.31	0.378	0.175	244	3	80.82	0.498	0.230	322	5	94.12	0.580	0.267	375	6
18	59.19	0.365	0.175	247	3	78.08	0.481	0.230	327	4	90.95	0.561	0.267	381	5
19	57.23	0.353	0.175	250	2	75.55	0.466	0.230	331	4	88.02	0.542	0.267	386	4
20	55.41	0.342	0.175	252	2	73.19	0.451	0.230	334	3	85.30	0.526	0.267	390	4
21	53.72	0.331	0.175	254	2	71.00	0.438	0.230	337	3	82.77	0.510	0.267	394	3
22	52.14	0.322	0.175	256	1	68.95	0.425	0.230	340	2	80.40	0.495	0.267	398	3
23	50.67	0.312	0.175	258	1	67.04	0.413	0.230	342	2	78.18	0.482	0.267	400	2
24	49.28	0.304	0.175	259	1	65.24	0.402	0.230	344	2	76.10	0.469	0.267	403	2
25	47.98	0.296	0.175	260	1	63.55	0.392	0.230	346	1	74.15	0.457	0.267	405	2
26	46.76	0.288	0.175	260	0	61.96	0.382	0.230	347	1	72.31	0.446	0.267	407	1
27	45.60	0.281	0.175	261	0	60.46	0.373	0.230	348	1	70.57	0.435	0.267	408	1
28	44.51	0.274	0.175	261	0	59.04	0.364	0.230	349	0	68.92	0.425	0.267	409	1
29	43.47	0.268	0.175	261	0	57.69	0.356	0.230	350	0	67.36	0.415	0.267	410	0
30	42.49	0.262	0.175	261	0	56.41	0.348	0.230	350	0	65.88	0.406	0.267	410	0
31	41.56	0.256	0.175	261	0	55.20	0.340	0.230	350	0	64.47	0.397	0.267	410	0
32	40.67	0.251	0.175	261	-1	54.04	0.333	0.230	350	0	63.13	0.389	0.267	410	0
33	39.83	0.246	0.175	260	-1	52.94	0.326	0.230	349	-1	61.86	0.381	0.267	410	0
34	39.02	0.241	0.175	259	-1	51.89	0.320	0.230	349	-1	60.64	0.374	0.267	410	-1
35	38.25	0.236	0.175	259	-1	50.89	0.314	0.230	348	-1	59.47	0.367	0.267	409	-1
36	37.51	0.231	0.175	258	-1	49.92	0.308	0.230	347	-1	58.36	0.360	0.267	408	-1
37	36.81	0.227	0.175	257	-1	49.01	0.302	0.230	346	-1	57.29	0.353	0.267	407	-1
38	36.13	0.223	0.175	255	-1	48.12	0.297	0.230	345	-1	56.27	0.347	0.267	406	-1
39	35.49	0.219	0.175	254	-1	47.28	0.291	0.230	344	-1	55.29	0.341	0.267	405	-2
40	34.87	0.215	0.175	253	-1	46.47	0.286	0.230	342	-2	54.35	0.335	0.267	403	-2
41	34.27	0.211	0.175	251	-2	45.68	0.282	0.230	341	-2	53.44	0.329	0.267	401	-2
42	33.69	0.208	0.175	250	-2	44.93	0.277	0.230	339	-2	52.57	0.324	0.267	400	-2
43	33.14	0.204	0.175	248	-2	44.21	0.272	0.230	337	-2	51.73	0.319	0.267	398	-2
44	32.61	0.201	0.175	247	-2	43.51	0.268	0.230	335	-2	50.92	0.314	0.267	396	-2
45	32.09	0.198	0.175	245	-2	42.84	0.264	0.230	333	-2	50.14	0.309	0.267	393	-2

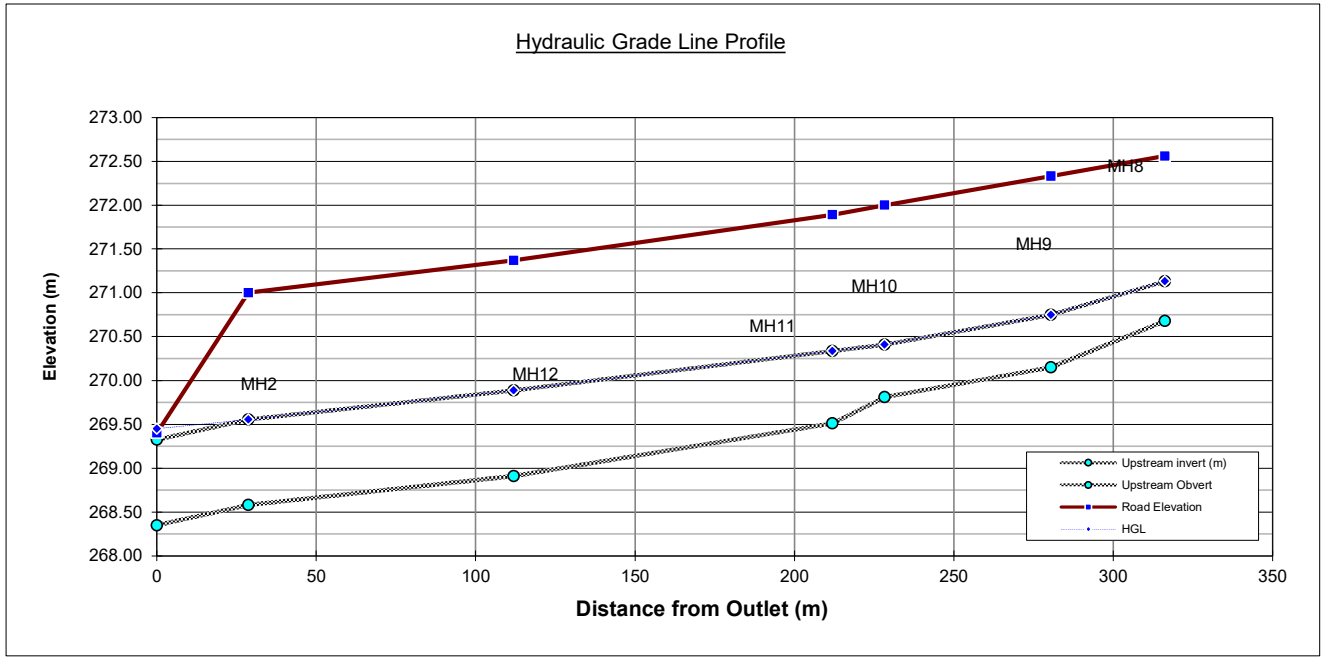
Time (min)	25 Year Intensity mm/hr	25 Year Inflow m^3/s	25 Year Outflow m^3/s	25 Year Storage m^3	Difference	50 Year Intensity mm/hr	50 Year Inflow m^3/s	50 Year Outflow m^3/s	50 Year Storage m^3	Difference	100 Year Intensity mm/hr	100 Year Inflow m^3/s	100 Year Outflow m^3/s	100 Year Storage m^3	Difference
1	298.22	2.022	0.344	8	84	334.55	2.426	0.416	8	100	353.96	2.566	0.456	3	108
2	264.99	1.796	0.344	92	66	296.30	2.148	0.416	108	78	316.38	2.294	0.456	111	85
3	239.26	1.622	0.344	158	53	266.91	1.935	0.416	186	63	286.90	2.080	0.456	196	70
4	218.67	1.482	0.344	211	44	243.52	1.766	0.416	249	52	263.10	1.907	0.456	266	58
5	201.77	1.368	0.344	256	37	224.41	1.627	0.416	301	44	243.43	1.765	0.456	324	49
6	187.63	1.272	0.344	293	32	208.47	1.511	0.416	344	37	226.85	1.645	0.456	373	42
7	175.59	1.190	0.344	324	27	194.94	1.413	0.416	381	32	212.68	1.542	0.456	415	36
8	165.20	1.120	0.344	352	24	183.29	1.329	0.416	413	28	200.41	1.453	0.456	451	31
9	156.14	1.058	0.344	375	21	173.15	1.255	0.416	441	24	189.66	1.375	0.456	482	27
10	148.15	1.004	0.344	396	18	164.22	1.191	0.416	465	21	180.15	1.306	0.456	510	24
11	141.05	0.956	0.344	414	16	156.30	1.133	0.416	486	19	171.69	1.245	0.456	534	21
12	134.69	0.913	0.344	430	14	149.22	1.082	0.416	504	16	164.09	1.190	0.456	555	19
13	128.97	0.874	0.344	445	13	142.84	1.036	0.416	521	14	157.23	1.140	0.456	574	17
14	123.77	0.839	0.344	457	11	137.07	0.994	0.416	535	13	151.00	1.095	0.456	591	15
15	119.04	0.807	0.344	468	10	131.81	0.956	0.416	548	11	145.31	1.053	0.456	606	13
16	114.71	0.778	0.344	478	9	127.00	0.921	0.416	559	10	140.09	1.016	0.456	619	12
17	110.72	0.751	0.344	487	8	122.58	0.889	0.416	569	9	135.29	0.981	0.456	631	10
18	107.05	0.726	0.344	495	7	118.50	0.859	0.416	578	8	130.86	0.949	0.456	641	9
19	103.64	0.703	0.344	502	6	114.72	0.832	0.416	586	7	126.75	0.919	0.456	650	8
20	100.48	0.681	0.344	508	5	111.22	0.806	0.416	593	6	122.92	0.891	0.456	659	7
21	97.53	0.661	0.344	513	5	107.95	0.783	0.416	599	5	119.35	0.865	0.456	666	6
22	94.78	0.642	0.344	518	4	104.90	0.761	0.416	604	5	116.02	0.841	0.456	672	5
23	92.19	0.625	0.344	522	4	102.04	0.740	0.416	609	4	112.89	0.818	0.456	678	5
24	89.77	0.609	0.344	525	3	99.36	0.720	0.416	613	3	109.95	0.797	0.456	682	4
25	87.49	0.593	0.344	528	3	96.84	0.702	0.416	616	3	107.18	0.777	0.456	686	3
26	85.34	0.579	0.344	531	2	94.46	0.685	0.416	619	2	104.57	0.758	0.456	690	3
27	83.31	0.565	0.344	533	2	92.21	0.669	0.416	621	2	102.10	0.740	0.456	693	2
28	81.39	0.552	0.344	535	1	90.09	0.653	0.416	623	1	99.76	0.723	0.456	695	2
29	79.56	0.539	0.344	536	1	88.07	0.639	0.416	624	1	97.55	0.707	0.456	696	1
30	77.83	0.528	0.344	537	1	86.16	0.625	0.416	625	0	95.44	0.692	0.456	698	1
31	76.19	0.516	0.344	537	0	84.34	0.611	0.416	626	0	93.44	0.677	0.456	699	0
32	74.62	0.506	0.344	538	0	82.61	0.599	0.416	626	0	91.53	0.664	0.456	699	0
33	73.13	0.496	0.344	538	0	80.96	0.587	0.416	625	-1	89.71	0.650	0.456	699	0
34	71.70	0.486	0.344	537	-1	79.38	0.576	0.416	625	-1	87.97	0.638	0.456	699	-1
35	70.33	0.477	0.344	537	-1	77.87	0.565	0.416	624	-1	86.31	0.626	0.456	698	-1
36	69.03	0.468	0.344	536	-1	76.43	0.554	0.416	623	-1	84.71	0.614	0.456	697	-1
37	67.78	0.459	0.344	535	-1	75.05	0.544	0.416	621	-2	83.19	0.603	0.456	695	-2
38	66.58	0.451	0.344	534	-1	73.73	0.535	0.416	620	-2	81.73	0.593	0.456	694	-2
39	65.43	0.444	0.344	532	-2	72.46	0.525	0.416	618	-2	80.32	0.582	0.456	692	-2
40	64.32	0.436	0.344	530	-2	71.24	0.516	0.416	615	-2	78.97	0.573	0.456	689	-3
41	63.26	0.429	0.344	529	-2	70.06	0.508	0.416	613	-3	77.67	0.563	0.456	687	-3
42	62.24	0.422	0.344	526	-2	68.93	0.500	0.416	610	-3	76.42	0.554	0.456	684	-3
43	61.25	0.415	0.344	524	-2	67.84	0.492	0.416	608	-3	75.22	0.545	0.456	681	-3
44	60.30	0.409	0.344	522	-3	66.80	0.484	0.416	604	-3	74.05	0.537	0.456	678	-3
45	59.39	0.403	0.344	519	-3	65.78	0.477	0.416	601	-3	72.93	0.529	0.456	675	-4

: Maximum Storage Volume

PEARSON ENGINEERING

80 Big Bay Point Road
Hydraulic Grade Line Calculations

STORM SEWER		LOCATION					FLOW						CONDITIONS				
MANHOLES		INVERT ELEV		GROUND	COVER	BASEMENT	FLOOD	PIPE PARAMETERS			TOTAL	HGL	Pipe	Q-cap	Qin/	Surch.	HGL(U/S)	HGL(D/S)
U/S	D/S	U/S	D/S	U/S	U/S	U/S	U/S	Diam	Length	'n'	FLOW	Below	Status		Qcap	(U/S)	(m)	(m)
		(m)	(m)	(m)	(m)	(m)	(m)	(mm)	(m)		(cms)	Grade		(cms)		(m)	269.45	<= outlet
MH2	POND	268.58	268.35	271.00				975	28.70	0.013	1.950	1.445	II	2.005	0.97	0.00	269.56	269.45
MH12	MH2	268.91	268.65	271.37				975	83.20	0.013	1.100	1.485	II	1.228	0.90	0.00	269.89	269.63
MH11	MH12	269.51	269.11	271.89				825	100.00	0.013	0.800	1.555	II	0.908	0.88	0.00	270.34	269.94
MH10	MH11	269.81	269.73	272.00				600	16.40	0.013	0.390	1.590	II	0.434	0.90	0.00	270.41	270.34
MH9	MH10	270.15	269.89	272.33				600	52.10	0.013	0.290	1.580	II	0.434	0.67	0.00	270.75	270.49
MH8	MH9	270.68	270.44	272.56				450	35.80	0.013	0.110	1.430	II	0.230	0.48	0.00	271.13	270.89



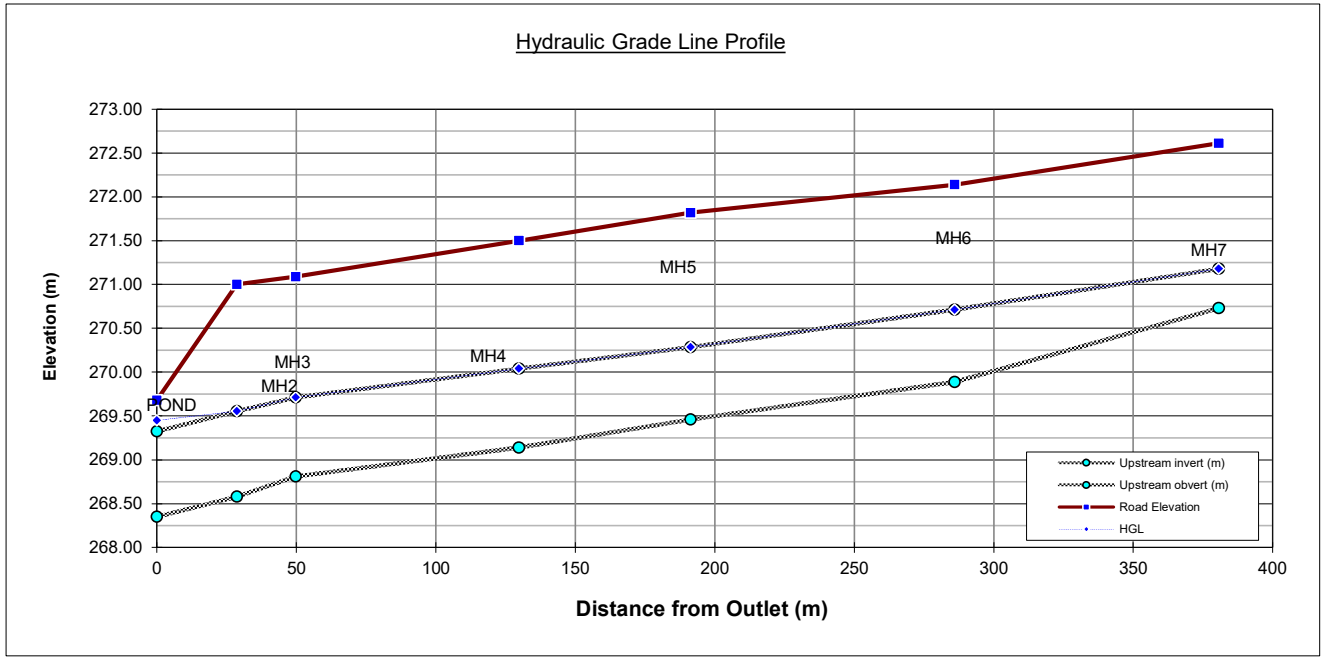
Notes:

1. Pipe Status is as follows:
   - *I = surcharged
   - *II = not surcharged

PEARSON ENGINEERING

80 Big Bay Point Road
Hydraulic Grade Line Calculations

STORM SEWER		LOCATION					FLOW						CONDITIONS				
MANHOLES		INVERT ELEV		GROUND	COVER	BASEMENT	FLOOD	PIPE PARAMETERS			TOTAL	HGL	Pipe	Q-cap	Qin/	Surch.	HGL(U/S)	HGL(D/S)
U/S	D/S	U/S	D/S	U/S	U/S	U/S	U/S	Diam	Length	'n'	FLOW	Below	Status		Qcap	(U/S)	(m)	(m)
		(m)	(m)	(m)	(m)	(m)	(m)	(mm)	(m)		(cms)	Grade		(cms)		(m)	269.45	<= outlet
MH2	POND	268.58	268.35	271.00				975	28.70	0.013	1.950	1.445	II	2.005	0.97	0.00	269.56	269.45
MH3	MH2	268.81	268.75	271.09				900	21.10	0.013	0.950	1.380	II	0.992	0.96	0.00	269.71	269.65
MH4	MH3	269.14	268.89	271.50				900	80.00	0.013	0.920	1.460	II	0.992	0.93	0.00	270.04	269.79
MH5	MH4	269.46	269.21	271.82				825	61.50	0.013	0.580	1.535	II	0.908	0.64	0.00	270.29	270.04
MH6	MH5	269.89	269.61	272.14				825	94.70	0.013	0.630	1.425	II	0.790	0.80	0.00	270.72	270.44
MH7	MH6	270.73	270.26	272.61				450	94.70	0.013	0.170	1.430	II	0.202	0.84	0.00	271.18	270.72



Notes:

1. Pipe Status is as follows:
   - *I = surcharged
   - *II = not surcharged

Appendix D

Pre-Development Visual OTTHYMO Modeling

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================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\386f262e-0b40-4cbe-b05c-36b91209ab28\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\386f262e-0b40-4cbe-b05c-36b91209ab28\scena


DATE: 02-14-2023                              TIME: 04:24:40

USER:



COMMENTS: _____________________________________________________________________

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



--------------------
|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\ccec70cc
| Ptotal= 25.00 mm |    Comments: 25mm4hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    2.07 |  1.00    5.70 |  2.00    5.19 |  3.00    2.80
                0.17    2.27 |  1.17   10.78 |  2.17    4.47 |  3.17    2.62
                0.33    2.52 |  1.33   50.21 |  2.33    3.95 |  3.33    2.48
                0.50    2.88 |  1.50   13.37 |  2.50    3.56 |  3.50    2.35
                0.67    3.38 |  1.67    8.29 |  2.67    3.25 |  3.67    2.23
                0.83    4.18 |  1.83    6.30 |  2.83    3.01 |  3.83    2.14

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--------------------
| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.04   Curve Number   (CN)= 53.8
```

|ID= 1 DT= 7.0 min | Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.41

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	2.07	1.167	5.70	2.217	4.88	3.27	2.65
0.233	2.18	1.283	10.78	2.333	4.47	3.38	2.56
0.350	2.30	1.400	33.31	2.450	3.95	3.50	2.48
0.467	2.52	1.517	44.95	2.567	3.73	3.62	2.35
0.583	2.78	1.633	13.37	2.683	3.52	3.73	2.28
0.700	3.02	1.750	9.74	2.800	3.25	3.85	2.22
0.817	3.38	1.867	7.72	2.917	3.08	3.97	2.14
0.933	4.06	1.983	6.30	3.033	2.95		
1.050	4.83	2.100	5.35	3.150	2.80		

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.006 (i)
TIME TO PEAK (hrs)= 2.100
RUNOFF VOLUME (mm)= 1.360
TOTAL RAINFALL (mm)= 24.925
RUNOFF COEFFICIENT = 0.055

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

| CALIB |
| NASHYD (0100)| Area (ha)= 9.78 Curve Number (CN)= 51.2
|ID= 1 DT= 7.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.68

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	2.07	1.167	5.70	2.217	4.88	3.27	2.65
0.233	2.18	1.283	10.78	2.333	4.47	3.38	2.56
0.350	2.30	1.400	33.31	2.450	3.95	3.50	2.48
0.467	2.52	1.517	44.95	2.567	3.73	3.62	2.35
0.583	2.78	1.633	13.37	2.683	3.52	3.73	2.28
0.700	3.02	1.750	9.74	2.800	3.25	3.85	2.22
0.817	3.38	1.867	7.72	2.917	3.08	3.97	2.14
0.933	4.06	1.983	6.30	3.033	2.95		
1.050	4.83	2.100	5.35	3.150	2.80		

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.011 (i)
TIME TO PEAK (hrs)= 2.800
RUNOFF VOLUME (mm)= 1.103
TOTAL RAINFALL (mm)= 24.925
RUNOFF COEFFICIENT = 0.044

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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  Summary  filename: C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\c0e417c2-5fba-48ac-8346-8948a01c5835\scena


DATE: 02-14-2023                          TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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



--------------------
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|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\da838833
| Ptotal= 55.00 mm |    Comments: 2yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.55 |  6.00    1.10 | 12.00    7.92 | 18.00    0.99
                0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
                0.50    0.55 |  6.50    1.10 | 12.50    4.07 | 18.50    0.99
                0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
                1.00    0.55 |  7.00    1.10 | 13.00    0.77 | 19.00    0.99
                1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
                1.50    0.55 |  7.50    1.10 | 13.50    4.51 | 19.50    0.99
                1.75    0.99 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
                2.00    0.71 |  8.00    1.49 | 14.00    1.65 | 20.00    0.66
                2.25    0.71 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
                2.50    0.71 |  8.50    1.49 | 14.50    1.65 | 20.50    0.66
                2.75    0.71 |  8.75    1.49 | 14.75    1.65 | 20.75    0.66
```

3.00	0.71	9.00	1.76	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.98	15.50	1.65	21.50	0.66
3.75	0.71	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.88	10.00	2.53	16.00	0.99	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	3.41	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	5.28	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	22.88	17.50	0.99	23.50	0.66
5.75	0.88	11.75	60.72	17.75	0.99	23.75	0.66

CALIB			
NASHYD (0101)	Area (ha)=	3.04	Curve Number (CN)= 53.8
ID= 1 DT= 7.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.41	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.55	6.183	1.10	12.250	7.92	18.32	0.99
0.233	0.55	6.300	1.10	12.367	7.92	18.43	0.99
0.350	0.55	6.417	1.10	12.483	7.92	18.55	0.99
0.467	0.55	6.533	1.10	12.600	4.62	18.67	0.99
0.583	0.55	6.650	1.10	12.717	4.07	18.78	0.99
0.700	0.55	6.767	1.10	12.833	4.07	18.90	0.99
0.817	0.55	6.883	1.10	12.950	4.07	19.02	0.99
0.933	0.55	7.000	1.10	13.067	2.18	19.13	0.99
1.050	0.55	7.117	1.10	13.183	0.77	19.25	0.99
1.167	0.55	7.233	1.10	13.300	0.77	19.37	0.99
1.283	0.55	7.350	1.10	13.417	0.77	19.48	0.99
1.400	0.55	7.467	1.10	13.533	1.84	19.60	0.99
1.517	0.55	7.583	1.10	13.650	4.51	19.72	0.99
1.633	0.55	7.700	1.10	13.767	4.51	19.83	0.99
1.750	0.55	7.817	1.10	13.883	4.51	19.95	0.99
1.867	0.99	7.933	1.10	14.000	4.51	20.07	0.80
1.983	0.99	8.050	1.27	14.117	1.65	20.18	0.66
2.100	0.75	8.167	1.49	14.233	1.65	20.30	0.66
2.217	0.71	8.283	1.49	14.350	1.65	20.42	0.66
2.333	0.71	8.400	1.49	14.467	1.65	20.53	0.66
2.450	0.71	8.517	1.49	14.583	1.65	20.65	0.66
2.567	0.71	8.633	1.49	14.700	1.65	20.77	0.66
2.683	0.71	8.750	1.49	14.817	1.65	20.88	0.66
2.800	0.71	8.867	1.49	14.933	1.65	21.00	0.66
2.917	0.71	8.983	1.49	15.050	1.65	21.12	0.66
3.033	0.71	9.100	1.72	15.167	1.65	21.23	0.66
3.150	0.71	9.217	1.76	15.283	1.65	21.35	0.66
3.267	0.71	9.333	1.76	15.400	1.65	21.47	0.66
3.383	0.71	9.450	1.76	15.517	1.65	21.58	0.66
3.500	0.71	9.567	1.89	15.633	1.65	21.70	0.66
3.617	0.71	9.683	1.98	15.750	1.65	21.82	0.66
3.733	0.71	9.800	1.98	15.867	1.65	21.93	0.66
3.850	0.71	9.917	1.98	15.983	1.65	22.05	0.66
3.967	0.71	10.033	2.14	16.100	1.08	22.17	0.66
4.083	0.83	10.150	2.53	16.217	0.99	22.28	0.66
4.200	0.88	10.267	2.53	16.333	0.99	22.40	0.66
4.317	0.88	10.383	2.53	16.450	0.99	22.52	0.66

4.433	0.88	10.500	2.53	16.567	0.99	22.63	0.66
4.550	0.88	10.617	3.41	16.683	0.99	22.75	0.66
4.667	0.88	10.733	3.41	16.800	0.99	22.87	0.66
4.783	0.88	10.850	3.41	16.917	0.99	22.98	0.66
4.900	0.88	10.967	3.41	17.033	0.99	23.10	0.66
5.017	0.88	11.083	4.75	17.150	0.99	23.22	0.66
5.133	0.88	11.200	5.28	17.267	0.99	23.33	0.66
5.250	0.88	11.317	5.28	17.383	0.99	23.45	0.66
5.367	0.88	11.433	5.28	17.500	0.99	23.57	0.66
5.483	0.88	11.550	12.82	17.617	0.99	23.68	0.66
5.600	0.88	11.667	22.88	17.733	0.99	23.80	0.66
5.717	0.88	11.783	33.69	17.850	0.99	23.92	0.66
5.833	0.88	11.900	60.72	17.967	0.99	24.03	0.47
5.950	0.88	12.017	53.17	18.083	0.99		
6.067	1.01	12.133	7.92	18.200	0.99		

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.037 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 8.654
TOTAL RAINFALL (mm)= 55.000
RUNOFF COEFFICIENT = 0.157

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

CALIB NASHYD (0100) ID= 1 DT= 7.0 min	Area (ha)= 9.78	Curve Number (CN)= 51.2
	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.68	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.55	6.183	1.10	12.250	7.92	18.32	0.99
0.233	0.55	6.300	1.10	12.367	7.92	18.43	0.99
0.350	0.55	6.417	1.10	12.483	7.92	18.55	0.99
0.467	0.55	6.533	1.10	12.600	4.62	18.67	0.99
0.583	0.55	6.650	1.10	12.717	4.07	18.78	0.99
0.700	0.55	6.767	1.10	12.833	4.07	18.90	0.99
0.817	0.55	6.883	1.10	12.950	4.07	19.02	0.99
0.933	0.55	7.000	1.10	13.067	2.18	19.13	0.99
1.050	0.55	7.117	1.10	13.183	0.77	19.25	0.99
1.167	0.55	7.233	1.10	13.300	0.77	19.37	0.99
1.283	0.55	7.350	1.10	13.417	0.77	19.48	0.99
1.400	0.55	7.467	1.10	13.533	1.84	19.60	0.99
1.517	0.55	7.583	1.10	13.650	4.51	19.72	0.99
1.633	0.55	7.700	1.10	13.767	4.51	19.83	0.99
1.750	0.55	7.817	1.10	13.883	4.51	19.95	0.99
1.867	0.99	7.933	1.10	14.000	4.51	20.07	0.80
1.983	0.99	8.050	1.27	14.117	1.65	20.18	0.66
2.100	0.75	8.167	1.49	14.233	1.65	20.30	0.66
2.217	0.71	8.283	1.49	14.350	1.65	20.42	0.66
2.333	0.71	8.400	1.49	14.467	1.65	20.53	0.66
2.450	0.71	8.517	1.49	14.583	1.65	20.65	0.66
2.567	0.71	8.633	1.49	14.700	1.65	20.77	0.66
2.683	0.71	8.750	1.49	14.817	1.65	20.88	0.66
2.800	0.71	8.867	1.49	14.933	1.65	21.00	0.66
2.917	0.71	8.983	1.49	15.050	1.65	21.12	0.66

3.033	0.71	9.100	1.72	15.167	1.65	21.23	0.66
3.150	0.71	9.217	1.76	15.283	1.65	21.35	0.66
3.267	0.71	9.333	1.76	15.400	1.65	21.47	0.66
3.383	0.71	9.450	1.76	15.517	1.65	21.58	0.66
3.500	0.71	9.567	1.89	15.633	1.65	21.70	0.66
3.617	0.71	9.683	1.98	15.750	1.65	21.82	0.66
3.733	0.71	9.800	1.98	15.867	1.65	21.93	0.66
3.850	0.71	9.917	1.98	15.983	1.65	22.05	0.66
3.967	0.71	10.033	2.14	16.100	1.08	22.17	0.66
4.083	0.83	10.150	2.53	16.217	0.99	22.28	0.66
4.200	0.88	10.267	2.53	16.333	0.99	22.40	0.66
4.317	0.88	10.383	2.53	16.450	0.99	22.52	0.66
4.433	0.88	10.500	2.53	16.567	0.99	22.63	0.66
4.550	0.88	10.617	3.41	16.683	0.99	22.75	0.66
4.667	0.88	10.733	3.41	16.800	0.99	22.87	0.66
4.783	0.88	10.850	3.41	16.917	0.99	22.98	0.66
4.900	0.88	10.967	3.41	17.033	0.99	23.10	0.66
5.017	0.88	11.083	4.75	17.150	0.99	23.22	0.66
5.133	0.88	11.200	5.28	17.267	0.99	23.33	0.66
5.250	0.88	11.317	5.28	17.383	0.99	23.45	0.66
5.367	0.88	11.433	5.28	17.500	0.99	23.57	0.66
5.483	0.88	11.550	12.82	17.617	0.99	23.68	0.66
5.600	0.88	11.667	22.88	17.733	0.99	23.80	0.66
5.717	0.88	11.783	33.69	17.850	0.99	23.92	0.66
5.833	0.88	11.900	60.72	17.967	0.99	24.03	0.47
5.950	0.88	12.017	53.17	18.083	0.99		
6.067	1.01	12.133	7.92	18.200	0.99		

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 12.600
RUNOFF VOLUME (mm)= 7.635
TOTAL RAINFALL (mm)= 55.000
RUNOFF COEFFICIENT = 0.139

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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bc65-cae9f2f5b353\b57e38d1-ba72-46f4-846b-ed8a57d5255c\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\b57e38d1-ba72-46f4-846b-ed8a57d5255c\scena


DATE: 02-14-2023                              TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\e4c83a55
| Ptotal= 76.00 mm |    Comments: 5yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.76 |  6.00    1.52 | 12.00   10.94 | 18.00    1.37
                0.25    0.76 |  6.25    1.52 | 12.25   10.94 | 18.25    1.37
                0.50    0.76 |  6.50    1.52 | 12.50    5.62 | 18.50    1.37
                0.75    0.76 |  6.75    1.52 | 12.75    5.62 | 18.75    1.37
                1.00    0.76 |  7.00    1.52 | 13.00    1.06 | 19.00    1.37
                1.25    0.76 |  7.25    1.52 | 13.25    1.06 | 19.25    1.37
                1.50    0.76 |  7.50    1.52 | 13.50    6.23 | 19.50    1.37
                1.75    1.37 |  7.75    1.52 | 13.75    6.23 | 19.75    1.37
                2.00    0.99 |  8.00    2.05 | 14.00    2.28 | 20.00    0.91
                2.25    0.99 |  8.25    2.05 | 14.25    2.28 | 20.25    0.91
                2.50    0.99 |  8.50    2.05 | 14.50    2.28 | 20.50    0.91
                2.75    0.99 |  8.75    2.05 | 14.75    2.28 | 20.75    0.91
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3.00	0.99	9.00	2.43	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.74	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	1.22	10.00	3.50	16.00	1.37	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	4.71	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	7.30	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	31.62	17.50	1.37	23.50	0.91
5.75	1.22	11.75	83.90	17.75	1.37	23.75	0.91

CALIB			
NASHYD (0101)	Area (ha)=	3.04	Curve Number (CN)= 53.8
ID= 1 DT= 7.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.41	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.76	6.183	1.52	12.250	10.94	18.32	1.37
0.233	0.76	6.300	1.52	12.367	10.94	18.43	1.37
0.350	0.76	6.417	1.52	12.483	10.94	18.55	1.37
0.467	0.76	6.533	1.52	12.600	6.38	18.67	1.37
0.583	0.76	6.650	1.52	12.717	5.62	18.78	1.37
0.700	0.76	6.767	1.52	12.833	5.62	18.90	1.37
0.817	0.76	6.883	1.52	12.950	5.62	19.02	1.37
0.933	0.76	7.000	1.52	13.067	3.02	19.13	1.37
1.050	0.76	7.117	1.52	13.183	1.06	19.25	1.37
1.167	0.76	7.233	1.52	13.300	1.06	19.37	1.37
1.283	0.76	7.350	1.52	13.417	1.06	19.48	1.37
1.400	0.76	7.467	1.52	13.533	2.54	19.60	1.37
1.517	0.76	7.583	1.52	13.650	6.23	19.72	1.37
1.633	0.76	7.700	1.52	13.767	6.23	19.83	1.37
1.750	0.76	7.817	1.52	13.883	6.23	19.95	1.37
1.867	1.37	7.933	1.52	14.000	6.23	20.07	1.11
1.983	1.37	8.050	1.75	14.117	2.28	20.18	0.91
2.100	1.04	8.167	2.05	14.233	2.28	20.30	0.91
2.217	0.99	8.283	2.05	14.350	2.28	20.42	0.91
2.333	0.99	8.400	2.05	14.467	2.28	20.53	0.91
2.450	0.99	8.517	2.05	14.583	2.28	20.65	0.91
2.567	0.99	8.633	2.05	14.700	2.28	20.77	0.91
2.683	0.99	8.750	2.05	14.817	2.28	20.88	0.91
2.800	0.99	8.867	2.05	14.933	2.28	21.00	0.91
2.917	0.99	8.983	2.05	15.050	2.28	21.12	0.91
3.033	0.99	9.100	2.38	15.167	2.28	21.23	0.91
3.150	0.99	9.217	2.43	15.283	2.28	21.35	0.91
3.267	0.99	9.333	2.43	15.400	2.28	21.47	0.91
3.383	0.99	9.450	2.43	15.517	2.28	21.58	0.91
3.500	0.99	9.567	2.61	15.633	2.28	21.70	0.91
3.617	0.99	9.683	2.74	15.750	2.28	21.82	0.91
3.733	0.99	9.800	2.74	15.867	2.28	21.93	0.91
3.850	0.99	9.917	2.74	15.983	2.28	22.05	0.91
3.967	0.99	10.033	2.95	16.100	1.50	22.17	0.91
4.083	1.15	10.150	3.50	16.217	1.37	22.28	0.91
4.200	1.22	10.267	3.50	16.333	1.37	22.40	0.91
4.317	1.22	10.383	3.50	16.450	1.37	22.52	0.91

4.433	1.22	10.500	3.50	16.567	1.37	22.63	0.91
4.550	1.22	10.617	4.71	16.683	1.37	22.75	0.91
4.667	1.22	10.733	4.71	16.800	1.37	22.87	0.91
4.783	1.22	10.850	4.71	16.917	1.37	22.98	0.91
4.900	1.22	10.967	4.71	17.033	1.37	23.10	0.91
5.017	1.22	11.083	6.56	17.150	1.37	23.22	0.91
5.133	1.22	11.200	7.30	17.267	1.37	23.33	0.91
5.250	1.22	11.317	7.30	17.383	1.37	23.45	0.91
5.367	1.22	11.433	7.30	17.500	1.37	23.57	0.91
5.483	1.22	11.550	17.72	17.617	1.37	23.68	0.91
5.600	1.22	11.667	31.62	17.733	1.37	23.80	0.91
5.717	1.22	11.783	46.56	17.850	1.37	23.92	0.91
5.833	1.22	11.900	83.90	17.967	1.37	24.03	0.65
5.950	1.22	12.017	73.48	18.083	1.37		
6.067	1.39	12.133	10.94	18.200	1.37		

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.072 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 16.575
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.218

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

CALIB NASHYD (0100) ID= 1 DT= 7.0 min	Area (ha)= 9.78	Curve Number (CN)= 51.2
	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.68	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.76	6.183	1.52	12.250	10.94	18.32	1.37
0.233	0.76	6.300	1.52	12.367	10.94	18.43	1.37
0.350	0.76	6.417	1.52	12.483	10.94	18.55	1.37
0.467	0.76	6.533	1.52	12.600	6.38	18.67	1.37
0.583	0.76	6.650	1.52	12.717	5.62	18.78	1.37
0.700	0.76	6.767	1.52	12.833	5.62	18.90	1.37
0.817	0.76	6.883	1.52	12.950	5.62	19.02	1.37
0.933	0.76	7.000	1.52	13.067	3.02	19.13	1.37
1.050	0.76	7.117	1.52	13.183	1.06	19.25	1.37
1.167	0.76	7.233	1.52	13.300	1.06	19.37	1.37
1.283	0.76	7.350	1.52	13.417	1.06	19.48	1.37
1.400	0.76	7.467	1.52	13.533	2.54	19.60	1.37
1.517	0.76	7.583	1.52	13.650	6.23	19.72	1.37
1.633	0.76	7.700	1.52	13.767	6.23	19.83	1.37
1.750	0.76	7.817	1.52	13.883	6.23	19.95	1.37
1.867	1.37	7.933	1.52	14.000	6.23	20.07	1.11
1.983	1.37	8.050	1.75	14.117	2.28	20.18	0.91
2.100	1.04	8.167	2.05	14.233	2.28	20.30	0.91
2.217	0.99	8.283	2.05	14.350	2.28	20.42	0.91
2.333	0.99	8.400	2.05	14.467	2.28	20.53	0.91
2.450	0.99	8.517	2.05	14.583	2.28	20.65	0.91
2.567	0.99	8.633	2.05	14.700	2.28	20.77	0.91
2.683	0.99	8.750	2.05	14.817	2.28	20.88	0.91
2.800	0.99	8.867	2.05	14.933	2.28	21.00	0.91
2.917	0.99	8.983	2.05	15.050	2.28	21.12	0.91

3.033	0.99	9.100	2.38	15.167	2.28	21.23	0.91
3.150	0.99	9.217	2.43	15.283	2.28	21.35	0.91
3.267	0.99	9.333	2.43	15.400	2.28	21.47	0.91
3.383	0.99	9.450	2.43	15.517	2.28	21.58	0.91
3.500	0.99	9.567	2.61	15.633	2.28	21.70	0.91
3.617	0.99	9.683	2.74	15.750	2.28	21.82	0.91
3.733	0.99	9.800	2.74	15.867	2.28	21.93	0.91
3.850	0.99	9.917	2.74	15.983	2.28	22.05	0.91
3.967	0.99	10.033	2.95	16.100	1.50	22.17	0.91
4.083	1.15	10.150	3.50	16.217	1.37	22.28	0.91
4.200	1.22	10.267	3.50	16.333	1.37	22.40	0.91
4.317	1.22	10.383	3.50	16.450	1.37	22.52	0.91
4.433	1.22	10.500	3.50	16.567	1.37	22.63	0.91
4.550	1.22	10.617	4.71	16.683	1.37	22.75	0.91
4.667	1.22	10.733	4.71	16.800	1.37	22.87	0.91
4.783	1.22	10.850	4.71	16.917	1.37	22.98	0.91
4.900	1.22	10.967	4.71	17.033	1.37	23.10	0.91
5.017	1.22	11.083	6.56	17.150	1.37	23.22	0.91
5.133	1.22	11.200	7.30	17.267	1.37	23.33	0.91
5.250	1.22	11.317	7.30	17.383	1.37	23.45	0.91
5.367	1.22	11.433	7.30	17.500	1.37	23.57	0.91
5.483	1.22	11.550	17.72	17.617	1.37	23.68	0.91
5.600	1.22	11.667	31.62	17.733	1.37	23.80	0.91
5.717	1.22	11.783	46.56	17.850	1.37	23.92	0.91
5.833	1.22	11.900	83.90	17.967	1.37	24.03	0.65
5.950	1.22	12.017	73.48	18.083	1.37		
6.067	1.39	12.133	10.94	18.200	1.37		

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.145 (i)
TIME TO PEAK (hrs)= 12.600
RUNOFF VOLUME (mm)= 14.903
TOTAL RAINFALL (mm)= 76.000
RUNOFF COEFFICIENT = 0.196

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 02-14-2023                              TIME: 04:24:40

USER:



COMMENTS: _____________________________________________________________


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



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|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\f87d32fb
| Ptotal= 89.90 mm |    Comments: 10yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.90 |  6.00    1.80 | 12.00   12.95 | 18.00    1.62
                0.25    0.90 |  6.25    1.80 | 12.25   12.95 | 18.25    1.62
                0.50    0.90 |  6.50    1.80 | 12.50    6.65 | 18.50    1.62
                0.75    0.90 |  6.75    1.80 | 12.75    6.65 | 18.75    1.62
                1.00    0.90 |  7.00    1.80 | 13.00    1.26 | 19.00    1.62
                1.25    0.90 |  7.25    1.80 | 13.25    1.26 | 19.25    1.62
                1.50    0.90 |  7.50    1.80 | 13.50    7.37 | 19.50    1.62
                1.75    1.62 |  7.75    1.80 | 13.75    7.37 | 19.75    1.62
                2.00    1.17 |  8.00    2.43 | 14.00    2.70 | 20.00    1.08
                2.25    1.17 |  8.25    2.43 | 14.25    2.70 | 20.25    1.08
                2.50    1.17 |  8.50    2.43 | 14.50    2.70 | 20.50    1.08
                2.75    1.17 |  8.75    2.43 | 14.75    2.70 | 20.75    1.08
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3.00	1.17	9.00	2.88	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	3.24	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.44	10.00	4.14	16.00	1.62	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	5.57	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	8.63	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	37.40	17.50	1.62	23.50	1.08
5.75	1.44	11.75	99.25	17.75	1.62	23.75	1.08

CALIB			
NASHYD (0101)	Area (ha)=	3.04	Curve Number (CN)= 53.8
ID= 1 DT= 7.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.41	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.90	6.183	1.80	12.250	12.95	18.32	1.62
0.233	0.90	6.300	1.80	12.367	12.95	18.43	1.62
0.350	0.90	6.417	1.80	12.483	12.95	18.55	1.62
0.467	0.90	6.533	1.80	12.600	7.55	18.67	1.62
0.583	0.90	6.650	1.80	12.717	6.65	18.78	1.62
0.700	0.90	6.767	1.80	12.833	6.65	18.90	1.62
0.817	0.90	6.883	1.80	12.950	6.65	19.02	1.62
0.933	0.90	7.000	1.80	13.067	3.57	19.13	1.62
1.050	0.90	7.117	1.80	13.183	1.26	19.25	1.62
1.167	0.90	7.233	1.80	13.300	1.26	19.37	1.62
1.283	0.90	7.350	1.80	13.417	1.26	19.48	1.62
1.400	0.90	7.467	1.80	13.533	3.01	19.60	1.62
1.517	0.90	7.583	1.80	13.650	7.37	19.72	1.62
1.633	0.90	7.700	1.80	13.767	7.37	19.83	1.62
1.750	0.90	7.817	1.80	13.883	7.37	19.95	1.62
1.867	1.62	7.933	1.80	14.000	7.37	20.07	1.31
1.983	1.62	8.050	2.07	14.117	2.70	20.18	1.08
2.100	1.23	8.167	2.43	14.233	2.70	20.30	1.08
2.217	1.17	8.283	2.43	14.350	2.70	20.42	1.08
2.333	1.17	8.400	2.43	14.467	2.70	20.53	1.08
2.450	1.17	8.517	2.43	14.583	2.70	20.65	1.08
2.567	1.17	8.633	2.43	14.700	2.70	20.77	1.08
2.683	1.17	8.750	2.43	14.817	2.70	20.88	1.08
2.800	1.17	8.867	2.43	14.933	2.70	21.00	1.08
2.917	1.17	8.983	2.43	15.050	2.70	21.12	1.08
3.033	1.17	9.100	2.81	15.167	2.70	21.23	1.08
3.150	1.17	9.217	2.88	15.283	2.70	21.35	1.08
3.267	1.17	9.333	2.88	15.400	2.70	21.47	1.08
3.383	1.17	9.450	2.88	15.517	2.70	21.58	1.08
3.500	1.17	9.567	3.08	15.633	2.70	21.70	1.08
3.617	1.17	9.683	3.24	15.750	2.70	21.82	1.08
3.733	1.17	9.800	3.24	15.867	2.70	21.93	1.08
3.850	1.17	9.917	3.24	15.983	2.70	22.05	1.08
3.967	1.17	10.033	3.49	16.100	1.77	22.17	1.08
4.083	1.36	10.150	4.14	16.217	1.62	22.28	1.08
4.200	1.44	10.267	4.14	16.333	1.62	22.40	1.08
4.317	1.44	10.383	4.14	16.450	1.62	22.52	1.08

4.433	1.44	10.500	4.14	16.567	1.62	22.63	1.08
4.550	1.44	10.617	5.57	16.683	1.62	22.75	1.08
4.667	1.44	10.733	5.57	16.800	1.62	22.87	1.08
4.783	1.44	10.850	5.57	16.917	1.62	22.98	1.08
4.900	1.44	10.967	5.57	17.033	1.62	23.10	1.08
5.017	1.44	11.083	7.76	17.150	1.62	23.22	1.08
5.133	1.44	11.200	8.63	17.267	1.62	23.33	1.08
5.250	1.44	11.317	8.63	17.383	1.62	23.45	1.08
5.367	1.44	11.433	8.63	17.500	1.62	23.57	1.08
5.483	1.44	11.550	20.96	17.617	1.62	23.68	1.08
5.600	1.44	11.667	37.40	17.733	1.62	23.80	1.08
5.717	1.44	11.783	55.07	17.850	1.62	23.92	1.08
5.833	1.44	11.900	99.25	17.967	1.62	24.03	0.77
5.950	1.44	12.017	86.92	18.083	1.62		
6.067	1.64	12.133	12.95	18.200	1.62		

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.100 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 22.820
TOTAL RAINFALL (mm)= 89.900
RUNOFF COEFFICIENT = 0.254

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

CALIB NASHYD (0100) ID= 1 DT= 7.0 min	Area (ha)= 9.78	Curve Number (CN)= 51.2
	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.68	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.90	6.183	1.80	12.250	12.95	18.32	1.62
0.233	0.90	6.300	1.80	12.367	12.95	18.43	1.62
0.350	0.90	6.417	1.80	12.483	12.95	18.55	1.62
0.467	0.90	6.533	1.80	12.600	7.55	18.67	1.62
0.583	0.90	6.650	1.80	12.717	6.65	18.78	1.62
0.700	0.90	6.767	1.80	12.833	6.65	18.90	1.62
0.817	0.90	6.883	1.80	12.950	6.65	19.02	1.62
0.933	0.90	7.000	1.80	13.067	3.57	19.13	1.62
1.050	0.90	7.117	1.80	13.183	1.26	19.25	1.62
1.167	0.90	7.233	1.80	13.300	1.26	19.37	1.62
1.283	0.90	7.350	1.80	13.417	1.26	19.48	1.62
1.400	0.90	7.467	1.80	13.533	3.01	19.60	1.62
1.517	0.90	7.583	1.80	13.650	7.37	19.72	1.62
1.633	0.90	7.700	1.80	13.767	7.37	19.83	1.62
1.750	0.90	7.817	1.80	13.883	7.37	19.95	1.62
1.867	1.62	7.933	1.80	14.000	7.37	20.07	1.31
1.983	1.62	8.050	2.07	14.117	2.70	20.18	1.08
2.100	1.23	8.167	2.43	14.233	2.70	20.30	1.08
2.217	1.17	8.283	2.43	14.350	2.70	20.42	1.08
2.333	1.17	8.400	2.43	14.467	2.70	20.53	1.08
2.450	1.17	8.517	2.43	14.583	2.70	20.65	1.08
2.567	1.17	8.633	2.43	14.700	2.70	20.77	1.08
2.683	1.17	8.750	2.43	14.817	2.70	20.88	1.08
2.800	1.17	8.867	2.43	14.933	2.70	21.00	1.08
2.917	1.17	8.983	2.43	15.050	2.70	21.12	1.08

3.033	1.17	9.100	2.81	15.167	2.70	21.23	1.08
3.150	1.17	9.217	2.88	15.283	2.70	21.35	1.08
3.267	1.17	9.333	2.88	15.400	2.70	21.47	1.08
3.383	1.17	9.450	2.88	15.517	2.70	21.58	1.08
3.500	1.17	9.567	3.08	15.633	2.70	21.70	1.08
3.617	1.17	9.683	3.24	15.750	2.70	21.82	1.08
3.733	1.17	9.800	3.24	15.867	2.70	21.93	1.08
3.850	1.17	9.917	3.24	15.983	2.70	22.05	1.08
3.967	1.17	10.033	3.49	16.100	1.77	22.17	1.08
4.083	1.36	10.150	4.14	16.217	1.62	22.28	1.08
4.200	1.44	10.267	4.14	16.333	1.62	22.40	1.08
4.317	1.44	10.383	4.14	16.450	1.62	22.52	1.08
4.433	1.44	10.500	4.14	16.567	1.62	22.63	1.08
4.550	1.44	10.617	5.57	16.683	1.62	22.75	1.08
4.667	1.44	10.733	5.57	16.800	1.62	22.87	1.08
4.783	1.44	10.850	5.57	16.917	1.62	22.98	1.08
4.900	1.44	10.967	5.57	17.033	1.62	23.10	1.08
5.017	1.44	11.083	7.76	17.150	1.62	23.22	1.08
5.133	1.44	11.200	8.63	17.267	1.62	23.33	1.08
5.250	1.44	11.317	8.63	17.383	1.62	23.45	1.08
5.367	1.44	11.433	8.63	17.500	1.62	23.57	1.08
5.483	1.44	11.550	20.96	17.617	1.62	23.68	1.08
5.600	1.44	11.667	37.40	17.733	1.62	23.80	1.08
5.717	1.44	11.783	55.07	17.850	1.62	23.92	1.08
5.833	1.44	11.900	99.25	17.967	1.62	24.03	0.77
5.950	1.44	12.017	86.92	18.083	1.62		
6.067	1.64	12.133	12.95	18.200	1.62		

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.203 (i)
TIME TO PEAK (hrs)= 12.600
RUNOFF VOLUME (mm)= 20.693
TOTAL RAINFALL (mm)= 89.900
RUNOFF COEFFICIENT = 0.230

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 02-14-2023                              TIME: 04:24:40

USER:



COMMENTS: _____________________________________________________________________

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


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|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\f63ebd89
| Ptotal=107.50 mm |    Comments: 25yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.08 |  6.00    2.15 | 12.00   15.48 | 18.00    1.93
                0.25    1.08 |  6.25    2.15 | 12.25   15.48 | 18.25    1.93
                0.50    1.08 |  6.50    2.15 | 12.50    7.95 | 18.50    1.93
                0.75    1.08 |  6.75    2.15 | 12.75    7.95 | 18.75    1.93
                1.00    1.08 |  7.00    2.15 | 13.00    1.50 | 19.00    1.93
                1.25    1.08 |  7.25    2.15 | 13.25    1.50 | 19.25    1.93
                1.50    1.08 |  7.50    2.15 | 13.50    8.81 | 19.50    1.93
                1.75    1.93 |  7.75    2.15 | 13.75    8.81 | 19.75    1.93
                2.00    1.40 |  8.00    2.90 | 14.00    3.22 | 20.00    1.29
                2.25    1.40 |  8.25    2.90 | 14.25    3.22 | 20.25    1.29
                2.50    1.40 |  8.50    2.90 | 14.50    3.22 | 20.50    1.29
                2.75    1.40 |  8.75    2.90 | 14.75    3.22 | 20.75    1.29
```

3.00	1.40	9.00	3.44	15.00	3.22	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.87	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.72	10.00	4.95	16.00	1.93	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.93	22.25	1.29
4.50	1.72	10.50	6.66	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.66	16.75	1.93	22.75	1.29
5.00	1.72	11.00	10.32	17.00	1.93	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	44.72	17.50	1.93	23.50	1.29
5.75	1.72	11.75	118.68	17.75	1.93	23.75	1.29

CALIB					
NASHYD (0101)	Area	(ha)=	3.04	Curve Number	(CN)= 53.8
ID= 1 DT= 7.0 min	Ia	(mm)=	7.00	# of Linear Res.	(N)= 3.00
	U.H. Tp(hrs)=		0.41		

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	1.08	6.183	2.15	12.250	15.48	18.32	1.94
0.233	1.08	6.300	2.15	12.367	15.48	18.43	1.93
0.350	1.08	6.417	2.15	12.483	15.48	18.55	1.94
0.467	1.07	6.533	2.15	12.600	9.03	18.67	1.93
0.583	1.08	6.650	2.15	12.717	7.95	18.78	1.94
0.700	1.07	6.767	2.15	12.833	7.96	18.90	1.93
0.817	1.08	6.883	2.15	12.950	7.95	19.02	1.94
0.933	1.07	7.000	2.15	13.067	4.27	19.13	1.93
1.050	1.08	7.117	2.15	13.183	1.50	19.25	1.94
1.167	1.07	7.233	2.15	13.300	1.51	19.37	1.93
1.283	1.08	7.350	2.15	13.417	1.50	19.48	1.93
1.400	1.07	7.467	2.15	13.533	3.59	19.60	1.94
1.517	1.08	7.583	2.15	13.650	8.81	19.72	1.93
1.633	1.07	7.700	2.15	13.767	8.82	19.83	1.94
1.750	1.07	7.817	2.15	13.883	8.81	19.95	1.93
1.867	1.94	7.933	2.15	14.000	8.81	20.07	1.57
1.983	1.93	8.050	2.47	14.117	3.22	20.18	1.29
2.100	1.47	8.167	2.90	14.233	3.22	20.30	1.29
2.217	1.40	8.283	2.90	14.350	3.23	20.42	1.29
2.333	1.40	8.400	2.90	14.467	3.22	20.53	1.29
2.450	1.40	8.517	2.90	14.583	3.23	20.65	1.29
2.567	1.40	8.633	2.90	14.700	3.22	20.77	1.29
2.683	1.40	8.750	2.90	14.817	3.23	20.88	1.29
2.800	1.40	8.867	2.90	14.933	3.22	21.00	1.29
2.917	1.40	8.983	2.90	15.050	3.23	21.12	1.29
3.033	1.40	9.100	3.36	15.167	3.22	21.23	1.29
3.150	1.40	9.217	3.44	15.283	3.23	21.35	1.29
3.267	1.40	9.333	3.44	15.400	3.22	21.47	1.29
3.383	1.40	9.450	3.44	15.517	3.23	21.58	1.29
3.500	1.40	9.567	3.69	15.633	3.22	21.70	1.29
3.617	1.40	9.683	3.87	15.750	3.23	21.82	1.29
3.733	1.40	9.800	3.87	15.867	3.22	21.93	1.29
3.850	1.40	9.917	3.87	15.983	3.22	22.05	1.29
3.967	1.40	10.033	4.18	16.100	2.12	22.17	1.29
4.083	1.63	10.150	4.95	16.217	1.93	22.28	1.29
4.200	1.72	10.267	4.95	16.333	1.94	22.40	1.29
4.317	1.72	10.383	4.95	16.450	1.93	22.52	1.29

4.433	1.72	10.500	4.95	16.567	1.94	22.63	1.29
4.550	1.72	10.617	6.66	16.683	1.93	22.75	1.29
4.667	1.72	10.733	6.66	16.800	1.94	22.87	1.29
4.783	1.72	10.850	6.67	16.917	1.93	22.98	1.29
4.900	1.72	10.967	6.66	17.033	1.94	23.10	1.29
5.017	1.72	11.083	9.28	17.150	1.93	23.22	1.29
5.133	1.72	11.200	10.32	17.267	1.94	23.33	1.29
5.250	1.72	11.317	10.32	17.383	1.93	23.45	1.29
5.367	1.72	11.433	10.32	17.500	1.94	23.57	1.29
5.483	1.72	11.550	25.06	17.617	1.93	23.68	1.29
5.600	1.72	11.667	44.72	17.733	1.93	23.80	1.29
5.717	1.72	11.783	65.86	17.850	1.94	23.92	1.29
5.833	1.72	11.900	118.68	17.967	1.93	24.03	0.92
5.950	1.72	12.017	103.93	18.083	1.94		
6.067	1.97	12.133	15.48	18.200	1.93		

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.141 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 31.686
TOTAL RAINFALL (mm)= 107.500
RUNOFF COEFFICIENT = 0.295

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

CALIB			
NASHYD (0100)	Area (ha)= 9.78	Curve Number (CN)= 51.2	
ID= 1 DT= 7.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.68		

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	1.08	6.183	2.15	12.250	15.48	18.32	1.94
0.233	1.08	6.300	2.15	12.367	15.48	18.43	1.93
0.350	1.08	6.417	2.15	12.483	15.48	18.55	1.94
0.467	1.07	6.533	2.15	12.600	9.03	18.67	1.93
0.583	1.08	6.650	2.15	12.717	7.95	18.78	1.94
0.700	1.07	6.767	2.15	12.833	7.96	18.90	1.93
0.817	1.08	6.883	2.15	12.950	7.95	19.02	1.94
0.933	1.07	7.000	2.15	13.067	4.27	19.13	1.93
1.050	1.08	7.117	2.15	13.183	1.50	19.25	1.94
1.167	1.07	7.233	2.15	13.300	1.51	19.37	1.93
1.283	1.08	7.350	2.15	13.417	1.50	19.48	1.93
1.400	1.07	7.467	2.15	13.533	3.59	19.60	1.94
1.517	1.08	7.583	2.15	13.650	8.81	19.72	1.93
1.633	1.07	7.700	2.15	13.767	8.82	19.83	1.94
1.750	1.07	7.817	2.15	13.883	8.81	19.95	1.93
1.867	1.94	7.933	2.15	14.000	8.81	20.07	1.57
1.983	1.93	8.050	2.47	14.117	3.22	20.18	1.29
2.100	1.47	8.167	2.90	14.233	3.22	20.30	1.29
2.217	1.40	8.283	2.90	14.350	3.23	20.42	1.29
2.333	1.40	8.400	2.90	14.467	3.22	20.53	1.29
2.450	1.40	8.517	2.90	14.583	3.23	20.65	1.29
2.567	1.40	8.633	2.90	14.700	3.22	20.77	1.29
2.683	1.40	8.750	2.90	14.817	3.23	20.88	1.29
2.800	1.40	8.867	2.90	14.933	3.22	21.00	1.29
2.917	1.40	8.983	2.90	15.050	3.23	21.12	1.29

3.033	1.40	9.100	3.36	15.167	3.22	21.23	1.29
3.150	1.40	9.217	3.44	15.283	3.23	21.35	1.29
3.267	1.40	9.333	3.44	15.400	3.22	21.47	1.29
3.383	1.40	9.450	3.44	15.517	3.23	21.58	1.29
3.500	1.40	9.567	3.69	15.633	3.22	21.70	1.29
3.617	1.40	9.683	3.87	15.750	3.23	21.82	1.29
3.733	1.40	9.800	3.87	15.867	3.22	21.93	1.29
3.850	1.40	9.917	3.87	15.983	3.22	22.05	1.29
3.967	1.40	10.033	4.18	16.100	2.12	22.17	1.29
4.083	1.63	10.150	4.95	16.217	1.93	22.28	1.29
4.200	1.72	10.267	4.95	16.333	1.94	22.40	1.29
4.317	1.72	10.383	4.95	16.450	1.93	22.52	1.29
4.433	1.72	10.500	4.95	16.567	1.94	22.63	1.29
4.550	1.72	10.617	6.66	16.683	1.93	22.75	1.29
4.667	1.72	10.733	6.66	16.800	1.94	22.87	1.29
4.783	1.72	10.850	6.67	16.917	1.93	22.98	1.29
4.900	1.72	10.967	6.66	17.033	1.94	23.10	1.29
5.017	1.72	11.083	9.28	17.150	1.93	23.22	1.29
5.133	1.72	11.200	10.32	17.267	1.94	23.33	1.29
5.250	1.72	11.317	10.32	17.383	1.93	23.45	1.29
5.367	1.72	11.433	10.32	17.500	1.94	23.57	1.29
5.483	1.72	11.550	25.06	17.617	1.93	23.68	1.29
5.600	1.72	11.667	44.72	17.733	1.93	23.80	1.29
5.717	1.72	11.783	65.86	17.850	1.94	23.92	1.29
5.833	1.72	11.900	118.68	17.967	1.93	24.03	0.92
5.950	1.72	12.017	103.93	18.083	1.94		
6.067	1.97	12.133	15.48	18.200	1.93		

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.288 (i)
TIME TO PEAK (hrs)= 12.600
RUNOFF VOLUME (mm)= 28.971
TOTAL RAINFALL (mm)= 107.500
RUNOFF COEFFICIENT = 0.269

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
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bc65-cae9f2f5b353\c22a1cb3-cc60-4e17-8465-9b560fec89b6\scena


DATE: 02-14-2023                              TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\4cbea1a7
| Ptotal=120.60 mm |    Comments: 50yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.21 |  6.00    2.41 | 12.00   17.37 | 18.00    2.17
                0.25    1.21 |  6.25    2.41 | 12.25   17.37 | 18.25    2.17
                0.50    1.21 |  6.50    2.41 | 12.50    8.92 | 18.50    2.17
                0.75    1.21 |  6.75    2.41 | 12.75    8.92 | 18.75    2.17
                1.00    1.21 |  7.00    2.41 | 13.00    1.69 | 19.00    2.17
                1.25    1.21 |  7.25    2.41 | 13.25    1.69 | 19.25    2.17
                1.50    1.21 |  7.50    2.41 | 13.50    9.89 | 19.50    2.17
                1.75    2.17 |  7.75    2.41 | 13.75    9.89 | 19.75    2.17
                2.00    1.57 |  8.00    3.26 | 14.00    3.62 | 20.00    1.45
                2.25    1.57 |  8.25    3.26 | 14.25    3.62 | 20.25    1.45
                2.50    1.57 |  8.50    3.26 | 14.50    3.62 | 20.50    1.45
                2.75    1.57 |  8.75    3.26 | 14.75    3.62 | 20.75    1.45
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3.00	1.57	9.00	3.86	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	4.34	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.93	10.00	5.55	16.00	2.17	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	7.48	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	11.58	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	50.17	17.50	2.17	23.50	1.45
5.75	1.93	11.75	133.14	17.75	2.17	23.75	1.45

CALIB			
NASHYD (0101)	Area (ha)=	3.04	Curve Number (CN)= 53.8
ID= 1 DT= 7.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.41	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	1.21	6.183	2.41	12.250	17.37	18.32	2.17
0.233	1.21	6.300	2.41	12.367	17.37	18.43	2.17
0.350	1.21	6.417	2.41	12.483	17.37	18.55	2.17
0.467	1.21	6.533	2.41	12.600	10.13	18.67	2.17
0.583	1.21	6.650	2.41	12.717	8.92	18.78	2.17
0.700	1.21	6.767	2.41	12.833	8.92	18.90	2.17
0.817	1.21	6.883	2.41	12.950	8.92	19.02	2.17
0.933	1.21	7.000	2.41	13.067	4.79	19.13	2.17
1.050	1.21	7.117	2.41	13.183	1.69	19.25	2.17
1.167	1.21	7.233	2.41	13.300	1.69	19.37	2.17
1.283	1.21	7.350	2.41	13.417	1.69	19.48	2.17
1.400	1.21	7.467	2.41	13.533	4.03	19.60	2.17
1.517	1.21	7.583	2.41	13.650	9.89	19.72	2.17
1.633	1.21	7.700	2.41	13.767	9.89	19.83	2.17
1.750	1.21	7.817	2.41	13.883	9.89	19.95	2.17
1.867	2.17	7.933	2.41	14.000	9.89	20.07	1.76
1.983	2.17	8.050	2.77	14.117	3.62	20.18	1.45
2.100	1.65	8.167	3.26	14.233	3.62	20.30	1.45
2.217	1.57	8.283	3.26	14.350	3.62	20.42	1.45
2.333	1.57	8.400	3.26	14.467	3.62	20.53	1.45
2.450	1.57	8.517	3.26	14.583	3.62	20.65	1.45
2.567	1.57	8.633	3.26	14.700	3.62	20.77	1.45
2.683	1.57	8.750	3.26	14.817	3.62	20.88	1.45
2.800	1.57	8.867	3.26	14.933	3.62	21.00	1.45
2.917	1.57	8.983	3.26	15.050	3.62	21.12	1.45
3.033	1.57	9.100	3.77	15.167	3.62	21.23	1.45
3.150	1.57	9.217	3.86	15.283	3.62	21.35	1.45
3.267	1.57	9.333	3.86	15.400	3.62	21.47	1.45
3.383	1.57	9.450	3.86	15.517	3.62	21.58	1.45
3.500	1.57	9.567	4.13	15.633	3.62	21.70	1.45
3.617	1.57	9.683	4.34	15.750	3.62	21.82	1.45
3.733	1.57	9.800	4.34	15.867	3.62	21.93	1.45
3.850	1.57	9.917	4.34	15.983	3.62	22.05	1.45
3.967	1.57	10.033	4.69	16.100	2.38	22.17	1.45
4.083	1.83	10.150	5.55	16.217	2.17	22.28	1.45
4.200	1.93	10.267	5.55	16.333	2.17	22.40	1.45
4.317	1.93	10.383	5.55	16.450	2.17	22.52	1.45

4.433	1.93	10.500	5.55	16.567	2.17	22.63	1.45
4.550	1.93	10.617	7.48	16.683	2.17	22.75	1.45
4.667	1.93	10.733	7.48	16.800	2.17	22.87	1.45
4.783	1.93	10.850	7.48	16.917	2.17	22.98	1.45
4.900	1.93	10.967	7.48	17.033	2.17	23.10	1.45
5.017	1.93	11.083	10.41	17.150	2.17	23.22	1.45
5.133	1.93	11.200	11.58	17.267	2.17	23.33	1.45
5.250	1.93	11.317	11.58	17.383	2.17	23.45	1.45
5.367	1.93	11.433	11.58	17.500	2.17	23.57	1.45
5.483	1.93	11.550	28.12	17.617	2.17	23.68	1.45
5.600	1.93	11.667	50.17	17.733	2.17	23.80	1.45
5.717	1.93	11.783	73.88	17.850	2.17	23.92	1.45
5.833	1.93	11.900	133.14	17.967	2.17	24.03	1.03
5.950	1.93	12.017	116.60	18.083	2.17		
6.067	2.21	12.133	17.37	18.200	2.17		

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.174 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 38.886
TOTAL RAINFALL (mm)= 120.600
RUNOFF COEFFICIENT = 0.322

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

CALIB			
NASHYD (0100)	Area (ha)= 9.78	Curve Number (CN)= 51.2	
ID= 1 DT= 7.0 min	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.68		

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	1.21	6.183	2.41	12.250	17.37	18.32	2.17
0.233	1.21	6.300	2.41	12.367	17.37	18.43	2.17
0.350	1.21	6.417	2.41	12.483	17.37	18.55	2.17
0.467	1.21	6.533	2.41	12.600	10.13	18.67	2.17
0.583	1.21	6.650	2.41	12.717	8.92	18.78	2.17
0.700	1.21	6.767	2.41	12.833	8.92	18.90	2.17
0.817	1.21	6.883	2.41	12.950	8.92	19.02	2.17
0.933	1.21	7.000	2.41	13.067	4.79	19.13	2.17
1.050	1.21	7.117	2.41	13.183	1.69	19.25	2.17
1.167	1.21	7.233	2.41	13.300	1.69	19.37	2.17
1.283	1.21	7.350	2.41	13.417	1.69	19.48	2.17
1.400	1.21	7.467	2.41	13.533	4.03	19.60	2.17
1.517	1.21	7.583	2.41	13.650	9.89	19.72	2.17
1.633	1.21	7.700	2.41	13.767	9.89	19.83	2.17
1.750	1.21	7.817	2.41	13.883	9.89	19.95	2.17
1.867	2.17	7.933	2.41	14.000	9.89	20.07	1.76
1.983	2.17	8.050	2.77	14.117	3.62	20.18	1.45
2.100	1.65	8.167	3.26	14.233	3.62	20.30	1.45
2.217	1.57	8.283	3.26	14.350	3.62	20.42	1.45
2.333	1.57	8.400	3.26	14.467	3.62	20.53	1.45
2.450	1.57	8.517	3.26	14.583	3.62	20.65	1.45
2.567	1.57	8.633	3.26	14.700	3.62	20.77	1.45
2.683	1.57	8.750	3.26	14.817	3.62	20.88	1.45
2.800	1.57	8.867	3.26	14.933	3.62	21.00	1.45
2.917	1.57	8.983	3.26	15.050	3.62	21.12	1.45

3.033	1.57	9.100	3.77	15.167	3.62	21.23	1.45
3.150	1.57	9.217	3.86	15.283	3.62	21.35	1.45
3.267	1.57	9.333	3.86	15.400	3.62	21.47	1.45
3.383	1.57	9.450	3.86	15.517	3.62	21.58	1.45
3.500	1.57	9.567	4.13	15.633	3.62	21.70	1.45
3.617	1.57	9.683	4.34	15.750	3.62	21.82	1.45
3.733	1.57	9.800	4.34	15.867	3.62	21.93	1.45
3.850	1.57	9.917	4.34	15.983	3.62	22.05	1.45
3.967	1.57	10.033	4.69	16.100	2.38	22.17	1.45
4.083	1.83	10.150	5.55	16.217	2.17	22.28	1.45
4.200	1.93	10.267	5.55	16.333	2.17	22.40	1.45
4.317	1.93	10.383	5.55	16.450	2.17	22.52	1.45
4.433	1.93	10.500	5.55	16.567	2.17	22.63	1.45
4.550	1.93	10.617	7.48	16.683	2.17	22.75	1.45
4.667	1.93	10.733	7.48	16.800	2.17	22.87	1.45
4.783	1.93	10.850	7.48	16.917	2.17	22.98	1.45
4.900	1.93	10.967	7.48	17.033	2.17	23.10	1.45
5.017	1.93	11.083	10.41	17.150	2.17	23.22	1.45
5.133	1.93	11.200	11.58	17.267	2.17	23.33	1.45
5.250	1.93	11.317	11.58	17.383	2.17	23.45	1.45
5.367	1.93	11.433	11.58	17.500	2.17	23.57	1.45
5.483	1.93	11.550	28.12	17.617	2.17	23.68	1.45
5.600	1.93	11.667	50.17	17.733	2.17	23.80	1.45
5.717	1.93	11.783	73.88	17.850	2.17	23.92	1.45
5.833	1.93	11.900	133.14	17.967	2.17	24.03	1.03
5.950	1.93	12.017	116.60	18.083	2.17		
6.067	2.21	12.133	17.37	18.200	2.17		

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.357 (i)
TIME TO PEAK (hrs)= 12.600
RUNOFF VOLUME (mm)= 35.733
TOTAL RAINFALL (mm)= 120.600
RUNOFF COEFFICIENT = 0.296

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 02-14-2023                          TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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



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|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\4d57bcdf
| Ptotal=133.60 mm |    Comments: 100yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.34 |  6.00    2.67 | 12.00   19.24 | 18.00    2.40
                0.25    1.34 |  6.25    2.67 | 12.25   19.24 | 18.25    2.40
                0.50    1.34 |  6.50    2.67 | 12.50    9.89 | 18.50    2.40
                0.75    1.34 |  6.75    2.67 | 12.75    9.89 | 18.75    2.40
                1.00    1.34 |  7.00    2.67 | 13.00    1.87 | 19.00    2.40
                1.25    1.34 |  7.25    2.67 | 13.25    1.87 | 19.25    2.40
                1.50    1.34 |  7.50    2.67 | 13.50   10.96 | 19.50    2.40
                1.75    2.40 |  7.75    2.67 | 13.75   10.96 | 19.75    2.40
                2.00    1.74 |  8.00    3.61 | 14.00    4.01 | 20.00    1.60
                2.25    1.74 |  8.25    3.61 | 14.25    4.01 | 20.25    1.60
                2.50    1.74 |  8.50    3.61 | 14.50    4.01 | 20.50    1.60
                2.75    1.74 |  8.75    3.61 | 14.75    4.01 | 20.75    1.60
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3.00	1.74	9.00	4.28	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.81	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	2.14	10.00	6.15	16.00	2.40	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	8.28	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	12.83	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	55.58	17.50	2.40	23.50	1.60
5.75	2.14	11.75	147.49	17.75	2.40	23.75	1.60

CALIB			
NASHYD (0101)	Area (ha)=	3.04	Curve Number (CN)= 53.8
ID= 1 DT= 7.0 min	Ia (mm)=	7.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.41	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	1.34	6.183	2.67	12.250	19.24	18.32	2.40
0.233	1.34	6.300	2.67	12.367	19.24	18.43	2.40
0.350	1.34	6.417	2.67	12.483	19.24	18.55	2.40
0.467	1.34	6.533	2.67	12.600	11.22	18.67	2.40
0.583	1.34	6.650	2.67	12.717	9.89	18.78	2.40
0.700	1.34	6.767	2.67	12.833	9.89	18.90	2.40
0.817	1.34	6.883	2.67	12.950	9.89	19.02	2.40
0.933	1.34	7.000	2.67	13.067	5.31	19.13	2.40
1.050	1.34	7.117	2.67	13.183	1.87	19.25	2.40
1.167	1.34	7.233	2.67	13.300	1.87	19.37	2.40
1.283	1.34	7.350	2.67	13.417	1.87	19.48	2.40
1.400	1.34	7.467	2.67	13.533	4.47	19.60	2.40
1.517	1.34	7.583	2.67	13.650	10.96	19.72	2.40
1.633	1.34	7.700	2.67	13.767	10.96	19.83	2.40
1.750	1.34	7.817	2.67	13.883	10.96	19.95	2.40
1.867	2.40	7.933	2.67	14.000	10.95	20.07	1.95
1.983	2.40	8.050	3.07	14.117	4.01	20.18	1.60
2.100	1.83	8.167	3.61	14.233	4.01	20.30	1.60
2.217	1.74	8.283	3.61	14.350	4.01	20.42	1.60
2.333	1.74	8.400	3.61	14.467	4.01	20.53	1.60
2.450	1.74	8.517	3.61	14.583	4.01	20.65	1.60
2.567	1.74	8.633	3.61	14.700	4.01	20.77	1.60
2.683	1.74	8.750	3.61	14.817	4.01	20.88	1.60
2.800	1.74	8.867	3.61	14.933	4.01	21.00	1.60
2.917	1.74	8.983	3.61	15.050	4.01	21.12	1.60
3.033	1.74	9.100	4.18	15.167	4.01	21.23	1.60
3.150	1.74	9.217	4.28	15.283	4.01	21.35	1.60
3.267	1.74	9.333	4.28	15.400	4.01	21.47	1.60
3.383	1.74	9.450	4.28	15.517	4.01	21.58	1.60
3.500	1.74	9.567	4.58	15.633	4.01	21.70	1.60
3.617	1.74	9.683	4.81	15.750	4.01	21.82	1.60
3.733	1.74	9.800	4.81	15.867	4.01	21.93	1.60
3.850	1.74	9.917	4.81	15.983	4.01	22.05	1.60
3.967	1.74	10.033	5.19	16.100	2.63	22.17	1.60
4.083	2.02	10.150	6.15	16.217	2.40	22.28	1.60
4.200	2.14	10.267	6.15	16.333	2.40	22.40	1.60
4.317	2.14	10.383	6.15	16.450	2.40	22.52	1.60

4.433	2.14	10.500	6.15	16.567	2.40	22.63	1.60
4.550	2.14	10.617	8.28	16.683	2.40	22.75	1.60
4.667	2.14	10.733	8.28	16.800	2.40	22.87	1.60
4.783	2.14	10.850	8.28	16.917	2.40	22.98	1.60
4.900	2.14	10.967	8.28	17.033	2.40	23.10	1.60
5.017	2.14	11.083	11.53	17.150	2.40	23.22	1.60
5.133	2.14	11.200	12.83	17.267	2.40	23.33	1.60
5.250	2.14	11.317	12.83	17.383	2.40	23.45	1.60
5.367	2.14	11.433	12.83	17.500	2.40	23.57	1.60
5.483	2.14	11.550	31.15	17.617	2.40	23.68	1.60
5.600	2.14	11.667	55.58	17.733	2.40	23.80	1.60
5.717	2.14	11.783	81.84	17.850	2.40	23.92	1.60
5.833	2.14	11.900	147.49	17.967	2.40	24.03	1.14
5.950	2.14	12.017	129.17	18.083	2.40		
6.067	2.44	12.133	19.24	18.200	2.40		

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.209 (i)
TIME TO PEAK (hrs)= 12.250
RUNOFF VOLUME (mm)= 46.474
TOTAL RAINFALL (mm)= 133.600
RUNOFF COEFFICIENT = 0.348

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

CALIB NASHYD (0100) ID= 1 DT= 7.0 min	Area (ha)= 9.78	Curve Number (CN)= 51.2
	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.68	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	1.34	6.183	2.67	12.250	19.24	18.32	2.40
0.233	1.34	6.300	2.67	12.367	19.24	18.43	2.40
0.350	1.34	6.417	2.67	12.483	19.24	18.55	2.40
0.467	1.34	6.533	2.67	12.600	11.22	18.67	2.40
0.583	1.34	6.650	2.67	12.717	9.89	18.78	2.40
0.700	1.34	6.767	2.67	12.833	9.89	18.90	2.40
0.817	1.34	6.883	2.67	12.950	9.89	19.02	2.40
0.933	1.34	7.000	2.67	13.067	5.31	19.13	2.40
1.050	1.34	7.117	2.67	13.183	1.87	19.25	2.40
1.167	1.34	7.233	2.67	13.300	1.87	19.37	2.40
1.283	1.34	7.350	2.67	13.417	1.87	19.48	2.40
1.400	1.34	7.467	2.67	13.533	4.47	19.60	2.40
1.517	1.34	7.583	2.67	13.650	10.96	19.72	2.40
1.633	1.34	7.700	2.67	13.767	10.96	19.83	2.40
1.750	1.34	7.817	2.67	13.883	10.96	19.95	2.40
1.867	2.40	7.933	2.67	14.000	10.95	20.07	1.95
1.983	2.40	8.050	3.07	14.117	4.01	20.18	1.60
2.100	1.83	8.167	3.61	14.233	4.01	20.30	1.60
2.217	1.74	8.283	3.61	14.350	4.01	20.42	1.60
2.333	1.74	8.400	3.61	14.467	4.01	20.53	1.60
2.450	1.74	8.517	3.61	14.583	4.01	20.65	1.60
2.567	1.74	8.633	3.61	14.700	4.01	20.77	1.60
2.683	1.74	8.750	3.61	14.817	4.01	20.88	1.60
2.800	1.74	8.867	3.61	14.933	4.01	21.00	1.60
2.917	1.74	8.983	3.61	15.050	4.01	21.12	1.60

3.033	1.74	9.100	4.18	15.167	4.01	21.23	1.60
3.150	1.74	9.217	4.28	15.283	4.01	21.35	1.60
3.267	1.74	9.333	4.28	15.400	4.01	21.47	1.60
3.383	1.74	9.450	4.28	15.517	4.01	21.58	1.60
3.500	1.74	9.567	4.58	15.633	4.01	21.70	1.60
3.617	1.74	9.683	4.81	15.750	4.01	21.82	1.60
3.733	1.74	9.800	4.81	15.867	4.01	21.93	1.60
3.850	1.74	9.917	4.81	15.983	4.01	22.05	1.60
3.967	1.74	10.033	5.19	16.100	2.63	22.17	1.60
4.083	2.02	10.150	6.15	16.217	2.40	22.28	1.60
4.200	2.14	10.267	6.15	16.333	2.40	22.40	1.60
4.317	2.14	10.383	6.15	16.450	2.40	22.52	1.60
4.433	2.14	10.500	6.15	16.567	2.40	22.63	1.60
4.550	2.14	10.617	8.28	16.683	2.40	22.75	1.60
4.667	2.14	10.733	8.28	16.800	2.40	22.87	1.60
4.783	2.14	10.850	8.28	16.917	2.40	22.98	1.60
4.900	2.14	10.967	8.28	17.033	2.40	23.10	1.60
5.017	2.14	11.083	11.53	17.150	2.40	23.22	1.60
5.133	2.14	11.200	12.83	17.267	2.40	23.33	1.60
5.250	2.14	11.317	12.83	17.383	2.40	23.45	1.60
5.367	2.14	11.433	12.83	17.500	2.40	23.57	1.60
5.483	2.14	11.550	31.15	17.617	2.40	23.68	1.60
5.600	2.14	11.667	55.58	17.733	2.40	23.80	1.60
5.717	2.14	11.783	81.84	17.850	2.40	23.92	1.60
5.833	2.14	11.900	147.49	17.967	2.40	24.03	1.14
5.950	2.14	12.017	129.17	18.083	2.40		
6.067	2.44	12.133	19.24	18.200	2.40		

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.431 (i)
TIME TO PEAK (hrs)= 12.600
RUNOFF VOLUME (mm)= 42.889
TOTAL RAINFALL (mm)= 133.600
RUNOFF COEFFICIENT = 0.321

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 02-14-2023                          TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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


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| Ptotal= 36.95 mm |    Comments: 2yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   18.78 |  2.33    4.89 |  3.50    2.55
                0.17    2.47 |  1.33   83.11 |  2.50    4.28 |  3.67    2.39
                0.33    2.82 |  1.50   24.57 |  2.67    3.82 |  3.83    2.26
                0.50    3.31 |  1.67   13.01 |  2.83    3.46 |  4.00    2.15
                0.67    4.05 |  1.83    9.01 |  3.00    3.17 |
                0.83    5.30 |  2.00    6.97 |  3.17    2.93 |
                1.00    7.98 |  2.17    5.73 |  3.33    2.72 |

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| CALIB            |
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| NASHYD (0101)| Area (ha)= 3.04 Curve Number (CN)= 53.8
|ID= 1 DT= 7.0 min | Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.41

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	7.98	2.217	6.44	3.27	2.96
0.233	1.41	1.283	18.78	2.333	5.73	3.38	2.84
0.350	2.52	1.400	55.54	2.450	4.89	3.50	2.72
0.467	2.82	1.517	74.75	2.567	4.54	3.62	2.55
0.583	3.17	1.633	24.57	2.683	4.21	3.73	2.46
0.700	3.52	1.750	16.31	2.800	3.82	3.85	2.37
0.817	4.05	1.867	11.87	2.917	3.56	3.97	2.26
0.933	5.12	1.983	9.01	3.033	3.38	4.08	2.18
1.050	6.45	2.100	7.26	3.150	3.17	4.20	1.54

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.019 (i)
TIME TO PEAK (hrs)= 1.983
RUNOFF VOLUME (mm)= 3.615
TOTAL RAINFALL (mm)= 36.955
RUNOFF COEFFICIENT = 0.098

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

| CALIB |
| NASHYD (0100)| Area (ha)= 9.78 Curve Number (CN)= 51.2
|ID= 1 DT= 7.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.68

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	7.98	2.217	6.44	3.27	2.96
0.233	1.41	1.283	18.78	2.333	5.73	3.38	2.84
0.350	2.52	1.400	55.54	2.450	4.89	3.50	2.72
0.467	2.82	1.517	74.75	2.567	4.54	3.62	2.55
0.583	3.17	1.633	24.57	2.683	4.21	3.73	2.46
0.700	3.52	1.750	16.31	2.800	3.82	3.85	2.37
0.817	4.05	1.867	11.87	2.917	3.56	3.97	2.26
0.933	5.12	1.983	9.01	3.033	3.38	4.08	2.18
1.050	6.45	2.100	7.26	3.150	3.17	4.20	1.54

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.037 (i)
TIME TO PEAK (hrs)= 2.450
RUNOFF VOLUME (mm)= 3.089
TOTAL RAINFALL (mm)= 36.955
RUNOFF COEFFICIENT = 0.084

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\5932b6f5-95aa-4fed-84a3-70b65e41499d\scena
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bc65-cae9f2f5b353\5932b6f5-95aa-4fed-84a3-70b65e41499d\scena


DATE: 02-14-2023                              TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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  **********************************************
  ** SIMULATION : Run 09                       **
  **********************************************



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\f388df98
| Ptotal= 50.52 mm |    Comments: 5yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   25.64 |  2.33    6.96 |  3.50    3.68
                0.17    3.57 |  1.33  108.92 |  2.50    6.12 |  3.67    3.47
                0.33    4.07 |  1.50   33.31 |  2.67    5.48 |  3.83    3.28
                0.50    4.76 |  1.67   17.99 |  2.83    4.97 |  4.00    3.12
                0.67    5.79 |  1.83   12.60 |  3.00    4.56 |
                0.83    7.53 |  2.00    9.82 |  3.17    4.22 |
                1.00   11.20 |  2.17    8.12 |  3.33    3.93 |

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| CALIB            |
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| NASHYD (0101)| Area (ha)= 3.04 Curve Number (CN)= 53.8
|ID= 1 DT= 7.0 min | Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.41

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	11.20	2.217	9.09	3.27	4.27
0.233	2.04	1.283	25.64	2.333	8.12	3.38	4.10
0.350	3.64	1.400	73.23	2.450	6.96	3.50	3.93
0.467	4.07	1.517	98.12	2.567	6.48	3.62	3.68
0.583	4.56	1.633	33.31	2.683	6.03	3.73	3.56
0.700	5.05	1.750	22.37	2.800	5.48	3.85	3.44
0.817	5.79	1.867	16.45	2.917	5.12	3.97	3.28
0.933	7.28	1.983	12.60	3.033	4.85	4.08	3.17
1.050	9.10	2.100	10.22	3.150	4.56	4.20	2.23

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.038 (i)
TIME TO PEAK (hrs)= 1.983
RUNOFF VOLUME (mm)= 7.235
TOTAL RAINFALL (mm)= 50.518
RUNOFF COEFFICIENT = 0.143

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

| CALIB |
| NASHYD (0100)| Area (ha)= 9.78 Curve Number (CN)= 51.2
|ID= 1 DT= 7.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.68

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	11.20	2.217	9.09	3.27	4.27
0.233	2.04	1.283	25.64	2.333	8.12	3.38	4.10
0.350	3.64	1.400	73.23	2.450	6.96	3.50	3.93
0.467	4.07	1.517	98.12	2.567	6.48	3.62	3.68
0.583	4.56	1.633	33.31	2.683	6.03	3.73	3.56
0.700	5.05	1.750	22.37	2.800	5.48	3.85	3.44
0.817	5.79	1.867	16.45	2.917	5.12	3.97	3.28
0.933	7.28	1.983	12.60	3.033	4.85	4.08	3.17
1.050	9.10	2.100	10.22	3.150	4.56	4.20	2.23

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.077 (i)
TIME TO PEAK (hrs)= 2.450
RUNOFF VOLUME (mm)= 6.346
TOTAL RAINFALL (mm)= 50.518
RUNOFF COEFFICIENT = 0.126

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
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bc65-cae9f2f5b353\df6650db-1b5a-4bca-8b51-9557e9da4f15\scena
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bc65-cae9f2f5b353\df6650db-1b5a-4bca-8b51-9557e9da4f15\scena


DATE: 02-14-2023                              TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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  **********************************************
  ** SIMULATION : Run 10                      **
  **********************************************



--------------------
|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\706fa0c3
| Ptotal= 59.69 mm |    Comments: 10yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   30.27 |  2.33    8.35 |  3.50    4.45
                0.17    4.32 |  1.33  126.55 |  2.50    7.35 |  3.67    4.19
                0.33    4.91 |  1.50   39.22 |  2.67    6.59 |  3.83    3.97
                0.50    5.73 |  1.67   21.35 |  2.83    5.99 |  4.00    3.77
                0.67    6.96 |  1.83   15.01 |  3.00    5.50 |
                0.83    9.03 |  2.00   11.74 |  3.17    5.09 |
                1.00   13.36 |  2.17    9.72 |  3.33    4.74 |

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| CALIB            |
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| NASHYD (0101)| Area (ha)= 3.04 Curve Number (CN)= 53.8
|ID= 1 DT= 7.0 min | Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.41

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	13.36	2.217	10.87	3.27	5.15
0.233	2.47	1.283	30.27	2.333	9.72	3.38	4.94
0.350	4.40	1.400	85.29	2.450	8.35	3.50	4.74
0.467	4.91	1.517	114.07	2.567	7.78	3.62	4.45
0.583	5.50	1.633	39.22	2.683	7.24	3.73	4.30
0.700	6.08	1.750	26.46	2.800	6.59	3.85	4.16
0.817	6.96	1.867	19.54	2.917	6.16	3.97	3.97
0.933	8.73	1.983	15.01	3.033	5.85	4.08	3.83
1.050	10.89	2.100	12.21	3.150	5.50	4.20	2.69

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.054 (i)
TIME TO PEAK (hrs)= 1.983
RUNOFF VOLUME (mm)= 10.248
TOTAL RAINFALL (mm)= 59.693
RUNOFF COEFFICIENT = 0.172

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

| CALIB |
| NASHYD (0100)| Area (ha)= 9.78 Curve Number (CN)= 51.2
|ID= 1 DT= 7.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.68

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	13.36	2.217	10.87	3.27	5.15
0.233	2.47	1.283	30.27	2.333	9.72	3.38	4.94
0.350	4.40	1.400	85.29	2.450	8.35	3.50	4.74
0.467	4.91	1.517	114.07	2.567	7.78	3.62	4.45
0.583	5.50	1.633	39.22	2.683	7.24	3.73	4.30
0.700	6.08	1.750	26.46	2.800	6.59	3.85	4.16
0.817	6.96	1.867	19.54	2.917	6.16	3.97	3.97
0.933	8.73	1.983	15.01	3.033	5.85	4.08	3.83
1.050	10.89	2.100	12.21	3.150	5.50	4.20	2.69

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.111 (i)
TIME TO PEAK (hrs)= 2.450
RUNOFF VOLUME (mm)= 9.089
TOTAL RAINFALL (mm)= 59.693
RUNOFF COEFFICIENT = 0.152

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\256702ea-ce26-413f-9973-fbff67fca962\scena
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bc65-cae9f2f5b353\256702ea-ce26-413f-9973-fbff67fca962\scena


DATE: 02-14-2023                              TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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  **********************************************
  ** SIMULATION : Run 11                      **
  **********************************************



--------------------
|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\6cc97955
| Ptotal= 71.24 mm |    Comments: 25yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   36.37 |  2.33   10.09 |  3.50    5.38
                0.17    5.22 |  1.33  148.15 |  2.50    8.89 |  3.67    5.08
                0.33    5.94 |  1.50   47.06 |  2.67    7.96 |  3.83    4.80
                0.50    6.93 |  1.67   25.72 |  2.83    7.24 |  4.00    4.57
                0.67    8.42 |  1.83   18.11 |  3.00    6.65 |
                0.83   10.91 |  2.00   14.17 |  3.17    6.15 |
                1.00   16.13 |  2.17   11.74 |  3.33    5.74 |

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| CALIB            |
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| NASHYD (0101)| Area (ha)= 3.04 Curve Number (CN)= 53.8
|ID= 1 DT= 7.0 min | Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.41

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	16.13	2.217	13.13	3.27	6.22
0.233	2.98	1.283	36.37	2.333	11.74	3.38	5.97
0.350	5.32	1.400	100.24	2.450	10.09	3.50	5.74
0.467	5.94	1.517	133.71	2.567	9.40	3.62	5.38
0.583	6.65	1.633	47.06	2.683	8.76	3.73	5.21
0.700	7.36	1.750	31.82	2.800	7.96	3.85	5.04
0.817	8.42	1.867	23.55	2.917	7.45	3.97	4.80
0.933	10.55	1.983	18.11	3.033	7.07	4.08	4.64
1.050	13.15	2.100	14.73	3.150	6.65	4.20	3.26

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.078 (i)
TIME TO PEAK (hrs)= 1.983
RUNOFF VOLUME (mm)= 14.607
TOTAL RAINFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.205

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

| CALIB |
| NASHYD (0100)| Area (ha)= 9.78 Curve Number (CN)= 51.2
|ID= 1 DT= 7.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.68

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	16.13	2.217	13.13	3.27	6.22
0.233	2.98	1.283	36.37	2.333	11.74	3.38	5.97
0.350	5.32	1.400	100.24	2.450	10.09	3.50	5.74
0.467	5.94	1.517	133.71	2.567	9.40	3.62	5.38
0.583	6.65	1.633	47.06	2.683	8.76	3.73	5.21
0.700	7.36	1.750	31.82	2.800	7.96	3.85	5.04
0.817	8.42	1.867	23.55	2.917	7.45	3.97	4.80
0.933	10.55	1.983	18.11	3.033	7.07	4.08	4.64
1.050	13.15	2.100	14.73	3.150	6.65	4.20	3.26

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.162 (i)
TIME TO PEAK (hrs)= 2.333
RUNOFF VOLUME (mm)= 13.089
TOTAL RAINFALL (mm)= 71.237
RUNOFF COEFFICIENT = 0.184

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
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bc65-cae9f2f5b353\392b5ca0-7cbd-4126-967a-2653a117e666\scena


DATE: 02-14-2023                              TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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  **********************************************
  ** SIMULATION : Run 12                       **
  **********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\a434c2e0
| Ptotal= 79.45 mm |    Comments: 50yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   40.22 |  2.33   11.37 |  3.50    6.11
                0.17    5.93 |  1.33  164.22 |  2.50   10.03 |  3.67    5.77
                0.33    6.74 |  1.50   51.92 |  2.67    9.00 |  3.83    5.46
                0.50    7.85 |  1.67   28.58 |  2.83    8.19 |  4.00    5.19
                0.67    9.50 |  1.83   20.23 |  3.00    7.53 |
                0.83   12.27 |  2.00   15.88 |  3.17    6.98 |
                1.00   18.04 |  2.17   13.20 |  3.33    6.51 |

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| CALIB            |
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| NASHYD (0101)| Area (ha)= 3.04 Curve Number (CN)= 53.8
|ID= 1 DT= 7.0 min | Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.41

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	18.04	2.217	14.73	3.27	7.06
0.233	3.39	1.283	40.22	2.333	13.20	3.38	6.78
0.350	6.05	1.400	111.08	2.450	11.37	3.50	6.51
0.467	6.74	1.517	148.18	2.567	10.60	3.62	6.11
0.583	7.53	1.633	51.92	2.683	9.88	3.73	5.92
0.700	8.32	1.750	35.25	2.800	9.00	3.85	5.73
0.817	9.50	1.867	26.19	2.917	8.42	3.97	5.46
0.933	11.87	1.983	20.23	3.033	8.00	4.08	5.27
1.050	14.74	2.100	16.50	3.150	7.53	4.20	3.71

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.096 (i)
TIME TO PEAK (hrs)= 1.983
RUNOFF VOLUME (mm)= 18.058
TOTAL RAINFALL (mm)= 79.453
RUNOFF COEFFICIENT = 0.227

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

| CALIB |
| NASHYD (0100)| Area (ha)= 9.78 Curve Number (CN)= 51.2
|ID= 1 DT= 7.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
---------- U.H. Tp(hrs)= 0.68

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	18.04	2.217	14.73	3.27	7.06
0.233	3.39	1.283	40.22	2.333	13.20	3.38	6.78
0.350	6.05	1.400	111.08	2.450	11.37	3.50	6.51
0.467	6.74	1.517	148.18	2.567	10.60	3.62	6.11
0.583	7.53	1.633	51.92	2.683	9.88	3.73	5.92
0.700	8.32	1.750	35.25	2.800	9.00	3.85	5.73
0.817	9.50	1.867	26.19	2.917	8.42	3.97	5.46
0.933	11.87	1.983	20.23	3.033	8.00	4.08	5.27
1.050	14.74	2.100	16.50	3.150	7.53	4.20	3.71

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.201 (i)
TIME TO PEAK (hrs)= 2.333
RUNOFF VOLUME (mm)= 16.274
TOTAL RAINFALL (mm)= 79.453
RUNOFF COEFFICIENT = 0.205

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename: C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\7ea13b11-66a6-49c6-9f60-a0961b709440\scena
  Summary  filename: C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\7ea13b11-66a6-49c6-9f60-a0961b709440\scena


DATE: 02-14-2023                              TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________


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  ************************************************
  ** SIMULATION : Run 13                         **
  ************************************************



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\387e95f7
| Ptotal= 87.58 mm |    Comments: 100yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   45.22 |  2.33   12.44 |  3.50    6.60
                0.17    6.41 |  1.33  180.15 |  2.50   10.94 |  3.67    6.22
                0.33    7.29 |  1.50   58.54 |  2.67    9.80 |  3.83    5.89
                0.50    8.52 |  1.67   31.96 |  2.83    8.90 |  4.00    5.59
                0.67   10.36 |  1.83   22.45 |  3.00    8.16 |
                0.83   13.45 |  2.00   17.52 |  3.17    7.56 |
                1.00   19.96 |  2.17   14.50 |  3.33    7.04 |

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| CALIB            |
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| NASHYD (0101)| Area (ha)= 3.04 Curve Number (CN)= 53.8
|ID= 1 DT= 7.0 min | Ia (mm)= 7.00 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.41

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	19.96	2.217	16.23	3.27	7.65
0.233	3.66	1.283	45.22	2.333	14.50	3.38	7.34
0.350	6.54	1.400	122.32	2.450	12.44	3.50	7.04
0.467	7.29	1.517	162.78	2.567	11.58	3.62	6.60
0.583	8.17	1.633	58.54	2.683	10.78	3.73	6.38
0.700	9.05	1.750	39.55	2.800	9.80	3.85	6.17
0.817	10.36	1.867	29.24	2.917	9.16	3.97	5.89
0.933	13.01	1.983	22.45	3.033	8.69	4.08	5.68
1.050	16.24	2.100	18.22	3.150	8.16	4.20	3.99

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.118 (i)
TIME TO PEAK (hrs)= 1.983
RUNOFF VOLUME (mm)= 21.728
TOTAL RAINFALL (mm)= 87.578
RUNOFF COEFFICIENT = 0.248

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

| CALIB |
| NASHYD (0100)| Area (ha)= 9.78 Curve Number (CN)= 51.2
|ID= 1 DT= 7.0 min | Ia (mm)= 8.02 # of Linear Res.(N)= 3.00
--- U.H. Tp(hrs)= 0.68

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	0.00	1.167	19.96	2.217	16.23	3.27	7.65
0.233	3.66	1.283	45.22	2.333	14.50	3.38	7.34
0.350	6.54	1.400	122.32	2.450	12.44	3.50	7.04
0.467	7.29	1.517	162.78	2.567	11.58	3.62	6.60
0.583	8.17	1.633	58.54	2.683	10.78	3.73	6.38
0.700	9.05	1.750	39.55	2.800	9.80	3.85	6.17
0.817	10.36	1.867	29.24	2.917	9.16	3.97	5.89
0.933	13.01	1.983	22.45	3.033	8.69	4.08	5.68
1.050	16.24	2.100	18.22	3.150	8.16	4.20	3.99

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.247 (i)
TIME TO PEAK (hrs)= 2.333
RUNOFF VOLUME (mm)= 19.677
TOTAL RAINFALL (mm)= 87.578
RUNOFF COEFFICIENT = 0.225

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

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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bc65-cae9f2f5b353\eada2c9d-0ba9-44de-9c1b-94d56945bd7b\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\eada2c9d-0ba9-44de-9c1b-94d56945bd7b\scena


DATE: 02-14-2023                              TIME: 04:24:41

USER:



COMMENTS: _____________________________________________________________________

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  **********************************************
  ** SIMULATION : Run 14                       **
  **********************************************



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              80e1b7a7-b474-4d21-a44e-c62a14c68ef2\4ea68887
| Ptotal=212.00 mm |    Comments: hazel-hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    6.00 |  3.00   13.00 |  6.00   23.00 |  9.00   53.00
                1.00    4.00 |  4.00   17.00 |  7.00   13.00 | 10.00   38.00
                2.00    6.00 |  5.00   13.00 |  8.00   13.00 | 11.00   13.00

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| CALIB            |
| NASHYD   (  0101)|   Area    (ha)=   3.04   Curve Number   (CN)= 53.8
|ID= 1 DT= 7.0 min |   Ia      (mm)=   7.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.41
```

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	6.00	3.150	13.00	6.183	23.00	9.22	53.00
0.233	6.00	3.267	13.00	6.300	23.00	9.33	53.00
0.350	6.00	3.383	13.00	6.417	23.00	9.45	53.00
0.467	6.00	3.500	13.00	6.533	23.00	9.57	53.00
0.583	6.00	3.617	13.00	6.650	23.00	9.68	53.00
0.700	6.00	3.733	13.00	6.767	23.00	9.80	53.00
0.817	6.00	3.850	13.00	6.883	23.00	9.92	53.00
0.933	6.00	3.967	13.00	7.000	23.00	10.03	48.71
1.050	5.14	4.083	15.86	7.117	13.00	10.15	38.00
1.167	4.00	4.200	17.00	7.233	13.00	10.27	38.00
1.283	4.00	4.317	17.00	7.350	13.00	10.38	38.00
1.400	4.00	4.433	17.00	7.467	13.00	10.50	38.00
1.517	4.00	4.550	17.00	7.583	13.00	10.62	38.00
1.633	4.00	4.667	17.00	7.700	13.00	10.73	38.00
1.750	4.00	4.783	17.00	7.817	13.00	10.85	38.00
1.867	4.00	4.900	17.00	7.933	13.00	10.97	38.00
1.983	4.00	5.017	16.43	8.050	13.00	11.08	20.14
2.100	5.71	5.133	13.00	8.167	13.00	11.20	13.00
2.217	6.00	5.250	13.00	8.283	13.00	11.32	13.00
2.333	6.00	5.367	13.00	8.400	13.00	11.43	13.00
2.450	6.00	5.483	13.00	8.517	13.00	11.55	13.00
2.567	6.00	5.600	13.00	8.633	13.00	11.67	13.00
2.683	6.00	5.717	13.00	8.750	13.00	11.78	13.00
2.800	6.00	5.833	13.00	8.867	13.00	11.90	13.00
2.917	6.00	5.950	13.00	8.983	13.00	12.02	11.14
3.033	8.00	6.067	18.71	9.100	47.29		

Unit Hyd Qpeak (cms)= 0.283

PEAK FLOW (cms)= 0.255 (i)
TIME TO PEAK (hrs)= 10.150
RUNOFF VOLUME (mm)= 99.279
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.468

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

CALIB NASHYD (0100) ID= 1 DT= 7.0 min	Area (ha)= 9.78	Curve Number (CN)= 51.2
	Ia (mm)= 8.02	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.68	

NOTE: RAINFALL WAS TRANSFORMED TO 7.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.117	6.00	3.150	13.00	6.183	23.00	9.22	53.00
0.233	6.00	3.267	13.00	6.300	23.00	9.33	53.00
0.350	6.00	3.383	13.00	6.417	23.00	9.45	53.00
0.467	6.00	3.500	13.00	6.533	23.00	9.57	53.00
0.583	6.00	3.617	13.00	6.650	23.00	9.68	53.00
0.700	6.00	3.733	13.00	6.767	23.00	9.80	53.00
0.817	6.00	3.850	13.00	6.883	23.00	9.92	53.00
0.933	6.00	3.967	13.00	7.000	23.00	10.03	48.71

1.050	5.14	4.083	15.86	7.117	13.00	10.15	38.00
1.167	4.00	4.200	17.00	7.233	13.00	10.27	38.00
1.283	4.00	4.317	17.00	7.350	13.00	10.38	38.00
1.400	4.00	4.433	17.00	7.467	13.00	10.50	38.00
1.517	4.00	4.550	17.00	7.583	13.00	10.62	38.00
1.633	4.00	4.667	17.00	7.700	13.00	10.73	38.00
1.750	4.00	4.783	17.00	7.817	13.00	10.85	38.00
1.867	4.00	4.900	17.00	7.933	13.00	10.97	38.00
1.983	4.00	5.017	16.43	8.050	13.00	11.08	20.14
2.100	5.71	5.133	13.00	8.167	13.00	11.20	13.00
2.217	6.00	5.250	13.00	8.283	13.00	11.32	13.00
2.333	6.00	5.367	13.00	8.400	13.00	11.43	13.00
2.450	6.00	5.483	13.00	8.517	13.00	11.55	13.00
2.567	6.00	5.600	13.00	8.633	13.00	11.67	13.00
2.683	6.00	5.717	13.00	8.750	13.00	11.78	13.00
2.800	6.00	5.833	13.00	8.867	13.00	11.90	13.00
2.917	6.00	5.950	13.00	8.983	13.00	12.02	11.14
3.033	8.00	6.067	18.71	9.100	47.29		

Unit Hyd Qpeak (cms)= 0.549

PEAK FLOW (cms)= 0.699 (i)
TIME TO PEAK (hrs)= 10.967
RUNOFF VOLUME (mm)= 93.270
TOTAL RAINFALL (mm)= 212.000
RUNOFF COEFFICIENT = 0.440

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

FINISH

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Appendix E

Post-Development Visual OTTHYMO Modeling

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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bc65-cae9f2f5b353\9950f9b6-60d2-4001-8e3c-24dd5a03c463\scena
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bc65-cae9f2f5b353\9950f9b6-60d2-4001-8e3c-24dd5a03c463\scena


DATE: 02-15-2023                              TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________________

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



--------------------
|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\ccec70cc
| Ptotal= 25.00 mm |    Comments: 25mm4hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    2.07 |  1.00    5.70 |  2.00    5.19 |  3.00    2.80
                0.17    2.27 |  1.17   10.78 |  2.17    4.47 |  3.17    2.62
                0.33    2.52 |  1.33   50.21 |  2.33    3.95 |  3.33    2.48
                0.50    2.88 |  1.50   13.37 |  2.50    3.56 |  3.50    2.35
                0.67    3.38 |  1.67    8.29 |  2.67    3.25 |  3.67    2.23
                0.83    4.18 |  1.83    6.30 |  2.83    3.01 |  3.83    2.14

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--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   9.73
```

|ID= 1 DT= 6.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	2.07	1.100	5.70	2.100	5.19	3.10	2.80
0.200	2.14	1.200	7.39	2.200	4.95	3.20	2.74
0.300	2.27	1.300	10.78	2.300	4.47	3.30	2.62
0.400	2.44	1.400	37.07	2.400	4.12	3.40	2.52
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.600	2.88	1.600	13.37	2.600	3.56	3.60	2.35
0.700	3.05	1.700	11.67	2.700	3.46	3.70	2.31
0.800	3.38	1.800	8.29	2.800	3.25	3.80	2.23
0.900	3.91	1.900	6.96	2.900	3.09	3.90	2.17
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.	(mm/hr)=	50.21	12.41	
	over (min)	6.00	12.00	
Storage Coeff.	(min)=	5.90 (ii)	11.89 (ii)	
Unit Hyd. Tpeak	(min)=	6.00	12.00	
Unit Hyd. peak	(cms)=	0.18	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.68	0.05	0.708 (iii)
TIME TO PEAK	(hrs)=	1.50	1.60	1.50
RUNOFF VOLUME	(mm)=	24.00	4.57	16.22
TOTAL RAINFALL	(mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT	=	0.96	0.18	0.65

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0600)	OVERFLOW IS OFF
IN= 2---> OUT= 1	
DT= 5.0 min	

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	9.730	0.708	1.50	16.22
OUTFLOW: ID= 1 (0600)	9.730	0.025	4.10	16.17

PEAK FLOW REDUCTION [Qout/Qin](%)= 3.52
TIME SHIFT OF PEAK FLOW (min)=156.00
MAXIMUM STORAGE USED (ha.m.)= 0.1349

CALIB	
STANDHYD (0201)	Area (ha)= 2.61
ID= 1 DT= 6.0 min	Total Imp(%)= 85.00 Dir. Conn.(%)= 68.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.22	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	131.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	2.07	1.100	5.70	2.100	5.19	3.10	2.80
0.200	2.14	1.200	7.39	2.200	4.95	3.20	2.74
0.300	2.27	1.300	10.78	2.300	4.47	3.30	2.62
0.400	2.44	1.400	37.07	2.400	4.12	3.40	2.52
0.500	2.52	1.500	50.21	2.500	3.95	3.50	2.48
0.600	2.88	1.600	13.37	2.600	3.56	3.60	2.35
0.700	3.05	1.700	11.67	2.700	3.46	3.70	2.31
0.800	3.38	1.800	8.29	2.800	3.25	3.80	2.23
0.900	3.91	1.900	6.96	2.900	3.09	3.90	2.17
1.000	4.18	2.000	6.29	3.000	3.01	4.00	2.14

Max.Eff.Inten.(mm/hr)=		50.21	14.28	
over (min)		6.00	12.00	
Storage Coeff. (min)=		3.97 (ii)	9.05 (ii)	
Unit Hyd. Tpeak (min)=		6.00	12.00	
Unit Hyd. peak (cms)=		0.22	0.11	
				TOTALS
PEAK FLOW	(cms)=	0.23	0.01	0.235 (iii)
TIME TO PEAK	(hrs)=	1.50	1.60	1.50
RUNOFF VOLUME	(mm)=	24.00	4.87	17.87
TOTAL RAINFALL	(mm)=	25.00	25.00	25.00
RUNOFF COEFFICIENT	=	0.96	0.19	0.72

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

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


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DATE: 02-15-2023                              TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________________

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  ************************************************
  ** SIMULATION : Run 02                        **
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| Ptotal= 55.00 mm |    Comments: 2yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.55 |  6.00    1.10 | 12.00    7.92 | 18.00    0.99
                0.25    0.55 |  6.25    1.10 | 12.25    7.92 | 18.25    0.99
                0.50    0.55 |  6.50    1.10 | 12.50    4.07 | 18.50    0.99
                0.75    0.55 |  6.75    1.10 | 12.75    4.07 | 18.75    0.99
                1.00    0.55 |  7.00    1.10 | 13.00    0.77 | 19.00    0.99
                1.25    0.55 |  7.25    1.10 | 13.25    0.77 | 19.25    0.99
                1.50    0.55 |  7.50    1.10 | 13.50    4.51 | 19.50    0.99
                1.75    0.99 |  7.75    1.10 | 13.75    4.51 | 19.75    0.99
                2.00    0.71 |  8.00    1.49 | 14.00    1.65 | 20.00    0.66
                2.25    0.71 |  8.25    1.49 | 14.25    1.65 | 20.25    0.66
                2.50    0.71 |  8.50    1.49 | 14.50    1.65 | 20.50    0.66
                2.75    0.71 |  8.75    1.49 | 14.75    1.65 | 20.75    0.66
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3.00	0.71	9.00	1.76	15.00	1.65	21.00	0.66
3.25	0.71	9.25	1.76	15.25	1.65	21.25	0.66
3.50	0.71	9.50	1.98	15.50	1.65	21.50	0.66
3.75	0.71	9.75	1.98	15.75	1.65	21.75	0.66
4.00	0.88	10.00	2.53	16.00	0.99	22.00	0.66
4.25	0.88	10.25	2.53	16.25	0.99	22.25	0.66
4.50	0.88	10.50	3.41	16.50	0.99	22.50	0.66
4.75	0.88	10.75	3.41	16.75	0.99	22.75	0.66
5.00	0.88	11.00	5.28	17.00	0.99	23.00	0.66
5.25	0.88	11.25	5.28	17.25	0.99	23.25	0.66
5.50	0.88	11.50	22.88	17.50	0.99	23.50	0.66
5.75	0.88	11.75	60.72	17.75	0.99	23.75	0.66

CALIB STANDHYD (0200) ID= 1 DT= 6.0 min	Area (ha)= 9.73 Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.55	6.100	1.10	12.100	7.92	18.10	0.99
0.200	0.55	6.200	1.10	12.200	7.92	18.20	0.99
0.300	0.55	6.300	1.10	12.300	7.92	18.30	0.99
0.400	0.55	6.400	1.10	12.400	7.92	18.40	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.600	0.55	6.600	1.10	12.600	4.07	18.60	0.99
0.700	0.55	6.700	1.10	12.700	4.07	18.70	0.99
0.800	0.55	6.800	1.10	12.800	4.07	18.80	0.99
0.900	0.55	6.900	1.10	12.900	4.07	18.90	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.100	0.55	7.100	1.10	13.100	0.77	19.10	0.99
1.200	0.55	7.200	1.10	13.200	0.77	19.20	0.99
1.300	0.55	7.300	1.10	13.300	0.77	19.30	0.99
1.400	0.55	7.400	1.10	13.400	0.77	19.40	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.600	0.55	7.600	1.10	13.600	4.51	19.60	0.99
1.700	0.55	7.700	1.10	13.700	4.51	19.70	0.99
1.800	0.77	7.800	1.10	13.800	4.51	19.80	0.99
1.900	0.99	7.900	1.10	13.900	4.51	19.90	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.100	0.71	8.100	1.48	14.100	1.65	20.10	0.66
2.200	0.71	8.200	1.49	14.200	1.65	20.20	0.66
2.300	0.71	8.300	1.49	14.300	1.65	20.30	0.66
2.400	0.71	8.400	1.49	14.400	1.65	20.40	0.66
2.500	0.71	8.500	1.49	14.500	1.65	20.50	0.66
2.600	0.71	8.600	1.49	14.600	1.65	20.60	0.66
2.700	0.71	8.700	1.49	14.700	1.65	20.70	0.66
2.800	0.71	8.800	1.49	14.800	1.65	20.80	0.66
2.900	0.71	8.900	1.49	14.900	1.65	20.90	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.100	0.71	9.100	1.76	15.100	1.65	21.10	0.66

3.200	0.71	9.200	1.76	15.200	1.65	21.20	0.66
3.300	0.71	9.300	1.76	15.300	1.65	21.30	0.66
3.400	0.71	9.400	1.76	15.400	1.65	21.40	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.600	0.71	9.600	1.98	15.600	1.65	21.60	0.66
3.700	0.71	9.700	1.98	15.700	1.65	21.70	0.66
3.800	0.71	9.800	1.98	15.800	1.65	21.80	0.66
3.900	0.71	9.900	1.98	15.900	1.65	21.90	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.100	0.88	10.100	2.53	16.100	0.99	22.10	0.66
4.200	0.88	10.200	2.53	16.200	0.99	22.20	0.66
4.300	0.88	10.300	2.53	16.300	0.99	22.30	0.66
4.400	0.88	10.400	2.53	16.400	0.99	22.40	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.600	0.88	10.600	3.41	16.600	0.99	22.60	0.66
4.700	0.88	10.700	3.41	16.700	0.99	22.70	0.66
4.800	0.88	10.800	3.41	16.800	0.99	22.80	0.66
4.900	0.88	10.900	3.41	16.900	0.99	22.90	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.100	0.88	11.100	5.28	17.100	0.99	23.10	0.66
5.200	0.88	11.200	5.28	17.200	0.99	23.20	0.66
5.300	0.88	11.300	5.28	17.300	0.99	23.30	0.66
5.400	0.88	11.400	5.28	17.400	0.99	23.40	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.600	0.88	11.600	22.88	17.600	0.99	23.60	0.66
5.700	0.88	11.700	22.88	17.700	0.99	23.70	0.66
5.800	0.88	11.800	41.80	17.800	0.99	23.80	0.66
5.900	0.88	11.900	60.72	17.900	0.99	23.90	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Max.Eff.Inten.(mm/hr)=	60.72	51.13	
over (min)	6.00	12.00	
Storage Coeff. (min)=	5.47 (ii)	11.02 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.19	0.10	
			TOTALS
PEAK FLOW (cms)=	0.94	0.19	1.122 (iii)
TIME TO PEAK (hrs)=	12.00	12.10	12.00
RUNOFF VOLUME (mm)=	54.00	19.58	40.23
TOTAL RAINFALL (mm)=	55.00	55.00	55.00
RUNOFF COEFFICIENT =	0.98	0.36	0.73

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0600) IN= 2---> OUT= 1 DT= 5.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1500	0.4500
	0.0100	0.0200	0.2000	0.5000
	0.0200	0.1100	0.2500	0.5400
	0.0400	0.2100	0.3250	0.5900
	0.0800	0.3200	0.4500	0.6200
	0.1000	0.3600	3.0000	0.6500
	0.1200	0.4100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	9.730	1.122	12.00	40.23
OUTFLOW: ID= 1 (0600)	9.730	0.052	14.20	40.18

PEAK FLOW REDUCTION [Qout/Qin](%)= 4.65
TIME SHIFT OF PEAK FLOW (min)=132.00
MAXIMUM STORAGE USED (ha.m.)= 0.2444

CALIB STANDHYD (0201) ID= 1 DT= 6.0 min	Area (ha)= 2.61	Total Imp(%)= 85.00	Dir. Conn.(%)= 68.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.22	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	131.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.55	6.100	1.10	12.100	7.92	18.10	0.99
0.200	0.55	6.200	1.10	12.200	7.92	18.20	0.99
0.300	0.55	6.300	1.10	12.300	7.92	18.30	0.99
0.400	0.55	6.400	1.10	12.400	7.92	18.40	0.99
0.500	0.55	6.500	1.10	12.500	7.92	18.50	0.99
0.600	0.55	6.600	1.10	12.600	4.07	18.60	0.99
0.700	0.55	6.700	1.10	12.700	4.07	18.70	0.99
0.800	0.55	6.800	1.10	12.800	4.07	18.80	0.99
0.900	0.55	6.900	1.10	12.900	4.07	18.90	0.99
1.000	0.55	7.000	1.10	13.000	4.07	19.00	0.99
1.100	0.55	7.100	1.10	13.100	0.77	19.10	0.99
1.200	0.55	7.200	1.10	13.200	0.77	19.20	0.99
1.300	0.55	7.300	1.10	13.300	0.77	19.30	0.99
1.400	0.55	7.400	1.10	13.400	0.77	19.40	0.99
1.500	0.55	7.500	1.10	13.500	0.77	19.50	0.99
1.600	0.55	7.600	1.10	13.600	4.51	19.60	0.99
1.700	0.55	7.700	1.10	13.700	4.51	19.70	0.99
1.800	0.77	7.800	1.10	13.800	4.51	19.80	0.99
1.900	0.99	7.900	1.10	13.900	4.51	19.90	0.99
2.000	0.99	8.000	1.10	14.000	4.51	20.00	0.99
2.100	0.71	8.100	1.48	14.100	1.65	20.10	0.66
2.200	0.71	8.200	1.49	14.200	1.65	20.20	0.66
2.300	0.71	8.300	1.49	14.300	1.65	20.30	0.66
2.400	0.71	8.400	1.49	14.400	1.65	20.40	0.66
2.500	0.71	8.500	1.49	14.500	1.65	20.50	0.66
2.600	0.71	8.600	1.49	14.600	1.65	20.60	0.66
2.700	0.71	8.700	1.49	14.700	1.65	20.70	0.66
2.800	0.71	8.800	1.49	14.800	1.65	20.80	0.66
2.900	0.71	8.900	1.49	14.900	1.65	20.90	0.66
3.000	0.71	9.000	1.49	15.000	1.65	21.00	0.66
3.100	0.71	9.100	1.76	15.100	1.65	21.10	0.66
3.200	0.71	9.200	1.76	15.200	1.65	21.20	0.66
3.300	0.71	9.300	1.76	15.300	1.65	21.30	0.66
3.400	0.71	9.400	1.76	15.400	1.65	21.40	0.66
3.500	0.71	9.500	1.76	15.500	1.65	21.50	0.66
3.600	0.71	9.600	1.98	15.600	1.65	21.60	0.66

3.700	0.71	9.700	1.98	15.700	1.65	21.70	0.66
3.800	0.71	9.800	1.98	15.800	1.65	21.80	0.66
3.900	0.71	9.900	1.98	15.900	1.65	21.90	0.66
4.000	0.71	10.000	1.98	16.000	1.65	22.00	0.66
4.100	0.88	10.100	2.53	16.100	0.99	22.10	0.66
4.200	0.88	10.200	2.53	16.200	0.99	22.20	0.66
4.300	0.88	10.300	2.53	16.300	0.99	22.30	0.66
4.400	0.88	10.400	2.53	16.400	0.99	22.40	0.66
4.500	0.88	10.500	2.53	16.500	0.99	22.50	0.66
4.600	0.88	10.600	3.41	16.600	0.99	22.60	0.66
4.700	0.88	10.700	3.41	16.700	0.99	22.70	0.66
4.800	0.88	10.800	3.41	16.800	0.99	22.80	0.66
4.900	0.88	10.900	3.41	16.900	0.99	22.90	0.66
5.000	0.88	11.000	3.41	17.000	0.99	23.00	0.66
5.100	0.88	11.100	5.28	17.100	0.99	23.10	0.66
5.200	0.88	11.200	5.28	17.200	0.99	23.20	0.66
5.300	0.88	11.300	5.28	17.300	0.99	23.30	0.66
5.400	0.88	11.400	5.28	17.400	0.99	23.40	0.66
5.500	0.88	11.500	5.28	17.500	0.99	23.50	0.66
5.600	0.88	11.600	22.88	17.600	0.99	23.60	0.66
5.700	0.88	11.700	22.88	17.700	0.99	23.70	0.66
5.800	0.88	11.800	41.80	17.800	0.99	23.80	0.66
5.900	0.88	11.900	60.72	17.900	0.99	23.90	0.66
6.000	0.88	12.000	60.72	18.000	0.99	24.00	0.66

Max.Eff.Inten.(mm/hr)=	60.72	57.07	
over (min)	6.00	12.00	
Storage Coeff. (min)=	3.68 (ii)	8.39 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.23	0.12	
			TOTALS
PEAK FLOW (cms)=	0.30	0.05	0.341 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	54.00	20.48	43.27
TOTAL RAINFALL (mm)=	55.00	55.00	55.00
RUNOFF COEFFICIENT =	0.98	0.37	0.79

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
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       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 02-15-2023                                TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________________

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



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\e4c83a55
| Ptotal= 76.00 mm |    Comments: 5yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.76 |  6.00    1.52 | 12.00   10.94 | 18.00    1.37
                0.25    0.76 |  6.25    1.52 | 12.25   10.94 | 18.25    1.37
                0.50    0.76 |  6.50    1.52 | 12.50    5.62 | 18.50    1.37
                0.75    0.76 |  6.75    1.52 | 12.75    5.62 | 18.75    1.37
                1.00    0.76 |  7.00    1.52 | 13.00    1.06 | 19.00    1.37
                1.25    0.76 |  7.25    1.52 | 13.25    1.06 | 19.25    1.37
                1.50    0.76 |  7.50    1.52 | 13.50    6.23 | 19.50    1.37
                1.75    1.37 |  7.75    1.52 | 13.75    6.23 | 19.75    1.37
                2.00    0.99 |  8.00    2.05 | 14.00    2.28 | 20.00    0.91
                2.25    0.99 |  8.25    2.05 | 14.25    2.28 | 20.25    0.91
                2.50    0.99 |  8.50    2.05 | 14.50    2.28 | 20.50    0.91
                2.75    0.99 |  8.75    2.05 | 14.75    2.28 | 20.75    0.91
```

3.00	0.99	9.00	2.43	15.00	2.28	21.00	0.91
3.25	0.99	9.25	2.43	15.25	2.28	21.25	0.91
3.50	0.99	9.50	2.74	15.50	2.28	21.50	0.91
3.75	0.99	9.75	2.74	15.75	2.28	21.75	0.91
4.00	1.22	10.00	3.50	16.00	1.37	22.00	0.91
4.25	1.22	10.25	3.50	16.25	1.37	22.25	0.91
4.50	1.22	10.50	4.71	16.50	1.37	22.50	0.91
4.75	1.22	10.75	4.71	16.75	1.37	22.75	0.91
5.00	1.22	11.00	7.30	17.00	1.37	23.00	0.91
5.25	1.22	11.25	7.30	17.25	1.37	23.25	0.91
5.50	1.22	11.50	31.62	17.50	1.37	23.50	0.91
5.75	1.22	11.75	83.90	17.75	1.37	23.75	0.91

CALIB STANDHYD (0200) ID= 1 DT= 6.0 min	Area (ha)= 9.73 Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.76	6.100	1.52	12.100	10.94	18.10	1.37
0.200	0.76	6.200	1.52	12.200	10.94	18.20	1.37
0.300	0.76	6.300	1.52	12.300	10.94	18.30	1.37
0.400	0.76	6.400	1.52	12.400	10.94	18.40	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.600	0.76	6.600	1.52	12.600	5.62	18.60	1.37
0.700	0.76	6.700	1.52	12.700	5.62	18.70	1.37
0.800	0.76	6.800	1.52	12.800	5.62	18.80	1.37
0.900	0.76	6.900	1.52	12.900	5.62	18.90	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.100	0.76	7.100	1.52	13.100	1.06	19.10	1.37
1.200	0.76	7.200	1.52	13.200	1.06	19.20	1.37
1.300	0.76	7.300	1.52	13.300	1.06	19.30	1.37
1.400	0.76	7.400	1.52	13.400	1.06	19.40	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.600	0.76	7.600	1.52	13.600	6.23	19.60	1.37
1.700	0.76	7.700	1.52	13.700	6.23	19.70	1.37
1.800	1.06	7.800	1.52	13.800	6.23	19.80	1.37
1.900	1.37	7.900	1.52	13.900	6.23	19.90	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.100	0.99	8.100	2.05	14.100	2.28	20.10	0.91
2.200	0.99	8.200	2.05	14.200	2.28	20.20	0.91
2.300	0.99	8.300	2.05	14.300	2.28	20.30	0.91
2.400	0.99	8.400	2.05	14.400	2.28	20.40	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.600	0.99	8.600	2.05	14.600	2.28	20.60	0.91
2.700	0.99	8.700	2.05	14.700	2.28	20.70	0.91
2.800	0.99	8.800	2.05	14.800	2.28	20.80	0.91
2.900	0.99	8.900	2.05	14.900	2.28	20.90	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.100	0.99	9.100	2.43	15.100	2.28	21.10	0.91

3.200	0.99	9.200	2.43	15.200	2.28	21.20	0.91
3.300	0.99	9.300	2.43	15.300	2.28	21.30	0.91
3.400	0.99	9.400	2.43	15.400	2.28	21.40	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.600	0.99	9.600	2.74	15.600	2.28	21.60	0.91
3.700	0.99	9.700	2.74	15.700	2.28	21.70	0.91
3.800	0.99	9.800	2.74	15.800	2.28	21.80	0.91
3.900	0.99	9.900	2.74	15.900	2.28	21.90	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.100	1.22	10.100	3.50	16.100	1.37	22.10	0.91
4.200	1.22	10.200	3.50	16.200	1.37	22.20	0.91
4.300	1.22	10.300	3.50	16.300	1.37	22.30	0.91
4.400	1.22	10.400	3.50	16.400	1.37	22.40	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.600	1.22	10.600	4.71	16.600	1.37	22.60	0.91
4.700	1.22	10.700	4.71	16.700	1.37	22.70	0.91
4.800	1.22	10.800	4.71	16.800	1.37	22.80	0.91
4.900	1.22	10.900	4.71	16.900	1.37	22.90	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.100	1.22	11.100	7.30	17.100	1.37	23.10	0.91
5.200	1.22	11.200	7.30	17.200	1.37	23.20	0.91
5.300	1.22	11.300	7.30	17.300	1.37	23.30	0.91
5.400	1.22	11.400	7.30	17.400	1.37	23.40	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.600	1.22	11.600	31.62	17.600	1.37	23.60	0.91
5.700	1.22	11.700	31.62	17.700	1.37	23.70	0.91
5.800	1.22	11.800	57.76	17.800	1.37	23.80	0.91
5.900	1.22	11.900	83.90	17.900	1.37	23.90	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Max.Eff.Inten.(mm/hr)=	83.90	87.37	
over (min)	6.00	12.00	
Storage Coeff. (min)=	4.80 (ii)	9.68 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.20	0.11	
			TOTALS
PEAK FLOW (cms)=	1.31	0.34	1.652 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	75.00	33.40	58.36
TOTAL RAINFALL (mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT =	0.99	0.44	0.77

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0600)| IN= 2---> OUT= 1	DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	9.730	1.652	12.00	58.36
OUTFLOW: ID= 1 (0600)	9.730	0.094	13.10	58.31

PEAK FLOW REDUCTION [Qout/Qin](%)= 5.67
TIME SHIFT OF PEAK FLOW (min)= 66.00
MAXIMUM STORAGE USED (ha.m.)= 0.3476

CALIB STANDHYD (0201) ID= 1 DT= 6.0 min	Area (ha)= 2.61	Total Imp(%)= 85.00	Dir. Conn.(%)= 68.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.22	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	131.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.76	6.100	1.52	12.100	10.94	18.10	1.37
0.200	0.76	6.200	1.52	12.200	10.94	18.20	1.37
0.300	0.76	6.300	1.52	12.300	10.94	18.30	1.37
0.400	0.76	6.400	1.52	12.400	10.94	18.40	1.37
0.500	0.76	6.500	1.52	12.500	10.94	18.50	1.37
0.600	0.76	6.600	1.52	12.600	5.62	18.60	1.37
0.700	0.76	6.700	1.52	12.700	5.62	18.70	1.37
0.800	0.76	6.800	1.52	12.800	5.62	18.80	1.37
0.900	0.76	6.900	1.52	12.900	5.62	18.90	1.37
1.000	0.76	7.000	1.52	13.000	5.62	19.00	1.37
1.100	0.76	7.100	1.52	13.100	1.06	19.10	1.37
1.200	0.76	7.200	1.52	13.200	1.06	19.20	1.37
1.300	0.76	7.300	1.52	13.300	1.06	19.30	1.37
1.400	0.76	7.400	1.52	13.400	1.06	19.40	1.37
1.500	0.76	7.500	1.52	13.500	1.06	19.50	1.37
1.600	0.76	7.600	1.52	13.600	6.23	19.60	1.37
1.700	0.76	7.700	1.52	13.700	6.23	19.70	1.37
1.800	1.06	7.800	1.52	13.800	6.23	19.80	1.37
1.900	1.37	7.900	1.52	13.900	6.23	19.90	1.37
2.000	1.37	8.000	1.52	14.000	6.23	20.00	1.37
2.100	0.99	8.100	2.05	14.100	2.28	20.10	0.91
2.200	0.99	8.200	2.05	14.200	2.28	20.20	0.91
2.300	0.99	8.300	2.05	14.300	2.28	20.30	0.91
2.400	0.99	8.400	2.05	14.400	2.28	20.40	0.91
2.500	0.99	8.500	2.05	14.500	2.28	20.50	0.91
2.600	0.99	8.600	2.05	14.600	2.28	20.60	0.91
2.700	0.99	8.700	2.05	14.700	2.28	20.70	0.91
2.800	0.99	8.800	2.05	14.800	2.28	20.80	0.91
2.900	0.99	8.900	2.05	14.900	2.28	20.90	0.91
3.000	0.99	9.000	2.05	15.000	2.28	21.00	0.91
3.100	0.99	9.100	2.43	15.100	2.28	21.10	0.91
3.200	0.99	9.200	2.43	15.200	2.28	21.20	0.91
3.300	0.99	9.300	2.43	15.300	2.28	21.30	0.91
3.400	0.99	9.400	2.43	15.400	2.28	21.40	0.91
3.500	0.99	9.500	2.43	15.500	2.28	21.50	0.91
3.600	0.99	9.600	2.74	15.600	2.28	21.60	0.91

3.700	0.99	9.700	2.74	15.700	2.28	21.70	0.91
3.800	0.99	9.800	2.74	15.800	2.28	21.80	0.91
3.900	0.99	9.900	2.74	15.900	2.28	21.90	0.91
4.000	0.99	10.000	2.74	16.000	2.28	22.00	0.91
4.100	1.22	10.100	3.50	16.100	1.37	22.10	0.91
4.200	1.22	10.200	3.50	16.200	1.37	22.20	0.91
4.300	1.22	10.300	3.50	16.300	1.37	22.30	0.91
4.400	1.22	10.400	3.50	16.400	1.37	22.40	0.91
4.500	1.22	10.500	3.50	16.500	1.37	22.50	0.91
4.600	1.22	10.600	4.71	16.600	1.37	22.60	0.91
4.700	1.22	10.700	4.71	16.700	1.37	22.70	0.91
4.800	1.22	10.800	4.71	16.800	1.37	22.80	0.91
4.900	1.22	10.900	4.71	16.900	1.37	22.90	0.91
5.000	1.22	11.000	4.71	17.000	1.37	23.00	0.91
5.100	1.22	11.100	7.30	17.100	1.37	23.10	0.91
5.200	1.22	11.200	7.30	17.200	1.37	23.20	0.91
5.300	1.22	11.300	7.30	17.300	1.37	23.30	0.91
5.400	1.22	11.400	7.30	17.400	1.37	23.40	0.91
5.500	1.22	11.500	7.30	17.500	1.37	23.50	0.91
5.600	1.22	11.600	31.62	17.600	1.37	23.60	0.91
5.700	1.22	11.700	31.62	17.700	1.37	23.70	0.91
5.800	1.22	11.800	57.76	17.800	1.37	23.80	0.91
5.900	1.22	11.900	83.90	17.900	1.37	23.90	0.91
6.000	1.22	12.000	83.90	18.000	1.37	24.00	0.91

Max.Eff.Inten.(mm/hr)=	83.90	96.81	
over (min)	6.00	12.00	
Storage Coeff. (min)=	3.24 (ii)	7.37 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.24	0.12	
			TOTALS
PEAK FLOW (cms)=	0.41	0.08	0.493 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	75.00	34.69	62.10
TOTAL RAINFALL (mm)=	76.00	76.00	76.00
RUNOFF COEFFICIENT =	0.99	0.46	0.82

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 02-15-2023                                TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________________

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



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
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| Ptotal= 89.90 mm |    Comments: 10yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.90 |  6.00    1.80 | 12.00   12.95 | 18.00    1.62
                0.25    0.90 |  6.25    1.80 | 12.25   12.95 | 18.25    1.62
                0.50    0.90 |  6.50    1.80 | 12.50    6.65 | 18.50    1.62
                0.75    0.90 |  6.75    1.80 | 12.75    6.65 | 18.75    1.62
                1.00    0.90 |  7.00    1.80 | 13.00    1.26 | 19.00    1.62
                1.25    0.90 |  7.25    1.80 | 13.25    1.26 | 19.25    1.62
                1.50    0.90 |  7.50    1.80 | 13.50    7.37 | 19.50    1.62
                1.75    1.62 |  7.75    1.80 | 13.75    7.37 | 19.75    1.62
                2.00    1.17 |  8.00    2.43 | 14.00    2.70 | 20.00    1.08
                2.25    1.17 |  8.25    2.43 | 14.25    2.70 | 20.25    1.08
                2.50    1.17 |  8.50    2.43 | 14.50    2.70 | 20.50    1.08
                2.75    1.17 |  8.75    2.43 | 14.75    2.70 | 20.75    1.08
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3.00	1.17	9.00	2.88	15.00	2.70	21.00	1.08
3.25	1.17	9.25	2.88	15.25	2.70	21.25	1.08
3.50	1.17	9.50	3.24	15.50	2.70	21.50	1.08
3.75	1.17	9.75	3.24	15.75	2.70	21.75	1.08
4.00	1.44	10.00	4.14	16.00	1.62	22.00	1.08
4.25	1.44	10.25	4.14	16.25	1.62	22.25	1.08
4.50	1.44	10.50	5.57	16.50	1.62	22.50	1.08
4.75	1.44	10.75	5.57	16.75	1.62	22.75	1.08
5.00	1.44	11.00	8.63	17.00	1.62	23.00	1.08
5.25	1.44	11.25	8.63	17.25	1.62	23.25	1.08
5.50	1.44	11.50	37.40	17.50	1.62	23.50	1.08
5.75	1.44	11.75	99.25	17.75	1.62	23.75	1.08

CALIB	
STANDHYD (0200)	Area (ha)= 9.73
ID= 1 DT= 6.0 min	Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.90	6.100	1.80	12.100	12.95	18.10	1.62
0.200	0.90	6.200	1.80	12.200	12.95	18.20	1.62
0.300	0.90	6.300	1.80	12.300	12.95	18.30	1.62
0.400	0.90	6.400	1.80	12.400	12.95	18.40	1.62
0.500	0.90	6.500	1.80	12.500	12.94	18.50	1.62
0.600	0.90	6.600	1.80	12.600	6.65	18.60	1.62
0.700	0.90	6.700	1.80	12.700	6.65	18.70	1.62
0.800	0.90	6.800	1.80	12.800	6.65	18.80	1.62
0.900	0.90	6.900	1.80	12.900	6.65	18.90	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.100	0.90	7.100	1.80	13.100	1.26	19.10	1.62
1.200	0.90	7.200	1.80	13.200	1.26	19.20	1.62
1.300	0.90	7.300	1.80	13.300	1.26	19.30	1.62
1.400	0.90	7.400	1.80	13.400	1.26	19.40	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.600	0.90	7.600	1.80	13.600	7.37	19.60	1.62
1.700	0.90	7.700	1.80	13.700	7.37	19.70	1.62
1.800	1.26	7.800	1.80	13.800	7.37	19.80	1.62
1.900	1.62	7.900	1.80	13.900	7.37	19.90	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.100	1.17	8.100	2.43	14.100	2.70	20.10	1.08
2.200	1.17	8.200	2.43	14.200	2.70	20.20	1.08
2.300	1.17	8.300	2.43	14.300	2.70	20.30	1.08
2.400	1.17	8.400	2.43	14.400	2.70	20.40	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.600	1.17	8.600	2.43	14.600	2.70	20.60	1.08
2.700	1.17	8.700	2.43	14.700	2.70	20.70	1.08
2.800	1.17	8.800	2.43	14.800	2.70	20.80	1.08
2.900	1.17	8.900	2.43	14.900	2.70	20.90	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.100	1.17	9.100	2.88	15.100	2.70	21.10	1.08

3.200	1.17	9.200	2.88	15.200	2.70	21.20	1.08
3.300	1.17	9.300	2.88	15.300	2.70	21.30	1.08
3.400	1.17	9.400	2.88	15.400	2.70	21.40	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.600	1.17	9.600	3.24	15.600	2.70	21.60	1.08
3.700	1.17	9.700	3.24	15.700	2.70	21.70	1.08
3.800	1.17	9.800	3.24	15.800	2.70	21.80	1.08
3.900	1.17	9.900	3.24	15.900	2.70	21.90	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.100	1.44	10.100	4.14	16.100	1.62	22.10	1.08
4.200	1.44	10.200	4.14	16.200	1.62	22.20	1.08
4.300	1.44	10.300	4.14	16.300	1.62	22.30	1.08
4.400	1.44	10.400	4.14	16.400	1.62	22.40	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.600	1.44	10.600	5.57	16.600	1.62	22.60	1.08
4.700	1.44	10.700	5.57	16.700	1.62	22.70	1.08
4.800	1.44	10.800	5.57	16.800	1.62	22.80	1.08
4.900	1.44	10.900	5.57	16.900	1.62	22.90	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.100	1.44	11.100	8.63	17.100	1.62	23.10	1.08
5.200	1.44	11.200	8.63	17.200	1.62	23.20	1.08
5.300	1.44	11.300	8.63	17.300	1.62	23.30	1.08
5.400	1.44	11.400	8.63	17.400	1.62	23.40	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.600	1.44	11.600	37.40	17.600	1.62	23.60	1.08
5.700	1.44	11.700	37.40	17.700	1.62	23.70	1.08
5.800	1.44	11.800	68.33	17.800	1.62	23.80	1.08
5.900	1.44	11.900	99.25	17.900	1.62	23.90	1.08
6.000	1.44	12.000	99.24	18.000	1.62	24.00	1.08

Max.Eff.Inten.(mm/hr)=	99.25	113.75	
over (min)	6.00	12.00	
Storage Coeff. (min)=	4.49 (ii)	9.05 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.21	0.11	
			TOTALS
PEAK FLOW (cms)=	1.57	0.45	2.017 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	88.90	43.49	70.73
TOTAL RAINFALL (mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT =	0.99	0.48	0.79

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0600)| IN= 2---> OUT= 1	DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	9.730	2.017	12.00	70.73
OUTFLOW: ID= 1 (0600)	9.730	0.127	13.00	70.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.28
TIME SHIFT OF PEAK FLOW (min)= 60.00
MAXIMUM STORAGE USED (ha.m.)= 0.4194

CALIB STANDHYD (0201) ID= 1 DT= 6.0 min	Area (ha)= 2.61	Total Imp(%)= 85.00	Dir. Conn.(%)= 68.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.22	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	131.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.90	6.100	1.80	12.100	12.95	18.10	1.62
0.200	0.90	6.200	1.80	12.200	12.95	18.20	1.62
0.300	0.90	6.300	1.80	12.300	12.95	18.30	1.62
0.400	0.90	6.400	1.80	12.400	12.95	18.40	1.62
0.500	0.90	6.500	1.80	12.500	12.94	18.50	1.62
0.600	0.90	6.600	1.80	12.600	6.65	18.60	1.62
0.700	0.90	6.700	1.80	12.700	6.65	18.70	1.62
0.800	0.90	6.800	1.80	12.800	6.65	18.80	1.62
0.900	0.90	6.900	1.80	12.900	6.65	18.90	1.62
1.000	0.90	7.000	1.80	13.000	6.65	19.00	1.62
1.100	0.90	7.100	1.80	13.100	1.26	19.10	1.62
1.200	0.90	7.200	1.80	13.200	1.26	19.20	1.62
1.300	0.90	7.300	1.80	13.300	1.26	19.30	1.62
1.400	0.90	7.400	1.80	13.400	1.26	19.40	1.62
1.500	0.90	7.500	1.80	13.500	1.26	19.50	1.62
1.600	0.90	7.600	1.80	13.600	7.37	19.60	1.62
1.700	0.90	7.700	1.80	13.700	7.37	19.70	1.62
1.800	1.26	7.800	1.80	13.800	7.37	19.80	1.62
1.900	1.62	7.900	1.80	13.900	7.37	19.90	1.62
2.000	1.62	8.000	1.80	14.000	7.37	20.00	1.62
2.100	1.17	8.100	2.43	14.100	2.70	20.10	1.08
2.200	1.17	8.200	2.43	14.200	2.70	20.20	1.08
2.300	1.17	8.300	2.43	14.300	2.70	20.30	1.08
2.400	1.17	8.400	2.43	14.400	2.70	20.40	1.08
2.500	1.17	8.500	2.43	14.500	2.70	20.50	1.08
2.600	1.17	8.600	2.43	14.600	2.70	20.60	1.08
2.700	1.17	8.700	2.43	14.700	2.70	20.70	1.08
2.800	1.17	8.800	2.43	14.800	2.70	20.80	1.08
2.900	1.17	8.900	2.43	14.900	2.70	20.90	1.08
3.000	1.17	9.000	2.43	15.000	2.70	21.00	1.08
3.100	1.17	9.100	2.88	15.100	2.70	21.10	1.08
3.200	1.17	9.200	2.88	15.200	2.70	21.20	1.08
3.300	1.17	9.300	2.88	15.300	2.70	21.30	1.08
3.400	1.17	9.400	2.88	15.400	2.70	21.40	1.08
3.500	1.17	9.500	2.88	15.500	2.70	21.50	1.08
3.600	1.17	9.600	3.24	15.600	2.70	21.60	1.08

3.700	1.17	9.700	3.24	15.700	2.70	21.70	1.08
3.800	1.17	9.800	3.24	15.800	2.70	21.80	1.08
3.900	1.17	9.900	3.24	15.900	2.70	21.90	1.08
4.000	1.17	10.000	3.24	16.000	2.70	22.00	1.08
4.100	1.44	10.100	4.14	16.100	1.62	22.10	1.08
4.200	1.44	10.200	4.14	16.200	1.62	22.20	1.08
4.300	1.44	10.300	4.14	16.300	1.62	22.30	1.08
4.400	1.44	10.400	4.14	16.400	1.62	22.40	1.08
4.500	1.44	10.500	4.14	16.500	1.62	22.50	1.08
4.600	1.44	10.600	5.57	16.600	1.62	22.60	1.08
4.700	1.44	10.700	5.57	16.700	1.62	22.70	1.08
4.800	1.44	10.800	5.57	16.800	1.62	22.80	1.08
4.900	1.44	10.900	5.57	16.900	1.62	22.90	1.08
5.000	1.44	11.000	5.57	17.000	1.62	23.00	1.08
5.100	1.44	11.100	8.63	17.100	1.62	23.10	1.08
5.200	1.44	11.200	8.63	17.200	1.62	23.20	1.08
5.300	1.44	11.300	8.63	17.300	1.62	23.30	1.08
5.400	1.44	11.400	8.63	17.400	1.62	23.40	1.08
5.500	1.44	11.500	8.63	17.500	1.62	23.50	1.08
5.600	1.44	11.600	37.40	17.600	1.62	23.60	1.08
5.700	1.44	11.700	37.40	17.700	1.62	23.70	1.08
5.800	1.44	11.800	68.33	17.800	1.62	23.80	1.08
5.900	1.44	11.900	99.25	17.900	1.62	23.90	1.08
6.000	1.44	12.000	99.24	18.000	1.62	24.00	1.08

Max.Eff.Inten.(mm/hr)=	99.25	125.56	
over (min)	6.00	12.00	
Storage Coeff. (min)=	3.03 (ii)	6.89 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.24	0.13	
			TOTALS
PEAK FLOW (cms)=	0.49	0.11	0.596 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	88.90	45.02	74.86
TOTAL RAINFALL (mm)=	89.90	89.90	89.90
RUNOFF COEFFICIENT =	0.99	0.50	0.83

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\9435d807-b1a5-49f4-8501-f5af15be182a\scena
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DATE: 02-15-2023                              TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________


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



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\f63ebd89
| Ptotal=107.50 mm |    Comments: 25yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.08 |  6.00    2.15 | 12.00   15.48 | 18.00    1.93
                0.25    1.08 |  6.25    2.15 | 12.25   15.48 | 18.25    1.93
                0.50    1.08 |  6.50    2.15 | 12.50    7.95 | 18.50    1.93
                0.75    1.08 |  6.75    2.15 | 12.75    7.95 | 18.75    1.93
                1.00    1.08 |  7.00    2.15 | 13.00    1.50 | 19.00    1.93
                1.25    1.08 |  7.25    2.15 | 13.25    1.50 | 19.25    1.93
                1.50    1.08 |  7.50    2.15 | 13.50    8.81 | 19.50    1.93
                1.75    1.93 |  7.75    2.15 | 13.75    8.81 | 19.75    1.93
                2.00    1.40 |  8.00    2.90 | 14.00    3.22 | 20.00    1.29
                2.25    1.40 |  8.25    2.90 | 14.25    3.22 | 20.25    1.29
                2.50    1.40 |  8.50    2.90 | 14.50    3.22 | 20.50    1.29
                2.75    1.40 |  8.75    2.90 | 14.75    3.22 | 20.75    1.29
```

3.00	1.40	9.00	3.44	15.00	3.22	21.00	1.29
3.25	1.40	9.25	3.44	15.25	3.22	21.25	1.29
3.50	1.40	9.50	3.87	15.50	3.22	21.50	1.29
3.75	1.40	9.75	3.87	15.75	3.22	21.75	1.29
4.00	1.72	10.00	4.95	16.00	1.93	22.00	1.29
4.25	1.72	10.25	4.95	16.25	1.93	22.25	1.29
4.50	1.72	10.50	6.66	16.50	1.93	22.50	1.29
4.75	1.72	10.75	6.66	16.75	1.93	22.75	1.29
5.00	1.72	11.00	10.32	17.00	1.93	23.00	1.29
5.25	1.72	11.25	10.32	17.25	1.93	23.25	1.29
5.50	1.72	11.50	44.72	17.50	1.93	23.50	1.29
5.75	1.72	11.75	118.68	17.75	1.93	23.75	1.29

CALIB STANDHYD (0200) ID= 1 DT= 6.0 min	Area (ha)= 9.73 Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	1.08	6.100	2.15	12.100	15.48	18.10	1.93
0.200	1.08	6.200	2.15	12.200	15.48	18.20	1.93
0.300	1.08	6.300	2.15	12.300	15.48	18.30	1.94
0.400	1.08	6.400	2.15	12.400	15.48	18.40	1.93
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.600	1.08	6.600	2.15	12.600	7.96	18.60	1.93
0.700	1.08	6.700	2.15	12.700	7.96	18.70	1.93
0.800	1.08	6.800	2.15	12.800	7.96	18.80	1.94
0.900	1.08	6.900	2.15	12.900	7.96	18.90	1.93
1.000	1.08	7.000	2.15	13.000	7.95	19.00	1.94
1.100	1.08	7.100	2.15	13.100	1.50	19.10	1.93
1.200	1.08	7.200	2.15	13.200	1.50	19.20	1.93
1.300	1.08	7.300	2.15	13.300	1.51	19.30	1.94
1.400	1.08	7.400	2.15	13.400	1.50	19.40	1.93
1.500	1.08	7.500	2.15	13.500	1.51	19.50	1.94
1.600	1.08	7.600	2.15	13.600	8.82	19.60	1.93
1.700	1.08	7.700	2.15	13.700	8.82	19.70	1.93
1.800	1.51	7.800	2.15	13.800	8.82	19.80	1.94
1.900	1.93	7.900	2.15	13.900	8.82	19.90	1.93
2.000	1.93	8.000	2.15	14.000	8.81	20.00	1.93
2.100	1.40	8.100	2.90	14.100	3.22	20.10	1.29
2.200	1.40	8.200	2.90	14.200	3.22	20.20	1.29
2.300	1.40	8.300	2.90	14.300	3.23	20.30	1.29
2.400	1.40	8.400	2.90	14.400	3.22	20.40	1.29
2.500	1.40	8.500	2.90	14.500	3.23	20.50	1.29
2.600	1.40	8.600	2.90	14.600	3.22	20.60	1.29
2.700	1.40	8.700	2.90	14.700	3.22	20.70	1.29
2.800	1.40	8.800	2.90	14.800	3.23	20.80	1.29
2.900	1.40	8.900	2.90	14.900	3.22	20.90	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.100	1.40	9.100	3.44	15.100	3.22	21.10	1.29

3.200	1.40	9.200	3.44	15.200	3.22	21.20	1.29
3.300	1.40	9.300	3.44	15.300	3.23	21.30	1.29
3.400	1.40	9.400	3.44	15.400	3.22	21.40	1.29
3.500	1.40	9.500	3.44	15.500	3.23	21.50	1.29
3.600	1.40	9.600	3.87	15.600	3.22	21.60	1.29
3.700	1.40	9.700	3.87	15.700	3.22	21.70	1.29
3.800	1.40	9.800	3.87	15.800	3.23	21.80	1.29
3.900	1.40	9.900	3.87	15.900	3.22	21.90	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.100	1.72	10.100	4.95	16.100	1.93	22.10	1.29
4.200	1.72	10.200	4.95	16.200	1.93	22.20	1.29
4.300	1.72	10.300	4.95	16.300	1.94	22.30	1.29
4.400	1.72	10.400	4.95	16.400	1.93	22.40	1.29
4.500	1.72	10.500	4.95	16.500	1.94	22.50	1.29
4.600	1.72	10.600	6.66	16.600	1.93	22.60	1.29
4.700	1.72	10.700	6.66	16.700	1.93	22.70	1.29
4.800	1.72	10.800	6.67	16.800	1.94	22.80	1.29
4.900	1.72	10.900	6.66	16.900	1.93	22.90	1.29
5.000	1.72	11.000	6.67	17.000	1.94	23.00	1.29
5.100	1.72	11.100	10.32	17.100	1.93	23.10	1.29
5.200	1.72	11.200	10.32	17.200	1.93	23.20	1.29
5.300	1.72	11.300	10.32	17.300	1.94	23.30	1.29
5.400	1.72	11.400	10.32	17.400	1.93	23.40	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.600	1.72	11.600	44.72	17.600	1.93	23.60	1.29
5.700	1.72	11.700	44.72	17.700	1.93	23.70	1.29
5.800	1.72	11.800	81.71	17.800	1.94	23.80	1.29
5.900	1.72	11.900	118.68	17.900	1.93	23.90	1.29
6.000	1.72	12.000	118.67	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=	118.68	149.03	
over (min)	6.00	12.00	
Storage Coeff. (min)=	4.18 (ii)	8.43 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.22	0.11	
			TOTALS
PEAK FLOW (cms)=	1.88	0.61	2.494 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	106.50	57.05	86.72
TOTAL RAINFALL (mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT =	0.99	0.53	0.81

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0600)| IN= 2---> OUT= 1	DT= 5.0 min

OVERFLOW IS OFF

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	9.730	2.494	12.00	86.72
OUTFLOW: ID= 1 (0600)	9.730	0.202	12.80	86.67

PEAK FLOW REDUCTION [Qout/Qin](%)= 8.12
TIME SHIFT OF PEAK FLOW (min)= 48.00
MAXIMUM STORAGE USED (ha.m.)= 0.5021

CALIB
STANDHYD (0201)
ID= 1 DT= 6.0 min

Area (ha)= 2.61
Total Imp(%)= 85.00 Dir. Conn.(%)= 68.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.22	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	131.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	1.08	6.100	2.15	12.100	15.48	18.10	1.93
0.200	1.08	6.200	2.15	12.200	15.48	18.20	1.93
0.300	1.08	6.300	2.15	12.300	15.48	18.30	1.94
0.400	1.08	6.400	2.15	12.400	15.48	18.40	1.93
0.500	1.08	6.500	2.15	12.500	15.48	18.50	1.94
0.600	1.08	6.600	2.15	12.600	7.96	18.60	1.93
0.700	1.08	6.700	2.15	12.700	7.96	18.70	1.93
0.800	1.08	6.800	2.15	12.800	7.96	18.80	1.94
0.900	1.08	6.900	2.15	12.900	7.96	18.90	1.93
1.000	1.08	7.000	2.15	13.000	7.95	19.00	1.94
1.100	1.08	7.100	2.15	13.100	1.50	19.10	1.93
1.200	1.08	7.200	2.15	13.200	1.50	19.20	1.93
1.300	1.08	7.300	2.15	13.300	1.51	19.30	1.94
1.400	1.08	7.400	2.15	13.400	1.50	19.40	1.93
1.500	1.08	7.500	2.15	13.500	1.51	19.50	1.94
1.600	1.08	7.600	2.15	13.600	8.82	19.60	1.93
1.700	1.08	7.700	2.15	13.700	8.82	19.70	1.93
1.800	1.51	7.800	2.15	13.800	8.82	19.80	1.94
1.900	1.93	7.900	2.15	13.900	8.82	19.90	1.93
2.000	1.93	8.000	2.15	14.000	8.81	20.00	1.93
2.100	1.40	8.100	2.90	14.100	3.22	20.10	1.29
2.200	1.40	8.200	2.90	14.200	3.22	20.20	1.29
2.300	1.40	8.300	2.90	14.300	3.23	20.30	1.29
2.400	1.40	8.400	2.90	14.400	3.22	20.40	1.29
2.500	1.40	8.500	2.90	14.500	3.23	20.50	1.29
2.600	1.40	8.600	2.90	14.600	3.22	20.60	1.29
2.700	1.40	8.700	2.90	14.700	3.22	20.70	1.29
2.800	1.40	8.800	2.90	14.800	3.23	20.80	1.29
2.900	1.40	8.900	2.90	14.900	3.22	20.90	1.29
3.000	1.40	9.000	2.90	15.000	3.23	21.00	1.29
3.100	1.40	9.100	3.44	15.100	3.22	21.10	1.29
3.200	1.40	9.200	3.44	15.200	3.22	21.20	1.29
3.300	1.40	9.300	3.44	15.300	3.23	21.30	1.29
3.400	1.40	9.400	3.44	15.400	3.22	21.40	1.29
3.500	1.40	9.500	3.44	15.500	3.23	21.50	1.29
3.600	1.40	9.600	3.87	15.600	3.22	21.60	1.29

3.700	1.40	9.700	3.87	15.700	3.22	21.70	1.29
3.800	1.40	9.800	3.87	15.800	3.23	21.80	1.29
3.900	1.40	9.900	3.87	15.900	3.22	21.90	1.29
4.000	1.40	10.000	3.87	16.000	3.22	22.00	1.29
4.100	1.72	10.100	4.95	16.100	1.93	22.10	1.29
4.200	1.72	10.200	4.95	16.200	1.93	22.20	1.29
4.300	1.72	10.300	4.95	16.300	1.94	22.30	1.29
4.400	1.72	10.400	4.95	16.400	1.93	22.40	1.29
4.500	1.72	10.500	4.95	16.500	1.94	22.50	1.29
4.600	1.72	10.600	6.66	16.600	1.93	22.60	1.29
4.700	1.72	10.700	6.66	16.700	1.93	22.70	1.29
4.800	1.72	10.800	6.67	16.800	1.94	22.80	1.29
4.900	1.72	10.900	6.66	16.900	1.93	22.90	1.29
5.000	1.72	11.000	6.67	17.000	1.94	23.00	1.29
5.100	1.72	11.100	10.32	17.100	1.93	23.10	1.29
5.200	1.72	11.200	10.32	17.200	1.93	23.20	1.29
5.300	1.72	11.300	10.32	17.300	1.94	23.30	1.29
5.400	1.72	11.400	10.32	17.400	1.93	23.40	1.29
5.500	1.72	11.500	10.32	17.500	1.94	23.50	1.29
5.600	1.72	11.600	44.72	17.600	1.93	23.60	1.29
5.700	1.72	11.700	44.72	17.700	1.93	23.70	1.29
5.800	1.72	11.800	81.71	17.800	1.94	23.80	1.29
5.900	1.72	11.900	118.68	17.900	1.93	23.90	1.29
6.000	1.72	12.000	118.67	18.000	1.94	24.00	1.29

Max.Eff.Inten.(mm/hr)=	118.68	163.85	
over (min)	6.00	12.00	
Storage Coeff. (min)=	2.82 (ii)	6.42 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.25	0.13	
			TOTALS
PEAK FLOW (cms)=	0.58	0.15	0.729 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	106.50	58.85	91.25
TOTAL RAINFALL (mm)=	107.50	107.50	107.50
RUNOFF COEFFICIENT =	0.99	0.55	0.85

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 02-15-2023                          TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________________

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



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\4cbea1a7
| Ptotal=120.60 mm |    Comments: 50yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.21 |  6.00    2.41 | 12.00   17.37 | 18.00    2.17
                0.25    1.21 |  6.25    2.41 | 12.25   17.37 | 18.25    2.17
                0.50    1.21 |  6.50    2.41 | 12.50    8.92 | 18.50    2.17
                0.75    1.21 |  6.75    2.41 | 12.75    8.92 | 18.75    2.17
                1.00    1.21 |  7.00    2.41 | 13.00    1.69 | 19.00    2.17
                1.25    1.21 |  7.25    2.41 | 13.25    1.69 | 19.25    2.17
                1.50    1.21 |  7.50    2.41 | 13.50    9.89 | 19.50    2.17
                1.75    2.17 |  7.75    2.41 | 13.75    9.89 | 19.75    2.17
                2.00    1.57 |  8.00    3.26 | 14.00    3.62 | 20.00    1.45
                2.25    1.57 |  8.25    3.26 | 14.25    3.62 | 20.25    1.45
                2.50    1.57 |  8.50    3.26 | 14.50    3.62 | 20.50    1.45
                2.75    1.57 |  8.75    3.26 | 14.75    3.62 | 20.75    1.45
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3.00	1.57	9.00	3.86	15.00	3.62	21.00	1.45
3.25	1.57	9.25	3.86	15.25	3.62	21.25	1.45
3.50	1.57	9.50	4.34	15.50	3.62	21.50	1.45
3.75	1.57	9.75	4.34	15.75	3.62	21.75	1.45
4.00	1.93	10.00	5.55	16.00	2.17	22.00	1.45
4.25	1.93	10.25	5.55	16.25	2.17	22.25	1.45
4.50	1.93	10.50	7.48	16.50	2.17	22.50	1.45
4.75	1.93	10.75	7.48	16.75	2.17	22.75	1.45
5.00	1.93	11.00	11.58	17.00	2.17	23.00	1.45
5.25	1.93	11.25	11.58	17.25	2.17	23.25	1.45
5.50	1.93	11.50	50.17	17.50	2.17	23.50	1.45
5.75	1.93	11.75	133.14	17.75	2.17	23.75	1.45

CALIB STANDHYD (0200) ID= 1 DT= 6.0 min	Area (ha)= 9.73 Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	1.21	6.100	2.41	12.100	17.37	18.10	2.17
0.200	1.21	6.200	2.41	12.200	17.37	18.20	2.17
0.300	1.21	6.300	2.41	12.300	17.37	18.30	2.17
0.400	1.21	6.400	2.41	12.400	17.37	18.40	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.600	1.21	6.600	2.41	12.600	8.92	18.60	2.17
0.700	1.21	6.700	2.41	12.700	8.92	18.70	2.17
0.800	1.21	6.800	2.41	12.800	8.92	18.80	2.17
0.900	1.21	6.900	2.41	12.900	8.92	18.90	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.100	1.21	7.100	2.41	13.100	1.69	19.10	2.17
1.200	1.21	7.200	2.41	13.200	1.69	19.20	2.17
1.300	1.21	7.300	2.41	13.300	1.69	19.30	2.17
1.400	1.21	7.400	2.41	13.400	1.69	19.40	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.600	1.21	7.600	2.41	13.600	9.89	19.60	2.17
1.700	1.21	7.700	2.41	13.700	9.89	19.70	2.17
1.800	1.69	7.800	2.41	13.800	9.89	19.80	2.17
1.900	2.17	7.900	2.41	13.900	9.89	19.90	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.100	1.57	8.100	3.26	14.100	3.62	20.10	1.45
2.200	1.57	8.200	3.26	14.200	3.62	20.20	1.45
2.300	1.57	8.300	3.26	14.300	3.62	20.30	1.45
2.400	1.57	8.400	3.26	14.400	3.62	20.40	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.600	1.57	8.600	3.26	14.600	3.62	20.60	1.45
2.700	1.57	8.700	3.26	14.700	3.62	20.70	1.45
2.800	1.57	8.800	3.26	14.800	3.62	20.80	1.45
2.900	1.57	8.900	3.26	14.900	3.62	20.90	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.100	1.57	9.100	3.86	15.100	3.62	21.10	1.45

3.200	1.57	9.200	3.86	15.200	3.62	21.20	1.45
3.300	1.57	9.300	3.86	15.300	3.62	21.30	1.45
3.400	1.57	9.400	3.86	15.400	3.62	21.40	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.600	1.57	9.600	4.34	15.600	3.62	21.60	1.45
3.700	1.57	9.700	4.34	15.700	3.62	21.70	1.45
3.800	1.57	9.800	4.34	15.800	3.62	21.80	1.45
3.900	1.57	9.900	4.34	15.900	3.62	21.90	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.100	1.93	10.100	5.55	16.100	2.17	22.10	1.45
4.200	1.93	10.200	5.55	16.200	2.17	22.20	1.45
4.300	1.93	10.300	5.55	16.300	2.17	22.30	1.45
4.400	1.93	10.400	5.55	16.400	2.17	22.40	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.600	1.93	10.600	7.48	16.600	2.17	22.60	1.45
4.700	1.93	10.700	7.48	16.700	2.17	22.70	1.45
4.800	1.93	10.800	7.48	16.800	2.17	22.80	1.45
4.900	1.93	10.900	7.48	16.900	2.17	22.90	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.100	1.93	11.100	11.58	17.100	2.17	23.10	1.45
5.200	1.93	11.200	11.58	17.200	2.17	23.20	1.45
5.300	1.93	11.300	11.58	17.300	2.17	23.30	1.45
5.400	1.93	11.400	11.58	17.400	2.17	23.40	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.600	1.93	11.600	50.17	17.600	2.17	23.60	1.45
5.700	1.93	11.700	50.17	17.700	2.17	23.70	1.45
5.800	1.93	11.800	91.66	17.800	2.17	23.80	1.45
5.900	1.93	11.900	133.14	17.900	2.17	23.90	1.45
6.000	1.93	12.000	133.13	18.000	2.17	24.00	1.45

Max.Eff.Inten.(mm/hr)=	133.14	176.29	
over (min)	6.00	12.00	
Storage Coeff. (min)=	3.99 (ii)	8.05 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.22	0.12	
			TOTALS
PEAK FLOW (cms)=	2.12	0.74	2.856 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	119.60	67.59	98.80
TOTAL RAINFALL (mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT =	0.99	0.56	0.82

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0600) IN= 2---> OUT= 1 DT= 5.0 min	OVERFLOW IS OFF			
	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1500	0.4500
	0.0100	0.0200	0.2000	0.5000
	0.0200	0.1100	0.2500	0.5400
	0.0400	0.2100	0.3250	0.5900
	0.0800	0.3200	0.4500	0.6200
	0.1000	0.3600	3.0000	0.6500
	0.1200	0.4100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	9.730	2.856	12.00	98.80
OUTFLOW: ID= 1 (0600)	9.730	0.282	12.70	98.74

PEAK FLOW REDUCTION [Qout/Qin](%)= 9.88
TIME SHIFT OF PEAK FLOW (min)= 42.00
MAXIMUM STORAGE USED (ha.m.)= 0.5620

CALIB
STANDHYD (0201)
ID= 1 DT= 6.0 min

Area (ha)= 2.61
Total Imp(%)= 85.00 Dir. Conn.(%)= 68.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.22	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	131.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	1.21	6.100	2.41	12.100	17.37	18.10	2.17
0.200	1.21	6.200	2.41	12.200	17.37	18.20	2.17
0.300	1.21	6.300	2.41	12.300	17.37	18.30	2.17
0.400	1.21	6.400	2.41	12.400	17.37	18.40	2.17
0.500	1.21	6.500	2.41	12.500	17.37	18.50	2.17
0.600	1.21	6.600	2.41	12.600	8.92	18.60	2.17
0.700	1.21	6.700	2.41	12.700	8.92	18.70	2.17
0.800	1.21	6.800	2.41	12.800	8.92	18.80	2.17
0.900	1.21	6.900	2.41	12.900	8.92	18.90	2.17
1.000	1.21	7.000	2.41	13.000	8.92	19.00	2.17
1.100	1.21	7.100	2.41	13.100	1.69	19.10	2.17
1.200	1.21	7.200	2.41	13.200	1.69	19.20	2.17
1.300	1.21	7.300	2.41	13.300	1.69	19.30	2.17
1.400	1.21	7.400	2.41	13.400	1.69	19.40	2.17
1.500	1.21	7.500	2.41	13.500	1.69	19.50	2.17
1.600	1.21	7.600	2.41	13.600	9.89	19.60	2.17
1.700	1.21	7.700	2.41	13.700	9.89	19.70	2.17
1.800	1.69	7.800	2.41	13.800	9.89	19.80	2.17
1.900	2.17	7.900	2.41	13.900	9.89	19.90	2.17
2.000	2.17	8.000	2.41	14.000	9.89	20.00	2.17
2.100	1.57	8.100	3.26	14.100	3.62	20.10	1.45
2.200	1.57	8.200	3.26	14.200	3.62	20.20	1.45
2.300	1.57	8.300	3.26	14.300	3.62	20.30	1.45
2.400	1.57	8.400	3.26	14.400	3.62	20.40	1.45
2.500	1.57	8.500	3.26	14.500	3.62	20.50	1.45
2.600	1.57	8.600	3.26	14.600	3.62	20.60	1.45
2.700	1.57	8.700	3.26	14.700	3.62	20.70	1.45
2.800	1.57	8.800	3.26	14.800	3.62	20.80	1.45
2.900	1.57	8.900	3.26	14.900	3.62	20.90	1.45
3.000	1.57	9.000	3.26	15.000	3.62	21.00	1.45
3.100	1.57	9.100	3.86	15.100	3.62	21.10	1.45
3.200	1.57	9.200	3.86	15.200	3.62	21.20	1.45
3.300	1.57	9.300	3.86	15.300	3.62	21.30	1.45
3.400	1.57	9.400	3.86	15.400	3.62	21.40	1.45
3.500	1.57	9.500	3.86	15.500	3.62	21.50	1.45
3.600	1.57	9.600	4.34	15.600	3.62	21.60	1.45

3.700	1.57	9.700	4.34	15.700	3.62	21.70	1.45
3.800	1.57	9.800	4.34	15.800	3.62	21.80	1.45
3.900	1.57	9.900	4.34	15.900	3.62	21.90	1.45
4.000	1.57	10.000	4.34	16.000	3.62	22.00	1.45
4.100	1.93	10.100	5.55	16.100	2.17	22.10	1.45
4.200	1.93	10.200	5.55	16.200	2.17	22.20	1.45
4.300	1.93	10.300	5.55	16.300	2.17	22.30	1.45
4.400	1.93	10.400	5.55	16.400	2.17	22.40	1.45
4.500	1.93	10.500	5.55	16.500	2.17	22.50	1.45
4.600	1.93	10.600	7.48	16.600	2.17	22.60	1.45
4.700	1.93	10.700	7.48	16.700	2.17	22.70	1.45
4.800	1.93	10.800	7.48	16.800	2.17	22.80	1.45
4.900	1.93	10.900	7.48	16.900	2.17	22.90	1.45
5.000	1.93	11.000	7.48	17.000	2.17	23.00	1.45
5.100	1.93	11.100	11.58	17.100	2.17	23.10	1.45
5.200	1.93	11.200	11.58	17.200	2.17	23.20	1.45
5.300	1.93	11.300	11.58	17.300	2.17	23.30	1.45
5.400	1.93	11.400	11.58	17.400	2.17	23.40	1.45
5.500	1.93	11.500	11.58	17.500	2.17	23.50	1.45
5.600	1.93	11.600	50.17	17.600	2.17	23.60	1.45
5.700	1.93	11.700	50.17	17.700	2.17	23.70	1.45
5.800	1.93	11.800	91.66	17.800	2.17	23.80	1.45
5.900	1.93	11.900	133.14	17.900	2.17	23.90	1.45
6.000	1.93	12.000	133.13	18.000	2.17	24.00	1.45

			TOTALS
Max.Eff.Inten.(mm/hr)=	133.14	193.35	
over (min)	6.00	12.00	
Storage Coeff. (min)=	2.69 (ii)	6.13 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.25	0.13	
PEAK FLOW (cms)=	0.65	0.18	0.830 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	119.60	69.58	103.59
TOTAL RAINFALL (mm)=	120.60	120.60	120.60
RUNOFF COEFFICIENT =	0.99	0.58	0.86

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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================================================================================
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


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DATE: 02-15-2023                              TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________


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



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\4d57bcdf
| Ptotal=133.60 mm |    Comments: 100yr_24hr_scs
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    1.34 |  6.00    2.67 | 12.00   19.24 | 18.00    2.40
                0.25    1.34 |  6.25    2.67 | 12.25   19.24 | 18.25    2.40
                0.50    1.34 |  6.50    2.67 | 12.50    9.89 | 18.50    2.40
                0.75    1.34 |  6.75    2.67 | 12.75    9.89 | 18.75    2.40
                1.00    1.34 |  7.00    2.67 | 13.00    1.87 | 19.00    2.40
                1.25    1.34 |  7.25    2.67 | 13.25    1.87 | 19.25    2.40
                1.50    1.34 |  7.50    2.67 | 13.50   10.96 | 19.50    2.40
                1.75    2.40 |  7.75    2.67 | 13.75   10.96 | 19.75    2.40
                2.00    1.74 |  8.00    3.61 | 14.00    4.01 | 20.00    1.60
                2.25    1.74 |  8.25    3.61 | 14.25    4.01 | 20.25    1.60
                2.50    1.74 |  8.50    3.61 | 14.50    4.01 | 20.50    1.60
                2.75    1.74 |  8.75    3.61 | 14.75    4.01 | 20.75    1.60
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3.00	1.74	9.00	4.28	15.00	4.01	21.00	1.60
3.25	1.74	9.25	4.28	15.25	4.01	21.25	1.60
3.50	1.74	9.50	4.81	15.50	4.01	21.50	1.60
3.75	1.74	9.75	4.81	15.75	4.01	21.75	1.60
4.00	2.14	10.00	6.15	16.00	2.40	22.00	1.60
4.25	2.14	10.25	6.15	16.25	2.40	22.25	1.60
4.50	2.14	10.50	8.28	16.50	2.40	22.50	1.60
4.75	2.14	10.75	8.28	16.75	2.40	22.75	1.60
5.00	2.14	11.00	12.83	17.00	2.40	23.00	1.60
5.25	2.14	11.25	12.83	17.25	2.40	23.25	1.60
5.50	2.14	11.50	55.58	17.50	2.40	23.50	1.60
5.75	2.14	11.75	147.49	17.75	2.40	23.75	1.60

CALIB STANDHYD (0200) ID= 1 DT= 6.0 min	Area (ha)= 9.73 Total Imp(%)= 80.00	Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	1.34	6.100	2.67	12.100	19.24	18.10	2.40
0.200	1.34	6.200	2.67	12.200	19.24	18.20	2.40
0.300	1.34	6.300	2.67	12.300	19.24	18.30	2.40
0.400	1.34	6.400	2.67	12.400	19.24	18.40	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.600	1.34	6.600	2.67	12.600	9.89	18.60	2.40
0.700	1.34	6.700	2.67	12.700	9.89	18.70	2.40
0.800	1.34	6.800	2.67	12.800	9.89	18.80	2.40
0.900	1.34	6.900	2.67	12.900	9.89	18.90	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.100	1.34	7.100	2.67	13.100	1.87	19.10	2.40
1.200	1.34	7.200	2.67	13.200	1.87	19.20	2.40
1.300	1.34	7.300	2.67	13.300	1.87	19.30	2.40
1.400	1.34	7.400	2.67	13.400	1.87	19.40	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.600	1.34	7.600	2.67	13.600	10.96	19.60	2.40
1.700	1.34	7.700	2.67	13.700	10.96	19.70	2.40
1.800	1.87	7.800	2.67	13.800	10.96	19.80	2.40
1.900	2.40	7.900	2.67	13.900	10.96	19.90	2.40
2.000	2.40	8.000	2.67	14.000	10.95	20.00	2.40
2.100	1.74	8.100	3.61	14.100	4.01	20.10	1.60
2.200	1.74	8.200	3.61	14.200	4.01	20.20	1.60
2.300	1.74	8.300	3.61	14.300	4.01	20.30	1.60
2.400	1.74	8.400	3.61	14.400	4.01	20.40	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.600	1.74	8.600	3.61	14.600	4.01	20.60	1.60
2.700	1.74	8.700	3.61	14.700	4.01	20.70	1.60
2.800	1.74	8.800	3.61	14.800	4.01	20.80	1.60
2.900	1.74	8.900	3.61	14.900	4.01	20.90	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.100	1.74	9.100	4.28	15.100	4.01	21.10	1.60

3.200	1.74	9.200	4.28	15.200	4.01	21.20	1.60
3.300	1.74	9.300	4.28	15.300	4.01	21.30	1.60
3.400	1.74	9.400	4.28	15.400	4.01	21.40	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.600	1.74	9.600	4.81	15.600	4.01	21.60	1.60
3.700	1.74	9.700	4.81	15.700	4.01	21.70	1.60
3.800	1.74	9.800	4.81	15.800	4.01	21.80	1.60
3.900	1.74	9.900	4.81	15.900	4.01	21.90	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.100	2.14	10.100	6.15	16.100	2.40	22.10	1.60
4.200	2.14	10.200	6.15	16.200	2.40	22.20	1.60
4.300	2.14	10.300	6.15	16.300	2.40	22.30	1.60
4.400	2.14	10.400	6.15	16.400	2.40	22.40	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.600	2.14	10.600	8.28	16.600	2.40	22.60	1.60
4.700	2.14	10.700	8.28	16.700	2.40	22.70	1.60
4.800	2.14	10.800	8.28	16.800	2.40	22.80	1.60
4.900	2.14	10.900	8.28	16.900	2.40	22.90	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.100	2.14	11.100	12.83	17.100	2.40	23.10	1.60
5.200	2.14	11.200	12.83	17.200	2.40	23.20	1.60
5.300	2.14	11.300	12.83	17.300	2.40	23.30	1.60
5.400	2.14	11.400	12.83	17.400	2.40	23.40	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.600	2.14	11.600	55.58	17.600	2.40	23.60	1.60
5.700	2.14	11.700	55.58	17.700	2.40	23.70	1.60
5.800	2.14	11.800	101.54	17.800	2.40	23.80	1.60
5.900	2.14	11.900	147.49	17.900	2.40	23.90	1.60
6.000	2.14	12.000	147.48	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=	147.49	203.98	
over (min)	6.00	12.00	
Storage Coeff. (min)=	3.83 (ii)	7.73 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.22	0.12	
			TOTALS
PEAK FLOW (cms)=	2.35	0.87	3.220 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	132.60	78.35	110.90
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.59	0.83

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0600)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.1500	0.4500
	0.0100	0.0200	0.2000	0.5000
	0.0200	0.1100	0.2500	0.5400
	0.0400	0.2100	0.3250	0.5900
	0.0800	0.3200	0.4500	0.6200
	0.1000	0.3600	3.0000	0.6500
	0.1200	0.4100	0.0000	0.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0200)	9.730	3.220	12.00	110.90
OUTFLOW: ID= 1 (0600)	9.730	0.423	12.60	110.85

PEAK FLOW REDUCTION [Qout/Qin](%)= 13.14
TIME SHIFT OF PEAK FLOW (min)= 36.00
MAXIMUM STORAGE USED (ha.m.)= 0.6149

CALIB
STANDHYD (0201)
ID= 1 DT= 6.0 min

Area (ha)= 2.61
Total Imp(%)= 85.00 Dir. Conn.(%)= 68.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	2.22	0.39
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	131.91	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	1.34	6.100	2.67	12.100	19.24	18.10	2.40
0.200	1.34	6.200	2.67	12.200	19.24	18.20	2.40
0.300	1.34	6.300	2.67	12.300	19.24	18.30	2.40
0.400	1.34	6.400	2.67	12.400	19.24	18.40	2.40
0.500	1.34	6.500	2.67	12.500	19.24	18.50	2.40
0.600	1.34	6.600	2.67	12.600	9.89	18.60	2.40
0.700	1.34	6.700	2.67	12.700	9.89	18.70	2.40
0.800	1.34	6.800	2.67	12.800	9.89	18.80	2.40
0.900	1.34	6.900	2.67	12.900	9.89	18.90	2.40
1.000	1.34	7.000	2.67	13.000	9.89	19.00	2.40
1.100	1.34	7.100	2.67	13.100	1.87	19.10	2.40
1.200	1.34	7.200	2.67	13.200	1.87	19.20	2.40
1.300	1.34	7.300	2.67	13.300	1.87	19.30	2.40
1.400	1.34	7.400	2.67	13.400	1.87	19.40	2.40
1.500	1.34	7.500	2.67	13.500	1.87	19.50	2.40
1.600	1.34	7.600	2.67	13.600	10.96	19.60	2.40
1.700	1.34	7.700	2.67	13.700	10.96	19.70	2.40
1.800	1.87	7.800	2.67	13.800	10.96	19.80	2.40
1.900	2.40	7.900	2.67	13.900	10.96	19.90	2.40
2.000	2.40	8.000	2.67	14.000	10.95	20.00	2.40
2.100	1.74	8.100	3.61	14.100	4.01	20.10	1.60
2.200	1.74	8.200	3.61	14.200	4.01	20.20	1.60
2.300	1.74	8.300	3.61	14.300	4.01	20.30	1.60
2.400	1.74	8.400	3.61	14.400	4.01	20.40	1.60
2.500	1.74	8.500	3.61	14.500	4.01	20.50	1.60
2.600	1.74	8.600	3.61	14.600	4.01	20.60	1.60
2.700	1.74	8.700	3.61	14.700	4.01	20.70	1.60
2.800	1.74	8.800	3.61	14.800	4.01	20.80	1.60
2.900	1.74	8.900	3.61	14.900	4.01	20.90	1.60
3.000	1.74	9.000	3.61	15.000	4.01	21.00	1.60
3.100	1.74	9.100	4.28	15.100	4.01	21.10	1.60
3.200	1.74	9.200	4.28	15.200	4.01	21.20	1.60
3.300	1.74	9.300	4.28	15.300	4.01	21.30	1.60
3.400	1.74	9.400	4.28	15.400	4.01	21.40	1.60
3.500	1.74	9.500	4.28	15.500	4.01	21.50	1.60
3.600	1.74	9.600	4.81	15.600	4.01	21.60	1.60

3.700	1.74	9.700	4.81	15.700	4.01	21.70	1.60
3.800	1.74	9.800	4.81	15.800	4.01	21.80	1.60
3.900	1.74	9.900	4.81	15.900	4.01	21.90	1.60
4.000	1.74	10.000	4.81	16.000	4.01	22.00	1.60
4.100	2.14	10.100	6.15	16.100	2.40	22.10	1.60
4.200	2.14	10.200	6.15	16.200	2.40	22.20	1.60
4.300	2.14	10.300	6.15	16.300	2.40	22.30	1.60
4.400	2.14	10.400	6.15	16.400	2.40	22.40	1.60
4.500	2.14	10.500	6.15	16.500	2.40	22.50	1.60
4.600	2.14	10.600	8.28	16.600	2.40	22.60	1.60
4.700	2.14	10.700	8.28	16.700	2.40	22.70	1.60
4.800	2.14	10.800	8.28	16.800	2.40	22.80	1.60
4.900	2.14	10.900	8.28	16.900	2.40	22.90	1.60
5.000	2.14	11.000	8.28	17.000	2.40	23.00	1.60
5.100	2.14	11.100	12.83	17.100	2.40	23.10	1.60
5.200	2.14	11.200	12.83	17.200	2.40	23.20	1.60
5.300	2.14	11.300	12.83	17.300	2.40	23.30	1.60
5.400	2.14	11.400	12.83	17.400	2.40	23.40	1.60
5.500	2.14	11.500	12.83	17.500	2.40	23.50	1.60
5.600	2.14	11.600	55.58	17.600	2.40	23.60	1.60
5.700	2.14	11.700	55.58	17.700	2.40	23.70	1.60
5.800	2.14	11.800	101.54	17.800	2.40	23.80	1.60
5.900	2.14	11.900	147.49	17.900	2.40	23.90	1.60
6.000	2.14	12.000	147.48	18.000	2.40	24.00	1.60

Max.Eff.Inten.(mm/hr)=	147.49	223.25	
over (min)	6.00	6.00	
Storage Coeff. (min)=	2.58 (ii)	5.88 (ii)	
Unit Hyd. Tpeak (min)=	6.00	6.00	
Unit Hyd. peak (cms)=	0.26	0.18	
			TOTALS
PEAK FLOW (cms)=	0.72	0.23	0.955 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	132.60	80.51	115.93
TOTAL RAINFALL (mm)=	133.60	133.60	133.60
RUNOFF COEFFICIENT =	0.99	0.60	0.87

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename: C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\83e4648e-22da-4bc5-b043-f5e69abd9cbf\scena
  Summary  filename: C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\83e4648e-22da-4bc5-b043-f5e69abd9cbf\scena


DATE: 02-15-2023                          TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________________

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


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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\51f6dd0b
| Ptotal= 36.95 mm |    Comments: 2yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   18.78 |  2.33    4.89 |  3.50    2.55
                0.17    2.47 |  1.33   83.11 |  2.50    4.28 |  3.67    2.39
                0.33    2.82 |  1.50   24.57 |  2.67    3.82 |  3.83    2.26
                0.50    3.31 |  1.67   13.01 |  2.83    3.46 |  4.00    2.15
                0.67    4.05 |  1.83    9.01 |  3.00    3.17 |
                0.83    5.30 |  2.00    6.97 |  3.17    2.93 |
                1.00    7.98 |  2.17    5.73 |  3.33    2.72 |

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| CALIB            |
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| STANDHYD (0200)| Area (ha)= 9.73
|ID= 1 DT= 6.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.00	1.200	11.58	2.300	5.73	3.40	2.79
0.200	0.82	1.300	18.78	2.400	5.17	3.50	2.72
0.300	2.47	1.400	61.67	2.500	4.89	3.60	2.55
0.400	2.70	1.500	83.11	2.600	4.28	3.70	2.50
0.500	2.82	1.600	24.57	2.700	4.13	3.80	2.39
0.600	3.31	1.700	20.72	2.800	3.82	3.90	2.30
0.700	3.56	1.800	13.01	2.900	3.58	4.00	2.26
0.800	4.05	1.900	10.34	3.000	3.46	4.10	2.15
0.900	4.88	2.000	9.01	3.100	3.17	4.20	1.43
1.000	5.30	2.100	6.97	3.200	3.09		
1.100	7.98	2.200	6.56	3.300	2.93		

Max.Eff.Inten.(mm/hr)=		83.11	31.00	
over (min)		6.00	12.00	
Storage Coeff. (min)=		4.82 (ii)	9.72 (ii)	
Unit Hyd. Tpeak (min)=		6.00	12.00	
Unit Hyd. peak (cms)=		0.20	0.11	
				TOTALS
PEAK FLOW	(cms)=	1.19	0.13	1.272 (iii)
TIME TO PEAK	(hrs)=	1.50	1.60	1.50
RUNOFF VOLUME	(mm)=	35.95	9.67	25.44
TOTAL RAINFALL	(mm)=	36.95	36.95	36.95
RUNOFF COEFFICIENT	=	0.97	0.26	0.69

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| RESERVOIR(0600)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

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

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   INFLOW : ID= 2 (  0200)      9.730      1.272      1.50      25.44
   OUTFLOW: ID= 1 (  0600)      9.730      0.040      4.20      25.39

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.13
                  TIME SHIFT OF PEAK FLOW         (min)=162.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2092

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.61
|ID= 1 DT= 6.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  68.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.22          0.39
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     131.91         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   6.0 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
              0.100    0.00 | 1.200   11.58 | 2.300    5.73 |  3.40    2.79
              0.200    0.82 | 1.300   18.78 | 2.400    5.17 |  3.50    2.72
              0.300    2.47 | 1.400   61.67 | 2.500    4.89 |  3.60    2.55
              0.400    2.70 | 1.500   83.11 | 2.600    4.28 |  3.70    2.50
              0.500    2.82 | 1.600   24.57 | 2.700    4.13 |  3.80    2.39
              0.600    3.31 | 1.700   20.72 | 2.800    3.82 |  3.90    2.30
              0.700    3.56 | 1.800   13.01 | 2.900    3.58 |  4.00    2.26
              0.800    4.05 | 1.900   10.34 | 3.000    3.46 |  4.10    2.15
              0.900    4.88 | 2.000    9.01 | 3.100    3.17 |  4.20    1.43
              1.000    5.30 | 2.100    6.97 | 3.200    3.09 |
              1.100    7.98 | 2.200    6.56 | 3.300    2.93 |

     Max.Eff.Inten.(mm/hr)=      83.11         35.25
               over (min)         6.00         12.00
     Storage Coeff.  (min)=       3.25 (ii)     7.40 (ii)
     Unit Hyd. Tpeak (min)=       6.00         12.00
     Unit Hyd. peak  (cms)=       0.24          0.12
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.39          0.03          0.410 (iii)
     TIME TO PEAK    (hrs)=       1.50          1.60           1.50
     RUNOFF VOLUME    (mm)=      35.95         10.21          27.71
     TOTAL RAINFALL   (mm)=      36.95         36.95          36.95
     RUNOFF COEFFICIENT   =       0.97          0.28           0.75

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\222eccd8-d8df-4d4d-80ca-c531592a0bcc\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\222eccd8-d8df-4d4d-80ca-c531592a0bcc\scena


DATE: 02-15-2023                          TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________________

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  ************************************************
  ** SIMULATION : Run 09                        **
  ************************************************


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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\f388df98
| Ptotal= 50.52 mm |    Comments: 5yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   25.64 |  2.33    6.96 |  3.50    3.68
                0.17    3.57 |  1.33  108.92 |  2.50    6.12 |  3.67    3.47
                0.33    4.07 |  1.50   33.31 |  2.67    5.48 |  3.83    3.28
                0.50    4.76 |  1.67   17.99 |  2.83    4.97 |  4.00    3.12
                0.67    5.79 |  1.83   12.60 |  3.00    4.56 |
                0.83    7.53 |  2.00    9.82 |  3.17    4.22 |
                1.00   11.20 |  2.17    8.12 |  3.33    3.93 |

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| CALIB            |
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| STANDHYD (0200)| Area (ha)= 9.73
|ID= 1 DT= 6.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.00	1.200	16.01	2.300	8.12	3.40	4.03
0.200	1.19	1.300	25.64	2.400	7.35	3.50	3.93
0.300	3.57	1.400	81.16	2.500	6.96	3.60	3.68
0.400	3.90	1.500	108.92	2.600	6.12	3.70	3.61
0.500	4.07	1.600	33.31	2.700	5.91	3.80	3.47
0.600	4.76	1.700	28.20	2.800	5.48	3.90	3.34
0.700	5.10	1.800	17.99	2.900	5.14	4.00	3.28
0.800	5.79	1.900	14.40	3.000	4.97	4.10	3.12
0.900	6.95	2.000	12.60	3.100	4.56	4.20	2.08
1.000	7.53	2.100	9.82	3.200	4.45		
1.100	11.20	2.200	9.25	3.300	4.22		

				TOTALS
Max.Eff.Inten.(mm/hr)=		108.92	54.24	
over (min)		6.00	12.00	
Storage Coeff. (min)=		4.33 (ii)	8.72 (ii)	
Unit Hyd. Tpeak (min)=		6.00	12.00	
Unit Hyd. peak (cms)=		0.21	0.11	
PEAK FLOW	(cms)=	1.59	0.23	1.757 (iii)
TIME TO PEAK	(hrs)=	1.50	1.60	1.50
RUNOFF VOLUME	(mm)=	49.52	16.92	36.48
TOTAL RAINFALL	(mm)=	50.52	50.52	50.52
RUNOFF COEFFICIENT	=	0.98	0.33	0.72

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| RESERVOIR(0600)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

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

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   INFLOW : ID= 2 (  0200)      9.730      1.757      1.50      36.48
   OUTFLOW: ID= 1 (  0600)      9.730      0.070      4.10      36.43

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  3.96
                  TIME SHIFT OF PEAK FLOW         (min)=156.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.2912

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.61
|ID= 1 DT= 6.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  68.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.22          0.39
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     131.91         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   6.0 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
              0.100    0.00 | 1.200   16.01 | 2.300    8.12 |  3.40    4.03
              0.200    1.19 | 1.300   25.64 | 2.400    7.35 |  3.50    3.93
              0.300    3.57 | 1.400   81.16 | 2.500    6.96 |  3.60    3.68
              0.400    3.90 | 1.500  108.92 | 2.600    6.12 |  3.70    3.61
              0.500    4.07 | 1.600   33.31 | 2.700    5.91 |  3.80    3.47
              0.600    4.76 | 1.700   28.20 | 2.800    5.48 |  3.90    3.34
              0.700    5.10 | 1.800   17.99 | 2.900    5.14 |  4.00    3.28
              0.800    5.79 | 1.900   14.40 | 3.000    4.97 |  4.10    3.12
              0.900    6.95 | 2.000   12.60 | 3.100    4.56 |  4.20    2.08
              1.000    7.53 | 2.100    9.82 | 3.200    4.45 |
              1.100   11.20 | 2.200    9.25 | 3.300    4.22 |

     Max.Eff.Inten.(mm/hr)=     108.92        61.18
               over (min)          6.00         12.00
     Storage Coeff.  (min)=       2.92 (ii)     6.64 (ii)
     Unit Hyd. Tpeak (min)=       6.00         12.00
     Unit Hyd. peak  (cms)=       0.25          0.13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.51          0.06        0.557 (iii)
     TIME TO PEAK    (hrs)=       1.50          1.60         1.50
     RUNOFF VOLUME    (mm)=      49.52         17.73        39.34
     TOTAL RAINFALL   (mm)=      50.52         50.52        50.52
     RUNOFF COEFFICIENT   =       0.98          0.35         0.78

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\2a45c872-9097-4e28-8493-b93ae00cb556\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\2a45c872-9097-4e28-8493-b93ae00cb556\scena


DATE: 02-15-2023                              TIME: 08:42:38

USER:



COMMENTS: _____________________________________________________________________

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  ************************************************
  ** SIMULATION : Run 10                        **
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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\706fa0c3
| Ptotal= 59.69 mm |    Comments: 10yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   30.27 |  2.33    8.35 |  3.50    4.45
                0.17    4.32 |  1.33  126.55 |  2.50    7.35 |  3.67    4.19
                0.33    4.91 |  1.50   39.22 |  2.67    6.59 |  3.83    3.97
                0.50    5.73 |  1.67   21.35 |  2.83    5.99 |  4.00    3.77
                0.67    6.96 |  1.83   15.01 |  3.00    5.50 |
                0.83    9.03 |  2.00   11.74 |  3.17    5.09 |
                1.00   13.36 |  2.17    9.72 |  3.33    4.74 |

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| CALIB            |
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| STANDHYD (0200)| Area (ha)= 9.73
|ID= 1 DT= 6.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.00	1.200	19.00	2.300	9.72	3.40	4.86
0.200	1.44	1.300	30.27	2.400	8.81	3.50	4.74
0.300	4.32	1.400	94.46	2.500	8.35	3.60	4.45
0.400	4.71	1.500	126.55	2.600	7.35	3.70	4.36
0.500	4.91	1.600	39.22	2.700	7.10	3.80	4.19
0.600	5.73	1.700	33.26	2.800	6.59	3.90	4.04
0.700	6.14	1.800	21.35	2.900	6.19	4.00	3.97
0.800	6.96	1.900	17.12	3.000	5.99	4.10	3.77
0.900	8.34	2.000	15.01	3.100	5.50	4.20	2.51
1.000	9.03	2.100	11.74	3.200	5.36		
1.100	13.36	2.200	11.07	3.300	5.09		

				TOTALS
Max.Eff.Inten.(mm/hr)=		126.55	72.49	
over (min)		6.00	12.00	
Storage Coeff. (min)=		4.07 (ii)	8.21 (ii)	
Unit Hyd. Tpeak (min)=		6.00	12.00	
Unit Hyd. peak (cms)=		0.22	0.12	
PEAK FLOW	(cms)=	1.88	0.32	2.101 (iii)
TIME TO PEAK	(hrs)=	1.50	1.60	1.50
RUNOFF VOLUME	(mm)=	58.69	22.49	44.21
TOTAL RAINFALL	(mm)=	59.69	59.69	59.69
RUNOFF COEFFICIENT	=	0.98	0.38	0.74

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| RESERVOIR(0600)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

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

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   INFLOW : ID= 2 (  0200)      9.730      2.101      1.50      44.21
   OUTFLOW: ID= 1 (  0600)      9.730      0.093      4.00      44.16

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.42
                  TIME SHIFT OF PEAK FLOW         (min)=150.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.3460

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.61
|ID= 1 DT= 6.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  68.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.22         0.39
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     131.91        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   6.0 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
              0.100    0.00 | 1.200   19.00 | 2.300    9.72 |  3.40    4.86
              0.200    1.44 | 1.300   30.27 | 2.400    8.81 |  3.50    4.74
              0.300    4.32 | 1.400   94.46 | 2.500    8.35 |  3.60    4.45
              0.400    4.71 | 1.500  126.55 | 2.600    7.35 |  3.70    4.36
              0.500    4.91 | 1.600   39.22 | 2.700    7.10 |  3.80    4.19
              0.600    5.73 | 1.700   33.26 | 2.800    6.59 |  3.90    4.04
              0.700    6.14 | 1.800   21.35 | 2.900    6.19 |  4.00    3.97
              0.800    6.96 | 1.900   17.12 | 3.000    5.99 |  4.10    3.77
              0.900    8.34 | 2.000   15.01 | 3.100    5.50 |  4.20    2.51
              1.000    9.03 | 2.100   11.74 | 3.200    5.36 |
              1.100   13.36 | 2.200   11.07 | 3.300    5.09 |

     Max.Eff.Inten.(mm/hr)=     126.55        81.45
               over (min)         6.00        12.00
     Storage Coeff.  (min)=       2.75 (ii)    6.25 (ii)
     Unit Hyd. Tpeak (min)=       6.00        12.00
     Unit Hyd. peak  (cms)=       0.25         0.13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.60         0.08         0.660 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.60          1.50
     RUNOFF VOLUME    (mm)=      58.69        23.48         47.42
     TOTAL RAINFALL   (mm)=      59.69        59.69         59.69
     RUNOFF COEFFICIENT   =       0.98         0.39          0.79

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\f3f5cd7b-836e-4743-9963-e9cb820c4b4f\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\f3f5cd7b-836e-4743-9963-e9cb820c4b4f\scena


DATE: 02-15-2023                              TIME: 08:42:39

USER:



COMMENTS: _____________________________________________________________________

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  ************************************************
  ** SIMULATION : Run 11                        **
  ************************************************



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\6cc97955
| Ptotal= 71.24 mm |    Comments: 25yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   36.37 |  2.33   10.09 |  3.50    5.38
                0.17    5.22 |  1.33  148.15 |  2.50    8.89 |  3.67    5.08
                0.33    5.94 |  1.50   47.06 |  2.67    7.96 |  3.83    4.80
                0.50    6.93 |  1.67   25.72 |  2.83    7.24 |  4.00    4.57
                0.67    8.42 |  1.83   18.11 |  3.00    6.65 |
                0.83   10.91 |  2.00   14.17 |  3.17    6.15 |
                1.00   16.13 |  2.17   11.74 |  3.33    5.74 |

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| CALIB            |
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| STANDHYD (0200)| Area (ha)= 9.73
|ID= 1 DT= 6.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.00	1.200	22.88	2.300	11.74	3.40	5.88
0.200	1.74	1.300	36.37	2.400	10.64	3.50	5.74
0.300	5.22	1.400	110.89	2.500	10.09	3.60	5.38
0.400	5.70	1.500	148.15	2.600	8.89	3.70	5.28
0.500	5.94	1.600	47.06	2.700	8.58	3.80	5.08
0.600	6.93	1.700	39.95	2.800	7.96	3.90	4.89
0.700	7.43	1.800	25.72	2.900	7.48	4.00	4.80
0.800	8.42	1.900	20.65	3.000	7.24	4.10	4.57
0.900	10.08	2.000	18.11	3.100	6.65	4.20	3.05
1.000	10.91	2.100	14.17	3.200	6.48		
1.100	16.13	2.200	13.36	3.300	6.15		

				TOTALS
Max.Eff.Inten.(mm/hr)=		148.15	97.43	
over (min)		6.00	12.00	
Storage Coeff. (min)=		3.83 (ii)	7.71 (ii)	
Unit Hyd. Tpeak (min)=		6.00	12.00	
Unit Hyd. peak (cms)=		0.22	0.12	
PEAK FLOW	(cms)=	2.22	0.43	2.539 (iii)
TIME TO PEAK	(hrs)=	1.50	1.60	1.50
RUNOFF VOLUME	(mm)=	70.24	30.10	54.18
TOTAL RAINFALL	(mm)=	71.24	71.24	71.24
RUNOFF COEFFICIENT	=	0.99	0.42	0.76

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| RESERVOIR(0600)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

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

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   INFLOW : ID= 2 (  0200)      9.730      2.539      1.50      54.18
   OUTFLOW: ID= 1 (  0600)      9.730      0.124      3.80      54.13

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  4.88
                  TIME SHIFT OF PEAK FLOW         (min)=138.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4152

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.61
|ID= 1 DT= 6.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  68.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.22          0.39
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     131.91         40.00
     Mannings n           =      0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   6.0 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
              0.100    0.00 | 1.200   22.88 | 2.300   11.74 |  3.40    5.88
              0.200    1.74 | 1.300   36.37 | 2.400   10.64 |  3.50    5.74
              0.300    5.22 | 1.400  110.89 | 2.500   10.09 |  3.60    5.38
              0.400    5.70 | 1.500  148.15 | 2.600    8.89 |  3.70    5.28
              0.500    5.94 | 1.600   47.06 | 2.700    8.58 |  3.80    5.08
              0.600    6.93 | 1.700   39.95 | 2.800    7.96 |  3.90    4.89
              0.700    7.43 | 1.800   25.72 | 2.900    7.48 |  4.00    4.80
              0.800    8.42 | 1.900   20.65 | 3.000    7.24 |  4.10    4.57
              0.900   10.08 | 2.000   18.11 | 3.100    6.65 |  4.20    3.05
              1.000   10.91 | 2.100   14.17 | 3.200    6.48 |
              1.100   16.13 | 2.200   13.36 | 3.300    6.15 |

     Max.Eff.Inten.(mm/hr)=     148.15       109.02
               over (min)          6.00         6.00
     Storage Coeff.  (min)=       2.58 (ii)    5.87 (ii)
     Unit Hyd. Tpeak (min)=       6.00         6.00
     Unit Hyd. peak  (cms)=       0.26         0.18
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.71         0.12          0.830 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.50           1.50
     RUNOFF VOLUME    (mm)=      70.24        31.30          57.78
     TOTAL RAINFALL   (mm)=      71.24        71.24          71.24
     RUNOFF COEFFICIENT   =       0.99         0.44           0.81

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\ce764522-2860-4484-b175-ea1944ae3f57\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\ce764522-2860-4484-b175-ea1944ae3f57\scena


DATE: 02-15-2023                              TIME: 08:42:39

USER:



COMMENTS: _____________________________________________________________________

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  ************************************************
  ** SIMULATION : Run 12                        **
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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\a434c2e0
| Ptotal= 79.45 mm |    Comments: 50yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   40.22 |  2.33   11.37 |  3.50    6.11
                0.17    5.93 |  1.33  164.22 |  2.50   10.03 |  3.67    5.77
                0.33    6.74 |  1.50   51.92 |  2.67    9.00 |  3.83    5.46
                0.50    7.85 |  1.67   28.58 |  2.83    8.19 |  4.00    5.19
                0.67    9.50 |  1.83   20.23 |  3.00    7.53 |
                0.83   12.27 |  2.00   15.88 |  3.17    6.98 |
                1.00   18.04 |  2.17   13.20 |  3.33    6.51 |

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| CALIB            |
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| STANDHYD (0200)| Area (ha)= 9.73
|ID= 1 DT= 6.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.00	1.200	25.43	2.300	13.20	3.40	6.67
0.200	1.98	1.300	40.22	2.400	11.98	3.50	6.51
0.300	5.93	1.400	122.89	2.500	11.37	3.60	6.11
0.400	6.47	1.500	164.22	2.600	10.03	3.70	6.00
0.500	6.74	1.600	51.92	2.700	9.69	3.80	5.77
0.600	7.85	1.700	44.14	2.800	9.00	3.90	5.56
0.700	8.40	1.800	28.58	2.900	8.46	4.00	5.46
0.800	9.50	1.900	23.01	3.000	8.19	4.10	5.19
0.900	11.35	2.000	20.23	3.100	7.53	4.20	3.46
1.000	12.27	2.100	15.88	3.200	7.35		
1.100	18.04	2.200	14.99	3.300	6.98		

Max.Eff.Inten.(mm/hr)=		164.22	116.93	
over (min)		6.00	12.00	
Storage Coeff. (min)=		3.67 (ii)	7.40 (ii)	
Unit Hyd. Tpeak (min)=		6.00	12.00	
Unit Hyd. peak (cms)=		0.23	0.12	
				TOTALS
PEAK FLOW	(cms)=	2.48	0.52	2.869 (iii)
TIME TO PEAK	(hrs)=	1.50	1.60	1.50
RUNOFF VOLUME	(mm)=	78.45	35.84	61.41
TOTAL RAINFALL	(mm)=	79.45	79.45	79.45
RUNOFF COEFFICIENT	=	0.99	0.45	0.77

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| RESERVOIR(0600)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

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

```
   INFLOW : ID= 2 (  0200)      9.730      2.869      1.50      61.41
   OUTFLOW: ID= 1 (  0600)      9.730      0.160      3.50      61.36

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.56
                  TIME SHIFT OF PEAK FLOW         (min)=120.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.4596

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| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.61
|ID= 1 DT= 6.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  68.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.22         0.39
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     131.91        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   6.0 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
              0.100    0.00 | 1.200   25.43 | 2.300   13.20 |  3.40    6.67
              0.200    1.98 | 1.300   40.22 | 2.400   11.98 |  3.50    6.51
              0.300    5.93 | 1.400  122.89 | 2.500   11.37 |  3.60    6.11
              0.400    6.47 | 1.500  164.22 | 2.600   10.03 |  3.70    6.00
              0.500    6.74 | 1.600   51.92 | 2.700    9.69 |  3.80    5.77
              0.600    7.85 | 1.700   44.14 | 2.800    9.00 |  3.90    5.56
              0.700    8.40 | 1.800   28.58 | 2.900    8.46 |  4.00    5.46
              0.800    9.50 | 1.900   23.01 | 3.000    8.19 |  4.10    5.19
              0.900   11.35 | 2.000   20.23 | 3.100    7.53 |  4.20    3.46
              1.000   12.27 | 2.100   15.88 | 3.200    7.35 |
              1.100   18.04 | 2.200   14.99 | 3.300    6.98 |

     Max.Eff.Inten.(mm/hr)=     164.22       130.53
               over (min)          6.00         6.00
     Storage Coeff.  (min)=       2.47 (ii)    5.64 (ii)
     Unit Hyd. Tpeak (min)=       6.00         6.00
     Unit Hyd. peak  (cms)=       0.26         0.19
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.79         0.15          0.935 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.50           1.50
     RUNOFF VOLUME    (mm)=      78.45        37.20          65.25
     TOTAL RAINFALL   (mm)=      79.45        79.45          79.45
     RUNOFF COEFFICIENT   =       0.99         0.47           0.82

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\053506d7-e70a-4f4a-adfc-b20e28640922\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\053506d7-e70a-4f4a-adfc-b20e28640922\scena


DATE: 02-15-2023                              TIME: 08:42:39

USER:



COMMENTS: _____________________________________________________________________

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  **********************************************
  ** SIMULATION : Run 13                       **
  **********************************************



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|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\387e95f7
| Ptotal= 87.58 mm |    Comments: 100yr_4hr_chi
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.00 |  1.17   45.22 |  2.33   12.44 |  3.50    6.60
                0.17    6.41 |  1.33  180.15 |  2.50   10.94 |  3.67    6.22
                0.33    7.29 |  1.50   58.54 |  2.67    9.80 |  3.83    5.89
                0.50    8.52 |  1.67   31.96 |  2.83    8.90 |  4.00    5.59
                0.67   10.36 |  1.83   22.45 |  3.00    8.16 |
                0.83   13.45 |  2.00   17.52 |  3.17    7.56 |
                1.00   19.96 |  2.17   14.50 |  3.33    7.04 |

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| CALIB            |
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| STANDHYD (0200)| Area (ha)= 9.73
|ID= 1 DT= 6.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 60.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	0.00	1.200	28.38	2.300	14.50	3.40	7.21
0.200	2.14	1.300	45.22	2.400	13.13	3.50	7.04
0.300	6.41	1.400	135.17	2.500	12.44	3.60	6.60
0.400	7.00	1.500	180.15	2.600	10.94	3.70	6.47
0.500	7.29	1.600	58.54	2.700	10.56	3.80	6.22
0.600	8.52	1.700	49.68	2.800	9.80	3.90	6.00
0.700	9.13	1.800	31.96	2.900	9.20	4.00	5.89
0.800	10.36	1.900	25.62	3.000	8.90	4.10	5.59
0.900	12.42	2.000	22.45	3.100	8.16	4.20	3.73
1.000	13.45	2.100	17.52	3.200	7.96		
1.100	19.96	2.200	16.51	3.300	7.56		

Max.Eff.Inten.(mm/hr)=		180.15	137.42	
over (min)		6.00	12.00	
Storage Coeff. (min)=		3.54 (ii)	7.13 (ii)	
Unit Hyd. Tpeak (min)=		6.00	12.00	
Unit Hyd. peak (cms)=		0.23	0.13	
				TOTALS
PEAK FLOW	(cms)=	2.74	0.62	3.205 (iii)
TIME TO PEAK	(hrs)=	1.50	1.60	1.50
RUNOFF VOLUME	(mm)=	86.58	41.76	68.65
TOTAL RAINFALL	(mm)=	87.58	87.58	87.58
RUNOFF COEFFICIENT	=	0.99	0.48	0.78

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| RESERVOIR(0600)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
0.0000	0.0000	0.1500	0.4500
0.0100	0.0200	0.2000	0.5000
0.0200	0.1100	0.2500	0.5400
0.0400	0.2100	0.3250	0.5900
0.0800	0.3200	0.4500	0.6200
0.1000	0.3600	3.0000	0.6500
0.1200	0.4100	0.0000	0.0000

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

```
   INFLOW : ID= 2 (  0200)      9.730      3.205      1.50      68.65
   OUTFLOW: ID= 1 (  0600)      9.730      0.202      3.10      68.60

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.29
                  TIME SHIFT OF PEAK FLOW         (min)= 96.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.5013

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--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.61
|ID= 1 DT= 6.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  68.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.22         0.39
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     131.91        40.00
     Mannings n           =      0.013        0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   6.0 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
              0.100    0.00 | 1.200   28.38 | 2.300   14.50 |  3.40    7.21
              0.200    2.14 | 1.300   45.22 | 2.400   13.13 |  3.50    7.04
              0.300    6.41 | 1.400  135.17 | 2.500   12.44 |  3.60    6.60
              0.400    7.00 | 1.500  180.15 | 2.600   10.94 |  3.70    6.47
              0.500    7.29 | 1.600   58.54 | 2.700   10.56 |  3.80    6.22
              0.600    8.52 | 1.700   49.68 | 2.800    9.80 |  3.90    6.00
              0.700    9.13 | 1.800   31.96 | 2.900    9.20 |  4.00    5.89
              0.800   10.36 | 1.900   25.62 | 3.000    8.90 |  4.10    5.59
              0.900   12.42 | 2.000   22.45 | 3.100    8.16 |  4.20    3.73
              1.000   13.45 | 2.100   17.52 | 3.200    7.96 |
              1.100   19.96 | 2.200   16.51 | 3.300    7.56 |

     Max.Eff.Inten.(mm/hr)=     180.15       153.07
               over (min)          6.00         6.00
     Storage Coeff.  (min)=       2.38 (ii)    5.43 (ii)
     Unit Hyd. Tpeak (min)=       6.00         6.00
     Unit Hyd. peak  (cms)=       0.26         0.19
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.87         0.17        1.041 (iii)
     TIME TO PEAK    (hrs)=       1.50         1.50         1.50
     RUNOFF VOLUME    (mm)=      86.58        43.25        72.71
     TOTAL RAINFALL   (mm)=      87.58        87.58        87.58
     RUNOFF COEFFICIENT   =       0.99         0.49         0.83

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

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  59.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2012)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

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


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat
  Output   filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\ec9696d1-923b-4677-a0e7-5689d9d9d5ff\scena
  Summary  filename:  C:\Users\aregmi\AppData\Local\Civica\VH5\78636dec-b677-4757-
bc65-cae9f2f5b353\ec9696d1-923b-4677-a0e7-5689d9d9d5ff\scena


DATE: 02-15-2023                              TIME: 08:42:39

USER:



COMMENTS: _____________________________________________________________________

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  ********************************************
  ** SIMULATION : Run 14                     **
  ********************************************



--------------------
|    READ STORM    |    Filename: C:\Users\aregmi\AppD
|                  |              ata\Local\Temp\
|                  |              c555bcfa-c9d3-4493-af3f-e3eeb28cf13e\4ea68887
| Ptotal=212.00 mm |    Comments: hazel-hr
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    6.00 |  3.00   13.00 |  6.00   23.00 |  9.00   53.00
                1.00    4.00 |  4.00   17.00 |  7.00   13.00 | 10.00   38.00
                2.00    6.00 |  5.00   13.00 |  8.00   13.00 | 11.00   13.00

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--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   9.73
|ID= 1 DT= 6.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  60.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
```

Surface Area	(ha)=	7.78	1.95
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	254.69	40.00
Mannings n	=	0.013	0.250

NOTE: RAINFALL WAS TRANSFORMED TO 6.0 MIN. TIME STEP.

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.100	6.00	3.100	13.00	6.100	23.00	9.10	53.00
0.200	6.00	3.200	13.00	6.200	23.00	9.20	53.00
0.300	6.00	3.300	13.00	6.300	23.00	9.30	53.00
0.400	6.00	3.400	13.00	6.400	23.00	9.40	53.00
0.500	6.00	3.500	13.00	6.500	23.00	9.50	53.00
0.600	6.00	3.600	13.00	6.600	23.00	9.60	53.00
0.700	6.00	3.700	13.00	6.700	23.00	9.70	53.00
0.800	6.00	3.800	13.00	6.800	23.00	9.80	53.00
0.900	6.00	3.900	13.00	6.900	23.00	9.90	53.00
1.000	6.00	4.000	13.00	7.000	23.00	10.00	53.00
1.100	4.00	4.100	17.00	7.100	13.00	10.10	38.00
1.200	4.00	4.200	17.00	7.200	13.00	10.20	38.00
1.300	4.00	4.300	17.00	7.300	13.00	10.30	38.00
1.400	4.00	4.400	17.00	7.400	13.00	10.40	38.00
1.500	4.00	4.500	17.00	7.500	13.00	10.50	38.00
1.600	4.00	4.600	17.00	7.600	13.00	10.60	38.00
1.700	4.00	4.700	17.00	7.700	13.00	10.70	38.00
1.800	4.00	4.800	17.00	7.800	13.00	10.80	38.00
1.900	4.00	4.900	17.00	7.900	13.00	10.90	38.00
2.000	4.00	5.000	17.00	8.000	13.00	11.00	38.00
2.100	6.00	5.100	13.00	8.100	13.00	11.10	13.00
2.200	6.00	5.200	13.00	8.200	13.00	11.20	13.00
2.300	6.00	5.300	13.00	8.300	13.00	11.30	13.00
2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=		53.00	91.83	
over (min)		6.00	12.00	
Storage Coeff. (min)=		5.77 (ii)	11.63 (ii)	
Unit Hyd. Tpeak (min)=		6.00	12.00	
Unit Hyd. peak (cms)=		0.18	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.86	0.49	1.347 (iii)
TIME TO PEAK	(hrs)=	10.00	10.00	10.00
RUNOFF VOLUME	(mm)=	211.00	147.40	185.56
TOTAL RAINFALL	(mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT	=	1.00	0.70	0.88

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

```
--------------------
| RESERVOIR(  0600)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE    |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)    |   (cms)     (ha.m.)
                          0.0000     0.0000    |   0.1500      0.4500
                          0.0100     0.0200    |   0.2000      0.5000
                          0.0200     0.1100    |   0.2500      0.5400
                          0.0400     0.2100    |   0.3250      0.5900
                          0.0800     0.3200    |   0.4500      0.6200
                          0.1000     0.3600    |   3.0000      0.6500
                          0.1200     0.4100    |   0.0000      0.0000

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0200)        9.730     1.347     10.00     185.56
   OUTFLOW: ID= 1 (  0600)        9.730     1.345     10.00     185.51

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 99.87
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.6306

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   2.61
|ID= 1 DT= 6.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  68.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.22          0.39
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     131.91         40.00
     Mannings n             =     0.013         0.250

         NOTE:  RAINFALL WAS TRANSFORMED TO   6.0 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
               0.100     6.00 | 3.100    13.00 | 6.100    23.00 |  9.10    53.00
               0.200     6.00 | 3.200    13.00 | 6.200    23.00 |  9.20    53.00
               0.300     6.00 | 3.300    13.00 | 6.300    23.00 |  9.30    53.00
               0.400     6.00 | 3.400    13.00 | 6.400    23.00 |  9.40    53.00
               0.500     6.00 | 3.500    13.00 | 6.500    23.00 |  9.50    53.00
               0.600     6.00 | 3.600    13.00 | 6.600    23.00 |  9.60    53.00
               0.700     6.00 | 3.700    13.00 | 6.700    23.00 |  9.70    53.00
               0.800     6.00 | 3.800    13.00 | 6.800    23.00 |  9.80    53.00
               0.900     6.00 | 3.900    13.00 | 6.900    23.00 |  9.90    53.00
               1.000     6.00 | 4.000    13.00 | 7.000    23.00 | 10.00    53.00
               1.100     4.00 | 4.100    17.00 | 7.100    13.00 | 10.10    38.00
               1.200     4.00 | 4.200    17.00 | 7.200    13.00 | 10.20    38.00
               1.300     4.00 | 4.300    17.00 | 7.300    13.00 | 10.30    38.00
               1.400     4.00 | 4.400    17.00 | 7.400    13.00 | 10.40    38.00
               1.500     4.00 | 4.500    17.00 | 7.500    13.00 | 10.50    38.00
               1.600     4.00 | 4.600    17.00 | 7.600    13.00 | 10.60    38.00
               1.700     4.00 | 4.700    17.00 | 7.700    13.00 | 10.70    38.00
               1.800     4.00 | 4.800    17.00 | 7.800    13.00 | 10.80    38.00
               1.900     4.00 | 4.900    17.00 | 7.900    13.00 | 10.90    38.00
               2.000     4.00 | 5.000    17.00 | 8.000    13.00 | 11.00    38.00
               2.100     6.00 | 5.100    13.00 | 8.100    13.00 | 11.10    13.00
               2.200     6.00 | 5.200    13.00 | 8.200    13.00 | 11.20    13.00
               2.300     6.00 | 5.300    13.00 | 8.300    13.00 | 11.30    13.00
```

2.400	6.00	5.400	13.00	8.400	13.00	11.40	13.00
2.500	6.00	5.500	13.00	8.500	13.00	11.50	13.00
2.600	6.00	5.600	13.00	8.600	13.00	11.60	13.00
2.700	6.00	5.700	13.00	8.700	13.00	11.70	13.00
2.800	6.00	5.800	13.00	8.800	13.00	11.80	13.00
2.900	6.00	5.900	13.00	8.900	13.00	11.90	13.00
3.000	6.00	6.000	13.00	9.000	13.00	12.00	13.00

Max.Eff.Inten.(mm/hr)=	53.00	99.17	
over (min)	6.00	12.00	
Storage Coeff. (min)=	3.89 (ii)	8.86 (ii)	
Unit Hyd. Tpeak (min)=	6.00	12.00	
Unit Hyd. peak (cms)=	0.22	0.11	
			TOTALS
PEAK FLOW (cms)=	0.26	0.11	0.368 (iii)
TIME TO PEAK (hrs)=	9.90	10.00	10.00
RUNOFF VOLUME (mm)=	211.00	150.33	191.58
TOTAL RAINFALL (mm)=	212.00	212.00	212.00
RUNOFF COEFFICIENT =	1.00	0.71	0.90

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

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 59.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

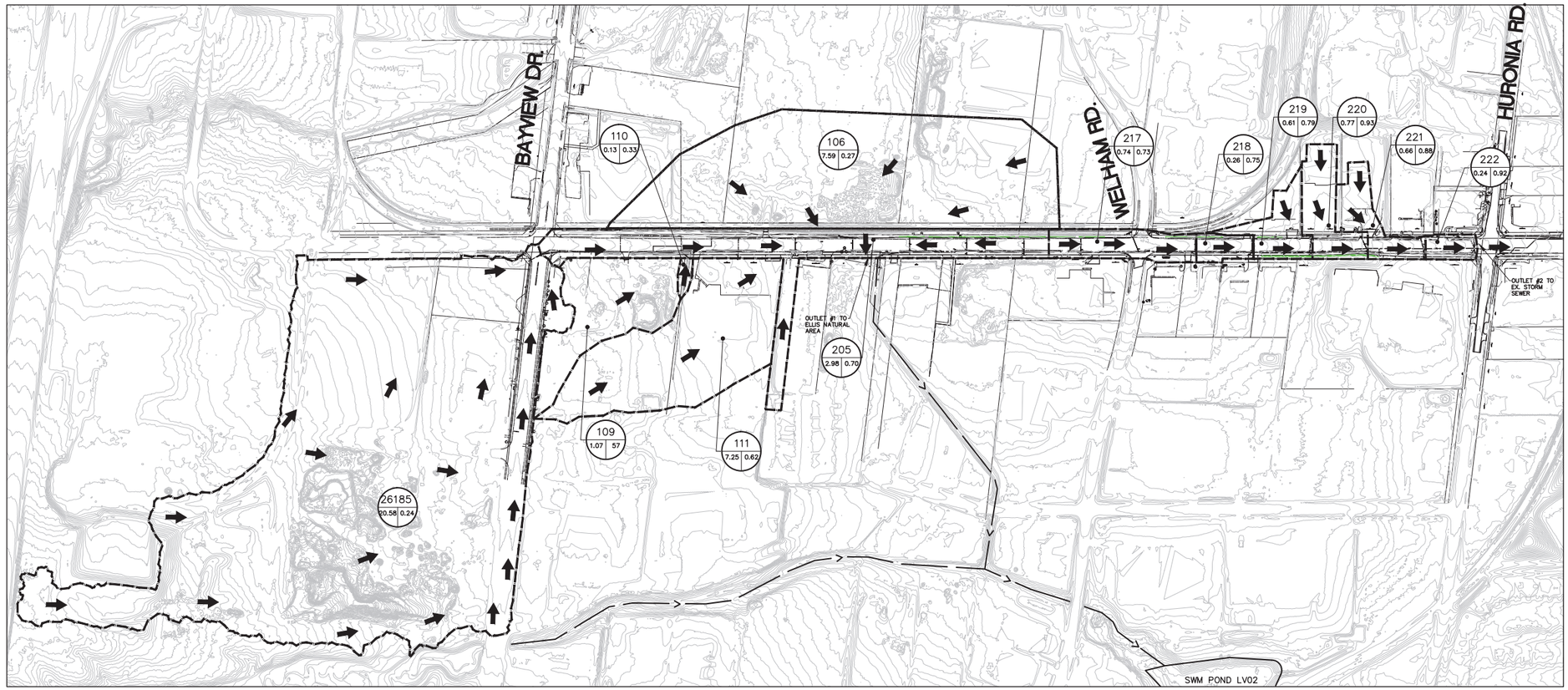
FINISH

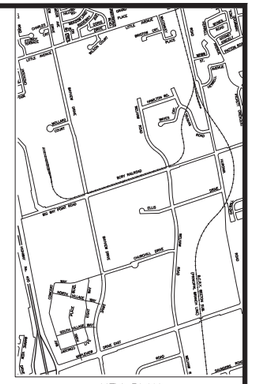
==========

Appendix F

External Drawings

BIG BAY POINT RD.





KEY PLAN
N.T.S.

LEGEND

- EXTERNAL DRAINAGE AREA
- PROPOSED STORM SEWER
- PROPOSED STORM MAINTENANCE HOLE
- 205 / 0.34 / 0.75 — CATCHMENT ID; CURVE NUMBERS/ IMPERVIOUS FRACTION; CATCHMENT AREA (ha)
- BIORETENTION CELL
- DRAINAGE CHANNEL

NOTE:

REFER TO DRAWINGS PP1 TO PP12 FOR PROPOSED PIPE SIZE, GRADE, LENGTH, DIRECTION OF FLOW, ETC.

0 5.0m 10.0m

TATHAM ENGINEERING

GENERAL NOTES

REFER TO CURRENT CITY OF BARRIE STANDARDS FOR APPLICABLE GENERAL NOTES.

EXISTING UTILITY INFORMATION SHOWN IS APPROXIMATE AND SHALL BE CONFIRMED IN THE FIELD. EXISTING UTILITY INFORMATION PROVIDED BY T2UE DATED SEPTEMBER 3, 2020.

BENCH MARKS

DISTANCE NOTE
DISTANCES SHOWN HEREON ARE GROUND DISTANCES AND CAN BE CONVERTED TO GRID DISTANCES BY MULTIPLYING BY THE COMBINED SCALE FACTOR OF 0.9996884

BEARING NOTE
BEARINGS HEREIN ARE GRID BEARINGS AND ARE DERIVED FROM CONTROL MONUMENT 03119950006 (N=4911570.142, E=605168.101) AND ARE REFERRED TO THE CENTRAL MERIDIAN (81 DEGREES OF LONGITUDE) IN ZONE, 17 AND ARE BASED ON NAD27 (76 ADJUSTMENT).

HORIZONTAL CONTROL MONUMENT – 03120040019
THE HORIZONTAL MONUMENT 03120040019 IS LOCATED ON THE SOUTHWEST CORNER OF LITTLE AVENUE AND BAYVIEW DRIVE BEHIND PROPERTY LINE ON CITY PROPERTY. NOTE: A PROTECTIVE WATER VALVE COVER HAS BEEN PLACED OVER MONUMENT CAP. (N=4912914.789, E=604898.105)

VERTICAL CONTROL MONUMENT – 03120030024
255.673m – CULVERT HEADWALL OPPOSITE WILLOW LANDING ELEMENTARY SCHOOL @530 BIG BAY POINT ROAD AT THE NORTHWEST CORNER OF LENNOX PARK. THE CULVERT HEADWALL IS ON THE SOUTH SIDE OF BIG BAY POINT ROAD AND 27m EAST OF THE CENTRELINE OF THE RAILWAY TRACKS. THE VERTICAL CONTROL MONUMENT IS SET FLUSH IN THE CENTRE OF THE EAST END OF THE CULVERT HEADWALL AND 160mm BELOW THE TOP OF THE HEADWALL.

NO.	REVISIONS	DATE	APPROVED
5.	ISSUED FOR TENDER	DEC/20	SKR
4.	100% SUBMISSION	MAY/20	SKR
3.	90% SUBMISSION	AUG/19	SKR
2.	60% SUBMISSION	AUG/18	SKR
1.	30% SUBMISSION	FEB/18	SKR

LICENSED PROFESSIONAL ENGINEER
B. K. ROULSTON
100074283
PROVINCE OF ONTARIO

CITY OF BARRIE
ACCEPTED
DATE. . . . . .
. . . . . DIRECTOR OF ENGINEERING

BIG BAY POINT ROAD IMPROVEMENTS
CITY OF BARRIE

PROPOSED CONDITION DRAINAGE PLAN

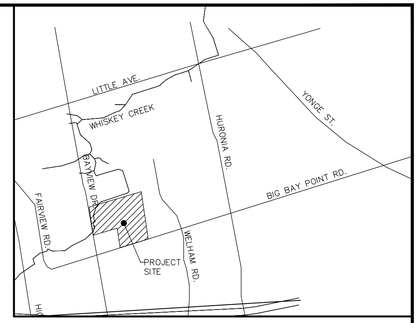
Barrie
INFRASTRUCTURE DEPARTMENT

SCALE HOR.	1:3000	VERT.	N/A	CONTRACT NO. 2020-0XXT
DESIGN	SKR	DRAWN	TP/DDOH	
REVIEWED	BFS	DATE	JAN 2018	SHEET NO. DP2

Appendix G

Pearson Engineering Drawings

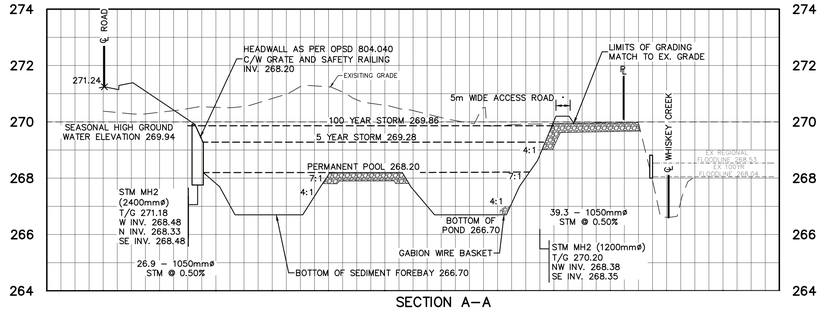
SWM POND	
	ELEVATION (m)
QUALITY CONTROL	268.20
QUANTITY CONTROL	279.90
INLET TO POND	268.36
OUTLET TO CREEK	268.20
TOP OF BERM	270.20
5-YEAR PONDING	268.28
100-YEAR PONDING	269.86
SEASONAL HIGH GROUNDWATER	269.94



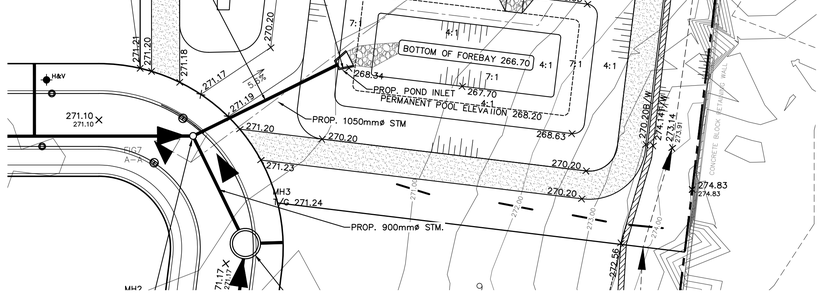
KEY PLAN
NTS

LEGEND

- SITE BOUNDARY
- 254.63 / 254.09 — PROPOSED ELEVATION / EXISTING ELEVATION
- 1.5% — PROPOSED GRADE
- EXISTING 100 YR FLOODLINE
- EXISTING REGIONAL FLOODLINE
- STM MH — PROP SAN MANHOLE
- SANITARY SEWER
- MAX 3:1 SLOPE UNLESS OTHERWISE NOTED
- 1 / 270 GW — BOREHOLE NUMBER / ELEVATION AT GRADE / GROUNDWATER ELEVATION



SECTION A–A
STORMWATER MANAGEMENT POND
HORIZ SCALE – 1:1000
VERT SCAL – 1:10



PLAN VIEW
STORMWATER MANAGEMENT POND
SCALE – 1:500

NO.	REVISION NOTE	DATE	BY
2	CITY COMMENTS & REVISED SWM BLOCK	15/02/23	AMC
01	AS PER CITY AND LSRCA COMMENTS	11/05/22	AMC

BENCHMARK:

RINOMATO GROUP
80 BIG BAY POINT ROAD
BARRIE, ON

STORMWATER MANAGEMENT POND
PLAN

PEARSON ENGINEERING
PEARSONENG.COM PH. 705.719.4785

DESIGNED BY	AMC	HORIZ SCALE	AS SHOWN
DRAWN BY	AMC	VERT SCALE	N/A
CHECKED BY	GMP	DATE	MAY 2021
PROJECT #	20033		
DRAWING #	FIG 7		
REVISION #	2		