Functional Servicing and Stormwater Management Report

1580-1590 & 1650 Dundas Street East

Official Plan Amendment and Zoning Bylaw Amendment Applications

Project No.: 20129

City of Mississauga, Ontario

Prepared For:

Hazelview Investments

Date: November 2021
Version: 1st Submission

counterpoint ENGINEERING

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EXECUTIVE SUMMARY

This Functional Servicing and Stormwater Management Report ('FSSR') has been prepared to support official plan amendment ('OPA') and zoning bylaw amendment ('ZBA') applications for the site municipally known as 1580-1590 & 1650 Dundas Street East, Ontario (referred to as 'the site' or 'subject site').

The development proposal for the 7.39 ha site is to include for the development of 5 mixed-use development blocks, parkland and creek hazard dedications and an allowance for a future right of way bridge extension over Little Etobicoke Creek. The blocks will contain 13 buildings with a total of 3,027 units, along with 2,506m^2 and 449m^2 of retail and community space respectively. Mattawa Avenue is proposed to have a modified above grade cross-section, and widenings are proposed for both Mattawa Avenue and Dundas Street East.

The servicing strategy for the proposed development is summarized as follows:

Water Servicing:

Mattawa Avenue contains a 300mm diameter watermain, which is the proposed watermain for all block level connections. The domestic and fire flow water demands were calculated in accordance with City of Mississauga criteria and FUS methodology. A fire hydrant connected into the Mattawa Avenue watermain was flow tested and confirmed that each block's critical water demands can be met by existing infrastructure.

Sanitary Servicing:

Mattawa Avenue contains a 250mm diameter municipal sanitary sewer, which is the proposed watermain for all block level connections. The development proposal will result in an increase in equivalent population and peak flow to the Region's sewer system. A

summary of peak flow, along with the Region's multi-demand table, has been included in this report. It is our understanding that the Region will install a new 1200mm diameter trunk sewer under Mattawa Avenue, and the existing sewers in Mattawa Avenue will be connected into this trunk sewer.

Stormwater Servicing:

The subject site currently drains stormwater to Mattawa Avenue and in turn Little Etobicoke Creek. All development blocks will have storm connections into the existing storm sewers within Mattawa Avenue. A comparison of City and TRCA stormwater management requirements were completed to establish required block level controls. Preliminary controls have been established in order to meet stormwater objectives.

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1.0 INTRODUCTION

1.1 Background

This Functional Servicing and Stormwater Management Report ('FSSR') has been prepared to support official plan amendment ('OPA') and zoning bylaw amendment ('ZBA') applications for the site municipally known as 1580-1590 & 1650 Dundas Street East, Ontario (referred to as 'the site' or 'subject site').

The development proposal for the 7.39 ha site is to include for the development of 5 mixed-use development blocks, parkland and creek hazard dedications and an allowance for a future right of way bridge extension over Little Etobicoke Creek. The blocks will contain 13 buildings with a total of 3,027 units, along with 2,506m^2 and 449m^2 of retail and community space respectively. Two to three levels of underground parking are contemplated, as shown on the architectural plans. Mattawa Avenue is proposed to have a new above grade cross-section along with a widening.

The subject site is currently divided into two separate blocks, with Parcel 1 being on the north-east side of Mattawa Avenue, and Parcel 2 being on the south-west side of Mattawa. Refer to the architectural plan extracts that are included in **Appendix A** for more information. **Figure 1 – Site Location** illustrates the subject site within the context of its surroundings. General project statistics are as follows in **Table 1**:

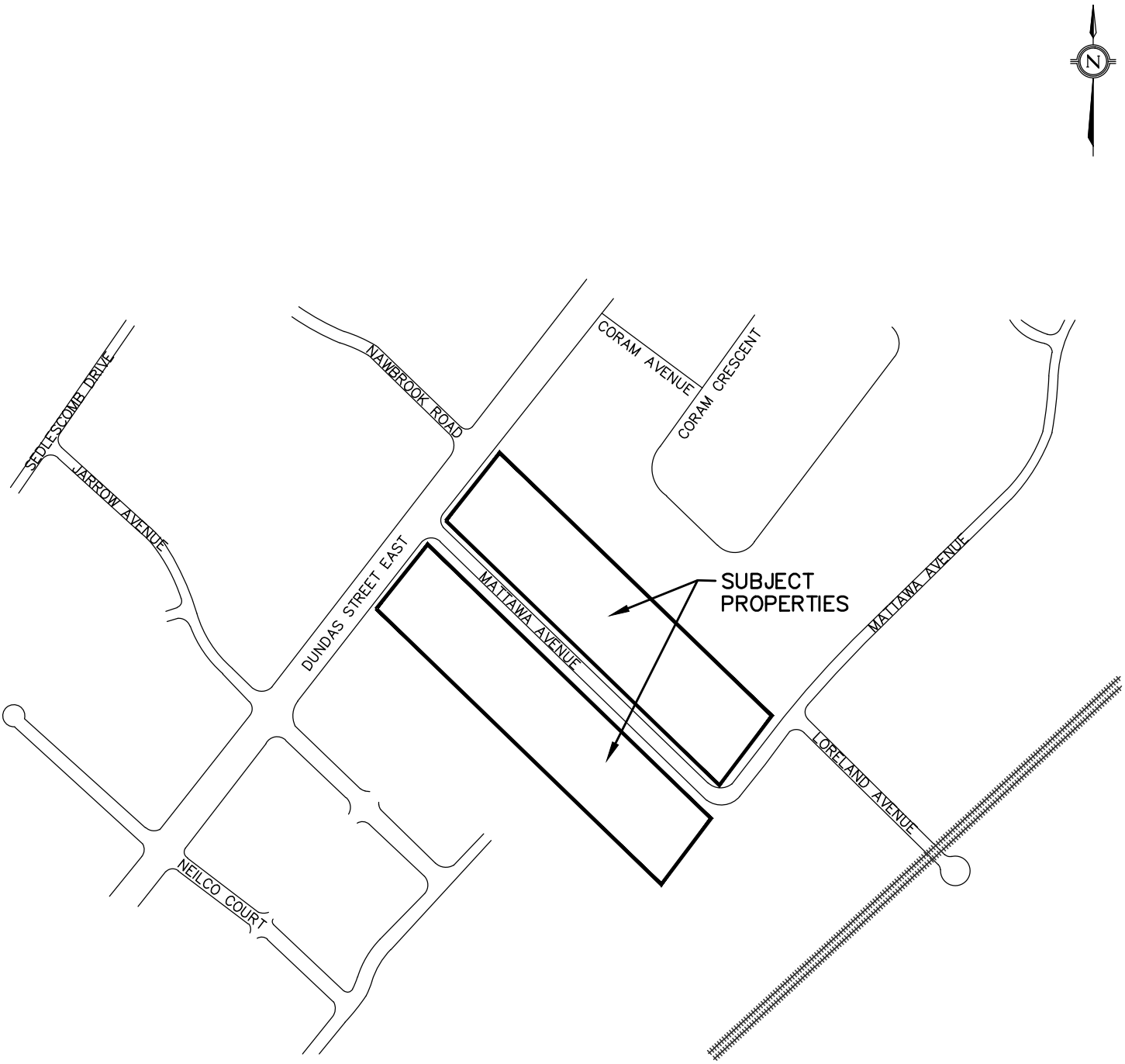
Table 1: Project Summary

Block	ID Ref.	Building	Use	Block Area (m2)	Residential Units
BLOCKS					
A	1	A1, A2, A3	Residential & Retail	10,464.00	1,099
C	2	C1, C2, C3	Residential, Retail & Community	6,261.00	448
E	3	E1, E2, E3	Residential & Retail	12,779.00	533
F	4	F1, FTH-1, FTH-2, F3	Residential	12,329.00	407
G	5	G1, G2, GTH	Residential	11,255.00	540
H1	6	n/a	Creek Buffer	2,504.00	-
Sub-Total - Blocks:				**55,592.00**	**3,027**
CONVEYANCES					
B	7	n/a	Park	10,358.00	0
D1/D2	8	n/a	Hazard/Buffer	4,043.00	0
ROW 1	9	n/a	Loreland Avneue	385.00	0
ROW 2	10	n/a	Creek Overpass	1,888.84	0
ROW Widening A	11	n/a	Parcel 2 Widenings	775.00	0
ROW Widening B	12	n/a	Parcel 1 Widenings	847.00	0
Sub-Total - Conveyances:				**18,296.84**	**0**
Total Parcel 1 (3+4+5+9+12):				**37,595.00**	**1,480.00**
Total Parcel 1 Developable Area (NIC Conveyances: 3+4+5):				**36,363.00**	**1,480.00**
Total Parcel 2 (1+2+6+7+8+10+11):				**36,293.84**	**1,547.00**
Total Parcel 2 Developable Area (NIC Conveyances: 1+2):				**16,725.00**	**1,547.00**
Total Original Site:				**73,888.84**	**n/a**
Total Developable Lands (NIC Conveyances):				**53,088.00**	**3,027.00**

1.2 Study Parameters

This servicing assessment is based on:

- Stormwater Management Criteria, August 2012, TRCA.
- Peel Region Design Criteria (watermain and sanitary sewer), Region of Peel.
- Transportation and Works Department Requirements Manual, City of Mississauga.
- Plan and Profile and Sewershed Drawings, Region of Peel.
- MOE Design Guidelines for Drinking-water Systems, 2008.
- Architectural and Landscape Inputs, by SvN Architects + Planners.



SITE LOCATION PLAN

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DEVELOPMENT PROJECT
AT MATTAWA AVENUE AND DUNDAS STREET EAST

MISSISSAUGA, ONTARIO

DRAWING BY:	HK
CHECKED BY:	DL
SCALE:	N.T.S.

DATE: OCTOBER 2021

PROJECT NO.: 20129

FIGURE NO.: 1

2.0 WATER SUPPLY

2.1 Existing Water Supply

The adjacent municipal roadways contain available watermain servicing, as follows:

- Mattawa Avenue: 300mm diameter watermain.

A number of fire hydrants exist along Mattawa Avenue and are all connected into the existing 300mm diameter watermain. The existing development is currently serviced from the 300mm diameter watermain.

2.2 Proposed Water Supply

The proposed development is proposed to have multiple watermain connections into the existing 300mm diameter watermain in Mattawa Avenue. No mainline extensions are required to service the lands. The final number of block level connections will be determined at the Site Plan Approval stage of the project, however for the purpose of fire flow and domestic demand calculations, demands have been calculated on a block-by-block basis (i.e. a calculation for each of A, C, E, F and G).

The available municipal servicing should satisfy maximum day plus fire flow or the peak hour demand, whichever is greater. Fire demand is calculated using the Fire Underwriter Survey ('FUS') guidelines (1999).

Domestic water demands for the various blocks were calculated using Region of Peel criteria and by calculating equivalent populations by type of housing and land use and applying the multi-unit per capita demand of 280 l/cap/day for residential use. Given that the number of employees for retail space is not known, instead of the 300 L/employee/day rate prescribed in the Region guidelines, an MECP rate of 28 m^3/floor ha/day was used.

Fire flows were estimated using FUS methodology. The following considerations were made as part of estimating fire flows:

- Fire Resistive type of construction for all buildings except townhouses, including adequately protected vertical openings.
- Ordinary Construction type construction for the townhouse blocks.
- Construction content factor for any blocks containing retail, otherwise, Limited Combustible factor.
- All system type reductions in place.

Floor-by-floor area breakdowns are not available at this stage of the project. As such, conservative area assumptions were made as part of the FUS calculations. For Block F, townhouse block F-TH1 governed the fire flow demand.

Table 2: Summary of Water Demands

Location	Daily Water Demand (L/sec)	Max Day Water Demand (L/sec)	Peak Hour Water Demand (L/sec)	Fire Demand Required (L/sec)	Max Day plus Fire Demand (L/sec)
A	7.37	14.72	22.10	166.67	181.38
C	3.28	6.53	9.83	116.67	123.20
E	3.96	7.90	11.87	183.33	**191.23**
F	3.16	6.32	9.48	166.67	172.23
G	4.12	8.24	12.35	150.00	158.24

As such, the governing maximum day plus fire flow demand rate is **191.23 L/s**.

A hydrant flow test was completed on July 23, 2021 by Lozzi Aqua Check, on a fire hydrant connected into the 300mm diameter watermain in Mattawa Avenue. The results of the test indicate that a flow rate of **441.34 L/s** could be achieved at a minimum fire pressure of 140 kPa (20 psi), which is greater than the governing block demand. As such, the municipal watermain system can accommodate the proposed development. Multi-

use demand tables have been included in **Appendix C**. Refer to **Appendix B** for all water demand calculations.

3.0 GROUNDWATER MANAGEMENT

Discharge of groundwater and foundation drains to municipal sewers must be in accordance with the Region of Peel and/or City of Mississauga requirements.

A Permit to Take Water (PTTW) from the Ontario Ministry of the Environment, Conservation and Parks (MECP) is required for short term water taking over 400 m^3/day. An Environmental Activity and Sector Registry (EASR) is required from the MECP for short term water taking between 50 m^3/day and 400 m^3/day. A PTTW is required for long term water taking from a permanent drainage system greater than 50 m^3/day.

The hydrogeological report, prepared by Terrapex, provides high level estimates of construction (short-term) and permanent (long-term) dewatering, based on various block sizes and their levels of underground parking. The rates are as follows:

Table 3: Groundwater Discharge Summary

Block (m^2)	Construction Dewatering (L/day)			Long-Term Dewatering (L/day)
	Temporary	25mm Storm	Total	
+/- 3,300 (2 Levels)	13,000	82,500	95,500	12,000
+/- 10,350 (2 Levels)	47,400	258,750	306,150	41,778
+/- 15,000 (3 Levels)	57,786	375,000	432,786	57,786

Construction dewatering will be designed by a qualified dewatering contractor, with MECP permitting applied for as required (EASR is expected). A rate of 57,786 L/day (**0.67 L/s**), as a conservative estimate for the largest permanent long term dewatering rate by block, should be easily managed through discharge to the sewer system, subject to approval from the Region of Peel and/or City of Mississauga. It is our understanding that the Region of Peel will soon not permit groundwater connections into their sanitary sewer system.

Should this occur, either the owner will be required to design without foundation drains, or will be required to treat, control and discharge groundwater to the City's storm sewer system, in accordance with City requirements and the control requirements outlined in Section 5.0 of this report.

4.0 SANITARY SERVICING

4.1 Existing Sanitary Servicing

The adjacent municipal roadways contain available separated sanitary servicing, as follows:

- Mattawa Avenue: 250mm diameter sanitary sewers.

The sewers in Mattawa Avenue converge at the point where Mattawa turns 90 degrees, at the southern end of the property. At this point, the sewers travel through private property through an easement, travels south-east parallel to Little Etobicoke Creek and connects into the existing 1200mm diameter trunk sewer, near the railway bridge overpass.

It is our understanding that the Region will be undertaking a project that will propose a new 1200mm diameter trunk sewer in Mattawa Avenue, spanning from Dundas Street East to the existing trunk connection point at the railway bridge overpass. The existing 250mm diameter local sewers in Mattawa Avenue will remain in place, however they will be connected into this new trunk sewer in Mattawa Avenue. The continuation of the trunk sewer will require a new easement on the subject lands (within Block B).

The existing site is currently serviced by the Mattawa Avenue sanitary sewer. Based on an estimated 1.55 ha of existing retail/commercial space, the existing sanitary peak flow has been estimated to be **2.92 L/s**. Refer to **Appendix C** for sanitary calculations.

4.2 Proposed Sanitary Servicing

All development blocks are proposed to be serviced by the existing 250mm diameter sanitary sewers in Mattawa Avenue. An extension of the sewer at the north-east part of Mattawa Avenue will be required to service Blocks A and E. For the purpose of re-zoning, we have provided 1 control maintenance hole per building within each block, to satisfy building code requirements. The control maintenance hole allocated to each building is in **Table 4** below.

Table 4: Servicing Connections per Building

Block	Building	San. Control MH	Stm. Control MH
A	A1	MH1A	MH1
	A2	MH3A	
	A3	MH5A	
B	Park	n/a	MH7
C	C1	MH15A	MH3
E	E1	MH8A	MH2
	E2	MH10A	
	E3	MH12A	
F	F1	MH14A	MH4
	FTH-1	MH18A	
	FTH-2	MH19A	
	F3	MH16A	
G	G1	MH20A	MH8
	G2	MH21A	
	GTH	MH22A	
ROW 2	Creek Overpass	n/a	MH5

Unit and non-residential floor area breakdowns by building are not available at this time. However, this breakdown is available by block. As such, for the purpose of capacity

assessment, we have calculated peak flows generated by each block. Multi-use demand tables were also prepared by block and are included in **Appendix C**.

In accordance with Region criteria, person per unit rates of 1.6 and 3.0 were used for small (<750 sq.ft.) and large (>750 sq.ft.) apartment units. The architectural plans do not provide unit size information; however a reasonable assumption was made that only studio and 1 bedroom units qualify as small units. Based on these equivalent populations and a generation rate of 302.8 L/cap/day, peak flows by block are presented below in Table 5. The cumulative peak flow from each block has been calculated to be **88.51 L/s**, or an increase of **85.59 L/s.** Refer to drawing SW-S for the location of servicing connections and Appendix C for sanitary calculations and multi-use demand sheets.

Typically, the Region of Peel will analyze the capacity of the existing sewer system to determine if the development can be supported without upgrades.

Table 5: Sanitary Peak Flow Summary

Locations		Domestic Flows			Infiltration Flows		Totals
Area	Ctrl. MH Connections	Total Units	Total Population	Domestic Flows (L/s)	Site Area (ha)	Infiltration Flows (L/s)	Total Flow (L/s)
Block A	1A, 3A, 5A	1099	2269	**28.17**	1.05	1.05	**29.22**
Block C	15A	448	940	**12.58**	0.63	0.41	**12.98**
Block E	8A, 10A, 12A	533	1136	**14.98**	1.28	1.10	**16.08**
Block F	14A, 18A, 19A, 16A	407	910	**12.20**	1.23	1.37	**13.57**
Block G	20A, 21A, 22A	540	1186	**15.59**	1.13	1.07	**16.66**
	TOTALS:	3027	6441	**83.53**	5.31	4.98	**88.51**

5.0 STORMWATER SERVICING

5.1 Existing Stormwater Drainage

The existing Mattawa Avenue right-of-way contains an available storm sewer system that collects and conveys drainage towards the south. The site is tributary to Little Etobicoke Creek. The entire site eventually drains towards the creek and is therefore considered to have one outlet. See drawings **SWM1A** and **SWM1B** for the Pre-Development Drainage Plans. Areas 100 and 101 represent existing developed areas that are captured in existing private site services and conveyed to Mattawa Avenue. R100 is the existing Mattawa Avenue right-of-way, while the remaining areas are uncontrolled. All flows being conveyed on-site and within Mattawa Avenue are directed towards a 1200mm storm sewer that drains northeast to southwest towards Little Etobicoke Creek.

In accordance with TRCA criteria for the Etobicoke Creek Watershed, VO6 software has been utilized to calculate pre-development peak runoff for the 2-year up to the 100-year storm event based on the 6-hour AES design storms. The results have been shown below in **Table 6**. Since Mattawa Avenue, which is represented as Area R100, is an existing right-of-way, it has been excluded from the model for the stormwater management calculations. Refer to **Appendix D** for the VO6 Model output, pre-development condition analysis. No information is available for any existing controls on the developed lands and therefore have been assumed to be uncontrolled for the purpose of the analysis.

Table 6: Overall Site Pre-Development Peak Flows

Return Period	Total Site to Little Etobicoke Creek (L/s)
(AES 6-hours)	
2-Year	543
5-Year	747
10-Year	885
25-Year	1,079
50-Year	1,214
100-Year	1,347

5.2 Proposed Storm Servicing

Each development block will require a minimum of one storm connection to the existing sewers in Mattawa Avenue. Further consultation with City of Mississauga staff is required to determine the number of required connections to each block/tower in order to meet Ontario Building Code requirements. Refer to **Table 4** for a summary of control maintenance holes and the blocks they service and drawing **SW-S**.

5.3 Stormwater Management Criteria

The stormwater management design has been prepared in accordance with the criteria of the City of Mississauga (City) and the Toronto and Region Conservation Authority (TRCA).

5.3.1 City of Mississauga Stormwater Management Criteria

The City's SWM criteria is set out in the Transportation and Works Department Requirements Manual (Manual) dated November 2020.

5.3.1.1 Water Balance

- The minimum on-site runoff retention requires the proponent to retain the first 5mm of runoff on-site, which equates to about 50% of the total average annual rainfall volume, through infiltration/bioretention, evapotranspiration and/or rainwater reuse.

At a minimum, all runoff from a 5mm event will be retained on site through initial abstraction, infiltration, evapotranspiration and/or rainwater reuse.

5.3.1.2 Water Quality

- Require average removal of 80% of TSS on an annual loading basis from all runoff leaving the site. (Suspended solids removal efficiency is to be calculated based on 100% of the total runoff volume resulted from all storm events that occur in an average year.)

- Overall efficiency in TSS removal can be considered in combination with minimum on-site runoff retention and other conveyance & end-of-pipe controls (i.e. the treatment train).

A TSS removal of 80% is required, calculated based on a treatment train approach.

5.3.1.3 Water Quantity

- Stormwater quantity control varies depending on the watershed and should conform to the criteria set out by the corresponding conservation authority (ie. TRCA, CH and CVC) based on the watershed.

The quantity controls shall achieve TRCA quantity control requirements.

5.3.2 TRCA Criteria

As the site is located within the Etobicoke Creek watershed, the TRCA's Stormwater Management Criteria dated August 2012 have been assessed for requirements that are

additional to the City criteria. From Table 2.2 and Table 3-1, the criteria as it applies to this development as follows:

5.3.2.1 Stormwater Quantity

For Etobicoke Creek, control post-development peak flows to the Etobicoke Creek Watershed delineated unit rates for all storms up to and including the 100-year storm (i.e. 2, 5, 10, 25, 50, and 100-year storms). The site is in the Little Etobicoke Creek tributary and the specific unit release rates for the site's location are found in Table I1 of Appendix A in the TRCA Stormwater Management Criteria. The applied unit release rates and the site's resulting allowable rates are shown in **Table 7**.

Table 7: TRCA Allowable Unit Rates Flows for the Site

Return Period	Unit Runoff Rates (L/s/ha)	Total Site Allowable Release Rates (L/s)
2-Year	21.5	141.5
5-Year	33	217.1
10-Year	41	269.8
25-Year	55	361.9
50-Year	62.7	412.6
100-Year	71.8	472.4

The TRCA unit release rates in **Table 7** result in very small release rates, which are less than pre-development conditions rates even for landscaped areas. As such, the TRCA rates will govern quantity control release rates for the site. The return period peak flows are based on the 6-hour AES design storm events. Refer to **Appendix D** for further information on TRCA's Little Etobicoke Creek watershed Criteria and unit release rate calculations. The total site area release rates are based on the limits of the storm drainage areas of the development blocks.

Control the site's post-development peak flows to the TRCA's Little Etobicoke Creek Watershed defined unit rates for all storms up to and including the 100-year storm.

5.3.2.2 Erosion

- At a minimum retain 5 mm on site where conditions do not warrant the detailed analyses.

- If a site drains to a sensitive creek or a sub watershed, a study or MESP is required, then the proponent must complete a geomorphologic assessment study to determine the site appropriate erosion threshold.

- For sites with SWM ponds, 25mm - 48hr detention may also be required, depending on the results of the erosion assessment.

The proposed development does not meet the criteria requiring erosion control and we believe there will be no measurable impact on erosion in the Little Etobicoke Creek.

The site shall apply best efforts to retain 5mm of runoff depth.

5.3.2.3 Stormwater Quality

Enhanced Level of Protection (80% TSS removal) as per the latest MOE SWMPD Manual is required.

TSS removal of 80% is required.

5.3.2.4 Water Balance

- For Low Volume Groundwater Recharge Areas (LGRA), site specific water balance analyses are typically not required, and best efforts to maintain recharge are expected.

- For natural features (woodlands, wetlands, watercourses) maintain hydrologic regimes and hydroperiods.

Reasonable best efforts to maintain or enhance groundwater recharge.

5.3.3 Consolidated Stormwater Criteria

Table 8 below presents the consolidated City and TRCA criteria.

Table 8: Consolidated Stormwater Management Criteria

Criteria	City	TRCA
Water Balance	All runoff from a 5mm event will be retained on site through infiltration, evapotranspiration & rainwater reuse.	Reasonable best efforts to maintain or enhance groundwater recharge.
Stormwater Quality	TSS removal of 80% is required.	TSS removal of 80% is required.
Stormwater Quantity	The post-development peak runoff rates shall conform to TRCA criteria. Overland flow route to safely convey major drainage to municipal right-of-way.	Control post-development peak flows to the TRCA's Little Etobicoke Creek watershed defined unit rates for all storms up to and including the 100-year storm.
Erosion Control	Not Required.	Retain 5mm on site

5.4 Proposed Stormwater Management Approach

A hierarchical approach has been used to arrive at the proposed stormwater management strategy for this development. Consistent with this approach, it is proposed that all the

development blocks will have internal treatment and control facilities that will fully address the water balance, quality treatment and quantity control requirements for the individual blocks. Refer to drawings **SWM2A** and **SWM2B** for the Post-Development Drainage Plans. The sum of the limits of the development block drainage areas have been considered as the total site area for the purposes of the stormwater management calculations. Since Mattawa Avenue is an existing public road, the drainage patterns of the road will generally be maintained and have been excluded from stormwater management calculations. However, a road widening is proposed on Mattawa Avenue, therefore the additional widening area has been accounted for by including those widened areas in the individual development blocks as a conservative approach. The site also includes a Park Block (Area 214) and a block allocated for a future right-of-way bridge (R201) that crosses over Little Etobicoke Creek. These two blocks will be public areas and shall be uncontrolled, however they were accounted for as part of the overall stormwater management approach. The private development blocks shall implement additional quantity controls to compensate for the released flows for the two public blocks to ensure that the total site released flows achieve allowable release rates. Quality control for the roads will be addressed with a treatment train approach of directing runoff from impermeable areas to landscaped areas where feasible, retaining the 5mm storm event within the blocks, and an oil/grit separator ('OGS') unit at the connection of each of the blocks. Based on the proposed plan, preliminary sizing of the storm water management facilities was completed for each development block. The detailed design of these facilities will occur as part of the future Site Plan Approval process for the development blocks.

5.4.1 Residential/Retail Blocks with Underground Garages

The stormwater management requirements for these blocks will be met using a combination of green roofs/landscaping, rainwater harvesting and quantity control cisterns and oil/grit separators.

Water Balance – It is proposed that all rainfall events up to the 5mm storm will be retained on site for these blocks. This will be done through the use of green roofs/landscaping and rainwater harvesting. Harvested rainfall will be stored in underground garage cisterns and be used for irrigation purposes. Refer to **Table 9** and **Appendix D** for detailed calculations.

Water Quality - Oil/grit separators will provide 50% treatment for roof, exposed parking areas and driveways. Landscaped areas will be conveyed directly to a rainwater cistern. A level of 80% or more TSS removal will be achieved for blocks based on 100% of the total runoff volume resulted from all storm events that occur in an average year. Refer to **Table 10** and **Appendix D**, Water Quality for detailed calculations.

Water Quantity – The proposed 2 to 100-year storms will be controlled to allowable rates (using TRCA defined unit rates for the Little Etobicoke Creek watershed) with implementation of underground garage cisterns/storage facilities with Hydrovex units or orifice plates. See **Table 11** and **Appendix D** for calculations. The private development blocks shall overcontrol the release rates in order to compensate for the uncontrolled future right-of-way bridge (Area R201) and the public park block.

SWM DESIGN CALCULATIONS
Table 9: Initial Abstraction/Water Balance Credit Summary Table (Post-development)

Project Name: 1580-1590 & 1650 Dundas Street East
Municipality: Mississauga, ON
Project No.: 20129
Date: 27-Oct-21

Prepared by: J.L.
Checked by: R.K.
Last Revised: 27-Oct-21

Block	Area (ha)	Initial Abstraction On-site Credits						Additional Credit for Reuse or Infiltration Storage		Total Block Level Water Balance Credit with Reuse Storage (mm)	Total Water Balance Credit with Reuse Storage Per 6.58ha Entire Site (mm)
		Landscape/ Permeable Pavement (5mm Credit)	Green Roof (5mm Credit)	Roof (1mm Credit)	Roof/Paved to Landscape (5mm Credit)	Paved (1mm Credit)	Total On-site Initial Abstraction Credit (mm)	Additional Reuse or Infiltration Storage (m^3)	Additional Reuse or Infiltration Storage (mm)		
BLOCK A	1.045	15%	13%	35%	0%	37%	2.1	38	3.6	5.7	0.9
BLOCK E	1.299	14%	11%	34%	0%	42%	2.0	49	3.8	5.8	1.1
BLOCK C	0.627	30%	6%	48%	0%	16%	2.4	20	3.2	5.6	0.5
BLOCK F	0.950	4%	4%	11%	0%	54%	1.1	42	4.4	5.5	0.8
BLOCK G	1.435	16%	9%	30%	0%	45%	2.0	54	3.8	5.8	1.3
ROW R201	0.189	0%	0%	0%	0%	100%	1.0	0	0.0	1.0	0.0
PARK BLOCK	1.035	93%	0%	0%	7%	0%	5.0	0	0.0	5.0	0.8
Sub-Total	**6.580**						**2.4**	**203**			**5.5**

*** Therefore, in overall the site post-development Initial Abstraction credit is 5.5mm.**

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SWM DESIGN CALCULATIONS

Table 10: Post-development TSS Removal Calculation Results Summary (using New Jersey Stormwater Best Management Practices Manual , Chapter 4 - TSS Removal Rates for BMP's in Series)

Project Name: 1580-1590 & 1650 Dundas Street East
Municipality: Mississauga, ON
Project No.: 20129
Date: 27-Oct-21

Prepared by: J.L.
Checked by: R.K.
Last Revised: 27-Oct-21

TSS Removal Treatment Train Approach

Block	Area (ha)	Stage 1. Land Use (% of area) for TSS Removal Credits							Stage.3 End of Pipe Quality Treatment					TSS Removal Credit Per 6.58ha Entire Site
		Landscape / Permeable Pavement (80% TSS Removal Credit)	Green Roof (80% TSS Removal Credit)	Roof (80% TSS Removal Credit)	Roof/Paved to Landscape (80% TSS Removal Credit)	Paved (0% TSS Removal Credit)	Total On-site TSS Removal Credit	Remaining Untreated TSS	5mm Retention (50% TSS Removal Credit*)	Cumulative On-site TSS Removal Credit	Remaining Untreated TSS	OGS (50% TSS Removal Credit)	Complete TSS Removal Individual	
BLOCK A	1.045	15%	13%	35%	0%	37%	51%	49%	50%	75%	25%	50%	88%	13.9%
BLOCK E	1.299	14%	11%	34%	0%	42%	47%	53%	50%	73%	27%	50%	87%	17.1%
BLOCK C	0.627	30%	6%	48%	0%	16%	67%	33%	50%	83%	17%	50%	92%	8.7%
BLOCK F	0.950	4%	4%	11%	0%	54%	16%	84%	50%	58%	42%	50%	79%	11.4%
BLOCK G	1.435	16%	9%	30%	0%	45%	44%	56%	50%	72%	28%	50%	86%	18.8%
Public ROW R201	0.189	0%	0%	0%	0%	100%	0%	100%	0%	0%	100%	0%	0%	0.0%
PARK BLOCK	1.035	93%	0%	0%	7%	0%	80%	20%	0%	80%	20%	0%	80%	12.6%
Sub-Total	**6.58**													**83%**

*5mm water retention is equivalent to 50% of annual rainfall. Therefore, removing this volume from hydrologic cycle reduces TSS load by 50%.

Reference: **New Jersey Stormwater Best Management Practices Manual**
Chapter 4 - TSS Removal Rates for BMP's in Series

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SWM DESIGN CALCULATIONS
Table 11: Water Quantity Calculation Results Summary (SWM Matrix)

Project Name: 1580-1590 & 1650 Dundas Street East
Municipality: Mississauga, ON
Project No.: 20129
Date: 27-Oct-21

Prepared by: J.L.
Checked by: R.K.
Last Revised: 27-Oct-21

Block	Drainage Area [ha]	Total Roof Area (ha)	Roof Drain to Grass (ha)	Imp. Side Walk Drain to Grass (ha)	Roof / Imp. Drain to Grass (%)	Green Roof (ha)	Green Roof (% of Roof)	Paved Surface Impervious Area (ha)	Landscape / Permeable Pavement (ha)	Imperviousness (%)	X-Imperviousness (%)	Water Balance Target (mm)	Quantity Control Target	Water Balance/Cistern Storage Required (m^3)	Quantity Control Storage Utilized during 100-year storm (m^3)	Blocks Target 100-year Release Rate (l/s)	VO6 Model 100-year Blocks Release Rate (l/s)	Quantity Storage Provided (m^3)
BLOCK A	1.045	0.505	0.00	0.000	0	0.136	27%	0.385	0.155	72	72	5	TRCA Unit Release Rates	38	560	58	27	561
BLOCK E	1.299	0.582	0.00	0.000	0	0.143	25%	0.540	0.177	75	75	5	TRCA Unit Release Rates	49	708	72	30	709
BLOCK C	0.627	0.335	0.00	0.000	0	0.035	10%	0.103	0.189	64	64	5	TRCA Unit Release Rates	20	317	35	16	318
BLOCK F	0.950	0.527	0.00	0.000	0	0.063	12%	0.382	0.041	89	89	5	TRCA Unit Release Rates	42	570	53	18	571
BLOCK G	1.435	0.561	0.00	0.000	0	0.133	24%	0.645	0.228	75	75	5	TRCA Unit Release Rates	54	792	79	32	793
ROW R201	0.189	0.000	0.00	0.000	0	0.000	-	0.189	0.000	100	100	N/A	Uncontrolled	-	-	-	39	-
PARK BLOCK	1.035	0.000	0.00	0.000	0	0.000	-	0.077	0.958	7	0	N/A	Uncontrolled	-	-	-	137	-
SubTotal (including external areas)	**6.580**	**2.51**				**0.51**		**2.32**	**1.75**					**203**	**2947**	**472**	**299**	**2952**

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5.5 Consolidation of Stormwater Management Approach

In this section of the report, the results from overall proposed development are consolidated and it is demonstrated that the proposed stormwater management approach meets or exceeds the criteria of the City and TRCA for the overall site.

5.5.1 Consolidated Water Balance Control

As shown in **Table 9**, the proposed Stormwater Management Approach will retain at least 5mm of rainfall on site. Refer to **Table 9** and **Appendix D** for more detail. **Table 12** summarizes the consolidated water balance outcome for the entire site.

Table 12: Consolidated Water Balance Summary for Entire Site

SWM Item	Target	Post-Development
Water Balance	5mm Retained on Site	5.5mm Retained on Site

5.5.2 Consolidated Water Quality Control

As shown in **Table 10**, the proposed Stormwater Management Approach will provide an overall 83% of TSS removal for the entire site. Therefore, the 80% TSS removal requirement has been satisfied. Refer to **Table 9** and **Appendix D** for more detail. **Table 13** below summarizes the consolidated water quality outcome for the entire site.

Table 13: Consolidated Water Quality Summary for Entire Site

SWM Item	Target	Post-Development
Water Quality	80% TSS Removal	83% TSS Removal

5.5.3 Consolidated Water Quantity Control

5.5.3.1 Design Criteria

As previously discussed, all development blocks will provide their own quantity storage to control post-development 2-year to 100-year storm flows to the TRCA allowable unit release rates or less. This will also satisfy the City's quantity control requirement for the individual development blocks.

5.5.3.2 Modeling

The following section provides detail of criteria and data which have been utilized in the modeling process:

The VISUAL-OTTHYMO Version 6 (VO6) Model has been employed to analyse the 2 to 100-year storm events for both pre-development and post-development conditions. The design storm events used in this analysis are based on the 6-hours AES storm events in accordance with the TRCA guidelines for the watershed. The 2-year to 100-year storm events were modelled with a time step of 5 minutes.

The proposed site development drainage areas have been modelled in VO6 using the STANHYD commands with the SCS Formula for areas with impervious areas, and NASHYD commands with CN values for landscaped and undeveloped areas. In the post-development conditions, flows from the individual development blocks have been routed through underground storage tanks on each block. The ROUTE RESERVOIR command has been used to model the SWM storage tanks. Refer to **Appendix D** for post-development VO6 model schematic and calculations, and drawings **SWM2A** and **SWM2B** for post-development drainage areas. The post-development VO6 model input parameters have been summarized in **Table 14**.

The required quantity storage for all development blocks have been provided in **Table 11**. For the current submission, it has been assumed that each of the development blocks shall have a single flow restriction device (orifice or vortex unit) to control all the design

storms from the 2-year to the 100-year storm event. **Therefore, the development block controls have been preliminarily sized to control the 100-year storm event to the 2-year allowable release rate for the controlled portions of the blocks. However, during detailed design of the development blocks, there is opportunity to optimize the required storage volume and detention time within the stormwater storage tanks by providing a more efficient outlet, such as a multi-staged outlet. The current storage volumes provide a more general approach to the quantity controls.** Refer to **Appendix D** for details and VO6 modeling used to arrive at these storage volumes.

The results of the consolidated water quantity modeling for the site outletting to Little Etobicoke Creek has been summarized in **Table 15** below. As seen in the table, all total post-development flows have been controlled down to the allowable release rates or less. Quantity controls are therefore achieved.

Any overland flows exceeding minor system capacity will be conveyed safely downstream through Mattawa Avenue and towards the existing Loreland Avenue right-of-way. The overland flows include emergency and/or uncontrolled flows from the blocks, park and open space areas, which would not be captured by minor system.

Table 14: VO6 Modelling Parameters (Post-Development)

Block ID	Area ID	VO6 Command	Area (ha)	IMP	CN
Block A (202)	202	STANHYD	0.939	0.70	85
Block A (202A)	2022	STANHYD	0.073	0.99	85
Block A (U202)	2021	STANHYD	0.033	0.65	85
Block C (207)	207	STANHYD	0.559	0.63	85
Block C (207A)	2071	STANHYD	0.068	0.74	85
Block E (200)	200	STANHYD	0.456	0.67	85
Block E (201)	201	STANHYD	0.729	0.80	85
Block E (201A)	2011	STANHYD	0.077	0.73	85
Block E (U201)	2012	STANHYD	0.032	0.65	85
Block E (U200)	2002	NASHYD	0.005	-	85
Block F (204)	204	STANHYD	0.127	0.75	85
Block F (205)	205	STANHYD	0.221	0.99	85
Block F (206)	206	STANHYD	0.514	0.88	85
Block F (206A)	2061	STANHYD	0.045	0.82	85
Block F (208)	208	STANHYD	0.043	0.75	85
Block G (203)	203	STANHYD	0.181	0.32	85
Block G (210)	210	STANHYD	0.139	0.92	85
Block G (211)	211	STANHYD	0.106	0.75	85
Block G (212)	212	STANHYD	0.217	0.92	85
Block G (213)	213	STANHYD	0.677	0.80	85
Block G (213A)	2131	STANHYD	0.115	0.72	85
Future ROW (R201)	2201	STANHYD	0.189	0.99	85
Park Block Pervious (214)	2141	NASHYD	0.673	-	85
Park Block 20% IMP (214)	2142	STANDHYD	0.362	0.20	85

Table 15: Consolidated Water Quantity Peak Flows Summary (L/s)

Location	Return Period	Total Pre-Development Flows (L/s)	TRCA Unit Release Rates (L/s)	Total Post-Development Flows (L/s)
Entire Site (To Little Etobicoke Creek)	2-Year	543	141.5	101
	5-Year	747	217.1	152
	10-Year	885	269.8	186
	25-Year	1,079	361.9	231
	50-Year	1,214	412.6	266
	100- Year	1,347	472.4	300

5.6 Low Impact Development Measures

The underground structure levels of the various development blocks encompass the majority of the available private block areas. As such, there are no viable locations to implement low impact development ('LID') measures that are of the infiltration types.

However, the landscape architect has proposed LID's that will inherently improve stormwater management, as follows:

- **Green Roof Systems**: allow for absorption, detention and evapotranspiration of stormwater.
- **Rain Gardens**: provide bioretention and filtration of stormwater prior to entering the building plumbing system or municipal sewer system.
- **Rainwater Harvesting**: reuse of stormwater through irrigation means and will likely achieve the majority of the 5mm water balance target at block level design.

All LID's will be designed at the site plan approval stage of the project.

6.0 CONCLUSIONS

This FSSR presents a site servicing strategy for the proposed development that addresses the requirements of the applicable regulatory agencies.

Sincerely,

Counterpoint Engineering Inc.

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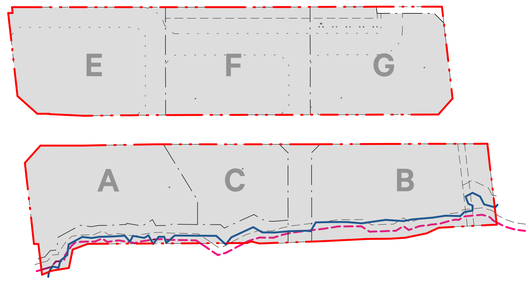
APPENDIX 'A'

Architectural Inputs

KEY PLAN



Dundas + Mattawa Stats Summary

	sm	sf
TOTAL GROSS SITE AREA	**73,888**	**795,323**
	ha	*ac*
	7.39	**18.26**

	sm	sf
TOTAL NET SITE AREA (AFTER CONVEYANCES)	**55,592**	**598,387**
excl. ROW, Road Widenings, Hazards and Park	*ha*	*ac*
	5.56	13.74
TOTAL NET DEVELOPMENT SITE AREA (AFTER CONVEYANCEAS + BUFFER)	**53,088**	**571,434**
excl. ROW, Road Widenings, Hazards , Park , Buffer	*ha*	*ac*
	5.31	13.12

	sm	sf	% gross site
SITE AREA DEDUCTIONS	**19,178**	**206,430**	26%
TOTAL R.O.W AREA	2,273	24,466	3%
TOTAL HAZARD (BLOCKS D1 + D2)	4,043	43,518	5%
TOTAL BUFFER	2,504	26,953	3%
TOTAL PARK AREA	10,358	111,492	14%
TOTAL R.O.W. WIDENING AREA	1,622	17,459	2%

AREA SUMMARY	sm	sf
TOTAL GFA (ALL USES)	223,257	2,403,115
TOTAL GFA (RESIDENTIAL)	220,302	2,371,313
TOTAL GFA (RETAIL + COMMUNITY)	2,955	31,802
TOTAL LOT COVERAGE	31,368	337,647

OVERALL FSI	4.02
Total GFA / Toal Net Site Area	
TOTAL RESIDENTIAL UNITS	3,027

TOTAL PARKING SPACES	2,447
RESIDENTIAL SPACES	1,868
VISITOR/ COMMERCIAL SPACES	579

BLOCK		**A**		**B (Park)**		**C**		**D +H (Hazard/Buffer)**		**E**		**F**		**G**		**TOTAL**	
		sm	*sf*	*sm*	*sf*	*sm*	*sf*	*sm*	*sf*	*sm*	*sf*	*sm*	*sf*	*sm*	*sf*	*sm*	*sf*
LOT AREA		10,464	112,633	10,358	111,492	6,261	67,393	6,547	70,471	12,779	137,552	12,329	132,708	11,255	121,148	69,993	753,398
RESIDENTIAL GFA		72,898	784,668			31,889	343,246			40,687	437,948	32,062	345,115	42,767	0	220,302	2,371,313
RETAIL GFA		759	8,168			841	9,054			906	9,748	0	0	0	0	2,506	26,969
COMMUNITY GFA		0	0			449	4,833			0	0	0	0	0	0	449	4,833
TOTAL GFA		**73,657**	**792,836**			**33,179**	**357,132**			**41,592**	**447,695**	**32,062**	**345,115**	**42,767**	**0**	**223,257**	**2,403,115**
FSI		7.04		-		5.30		-		3.25		2.60		3.80			
LOT COVERAGE	Area	7,278	78,341	0	0	3,525	37,942	0	0	7,250	78,038	6,341	68,258	6,974	0	31,368	337,647
	Percentage	**69.6%**		**0.0%**		**56.3%**		-		**56.7%**		**51.4%**		**62.0%**			
LANDSCAPING	Area	3,121	33,593	10,358	111,492	2,700	29,064	0	0	3,719	40,031	5,988	64,450	4,205	45,261	**30,091**	**323,891**
	Percentage	**29.8%**		**100.0%**		**43.1%**		-		**29.1%**		**48.6%**		**37.4%**			
UNIT COUNT & MIX																	
Apartment Units		Building A (A1+A2+A3)				Building C (C1)				Building E (E1+E2)		Building F (F1+F2+FTH1/2)		Building G (G1+G2+GTH1)			
ST	(34-42sm)	58	5.3%			28	6.5%			46	8.8%	22	6.9%	15	3.2%	169	5.9%
1BD	(45-65sm)	674	61.9%			260	59.2%			288	55.8%	194	60.6%	290	60.9%	1,706	60.0%
2BD	(68-74sm)	258	23.7%			111	25.3%			142	27.5%	82	25.5%	138	28.9%	731	25.7%
3BD	(80-94sm)	99	9.1%			40	9.1%			40	7.8%	23	7.1%	34	7.0%	236	8.3%
	Sub Total	**1,089**	**100.0%**			**439**	**100.0%**			**516**	**100.0%**	**321**	**100.0%**	**477**	**100.0%**	**2,842**	**100.0%**
Townhouse Units																	
ST TH		0	0.0%			3	33.3%			0	0.0%	0	0	0	0	3	1.6%
1BD TH		5	50.0%			2	22.2%			0	0.0%	6	7.0%	5	7.9%	18	9.7%
2BD TH		5	50.0%			4	44.4%			10	58.8%	68	79.1%	43	68.3%	130	70.3%
3BD TH		0	0.0%			0	0.0%			7	41.2%	12	14.0%	15	23.8%	34	18.4%
	Sub Total	**10**	**100.0%**			**9**	**100.0%**			**17**	**100.0%**	**86**	**100.0%**	**63**	**100.0%**	**185**	**100.0%**
TOTAL UNITS BY BLOCK		**1,099**	**100.0%**			**448**	**100.0%**			**533**	**100.0%**	**407**	**100.0%**	**540**	**100.0%**	**3,027**	**100.0%**
AMENITY																	
TOTAL PROVIDED AMENITY		6,581	70,839			**2,823**	30,386			**3,293**	35,446	**2,487**	26,770	**3,189**	34,326	**18,373**	197,767
TOTAL CONTIGUOUS AMENITY		3,209	34,541			**832**	8,956			1,039	11,184	**979**	10,538	**873**	9,397	**6,932**	74,615
ESTABLISHED GRADE (m)		*Building*	*Geodectic Height*	*Building*	*Geodectic Height*	*Building*	*Geodectic Height*	*Building*	*Geodectic Height*	*Building*	*Geodectic Height*	*Building*	*Geodectic Height*	*Building*	*Geodectic Height*		
		A	118.09			C	117.30			E	119.55	F1	117.67	G	116.34		
												FTH-1 + FTH-2	118.31	GTH-1	116.75		
HEIGHT (m)		*Building*	*Height (m)*	*Building*	*Height (m)*	*Building*	*Height (m)*	*Building*	*Height (m)*	*Building*	*Height (m)*	*Building*	*Height (m)*	*Building*	*Height (m)*		
		A1	49.30			C1	113.10			E1	47.90	F1	38.60	G1	38.60		
		A2	94.10							E2	57.20	F2	38.60	G2	57.20		
		A3	132.50														
												FTH-1	10.50	GTH-1	10.50		
												FTH-2	9.96				
VEHICLE PARKING		*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*
RESIDENT		659	650			269	278			320	404	244	265	324	271	1,816	1,868
COMMERCIAL/ VISITOR		209	209			103	106			119	121	61	61	81	82	573	579
TOTAL		868	**859**			372	**384**			439	**525**	305	**326**	405	**353**	2,390	**2,447**
BICYCLE PARKING		*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*	*Required*	*Provided*
LONG TERM		661	790			269	319			320	513	205	437	137	279	1,593	**2,338**
SHORT TERM		57	119			24	66			28	184	17	36	11	12	138	**417**
TOTAL		717	**909**			293	**385**			349	**697**	222	**473**	149	**291**	1,730	**2,755**
LOADING		*Size*	*Provided*	*Size*	*Provided*	*Size*	*Provided*	*Size*	*Provided*	*Size*	*Provided*	*Size*	*Provided*	*Size*	*Provided*	*Total Provided*	
		3.5m (W) x 9.0m (L) x 4.5m (H)	2			3.5m (W) x 9.0m (L) x 4.5m (H)	2			3.5m (W) x 9.0m (L) x 4.5m (H)	2	3.5m (W) x 9.0m (L) x 4.5m (H)	1	3.5m (W) x 9.0m (L) x 4.5m (H)	1	**8**	

NO.	DATE	REVISION / COMMENT

NOTES

SvN
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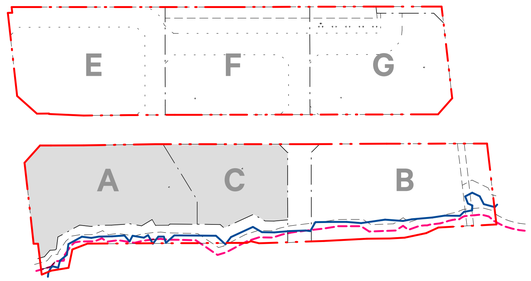
DUNDAS & MATTAWA
1580-1590 and 1650 Dundas Street East
Mississauga, Ontario
Hazelview Investments

STATISTICS-SITE

PROJECT	**42075_1**	DRAWN	**SR_SvN**
SCALE	**1 : 2500**	CHECKED	**2021-11-11 5:58:44 PM**
DATE	**11/21/16**	PLOTTED	

A001

KEY PLAN



Block A - Summary Statistics

LOT AREA					sm	sf
					10,464	**112,633**
Block A					10,464	112,633
RESIDENTIAL GFA					**72,898**	**784,668**
A - Podium					10,233	110,152
A1					17,525	188,638
A2					19,614	211,122
A3					25,526	274,756
RETAIL GFA					**759**	**8,168**
A - Podium					759	8,168
TOTAL GFA					**73,657**	**792,836**
(GFA definition per City of Mississauga Zoning By-Law No.0225-2007)						
A-Podium					10,992	118,320
A1					17,525	188,638
A2					19,614	211,122
A3					25,526	274,756
FSI					**7.04**	
					sm	sf
LOT COVERAGE					**7,278**	**78,341**
A-Podium					7,278	78,341
LANDSCAPING					**3,121**	**33,593**
A-Podium					3,121	33,593

BLOCK UNIT COUNT						
	58	**679**	**263**	**99**	**1,099**
A1	ST	1BD	2BD	3BD	TOTAL
	11	144	65	22	**241**
	4.6%	59.7%	26.8%	8.9%	100.0%
A2	ST	1BD	2BD	3BD	TOTAL
	19	167	69	29	**284**
	6.6%	58.8%	24.3%	10.2%	100.0%
A3	ST	1BD	2BD	3BD	TOTAL
	22	295	103	39	**459**
	4.7%	64.3%	22.4%	8.6%	100.0%
A Podium	ST	1BD	2BD	3BD	TOTAL
	6	68	22	10	**106**
	6.1%	64.2%	20.6%	9.1%	100.0%
A Podium -Townhouses	ST-TH	1BD-TH	2BD-TH	3BD-TH	TOTAL
	0	5	5	0	**10**
	0.0%	50.0%	50.0%	0.0%	100.0%

TOTAL AMENITY						
Total req'd indoor+outdoor amenity to be greater of min. 5.6sm/unit OR 10% of	**REQUIRED**		**PROPOSED**		**RATIO**
	sm	sf	sm	sf	m2/unit
A Total	**6,154**	66,245	**6,581**	70,839	**5.99**

CONTIGUOUS AMENITY

min. 50% of total required amenity is to be provided in one contiguous area

A Total	3,077	33,123	**3,209**	34,541	2.92

OUTDOOR AMENITY AT GRADE*

min 55sm to be outside at grade. Total indoor + outdoor amenity requirement of 5.6m/unit

A Total	55	592	**1,196**	12,874	1.09

ESTABLISHED GRADE		
	m	
Block A	**118.09**	-
		-

HEIGHT *Measured from established grade*	*m*	*ft*
A1	**49.30**	531
A2	**94.10**	1,013
A3	**132.50**	1,426

VEHICLE PARKING		**REQUIRED**	**PROPOSED**
residential	A1+A2+A3	659	650
commercial/visitor	A1+A2+A3	197	209
TOTAL	A1+A2+A3	**857**	**859**

BICYCLE PARKING			
long term	A1+A2+A3	661	790
short term	A1+A2+A3	57	119
TOTAL	**A1+A2+A3**	**717**	**909**

LOADING	SIZE	NUMBER OF SPACES
Block A	3.5m (W) x 9.0m (L) x 4.5m (H)	2

NOTE: See Report by LEA for further detail on parking and loading

Block C - Summary Statistics

LOT AREA					sm	sf
					6,261	**67,393**
Block C					6,261	67,393
RESIDENTIAL GFA					**31,889**	**343,246**
C1					31,889	343,246
RETAIL GFA					**841**	**9,054**
C1					841	9,054
TOTAL GFA					**33,179**	**357,132**
(GFA definition per City of Mississauga Zoning By-Law No.0225-2007)						
C1					33,179	357,132
FSI					**5.30**	
					sm	sf
LOT COVERAGE					**3,525**	**37,942**
C1					3,525	37,942
LANDSCAPING					**2,700**	**29,064**
C1					2,700	29,064

BLOCK UNIT COUNT					
	31	**262**	**115**	**40**	**448**
C1	ST	1BD	2BD	3BD	TOTAL
	28	260	111	40	**448**
	6.3%	58.0%	24.8%	8.9%	100.0%
C1 Podium - Townhouses	ST-TH	1BD-TH	2BD-TH	3BD-TH	TOTAL
	3	2	4	0	9
	33.3%	22.2%	44.4%	0.0%	100.0%

TOTAL AMENITY	**REQUIRED**		**PROPOSED**		**RATIO**
Total req'd indoor+outdoor amenity to be greater of min. 5.6sm/unit OR 10% of	sm	sf	sm	sf	m2/unit
C Total	**2,509**	27,004	**2,823**	30,386	**6.30**

CONTIGUOUS AMENITY

min. 50% of total required amenity is to be provided in one contiguous area

C Total	1,254	13,502	**832**	8,956	*1.86*

OUTDOOR AMENITY AT GRADE

min 55sm to be outside at grade. Total indoor + outdoor amenity requirement of 5.6m/unit

C1	55	592	**494**	5,317	*1.10*

ESTABLISHED GRADE		
		m
C1		**113.10**

HEIGHT *Measured from established grade*	*m*	*ft*
C1	**113.10**	1,217

VEHICLE PARKING		REQUIRED	PROPOSED
residential	C1	269	278
commercial/visitor	C1	103	106
TOTAL	**C1**	**372**	**384**

BICYCLE PARKING			
long term	C1	269	319
short term		24	66
TOTAL	**C1**	**293**	**385**

LOADING	SIZE	NUMBER OF SPACES
Block C	3.5m (W) x 9.0m (L) x 4.5m (H)	2

NOTE: See Report by LEA for further detail on parking and loading

NO.	DATE	REVISION / COMMENT

NOTES

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ONTARIO ASSOCIATION OF ARCHITECTS
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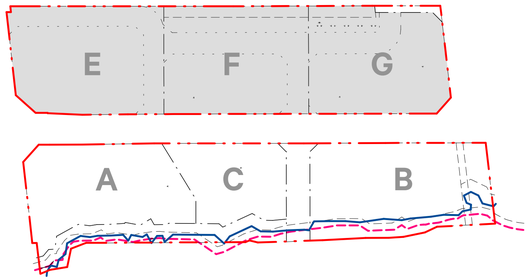
DUNDAS & MATTAWA
1580-1590 and 1650 Dundas Street East
Mississauga, Ontario
Hazelview Investments

STATISTICS - BLOCKS A&C

PROJECT	**42075_1**	DRAWN	**Author**
SCALE	**1 : 2500**	CHECKED	**2021-11-11 5:58:44 PM**
DATE	**03/24/21**	PLOTTED	

A002

KEY PLAN



Block E - Summary Statistics

				sm	sf
LOT AREA				**12,779**	**137,552**
Block E				12,779	137,552
RESIDENTIAL GFA				**40,687**	**437,948**
E - Podium				2,131	22,942
E1				18,913	203,580
E2				19,642	211,425
RETAIL GFA				**906**	**9,748**
E-Podium				906	9,748
TOTAL GFA				**41,592**	**447,695**
GFA definition per City of Mississauga Zoning By-Law No.0225-2007)					
E - Podium				3,037	32,690
E1				18,913	203,580
E2				19,642	211,425
FSI				**3.25**	
				sm	sf
LOT COVERAGE				**7,250**	**78,038**
E Podium				7,250	78,038
LANDSCAPING				**3,719**	**40,031**
E - Podium				3,719	40,031

BLOCK UNIT COUNT	**46**	**288**	**152**	**47**	**533**
E1	ST	1BD	2BD	3BD	TOTAL
	21	137	72	18	**248**
	8.4%	55.4%	29.1%	7.1%	100.0%
E2	ST	1BD	2BD	3BD	TOTAL
	25	151	69	22	**267**
	9.3%	56.4%	26.0%	8.4%	100.0%
E Podium	ST	1BD	2BD	3BD	TOTAL
	0	0	0	0	**0**

E Podium - Townhouses	ST-TH	1BD-TH	2BD-TH	3BD-TH	TOTAL
	0	0	10	7	17
	0.0%	0.0%	58.8%	41.2%	100.0%

TOTAL AMENITY	REQUIRED		PROPOSED		RATIO
Total req'd indoor+outdoor amenity to be greater of min. 5.6sm/unit OR 10% of lot	sm	sf	sm	sf	m2/unit
E Total	**2,985**	32,128	**3,293**	35,446	**6.18**

CONTIGUOUS AMENITY

min. 50% of total required amenity is to be provided in one contiguous area

E Total	1,492	16,064	**1,039**	11,184	1.95

OUTDOOR AMENITY AT GRADE

min 55sm to be outside at grade. Total indoor + outdoor amenity requirement of 5.6m/unit

E Total	55	592	**718**	7,728	1.35

ESTABLISHED GRADE		m	
E		**119.55**	-
			-

HEIGHT	*Measured from established grade*	*m*	*ft*
E1		**47.90**	516
E2		**57.20**	616

VEHICLE PARKING		REQUIRED	PROPOSED
residential	E1+E2	320	404
commercial/visitor	E1+E2	119	121
TOTAL	**E1+E2**	**439**	**525**

BICYCLE PARKING			
long term	E1+E2	320	513
short term		28	184
TOTAL	**E1+E2**	**349**	**697**

LOADING	TYPE	NUMBER OF SPACES
Block E	3.5m (W) x 9.0m (L) x 4.5m (H)	2

NOTE: See Report by LEA for further detail on parking and loading

Block F - Summary Statistics

			sm	sf
LOT AREA			**12,329**	**132,708**
Block F			12,329	
RESIDENTIAL GFA			**32,062**	**345,115**
F - Podium			1,602	17,247
F1			17,363	186,895
F2			7,982	85,922
F TH1			3,812	41,036
F TH2			1,302	14,015
RETAIL GFA			**0**	**0**
F-Podium			0	0
F1			0	0
F2			0	0
TOTAL GFA			**32,062**	**345,115**
GFA definition per City of Mississauga Zoning By-Law No.0225-2007)				
F-Podium			1,602	17,247
F1			17,363	186,895
F2			7,982	85,922
F TH1			3,812	41,036
F TH2			1,302	14,015
FSI			**2.60**	
			sm	sf
LOT COVERAGE			**6,341**	**68,258**
F Podium			4,979	53,597
F TH1			1,019	10,973
F TH2			343	3,688
LANDSCAPING			**5,988**	**64,450**
F			5,988	64,450

BLOCK TOTAL UNIT COUNT	**22**	**200**	**150**	**35**	**407**
UNIT COUNT	**22**	**200**	**86**	**35**	**342**
F1	ST	1BD	2BD	3BD	TOTAL
	15	129	54	10	**208**
	7.4%	62.1%	25.8%	4.7%	100.0%
F2	ST	1BD	2BD	3BD	TOTAL
	7	64	28	13	**112**
	5.9%	57.6%	24.9%	11.6%	100.0%
F Podium	ST	1BD	2BD	3BD	TOTAL
	0	0	0	0	**0**

F Podium-Townhouses	ST-TH	1BD-TH	2BD-TH	3BD-TH	TOTAL
	0	6	4	12	22
	0.0%	27.3%	18.2%	54.5%	100.0%

TOWNHOUSE UNIT COUNT	**0**	**0**	**64**	**0**	**64**
FTH-1	ST-TH	1BD-TH	2BD-TH	3BD-TH	TOTAL
Townhouses	0	0	48	0	**48**
	0.0%	0.0%	100.0%	0.0%	100.0%
FTH-2	ST-TH	1BD	2BD	3BD	TOTAL
Townhouses	0	0	16	0	**16**
	0.0%	0.0%	100.0%	0.0%	100.0%

TOTAL AMENITY	REQUIRED		PROPOSED		RATIO
Total req'd indoor+outdoor amenity to be greater of min. 5.6sm/unit OR 10% of	sm	sf	sm	sf	m2/unit
F Total	2,279	24,533	**2,487**	26,770	6.11

CONTIGUOUS AMENITY

min. 50% of total required amenity is to be provided in one contiguous area

F Total	1,140	12,267	**979**	10,538	2.41

OUTDOOR AMENITY AT GRADE

min 55sm to be outside at grade. Total indoor + outdoor amenity requirement of 5.6m/unit

F Total	55	592	**541**	5,823	1.33

ESTABLISHED GRADE	*Measured from established grade*	*m*	
F		**117.67**	-
FTH-1 + FTH-2		**118.31**	-

HEIGHT	*m*	*ft*
F1	**38.6**	415
F2	**38.6**	415
FTH-1	**10.5**	113
FTH-2	**9.96**	107

VEHICLE PARKING	REQUIRED	PROPOSED
residential	244	265
commercial/visitor	61	61
TOTAL	**305**	**326**

BICYCLE PARKING			
long term	F1+F2	205	437
short term		17	36
TOTAL	**F1+F2**	**222**	**473**

LOADING	TYPE	NUMBER OF SPACES
Block F	3.5m (W) x 9.0m (L) x 4.5m (H)	1

NOTE: See Report by LEA for further detail on parking and loading

Block G - Summary Statistics

			sm	sf
LOT AREA			**11,255**	**121,148**
Block G			11,255	121,148
RESIDENTIAL GFA			**42,767**	**460,336**
G-Podium			1,920	20,666
G1			16,848	181,349
G 2			20,822	224,127
G TH1			3,177	34,195
RETAIL GFA			**0**	**0**
G Podium			0	0
G1			0	0
G2			0	0
TOTAL GFA			**42,767**	**460,336**
GFA definition per City of Mississauga Zoning By-Law No.0225-2007)				
G Podium			1,920	20,666
G1			16,848	181,349
G2			20,822	224,127
G TH1			3,177	34,195
FSI			**3.80**	
			sm	sf
LOT COVERAGE			**6,974**	**75,068**
G Podium			6,130	65,982
G TH1			844	9,087
LANDSCAPING			**4,205**	**45,261**
G1			4,205	45,261

BLOCK TOTAL UNIT COUNT	15	295	181	49	**540**
UNIT COUNT	**15**	**295**	**141**	**49**	**500**
G1	ST	1BD	2BD	3BD	TOTAL
	4	131	54	16	**206**
	1.9%	63.9%	26.4%	7.8%	100.0%
G2	ST	1BD	2BD	3BD	TOTAL
	11	158	83	17	**270**
	4.1%	58.6%	30.8%	6.5%	100.0%
G Podium	ST	1BD	2BD	3BD	TOTAL
	0	0	0	0	**0**

G Podium - Townhouses	ST-TH	1BD-TH	2BD-TH	3BD-TH	TOTAL
	0	5	3	15	23
	0.0%	21.7%	13.0%	65.2%	100.0%

TOWNHOUSE UNIT COUNT	**0**	**0**	**40**	**0**	**40**
GTH1	ST-TH	1BD-TH	2BD-TH	3BD-TH	TOTAL
Townhouse	0	0	40	0	**40**
	0.0%	0.0%	100.0%	0.0%	100.0%

TOTAL AMENITY	REQUIRED		PROPOSED		RATIO
Total req'd indoor+outdoor amenity to be greater of min. 5.6sm/unit OR 10% of	sm	sf	sm	sf	m2/unit
G Total	**3,024**	32,550	**3,189**	34,326	**5.91**

CONTIGUOUS AMENITY

min. 50% of total required amenity is to be provided in one contiguous area

G Total	1,512	16,275	**873**	9,397	1.62

OUTDOOR AMENITY AT GRADE

min 55sm to be outside at grade. Total indoor + outdoor amenity requirement of 5.6m/unit

G Total	55	592	**148**	1,593	0.27

ESTABLISHED GRADE	*m*	
G	**116.34**	-
GTH-1	**116.75**	-

HEIGHT	*Measured from established grade*	*m*	*ft*
G1		**38.60**	415
G2		**57.20**	616
GTH-1		**10.50**	113

VEHICLE PARKING	REQUIRED	PROPOSED
residential	324	271
commercial/visitor	81	82
TOTAL	**405**	**353**

BICYCLE PARKING			
long term	G1+G2	137	279
short term		11	12
TOTAL	**G1+G2**	**149**	**291**

LOADING	TYPE	NUMBER OF SPACES
Block G	3.5m (W) x 9.0m (L) x 4.5m (H)	1

NOTE: See Report by LEA for further detail on parking and loading

NO.	DATE	REVISION / COMMENT

NOTES

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DUNDAS & MATTAWA

1580-1590 and 1650 Dundas Street East
Mississauga, Ontario
Hazelview Investments

STATISTICS - BLOCKS E,F & G

PROJECT	**42075_1**	DRAWN	**SR_SvN**
SCALE	**1 : 2500**	CHECKED	**2021-11-11 5:58:45 PM**
DATE	**11/21/16**	PLOTTED	

A003

APPENDIX 'B'

Water Calculations

Counterpoint Engineering Inc.

WATER DEMANDS BY BLOCK AND BUILDING

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Location: Mississauga

Per Capita Demand

Residential	280	litres/person/day
ICI	300	litres/emp./day

Retail/Residential Population Criteria

Small (< 750 ft.sq.)	1.6	ppu
Large (> 750 ft.sq.)	3.0	ppu
Commercial/Retail	50	persons/ha
Community	50	persons/ha

Units per Block		Unit Type Count		
Block	Units	St. / 1 Bdrm.	2 Bdrm.	3 Bdrm.
A	1099	737	263	99
C	448	293	115	40
E	533	334	152	47
F	407	222	150	35
G	540	310	181	49
	3027	**1896**	**861**	**270**

Suite Size Breakdown (> or < 750 ft.sq.)				
	Min (m2)	Max (m2)	Min (sq.ft.)	Max (sq.ft.)
Studio	34	42	366	452
1 Bedroom	45	65	484	700
2 Bedroom	68	74	732	797
3 Bedroom	80	94	861	1012

As such, Studio and 1 Bedroom units are considered 'small' units, with 2 and 3 Bedroom units being 'Large' units.

Unit and Floor Area Breakdown

POPULATION AND AVERAGE DAY DEMANDS SUMMARY

Location	1 Bedroom Units	2 Bedroom Units	3 Bedroom Units	Total Residential Units*	Total Residential Population	Residential Average Demand	Community (m^2)	Total Community Population	Community Average Demand	Commercial (m^2)	Total Commercial Population	Commercial Average Demand
	1.6 persons/unit	3.0 persons/unit	3.0 persons/unit	Units	Equivalent Population	L/s	Area	Equivalent Population	L/s	Area	Equivalent Population	L/s
A	737	263	99	1099	2265	7.34	-	0.0	0.00	759.0	3.8	0.02
C	293	115	40	448	934	3.24	449.0	2.2	0.01	841.0	4.2	0.03
E	334	152	47	533	1131	3.93	-	0.0	0.00	906.0	4.5	0.03
F	222	150	35	407	355	1.23	-	0.0	0.00	-	0.0	0.00
G	310	181	49	540	1186	4.12	-	0.0	0.00	-	0.0	0.00
Totals:	**1,896**	**861**	**270**	**3,027**	**5,872**	**19.86**	**449**	**2**	**0.01**	**2,506**	**13**	**0.08**

Peaking Factors

Land Use	Maximum Hour	Maximum Day
Residential	3.00	2.00
ICI	3.00	1.40

Summary of Demands

Block	Daily Water Demand (L/sec)	Max Day Water Demand (L/sec)	Peak Hour Water Demand (L/sec)	Fire Demand Required (L/sec)	Max Day plus Fire Demand (L/sec)
A	7.37	14.72	22.10	166.67	181.38
C	3.28	6.53	9.83	116.67	123.20
E	3.96	7.90	11.87	183.33	**191.23**
F	1.23	2.47	3.70	166.67	169.13
G	4.12	8.24	12.35	150.00	158.24

Counterpoint Engineering Inc.

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Building: A

Guide for Determination of Required Flow Copyright I.S.O

$$F = 220C\sqrt{A}$$

where

F = the required fire flow in litres per minute.
C = coefficient related to the type of construction.
= 1.5 for wood frame construction (structure essentially all combustible).
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
= 0.6 for fire-resistive construction (fully protected frame, floors, roof).

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

Type of Construction		Class Factor
WF	Wood Frame	1.5
OC	Ordinary Construction	1.0
NC	Non-Combustible	0.8
FC	Fire-Resistive	0.6

Contents		% Reduction
NC	Non-Combustible	25
LC	Limited Combustible	15
C	Combustible	0
FB	Free Burning	15
RB	Rapid Burning	25

Area Notes for Fire Resistive Buildings (from FUS manual, 1999):

If Vertical Openings are inadequately protected (less than 1-hour fire rating): Area is the total of the two largest adjoining floors (above ground level) plus 50% of the area of each of the next 8 adjoining floors above that.

If Vertical Openings are adequately protected (at least 1-hour fire rating): Area is the total of the largest floor (above ground level) plus 25% of the area of each of the next 2 immediately adjoining floors above that.

1) Fire Flow

Type of Construction:	FC
C=	0.6
A=	12,600.00 m^2
F=	**14,817 L/min**

2) Occupancy Reduction/Surcharge

Contents Factor:		C			
Reduction/Surcharge of		0%	=	0	L/min
F=	14817L/min +	0	L/min =	14,817	**L/min**

3) System Type Reduction

NFPA 13 Sprinkler:		YES	30%		
Standard Water Supply:		YES	10%		
Fully Supervised:		YES	10%		
Total			50%		
Reduction of		50%	L/min =	7,408	L/min
F=	14817L/min -	7,408	L/min =	7,408	**L/min**

4) Separation Charge

Building Face	Dist(m)	Charge
North	61	0%
East	32	5%
South	14	15%
West	95	0%
Total		20% **of** 14817 **L/min** = 2,963 **L/min**

(max exposure charge can be 75%)

Separation	Charge	Separation	Charge
0 to 3m	25%	20.1 to 30 m	10%
3.1 to 10m	20%	30.1 to 45m	5%
10.1 to 20m	15%		

F = 7408L/min + 2963L/min = 10,372 **L/min** (2,000L/min<F<45,000L/min)

F =	10,000	**L/min** (round to the nearest 1,000L/min)
F =	167	**L/s**
F =	2,642	**gpm**

Counterpoint Engineering Inc.

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Building: C

Guide for Determination of Required Flow Copyright I.S.O

$$F = 220C\sqrt{A}$$

where

F = the required fire flow in litres per minute.
C = coefficient related to the type of construction.
= 1.5 for wood frame construction (structure essentially all combustible).
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
= 0.6 for fire-resistive construction (fully protected frame, floors, roof).
A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

Type of Construction		Class Factor
WF	Wood Frame	1.5
OC	Ordinary Construction	1.0
NC	Non-Combustible	0.8
FC	Fire-Resistive	0.6

Area Notes for Fire Resistive Buildings (from FUS manual, 1999):

If Vertical Openings are inadequately protected (less than 1-hour fire rating): Area is the total of the two largest adjoining floors (above ground level) plus 50% of the area of each of the next 8 adjoining floors above that.

Contents		% Reduction
NC	Non-Combustible	25
LC	Limited Combustible	15
C	Combustible	0
FB	Free Burning	15
RB	Rapid Burning	25

If Vertical Openings are adequately protected (at least 1-hour fire rating): Area is the total of the largest floor (above ground level) plus 25% of the area of each of the next 2 immediately adjoining floors above that.

1) Fire Flow

Type of Construction:	FC
C=	0.6
A=	5,250.00 m^2
F=	**9,564 L/min**

2) Occupancy Reduction/Surcharge

Contents Factor:		C		
Reduction/Surcharge of		0%	=	0 L/min
F=	9564L/min +	0 L/min	=	**9,564 L/min**

3) System Type Reduction

NFPA 13 Sprinkler:		YES	30%		
Standard Water Supply:		YES	10%		
Fully Supervised:		YES	10%		
Total			50%		
Reduction of		50%	L/min =	4,782	L/min
F=	9564L/min -	4,782 L/min	=	4,782	**L/min**

4) Separation Charge

Building Face	Dist(m)	Charge
North	14	15%
East	32	5%
South	100	0%
West	95	0%
Total		20% **of** 9564.31 **L/min** = 1,913 **L/min**

(max exposure charge can be 75%)

Separation	Charge	Separation	Charge
0 to 3m	25%	20.1 to 30 m	10%
3.1 to 10m	20%	30.1 to 45m	5%
10.1 to 20m	15%		

F = 4782L/min + 1913L/min = 6,695 **L/min** (2,000L/min<F<45,000L/min)

F =	7,000	**L/min** (round to the nearest 1,000L/min)
F =	117	**L/s**
F =	1,849	**gpm**

Counterpoint Engineering Inc.

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Building: E

Guide for Determination of Required Flow Copyright I.S.O

$$F = 220C\sqrt{A}$$

where

F = the required fire flow in litres per minute.
C = coefficient related to the type of construction.
= 1.5 for wood frame construction (structure essentially all combustible).
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
= 0.6 for fire-resistive construction (fully protected frame, floors, roof).
A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

Type of Construction		Class Factor
WF	Wood Frame	1.5
OC	Ordinary Construction	1.0
NC	Non-Combustible	0.8
FC	Fire-Resistive	0.6

Contents		% Reduction
NC	Non-Combustible	25
LC	Limited Combustible	15
C	Combustible	0
FB	Free Burning	15
RB	Rapid Burning	25

Area Notes for Fire Resistive Buildings (from FUS manual, 1999):

If Vertical Openings are inadequately protected (less than 1-hour fire rating): Area is the total of the two largest adjoining floors (above ground level) plus 50% of the area of each of the next 8 adjoining floors above that.

If Vertical Openings are adequately protected (at least 1-hour fire rating): Area is the total of the largest floor (above ground level) plus 25% of the area of each of the next 2 immediately adjoining floors above that.

1) Fire Flow

Type of Construction:	FC
C=	0.6
A=	11,250.00 m^2
F=	**14,001 L/min**

2) Occupancy Reduction/Surcharge

Contents Factor:		C			
Reduction/Surcharge of		0%	=	0	L/min
F=	14001L/min +	0 L/min	=	14,001	**L/min**

3) System Type Reduction

NFPA 13 Sprinkler:		YES	30%		
Standard Water Supply:		YES	10%		
Fully Supervised:		YES	10%		
Total			50%		
Reduction of		50%	L/min =	7,000	L/min
F=	14001L/min -	7,000 L/min	=	7,000	**L/min**

4) Separation Charge

Building Face	Dist(m)	Charge
North	65	0%
East	29	10%
South	23	10%
West	32	5%
Total		25% **of** 14000.7 **L/min** = 3,500 **L/min**

(max exposure charge can be 75%)

Separation	Charge	Separation	Charge
0 to 3m	25%	20.1 to 30 m	10%
3.1 to 10m	20%	30.1 to 45m	5%
10.1 to 20m	15%		

F = 7000L/min + 3500L/min = 10,501 **L/min** (2,000L/min<F<45,000L/min)

F =	**11,000**	**L/min**
F =	**183**	**L/s**
F =	**2,906**	**gpm**

(round to the nearest 1,000L/min)

Counterpoint Engineering Inc.

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Building: F

Guide for Determination of Required Flow Copyright I.S.O

$$F = 220C\sqrt{A}$$

where

F = the required fire flow in litres per minute.
C = coefficient related to the type of construction.
= 1.5 for wood frame construction (structure essentially all combustible).
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
= 0.6 for fire-resistive construction (fully protected frame, floors, roof).

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

Type of Construction		Class Factor
WF	Wood Frame	1.5
OC	Ordinary Construction	1.0
NC	Non-Combustible	0.8
FC	Fire-Resistive	0.6

Contents		% Reduction
NC	Non-Combustible	25
LC	Limited Combustible	15
C	Combustible	0
FB	Free Burning	15
RB	Rapid Burning	25

Area Notes for Fire Resistive Buildings (from FUS manual, 1999):

If Vertical Openings are inadequately protected (less than 1-hour fire rating): Area is the total of the two largest adjoining floors (above ground level) plus 50% of the area of each of the next 8 adjoining floors above that.

If Vertical Openings are adequately protected (at least 1-hour fire rating): Area is the total of the largest floor (above ground level) plus 25% of the area of each of the next 2 immediately adjoining floors above that.

1) Fire Flow

Type of Construction:	FC
C=	0.6
A=	7,875.00 m^2
F=	**11,714 L/min**

2) Occupancy Reduction/Surcharge

Contents Factor:		LC			
Reduction/Surcharge of		-15%	=	-1,757	L/min
F=	**11714L/min +**	**-1757 L/min**	=	9,957	**L/min**

3) System Type Reduction

NFPA 13 Sprinkler:		YES	30%		
Standard Water Supply:		YES	10%		
Fully Supervised:		YES	10%		
Total			50%		
Reduction of		50%	L/min =	4,978	L/min
F=	**9957L/min -**	**4,978 L/min**	=	4,978	**L/min**

4) Separation Charge

Building Face	Dist(m)	Charge
North	23	10%
East	18	15%
South	29	10%
West	32	5%
Total		40%

of 9956.76 L/min = 3,983 L/min
(max exposure charge can be 75%)

Separation	Charge	Separation	Charge
0 to 3m	25%	20.1 to 30 m	10%
3.1 to 10m	20%	30.1 to 45m	5%
10.1 to 20m	15%		

F = 4978L/min + 3983L/min = 8,961 L/min (2,000L/min<F<45,000L/min)

F =	**9,000**	**L/min** (round to the nearest 1,000L/min)
F =	**150**	**L/s**
F =	**2,378**	**gpm**

Counterpoint Engineering Inc.

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Building: F TH1

Guide for Determination of Required Flow Copyright I.S.O

$$F = 220C\sqrt{A}$$

where

F = the required fire flow in litres per minute.
C = coefficient related to the type of construction.
= 1.5 for wood frame construction (structure essentially all combustible).
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
= 0.6 for fire-resistive construction (fully protected frame, floors, roof).

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

Type of Construction		Class Factor
WF	Wood Frame	1.5
OC	Ordinary Construction	1.0
NC	Non-Combustible	0.8
FC	Fire-Resistive	0.6

Area Notes for Fire Resistive Buildings (from FUS manual, 1999):

If Vertical Openings are inadequately protected (less than 1-hour fire rating): Area is the total of the two largest adjoining floors (above ground level) plus 50% of the area of each of the next 8 adjoining floors above that.

If Vertical Openings are adequately protected (at least 1-hour fire rating): Area is the total of the largest floor (above ground level) plus 25% of the area of each of the next 2 immediately adjoining floors above that.

Contents		% Reduction
NC	Non-Combustible	25
LC	Limited Combustible	15
C	Combustible	0
FB	Free Burning	15
RB	Rapid Burning	25

1) Fire Flow

Type of Construction:	OC
C=	1
A*=	3,000.00 m^2
F=	**12,050 L/min**

2) Occupancy Reduction/Surcharge

Contents Factor:		LC		
Reduction/Surcharge of		-15%	=	-1,807 L/min
F=	**12050L/min +**	**-1807 L/min**	=	**10,242 L/min**

3) System Type Reduction

NFPA 13 Sprinkler:	YES	30%
Standard Water Supply:	YES	10%
Fully Supervised:	YES	10%
Total		50%

Reduction of		50% L/min	=	5,121 L/min
F=	**10242L/min -**	**5,121 L/min**	=	**5,121 L/min**

4) Separation Charge

Building Face	Dist(m)	Charge
North	23	10%
East	34	5%
South	8	20%
West	18	15%
Total		50%

of 10242.4 L/min = 5,121 L/min
(max exposure charge can be 75%)

Separation	Charge	Separation	Charge
0 to 3m	25%	20.1 to 30 m	10%
3.1 to 10m	20%	30.1 to 45m	5%
10.1 to 20m	15%		

F = 5121L/min + 5121L/min = 10,242 L/min (2,000L/min<F<45,000L/min)

F =	**10,000**	**L/min**
F =	**167**	**L/s**
F =	**2,642**	**gpm**

(round to the nearest 1,000L/min)

Counterpoint Engineering Inc.

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Building: F TH2

Guide for Determination of Required Flow Copyright I.S.O

$$F = 220C\sqrt{A}$$

where

F = the required fire flow in litres per minute.
C = coefficient related to the type of construction.
= 1.5 for wood frame construction (structure essentially all combustible).
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
= 0.6 for fire-resistive construction (fully protected frame, floors, roof).
A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

Type of Construction		Class Factor
WF	Wood Frame	1.5
OC	Ordinary Construction	1.0
NC	Non-Combustible	0.8
FC	Fire-Resistive	0.6

Contents		% Reduction
NC	Non-Combustible	25
LC	Limited Combustible	15
C	Combustible	0
FB	Free Burning	15
RB	Rapid Burning	25

Area Notes for Fire Resistive Buildings (from FUS manual, 1999):

If Vertical Openings are inadequately protected (less than 1-hour fire rating): Area is the total of the two largest adjoining floors (above ground level) plus 50% of the area of each of the next 8 adjoining floors above that.

If Vertical Openings are adequately protected (at least 1-hour fire rating): Area is the total of the largest floor (above ground level) plus 25% of the area of each of the next 2 immediately adjoining floors above that.

1) Fire Flow

Type of Construction:	OC
C=	1
A*=	1,200.00 m^2
F=	**7,621 L/min**

2) Occupancy Reduction/Surcharge

Contents Factor:	LC			
Reduction/Surcharge of	-15%	=	-1,143	L/min
F=	**7621L/min +**	**-1143 L/min**	=	**6,478 L/min**

3) System Type Reduction

NFPA 13 Sprinkler:	YES	30%
Standard Water Supply:	YES	10%
Fully Supervised:	YES	10%
Total		50%

Reduction of	50% L/min	=	3,239	L/min
F=	**6478L/min -**	**3,239 L/min** =	**3,239**	**L/min**

4) Separation Charge

Building Face	Dist(m)	Charge
North	8	20%
East	34	5%
South	24	10%
West	18	15%
Total		50%

of 6477.87 L/min = 3,239 L/min
(max exposure charge can be 75%)

Separation	Charge	Separation	Charge
0 to 3m	25%	20.1 to 30 m	10%
3.1 to 10m	20%	30.1 to 45m	5%
10.1 to 20m	15%		

F = 3239L/min + 3239L/min = 6,478 L/min (2,000L/min<F<45,000L/min)

F =	**6,000**	**L/min**
F =	**100**	**L/s**
F =	**1,585**	**gpm**

(round to the nearest 1,000L/min)

Counterpoint Engineering Inc.

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Building: G

Guide for Determination of Required Flow Copyright I.S.O

$$F = 220C\sqrt{A}$$

where

F = the required fire flow in litres per minute.
C = coefficient related to the type of construction.
= 1.5 for wood frame construction (structure essentially all combustible).
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
= 0.6 for fire-resistive construction (fully protected frame, floors, roof).

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

Type of Construction		Class Factor
WF	Wood Frame	1.5
OC	Ordinary Construction	1.0
NC	Non-Combustible	0.8
FC	Fire-Resistive	0.6

Contents		% Reduction
NC	Non-Combustible	25
LC	Limited Combustible	15
C	Combustible	0
FB	Free Burning	15
RB	Rapid Burning	25

Area Notes for Fire Resistive Buildings (from FUS manual, 1999):

If Vertical Openings are inadequately protected (less than 1-hour fire rating): Area is the total of the two largest adjoining floors (above ground level) plus 50% of the area of each of the next 8 adjoining floors above that.

If Vertical Openings are adequately protected (at least 1-hour fire rating): Area is the total of the largest floor (above ground level) plus 25% of the area of each of the next 2 immediately adjoining floors above that.

1) Fire Flow

Type of Construction:	FC
C=	0.6
A*=	9,900.00 m^2
F=	**13,134 L/min**

2) Occupancy Reduction/Surcharge

Contents Factor:		LC		
Reduction/Surcharge of		-15%	=	-1,970 L/min
F=	**13134L/min +**	**-1970 L/min**	=	**11,164 L/min**

3) System Type Reduction

NFPA 13 Sprinkler:		YES	30%	
Standard Water Supply:		YES	10%	
Fully Supervised:		YES	10%	
Total			50%	
Reduction of		50%	L/min =	5,582 L/min
F=	**11164L/min -**	**5,582 L/min**	=	**5,582 L/min**

4) Separation Charge

Building Face	Dist(m)	Charge
North	17	15%
East	18	15%
South	58	0%
West	32	5%
Total		35% **of** 11163.8 **L/min** = 3,907 **L/min**

(max exposure charge can be 75%)

Separation	Charge	Separation	Charge
0 to 3m	25%	20.1 to 30 m	10%
3.1 to 10m	20%	30.1 to 45m	5%
10.1 to 20m	15%		

F = **5582L/min +** **3907L/min** = **9,489 L/min** (2,000L/min<F<45,000L/min)

F =	**9,000**	**L/min** (round to the nearest 1,000L/min)
F =	**150**	**L/s**
F =	**2,378**	**gpm**

Counterpoint Engineering Inc.

REQUIRED FIRE FLOW WORKSHEET - PROPOSED DEVELOPMENT

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Building: G TH1

Guide for Determination of Required Flow Copyright I.S.O

$$F = 220C\sqrt{A}$$

where

F = the required fire flow in litres per minute.
C = coefficient related to the type of construction.
= 1.5 for wood frame construction (structure essentially all combustible).
= 1.0 for ordinary construction (brick or other masonry walls, combustible floor and interior).
= 0.8 for non-combustible construction (unprotected metal structural components, masonry or metal walls).
= 0.6 for fire-resistive construction (fully protected frame, floors, roof).

A = The total floor area in square metres (including all storeys, but excluding basements at least 50 percent below grade) in the building being considered.

Type of Construction		Class Factor
WF	Wood Frame	1.5
OC	Ordinary Construction	1.0
NC	Non-Combustible	0.8
FC	Fire-Resistive	0.6

Area Notes for Fire Resistive Buildings (from FUS manual, 1999):

If Vertical Openings are inadequately protected (less than 1-hour fire rating): Area is the total of the two largest adjoining floors (above ground level) plus 50% of the area of each of the next 8 adjoining floors above that.

Contents		% Reduction
NC	Non-Combustible	25
LC	Limited Combustible	15
C	Combustible	0
FB	Free Burning	15
RB	Rapid Burning	25

If Vertical Openings are adequately protected (at least 1-hour fire rating): Area is the total of the largest floor (above ground level) plus 25% of the area of each of the next 2 immediately adjoining floors above that.

1) Fire Flow

Type of Construction:	OC
C=	1
A*=	1,680.00 m^2
F=	**9,017 L/min**

2) Occupancy Reduction/Surcharge

Contents Factor:		LC		
Reduction/Surcharge of		-15%	=	-1,353 L/min
F=	**9017L/min +**	**-1353 L/min**	=	**7,665 L/min**

3) System Type Reduction

NFPA 13 Sprinkler:	YES	30%
Standard Water Supply:	YES	10%
Fully Supervised:	YES	10%
Total		50%

Reduction of		50% L/min	=	3,832 L/min
F=	**7665L/min -**	**3,832 L/min**	=	**3,832 L/min**

4) Separation Charge

Building Face	Dist(m)	Charge
North	24	10%
East	35	5%
South	17	15%
West	18	15%
Total		45%

of 7664.72 L/min = 3,449 L/min
(max exposure charge can be 75%)

Separation	Charge	Separation	Charge
0 to 3m	25%	20.1 to 30 m	10%
3.1 to 10m	20%	30.1 to 45m	5%
10.1 to 20m	15%		

F = 3832L/min + 3449L/min = 7,281 L/min (2,000L/min<F<45,000L/min)

F =	**7,000**	**L/min** (round to the nearest 1,000L/min)
F =	**117**	**L/s**
F =	**1,849**	**gpm**

Counterpoint Engineering Inc.

NFPA Theoretical Flow Calculations

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Hydrant: Fire hydrants connected into 300mm diameter Mattawa Avenue watermain.

Based on National Fire Protection Association Guidelines, the available flow at the minimum residual pressure of 20psi can be calculated based on the observed flow at the observed pressure readings, as follows:

$$\mathbf{Q_F = 29.83 \times c \times d^2 \times p^{0.5}}$$, where

Q_F = observed flow (US GPM)
c = hydrant nozzle coefficient (0.90 - 0.95)
d = nozzle diameter (in)
p = observed pitot pressure

$$\mathbf{Q_R = Q_F \times h_F^{0.54} / h_R^{0.54}}$$, where

Q_R = available flow
Q_F = observed flow (US GPM)
h_F = drop from measured static to desired baseline pressure
h_R = drop from measured static to measured residual pressure

Based on flow test results obtained by *Lozzi Aqua Check, July 23, 2021.*

c =	0.9	
d =	2.5	in
number of ports =	2	
p =	56	

Q_F = 2511 US GPM

Measured Static Pressure =	80	psi
Measured Residual Pressure =	71	psi
Desired Residual Pressure =	20	psi , minimum.

Q_R = 6995 US GPM per fire conneciton
26,480 L/min
441.34 L/s

Lozzi Aqua Check Massimo Lozzi

12307 Woodbine Ave, P.O. Box 519 Cell: 416 990-2131

Gormley, ON L0H 1G0 E-mail: lozziaquacheck@gmail.com

Hydrant Flow Test Form

Job Location: Mattawa Ave and Dundas St. E, Mississauga Date: July 23, 2021

Time of Test: 3:00 pm

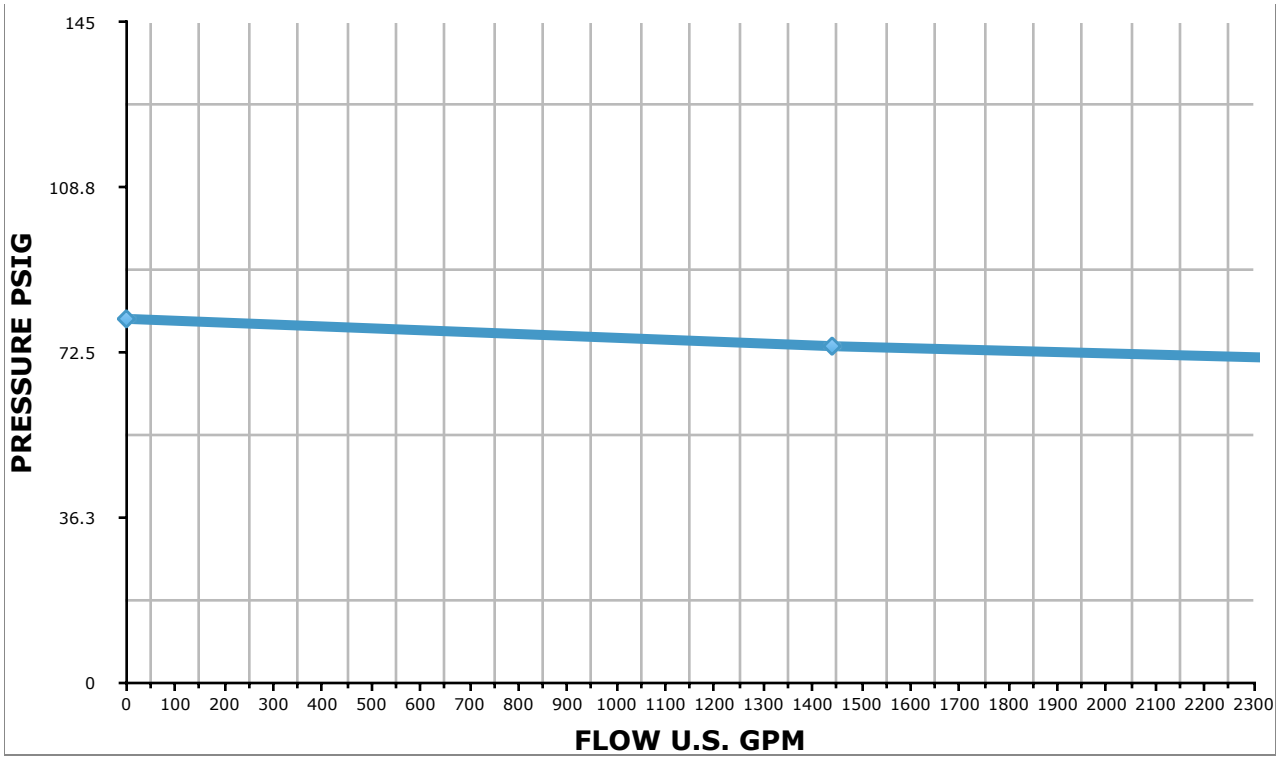
Location of Flow Hydrant: First hydrant SE of residual hydrant

Residual : 1590 Dundas St. E hydrant on Mattawa Ave.

Main Size: 300 mm Static Pressure: 80 psi

	Number of Outlets & Orifice Size	Pitot Pressure (psi)	Flow (U.S. G.P.M.)	Residual Pressure (psi)
1.	Static	0	0	80
2.	1 x 2 ½	74	1440	74
3.	2 x 2 ½	56	2505	71

Note: Flow test conducted in accordance with NFPA 291



Lozzi Aqua Check

12307 Woodbine Ave, P.O. Box 519

Gormley, ON L0H 1G0

Massimo Lozzi

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Site Map:

APPENDIX ‘C’

Sanitary Calculations and Multi-Use Demand Sheets

Counterpoint Engineering Inc.
Sanitary Flow Generation

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Location: Mississauga
Date: Nov-21

Site Sanitary Flow Summary

Locations		Domestic Flows			Infiltration Flows		Totals
Area	Ctrl. MH Connections	Total Units	Total Population	Domestic Flows (L/s)	Site Area (ha)	Infiltration Flows (L/s)	Total Flow (L/s)
Block A	1A, 3A, 5A	1099	2269	**28.17**	1.05	1.05	**29.22**
Block C	15A	448	940	**12.58**	0.63	0.41	**12.98**
Block E	8A, 10A, 12A	533	1136	**14.98**	1.28	1.10	**16.08**
Block F	14A, 18A, 19A, 16A	407	910	**12.20**	1.23	1.37	**13.57**
Block G	20A, 21A, 22A	540	1186	**15.59**	1.13	1.07	**16.66**
	TOTALS:	3027	6441	**83.53**	5.31	4.98	**88.51**

Counterpoint Engineering Inc.

Sanitary Flow Generation

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Location: Block A
Date: Nov-21

BUILDING 1

Region of Peel Guidelines		
Large Apartments (+750 sq.ft.)	**3.0**	ppu
Small Apartments (<750 sq.ft.)	**1.6**	ppu
Average Flow	**302.8**	L/cap/day
Infiltration	**0.20**	L/s/ha
Infiltration (Manholes)	**0.28**	L/s/mh
Commercial	**50**	p/ha

Site Area	**1.05**	ha
Number of Manholes	**3**	each
Number of Large Units	**362**	units
Number of Small Units	**737**	units
Commercial Area	**0.075900**	ha

Population Generation

	(units) Commercial (area - ha)	Population (Persons)
Residential	1,099	2265
Commercial	0.08	4
	Total Population:	**2269**

Flow Generation

	Domestic Flows		Infiltration Flows			Total Flows
Population (persons)	**Peaking Factor**	**Domestic Flows (L/s)**	**Site Area (ha)**	**Number of Manholes**	**Infiltration Flows (L/s)**	**Total Flow (L/s)**
2269	3.54	**28.17**	1.05	3	**1.05**	**29.2**

Counterpoint Engineering Inc.

Sanitary Flow Generation

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Location: Block C
Date: Nov-21

BUILDING 1

Region of Peel Guidelines		
Large Apartments (+750 sq.ft.)	**3.0**	ppu
Small Apartments (<750 sq.ft.)	**1.6**	ppu
Average Flow	**302.8**	L/cap/day
Infiltration	**0.20**	L/s/ha
Infiltration (Manholes)	**0.28**	L/s/mh
Commercial	**50**	p/ha

Site Area	**0.63**	ha
Number of Manholes	**1**	each
Number of Large Units	**155**	units
Number of Small Units	**293**	units
Commercial Area	**0.129000**	ha

Population Generation

	(units) Commercial (area - ha)	Population (Persons)
Residential	448	934
Commercial	0.13	6
	Total Population:	**940**

Flow Generation

	Domestic Flows		Infiltration Flows			Total Flows
Population (persons)	**Peaking Factor**	**Domestic Flows (L/s)**	**Site Area (ha)**	**Number of Manholes**	**Infiltration Flows (L/s)**	**Total Flow (L/s)**
940	3.82	**12.58**	0.63	1	**0.41**	**13.0**

Counterpoint Engineering Inc.

Sanitary Flow Generation

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Location: Block E
Date: Nov-21

BUILDING 1

Region of Peel Guidelines		
Large Apartments (+750 sq.ft.)	3.0	ppu
Small Apartments (<750 sq.ft.)	1.6	ppu
Average Flow	302.8	L/cap/day
Infiltration	0.20	L/s/ha
Infiltration (Manholes)	0.28	L/s/mh
Commercial	50	p/ha

Site Area	1.28	ha
Number of Manholes	3	each
Number of Large Units	199	units
Number of Small Units	334	units
Commercial Area	0.090600	ha

Population Generation

	(units) Commercial (area - ha)	Population (Persons)
Residential	533	1131
Commercial	0.09	5
Total Population:		1136

Flow Generation

	Domestic Flows		Infiltration Flows			Total Flows
Population (persons)	Peaking Factor	Domestic Flows (L/s)	Site Area (ha)	Number of Manholes	Infiltration Flows (L/s)	Total Flow (L/s)
1136	3.76	**14.98**	1.28	3	**1.10**	**16.1**

Counterpoint Engineering Inc.

Sanitary Flow Generation

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Location: Block F
Date: Nov-21

BUILDING 1

Region of Peel Guidelines		
Large Apartments (+750 sq.ft.)	3.0	ppu
Small Apartments (<750 sq.ft.)	1.6	ppu
Average Flow	302.8	L/cap/day
Infiltration	0.20	L/s/ha
Infiltration (Manholes)	0.28	L/s/mh
Commercial	50	p/ha

Site Area	1.23	ha
Number of Manholes	4	each
Number of Large Units	185	units
Number of Small Units	222	units
Commercial Area	0.000000	ha

Population Generation

	(units) Commercial (area - ha)	Population (Persons)
Residential	407	910
Commercial	0.00	0
Total Population:		910

Flow Generation

	Domestic Flows		Infiltration Flows			Total Flows
Population (persons)	Peaking Factor	Domestic Flows (L/s)	Site Area (ha)	Number of Manholes	Infiltration Flows (L/s)	Total Flow (L/s)
910	3.83	**12.20**	1.23	4	**1.37**	**13.6**

Counterpoint Engineering Inc.

Sanitary Flow Generation

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Location: Block G
Date: Nov-21

BUILDING 1

Region of Peel Guidelines		
Large Apartments (+750 sq.ft.)	3.0	ppu
Small Apartments (<750 sq.ft.)	1.6	ppu
Average Flow	302.8	L/cap/day
Infiltration	0.20	L/s/ha
Infiltration (Manholes)	0.28	L/s/mh
Commercial	50	p/ha

Site Area	1.13	ha
Number of Manholes	3	each
Number of Large Units	230	units
Number of Small Units	310	units
Commercial Area	0.000000	ha

Population Generation

	(units) Commercial (area - ha)	Population (Persons)
Residential	540	1186
Commercial	0.00	0
Total Population:		1186

Flow Generation

	Domestic Flows		Infiltration Flows			Total Flows
Population (persons)	Peaking Factor	Domestic Flows (L/s)	Site Area (ha)	Number of Manholes	Infiltration Flows (L/s)	Total Flow (L/s)
1186	3.75	**15.59**	1.13	3	**1.07**	**16.7**

Counterpoint Engineering Inc.

Sanitary Flow Generation

Project: 1580-1590 & 1650 Dundas Street East
Project No: 20129
Location: Existing Site
Date: Nov-21

BUILDING 1

Region of Peel Guidelines		
Large Apartments (+750 sq.ft.)	3.0	ppu
Small Apartments (<750 sq.ft.)	1.6	ppu
Average Flow	302.8	L/cap/day
Infiltration	0.20	L/s/ha
Infiltration (Manholes)	0.28	L/s/mh
Commercial	50	p/ha

Site Area	7.39	ha
Number of Manholes	1	each
Number of Large Units		units
Number of Small Units		units
Commercial Area	1.550000	ha

Population Generation

	(units) Commercial (area - ha)	Population (Persons)
Residential	0	0
Commercial	1.55	78
Total Population:		78

Flow Generation

	Domestic Flows		Infiltration Flows			Total Flows
Population (persons)	Peaking Factor	Domestic Flows (L/s)	Site Area (ha)	Number of Manholes	Infiltration Flows (L/s)	Total Flow (L/s)
78	4.27	1.16	7.39	1	1.76	2.92

CPE Project: 20129.
1580-1590 & 1650 Dundas Street East

Connection Multi Use Demand Table - Block A

WATER CONNECTION

Connection point [3]				
300mm watermain in Mattawa Avenue, south of Dundas Street East.				
Pressure zone of connection point		Unknown		
Total equivalent population to be serviced [1]		2269 persons.		
Total lands to be serviced		1.05 ha.		
Hydrant flow test	300mm watermain in Mattawa Avenue, south of Dundas Street East.			
Hydrant flow test location				
	Pressure (kPa)	Flow (in l/s)	Time	
Minimum water pressure	140 kPa	441.34 l/s	(flow at 20 psi).	
Maximum water pressure	552 kPa	0 l/s (static pressure).		

No.	Water demands			
	Demand type	Demand (in l/s)		
		Use 1 [5]	Use 2 [5]	Total
1	Average day flow	7.37 l/s		7.37 l/s
2	Maximum day flow	14.72 l/s		14.72 l/s
3	Peak hour flow	22.10 l/s		22.10 l/s
4	Fire flow [2]	166.67 l/s		166.67 l/s
Analysis				
5	Maximum day plus fire flow	181.38 l/s		181.38 l/s

Note: very minor retail use included in the residential demands.

WASTEWATER CONNECTION

250mm diameter sanitary sewer in Mattawa Avenue.

				Total
Connection point [4]				
Total equivalent population to be serviced [1]		2269 persons		2269 persons
Total lands to be serviced		1.05 ha.		1.05 ha.
6	Wastewater sewer effluent (in l/s)	29.22 l/s		29.22 l/s

[1] The calculations should be based on the development estimated population (employment and/or residential).
[2] Please reference the Fire Underwriters Survey Document
[3] Please specify the connection point ID
[4] Please specify the connection point (wastewater line or manhole ID)
Also, the "total equivalent popopulation to be serviced" and the "total lands to be serviced" should reference the connection point. (The FSR should contain one copy of Site Servicing Plan)
[5] Please complete as many uses are necessary for the development.
(Please specify the use)

Please include the graphs associated with the hydrant flow test information table
Please provide Professional Engineer's signature and stamp on the demand table
All required calculations must be submitted with the demand table submission.

CPE Project: 20129.
1580-1590 & 1650 Dundas Street East

Connection Multi Use Demand Table - Block C

WATER CONNECTION

Connection point [3]				
300mm watermain in Mattawa Avenue, south of Dundas Street East.				
Pressure zone of connection point			Unknown	
Total equivalent population to be serviced [1]			940 persons.	
Total lands to be serviced			0.63 ha.	
Hydrant flow test	300mm watermain in Mattawa Avenue, south of Dundas Street East.			
	Hydrant flow test location			
		Pressure (kPa)	Flow (in l/s)	Time
	Minimum water pressure	140 kPa	441.34 l/s	(flow at 20 psi).
	Maximum water pressure	552 kPa	0 l/s	(static pressure).

No.	Water demands			
		Demand (in l/s)		
	Demand type	Use 1 [5]	Use 2 [5]	Total
1	Average day flow	3.28 l/s		3.28 l/s
2	Maximum day flow	6.53 l/s		6.53 l/s
3	Peak hour flow	9.83 l/s		9.83 l/s
4	Fire flow [2]	116.67 l/s		116.67 l/s
Analysis				
5	Maximum day plus fire flow	123.20 l/s		123.20 l/s

Note: very minor retail use included in the residential demands.

WASTEWATER CONNECTION

250mm diameter sanitary sewer in Mattawa Avenue.

				Total
Connection point [4]				
Total equivalent population to be serviced [1]		940 persons		940 persons
Total lands to be serviced		0.63 ha		0.63 ha
6	Wastewater sewer effluent (in l/s)	12.98 l/s		12.98 l/s

[1] The calculations should be based on the development estimated population (employment and/or residential).
[2] Please reference the Fire Underwriters Survey Document
[3] Please specify the connection point ID
[4] Please specify the connection point (wastewater line or manhole ID)
Also, the "total equivalent popopulation to be serviced" and the "total lands to be serviced" should reference the connection point. (The FSR should contain one copy of Site Servicing Plan)
[5] Please complete as many uses are necessary for the development.
(Please specify the use)

Please include the graphs associated with the hydrant flow test information table
Please provide Professional Engineer's signature and stamp on the demand table
All required calculations must be submitted with the demand table submission.

CPE Project: 20129.
1580-1590 & 1650 Dundas Street East

Connection Multi Use Demand Table - Block E

WATER CONNECTION

Connection point [3]				
300mm watermain in Mattawa Avenue, south of Dundas Street East.				
Pressure zone of connection point			Unknown	
Total equivalent population to be serviced [1]			1136 persons.	
Total lands to be serviced			1.28 ha.	
Hydrant flow test	300mm watermain in Mattawa Avenue, south of Dundas Street East.			
	Hydrant flow test location			
		Pressure (kPa)	Flow (in l/s)	Time
	Minimum water pressure	140 kPa	441.34 l/s	(flow at 20 psi).
	Maximum water pressure	552 kPa	0 l/s (static pressure).	

No.	Water demands			
		Demand (in l/s)		
	Demand type	Use 1 [5]	Use 2 [5]	Total
1	Average day flow	3.96 l/s		3.96 l/s
2	Maximum day flow	7.90 l/s		7.90 l/s
3	Peak hour flow	11.87 l/s		11.87 l/s
4	Fire flow [2]	183.33 l/s		183.33 l/s
Analysis				
5	Maximum day plus fire flow	191.23 l/s		191.23 l/s

Note: very minor retail use included in the residential demands.

WASTEWATER CONNECTION

250mm diameter sanitary sewer in Mattawa Avenue.

				Total
Connection point [4]				
Total equivalent population to be serviced [1]		1136 persons		1136 persons
Total lands to be serviced		1.28 ha		1.28 ha
6	Wastewater sewer effluent (in l/s)	16.08 l/s		16.08 l/s

[1] The calculations should be based on the development estimated population (employment and/or residential).
[2] Please reference the Fire Underwriters Survey Document
[3] Please specify the connection point ID
[4] Please specify the connection point (wastewater line or manhole ID)
Also, the "total equivalent popopulation to be serviced" and the "total lands to be serviced" should reference the connection point. (The FSR should contain one copy of Site Servicing Plan)
[5] Please complete as many uses are necessary for the development.
(Please specify the use)

Please include the graphs associated with the hydrant flow test information table
Please provide Professional Engineer's signature and stamp on the demand table
All required calculations must be submitted with the demand table submission.

CPE Project: 20129.
1580-1590 & 1650 Dundas Street East

Connection Multi Use Demand Table - Block F

WATER CONNECTION

Connection point [3]				
300mm watermain in Mattawa Avenue, south of Dundas Street East.				
Pressure zone of connection point			Unknown	
Total equivalent population to be serviced [1]			910 persons.	
Total lands to be serviced			1.23 ha	
Hydrant flow test	300mm watermain in Mattawa Avenue, south of Dundas Street East.			
	Hydrant flow test location			
		Pressure (kPa)	Flow (in l/s)	Time
	Minimum water pressure	140 kPa	441.34 l/s	(flow at 20 psi).
	Maximum water pressure	552 kPa	0 l/s (static pressure).	

No.	Water demands			
		Demand (in l/s)		
	Demand type	Use 1 [5]	Use 2 [5]	Total
1	Average day flow	1.23 l/s		1.23 l/s
2	Maximum day flow	2.47 l/s		2.47 l/s
3	Peak hour flow	3.70 l/s		3.70 l/s
4	Fire flow [2]	166.67 l/s		166.67 l/s
Analysis				
5	Maximum day plus fire flow	169.13 l/s		169.13 l/s

Note: very minor retail use included in the residential demands.

WASTEWATER CONNECTION

250mm diameter sanitary sewer in Mattawa Avenue.

				Total
Connection point [4]				
Total equivalent population to be serviced [1]		910 persons		910 persons
Total lands to be serviced		1.23 ha		1.23 ha
6	Wastewater sewer effluent (in l/s)	13.57 l/s		13.57 l/s

[1] The calculations should be based on the development estimated population (employment and/or residential).
[2] Please reference the Fire Underwriters Survey Document
[3] Please specify the connection point ID
[4] Please specify the connection point (wastewater line or manhole ID)
Also, the "total equivalent popopulation to be serviced" and the "total lands to be serviced" should reference the connection point. (The FSR should contain one copy of Site Servicing Plan)
[5] Please complete as many uses are necessary for the development.
(Please specify the use)

Please include the graphs associated with the hydrant flow test information table
Please provide Professional Engineer's signature and stamp on the demand table
All required calculations must be submitted with the demand table submission.

CPE Project: 20129.
1580-1590 & 1650 Dundas Street East

Connection Multi Use Demand Table - Block G

WATER CONNECTION

Connection point [3]				
300mm watermain in Mattawa Avenue, south of Dundas Street East.				
Pressure zone of connection point			Unknown	
Total equivalent population to be serviced [1]			1186 persons.	
Total lands to be serviced			1.13 ha.	
Hydrant flow test	300mm watermain in Mattawa Avenue, south of Dundas Street East.			
	Hydrant flow test location			
		Pressure (kPa)	Flow (in l/s)	Time
	Minimum water pressure	140 kPa	441.34 l/s	(flow at 20 psi).
	Maximum water pressure	552 kPa	0 l/s (static pressure).	

No.	Water demands			
		Demand (in l/s)		
	Demand type	Use 1 [5]	Use 2 [5]	Total
1	Average day flow	4.12 l/s		4.12 l/s
2	Maximum day flow	8.24 l/s		8.24 l/s
3	Peak hour flow	12.35 l/s		12.35 l/s
4	Fire flow [2]	150.00 l/s		150.00 l/s
Analysis				
5	Maximum day plus fire flow	158.24 l/s		158.24 l/s

Note: very minor retail use included in the residential demands.

WASTEWATER CONNECTION

250mm diameter sanitary sewer in Mattawa Avenue.

				Total
Connection point [4]				
Total equivalent population to be serviced [1]		1186 persons		1186 persons
Total lands to be serviced		1.13 ha		1.13 ha
6	Wastewater sewer effluent (in l/s)	16.66 l/s		16.66 l/s

[1] The calculations should be based on the development estimated population (employment and/or residential).
[2] Please reference the Fire Underwriters Survey Document
[3] Please specify the connection point ID
[4] Please specify the connection point (wastewater line or manhole ID)
Also, the "total equivalent popopulation to be serviced" and the "total lands to be serviced" should reference the connection point. (The FSR should contain one copy of Site Servicing Plan)
[5] Please complete as many uses are necessary for the development.
(Please specify the use)

Please include the graphs associated with the hydrant flow test information table
Please provide Professional Engineer's signature and stamp on the demand table
All required calculations must be submitted with the demand table submission.

APPENDIX 'D'

Stormwater Management Calculations

SWM DESIGN CALCULATIONS
Allowable Unitary Release Rate Calculations - Little Etobicoke Creek

Project Name: 1580-1590 & 1650 Dundas Street East
Municipality: Mississauga, ON
Project No.: 20129
Date: 27-Oct-21

Prepared by: J.L.
Checked by:
Last Revised: 27-Oct-21

Total Site Area (ha): 6.580 ha (limits of post-development drainage areas)

Etobicoke Creek Quantity Control Unit Release Rates (L/s/ha):

2-year	5-year	10-year	25-year	50-year	100-year
21.5	33	41	55	62.7	71.8

Block E (201 + 200 + 201A + U200 + U201):	1.299	ha	
Block A (202 + U202 + 202A):	1.045	ha	
Block C (207 + 207A):	0.627	ha	
Block F (204 + 205 + 206 + 208 + 206A):	0.950	ha	
Block G (203 + 211 + 212 + 213 + 210 + 213A):	1.435	ha	
Area R201:	0.189	ha	(Uncontrolled - to be overcontrolled within Blocks A to G)
Park Block (214):	1.035	ha	

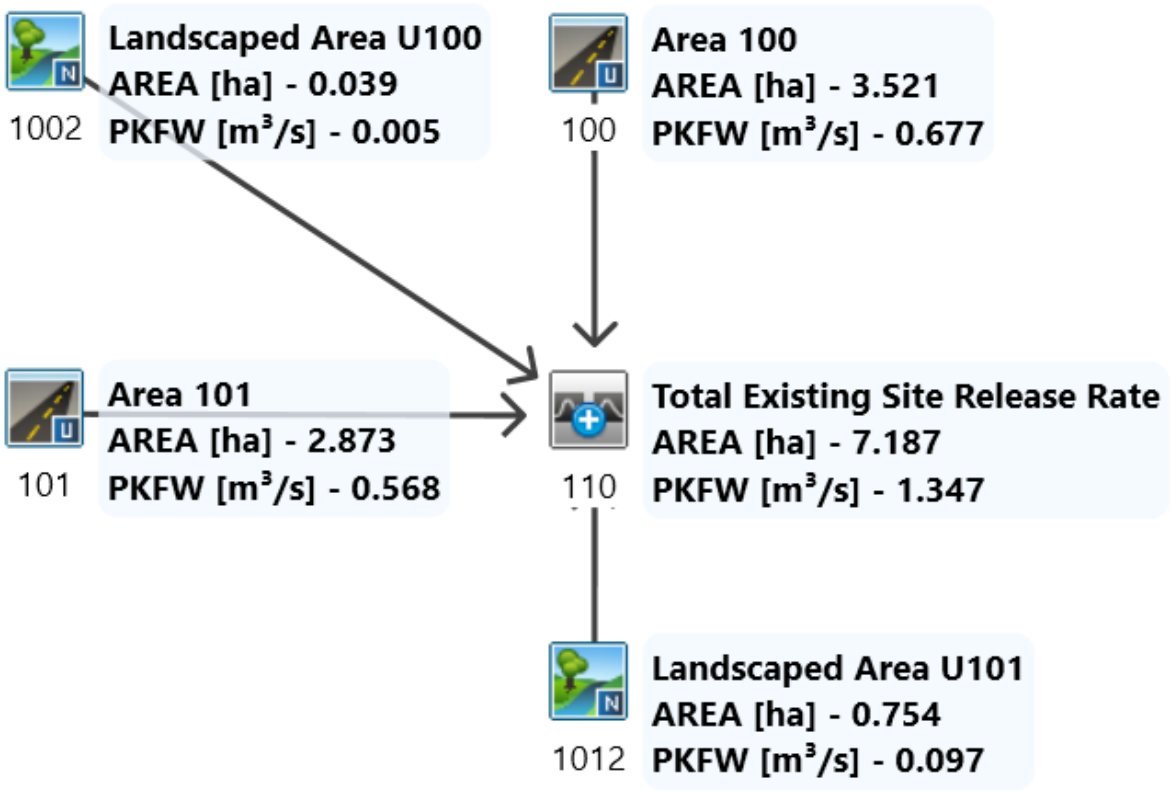
Site Area and Block Allowable Release Rates (L/s):

	2-year	5-year	10-year	25-year	50-year	100-year
Total Site Allowable Release Rates:	**141.5**	**217.1**	**269.8**	**361.9**	**412.6**	**472.4**
Block E:	21.7	32.5	40.2	55.5	62.7	71.9
Block A:	17.5	26.2	32.3	44.7	50.4	57.8
Block C:	10.5	15.7	19.4	26.8	30.3	34.7
Block F:	15.9	23.8	29.4	40.6	45.9	52.6
Block G:	24.0	35.9	44.4	61.3	69.3	79.4
Area R201:	17	23	27	32	35	39
Park Block:	35	60	77	101	119	137

*Block release rates adjusted to overcontrol for park block and Area R201 flows to ensure entire site achieves total allowable release rate.

Counterpoint Engineering Inc.
8395 Jane Street, Suite 100 Vaughan, Ontario L4K 5Y2
TEL: (905) 326-1404 FAX: (905) 326-1405
www.counterpointeng.com

Pre-Development VO6 Model Schematic



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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: 10-18-2021                          TIME: 02:27:40

USER:


COMMENTS: _____________________________________________________________


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


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|    READ STORM    |    Filename: C:\Users\jliang\AppD
|                  |              ata\Local\Temp\
```

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Ptotal= 36.00 mm	Comments: 2-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.72	1.75	12.24	3.25	5.04	4.75	0.72
0.50	0.72	2.00	12.24	3.50	5.04	5.00	0.72
0.75	0.72	2.25	33.12	3.75	2.88	5.25	0.72
1.00	0.72	2.50	33.12	4.00	2.88	5.50	0.72
1.25	4.32	2.75	9.36	4.25	1.44	5.75	0.72
1.50	4.32	3.00	9.36	4.50	1.44	6.00	0.72

CALIB NASHYD (1012)	Area (ha)=	0.75	Curve Number (CN)= 85.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.72	1.583	12.24	3.083	5.04	4.58	0.72
0.167	0.72	1.667	12.24	3.167	5.04	4.67	0.72
0.250	0.72	1.750	12.24	3.250	5.04	4.75	0.72
0.333	0.72	1.833	12.24	3.333	5.04	4.83	0.72
0.417	0.72	1.917	12.24	3.417	5.04	4.92	0.72
0.500	0.72	2.000	12.24	3.500	5.04	5.00	0.72
0.583	0.72	2.083	33.12	3.583	2.88	5.08	0.72
0.667	0.72	2.167	33.12	3.667	2.88	5.17	0.72
0.750	0.72	2.250	33.12	3.750	2.88	5.25	0.72
0.833	0.72	2.333	33.12	3.833	2.88	5.33	0.72
0.917	0.72	2.417	33.12	3.917	2.88	5.42	0.72
1.000	0.72	2.500	33.12	4.000	2.88	5.50	0.72
1.083	4.32	2.583	9.36	4.083	1.44	5.58	0.72
1.167	4.32	2.667	9.36	4.167	1.44	5.67	0.72
1.250	4.32	2.750	9.36	4.250	1.44	5.75	0.72
1.333	4.32	2.833	9.36	4.333	1.44	5.83	0.72
1.417	4.32	2.917	9.36	4.417	1.44	5.92	0.72
1.500	4.32	3.000	9.36	4.500	1.44	6.00	0.72

Unit Hyd Qpeak (cms)= 0.144

PEAK FLOW (cms)= 0.025 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 12.649

```
      TOTAL RAINFALL   (mm)=  36.000
      RUNOFF COEFFICIENT   =   0.351

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

-------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  1002)|   Area    (ha)=   0.04   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

      Unit Hyd Qpeak  (cms)=   0.007

      PEAK FLOW       (cms)=   0.001 (i)
      TIME TO PEAK    (hrs)=   2.583
      RUNOFF VOLUME    (mm)=  12.630
      TOTAL RAINFALL   (mm)=  36.000
      RUNOFF COEFFICIENT   =   0.351

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

-------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0101)|   Area    (ha)=   2.87
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       2.53          0.34
      Dep. Storage     (mm)=       1.00          5.00
      Average Slope     (%)=       1.00          2.00
      Length            (m)=     138.40         40.00
      Mannings n           =      0.013         0.250

      Max.Eff.Inten.(mm/hr)=      33.12         16.12
                over (min)        5.00         10.00
      Storage Coeff.  (min)=       4.83 (ii)     9.78 (ii)
      Unit Hyd. Tpeak (min)=       5.00         10.00
      Unit Hyd. peak  (cms)=       0.22          0.11
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.23          0.01          0.245 (iii)
      TIME TO PEAK    (hrs)=       2.50          2.50           2.50
      RUNOFF VOLUME    (mm)=      35.00         12.67          32.32
      TOTAL RAINFALL   (mm)=      36.00         36.00          36.00
      RUNOFF COEFFICIENT   =       0.97          0.35           0.90

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=   3.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.82         0.70
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     153.21        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        15.30
               over (min)        5.00        25.00
     Storage Coeff.  (min)=       5.13 (ii)   20.09 (ii)
     Unit Hyd. Tpeak (min)=       5.00        25.00
     Unit Hyd. peak  (cms)=       0.21         0.05
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.26         0.02          0.272 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.75           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          30.53
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.35           0.85


       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0100):     3.52   0.272     2.50    30.53
      + ID2= 2 (  1002):     0.04   0.001     2.58    12.63
        ================================================
        ID = 3 (  0110):     3.56   0.273     2.50    30.34

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

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

```
| ADD HYD  (  0110)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0110):     3.56   0.273     2.50    30.34
      + ID2= 2 (  0101):     2.87   0.245     2.50    32.32
        ================================================
        ID = 1 (  0110):     6.43   0.518     2.50    31.22

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0110):     6.43   0.518     2.50    31.22
      + ID2= 2 (  1012):     0.75   0.025     2.58    12.65
        ================================================
        ID = 3 (  0110):     7.19   0.543     2.50    29.27

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

  Output  filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\c406c
1b1-3321-4edc-a7cd-766ff93cc048\scena
  Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\c406c
```

1b1-3321-4edc-a7cd-766ff93cc048\scena

DATE: 10-18-2021 TIME: 02:27:40

USER:

COMMENTS: _____

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

READ STORM	Filename: C:\Users\jliang\AppData\Local\Temp\f9a46910-ba32-4004-be5f-e15416527993\ca9c443b
Ptotal= 47.81 mm	Comments: 5-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.96	1.75	16.25	3.25	6.69	4.75	0.96
0.50	0.96	2.00	16.25	3.50	6.69	5.00	0.96
0.75	0.96	2.25	43.98	3.75	3.82	5.25	0.96
1.00	0.96	2.50	43.98	4.00	3.82	5.50	0.96
1.25	5.74	2.75	12.43	4.25	1.91	5.75	0.96
1.50	5.74	3.00	12.43	4.50	1.91	6.00	0.96

CALIB NASHYD (1012) ID= 1 DT= 5.0 min	Area (ha)= 0.75	Curve Number (CN)= 85.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.20	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.96	1.583	16.25	3.083	6.69	4.58	0.96
0.167	0.96	1.667	16.25	3.167	6.69	4.67	0.96

0.250	0.96	1.750	16.25	3.250	6.69	4.75	0.96
0.333	0.96	1.833	16.25	3.333	6.69	4.83	0.96
0.417	0.96	1.917	16.25	3.417	6.69	4.92	0.96
0.500	0.96	2.000	16.25	3.500	6.69	5.00	0.96
0.583	0.96	2.083	43.98	3.583	3.82	5.08	0.96
0.667	0.96	2.167	43.98	3.667	3.82	5.17	0.96
0.750	0.96	2.250	43.98	3.750	3.82	5.25	0.96
0.833	0.96	2.333	43.98	3.833	3.82	5.33	0.96
0.917	0.96	2.417	43.98	3.917	3.82	5.42	0.96
1.000	0.96	2.500	43.98	4.000	3.82	5.50	0.96
1.083	5.74	2.583	12.43	4.083	1.91	5.58	0.96
1.167	5.74	2.667	12.43	4.167	1.91	5.67	0.96
1.250	5.74	2.750	12.43	4.250	1.91	5.75	0.96
1.333	5.74	2.833	12.43	4.333	1.91	5.83	0.96
1.417	5.74	2.917	12.43	4.417	1.91	5.92	0.96
1.500	5.74	3.000	12.43	4.500	1.91	6.00	0.96

```
     Unit Hyd Qpeak  (cms)=   0.144

     PEAK FLOW       (cms)=   0.042 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  20.873
     TOTAL RAINFALL   (mm)=  47.810
     RUNOFF COEFFICIENT   =   0.437

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

-------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  1002)|   Area    (ha)=   0.04   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

     Unit Hyd Qpeak  (cms)=   0.007

     PEAK FLOW       (cms)=   0.002 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  20.852
     TOTAL RAINFALL   (mm)=  47.810
     RUNOFF COEFFICIENT   =   0.436

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

-------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0101)|   Area    (ha)=   2.87
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	2.53	0.34	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	138.40	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		43.98	25.95	
over (min)		5.00	10.00	
Storage Coeff. (min)=		4.31 (ii)	8.73 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		0.23	0.12	
				TOTALS
PEAK FLOW	(cms)=	0.31	0.02	0.330 (iii)
TIME TO PEAK	(hrs)=	2.50	2.50	2.50
RUNOFF VOLUME	(mm)=	46.81	20.91	43.70
TOTAL RAINFALL	(mm)=	47.81	47.81	47.81
RUNOFF COEFFICIENT	=	0.98	0.44	0.91

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0100)	Area (ha)= 3.52
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	2.82	0.70	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	153.21	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		43.98	24.90	
over (min)		5.00	20.00	
Storage Coeff. (min)=		4.58 (ii)	16.89 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.23	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.34	0.03	0.373 (iii)
TIME TO PEAK	(hrs)=	2.50	2.67	2.50
RUNOFF VOLUME	(mm)=	46.81	20.91	41.63
TOTAL RAINFALL	(mm)=	47.81	47.81	47.81
RUNOFF COEFFICIENT	=	0.98	0.44	0.87

```
        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0100):     3.52   0.373     2.50    41.63
      + ID2= 2 (  1002):     0.04   0.002     2.50    20.85
        ================================================
        ID = 3 (  0110):     3.56   0.375     2.50    41.40

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

--------------------
| ADD HYD  (  0110)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0110):     3.56   0.375     2.50    41.40
      + ID2= 2 (  0101):     2.87   0.330     2.50    43.70
        ================================================
        ID = 1 (  0110):     6.43   0.705     2.50    42.43

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0110):     6.43   0.705     2.50    42.43
      + ID2= 2 (  1012):     0.75   0.042     2.50    20.87
        ================================================
        ID = 3 (  0110):     7.19   0.747     2.50    40.17

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
```

```
          VV     I    SSSSS  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 6.0\VO2\voin.dat

  Output  filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\d18f6
c1a-1fb8-452f-924b-3a7b45c67d71\scena
  Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\d18f6
c1a-1fb8-452f-924b-3a7b45c67d71\scena


DATE: 10-18-2021                          TIME: 02:27:40

USER:



COMMENTS: _____________________________________________________________


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


--------------------
|    READ STORM    |    Filename: C:\Users\jliang\AppD
|                  |              ata\Local\Temp\
|                  |              f9a46910-ba32-4004-be5f-e15416527993\8b3892d6
| Ptotal= 55.69 mm |    Comments: 10-Year 6-hour AES Storm
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    1.11 |  1.75   18.94 |  3.25    7.80 |  4.75    1.11
                0.50    1.11 |  2.00   18.94 |  3.50    7.80 |  5.00    1.11
```

0.75	1.11	2.25	51.24	3.75	4.46	5.25	1.11
1.00	1.11	2.50	51.24	4.00	4.46	5.50	1.11
1.25	6.68	2.75	14.48	4.25	2.23	5.75	1.11
1.50	6.68	3.00	14.48	4.50	2.23	6.00	1.11

CALIB			
NASHYD (1012)	Area (ha)=	0.75	Curve Number (CN)= 85.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.11	1.583	18.94	3.083	7.80	4.58	1.11
0.167	1.11	1.667	18.94	3.167	7.80	4.67	1.11
0.250	1.11	1.750	18.94	3.250	7.80	4.75	1.11
0.333	1.11	1.833	18.94	3.333	7.80	4.83	1.11
0.417	1.11	1.917	18.94	3.417	7.80	4.92	1.11
0.500	1.11	2.000	18.94	3.500	7.80	5.00	1.11
0.583	1.11	2.083	51.24	3.583	4.46	5.08	1.11
0.667	1.11	2.167	51.24	3.667	4.46	5.17	1.11
0.750	1.11	2.250	51.24	3.750	4.46	5.25	1.11
0.833	1.11	2.333	51.24	3.833	4.46	5.33	1.11
0.917	1.11	2.417	51.24	3.917	4.46	5.42	1.11
1.000	1.11	2.500	51.24	4.000	4.46	5.50	1.11
1.083	6.68	2.583	14.48	4.083	2.23	5.58	1.11
1.167	6.68	2.667	14.48	4.167	2.23	5.67	1.11
1.250	6.68	2.750	14.48	4.250	2.23	5.75	1.11
1.333	6.68	2.833	14.48	4.333	2.23	5.83	1.11
1.417	6.68	2.917	14.48	4.417	2.23	5.92	1.11
1.500	6.68	3.000	14.48	4.500	2.23	6.00	1.11

Unit Hyd Qpeak (cms)= 0.144

PEAK FLOW (cms)= 0.055 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 26.850
TOTAL RAINFALL (mm)= 55.690
RUNOFF COEFFICIENT = 0.482

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

```
| CALIB             |
| NASHYD   (  1002)|   Area    (ha)=   0.04   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

     Unit Hyd Qpeak  (cms)=   0.007

     PEAK FLOW       (cms)=   0.003 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  26.830
     TOTAL RAINFALL   (mm)=  55.690
     RUNOFF COEFFICIENT   =   0.482

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

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0101)|   Area    (ha)=   2.87
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.53          0.34
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=     138.40         40.00
     Mannings n             =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      51.24         32.92
               over (min)        5.00         10.00
     Storage Coeff.  (min)=       4.06 (ii)     8.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.24          0.13
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.36          0.03          0.388 (iii)
     TIME TO PEAK    (hrs)=       2.50          2.50           2.50
     RUNOFF VOLUME    (mm)=      54.69         26.90          51.35
     TOTAL RAINFALL   (mm)=      55.69         55.69          55.69
     RUNOFF COEFFICIENT   =       0.98          0.48           0.92

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0100)|   Area    (ha)=   3.52
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        2.82          0.70
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=      153.21         40.00
     Mannings n             =     0.013         0.250

     Max.Eff.Inten.(mm/hr)=       51.24         31.75
               over (min)         5.00         20.00
     Storage Coeff.  (min)=        4.31 (ii)    15.48 (ii)
     Unit Hyd. Tpeak (min)=        5.00         20.00
     Unit Hyd. peak  (cms)=        0.23          0.07
                                                          *TOTALS*
     PEAK FLOW       (cms)=        0.40          0.04          0.440 (iii)
     TIME TO PEAK    (hrs)=        2.50          2.67           2.50
     RUNOFF VOLUME    (mm)=       54.69         26.90          49.13
     TOTAL RAINFALL   (mm)=       55.69         55.69          55.69
     RUNOFF COEFFICIENT   =        0.98          0.48           0.88

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0100):     3.52   0.440     2.50    49.13
      + ID2= 2 (  1002):     0.04   0.003     2.50    26.83
        ================================================
        ID = 3 (  0110):     3.56   0.443     2.50    48.89

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

--------------------
| ADD HYD  (  0110)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0110):     3.56   0.443     2.50    48.89
      + ID2= 2 (  0101):     2.87   0.388     2.50    51.35
        ================================================
        ID = 1 (  0110):     6.43   0.831     2.50    49.99
```

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0110):     6.43   0.831     2.50    49.99
      + ID2= 2 (  1012):     0.75   0.055     2.50    26.85
        ================================================
        ID = 3 (  0110):     7.19   0.885     2.50    47.56

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
---------------------------------------------------------------------------
===========================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

  Output  filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\55e3b
69d-a9b0-4885-b2b0-fe07fc3b0ffb\scena
  Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\55e3b
69d-a9b0-4885-b2b0-fe07fc3b0ffb\scena


DATE: 10-18-2021                          TIME: 02:27:40

USER:
```

COMMENTS: _____

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

READ STORM	Filename: C:\Users\jliang\AppData\Local\Temp\f9a46910-ba32-4004-be5f-e15416527993\88868af7
Ptotal= 65.59 mm	Comments: 25-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.31	1.75	22.30	3.25	9.18	4.75	1.31
0.50	1.31	2.00	22.30	3.50	9.18	5.00	1.31
0.75	1.31	2.25	60.35	3.75	5.25	5.25	1.31
1.00	1.31	2.50	60.35	4.00	5.25	5.50	1.31
1.25	7.87	2.75	17.06	4.25	2.62	5.75	1.31
1.50	7.87	3.00	17.06	4.50	2.62	6.00	1.31

CALIB			
NASHYD (1012)	Area (ha)= 0.75	Curve Number (CN)= 85.0	
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00	
	U.H. Tp(hrs)= 0.20		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.31	1.583	22.30	3.083	9.18	4.58	1.31
0.167	1.31	1.667	22.30	3.167	9.18	4.67	1.31
0.250	1.31	1.750	22.30	3.250	9.18	4.75	1.31
0.333	1.31	1.833	22.30	3.333	9.18	4.83	1.31
0.417	1.31	1.917	22.30	3.417	9.18	4.92	1.31
0.500	1.31	2.000	22.30	3.500	9.18	5.00	1.31
0.583	1.31	2.083	60.35	3.583	5.25	5.08	1.31
0.667	1.31	2.167	60.35	3.667	5.25	5.17	1.31
0.750	1.31	2.250	60.35	3.750	5.25	5.25	1.31
0.833	1.31	2.333	60.35	3.833	5.25	5.33	1.31

```
                0.917    1.31 | 2.417   60.35 | 3.917    5.25 |  5.42    1.31
                1.000    1.31 | 2.500   60.35 | 4.000    5.25 |  5.50    1.31
                1.083    7.87 | 2.583   17.06 | 4.083    2.62 |  5.58    1.31
                1.167    7.87 | 2.667   17.06 | 4.167    2.62 |  5.67    1.31
                1.250    7.87 | 2.750   17.06 | 4.250    2.62 |  5.75    1.31
                1.333    7.87 | 2.833   17.06 | 4.333    2.62 |  5.83    1.31
                1.417    7.87 | 2.917   17.06 | 4.417    2.62 |  5.92    1.31
                1.500    7.87 | 3.000   17.06 | 4.500    2.62 |  6.00    1.31

     Unit Hyd Qpeak  (cms)=   0.144

     PEAK FLOW       (cms)=   0.071 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  34.759
     TOTAL RAINFALL   (mm)=  65.590
     RUNOFF COEFFICIENT   =   0.530

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

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  1002)|   Area    (ha)=   0.04   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

     Unit Hyd Qpeak  (cms)=   0.007

     PEAK FLOW       (cms)=   0.004 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  34.742
     TOTAL RAINFALL   (mm)=  65.590
     RUNOFF COEFFICIENT   =   0.530

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

-------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0101)|   Area    (ha)=   2.87
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.53         0.34
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     138.40        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
```

```
                over (min)        5.00        10.00
      Storage Coeff.  (min)=      3.80 (ii)    7.69 (ii)
      Unit Hyd. Tpeak (min)=      5.00        10.00
      Unit Hyd. peak  (cms)=      0.25         0.13
                                                        *TOTALS*
      PEAK FLOW       (cms)=      0.42         0.04         0.460 (iii)
      TIME TO PEAK    (hrs)=      2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=     64.59        34.83         61.02
      TOTAL RAINFALL   (mm)=     65.59        65.59         65.59
      RUNOFF COEFFICIENT   =      0.98         0.53          0.93

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=   3.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       2.82         0.70
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=     153.21        40.00
      Mannings n             =     0.013        0.250

      Max.Eff.Inten.(mm/hr)=      60.35        41.96
                over (min)        5.00        10.00
      Storage Coeff.  (min)=      4.04 (ii)    9.00 (ii)
      Unit Hyd. Tpeak (min)=      5.00        10.00
      Unit Hyd. peak  (cms)=      0.24         0.12
                                                        *TOTALS*
      PEAK FLOW       (cms)=      0.47         0.07         0.544 (iii)
      TIME TO PEAK    (hrs)=      2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=     64.59        34.83         58.64
      TOTAL RAINFALL   (mm)=     65.59        65.59         65.59
      RUNOFF COEFFICIENT   =      0.98         0.53          0.89

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

```
--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0100):     3.52   0.544     2.50    58.64
      + ID2= 2 (  1002):     0.04   0.004     2.50    34.74
        ====================================================
        ID = 3 (  0110):     3.56   0.548     2.50    58.37

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

--------------------
| ADD HYD  (  0110)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0110):     3.56   0.548     2.50    58.37
      + ID2= 2 (  0101):     2.87   0.460     2.50    61.02
        ====================================================
        ID = 1 (  0110):     6.43   1.008     2.50    59.55

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0110):     6.43   1.008     2.50    59.55
      + ID2= 2 (  1012):     0.75   0.071     2.50    34.76
        ====================================================
        ID = 3 (  0110):     7.19   1.079     2.50    56.95

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

Output filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\6846db57-6a69-4bf8-9b3b-d317268abaa3\scena
Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\6846db57-6a69-4bf8-9b3b-d317268abaa3\scena

DATE: 10-18-2021 TIME: 02:27:40

USER:

COMMENTS: _____

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

READ STORM	Filename: C:\Users\jliang\AppData\Local\Temp\f9a46910-ba32-4004-be5f-e15416527993\d9be6e7f
Ptotal= 73.00 mm	Comments: 50-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.46	1.75	24.82	3.25	10.22	4.75	1.46
0.50	1.46	2.00	24.82	3.50	10.22	5.00	1.46
0.75	1.46	2.25	67.16	3.75	5.84	5.25	1.46
1.00	1.46	2.50	67.16	4.00	5.84	5.50	1.46
1.25	8.76	2.75	18.98	4.25	2.92	5.75	1.46
1.50	8.76	3.00	18.98	4.50	2.92	6.00	1.46

CALIB						
NASHYD (1012)	Area (ha)=	0.75	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.46	1.583	24.82	3.083	10.22	4.58	1.46
0.167	1.46	1.667	24.82	3.167	10.22	4.67	1.46
0.250	1.46	1.750	24.82	3.250	10.22	4.75	1.46
0.333	1.46	1.833	24.82	3.333	10.22	4.83	1.46
0.417	1.46	1.917	24.82	3.417	10.22	4.92	1.46
0.500	1.46	2.000	24.82	3.500	10.22	5.00	1.46
0.583	1.46	2.083	67.16	3.583	5.84	5.08	1.46
0.667	1.46	2.167	67.16	3.667	5.84	5.17	1.46
0.750	1.46	2.250	67.16	3.750	5.84	5.25	1.46
0.833	1.46	2.333	67.16	3.833	5.84	5.33	1.46
0.917	1.46	2.417	67.16	3.917	5.84	5.42	1.46
1.000	1.46	2.500	67.16	4.000	5.84	5.50	1.46
1.083	8.76	2.583	18.98	4.083	2.92	5.58	1.46
1.167	8.76	2.667	18.98	4.167	2.92	5.67	1.46
1.250	8.76	2.750	18.98	4.250	2.92	5.75	1.46
1.333	8.76	2.833	18.98	4.333	2.92	5.83	1.46
1.417	8.76	2.917	18.98	4.417	2.92	5.92	1.46
1.500	8.76	3.000	18.98	4.500	2.92	6.00	1.46

Unit Hyd Qpeak (cms)= 0.144

PEAK FLOW (cms)= 0.084 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 40.906
TOTAL RAINFALL (mm)= 73.000
RUNOFF COEFFICIENT = 0.560

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

CALIB						
NASHYD (1002)	Area (ha)=	0.04	Curve Number (CN)=	85.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)=	3.00
	U.H. Tp(hrs)=	0.20		

Unit Hyd Qpeak (cms)= 0.007

PEAK FLOW (cms)= 0.004 (i)

```
      TIME TO PEAK    (hrs)=   2.500
      RUNOFF VOLUME    (mm)=  40.886
      TOTAL RAINFALL   (mm)=  73.000
      RUNOFF COEFFICIENT   =   0.560

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

-------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0101)|   Area    (ha)=   2.87
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.53         0.34
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     138.40        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.64 (ii)    7.37 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.25         0.13
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.47         0.04          0.514 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98          68.28
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.99         0.56           0.94

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

-------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0100)|   Area    (ha)=   3.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.82         0.70
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     153.21        40.00
     Mannings n           =      0.013        0.250
```

```
      Max.Eff.Inten.(mm/hr)=      67.16        48.86
                 over (min)        5.00        10.00
      Storage Coeff.  (min)=       3.87 (ii)    8.62 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.25         0.12
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.53         0.09          0.611 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50           2.50
      RUNOFF VOLUME    (mm)=      72.00        40.98          65.80
      TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
      RUNOFF COEFFICIENT   =       0.99         0.56           0.90

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0100):     3.52   0.611     2.50    65.80
      + ID2= 2 (  1002):     0.04   0.004     2.50    40.89
        ================================================
        ID = 3 (  0110):     3.56   0.615     2.50    65.52

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

--------------------
| ADD HYD  (  0110)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0110):     3.56   0.615     2.50    65.52
      + ID2= 2 (  0101):     2.87   0.514     2.50    68.28
        ================================================
        ID = 1 (  0110):     6.43   1.130     2.50    66.75

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0110):     6.43   1.130     2.50    66.75
```

```
      + ID2= 2 (  1012):     0.75   0.084     2.50    40.91
        ==================================================
        ID = 3 (  0110):     7.19   1.214     2.50    64.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

  Output  filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\f7ad0
3e0-aec2-4f10-9784-ba897c30c5ac\scena
  Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\f7ad0
3e0-aec2-4f10-9784-ba897c30c5ac\scena


DATE: 10-18-2021                          TIME: 02:27:40

USER:


COMMENTS: _____________________________________________________________


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------------------------
  ********************************************
  ** SIMULATION : Run 06                     **
```

****

READ STORM	Filename: C:\Users\jliang\AppData\Local\Temp\f9a46910-ba32-4004-be5f-e15416527993\40ddf276
Ptotal= 80.31 mm	Comments: 100-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.61	1.75	27.30	3.25	11.24	4.75	1.61
0.50	1.61	2.00	27.30	3.50	11.24	5.00	1.61
0.75	1.61	2.25	73.88	3.75	6.42	5.25	1.61
1.00	1.61	2.50	73.88	4.00	6.42	5.50	1.61
1.25	9.64	2.75	20.88	4.25	3.21	5.75	1.61
1.50	9.64	3.00	20.88	4.50	3.21	6.00	1.61

CALIB NASHYD (1012) ID= 1 DT= 5.0 min	Area (ha)= 0.75	Curve Number (CN)= 85.0
	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.20	

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

---- TRANSFORMED HYETOGRAPH ----

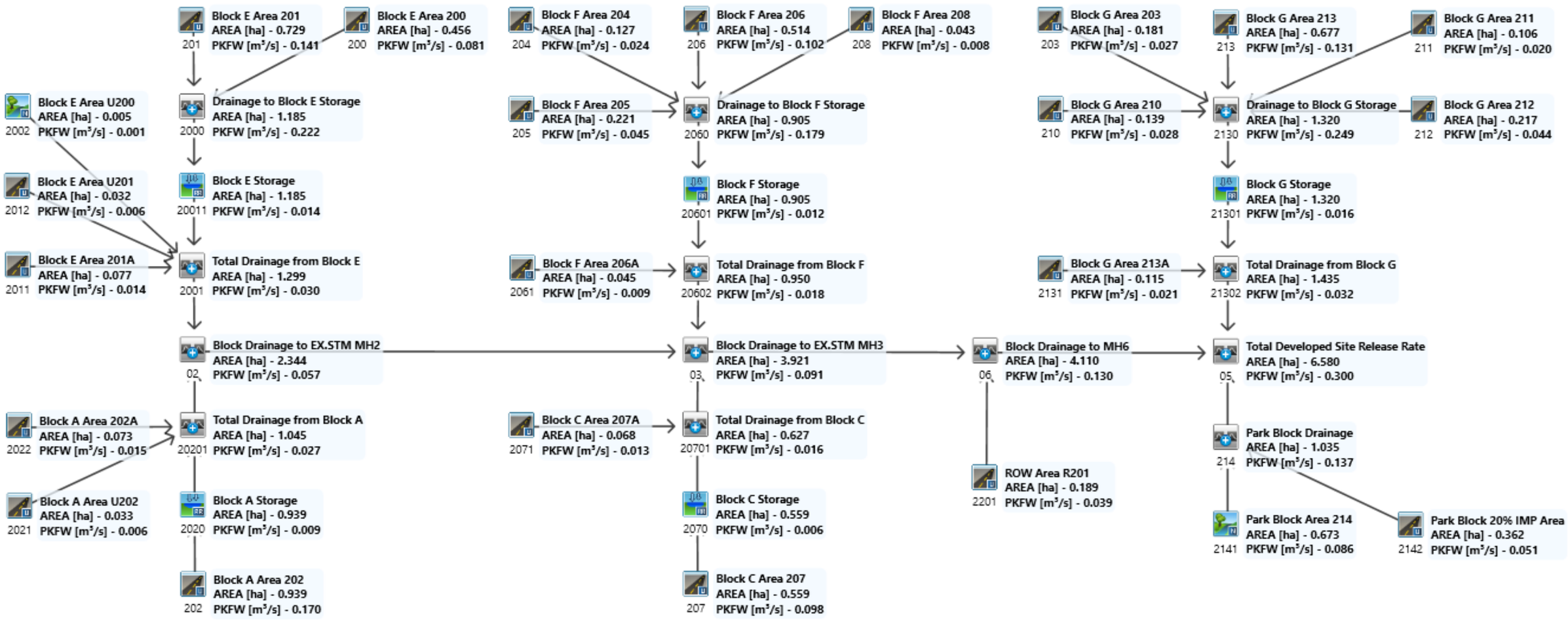
TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.61	1.583	27.30	3.083	11.24	4.58	1.61
0.167	1.61	1.667	27.30	3.167	11.24	4.67	1.61
0.250	1.61	1.750	27.30	3.250	11.24	4.75	1.61
0.333	1.61	1.833	27.30	3.333	11.24	4.83	1.61
0.417	1.61	1.917	27.30	3.417	11.24	4.92	1.61
0.500	1.61	2.000	27.30	3.500	11.24	5.00	1.61
0.583	1.61	2.083	73.88	3.583	6.42	5.08	1.61
0.667	1.61	2.167	73.88	3.667	6.42	5.17	1.61
0.750	1.61	2.250	73.88	3.750	6.42	5.25	1.61
0.833	1.61	2.333	73.88	3.833	6.42	5.33	1.61
0.917	1.61	2.417	73.88	3.917	6.42	5.42	1.61
1.000	1.61	2.500	73.88	4.000	6.42	5.50	1.61
1.083	9.64	2.583	20.88	4.083	3.21	5.58	1.61
1.167	9.64	2.667	20.88	4.167	3.21	5.67	1.61
1.250	9.64	2.750	20.88	4.250	3.21	5.75	1.61
1.333	9.64	2.833	20.88	4.333	3.21	5.83	1.61
1.417	9.64	2.917	20.88	4.417	3.21	5.92	1.61
1.500	9.64	3.000	20.88	4.500	3.21	6.00	1.61

```
      Unit Hyd Qpeak  (cms)=   0.144

      PEAK FLOW       (cms)=   0.097 (i)
      TIME TO PEAK    (hrs)=   2.500
      RUNOFF VOLUME    (mm)=  47.121
      TOTAL RAINFALL   (mm)=  80.310
      RUNOFF COEFFICIENT   =   0.587

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

-------------------------------------------------------------------------------
--------------------
| CALIB             |
| NASHYD   (  1002)|   Area    (ha)=   0.04   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

      Unit Hyd Qpeak  (cms)=   0.007

      PEAK FLOW       (cms)=   0.005 (i)
      TIME TO PEAK    (hrs)=   2.500
      RUNOFF VOLUME    (mm)=  47.103
      TOTAL RAINFALL   (mm)=  80.310
      RUNOFF COEFFICIENT   =   0.587

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

-------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0101)|   Area    (ha)=   2.87
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------

                             IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       2.53         0.34
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=     138.40        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      73.88        55.75
                 over (min)        5.00        10.00
      Storage Coeff.  (min)=       3.50 (ii)    7.09 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.26         0.14
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.52         0.05          0.568 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50           2.50
      RUNOFF VOLUME    (mm)=      79.31        47.21          75.46
```

```
      TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
      RUNOFF COEFFICIENT   =       0.99         0.59           0.94

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0100)|   Area    (ha)=   3.52
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       2.82         0.70
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=     153.21        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       3.72 (ii)    8.30 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.25         0.13
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.58         0.10          0.677 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21          72.89
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.99         0.59           0.91

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0100):     3.52   0.677     2.50    72.89
      + ID2= 2 (  1002):     0.04   0.005     2.50    47.10
        ================================================
        ID = 3 (  0110):     3.56   0.682     2.50    72.61
```

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

--------------------
| ADD HYD  (  0110)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0110):     3.56   0.682     2.50    72.61
      + ID2= 2 (  0101):     2.87   0.568     2.50    75.46
        ====================================================
        ID = 1 (  0110):     6.43   1.250     2.50    73.88

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

--------------------
| ADD HYD  (  0110)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0110):     6.43   1.250     2.50    73.88
      + ID2= 2 (  1012):     0.75   0.097     2.50    47.12
        ====================================================
        ID = 3 (  0110):     7.19   1.347     2.50    71.07

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

 FINISH
===========================================================================
========================
```

Post-Development VO6 Model Schematic



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

```
       V    V   I    SSSSS  U   U    A    L             (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

  Output  filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\b30a9
6aa-48fe-4f04-a2c4-f6b99f8f9cfb\scena
  Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\b30a9
6aa-48fe-4f04-a2c4-f6b99f8f9cfb\scena


DATE: 10-27-2021                          TIME: 05:35:39

USER:


COMMENTS: _____________________________________________________________


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


--------------------
|    READ STORM    |    Filename: C:\Users\jliang\AppD
|                  |              ata\Local\Temp\
```

	907c1cff-ccb1-41c0-9867-a9890799f0d3\05bf40b2
Ptotal= 36.00 mm	Comments: 2-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	0.72	1.75	12.24	3.25	5.04	4.75	0.72
0.50	0.72	2.00	12.24	3.50	5.04	5.00	0.72
0.75	0.72	2.25	33.12	3.75	2.88	5.25	0.72
1.00	0.72	2.50	33.12	4.00	2.88	5.50	0.72
1.25	4.32	2.75	9.36	4.25	1.44	5.75	0.72
1.50	4.32	3.00	9.36	4.50	1.44	6.00	0.72

CALIB		
NASHYD (2002)	Area (ha)= 0.00	Curve Number (CN)= 85.0
ID= 1 DT= 5.0 min	Ia (mm)= 5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)= 0.20	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	0.72	1.583	12.24	3.083	5.04	4.58	0.72
0.167	0.72	1.667	12.24	3.167	5.04	4.67	0.72
0.250	0.72	1.750	12.24	3.250	5.04	4.75	0.72
0.333	0.72	1.833	12.24	3.333	5.04	4.83	0.72
0.417	0.72	1.917	12.24	3.417	5.04	4.92	0.72
0.500	0.72	2.000	12.24	3.500	5.04	5.00	0.72
0.583	0.72	2.083	33.12	3.583	2.88	5.08	0.72
0.667	0.72	2.167	33.12	3.667	2.88	5.17	0.72
0.750	0.72	2.250	33.12	3.750	2.88	5.25	0.72
0.833	0.72	2.333	33.12	3.833	2.88	5.33	0.72
0.917	0.72	2.417	33.12	3.917	2.88	5.42	0.72
1.000	0.72	2.500	33.12	4.000	2.88	5.50	0.72
1.083	4.32	2.583	9.36	4.083	1.44	5.58	0.72
1.167	4.32	2.667	9.36	4.167	1.44	5.67	0.72
1.250	4.32	2.750	9.36	4.250	1.44	5.75	0.72
1.333	4.32	2.833	9.36	4.333	1.44	5.83	0.72
1.417	4.32	2.917	9.36	4.417	1.44	5.92	0.72
1.500	4.32	3.000	9.36	4.500	1.44	6.00	0.72

Unit Hyd Qpeak (cms)= 0.001

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 2.583
RUNOFF VOLUME (mm)= 11.244

```
      TOTAL RAINFALL   (mm)=  36.000
      RUNOFF COEFFICIENT   =   0.312

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58         0.15
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      69.71        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        15.30
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       3.20 (ii)   18.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.27         0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.00          0.057 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.67           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          30.52
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.35           0.85

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   0.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.31         0.15
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      55.14        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        15.30
```

```
                over (min)        5.00        20.00
      Storage Coeff.  (min)=      2.78 (ii)   17.74 (ii)
      Unit Hyd. Tpeak (min)=      5.00        20.00
      Unit Hyd. peak  (cms)=      0.28         0.06
                                                      *TOTALS*
      PEAK FLOW       (cms)=      0.03         0.00         0.032 (iii)
      TIME TO PEAK    (hrs)=      2.50         2.67          2.50
      RUNOFF VOLUME    (mm)=     35.00        12.67         27.61
      TOTAL RAINFALL   (mm)=     36.00        36.00         36.00
      RUNOFF COEFFICIENT   =      0.97         0.35          0.77

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2000)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0200):     0.46   0.032     2.50    27.61
      + ID2= 2 (  0201):     0.73   0.057     2.50    30.52
        ================================================
        ID = 3 (  2000):     1.18   0.089     2.50    29.40

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20011)|     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    |   0.0140      0.0709

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2000)      1.185      0.089      2.50      29.40
   OUTFLOW: ID= 1 ( 20011)      1.185      0.006      4.08      28.32

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.49
                    TIME SHIFT OF PEAK FLOW         (min)= 95.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0291

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2011)|   Area    (ha)=   0.08
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  73.00   Dir. Conn.(%)=  73.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.66        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        15.30
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       1.63 (ii)   16.59 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.32         0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.67           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          28.92
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.35           0.80

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  2012)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.61        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        15.30
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       1.25 (ii)   16.21 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.33         0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.002 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.67           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          26.10
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
```

```
     RUNOFF COEFFICIENT   =       0.97         0.35          0.72

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20011):     1.18   0.006     4.08    28.32
      + ID2= 2 (  2002):     0.00   0.000     2.58    11.24
        ================================================
        ID = 3 (  2001):     1.19   0.006     4.08    28.25

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

--------------------
| ADD HYD  (  2001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2001):     1.19   0.006     4.08    28.25
      + ID2= 2 (  2011):     0.08   0.006     2.50    28.92
        ================================================
        ID = 1 (  2001):     1.27   0.010     2.50    28.29

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.27   0.010     2.50    28.29
      + ID2= 2 (  2012):     0.03   0.002     2.50    26.10
        ================================================
        ID = 3 (  2001):     1.30   0.012     2.50    28.23

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   0.94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.66	0.28	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	79.12	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)	=	33.12	15.30	
over (min)		5.00	20.00	
Storage Coeff. (min)	=	3.45 (ii)	18.41 (ii)	
Unit Hyd. Tpeak (min)	=	5.00	20.00	
Unit Hyd. peak (cms)	=	0.26	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.06	0.01	0.067 (iii)
TIME TO PEAK	(hrs)=	2.50	2.67	2.50
RUNOFF VOLUME	(mm)=	35.00	12.67	28.29
TOTAL RAINFALL	(mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT	=	0.97	0.35	0.79

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(2020)	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	0.0090	0.0561

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0202)	0.939	0.067	2.50	28.29
OUTFLOW: ID= 1 (2020)	0.939	0.004	4.50	26.60

PEAK FLOW REDUCTION [Qout/Qin](%)= 5.45
TIME SHIFT OF PEAK FLOW (min)=120.00
MAXIMUM STORAGE USED (ha.m.)= 0.0227

CALIB			
STANDHYD (2021)	Area (ha)=	0.03	
ID= 1 DT= 5.0 min	Total Imp(%)=	65.00	Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.02	0.01

```
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      14.83        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      33.12        15.30
                over (min)        5.00        20.00
      Storage Coeff.  (min)=       1.26 (ii)   16.22 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.33         0.06
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.00         0.00          0.002 (iii)
      TIME TO PEAK    (hrs)=       2.25         2.67           2.50
      RUNOFF VOLUME    (mm)=      35.00        12.67          26.10
      TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
      RUNOFF COEFFICIENT   =       0.97         0.35           0.72

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2022)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.07         0.00
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      22.06        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      33.12        16.12
                over (min)        5.00         5.00
      Storage Coeff.  (min)=       1.60 (ii)    3.35 (ii)
      Unit Hyd. Tpeak (min)=       5.00         5.00
      Unit Hyd. peak  (cms)=       0.32         0.26
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50           2.50
      RUNOFF VOLUME    (mm)=      35.00        12.67          34.77
      TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
      RUNOFF COEFFICIENT   =       0.97         0.35           0.97

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
```

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

ADD HYD (20201)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2020):	0.94	0.004	4.50	26.60
	+ ID2= 2 (2021):	0.03	0.002	2.50	26.10
	ID = 3 (20201):	0.97	0.005	2.50	26.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (20201)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (20201):	0.97	0.005	2.50	26.59
	+ ID2= 2 (2022):	0.07	0.007	2.50	34.77
	ID = 1 (20201):	1.04	0.011	2.50	27.16

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0002)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2001):	1.30	0.012	2.50	28.23
	+ ID2= 2 (20201):	1.04	0.011	2.50	27.16
	ID = 3 (0002):	2.34	0.023	2.50	27.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

CALIB					
STANDHYD (2071)	Area (ha)= 0.07				
ID= 1 DT= 5.0 min	Total Imp(%)= 74.00	Dir. Conn.(%)= 74.00			

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.05	0.02
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00

```
      Length            (m)=      21.29        40.00
      Mannings n          =       0.013        0.250

      Max.Eff.Inten.(mm/hr)=      33.12        15.30
                over (min)         5.00        20.00
      Storage Coeff.  (min)=       1.57 (ii)   16.53 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.33         0.06
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.00         0.00         0.005 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.67          2.50
      RUNOFF VOLUME    (mm)=      35.00        12.67         29.15
      TOTAL RAINFALL   (mm)=      36.00        36.00         36.00
      RUNOFF COEFFICIENT   =       0.97         0.35          0.81

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0207)|   Area    (ha)=   0.56
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=  63.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.35         0.21
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      61.05        40.00
      Mannings n          =       0.013        0.250

      Max.Eff.Inten.(mm/hr)=      33.12        15.30
                over (min)         5.00        20.00
      Storage Coeff.  (min)=       2.96 (ii)   17.91 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.28         0.06
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.03         0.01         0.037 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.67          2.50
      RUNOFF VOLUME    (mm)=      35.00        12.67         26.72
      TOTAL RAINFALL   (mm)=      36.00        36.00         36.00
      RUNOFF COEFFICIENT   =       0.97         0.35          0.74

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
```

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

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2070)|     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    |   0.0060      0.0318

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0207)      0.559      0.037      2.50      26.72
   OUTFLOW: ID= 1 (  2070)      0.559      0.002      4.33      24.32

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.35
                  TIME SHIFT OF PEAK FLOW         (min)=110.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0125

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

--------------------
| ADD HYD  ( 20701)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2070):     0.56   0.002     4.33    24.32
      + ID2= 2 (  2071):     0.07   0.005     2.50    29.15
        ================================================
        ID = 3 ( 20701):     0.63   0.007     2.50    24.84

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.10        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        15.30
               over (min)         5.00        20.00
     Storage Coeff.  (min)=       1.90 (ii)   16.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.32         0.06
                                                        *TOTALS*
```

```
      PEAK FLOW       (cms)=       0.01          0.00          0.010 (iii)
      TIME TO PEAK    (hrs)=       2.50          2.67           2.50
      RUNOFF VOLUME    (mm)=      35.00         12.67          29.37
      TOTAL RAINFALL   (mm)=      36.00         36.00          36.00
      RUNOFF COEFFICIENT   =       0.97          0.35           0.82

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0208)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.03          0.01
      Dep. Storage     (mm)=       1.00          5.00
      Average Slope     (%)=       1.00          2.00
      Length            (m)=      16.93         40.00
      Mannings n             =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=      33.12         15.30
                over (min)        5.00         20.00
      Storage Coeff.  (min)=       1.37 (ii)    16.33 (ii)
      Unit Hyd. Tpeak (min)=       5.00         20.00
      Unit Hyd. peak  (cms)=       0.33          0.06
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.00          0.00          0.003 (iii)
      TIME TO PEAK    (hrs)=       2.50          2.67           2.50
      RUNOFF VOLUME    (mm)=      35.00         12.67          28.33
      TOTAL RAINFALL   (mm)=      36.00         36.00          36.00
      RUNOFF COEFFICIENT   =       0.97          0.35           0.79

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
```

```
      Surface Area     (ha)=       0.22         0.00
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      38.38        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      33.12        16.12
                over (min)        5.00         5.00
      Storage Coeff.  (min)=       2.24 (ii)    3.98 (ii)
      Unit Hyd. Tpeak (min)=       5.00         5.00
      Unit Hyd. peak  (cms)=       0.30         0.24
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.02         0.00         0.020 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=      35.00        12.67         34.77
      TOTAL RAINFALL   (mm)=      36.00        36.00         36.00
      RUNOFF COEFFICIENT   =       0.97         0.35          0.97

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.51
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.45         0.06
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      58.54        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      33.12        16.12
                over (min)        5.00        10.00
      Storage Coeff.  (min)=       2.88 (ii)    7.83 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.28         0.13
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.04         0.00         0.044 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=      35.00        12.67         32.31
      TOTAL RAINFALL   (mm)=      36.00        36.00         36.00
      RUNOFF COEFFICIENT   =       0.97         0.35          0.90

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0204):     0.13   0.010     2.50    29.37
      + ID2= 2 (  0205):     0.22   0.020     2.50    34.77
        ================================================
        ID = 3 (  2060):     0.35   0.030     2.50    32.80

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

--------------------
| ADD HYD  (  2060)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2060):     0.35   0.030     2.50    32.80
      + ID2= 2 (  0206):     0.51   0.044     2.50    32.31
        ================================================
        ID = 1 (  2060):     0.86   0.074     2.50    32.51

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2060):     0.86   0.074     2.50    32.51
      + ID2= 2 (  0208):     0.04   0.003     2.50    28.33
        ================================================
        ID = 3 (  2060):     0.90   0.077     2.50    32.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20601)|     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    |   0.0120      0.0571

                                AREA     QPEAK     TPEAK       R.V.
```

	(ha)	(cms)	(hrs)	(mm)
INFLOW : ID= 2 (2060)	0.905	0.077	2.50	32.31
OUTFLOW: ID= 1 (20601)	0.905	0.005	4.08	30.98

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.67
TIME SHIFT OF PEAK FLOW (min)= 95.00
MAXIMUM STORAGE USED (ha.m.)= 0.0244

CALIB STANDHYD (2061) | ID= 1 DT= 5.0 min	Area (ha)= 0.05 Total Imp(%)= 82.00 Dir. Conn.(%)= 82.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.04	0.01	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	17.32	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		33.12	15.30	
over (min)		5.00	20.00	
Storage Coeff. (min)=		1.39 (ii)	16.34 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.33	0.06	
				TOTALS
PEAK FLOW	(cms)=	0.00	0.00	0.004 (iii)
TIME TO PEAK	(hrs)=	2.50	2.67	2.50
RUNOFF VOLUME	(mm)=	35.00	12.67	29.96
TOTAL RAINFALL	(mm)=	36.00	36.00	36.00
RUNOFF COEFFICIENT	=	0.97	0.35	0.83

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (20602) | 1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (20601):	0.90	0.005	4.08	30.98
+ ID2= 2 (2061):	0.05	0.004	2.50	29.96
ID = 3 (20602):	0.95	0.007	2.50	30.93

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     2.34   0.023     2.50    27.75
      + ID2= 2 ( 20602):     0.95   0.007     2.50    30.93
        ================================================
        ID = 3 (  0003):     3.29   0.031     2.50    28.67

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

--------------------
| ADD HYD  (  0003)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0003):     3.29   0.031     2.50    28.67
      + ID2= 2 ( 20701):     0.63   0.007     2.50    24.84
        ================================================
        ID = 1 (  0003):     3.92   0.037     2.50    28.06

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
---------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2201)|   Area    (ha)=   0.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.19         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      35.50        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        16.12
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       2.14 (ii)    3.88 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.31         0.25
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.017 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          34.77
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.35           0.97
```

```
        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0006)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0003):     3.92   0.037     2.50    28.06
      + ID2= 2 (  2201):     0.19   0.017     2.50    34.77
        ================================================
        ID = 3 (  0006):     4.11   0.054     2.50    28.37

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  2141)|   Area    (ha)=   0.67   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

     Unit Hyd Qpeak  (cms)=   0.128

     PEAK FLOW       (cms)=   0.023 (i)
     TIME TO PEAK    (hrs)=   2.583
     RUNOFF VOLUME    (mm)=  12.649
     TOTAL RAINFALL   (mm)=  36.000
     RUNOFF COEFFICIENT   =   0.351

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2142)|   Area    (ha)=   0.36
|ID= 1 DT= 5.0 min |   Total Imp(%)=  20.00   Dir. Conn.(%)=   5.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.29
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      49.14        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        20.67
               over (min)        5.00        20.00
```

```
      Storage Coeff.  (min)=       2.60 (ii)   15.85 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.29         0.07
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.00         0.01          0.012 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.67           2.67
      RUNOFF VOLUME    (mm)=      35.00        14.53          15.53
      TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
      RUNOFF COEFFICIENT   =       0.97         0.40           0.43

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0214)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2141):     0.67   0.023     2.58    12.65
      + ID2= 2 (  2142):     0.36   0.012     2.67    15.53
        ================================================
        ID = 3 (  0214):     1.03   0.035     2.58    13.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0210)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.13         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.44        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        16.12
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.95 (ii)    6.08 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.31         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.012 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.50           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          33.20
```

```
      TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
      RUNOFF COEFFICIENT   =       0.97         0.35           0.92

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0211)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      26.58        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        15.30
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       1.79 (ii)   16.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.32         0.06
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.67           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          29.37
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.35           0.82

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.18
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  32.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.12
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
```

```
      Length            (m)=      34.74        40.00
      Mannings n          =       0.013        0.250

      Max.Eff.Inten.(mm/hr)=      33.12        15.30
                over (min)         5.00        20.00
      Storage Coeff.  (min)=       2.11 (ii)   17.06 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.31         0.06
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01         0.00         0.008 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.67          2.50
      RUNOFF VOLUME    (mm)=      35.00        12.67         19.76
      TOTAL RAINFALL   (mm)=      36.00        36.00         36.00
      RUNOFF COEFFICIENT   =       0.97         0.35          0.55

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0213)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.54         0.14
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      67.18        40.00
      Mannings n          =       0.013        0.250

      Max.Eff.Inten.(mm/hr)=      33.12        15.30
                over (min)         5.00        20.00
      Storage Coeff.  (min)=       3.13 (ii)   18.09 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.27         0.06
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.05         0.00         0.053 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.67          2.50
      RUNOFF VOLUME    (mm)=      35.00        12.67         30.52
      TOTAL RAINFALL   (mm)=      36.00        36.00         36.00
      RUNOFF COEFFICIENT   =       0.97         0.35          0.85

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
```

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.04        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        16.12
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.23 (ii)    6.36 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.30         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.019 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          33.20
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.35           0.92

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.18   0.008     2.50    19.76
      + ID2= 2 (  0210):     0.14   0.012     2.50    33.20
        ================================================
        ID = 3 (  2130):     0.32   0.020     2.50    25.60

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
```

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2130):     0.32   0.020     2.50    25.60
      + ID2= 2 (  0211):     0.11   0.008     2.50    29.37
        ================================================
        ID = 1 (  2130):     0.43   0.028     2.50    26.54

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2130):     0.43   0.028     2.50    26.54
      + ID2= 2 (  0212):     0.22   0.019     2.50    33.20
        ================================================
        ID = 3 (  2130):     0.64   0.047     2.50    28.79

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2130):     0.64   0.047     2.50    28.79
      + ID2= 2 (  0213):     0.68   0.053     2.50    30.52
        ================================================
        ID = 1 (  2130):     1.32   0.100     2.50    29.68

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 21301)|     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   |   0.0160      0.0793

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2130)      1.320      0.100      2.50      29.68
   OUTFLOW: ID= 1 ( 21301)      1.320      0.007      4.08      28.73

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.57
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0327

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

```
| CALIB             |
| STANDHYD (  2131)|   Area    (ha)=   0.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------

                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.69        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      33.12        15.30
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       1.84 (ii)   16.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.32         0.06
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.67           2.50
     RUNOFF VOLUME    (mm)=      35.00        12.67          28.70
     TOTAL RAINFALL   (mm)=      36.00        36.00          36.00
     RUNOFF COEFFICIENT   =       0.97         0.35           0.80

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 21302)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 21301):     1.32   0.007     4.08    28.73
      + ID2= 2 (  2131):     0.12   0.008     2.50    28.70
        ================================================
        ID = 3 ( 21302):     1.43   0.013     2.50    28.72

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

--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     4.11   0.054     2.50    28.37
      + ID2= 2 ( 21302):     1.43   0.013     2.50    28.72
        ================================================
```

```
        ID = 3 (  0005):     5.55   0.067     2.50    28.46

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

--------------------
| ADD HYD  (  0005)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0005):     5.55   0.067     2.50    28.46
      + ID2= 2 (  0214):     1.03   0.035     2.58    13.66
        ================================================
        ID = 1 (  0005):     6.58   0.101     2.50    26.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
---------------------------------------------------------------------------
===========================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

  Output  filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\e7e2f
9a6-4d96-41e8-a4b2-bacf6decdaab\scena
  Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\e7e2f
9a6-4d96-41e8-a4b2-bacf6decdaab\scena


DATE: 10-27-2021                          TIME: 05:35:39

USER:
```

COMMENTS: _____

```
--------------------------------------------------------------------------------
-----------------------
  ***********************************************
  ** SIMULATION : Run 02                       **
  ***********************************************


--------------------
|    READ STORM    |    Filename: C:\Users\jliang\AppD
|                  |              ata\Local\Temp\
|                  |              907c1cff-ccb1-41c0-9867-a9890799f0d3\ca9c443b
| Ptotal= 47.81 mm |    Comments: 5-Year 6-hour AES Storm
--------------------
                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.25    0.96 |  1.75   16.25 |  3.25    6.69 |  4.75    0.96
                0.50    0.96 |  2.00   16.25 |  3.50    6.69 |  5.00    0.96
                0.75    0.96 |  2.25   43.98 |  3.75    3.82 |  5.25    0.96
                1.00    0.96 |  2.50   43.98 |  4.00    3.82 |  5.50    0.96
                1.25    5.74 |  2.75   12.43 |  4.25    1.91 |  5.75    0.96
                1.50    5.74 |  3.00   12.43 |  4.50    1.91 |  6.00    0.96

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

--------------------
| CALIB            |
| NASHYD   (  2002)|   Area    (ha)=   0.00   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

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


                          ---- TRANSFORMED HYETOGRAPH ----
                 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.083    0.96 | 1.583   16.25 | 3.083    6.69 |  4.58    0.96
                0.167    0.96 | 1.667   16.25 | 3.167    6.69 |  4.67    0.96
                0.250    0.96 | 1.750   16.25 | 3.250    6.69 |  4.75    0.96
                0.333    0.96 | 1.833   16.25 | 3.333    6.69 |  4.83    0.96
                0.417    0.96 | 1.917   16.25 | 3.417    6.69 |  4.92    0.96
                0.500    0.96 | 2.000   16.25 | 3.500    6.69 |  5.00    0.96
                0.583    0.96 | 2.083   43.98 | 3.583    3.82 |  5.08    0.96
                0.667    0.96 | 2.167   43.98 | 3.667    3.82 |  5.17    0.96
```

0.750	0.96	2.250	43.98	3.750	3.82	5.25	0.96
0.833	0.96	2.333	43.98	3.833	3.82	5.33	0.96
0.917	0.96	2.417	43.98	3.917	3.82	5.42	0.96
1.000	0.96	2.500	43.98	4.000	3.82	5.50	0.96
1.083	5.74	2.583	12.43	4.083	1.91	5.58	0.96
1.167	5.74	2.667	12.43	4.167	1.91	5.67	0.96
1.250	5.74	2.750	12.43	4.250	1.91	5.75	0.96
1.333	5.74	2.833	12.43	4.333	1.91	5.83	0.96
1.417	5.74	2.917	12.43	4.417	1.91	5.92	0.96
1.500	5.74	3.000	12.43	4.500	1.91	6.00	0.96

Unit Hyd Qpeak (cms)= 0.001

PEAK FLOW (cms)= 0.000 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 19.476
TOTAL RAINFALL (mm)= 47.810
RUNOFF COEFFICIENT = 0.407

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

CALIB	
STANDHYD (0201)	Area (ha)= 0.73
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.58	0.15	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	69.71	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		43.98	24.90	
over (min)		5.00	20.00	
Storage Coeff. (min)=		2.86 (ii)	15.17 (ii)	
Unit Hyd. Tpeak (min)=		5.00	20.00	
Unit Hyd. peak (cms)=		0.28	0.07	
			TOTALS	
PEAK FLOW	(cms)=	0.07	0.01	0.078 (iii)
TIME TO PEAK	(hrs)=	2.50	2.67	2.50
RUNOFF VOLUME	(mm)=	46.81	20.91	41.62
TOTAL RAINFALL	(mm)=	47.81	47.81	47.81
RUNOFF COEFFICIENT	=	0.98	0.44	0.87

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   0.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.31         0.15
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      55.14        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.48 (ii)   14.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.01          0.045 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91          38.24
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.98         0.44           0.80

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2000)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0200):     0.46   0.045     2.50    38.24
      + ID2= 2 (  0201):     0.73   0.078     2.50    41.62
        ================================================
        ID = 3 (  2000):     1.18   0.122     2.50    40.32

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20011)|     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   |   0.0140      0.0709

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2000)          1.185      0.122      2.50      40.32
   OUTFLOW: ID= 1 ( 20011)          1.185      0.008      4.08      39.24

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.46
                    TIME SHIFT OF PEAK FLOW         (min)= 95.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0400

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2011)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  73.00   Dir. Conn.(%)=  73.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.66        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.46 (ii)   13.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91          39.76
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.98         0.44           0.83

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2012)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
```

```
      Surface Area     (ha)=       0.02         0.01
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      14.61        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      43.98        24.90
                over (min)        5.00        15.00
      Storage Coeff.  (min)=       1.12 (ii)   13.43 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.34         0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.00         0.00          0.003 (iii)
      TIME TO PEAK    (hrs)=       2.25         2.58           2.50
      RUNOFF VOLUME    (mm)=      46.81        20.91          36.38
      TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
      RUNOFF COEFFICIENT   =       0.98         0.44           0.76

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20011):     1.18   0.008     4.08    39.24
      + ID2= 2 (  2002):     0.00   0.000     2.50    19.48
        ================================================
        ID = 3 (  2001):     1.19   0.008     4.08    39.15

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

--------------------
| ADD HYD  (  2001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2001):     1.19   0.008     4.08    39.15
      + ID2= 2 (  2011):     0.08   0.008     2.50    39.76
        ================================================
        ID = 1 (  2001):     1.27   0.014     2.50    39.19

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

```
--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.27   0.014     2.50    39.19
      + ID2= 2 (  2012):     0.03   0.003     2.50    36.38
        ====================================================
        ID = 3 (  2001):     1.30   0.017     2.50    39.12

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   0.94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66         0.28
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.12        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)        5.00        20.00
     Storage Coeff.  (min)=       3.08 (ii)   15.39 (ii)
     Unit Hyd. Tpeak (min)=       5.00        20.00
     Unit Hyd. peak  (cms)=       0.27         0.07
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.08         0.01          0.092 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.67           2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91          39.03
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.98         0.44           0.82

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2020)|     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   |   0.0090      0.0561

                                AREA     QPEAK     TPEAK       R.V.
```

```
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0202)      0.939      0.092      2.50      39.03
   OUTFLOW: ID= 1 (  2020)      0.939      0.005      4.42      37.35

                   PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.44
                   TIME SHIFT OF PEAK FLOW         (min)=115.00
                   MAXIMUM  STORAGE   USED       (ha.m.)=  0.0313

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2021)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.83        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.13 (ii)   13.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.003 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.58           2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91          36.47
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.98         0.44           0.76

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2022)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.06        40.00
```

```
      Mannings n            =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      43.98        25.95
                over (min)        5.00         5.00
      Storage Coeff.  (min)=      1.43 (ii)    2.99 (ii)
      Unit Hyd. Tpeak (min)=      5.00         5.00
      Unit Hyd. peak  (cms)=      0.33         0.28
                                                          *TOTALS*
      PEAK FLOW       (cms)=      0.01         0.00          0.009 (iii)
      TIME TO PEAK    (hrs)=      2.42         2.50           2.50
      RUNOFF VOLUME    (mm)=     46.81        20.91          46.55
      TOTAL RAINFALL   (mm)=     47.81        47.81          47.81
      RUNOFF COEFFICIENT   =      0.98         0.44           0.97

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 20201)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2020):     0.94   0.005     4.42    37.35
      + ID2= 2 (  2021):     0.03   0.003     2.50    36.47
        ================================================
        ID = 3 ( 20201):     0.97   0.006     2.50    37.32

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

--------------------
| ADD HYD  ( 20201)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 ( 20201):     0.97   0.006     2.50    37.32
      + ID2= 2 (  2022):     0.07   0.009     2.50    46.55
        ================================================
        ID = 1 ( 20201):     1.04   0.015     2.50    37.96

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

--------------------
| ADD HYD  (  0002)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
```

```
          ID1= 1 (  2001):     1.30   0.017     2.50    39.12
        + ID2= 2 ( 20201):     1.04   0.015     2.50    37.96
          ================================================
          ID = 3 (  0002):     2.34   0.032     2.50    38.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2071)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=  74.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.05         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      21.29        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.40 (ii)   13.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00        0.007 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58         2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91        40.02
     TOTAL RAINFALL   (mm)=      47.81        47.81        47.81
     RUNOFF COEFFICIENT   =       0.98         0.44         0.84

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=   0.56
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=  63.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.35         0.21
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      61.05        40.00
     Mannings n             =    0.013        0.250
```

```
      Max.Eff.Inten.(mm/hr)=      43.98        24.90
                 over (min)        5.00        15.00
      Storage Coeff.  (min)=       2.64 (ii)   14.95 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.29         0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.04         0.01          0.053 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.58           2.50
      RUNOFF VOLUME    (mm)=      46.81        20.91          37.21
      TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
      RUNOFF COEFFICIENT   =       0.98         0.44           0.78

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2070)|     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    |   0.0060      0.0318

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0207)      0.559      0.053      2.50       37.21
   OUTFLOW: ID= 1 (  2070)      0.559      0.003      4.25       34.81

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.21
                  TIME SHIFT OF PEAK FLOW         (min)=105.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0174

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

--------------------
| ADD HYD  ( 20701)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2070):     0.56   0.003     4.25    34.81
      + ID2= 2 (  2071):     0.07   0.007     2.50    40.02
        ================================================
        ID = 3 ( 20701):     0.63   0.009     2.50    35.37

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

```
| STANDHYD (  0204)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.10        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.69 (ii)   14.00 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.013 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58          2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91         40.28
     TOTAL RAINFALL   (mm)=      47.81        47.81         47.81
     RUNOFF COEFFICIENT   =       0.98         0.44          0.84

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0208)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.93        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.22 (ii)   13.53 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00         0.004 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58          2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91         40.29
```

```
      TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
      RUNOFF COEFFICIENT   =       0.98         0.44           0.84

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.22         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.38        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        25.95
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       2.00 (ii)    3.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.31         0.26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.027 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91          46.54
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.98         0.44           0.97

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.51
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.45         0.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
```

```
      Length            (m)=      58.54        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      43.98        25.95
                over (min)         5.00        10.00
      Storage Coeff.  (min)=       2.57 (ii)    6.99 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.29         0.14
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.06         0.00          0.059 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50           2.50
      RUNOFF VOLUME    (mm)=      46.81        20.91          43.70
      TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
      RUNOFF COEFFICIENT   =       0.98         0.44           0.91

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0204):     0.13   0.013     2.50    40.28
      + ID2= 2 (  0205):     0.22   0.027     2.50    46.54
        ==================================================
        ID = 3 (  2060):     0.35   0.040     2.50    44.26

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

--------------------
| ADD HYD  (  2060)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2060):     0.35   0.040     2.50    44.26
      + ID2= 2 (  0206):     0.51   0.059     2.50    43.70
        ==================================================
        ID = 1 (  2060):     0.86   0.099     2.50    43.92

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
```

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2060):     0.86   0.099     2.50    43.92
      + ID2= 2 (  0208):     0.04   0.004     2.50    40.29
        ================================================
        ID = 3 (  2060):     0.90   0.104     2.50    43.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20601)|     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   |   0.0120      0.0571

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2060)      0.905      0.104      2.50       43.75
   OUTFLOW: ID= 1 ( 20601)      0.905      0.007      4.08       42.42

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.68
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0330

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2061)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.04         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.32        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.24 (ii)   13.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91          42.11
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.98         0.44           0.88

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
              CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  ( 20602)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20601):     0.90   0.007     4.08    42.42
      + ID2= 2 (  2061):     0.05   0.005     2.50    42.11
        ================================================
        ID = 3 ( 20602):     0.95   0.010     2.50    42.40

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     2.34   0.032     2.50    38.60
      + ID2= 2 ( 20602):     0.95   0.010     2.50    42.40
        ================================================
        ID = 3 (  0003):     3.29   0.042     2.50    39.70

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

--------------------
| ADD HYD  (  0003)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0003):     3.29   0.042     2.50    39.70
      + ID2= 2 ( 20701):     0.63   0.009     2.50    35.37
        ================================================
        ID = 1 (  0003):     3.92   0.051     2.50    39.01

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2201)|   Area    (ha)=   0.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.19          0.00
     Dep. Storage     (mm)=       1.00          5.00
```

```
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      35.50        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      43.98        25.95
                over (min)        5.00         5.00
      Storage Coeff.  (min)=       1.91 (ii)    3.47 (ii)
      Unit Hyd. Tpeak (min)=       5.00         5.00
      Unit Hyd. peak  (cms)=       0.32         0.26
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.02         0.00          0.023 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50           2.50
      RUNOFF VOLUME    (mm)=      46.81        20.91          46.54
      TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
      RUNOFF COEFFICIENT   =       0.98         0.44           0.97

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0003):     3.92   0.051     2.50    39.01
      + ID2= 2 (  2201):     0.19   0.023     2.50    46.54
        ================================================
        ID = 3 (  0006):     4.11   0.074     2.50    39.35

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  2141)|   Area    (ha)=   0.67   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

      Unit Hyd Qpeak  (cms)=   0.128

      PEAK FLOW       (cms)=   0.038 (i)
      TIME TO PEAK    (hrs)=   2.500
      RUNOFF VOLUME    (mm)=  20.872
      TOTAL RAINFALL   (mm)=  47.810
      RUNOFF COEFFICIENT   =   0.437

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

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2142)|   Area    (ha)=   0.36
|ID= 1 DT= 5.0 min |   Total Imp(%)=  20.00   Dir. Conn.(%)=   5.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.29
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      49.14        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        32.70
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.32 (ii)   13.35 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.30         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.02          0.022 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      46.81        23.37          24.52
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.98         0.49           0.51

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0214)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2141):     0.67   0.038     2.50    20.87
      + ID2= 2 (  2142):     0.36   0.022     2.50    24.52
        ================================================
        ID = 3 (  0214):     1.03   0.060     2.50    22.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0210)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
```

```
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.13          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      30.44         40.00
     Mannings n             =     0.013         0.250

     Max.Eff.Inten.(mm/hr)=      43.98         25.95
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       1.74 (ii)     5.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.32          0.16
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.02          0.00          0.016 (iii)
     TIME TO PEAK    (hrs)=       2.50          2.50           2.50
     RUNOFF VOLUME    (mm)=      46.81         20.91          44.73
     TOTAL RAINFALL   (mm)=      47.81         47.81          47.81
     RUNOFF COEFFICIENT   =       0.98          0.44           0.94

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0211)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08          0.03
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      26.58         40.00
     Mannings n             =     0.013         0.250

     Max.Eff.Inten.(mm/hr)=      43.98         24.90
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       1.60 (ii)    13.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.32          0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.011 (iii)
     TIME TO PEAK    (hrs)=       2.50          2.58           2.50
     RUNOFF VOLUME    (mm)=      46.81         20.91          40.28
     TOTAL RAINFALL   (mm)=      47.81         47.81          47.81
     RUNOFF COEFFICIENT   =       0.98          0.44           0.84
```

```
        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.18
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  32.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.12
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      34.74        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.88 (ii)   14.19 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01         0.013 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58          2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91         29.15
     TOTAL RAINFALL   (mm)=      47.81        47.81         47.81
     RUNOFF COEFFICIENT   =       0.98         0.44          0.61

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0213)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.54         0.14
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      67.18        40.00
     Mannings n             =    0.013        0.250
```

```
      Max.Eff.Inten.(mm/hr)=      43.98        24.90
                 over (min)        5.00        20.00
      Storage Coeff.  (min)=       2.80 (ii)   15.10 (ii)
      Unit Hyd. Tpeak (min)=       5.00        20.00
      Unit Hyd. peak  (cms)=       0.28         0.07
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.07         0.01         0.072 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.67          2.50
      RUNOFF VOLUME    (mm)=      46.81        20.91         41.62
      TOTAL RAINFALL   (mm)=      47.81        47.81         47.81
      RUNOFF COEFFICIENT   =       0.98         0.44          0.87

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.20         0.02
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      38.04        40.00
      Mannings n             =     0.013        0.250

      Max.Eff.Inten.(mm/hr)=      43.98        25.95
                 over (min)        5.00        10.00
      Storage Coeff.  (min)=       1.99 (ii)    5.68 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.31         0.15
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.02         0.00         0.026 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=      46.81        20.91         44.73
      TOTAL RAINFALL   (mm)=      47.81        47.81         47.81
      RUNOFF COEFFICIENT   =       0.98         0.44          0.94

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

```
--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.18   0.013     2.50    29.15
      + ID2= 2 (  0210):     0.14   0.016     2.50    44.73
        ================================================
        ID = 3 (  2130):     0.32   0.030     2.50    35.92

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2130):     0.32   0.030     2.50    35.92
      + ID2= 2 (  0211):     0.11   0.011     2.50    40.28
        ================================================
        ID = 1 (  2130):     0.43   0.041     2.50    37.00

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2130):     0.43   0.041     2.50    37.00
      + ID2= 2 (  0212):     0.22   0.026     2.50    44.73
        ================================================
        ID = 3 (  2130):     0.64   0.066     2.50    39.61

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2130):     0.64   0.066     2.50    39.61
      + ID2= 2 (  0213):     0.68   0.072     2.50    41.62
        ================================================
        ID = 1 (  2130):     1.32   0.138     2.50    40.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 21301)|     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    |   0.0160      0.0793

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2130)      1.320      0.138      2.50      40.64
   OUTFLOW: ID= 1 ( 21301)      1.320      0.009      4.08      39.69

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.54
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0448

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2131)|   Area    (ha)=   0.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.69        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      43.98        24.90
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.64 (ii)   13.95 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.012 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      46.81        20.91          39.50
     TOTAL RAINFALL   (mm)=      47.81        47.81          47.81
     RUNOFF COEFFICIENT   =       0.98         0.44           0.83

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 21302)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
```

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 21301):     1.32   0.009     4.08    39.69
      + ID2= 2 (  2131):     0.12   0.012     2.50    39.50
        ================================================
        ID = 3 ( 21302):     1.43   0.018     2.50    39.67

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

--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     4.11   0.074     2.50    39.35
      + ID2= 2 ( 21302):     1.43   0.018     2.50    39.67
        ================================================
        ID = 3 (  0005):     5.55   0.092     2.50    39.44

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

--------------------
| ADD HYD  (  0005)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0005):     5.55   0.092     2.50    39.44
      + ID2= 2 (  0214):     1.03   0.060     2.50    22.15
        ================================================
        ID = 1 (  0005):     6.58   0.152     2.50    36.72

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

 FINISH
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       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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
```

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

Input filename: C:\Program Files (x86)\Visual OTTHYMO 6.0\VO2\voin.dat

Output filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\47ff4aa2-0856-460f-8a24-166b938b65a3\scena
Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\47ff4aa2-0856-460f-8a24-166b938b65a3\scena

DATE: 10-27-2021 TIME: 05:35:38

USER:

COMMENTS: _____

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

READ STORM	Filename: C:\Users\jliang\AppData\Local\Temp\907c1cff-ccb1-41c0-9867-a9890799f0d3\8b3892d6
Ptotal= 55.69 mm	Comments: 10-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.11	1.75	18.94	3.25	7.80	4.75	1.11
0.50	1.11	2.00	18.94	3.50	7.80	5.00	1.11
0.75	1.11	2.25	51.24	3.75	4.46	5.25	1.11
1.00	1.11	2.50	51.24	4.00	4.46	5.50	1.11
1.25	6.68	2.75	14.48	4.25	2.23	5.75	1.11
1.50	6.68	3.00	14.48	4.50	2.23	6.00	1.11

```
--------------------
| CALIB              |
| NASHYD   (  2002)|   Area     (ha)=   0.00   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia       (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.11	1.583	18.94	3.083	7.80	4.58	1.11
0.167	1.11	1.667	18.94	3.167	7.80	4.67	1.11
0.250	1.11	1.750	18.94	3.250	7.80	4.75	1.11
0.333	1.11	1.833	18.94	3.333	7.80	4.83	1.11
0.417	1.11	1.917	18.94	3.417	7.80	4.92	1.11
0.500	1.11	2.000	18.94	3.500	7.80	5.00	1.11
0.583	1.11	2.083	51.24	3.583	4.46	5.08	1.11
0.667	1.11	2.167	51.24	3.667	4.46	5.17	1.11
0.750	1.11	2.250	51.24	3.750	4.46	5.25	1.11
0.833	1.11	2.333	51.24	3.833	4.46	5.33	1.11
0.917	1.11	2.417	51.24	3.917	4.46	5.42	1.11
1.000	1.11	2.500	51.24	4.000	4.46	5.50	1.11
1.083	6.68	2.583	14.48	4.083	2.23	5.58	1.11
1.167	6.68	2.667	14.48	4.167	2.23	5.67	1.11
1.250	6.68	2.750	14.48	4.250	2.23	5.75	1.11
1.333	6.68	2.833	14.48	4.333	2.23	5.83	1.11
1.417	6.68	2.917	14.48	4.417	2.23	5.92	1.11
1.500	6.68	3.000	14.48	4.500	2.23	6.00	1.11

```
     Unit Hyd Qpeak  (cms)=   0.001

     PEAK FLOW       (cms)=   0.000 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  26.005
     TOTAL RAINFALL   (mm)=  55.690
     RUNOFF COEFFICIENT   =   0.467

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

------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0201)|   Area     (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58          0.15
```

```
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      69.71        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      51.24        31.75
                over (min)        5.00        15.00
      Storage Coeff.  (min)=       2.69 (ii)   13.86 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.29         0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.08         0.01         0.092 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.58          2.50
      RUNOFF VOLUME    (mm)=      54.69        26.90         49.12
      TOTAL RAINFALL   (mm)=      55.69        55.69         55.69
      RUNOFF COEFFICIENT   =       0.98         0.48          0.88

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   0.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.31         0.15
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      55.14        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      51.24        31.75
                over (min)        5.00        15.00
      Storage Coeff.  (min)=       2.34 (ii)   13.50 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.30         0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.04         0.01         0.053 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.58          2.50
      RUNOFF VOLUME    (mm)=      54.69        26.90         45.50
      TOTAL RAINFALL   (mm)=      55.69        55.69         55.69
      RUNOFF COEFFICIENT   =       0.98         0.48          0.82

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
```

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

ADD HYD (2000)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0200):		0.46	0.053	2.50	45.50
+ ID2= 2 (0201):		0.73	0.092	2.50	49.12
ID = 3 (2000):		1.18	0.146	2.50	47.73

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR(20011)	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	0.0140	0.0709

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (2000)	1.185	0.146	2.50	47.73
OUTFLOW: ID= 1 (20011)	1.185	0.009	4.08	46.65

PEAK FLOW REDUCTION [Qout/Qin](%)= 6.41
TIME SHIFT OF PEAK FLOW (min)= 95.00
MAXIMUM STORAGE USED (ha.m.)= 0.0473

CALIB	STANDHYD (2011)	ID= 1 DT= 5.0 min	Area (ha)= 0.08	Total Imp(%)= 73.00	Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.06	0.02
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	22.66	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		51.24	31.75
over (min)		5.00	15.00
Storage Coeff. (min)=		1.37 (ii)	12.54 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00

```
      Unit Hyd. peak  (cms)=       0.33         0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01         0.00          0.009 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.58           2.50
      RUNOFF VOLUME    (mm)=      54.69        26.90          47.12
      TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
      RUNOFF COEFFICIENT   =       0.98         0.48           0.85

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2012)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.61        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.05 (ii)   12.22 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.58           2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90          43.67
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.98         0.48           0.78

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |         AREA     QPEAK     TPEAK      R.V.
```

```
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20011):     1.18   0.009     4.08    46.65
      + ID2= 2 (  2002):     0.00   0.000     2.50    26.00
        ================================================
        ID = 3 (  2001):     1.19   0.009     4.08    46.56

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

--------------------
| ADD HYD  (  2001)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2001):     1.19   0.009     4.08    46.56
      + ID2= 2 (  2011):     0.08   0.009     2.50    47.12
        ================================================
        ID = 1 (  2001):     1.27   0.016     2.50    46.59

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.27   0.016     2.50    46.59
      + ID2= 2 (  2012):     0.03   0.004     2.50    43.67
        ================================================
        ID = 3 (  2001):     1.30   0.020     2.50    46.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   0.94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66         0.28
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.12        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.90 (ii)   14.07 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.28         0.08
                                                        *TOTALS*
```

```
      PEAK FLOW       (cms)=       0.09         0.02          0.112 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.58           2.50
      RUNOFF VOLUME    (mm)=      54.69        26.90          46.34
      TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
      RUNOFF COEFFICIENT   =       0.98         0.48           0.83

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2020)|     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    |   0.0090      0.0561

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0202)      0.939      0.112      2.50       46.34
   OUTFLOW: ID= 1 (  2020)      0.939      0.006      4.33       44.66

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.35
                  TIME SHIFT OF PEAK FLOW         (min)=110.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0372

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2021)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.83        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.06 (ii)   12.23 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.004 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.58           2.50
```

```
      RUNOFF VOLUME    (mm)=      54.69        26.90          43.76
      TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
      RUNOFF COEFFICIENT   =       0.98         0.48           0.79

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2022)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.06        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        32.92
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.35 (ii)    2.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.28
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.010 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90          54.41
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.98         0.48           0.98

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 20201)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2020):     0.94   0.006     4.33    44.66
      + ID2= 2 (  2021):     0.03   0.004     2.50    43.76
        ================================================
```

```
         ID = 3 ( 20201):     0.97   0.008     2.50    44.63

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

--------------------
| ADD HYD  ( 20201)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 3 ( 20201):     0.97   0.008     2.50    44.63
       + ID2= 2 (  2022):     0.07   0.010     2.50    54.41
         ================================================
         ID = 1 ( 20201):     1.04   0.018     2.50    45.32

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

--------------------
| ADD HYD  (  0002)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (  2001):     1.30   0.020     2.50    46.52
       + ID2= 2 ( 20201):     1.04   0.018     2.50    45.32
         ================================================
         ID = 3 (  0002):     2.34   0.038     2.50    45.98

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
---------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2071)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=  74.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.05         0.02
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      21.29        40.00
      Mannings n             =    0.013        0.250

      Max.Eff.Inten.(mm/hr)=      51.24        31.75
                over (min)        5.00        15.00
      Storage Coeff.  (min)=       1.32 (ii)   12.49 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.33         0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.58           2.50
      RUNOFF VOLUME    (mm)=      54.69        26.90          47.40
      TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
```

```
     RUNOFF COEFFICIENT   =       0.98         0.48          0.85

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=   0.56
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=  63.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.35         0.21
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      61.05        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.48 (ii)   13.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.05         0.01         0.064 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58          2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90         44.39
     TOTAL RAINFALL   (mm)=      55.69        55.69         55.69
     RUNOFF COEFFICIENT   =       0.98         0.48          0.80

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2070)|     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   |   0.0060      0.0318

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0207)      0.559      0.064      2.50       44.39
```

```
    OUTFLOW: ID= 1 (  2070)      0.559      0.004      4.25      41.98

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.18
                    TIME SHIFT OF PEAK FLOW         (min)=105.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0208

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

--------------------
| ADD HYD  ( 20701)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2070):     0.56   0.004     4.25    41.98
      + ID2= 2 (  2071):     0.07   0.008     2.50    47.40
        ================================================
        ID = 3 ( 20701):     0.63   0.011     2.50    42.57

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.10        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.59 (ii)   12.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.016 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90          47.68
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.98         0.48           0.86

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

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--------------------
| CALIB            |
| STANDHYD (  0208)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.93        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.15 (ii)   12.32 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00         0.005 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.58          2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90         47.69
     TOTAL RAINFALL   (mm)=      55.69        55.69         55.69
     RUNOFF COEFFICIENT   =       0.98         0.48          0.86

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.22         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.38        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        32.92
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.88 (ii)    3.35 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00         0.031 (iii)
```

```
      TIME TO PEAK    (hrs)=       2.42          2.50          2.50
      RUNOFF VOLUME    (mm)=      54.69         26.90         54.40
      TOTAL RAINFALL   (mm)=      55.69         55.69         55.69
      RUNOFF COEFFICIENT   =       0.98          0.48          0.98

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.51
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.45          0.06
      Dep. Storage     (mm)=       1.00          5.00
      Average Slope     (%)=       1.00          2.00
      Length            (m)=      58.54         40.00
      Mannings n             =    0.013         0.250

      Max.Eff.Inten.(mm/hr)=      51.24         32.92
                 over (min)        5.00         10.00
      Storage Coeff.  (min)=       2.42 (ii)     6.58 (ii)
      Unit Hyd. Tpeak (min)=       5.00         10.00
      Unit Hyd. peak  (cms)=       0.30          0.14
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.06          0.01          0.070 (iii)
      TIME TO PEAK    (hrs)=       2.50          2.50           2.50
      RUNOFF VOLUME    (mm)=      54.69         26.90          51.35
      TOTAL RAINFALL   (mm)=      55.69         55.69          55.69
      RUNOFF COEFFICIENT   =       0.98          0.48           0.92

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0204):     0.13    0.016     2.50    47.68
      + ID2= 2 (  0205):     0.22    0.031     2.50    54.40
```

```
        ================================================
        ID = 3 (  2060):     0.35   0.047     2.50    51.95

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

--------------------
| ADD HYD  (  2060)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2060):     0.35   0.047     2.50    51.95
      + ID2= 2 (  0206):     0.51   0.070     2.50    51.35
        ================================================
        ID = 1 (  2060):     0.86   0.117     2.50    51.59

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2060):     0.86   0.117     2.50    51.59
      + ID2= 2 (  0208):     0.04   0.005     2.50    47.69
        ================================================
        ID = 3 (  2060):     0.90   0.122     2.50    51.41

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20601)|     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    |   0.0120      0.0571

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2060)      0.905      0.122      2.50      51.41
   OUTFLOW: ID= 1 ( 20601)      0.905      0.008      4.08      50.07

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.69
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0388

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2061)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
```

```
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.04          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      17.32         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      51.24         31.75
               over (min)         5.00         15.00
     Storage Coeff.  (min)=       1.17 (ii)    12.33 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.34          0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       2.42          2.58           2.50
     RUNOFF VOLUME    (mm)=      54.69         26.90          49.65
     TOTAL RAINFALL   (mm)=      55.69         55.69          55.69
     RUNOFF COEFFICIENT   =       0.98          0.48           0.89

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 20602)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20601):     0.90   0.008     4.08    50.07
      + ID2= 2 (  2061):     0.05   0.006     2.50    49.65
        ================================================
        ID = 3 ( 20602):     0.95   0.012     2.50    50.05

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     2.34   0.038     2.50    45.98
      + ID2= 2 ( 20602):     0.95   0.012     2.50    50.05
        ================================================
        ID = 3 (  0003):     3.29   0.050     2.50    47.16

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

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--------------------
| ADD HYD  (  0003)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 3 (  0003):     3.29   0.050     2.50    47.16
     + ID2= 2 ( 20701):     0.63   0.011     2.50    42.57
       ================================================
       ID = 1 (  0003):     3.92   0.061     2.50    46.42

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2201)|   Area    (ha)=   0.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
    Surface Area     (ha)=       0.19         0.00
    Dep. Storage     (mm)=       1.00         5.00
    Average Slope     (%)=       1.00         2.00
    Length            (m)=      35.50        40.00
    Mannings n           =      0.013        0.250

    Max.Eff.Inten.(mm/hr)=      51.24        32.92
              over (min)         5.00         5.00
    Storage Coeff.  (min)=       1.79 (ii)    3.26 (ii)
    Unit Hyd. Tpeak (min)=       5.00         5.00
    Unit Hyd. peak  (cms)=       0.32         0.27
                                                        *TOTALS*
    PEAK FLOW       (cms)=       0.03         0.00          0.027 (iii)
    TIME TO PEAK    (hrs)=       2.50         2.50           2.50
    RUNOFF VOLUME    (mm)=      54.69        26.90          54.41
    TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
    RUNOFF COEFFICIENT   =       0.98         0.48           0.98

      (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
     (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
          THAN THE STORAGE COEFFICIENT.
    (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0006)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
       ID1= 1 (  0003):     3.92   0.061     2.50    46.42
```

```
       + ID2= 2 (  2201):     0.19   0.027     2.50    54.41
         ==================================================
         ID = 3 (  0006):     4.11   0.088     2.50    46.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  2141)|   Area    (ha)=   0.67   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

     Unit Hyd Qpeak  (cms)=   0.128

     PEAK FLOW       (cms)=   0.049 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  26.850
     TOTAL RAINFALL   (mm)=  55.690
     RUNOFF COEFFICIENT   =   0.482

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2142)|   Area    (ha)=   0.36
|ID= 1 DT= 5.0 min |   Total Imp(%)=  20.00   Dir. Conn.(%)=   5.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.29
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      49.14        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        42.46
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.18 (ii)   12.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.03         0.029 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58          2.50
     RUNOFF VOLUME    (mm)=      54.69        29.70         30.93
     TOTAL RAINFALL   (mm)=      55.69        55.69         55.69
     RUNOFF COEFFICIENT   =       0.98         0.53          0.56

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
```

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

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--------------------
| ADD HYD  (  0214)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2141):     0.67   0.049     2.50    26.85
      + ID2= 2 (  2142):     0.36   0.029     2.50    30.93
        ================================================
        ID = 3 (  0214):     1.03   0.077     2.50    28.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0210)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.13         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.44        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        32.92
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.64 (ii)    5.11 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.16
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.019 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90          52.46
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.98         0.48           0.94

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0211)|   Area    (ha)=   0.11
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      26.58        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.51 (ii)   12.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.013 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58          2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90         47.68
     TOTAL RAINFALL   (mm)=      55.69        55.69         55.69
     RUNOFF COEFFICIENT   =       0.98         0.48          0.86

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0203)|   Area    (ha)=   0.18
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  32.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.12
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      34.74        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.77 (ii)   12.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.08
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01         0.016 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58          2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90         35.76
     TOTAL RAINFALL   (mm)=      55.69        55.69         55.69
```

```
      RUNOFF COEFFICIENT   =       0.98         0.48          0.64

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0213)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.54         0.14
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      67.18        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.63 (ii)   13.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.08         0.01          0.086 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      54.69        26.90          49.12
     TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
     RUNOFF COEFFICIENT   =       0.98         0.48           0.88

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.04        40.00
```

```
      Mannings n            =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      51.24        32.92
                over (min)        5.00        10.00
      Storage Coeff.  (min)=       1.87 (ii)    5.34 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.32         0.16
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.03         0.00          0.030 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.50           2.50
      RUNOFF VOLUME    (mm)=      54.69        26.90          52.45
      TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
      RUNOFF COEFFICIENT   =       0.98         0.48           0.94

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.18   0.016     2.50    35.76
      + ID2= 2 (  0210):     0.14   0.019     2.50    52.46
        ================================================
        ID = 3 (  2130):     0.32   0.036     2.50    43.01

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2130):     0.32   0.036     2.50    43.01
      + ID2= 2 (  0211):     0.11   0.013     2.50    47.68
        ================================================
        ID = 1 (  2130):     0.43   0.049     2.50    44.17

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
```

```
          ID1= 1 (  2130):     0.43   0.049     2.50    44.17
        + ID2= 2 (  0212):     0.22   0.030     2.50    52.45
          ================================================
          ID = 3 (  2130):     0.64   0.079     2.50    46.97

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 3 (  2130):     0.64   0.079     2.50    46.97
        + ID2= 2 (  0213):     0.68   0.086     2.50    49.12
          ================================================
          ID = 1 (  2130):     1.32   0.164     2.50    48.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 21301)|     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   |   0.0160      0.0793

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2130)      1.320      0.164      2.50      48.07
   OUTFLOW: ID= 1 ( 21301)      1.320      0.011      4.08      47.12

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.51
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0530

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2131)|   Area    (ha)=   0.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.69        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      51.24        31.75
               over (min)         5.00        15.00
```

```
      Storage Coeff.  (min)=       1.54 (ii)   12.71 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.33         0.08
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01         0.00          0.014 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.58           2.50
      RUNOFF VOLUME    (mm)=      54.69        26.90          46.84
      TOTAL RAINFALL   (mm)=      55.69        55.69          55.69
      RUNOFF COEFFICIENT   =       0.98         0.48           0.84

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 21302)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 21301):     1.32   0.011     4.08    47.12
      + ID2= 2 (  2131):     0.12   0.014     2.50    46.84
        ================================================
        ID = 3 ( 21302):     1.43   0.021     2.50    47.10

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

--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     4.11   0.088     2.50    46.79
      + ID2= 2 ( 21302):     1.43   0.021     2.50    47.10
        ================================================
        ID = 3 (  0005):     5.55   0.109     2.50    46.87

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

--------------------
| ADD HYD  (  0005)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0005):     5.55   0.109     2.50    46.87
      + ID2= 2 (  0214):     1.03   0.077     2.50    28.28
        ================================================
        ID = 1 (  0005):     6.58   0.186     2.50    43.95
```

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

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

  Output  filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\e3b3f
fdb-d70e-4a57-afa8-73ae081a11f9\scena
  Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\e3b3f
fdb-d70e-4a57-afa8-73ae081a11f9\scena


DATE: 10-27-2021                          TIME: 05:35:39

USER:


COMMENTS: _____________________________________________________________

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

READ STORM	Filename: C:\Users\jliang\AppData\Local\Temp\907c1cff-ccb1-41c0-9867-a9890799f0d3\88868af7
Ptotal= 65.59 mm	Comments: 25-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.31	1.75	22.30	3.25	9.18	4.75	1.31
0.50	1.31	2.00	22.30	3.50	9.18	5.00	1.31
0.75	1.31	2.25	60.35	3.75	5.25	5.25	1.31
1.00	1.31	2.50	60.35	4.00	5.25	5.50	1.31
1.25	7.87	2.75	17.06	4.25	2.62	5.75	1.31
1.50	7.87	3.00	17.06	4.50	2.62	6.00	1.31

CALIB			
NASHYD (2002)	Area (ha)=	0.00	Curve Number (CN)= 85.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.31	1.583	22.30	3.083	9.18	4.58	1.31
0.167	1.31	1.667	22.30	3.167	9.18	4.67	1.31
0.250	1.31	1.750	22.30	3.250	9.18	4.75	1.31
0.333	1.31	1.833	22.30	3.333	9.18	4.83	1.31
0.417	1.31	1.917	22.30	3.417	9.18	4.92	1.31
0.500	1.31	2.000	22.30	3.500	9.18	5.00	1.31
0.583	1.31	2.083	60.35	3.583	5.25	5.08	1.31
0.667	1.31	2.167	60.35	3.667	5.25	5.17	1.31
0.750	1.31	2.250	60.35	3.750	5.25	5.25	1.31
0.833	1.31	2.333	60.35	3.833	5.25	5.33	1.31
0.917	1.31	2.417	60.35	3.917	5.25	5.42	1.31
1.000	1.31	2.500	60.35	4.000	5.25	5.50	1.31
1.083	7.87	2.583	17.06	4.083	2.62	5.58	1.31
1.167	7.87	2.667	17.06	4.167	2.62	5.67	1.31
1.250	7.87	2.750	17.06	4.250	2.62	5.75	1.31
1.333	7.87	2.833	17.06	4.333	2.62	5.83	1.31
1.417	7.87	2.917	17.06	4.417	2.62	5.92	1.31
1.500	7.87	3.000	17.06	4.500	2.62	6.00	1.31

Unit Hyd Qpeak (cms)= 0.001

```
      PEAK FLOW       (cms)=   0.000 (i)
      TIME TO PEAK    (hrs)=   2.500
      RUNOFF VOLUME    (mm)=  34.114
      TOTAL RAINFALL   (mm)=  65.590
      RUNOFF COEFFICIENT   =   0.520

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0201)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.58         0.15
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      69.71        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      60.35        41.96
                 over (min)        5.00        10.00
      Storage Coeff.  (min)=       2.52 (ii)    7.48 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.29         0.13
                                                        *TOTALS*
      PEAK FLOW       (cms)=       0.10         0.02         0.113 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=      64.59        34.83         58.63
      TOTAL RAINFALL   (mm)=      65.59        65.59         65.59
      RUNOFF COEFFICIENT   =       0.98         0.53          0.89

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   0.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.31         0.15
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      55.14        40.00
```

```
      Mannings n            =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      60.35        41.96
                over (min)        5.00        15.00
      Storage Coeff.  (min)=      2.19 (ii)   12.18 (ii)
      Unit Hyd. Tpeak (min)=      5.00        15.00
      Unit Hyd. peak  (cms)=      0.31         0.09
                                                          *TOTALS*
      PEAK FLOW       (cms)=      0.05         0.01          0.065 (iii)
      TIME TO PEAK    (hrs)=      2.50         2.58           2.50
      RUNOFF VOLUME    (mm)=     64.59        34.83          54.75
      TOTAL RAINFALL   (mm)=     65.59        65.59          65.59
      RUNOFF COEFFICIENT   =      0.98         0.53           0.83

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2000)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0200):     0.46   0.065     2.50    54.75
      + ID2= 2 (  0201):     0.73   0.113     2.50    58.63
        ================================================
        ID = 3 (  2000):     1.18   0.178     2.50    57.14

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20011)|     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   |   0.0140      0.0709

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
    INFLOW : ID= 2 (  2000)      1.185      0.178      2.50      57.14
    OUTFLOW: ID= 1 ( 20011)      1.185      0.011      4.08      56.05

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.30
                    TIME SHIFT OF PEAK FLOW         (min)= 95.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0568

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

```
--------------------
| CALIB            |
| STANDHYD (  2011)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  73.00   Dir. Conn.(%)=  73.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.66        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.28 (ii)   11.27 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.011 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58          2.50
     RUNOFF VOLUME    (mm)=      64.59        34.83         56.48
     TOTAL RAINFALL   (mm)=      65.59        65.59         65.59
     RUNOFF COEFFICIENT   =       0.98         0.53          0.86

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2012)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.61        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       0.99 (ii)   10.97 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00         0.005 (iii)
```

```
      TIME TO PEAK    (hrs)=       2.25         2.58          2.50
      RUNOFF VOLUME    (mm)=      64.59        34.83         54.08
      TOTAL RAINFALL   (mm)=      65.59        65.59         65.59
      RUNOFF COEFFICIENT   =       0.98         0.53          0.82

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20011):     1.18   0.011     4.08    56.05
      + ID2= 2 (  2002):     0.00   0.000     2.50    34.11
        ================================================
        ID = 3 (  2001):     1.19   0.011     4.08    55.96

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

--------------------
| ADD HYD  (  2001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2001):     1.19   0.011     4.08    55.96
      + ID2= 2 (  2011):     0.08   0.011     2.50    56.48
        ================================================
        ID = 1 (  2001):     1.27   0.020     2.50    55.99

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.27   0.020     2.50    55.99
      + ID2= 2 (  2012):     0.03   0.005     2.50    54.08
        ================================================
        ID = 3 (  2001):     1.30   0.024     2.50    55.95

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

```
| STANDHYD (  0202)|   Area    (ha)=   0.94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66         0.28
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.12        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.72 (ii)   12.71 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.11         0.03          0.135 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      64.59        34.83          55.65
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.98         0.53           0.85

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2020)|     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    |   0.0090      0.0561

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0202)      0.939      0.135      2.50      55.65
   OUTFLOW: ID= 1 (  2020)      0.939      0.007      4.33      53.97

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.32
                  TIME SHIFT OF PEAK FLOW         (min)=110.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0447

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2021)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
```

```
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02          0.01
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      14.83         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      60.35         41.96
               over (min)        5.00         15.00
     Storage Coeff.  (min)=       0.99 (ii)    10.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00         15.00
     Unit Hyd. peak  (cms)=       0.34          0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00          0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=       2.25          2.58           2.50
     RUNOFF VOLUME    (mm)=      64.59         34.83          54.08
     TOTAL RAINFALL   (mm)=      65.59         65.59          65.59
     RUNOFF COEFFICIENT   =       0.98          0.53           0.82

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2022)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07          0.00
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      22.06         40.00
     Mannings n            =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      60.35         41.96
               over (min)        5.00          5.00
     Storage Coeff.  (min)=       1.26 (ii)     2.64 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.33          0.29
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01          0.00          0.012 (iii)
     TIME TO PEAK    (hrs)=       2.42          2.50           2.50
     RUNOFF VOLUME    (mm)=      64.59         34.83          64.29
     TOTAL RAINFALL   (mm)=      65.59         65.59          65.59
     RUNOFF COEFFICIENT   =       0.98          0.53           0.98
```

```
        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 20201)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2020):     0.94   0.007     4.33    53.97
      + ID2= 2 (  2021):     0.03   0.005     2.50    54.08
        ====================================================
        ID = 3 ( 20201):     0.97   0.009     2.50    53.98

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

--------------------
| ADD HYD  ( 20201)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 ( 20201):     0.97   0.009     2.50    53.98
      + ID2= 2 (  2022):     0.07   0.012     2.50    64.29
        ====================================================
        ID = 1 ( 20201):     1.04   0.022     2.50    54.70

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

--------------------
| ADD HYD  (  0002)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.30   0.024     2.50    55.95
      + ID2= 2 ( 20201):     1.04   0.022     2.50    54.70
        ====================================================
        ID = 3 (  0002):     2.34   0.046     2.50    55.39

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2071)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=  74.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
```

Surface Area	(ha)=	0.05	0.02	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	21.29	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		60.35	41.96	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	1.24 (ii)	11.22 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.33	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.01	0.00	0.010 (iii)
TIME TO PEAK	(hrs)=	2.42	2.58	2.50
RUNOFF VOLUME	(mm)=	64.59	34.83	56.78
TOTAL RAINFALL	(mm)=	65.59	65.59	65.59
RUNOFF COEFFICIENT	=	0.98	0.53	0.87

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB
STANDHYD (0207)
ID= 1 DT= 5.0 min

Area (ha)= 0.56
Total Imp(%)= 63.00 Dir. Conn.(%)= 63.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.35	0.21	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	61.05	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		60.35	41.96	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	2.33 (ii)	12.31 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	0.30	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.06	0.02	0.077 (iii)
TIME TO PEAK	(hrs)=	2.50	2.58	2.50
RUNOFF VOLUME	(mm)=	64.59	34.83	53.56
TOTAL RAINFALL	(mm)=	65.59	65.59	65.59
RUNOFF COEFFICIENT	=	0.98	0.53	0.82

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

```
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2070)|     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   |   0.0060      0.0318

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0207)      0.559      0.077      2.50      53.56
   OUTFLOW: ID= 1 (  2070)      0.559      0.005      4.17      51.17

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.14
                  TIME SHIFT OF PEAK FLOW         (min)=100.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0252

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

--------------------
| ADD HYD  ( 20701)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2070):     0.56   0.005     4.17    51.17
      + ID2= 2 (  2071):     0.07   0.010     2.50    56.78
        ================================================
        ID = 3 ( 20701):     0.63   0.013     2.50    51.78

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------

                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.10        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.49 (ii)   11.48 (ii)
```

```
      Unit Hyd. Tpeak (min)=       5.00         15.00
      Unit Hyd. peak  (cms)=       0.33          0.09
                                                              *TOTALS*
      PEAK FLOW       (cms)=       0.02          0.00          0.019 (iii)
      TIME TO PEAK    (hrs)=       2.42          2.58           2.50
      RUNOFF VOLUME    (mm)=      64.59         34.83          57.08
      TOTAL RAINFALL   (mm)=      65.59         65.59          65.59
      RUNOFF COEFFICIENT   =       0.98          0.53           0.87

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0208)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.03          0.01
      Dep. Storage     (mm)=       1.00          5.00
      Average Slope     (%)=       1.00          2.00
      Length            (m)=      16.93         40.00
      Mannings n             =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=      60.35         41.96
                 over (min)        5.00         15.00
      Storage Coeff.  (min)=       1.08 (ii)    11.07 (ii)
      Unit Hyd. Tpeak (min)=       5.00         15.00
      Unit Hyd. peak  (cms)=       0.34          0.09
                                                              *TOTALS*
      PEAK FLOW       (cms)=       0.01          0.00          0.006 (iii)
      TIME TO PEAK    (hrs)=       2.25          2.58           2.50
      RUNOFF VOLUME    (mm)=      64.59         34.83          57.08
      TOTAL RAINFALL   (mm)=      65.59         65.59          65.59
      RUNOFF COEFFICIENT   =       0.98          0.53           0.87

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.22
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.22          0.00
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      38.38         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      60.35         41.96
               over (min)         5.00          5.00
     Storage Coeff.  (min)=       1.76 (ii)     3.13 (ii)
     Unit Hyd. Tpeak (min)=       5.00          5.00
     Unit Hyd. peak  (cms)=       0.32          0.27
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.04          0.00          0.037 (iii)
     TIME TO PEAK    (hrs)=       2.42          2.50           2.50
     RUNOFF VOLUME    (mm)=      64.59         34.83          64.29
     TOTAL RAINFALL   (mm)=      65.59         65.59          65.59
     RUNOFF COEFFICIENT   =       0.98          0.53           0.98

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0206)|   Area    (ha)=   0.51
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.45          0.06
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      58.54         40.00
     Mannings n           =      0.013         0.250

     Max.Eff.Inten.(mm/hr)=      60.35         41.96
               over (min)         5.00         10.00
     Storage Coeff.  (min)=       2.27 (ii)     6.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.30          0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.08          0.01          0.083 (iii)
     TIME TO PEAK    (hrs)=       2.50          2.50           2.50
     RUNOFF VOLUME    (mm)=      64.59         34.83          61.01
     TOTAL RAINFALL   (mm)=      65.59         65.59          65.59
```

```
      RUNOFF COEFFICIENT   =       0.98         0.53          0.93

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0204):     0.13   0.019     2.50    57.08
      + ID2= 2 (  0205):     0.22   0.037     2.50    64.29
        ================================================
        ID = 3 (  2060):     0.35   0.056     2.50    61.66

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

--------------------
| ADD HYD  (  2060)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2060):     0.35   0.056     2.50    61.66
      + ID2= 2 (  0206):     0.51   0.083     2.50    61.01
        ================================================
        ID = 1 (  2060):     0.86   0.138     2.50    61.27

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2060):     0.86   0.138     2.50    61.27
      + ID2= 2 (  0208):     0.04   0.006     2.50    57.08
        ================================================
        ID = 3 (  2060):     0.90   0.145     2.50    61.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20601)|     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   |   0.0120      0.0571

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2060)      0.905      0.145      2.50       61.07
   OUTFLOW: ID= 1 ( 20601)      0.905      0.010      4.08       59.74

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.69
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0461

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2061)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.04         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.32        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.09 (ii)    5.80 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.15
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.007 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.50           2.50
     RUNOFF VOLUME    (mm)=      64.59        34.83          59.21
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.98         0.53           0.90

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 20602)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20601):     0.90   0.010     4.08    59.74
      + ID2= 2 (  2061):     0.05   0.007     2.50    59.21
```

```
        ================================================
        ID = 3 ( 20602):     0.95   0.014     2.50    59.72

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     2.34   0.046     2.50    55.39
      + ID2= 2 ( 20602):     0.95   0.014     2.50    59.72
        ================================================
        ID = 3 (  0003):     3.29   0.060     2.50    56.64

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

--------------------
| ADD HYD  (  0003)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0003):     3.29   0.060     2.50    56.64
      + ID2= 2 ( 20701):     0.63   0.013     2.50    51.78
        ================================================
        ID = 1 (  0003):     3.92   0.073     2.50    55.86

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2201)|   Area    (ha)=   0.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.19         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      35.50        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.68 (ii)    3.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.27
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.032 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      64.59        34.83          64.29
```

```
      TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
      RUNOFF COEFFICIENT   =       0.98         0.53           0.98

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0006)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0003):     3.92   0.073     2.50    55.86
      + ID2= 2 (  2201):     0.19   0.032     2.50    64.29
        ================================================
        ID = 3 (  0006):     4.11   0.105     2.50    56.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  2141)|   Area    (ha)=   0.67   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

     Unit Hyd Qpeak  (cms)=   0.128

     PEAK FLOW       (cms)=   0.064 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  34.759
     TOTAL RAINFALL   (mm)=  65.590
     RUNOFF COEFFICIENT   =   0.530

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2142)|   Area    (ha)=   0.36
|ID= 1 DT= 5.0 min |   Total Imp(%)=  20.00   Dir. Conn.(%)=   5.00
--------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.29
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      49.14        40.00
     Mannings n           =      0.013        0.250
```

```
      Max.Eff.Inten.(mm/hr)=      60.35        53.47
                 over (min)        5.00        15.00
      Storage Coeff.  (min)=       2.04 (ii)   11.11 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.31         0.09
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.00         0.03          0.037 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.58           2.50
      RUNOFF VOLUME    (mm)=      64.59        38.01          39.32
      TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
      RUNOFF COEFFICIENT   =       0.98         0.58           0.60

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0214)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2141):     0.67   0.064     2.50    34.76
      + ID2= 2 (  2142):     0.36   0.037     2.50    39.32
        ================================================
        ID = 3 (  0214):     1.03   0.101     2.50    36.35

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0210)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.13          0.01
      Dep. Storage     (mm)=       1.00          5.00
      Average Slope     (%)=       1.00          2.00
      Length            (m)=      30.44         40.00
      Mannings n             =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=      60.35        41.96
                 over (min)        5.00         5.00
      Storage Coeff.  (min)=       1.53 (ii)    4.78 (ii)
      Unit Hyd. Tpeak (min)=       5.00         5.00
      Unit Hyd. peak  (cms)=       0.33         0.22
                                                          *TOTALS*
```

```
      PEAK FLOW       (cms)=       0.02          0.00          0.023 (iii)
      TIME TO PEAK    (hrs)=       2.42          2.50           2.50
      RUNOFF VOLUME    (mm)=      64.59         34.83          62.20
      TOTAL RAINFALL   (mm)=      65.59         65.59          65.59
      RUNOFF COEFFICIENT   =       0.98          0.53           0.95

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0211)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.08          0.03
      Dep. Storage     (mm)=       1.00          5.00
      Average Slope     (%)=       1.00          2.00
      Length            (m)=      26.58         40.00
      Mannings n             =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=      60.35         41.96
                over (min)        5.00         15.00
      Storage Coeff.  (min)=       1.41 (ii)    11.40 (ii)
      Unit Hyd. Tpeak (min)=       5.00         15.00
      Unit Hyd. peak  (cms)=       0.33          0.09
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01          0.00          0.016 (iii)
      TIME TO PEAK    (hrs)=       2.42          2.58           2.50
      RUNOFF VOLUME    (mm)=      64.59         34.83          57.08
      TOTAL RAINFALL   (mm)=      65.59         65.59          65.59
      RUNOFF COEFFICIENT   =       0.98          0.53           0.87

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.18
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  32.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
```

```
      Surface Area     (ha)=       0.06         0.12
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      34.74        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      60.35        41.96
                over (min)        5.00        15.00
      Storage Coeff.  (min)=       1.66 (ii)   11.65 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.32         0.09
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01         0.01         0.021 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.58          2.50
      RUNOFF VOLUME    (mm)=      64.59        34.83         44.32
      TOTAL RAINFALL   (mm)=      65.59        65.59         65.59
      RUNOFF COEFFICIENT   =       0.98         0.53          0.68

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0213)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.54         0.14
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      67.18        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      60.35        41.96
                over (min)        5.00        10.00
      Storage Coeff.  (min)=       2.46 (ii)    7.42 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.30         0.13
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.09         0.01         0.105 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=      64.59        34.83         58.63
      TOTAL RAINFALL   (mm)=      65.59        65.59         65.59
      RUNOFF COEFFICIENT   =       0.98         0.53          0.89

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
```

```
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.04        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.75 (ii)    5.00 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.32         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00          0.035 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      64.59        34.83          62.19
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.98         0.53           0.95

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.18   0.021     2.50    44.32
      + ID2= 2 (  0210):     0.14   0.023     2.50    62.20
        ================================================
        ID = 3 (  2130):     0.32   0.043     2.50    52.08

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

```
--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2130):     0.32   0.043     2.50    52.08
      + ID2= 2 (  0211):     0.11   0.016     2.50    57.08
        ====================================================
        ID = 1 (  2130):     0.43   0.059     2.50    53.33

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2130):     0.43   0.059     2.50    53.33
      + ID2= 2 (  0212):     0.22   0.035     2.50    62.19
        ====================================================
        ID = 3 (  2130):     0.64   0.095     2.50    56.32

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2130):     0.64   0.095     2.50    56.32
      + ID2= 2 (  0213):     0.68   0.105     2.50    58.63
        ====================================================
        ID = 1 (  2130):     1.32   0.200     2.50    57.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 21301)|     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    |   0.0160      0.0793

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2130)      1.320      0.200      2.50      57.50
   OUTFLOW: ID= 1 ( 21301)      1.320      0.013      4.08      56.55

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.41
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0635
```

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2131)|   Area    (ha)=   0.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.69        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      60.35        41.96
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.45 (ii)   11.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.017 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      64.59        34.83          56.18
     TOTAL RAINFALL   (mm)=      65.59        65.59          65.59
     RUNOFF COEFFICIENT   =       0.98         0.53           0.86

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 21302)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 21301):     1.32   0.013     4.08    56.55
      + ID2= 2 (  2131):     0.12   0.017     2.50    56.18
        ================================================
        ID = 3 ( 21302):     1.43   0.026     2.50    56.52

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

--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
```

```
         ID1= 1 (  0006):     4.11   0.105     2.50    56.25
       + ID2= 2 ( 21302):     1.43   0.026     2.50    56.52
         ==================================================
         ID = 3 (  0005):     5.55   0.131     2.50    56.32

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

--------------------
| ADD HYD  (  0005)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 3 (  0005):     5.55   0.131     2.50    56.32
       + ID2= 2 (  0214):     1.03   0.101     2.50    36.35
         ==================================================
         ID = 1 (  0005):     6.58   0.231     2.50    53.18

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

  Output  filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\caca9
c51-172f-49af-9fda-63c96d6643a8\scena
  Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\caca9
c51-172f-49af-9fda-63c96d6643a8\scena
```

DATE: 10-27-2021 TIME: 05:35:39

USER:

COMMENTS: _____

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

READ STORM	Filename: C:\Users\jliang\AppData\Local\Temp\907c1cff-ccb1-41c0-9867-a9890799f0d3\d9be6e7f
Ptotal= 73.00 mm	Comments: 50-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.46	1.75	24.82	3.25	10.22	4.75	1.46
0.50	1.46	2.00	24.82	3.50	10.22	5.00	1.46
0.75	1.46	2.25	67.16	3.75	5.84	5.25	1.46
1.00	1.46	2.50	67.16	4.00	5.84	5.50	1.46
1.25	8.76	2.75	18.98	4.25	2.92	5.75	1.46
1.50	8.76	3.00	18.98	4.50	2.92	6.00	1.46

CALIB			
NASHYD (2002)	Area (ha)=	0.00	Curve Number (CN)= 85.0
ID= 1 DT= 5.0 min	Ia (mm)=	5.00	# of Linear Res.(N)= 3.00
	U.H. Tp(hrs)=	0.20	

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.46	1.583	24.82	3.083	10.22	4.58	1.46
0.167	1.46	1.667	24.82	3.167	10.22	4.67	1.46
0.250	1.46	1.750	24.82	3.250	10.22	4.75	1.46
0.333	1.46	1.833	24.82	3.333	10.22	4.83	1.46
0.417	1.46	1.917	24.82	3.417	10.22	4.92	1.46

0.500	1.46	2.000	24.82	3.500	10.22	5.00	1.46
0.583	1.46	2.083	67.16	3.583	5.84	5.08	1.46
0.667	1.46	2.167	67.16	3.667	5.84	5.17	1.46
0.750	1.46	2.250	67.16	3.750	5.84	5.25	1.46
0.833	1.46	2.333	67.16	3.833	5.84	5.33	1.46
0.917	1.46	2.417	67.16	3.917	5.84	5.42	1.46
1.000	1.46	2.500	67.16	4.000	5.84	5.50	1.46
1.083	8.76	2.583	18.98	4.083	2.92	5.58	1.46
1.167	8.76	2.667	18.98	4.167	2.92	5.67	1.46
1.250	8.76	2.750	18.98	4.250	2.92	5.75	1.46
1.333	8.76	2.833	18.98	4.333	2.92	5.83	1.46
1.417	8.76	2.917	18.98	4.417	2.92	5.92	1.46
1.500	8.76	3.000	18.98	4.500	2.92	6.00	1.46

Unit Hyd Qpeak (cms)= 0.001

PEAK FLOW (cms)= 0.001 (i)
TIME TO PEAK (hrs)= 2.500
RUNOFF VOLUME (mm)= 40.216
TOTAL RAINFALL (mm)= 73.000
RUNOFF COEFFICIENT = 0.551

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

CALIB STANDHYD (0201) ID= 1 DT= 5.0 min	Area (ha)= 0.73 Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.58	0.15	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	69.71	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		67.16	48.86	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	2.41 (ii)	7.17 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.30	0.14	
				TOTALS
PEAK FLOW	(cms)=	0.11	0.02	0.127 (iii)
TIME TO PEAK	(hrs)=	2.50	2.50	2.50
RUNOFF VOLUME	(mm)=	72.00	40.98	65.79
TOTAL RAINFALL	(mm)=	73.00	73.00	73.00
RUNOFF COEFFICIENT	=	0.99	0.56	0.90

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:

```
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0200)|   Area    (ha)=   0.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.31         0.15
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      55.14        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.10 (ii)   11.49 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.06         0.02          0.073 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98          61.75
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.99         0.56           0.85

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2000)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0200):     0.46   0.073     2.50    61.75
      + ID2= 2 (  0201):     0.73   0.127     2.50    65.79
        ==================================================
        ID = 3 (  2000):     1.18   0.200     2.50    64.24

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

```
| RESERVOIR( 20011)|     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    |   0.0140      0.0709

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2000)          1.185      0.200      2.50      64.24
   OUTFLOW: ID= 1 ( 20011)          1.185      0.013      4.08      63.16

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.30
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0638

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2011)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  73.00   Dir. Conn.(%)=  73.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.66        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.23 (ii)   10.63 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.013 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98          63.55
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.99         0.56           0.87

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2012)|   Area    (ha)=   0.03
```

```
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=         0.02          0.01
     Dep. Storage     (mm)=         1.00          5.00
     Average Slope     (%)=         1.00          2.00
     Length            (m)=        14.61         40.00
     Mannings n             =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=        67.16         48.86
               over (min)          5.00         15.00
     Storage Coeff.  (min)=         0.94 (ii)    10.34 (ii)
     Unit Hyd. Tpeak (min)=         5.00         15.00
     Unit Hyd. peak  (cms)=         0.34          0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=         0.00          0.00          0.005 (iii)
     TIME TO PEAK    (hrs)=         2.25          2.58           2.50
     RUNOFF VOLUME    (mm)=        72.00         40.98          61.04
     TOTAL RAINFALL   (mm)=        73.00         73.00          73.00
     RUNOFF COEFFICIENT   =         0.99          0.56           0.84

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20011):     1.18   0.013     4.08    63.16
      + ID2= 2 (  2002):     0.00   0.001     2.50    40.22
        ================================================
        ID = 3 (  2001):     1.19   0.013     4.08    63.06

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

--------------------
| ADD HYD  (  2001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2001):     1.19   0.013     4.08    63.06
      + ID2= 2 (  2011):     0.08   0.013     2.50    63.55
        ================================================
        ID = 1 (  2001):     1.27   0.022     2.50    63.09
```

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.27   0.022     2.50    63.09
      + ID2= 2 (  2012):     0.03   0.005     2.50    61.04
        ================================================
        ID = 3 (  2001):     1.30   0.027     2.50    63.04

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   0.94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66         0.28
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.12        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.60 (ii)   12.00 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.12         0.03         0.152 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58          2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98         62.69
     TOTAL RAINFALL   (mm)=      73.00        73.00         73.00
     RUNOFF COEFFICIENT   =       0.99         0.56          0.86

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2020)|     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   |   0.0090      0.0561

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0202)      0.939      0.152      2.50      62.69
   OUTFLOW: ID= 1 (  2020)      0.939      0.008      4.33      61.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.31
                  TIME SHIFT OF PEAK FLOW         (min)=110.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0504

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2021)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.83        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       0.95 (ii)   10.35 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00         0.005 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.58          2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98         61.04
     TOTAL RAINFALL   (mm)=      73.00        73.00         73.00
     RUNOFF COEFFICIENT   =       0.99         0.56          0.84

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2022)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.00
```

```
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      22.06        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      67.16        48.86
                over (min)        5.00         5.00
      Storage Coeff.  (min)=       1.21 (ii)    2.53 (ii)
      Unit Hyd. Tpeak (min)=       5.00         5.00
      Unit Hyd. peak  (cms)=       0.33         0.29
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01         0.00          0.014 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.50           2.50
      RUNOFF VOLUME    (mm)=      72.00        40.98          71.69
      TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
      RUNOFF COEFFICIENT   =       0.99         0.56           0.98

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  ( 20201)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2020):     0.94   0.008     4.33    61.00
      + ID2= 2 (  2021):     0.03   0.005     2.50    61.04
        ================================================
        ID = 3 ( 20201):     0.97   0.011     2.50    61.00

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

--------------------
| ADD HYD  ( 20201)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 ( 20201):     0.97   0.011     2.50    61.00
      + ID2= 2 (  2022):     0.07   0.014     2.50    71.69
        ================================================
        ID = 1 ( 20201):     1.04   0.024     2.50    61.75

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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| ADD HYD  (  0002)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.30   0.027     2.50    63.04
      + ID2= 2 ( 20201):     1.04   0.024     2.50    61.75
        ================================================
        ID = 3 (  0002):     2.34   0.051     2.50    62.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2071)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=  74.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.05         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      21.29        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.18 (ii)   10.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.011 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98          63.86
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.99         0.56           0.87

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
        (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
             THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=   0.56
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=  63.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.35         0.21
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
```

```
      Length            (m)=      61.05        40.00
      Mannings n            =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      67.16        48.86
                over (min)        5.00        15.00
      Storage Coeff.  (min)=       2.23 (ii)   11.63 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.30         0.09
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.07         0.02          0.088 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.58           2.50
      RUNOFF VOLUME    (mm)=      72.00        40.98          60.51
      TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
      RUNOFF COEFFICIENT   =       0.99         0.56           0.83

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  2070)|     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   |   0.0060      0.0318

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0207)      0.559      0.088      2.50       60.51
   OUTFLOW: ID= 1 (  2070)      0.559      0.005      4.17       58.11

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.12
                  TIME SHIFT OF PEAK FLOW         (min)=100.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0284

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--------------------
| ADD HYD  ( 20701)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2070):     0.56   0.005     4.17    58.11
      + ID2= 2 (  2071):     0.07   0.011     2.50    63.86
        ================================================
        ID = 3 ( 20701):     0.63   0.015     2.50    58.73

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

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--------------------
| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.10        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.43 (ii)   10.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.021 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98          64.20
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.99         0.56           0.88

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0208)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.93        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.03 (ii)   10.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.09
                                                      *TOTALS*
```

```
      PEAK FLOW       (cms)=       0.01          0.00          0.007 (iii)
      TIME TO PEAK    (hrs)=       2.25          2.58           2.50
      RUNOFF VOLUME    (mm)=      72.00         40.98          64.17
      TOTAL RAINFALL   (mm)=      73.00         73.00          73.00
      RUNOFF COEFFICIENT   =       0.99          0.56           0.88

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.22          0.00
      Dep. Storage     (mm)=       1.00          5.00
      Average Slope     (%)=       1.00          2.00
      Length            (m)=      38.38         40.00
      Mannings n             =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=      67.16         48.86
                over (min)        5.00          5.00
      Storage Coeff.  (min)=       1.69 (ii)     3.00 (ii)
      Unit Hyd. Tpeak (min)=       5.00          5.00
      Unit Hyd. peak  (cms)=       0.32          0.28
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.04          0.00          0.041 (iii)
      TIME TO PEAK    (hrs)=       2.42          2.50           2.50
      RUNOFF VOLUME    (mm)=      72.00         40.98          71.68
      TOTAL RAINFALL   (mm)=      73.00         73.00          73.00
      RUNOFF COEFFICIENT   =       0.99          0.56           0.98

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.51
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
```

Surface Area	(ha)=	0.45	0.06	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	58.54	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		67.16	48.86	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	2.17 (ii)	5.90 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	0.31	0.15	
				TOTALS
PEAK FLOW	(cms)=	0.08	0.01	0.092 (iii)
TIME TO PEAK	(hrs)=	2.50	2.50	2.50
RUNOFF VOLUME	(mm)=	72.00	40.98	68.27
TOTAL RAINFALL	(mm)=	73.00	73.00	73.00
RUNOFF COEFFICIENT	=	0.99	0.56	0.94

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

ADD HYD (2060)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0204):		0.13	0.021	2.50	64.20
+ ID2= 2 (0205):		0.22	0.041	2.50	71.68
ID = 3 (2060):		0.35	0.062	2.50	68.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2060)					
3 + 2 = 1		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
ID1= 3 (2060):		0.35	0.062	2.50	68.95
+ ID2= 2 (0206):		0.51	0.092	2.50	68.27
ID = 1 (2060):		0.86	0.155	2.50	68.54

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2060):     0.86   0.155     2.50    68.54
      + ID2= 2 (  0208):     0.04   0.007     2.50    64.17
        ================================================
        ID = 3 (  2060):     0.90   0.162     2.50    68.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20601)|     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    |   0.0120      0.0571

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2060)      0.905      0.162      2.50      68.34
   OUTFLOW: ID= 1 ( 20601)      0.905      0.011      4.08      67.00

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.70
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0516

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2061)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.04         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      17.32        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.05 (ii)    5.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.16
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.008 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.50           2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98          66.39
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
```

```
     RUNOFF COEFFICIENT   =       0.99         0.56          0.91

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  ( 20602)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20601):     0.90   0.011     4.08    67.00
      + ID2= 2 (  2061):     0.05   0.008     2.50    66.39
        ================================================
        ID = 3 ( 20602):     0.95   0.016     2.50    66.97

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     2.34   0.051     2.50    62.46
      + ID2= 2 ( 20602):     0.95   0.016     2.50    66.97
        ================================================
        ID = 3 (  0003):     3.29   0.067     2.50    63.76

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

--------------------
| ADD HYD  (  0003)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0003):     3.29   0.067     2.50    63.76
      + ID2= 2 ( 20701):     0.63   0.015     2.50    58.73
        ================================================
        ID = 1 (  0003):     3.92   0.082     2.50    62.96

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2201)|   Area    (ha)=   0.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
```

```
                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.19          0.00
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=       35.50         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=       67.16         48.86
               over (min)         5.00          5.00
     Storage Coeff.  (min)=        1.61 (ii)     2.93 (ii)
     Unit Hyd. Tpeak (min)=        5.00          5.00
     Unit Hyd. peak  (cms)=        0.32          0.28
                                                          *TOTALS*
     PEAK FLOW       (cms)=        0.03          0.00          0.035 (iii)
     TIME TO PEAK    (hrs)=        2.50          2.50           2.50
     RUNOFF VOLUME    (mm)=       72.00         40.98          71.68
     TOTAL RAINFALL   (mm)=       73.00         73.00          73.00
     RUNOFF COEFFICIENT   =        0.99          0.56           0.98

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0006)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0003):     3.92   0.082     2.50    62.96
      + ID2= 2 (  2201):     0.19   0.035     2.50    71.68
        ================================================
        ID = 3 (  0006):     4.11   0.117     2.50    63.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  2141)|   Area    (ha)=   0.67   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

     Unit Hyd Qpeak  (cms)=   0.128

     PEAK FLOW       (cms)=   0.075 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  40.906
     TOTAL RAINFALL   (mm)=  73.000
```

```
     RUNOFF COEFFICIENT    =    0.560

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2142)|   Area    (ha)=   0.36
|ID= 1 DT= 5.0 min |   Total Imp(%)=  20.00   Dir. Conn.(%)=   5.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.29
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      49.14        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        61.81
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.96 (ii)   10.51 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.04          0.044 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      72.00        44.42          45.78
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.99         0.61           0.63

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  0214)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2141):     0.67   0.075     2.50    40.91
      + ID2= 2 (  2142):     0.36   0.044     2.50    45.78
        ================================================
        ID = 3 (  0214):     1.03   0.119     2.50    42.61

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

```
| STANDHYD (  0210)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.13         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.44        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.47 (ii)    4.58 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.23
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00         0.025 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50          2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98         69.51
     TOTAL RAINFALL   (mm)=      73.00        73.00         73.00
     RUNOFF COEFFICIENT   =       0.99         0.56          0.95

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0211)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      26.58        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.35 (ii)   10.75 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.018 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58          2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98         64.17
```

```
      TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
      RUNOFF COEFFICIENT   =       0.99         0.56           0.88

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0203)|   Area    (ha)=   0.18
|ID= 1 DT= 5.0 min |   Total Imp(%)=  32.00   Dir. Conn.(%)=  32.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.12
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      34.74        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.59 (ii)   10.99 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.01          0.024 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98          50.87
     TOTAL RAINFALL   (mm)=      73.00        73.00          73.00
     RUNOFF COEFFICIENT   =       0.99         0.56           0.70

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0213)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.54         0.14
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
```

```
      Length            (m)=      67.18        40.00
      Mannings n          =       0.013        0.250

      Max.Eff.Inten.(mm/hr)=      67.16        48.86
                over (min)         5.00        10.00
      Storage Coeff.  (min)=       2.36 (ii)    7.11 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.30         0.14
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.10         0.02         0.118 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=      72.00        40.98         65.79
      TOTAL RAINFALL   (mm)=      73.00        73.00         73.00
      RUNOFF COEFFICIENT   =       0.99         0.56          0.90

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0212)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.20         0.02
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      38.04        40.00
      Mannings n          =       0.013        0.250

      Max.Eff.Inten.(mm/hr)=      67.16        48.86
                over (min)         5.00         5.00
      Storage Coeff.  (min)=       1.68 (ii)    4.79 (ii)
      Unit Hyd. Tpeak (min)=       5.00         5.00
      Unit Hyd. peak  (cms)=       0.32         0.22
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.04         0.00         0.040 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=      72.00        40.98         69.51
      TOTAL RAINFALL   (mm)=      73.00        73.00         73.00
      RUNOFF COEFFICIENT   =       0.99         0.56          0.95

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
```

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

ADD HYD (2130)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0203):	0.18	0.024	2.50	50.87
	+ ID2= 2 (0210):	0.14	0.025	2.50	69.51
	ID = 3 (2130):	0.32	0.049	2.50	58.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2130)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2130):	0.32	0.049	2.50	58.97
	+ ID2= 2 (0211):	0.11	0.018	2.50	64.17
	ID = 1 (2130):	0.43	0.067	2.50	60.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2130)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (2130):	0.43	0.067	2.50	60.26
	+ ID2= 2 (0212):	0.22	0.040	2.50	69.51
	ID = 3 (2130):	0.64	0.107	2.50	63.38

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (2130)		AREA	QPEAK	TPEAK	R.V.
3 + 2 = 1		(ha)	(cms)	(hrs)	(mm)
	ID1= 3 (2130):	0.64	0.107	2.50	63.38
	+ ID2= 2 (0213):	0.68	0.118	2.50	65.79
	ID = 1 (2130):	1.32	0.225	2.50	64.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 21301)|     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    |   0.0160      0.0793

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2130)      1.320      0.225      2.50      64.62
   OUTFLOW: ID= 1 ( 21301)      1.320      0.014      4.08      63.66

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.41
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0714

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2131)|   Area    (ha)=   0.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.69        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      67.16        48.86
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.39 (ii)   10.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00         0.019 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58          2.50
     RUNOFF VOLUME    (mm)=      72.00        40.98         63.26
     TOTAL RAINFALL   (mm)=      73.00        73.00         73.00
     RUNOFF COEFFICIENT   =       0.99         0.56          0.87

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

```
--------------------
| ADD HYD  ( 21302)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 21301):     1.32   0.014     4.08    63.66
      + ID2= 2 (  2131):     0.12   0.019     2.50    63.26
        ====================================================
        ID = 3 ( 21302):     1.43   0.029     2.50    63.63

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


--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     4.11   0.117     2.50    63.36
      + ID2= 2 ( 21302):     1.43   0.029     2.50    63.63
        ====================================================
        ID = 3 (  0005):     5.55   0.147     2.50    63.43

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


--------------------
| ADD HYD  (  0005)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0005):     5.55   0.147     2.50    63.43
      + ID2= 2 (  0214):     1.03   0.119     2.50    42.61
        ====================================================
        ID = 1 (  0005):     6.58   0.266     2.50    60.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
================================================================================
========================

       V    V   I    SSSSS  U   U    A    L              (v 6.0.2001)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  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 6.0\VO2\voin.dat

Output filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\3e3933d6-7cd9-46fb-9044-dbc5d1faba55\scena
Summary filename:
C:\Users\jliang\AppData\Local\Civica\VH5\becad37f-97fe-4a15-a3fd-f87dd2156d5f\3e3933d6-7cd9-46fb-9044-dbc5d1faba55\scena

DATE: 10-27-2021 TIME: 05:35:38

USER:

COMMENTS: _____

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

READ STORM	Filename: C:\Users\jliang\AppData\Local\Temp\907c1cff-ccb1-41c0-9867-a9890799f0d3\40ddf276
Ptotal= 80.31 mm	Comments: 100-Year 6-hour AES Storm

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.25	1.61	1.75	27.30	3.25	11.24	4.75	1.61
0.50	1.61	2.00	27.30	3.50	11.24	5.00	1.61
0.75	1.61	2.25	73.88	3.75	6.42	5.25	1.61
1.00	1.61	2.50	73.88	4.00	6.42	5.50	1.61
1.25	9.64	2.75	20.88	4.25	3.21	5.75	1.61
1.50	9.64	3.00	20.88	4.50	3.21	6.00	1.61

```
| CALIB             |
| NASHYD   (  2002)|   Area    (ha)=   0.00   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.083	1.61	1.583	27.30	3.083	11.24	4.58	1.61
0.167	1.61	1.667	27.30	3.167	11.24	4.67	1.61
0.250	1.61	1.750	27.30	3.250	11.24	4.75	1.61
0.333	1.61	1.833	27.30	3.333	11.24	4.83	1.61
0.417	1.61	1.917	27.30	3.417	11.24	4.92	1.61
0.500	1.61	2.000	27.30	3.500	11.24	5.00	1.61
0.583	1.61	2.083	73.88	3.583	6.42	5.08	1.61
0.667	1.61	2.167	73.88	3.667	6.42	5.17	1.61
0.750	1.61	2.250	73.88	3.750	6.42	5.25	1.61
0.833	1.61	2.333	73.88	3.833	6.42	5.33	1.61
0.917	1.61	2.417	73.88	3.917	6.42	5.42	1.61
1.000	1.61	2.500	73.88	4.000	6.42	5.50	1.61
1.083	9.64	2.583	20.88	4.083	3.21	5.58	1.61
1.167	9.64	2.667	20.88	4.167	3.21	5.67	1.61
1.250	9.64	2.750	20.88	4.250	3.21	5.75	1.61
1.333	9.64	2.833	20.88	4.333	3.21	5.83	1.61
1.417	9.64	2.917	20.88	4.417	3.21	5.92	1.61
1.500	9.64	3.000	20.88	4.500	3.21	6.00	1.61

```
     Unit Hyd Qpeak  (cms)=   0.001

     PEAK FLOW       (cms)=   0.001 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  46.329
     TOTAL RAINFALL   (mm)=  80.310
     RUNOFF COEFFICIENT   =   0.577

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

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0201)|   Area    (ha)=   0.73
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------

                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.58          0.15
     Dep. Storage     (mm)=       1.00          5.00
     Average Slope     (%)=       1.00          2.00
```

```
      Length            (m)=      69.71        40.00
      Mannings n          =       0.013        0.250

      Max.Eff.Inten.(mm/hr)=      73.88        55.75
                over (min)         5.00        10.00
      Storage Coeff.  (min)=       2.32 (ii)    6.90 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.30         0.14
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.12         0.02         0.141 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.50          2.50
      RUNOFF VOLUME    (mm)=      79.31        47.21         72.89
      TOTAL RAINFALL   (mm)=      80.31        80.31         80.31
      RUNOFF COEFFICIENT   =       0.99         0.59          0.91

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB             |
| STANDHYD (  0200)|   Area    (ha)=   0.46
|ID= 1 DT= 5.0 min |   Total Imp(%)=  67.00   Dir. Conn.(%)=  67.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.31         0.15
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      55.14        40.00
      Mannings n          =       0.013        0.250

      Max.Eff.Inten.(mm/hr)=      73.88        55.75
                over (min)         5.00        15.00
      Storage Coeff.  (min)=       2.02 (ii)   10.93 (ii)
      Unit Hyd. Tpeak (min)=       5.00        15.00
      Unit Hyd. peak  (cms)=       0.31         0.09
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.06         0.02         0.081 (iii)
      TIME TO PEAK    (hrs)=       2.50         2.58          2.50
      RUNOFF VOLUME    (mm)=      79.31        47.21         68.71
      TOTAL RAINFALL   (mm)=      80.31        80.31         80.31
      RUNOFF COEFFICIENT   =       0.99         0.59          0.86

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
```

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

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

--------------------
| ADD HYD  (  2000)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0200):     0.46   0.081     2.50    68.71
      + ID2= 2 (  0201):     0.73   0.141     2.50    72.89
        ================================================
        ID = 3 (  2000):     1.18   0.222     2.50    71.28

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20011)|     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   |   0.0140      0.0709

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2000)      1.185      0.222      2.50      71.28
   OUTFLOW: ID= 1 ( 20011)      1.185      0.014      4.08      70.19

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.29
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0708

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2011)|   Area    (ha)=   0.08
|ID= 1 DT= 5.0 min |   Total Imp(%)=  73.00   Dir. Conn.(%)=  73.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.06         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.66        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.18 (ii)   10.10 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.10
                                                      *TOTALS*
```

```
      PEAK FLOW       (cms)=       0.01          0.00          0.014 (iii)
      TIME TO PEAK    (hrs)=       2.50          2.58           2.50
      RUNOFF VOLUME    (mm)=      79.31         47.21          70.56
      TOTAL RAINFALL   (mm)=      80.31         80.31          80.31
      RUNOFF COEFFICIENT   =       0.99          0.59           0.88

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2012)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
      Surface Area     (ha)=       0.02          0.01
      Dep. Storage     (mm)=       1.00          5.00
      Average Slope     (%)=       1.00          2.00
      Length            (m)=      14.61         40.00
      Mannings n             =     0.013         0.250

      Max.Eff.Inten.(mm/hr)=      73.88         55.75
                over (min)        5.00         10.00
      Storage Coeff.  (min)=       0.91 (ii)     9.83 (ii)
      Unit Hyd. Tpeak (min)=       5.00         10.00
      Unit Hyd. peak  (cms)=       0.34          0.11
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.00          0.00          0.006 (iii)
      TIME TO PEAK    (hrs)=       2.25          2.50           2.50
      RUNOFF VOLUME    (mm)=      79.31         47.21          67.99
      TOTAL RAINFALL   (mm)=      80.31         80.31          80.31
      RUNOFF COEFFICIENT   =       0.99          0.59           0.85

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20011):     1.18    0.014     4.08    70.19
```

```
       + ID2= 2 (  2002):     0.00   0.001     2.50    46.33
         ================================================
         ID = 3 (  2001):     1.19   0.014     4.08    70.09

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

--------------------
| ADD HYD  (  2001)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2001):     1.19   0.014     4.08    70.09
      + ID2= 2 (  2011):     0.08   0.014     2.50    70.56
        ================================================
        ID = 1 (  2001):     1.27   0.025     2.50    70.12

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

--------------------
| ADD HYD  (  2001)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.27   0.025     2.50    70.12
      + ID2= 2 (  2012):     0.03   0.006     2.50    67.99
        ================================================
        ID = 3 (  2001):     1.30   0.030     2.50    70.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0202)|   Area    (ha)=   0.94
|ID= 1 DT= 5.0 min |   Total Imp(%)=  70.00   Dir. Conn.(%)=  70.00
--------------------

                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.66         0.28
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      79.12        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       2.51 (ii)   11.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.29         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.13         0.04          0.170 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
```

```
      RUNOFF VOLUME    (mm)=      79.31        47.21          69.67
      TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
      RUNOFF COEFFICIENT   =       0.99         0.59           0.87

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2020)|     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    |   0.0090      0.0561

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0202)      0.939      0.170      2.50      69.67
   OUTFLOW: ID= 1 (  2020)      0.939      0.009      4.25      67.99

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  5.30
                  TIME SHIFT OF PEAK FLOW         (min)=105.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0560

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2021)|   Area    (ha)=   0.03
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                               IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.02         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      14.83        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.92 (ii)    9.83 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.11
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.00          0.006 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.50           2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21          67.99
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
```

```
     RUNOFF COEFFICIENT   =       0.99         0.59          0.85

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2022)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      22.06        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.16 (ii)    2.43 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.34         0.30
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.015 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.50           2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21          78.99
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.99         0.59           0.98

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 20201)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2020):     0.94   0.009     4.25    67.99
      + ID2= 2 (  2021):     0.03   0.006     2.50    67.99
        ================================================
        ID = 3 ( 20201):     0.97   0.012     2.50    67.99
```

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

--------------------
| ADD HYD  ( 20201)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 ( 20201):     0.97   0.012     2.50    67.99
      + ID2= 2 (  2022):     0.07   0.015     2.50    78.99
        ================================================
        ID = 1 ( 20201):     1.04   0.027     2.50    68.76

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

--------------------
| ADD HYD  (  0002)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2001):     1.30   0.030     2.50    70.07
      + ID2= 2 ( 20201):     1.04   0.027     2.50    68.76
        ================================================
        ID = 3 (  0002):     2.34   0.057     2.50    69.48

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
---------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2071)|   Area    (ha)=   0.07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  74.00   Dir. Conn.(%)=  74.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.05         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      21.29        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.14 (ii)   10.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.34         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00          0.013 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21          70.88
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.99         0.59           0.88
```

```
        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0207)|   Area    (ha)=   0.56
|ID= 1 DT= 5.0 min |   Total Imp(%)=  63.00   Dir. Conn.(%)=  63.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.35         0.21
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      61.05        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.14 (ii)   11.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.31         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.03          0.098 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.58           2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21          67.42
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.99         0.59           0.84

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR(  2070)|     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   |   0.0060      0.0318

                                 AREA     QPEAK     TPEAK       R.V.
                                 (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0207)      0.559      0.098      2.50       67.42
   OUTFLOW: ID= 1 (  2070)      0.559      0.006      4.17       65.02
```

```
                    PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.10
                    TIME SHIFT OF PEAK FLOW         (min)=100.00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  0.0317

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

--------------------
| ADD HYD  ( 20701)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2070):     0.56   0.006     4.17    65.02
      + ID2= 2 (  2071):     0.07   0.013     2.50    70.88
        ================================================
        ID = 3 ( 20701):     0.63   0.016     2.50    65.65

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0204)|   Area    (ha)=   0.13
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.10         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      29.10        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.37 (ii)   10.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.33         0.09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.02         0.00          0.024 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.58           2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21          71.23
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.99         0.59           0.89

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

```
| STANDHYD (  0208)|   Area    (ha)=   0.04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.03         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.93        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       0.99 (ii)    9.91 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.34         0.11
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.01         0.00         0.008 (iii)
     TIME TO PEAK    (hrs)=       2.25         2.50          2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21         71.22
     TOTAL RAINFALL   (mm)=      80.31        80.31         80.31
     RUNOFF COEFFICIENT   =       0.99         0.59          0.89

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0205)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.22         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.38        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.62 (ii)    2.89 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.28
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.04         0.00         0.045 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50          2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21         78.98
```

```
      TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
      RUNOFF COEFFICIENT   =       0.99         0.59           0.98

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0206)|   Area    (ha)=   0.51
|ID= 1 DT= 5.0 min |   Total Imp(%)=  88.00   Dir. Conn.(%)=  88.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.45         0.06
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      58.54        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.09 (ii)    5.68 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.31         0.15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.09         0.01          0.102 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50           2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21          75.45
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.99         0.59           0.94

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0204):     0.13   0.024     2.50    71.23
      + ID2= 2 (  0205):     0.22   0.045     2.50    78.98
        ================================================
        ID = 3 (  2060):     0.35   0.069     2.50    76.15
```

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

--------------------
| ADD HYD  (  2060)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2060):     0.35   0.069     2.50    76.15
      + ID2= 2 (  0206):     0.51   0.102     2.50    75.45
        ================================================
        ID = 1 (  2060):     0.86   0.171     2.50    75.73

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

--------------------
| ADD HYD  (  2060)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2060):     0.86   0.171     2.50    75.73
      + ID2= 2 (  0208):     0.04   0.008     2.50    71.22
        ================================================
        ID = 3 (  2060):     0.90   0.179     2.50    75.52

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 20601)|     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    |   0.0120      0.0571

                                AREA     QPEAK     TPEAK       R.V.
                                (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2060)      0.905      0.179      2.50      75.52
   OUTFLOW: ID= 1 ( 20601)      0.905      0.012      4.08      74.19

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.70
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0570

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2061)|   Area    (ha)=   0.05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
```

```
      Surface Area     (ha)=       0.04         0.01
      Dep. Storage     (mm)=       1.00         5.00
      Average Slope     (%)=       1.00         2.00
      Length            (m)=      17.32        40.00
      Mannings n           =      0.013        0.250

      Max.Eff.Inten.(mm/hr)=      73.88        55.75
                over (min)        5.00        10.00
      Storage Coeff.  (min)=       1.01 (ii)    5.35 (ii)
      Unit Hyd. Tpeak (min)=       5.00        10.00
      Unit Hyd. peak  (cms)=       0.34         0.16
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.01         0.00          0.009 (iii)
      TIME TO PEAK    (hrs)=       2.25         2.50           2.50
      RUNOFF VOLUME    (mm)=      79.31        47.21          73.51
      TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
      RUNOFF COEFFICIENT   =       0.99         0.59           0.92

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  ( 20602)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 20601):     0.90   0.012     4.08    74.19
      + ID2= 2 (  2061):     0.05   0.009     2.50    73.51
        ==================================================
        ID = 3 ( 20602):     0.95   0.018     2.50    74.15

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

--------------------
| ADD HYD  (  0003)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0002):     2.34   0.057     2.50    69.48
      + ID2= 2 ( 20602):     0.95   0.018     2.50    74.15
        ==================================================
        ID = 3 (  0003):     3.29   0.075     2.50    70.83

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

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--------------------
| ADD HYD  (  0003)|
|   3 +  2 =  1    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0003):     3.29   0.075     2.50    70.83
      + ID2= 2 ( 20701):     0.63   0.016     2.50    65.65
        ====================================================
        ID = 1 (  0003):     3.92   0.091     2.50    70.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2201)|   Area    (ha)=   0.19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.19         0.00
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      35.50        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      1.55 (ii)    2.82 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      0.33         0.28
                                                      *TOTALS*
     PEAK FLOW       (cms)=      0.04         0.00        0.039 (iii)
     TIME TO PEAK    (hrs)=      2.42         2.50         2.50
     RUNOFF VOLUME    (mm)=     79.31        47.21        78.98
     TOTAL RAINFALL   (mm)=     80.31        80.31        80.31
     RUNOFF COEFFICIENT   =      0.99         0.59         0.98

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  (  0006)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0003):     3.92   0.091     2.50    70.00
      + ID2= 2 (  2201):     0.19   0.039     2.50    78.98
        ====================================================
```

```
         ID = 3 (  0006):     4.11   0.130     2.50    70.41

      NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| NASHYD   (  2141)|   Area    (ha)=   0.67   Curve Number   (CN)= 85.0
|ID= 1 DT= 5.0 min |   Ia      (mm)=   5.00   # of Linear Res.(N)= 3.00
--------------------   U.H. Tp(hrs)=   0.20

     Unit Hyd Qpeak  (cms)=   0.128

     PEAK FLOW       (cms)=   0.086 (i)
     TIME TO PEAK    (hrs)=   2.500
     RUNOFF VOLUME    (mm)=  47.120
     TOTAL RAINFALL   (mm)=  80.310
     RUNOFF COEFFICIENT   =   0.587

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

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2142)|   Area    (ha)=   0.36
|ID= 1 DT= 5.0 min |   Total Imp(%)=  20.00   Dir. Conn.(%)=   5.00
--------------------

                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.07         0.29
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      49.14        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        70.09
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.88 (ii)   10.02 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.10
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.00         0.05          0.051 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.50           2.50
     RUNOFF VOLUME    (mm)=      79.31        50.87          52.27
     TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
     RUNOFF COEFFICIENT   =       0.99         0.63           0.65

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.
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--------------------
| ADD HYD  (  0214)|
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2141):     0.67   0.086     2.50    47.12
      + ID2= 2 (  2142):     0.36   0.051     2.50    52.27
        ================================================
        ID = 3 (  0214):     1.03   0.137     2.50    48.92

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0210)|   Area    (ha)=   0.14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.13         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.44        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)         5.00         5.00
     Storage Coeff.  (min)=       1.41 (ii)    4.41 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.23
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.03         0.00         0.028 (iii)
     TIME TO PEAK    (hrs)=       2.42         2.50          2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21         76.73
     TOTAL RAINFALL   (mm)=      80.31        80.31         80.31
     RUNOFF COEFFICIENT   =       0.99         0.59          0.96

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0211)|   Area    (ha)=   0.11
|ID= 1 DT= 5.0 min |   Total Imp(%)=  75.00   Dir. Conn.(%)=  75.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.08	0.03	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	26.58	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		73.88	55.75	
over (min)		5.00	15.00	
Storage Coeff. (min)=		1.30 (ii)	10.22 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.33	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.02	0.00	0.020 (iii)
TIME TO PEAK	(hrs)=	2.42	2.58	2.50
RUNOFF VOLUME	(mm)=	79.31	47.21	71.23
TOTAL RAINFALL	(mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT	=	0.99	0.59	0.89

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0203)	Area (ha)= 0.18
ID= 1 DT= 5.0 min	Total Imp(%)= 32.00 Dir. Conn.(%)= 32.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	0.06	0.12	
Dep. Storage	(mm)=	1.00	5.00	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	34.74	40.00	
Mannings n	=	0.013	0.250	
Max.Eff.Inten.(mm/hr)=		73.88	55.75	
over (min)		5.00	15.00	
Storage Coeff. (min)=		1.53 (ii)	10.45 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		0.33	0.09	
				TOTALS
PEAK FLOW	(cms)=	0.01	0.02	0.027 (iii)
TIME TO PEAK	(hrs)=	2.50	2.58	2.50
RUNOFF VOLUME	(mm)=	79.31	47.21	57.45
TOTAL RAINFALL	(mm)=	80.31	80.31	80.31
RUNOFF COEFFICIENT	=	0.99	0.59	0.72

```
        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0213)|   Area    (ha)=   0.68
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.54         0.14
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      67.18        40.00
     Mannings n             =    0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.27 (ii)    6.85 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.30         0.14
                                                        *TOTALS*
     PEAK FLOW       (cms)=       0.11         0.02         0.131 (iii)
     TIME TO PEAK    (hrs)=       2.50         2.50          2.50
     RUNOFF VOLUME    (mm)=      79.31        47.21         72.88
     TOTAL RAINFALL   (mm)=      80.31        80.31         80.31
     RUNOFF COEFFICIENT   =       0.99         0.59          0.91

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0212)|   Area    (ha)=   0.22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  92.00   Dir. Conn.(%)=  92.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.20         0.02
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.04        40.00
     Mannings n             =    0.013        0.250
```

```
      Max.Eff.Inten.(mm/hr)=      73.88        55.75
                 over (min)        5.00         5.00
      Storage Coeff.  (min)=       1.61 (ii)    4.61 (ii)
      Unit Hyd. Tpeak (min)=       5.00         5.00
      Unit Hyd. peak  (cms)=       0.32         0.22
                                                          *TOTALS*
      PEAK FLOW       (cms)=       0.04         0.00          0.044 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.50           2.50
      RUNOFF VOLUME    (mm)=      79.31        47.21          76.73
      TOTAL RAINFALL   (mm)=      80.31        80.31          80.31
      RUNOFF COEFFICIENT   =       0.99         0.59           0.96

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0203):     0.18   0.027     2.50    57.45
      + ID2= 2 (  0210):     0.14   0.028     2.50    76.73
        ================================================
        ID = 3 (  2130):     0.32   0.055     2.50    65.82

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  2130):     0.32   0.055     2.50    65.82
      + ID2= 2 (  0211):     0.11   0.020     2.50    71.23
        ================================================
        ID = 1 (  2130):     0.43   0.075     2.50    67.17

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

--------------------
| ADD HYD  (  2130)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  2130):     0.43   0.075     2.50    67.17
      + ID2= 2 (  0212):     0.22   0.044     2.50    76.73
```

```
         ================================================
         ID = 3 (  2130):     0.64   0.119     2.50    70.40

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

--------------------
| ADD HYD  (  2130)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 3 (  2130):     0.64   0.119     2.50    70.40
       + ID2= 2 (  0213):     0.68   0.131     2.50    72.88
         ================================================
         ID = 1 (  2130):     1.32   0.249     2.50    71.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
--------------------------------------------------------------------------------
--------------------
| RESERVOIR( 21301)|     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   |   0.0160      0.0793

                                  AREA     QPEAK     TPEAK       R.V.
                                  (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  2130)      1.320      0.249      2.50       71.67
   OUTFLOW: ID= 1 ( 21301)      1.320      0.016      4.08       70.72

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)=  6.40
                  TIME SHIFT OF PEAK FLOW         (min)= 95.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0792

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  2131)|   Area    (ha)=   0.12
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.08         0.03
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      27.69        40.00
     Mannings n             =     0.013        0.250

     Max.Eff.Inten.(mm/hr)=      73.88        55.75
               over (min)         5.00        15.00
     Storage Coeff.  (min)=       1.33 (ii)   10.25 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
```

```
      Unit Hyd. peak  (cms)=       0.33         0.09
                                                              *TOTALS*
      PEAK FLOW       (cms)=       0.02         0.00           0.021 (iii)
      TIME TO PEAK    (hrs)=       2.42         2.58            2.50
      RUNOFF VOLUME    (mm)=      79.31        47.21           70.26
      TOTAL RAINFALL   (mm)=      80.31        80.31           80.31
      RUNOFF COEFFICIENT   =       0.99         0.59            0.87

        (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
             CN*  =  85.0    Ia = Dep. Storage  (Above)
       (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
            THAN THE STORAGE COEFFICIENT.
      (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| ADD HYD  ( 21302)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 ( 21301):     1.32   0.016     4.08    70.72
      + ID2= 2 (  2131):     0.12   0.021     2.50    70.26
        ================================================
        ID = 3 ( 21302):     1.43   0.032     2.50    70.68

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

--------------------
| ADD HYD  (  0005)|
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 1 (  0006):     4.11   0.130     2.50    70.41
      + ID2= 2 ( 21302):     1.43   0.032     2.50    70.68
        ================================================
        ID = 3 (  0005):     5.55   0.163     2.50    70.48

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

--------------------
| ADD HYD  (  0005)|
|   3 +  2 =  1    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
        ID1= 3 (  0005):     5.55   0.163     2.50    70.48
      + ID2= 2 (  0214):     1.03   0.137     2.50    48.92
        ================================================
        ID = 1 (  0005):     6.58   0.300     2.50    67.09

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