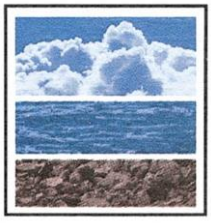
Functional Servicing Report

Quality Inn and Conference Centre Drive Through Development

Prepared for: 1489338 Ontario Inc.
(Andy Sahota – Sahota Hotels)



September 29, 2023

Chisholm, Fleming and Associates,
Consulting engineers

Table of Contents

List of Figures

List of Tables

List of Appendices

1 Introduction

The Quality Inn and Conference Centre is proposing to expand the development of the existing site located at 924 King Street with the addition of two stand-alone restaurants as presented in the Site Plan prepared by MiKo Urban. As part of the pre-development consultation, MTO has set two conditions as guidelines in the preparation of the Plan:

- New stormwater facilities are to be installed outside of a 14m MTO setback
- Post-development flows to the buffer zone must not exceed pre-development conditions

Chisholm, Fleming and Associates (CFA) have been retained by the Quality Inn and Conference Centre to provide the engineering services to develop a Functional Servicing Report, including a stormwater management plan, site servicing plan, and grading plan to support the Site Plan Application.

2 Site Description

The Site is located at the northwest corner of King Street and Heritage Drive (Hwy 12), in the southerly portion of the Town of Midland, in the County of Simcoe. It is flanked by a commercial plaza to the north and the big box store, Home Depot, to the west. To the east are commercial/warehousing properties and a restaurant, and the south part of the property houses the inn and motel. The Heritage Drive flankage and section of King Street in front of the Site are under the jurisdiction of the Ministry of Transportation (MTO).

The Site is fully developed comprising the Inn, a 3-storey building with 106 guest rooms completed with a conference centre and restaurant, and a single storey motel with 15 rooms. The Site is fully serviced with municipal water supply, communal sewage disposal, storm sewage and utilities. Most of the open space is paved for the purpose of parking and to provide egress and ingress. Access to the site is via the shared driveway leading to King Street and constructed over publicly owned property.

The Site area is 2.05ha which is identified as a strategic growth area and a commercial corridor in the Town's Official Plan (TOP). The Location Map for the Site is shown in Figure 1.

Figure 1 – Location Map

3 Stormwater Management

3.1 Existing Storm Sewer and Drainage System

In general, the lot drains from west to east, utilizing catchbasins and sewers to collect runoff before outletting to a ditch along the west boulevard on King Street via a 650mm diameter CSP pipe. The Site is situated within the Wye River watershed which is part of the South Georgian Bay Shoreline watershed.

Hydraulic flow sheets and drainage area plans for the existing system were not available. A drainage area map was developed using topographical survey, aerial imagery and information collected during a site visit. The total drainage area contributing to the 650mm CSP, comprise the external from the north commercial properties of 0.81ha and the internal of 2.05 ha for a total of 2.86ha. The existing drainage area map is provided in Appendix A.

The existing 300mm diameter storm sewers are approximately 1-2.6m deep and at relatively steep slopes in the range of 5.5-7.5% and generally paralleling existing grades. There are no defined quality or quantity treatment facilities integrated into the existing on-site stormwater system.

3.2 Proposed Storm Sewer System

Post-development drainage will be conveyed via the modified storm sewer system, where flows will be released not greater than pre-development rates. As part of the Site development expansion, 1,462.35m^2 of the grassed area is proposed to be paved, and 12.62m2 converted to building space. The proposed drainage area map and storm sewer calculation sheet are provided in Appendix B.

3.2.1 Storm Sewers – Minor System

The storm sewer system for the development expansion has been designed based on the Town's criteria of conveying a 5-year storm event. The proposed sewer modifications are shown on the Site Servicing Plan appended as Appendix C. A new reach of storm sewer is proposed to convey the drainage from the snow melt designated area, at the south-west corner of the Site to the existing system. The preliminary design pipe sizes and slopes for these sewers are provided on the plan and the hydraulics are shown in the Storm Sewer Design Sheet, Appendix B. The system is fully gravity with outlet being maintained through the existing 650mm CSP which discharges to the ditch on King Street. A gravity system is proposed with the inverts for the system controlled by the existing structures on-site.

The section of the existing storm sewer passing underneath Building D is proposed to be concrete encased.

3.2.2 Overland Flow – Major System

The flows greater than the 5-year event will be conveyed by overland routes to the controlling outlet points. A super pipe section 1500 mm diameter is proposed to detain runoffs greater than the allowable and released at controlled rates.

The overland flow routes are shown in the drainage area maps in Appendix A and B.

3.3 Stormwater Management Plan

3.3.1 Stormwater Management Targets

Runoff Quality Control: Enhanced level of quality control (i.e., 80% TSS removal) is to be provided to runoff originating from the newly paved areas.

Runoff Quantity Control: Post-development flows from the subject property cannot exceed the pre-development levels for all storm events up to the 100-year storm.

Since the subject property is located within the jurisdiction of Ministry of Transportation of Ontario (MTO), the following conditions and constraints are applicable to the stormwater management facility design:

- All proposed permanent buildings and structures both above and below ground, utilities, frontage roads/fire routes, essential parking spaces, storm water management facilities, including ponds and associated berms, storages, and noise walls must be set back 14.0 metres from the Highway right-of-way limit.
- MTO requires post to pre-development control for 5 to 100-year storm events. A table should be provided in report to confirm that 5, 10, 25, 50 and 100-year storm events are controlled to pre-development level.
- Rooftop storage and unconventional underground storage such as chambers and infiltration systems are not permitted by MTO. Underground storages provided in manholes, storm sewer, super pipe or storage tank are permitted as such storages are accessible through a maintenance hole and can be easily inspected for their continued functionality.
- MTO only allows restrictor pipe of approximately 5m length for quantity control and part of it should be located within the Municipal limits.

3.3.2 Runoff Quality Control

As noted above, an Enhanced level of quality control (i.e., 80% TSS removal) is to be provided to runoff originating from the newly paved areas. Since the proposed site plan involves converting various smaller areas from grass to pavement (approximately eight in total as shown in the proposed drainage area plan, Appendix B), it would not be technically feasible to provide separate quality treatment in these individual areas. Rather, the intention is to provide runoff quality control to a larger, lumped area, such that the target TSS removal is achieved through a balanced approach. The sediment removal is proposed to be provided by an appropriately sized Oil/ Grit Separator (OGS), located as shown in the site servicing plan in Appendix C.

The proposed drainage area map also shows the extent of the site area to drain through the OGS, i.e., Catchments 2, 3, 4 and 8, with a total area of 4,567 m^2 or 0.46ha. The Stormceptor EF sizing report in Appendix E shows that an EF4 unit would provide a 58% TSS removal for the 0.46ha drainage area.

Detailed calculations of the water quality balance are provided in Appendix F with a summary provided in Table 1.

Table 1: Quality Control Balance Calculations

		Area (m^2)	Required TSS Removal	Proposed TSS Removal
Areas Draining Through OGS (total area 4,567 m^2)	Area to be converted from grass to pavement (i.e., areas requiring quality control)	848	80%	58%
	Area to be converted from pavement to building	0	0%	100%
	Pavement area remaining as pavement	2,875	0%	58%
	Building area remaining as building	844	0%	0%
Areas Not Draining Through OGS (total area 19,558 m^2)	Area to be converted from grass to pavement (i.e., areas requiring quality control)	612	80%	0%
	Area to be converted from pavement to building	782	0%	100%
	Pavement area remaining as pavement	13,543	0%	0%
	Building area remaining as building	4,621	0%	0%
Total Site		**24,125**	**5%**	**12%**

Notes:

1. Required TSS Removal for Total Site is calculated by a sum of the required removal rates of the individual areas divided by the total area , i.e. (848 x 0.80 + 2875 x 0.00 + 844 x 0.00 + …….) / 24125 = 0.048.
2. The 58% removal rate based on Stormceptor EF4 sizing report (Appendix E).
3. Area to be converted from pavement to building credited with 100% TSS removal due to runoff from roof areas being considered clean.

Table 1 shows that the 80% TSS removal, required in the areas proposed to be converted from grass to pavement, corresponds to a total site TSS removal requirement of 5%. The proposed TSS removal strategy results in a total site TSS removal rate of 12% which exceeds the requirement.

3.4 Runoff Quantity Control

As noted above, the quantity control target is for post-development flows from the subject property to not exceed the pre-development levels for all storm events up to the 100-year storm, thus meeting both municipal and MTO requirements.

For the same reasons as those presented under the quality control sections, the proposed strategy is to provide a balanced approach to the quantity control strategy since the provision of quantity controls in the numerous newly paved areas would be technically unfeasible. The proposed SWM strategy therefore involves overcontrolling certain parts of the site to compensate uncontrolled flows from other parts, while achieving post-to-pre control at the site's outlet.

The Visual OTTHYMO model (VO2) was used for the modelling of pre-development (existing) conditions. Design storms were developed from rainfall depths indicated by MTO's IDF Curve Lookup tool for the Midland area (refer to Appendix G). The 12-hour and 24-hour SCS Type II distributions were used in the VO2 modelling. The Existing Drainage Area Plan (Appendix A) shows the extents and basic input parameters of the modelled catchments. It is noted that Catchment 7 represents an external drainage area, draining through the subject property. Peak flows at the site outlet, indicated by CBMH#9, are summarized in Table 2. The VO2 output is included in Appendix H.

Table 2: Pre-Development (Existing) Peak Flows

Storm Return Period	Peak Flow (m^3/s)	
	12-hr SCS Type II	24-hr SCS Type II
2	0.39	0.41
5	0.53	0.56
10	0.64	0.67
25	0.77	0.81
50	0.87	0.90
100	0.97	1.01

The post-development modelling is based on the Proposed Drainage Area Plan, shown in Appendix B. In comparison with the Existing Drainage Area Plan (Appendix A), there are no modifications being proposed in terms of drainage patterns or flow directions. The only major change is the separation of the area proposed for pavement to accommodate snow storage,

represented by Catchment 8, into a separate catchment area. Other revisions consist of slightly increased runoff coefficients in other catchment due to the conversion of grass to pavement.

Since the proposed site modifications are relatively minor compared to the size of the overall drainage area, a scenario with uncontrolled flows was run to determine the potential peak flow increases. The peak flows are summarized in Table 3, including a percent increase compared to existing conditions.

Table 3: Uncontrolled Post-Development Peak Flows

Storm Return Period	Peak Flow (m^3/s)		Peak Flow Increase compared to Existing Conditions	
	12-hr SCS Type II	24-hr SCS Type II	12-hr SCS Type II	24-hr SCS Type II
2	0.41	0.43	4.6%	5.4%
5	0.56	0.58	5.3%	4.8%
10	0.66	0.69	3.0%	2.5%
25	0.79	0.82	2.3%	2.1%
50	0.88	0.92	2.2%	2.0%
100	0.98	1.02	2.0%	1.8%

Although the peak flow increases are relatively minor, the proposed SWM strategy includes the provision of underground storage in the form of an oversized pipe and manhole, as permissible by MTO. In selecting the location of the underground storage within the existing storm sewer system, consideration was given to the technical effectiveness of the selected location, relative ease of construction due to the fact that the storm sewer system is generally existing and only minor modifications are being proposed with objectives to minimize the need for provisions of temporary storage facilities. The storage options were considered and as listed in Table.

Table 4: Quantity Control Storage Options Evaluation

Option	Location of Storage	Catchments Being Controlled	Evaluation
1	CB#1	8	This option was unable to achieve overall post-to-pre control due to insufficient overcontrol
2	Between EX. DCB#2 and EX. DCB#3	2, 3, 8	This option was unable to achieve overall post-to-pre control due to insufficient overcontrol
3	Between EX. DCB#3 and CBMH#9	2, 3, 4, 8	Selected option
4	Downstream of CBMH#9	1, 2, 3, 4, 5, 6, 7, 8	This option would have resulted in the largest storage requirements and location within the 14m MTO setback

As can be seen in Table 4, the only feasible storage option is that of locating the facility between EX. DCB#2 and 3 and controlling the peak flows from Catchments 2, 3, 4 and 8. This scenario was modelled in VO2 with results summarized in Table 5 (refer to Appendix H for output files).

Table 5: Post-Development Peak Flows and Storage Requirements

Storm Return Period	Peak Flow (m^3/s)		Required Storage (m^3)	
	12-hr SCS Type II	24-hr SCS Type II	12-hr SCS Type II	24-hr SCS Type II
2	0.40	0.42	24	26
5	0.54	0.56	38	41
10	0.63	0.66	49	52
25	0.75	0.78	63	67
50	0.84	0.87	74	78
100	0.93	0.96	85	90

As per the storages indicated in Table 5, the maximum required storage equals 90 m^3. This storage volume will be provided by a 1500mm dia. pipe (64m^3 storage volume), a 3000mm dia. manhole upstream of the 1500mm pipe (25m^3 storage volume) and 300mm dia. pipes upstream of the manhole (1m^3 storage volume), resulting in a total available volume of 90m^3. The location of the oversized pipe and manhole is shown on the Site Servicing Plan in Appendix C.

Table 6: Volume Storage Calculations

Volume Storage Required : 90m2					
Oversize Pipe		Manhole		300mm STM	
Pipe Dia. (m)	1.5	Manhole Dia. (m)	3.0	Pipe Dia. (m)	0.3
Length of Pipe (m)	36.1	Drop between Inlet and Outlet (m)	3.5	Length of Pipe (m)	18.2
Cross-sectional Area (m2)	1.8	Cross-section Area (m2)	7.07	Cross-sectional Area (m2)	0.07
Volume of Pipe	63.8	Volume of Drop between Inlet and Outlet (m3)	25.0	Volume of Pipe	1.2
Total Storage Volume (m3)					90

Release rate from the storage will be controlled by a 5.3m long, 200mm dia. restrictor pipe located downstream of the storage. The storage – discharge relationship is provided in Table 7 with calculations included in Appendix I.

Table 7: Storage – Discharge Relationship

Storage (m^3)	Discharge (L/s)
0	0
3	0
7	36
13	51
19	62
25	72
32	81
39	88
46	95
52	102
59	108
66	114
72	120
82	125
87	130
90	135

4 Sanitary Sewer System

4.1 Existing Sanitary Sewer System

An existing sanitary sewer of 200mm diameter services the Quality Inn hotel via a gravity system. The sanitary service slope of 5.2% is computed based on the measured inverts. It begins from the north corner of the building and runs northeast under the parking lot to a maintenance hole in the west boulevard of King Street where flows enter the 300mm municipal sanitary sewer. The existing site sewer system is shown in Appendix C, Site Servicing Plan.

4.2 Proposed Sanitary Sewer System

The existing building sewer is proposed to also be the outlets for the Buildings C and D and drain locations and preliminary routing for sanitary laterals are shown on the Site Servicing Plan, Appendix C. The existing sewer is deep enough to service the slab on construction for the two buildings. The developments' sanitary flows will be conveyed to the existing sanitary service within private property.

A section of the existing sewer runs underneath Building C, allowing a connection via gravity within the building compound. Additionally, the section of sewer running underneath Building C is proposed to be concrete encased.

Building D is proposed to connect to the existing sanitary sewer via a gravity service by utilizing a doghouse maintenance hole west of Building C.

In accordance with Town standards, the sanitary laterals will be 150mm diameter.

To evaluate whether the municipal sewer has sufficient capacity to take the additional flows from the proposed Building C and D, estimated flow rates were calculated based on Town of Midland standards. The municipal sewer should be able to carry flows from the entire commercial lot and based on the existing and proposed buildings on site, the capacity initially designed for will not be exceeded. See Table 8 below for the summary of flow rates.

Table 8: Estimated Sanitary Flow

Existing Flow (L/day)	Actual Existing and Proposed Land Use	Based on Commercial Zoning
Flow Rate (Existing Hotel and Motel)	38,415	51,250
Peak Factor	2	2
Max Flow	76,830	102,500
Infiltration	410,000	410,000
Max Flow	486,830	512,500
Proposed Additional Flow (L/day)		
Flow Rate (Building C)	949	
Flow Rate (Building D)	1,036	
Peak Factor	2	
Max Flow	3,970	
Total Flow Rate (L/day)	490,800	512,500
Total Flow Rate (L/s)	6	6

The existing 200mm sewer service at 5.2% slope has a capacity of 75 L/s. As per the table above, the estimated flow rate for the proposed development is 6 L/s. As such, the existing sanitary service will also have sufficient capacity to carry the additional flows generated from the addition of Buildings C and D.

5 Water Servicing

5.1 Proposed Sanitary Sewer System

The Quality Inn is serviced by a 150mm diameter water service off the 400mm watermain along King Street. The building has sprinkler system with fire pumps inside the mechanical room. A yard hydrant is located at the northeast corner at the front entrance of the Inn. On February 28, 2023, an annual sprinkler system inspection was conducted at the hotel (Building A) and the static pressure was measured at 56 psi.

5.2 Proposed Water Servicing System

The water distribution network for the developments will consist of water services located within private property connecting to the existing 150mm water service. Preliminary alignments for the water services at Buildings C & D are shown on the Site Servicing Plan in Appendix C. A new fire hydrant is proposed to replace the existing hydrant at the northeast corner of the Quality Inn.

Based on the development's size and usage, it is recommended a 50mm water service branch be installed from the existing 150mm service, before separating into two 25mm services to supply each Building C and D.

A section of the existing 150mm water service runs underneath Building C and is recommended to be encased with concrete.

To evaluate whether the municipal watermain has sufficient capacity to accommodate the additional demands from the proposed Building C and D, estimated water demand was

calculated based Town of Midland standards. The municipal watermain should be able to carry flows from the entire commercial lot and based on the existing and proposed buildings on site, the demand initially designed for will not be exceeded. See Table 9 below for the summary of water demand. The estimated fire flow calculations are documented in Table 10 below.

Table 9: Estimated Water Demand

Existing Demand (L/day)	**Actual Existing and Proposed Land Use**	**Based on Commercial Zoning**
Average Daily Demand (Existing Hotel and Motel)	38,415	51,250
Max Daily Demand Factor	2	2
Max Day Demand	76,830	102,500
Fire Flow (Hotel)	12,600,000	12,600,000
Max Day Demand + Fire Flow	12,676,830	12,702,500
Peak Hourly Demand Factor	4.5	4.5
Peak Hour Flow (Less than Max Day + Fire)	172,868	230,625
Proposed Additional Demand (L/day)		
Average Daily Demand (Building C)	949	
Average Daily Demand (Building D)	1,036	
Max Daily Demand Factor	2	
Max Day Demand	3,970	
Total Water Demand (L/day)	12,680,800	12,702,500
Total Water Demand (L/s)	147	147

Table 10: Estimated Fire Flow

	Existing Hotel	Existing Motel	Proposed Building D (Larger than Building C)
Required Fire Flow (RFF) (L/min)	40,161	7,774	6,715
C (highest coefficient, as building material is unknown)	1.5	1.5	1.5
A (m2)	14,811	555	414
RFF (L/min) Rounded to nearest 1,000	40,000	8,000	7,000
Occupancy Contents*	34,000	6,800	5,950
Automatic Sprinkler Protection**	4000	0	0
Exposure Adjustment Charge	0	0	0
Final RFF	30,000	6,800	5,950
Final RFF (L/min) Rounded to nearest 1,000	30,000	7,000	6,000

*Occupancy Contents used for Hotel and motel is residential. For Building D is Shops/ Stores. Both 15% reduction.

**Lowest Automatic Sprinkler Protection reduction of 10% used for Hotel based on full coverage.

6 Lot Grading

6.1 Existing Site Conditions

In general, the Site consists of steep grades, rising from King Street to the back of the lot averaging 5% and a height difference of approximately 9m. The runoff from the back of the lot flows to the front via paved ditches to the catch basin at the north and outlets via a 650 CSP to the ditch on King Street.

6.2 Proposed Grading Plan

The grade changes to the Site will occur mainly around the proposed Building pads C and D and to the southwest where the snow storage is to be located.

The proposed grading modifications are shown on the Grading Plan in Appendix D. The grading principles where changes are being effected are to limit slopes where pedestrians have to access to a maximum of 4%, driveways to a maximum of 5.5% and minimum of 0.5% in paved areas to maintain adequate drainage. To achieve these, it is necessary to introduce retaining walls where shown and to do some regrading of the parking in the specified locations. As part of the grading restoration plan, disturbed areas where paving is not proposed, the areas are to receive topsoil and sodding treatment.

7 Sediment and Erosion Control

The recommended erosion and sediment control measures during site construction are described as follows:

- All erosion and sediment control measures shall be in place prior to the commencement of construction.
- During construction phase of the project, provide sediment and erosion control measures (e.g. silt fence, sediment trap, etc.) as required to minimize the water-borne sediments being transport off site. Provide regular inspections and repairs, on a weekly basis as well as after significant rainfall events, on all temporary erosion and sediment measures until completion of all the work.
- It is anticipated that periodic maintenance of the stormwater control devices will be required. The accumulated sediments/ oil collected in the oil/ grit separator should be removed by a licensed vacuum trunk contractor on an as required basis. The restrictor pipe should be checked periodically during dry periods to ensure that it is not clogged or damaged and is functioning properly.

8 Conclusions

The Functional Servicing Report recommendations and findings are summarized as follows:

Stormwater Management

- To maintain post-development peak rates of runoff to pre-development rates, 90m^3 of on-site storage and a 200mm restrictor pipe is required. The storage volume will be attained through a 1500mm pipe, 3000mm manhole, and a 300mm pipe.
- An Oil/Grit Separator (OGS) Stormceptor EF4 is recommended to provide quality treatment to the surface runoff before outletting into the road right-of-way ditch.
- The existing storm sewer system has the capacity to convey the additional flows introduced to the system.

Sanitary Servicing

- Based on the site designation as a commercial corridor in the Town Official Plan, and estimated flow rates based on Town of Midland standards, the sanitary sewer and sanitary service have sufficient capacity to support the proposed development.

Water Servicing

- Based on Town standards, the site designation as a commercial corridor in the Town Official Plan, and estimated flow rates based on Town of Midland standards, the watermain and existing 150mm water service have sufficient capacity to meet the additional demand as result of Buildings C and D.
- A 50mm water service tapped into the 150mm watermain to supply building's C and D
- The buildings will not be equipped with sprinklers but are within a 75m radius of the existing yard hydrant.

Lot Grading

- Due to site relative steep grades, retaining walls are required at selected locations and some regrading of the existing parking in the noted MTO buffer zone will be regraded.

General

- The existing infrastructure is adequate to meet the demands that will be generated by the two building additions.
- Based on the site zoning designation, no further sewage or water allocation is required for the site.
- The site inherent steep grades will require some retaining wall construction to maintain safe pedestrian slopes.

Appendix A – Existing Drainage Area Plan

KING STREET

HERITAGE DRIVE (HWY 12)

NODE 5

NODE 4

NODE 3

NODE 2

NODE 1

5
1.16 | 0.71

4
0.14 | 0.70

6
0.81 | 0.66

1
0.45 | 0.90

2
0.22 | 0.80

3
0.07 | 0.77

1 STOREY CONCRETE BLOCK BUILDING "BARBER HASKILL"

3 STOREY BRICK SIDED HOTEL "QUALITY INN"

Solar Heating and Voltaic Panels

Internal Garbage Storage Area

TBM 215.83
PUNCHING ARROW ON FIRE HYDRANT

LINE RETIRED - THE NORTH AND SOUTH HALVES OF LOT 100, CONCESSION 1

HomeDept

LEGEND

- DRAINAGE AREA BOUNDARY
- IMPERVIOUS AREA
- OVERLAND FLOW ROUTE
- DRAINAGE AREA IN HA (X / X)
- CATCHMENT #
- RUNOFF COEFFICIENT

REGIONAL: N/A

STAMP

SCALE: 1:500 HORIZ.

NO.	DATE	BY	REVISIONS
1	29/09/2023	N.V.	FSR

DESIGN	F.F./S.K.	CH'KD	N.M.	DATE	DECEMBER, 2022
DRAWN	N.V.	CH'KD			

Chisholm, Fleming and Associates
consulting engineers

MIDLAND INN

EXISTING DRAINAGE AREA PLAN

MUNICIPAL DRAWING NO.

REGIONAL DRAWING NO.

CONTRACT NO.

SHEET 1 OF 1

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Appendix B – Proposed Drainage Area and Storm Sewer Calculations

KING STREET

HERITAGE DRIVE (HWY 12)

CONSTRUCTION NORTH

4.5m–200mm STM @ 0.5%

6.6m–100mm STM @ 6.0%

MH#6

CBMH#9

6.0m–300mm STM @ 6.4%

MH#8

4.5m–100mm STM @ 6.0%

SAN

MH#5

CB#7

OGS#4

NODE 3

11.5m–150mm STM @ 1.0%

EX. DCB#3

1.8m–300mm STM @ 1.1%

18.2m–300mm STM @ 1.1%

36.8m–1500mm STM @ 0.5%

14.7m–300mm STM @ 1.0%

EX. DCB#2

CB#1

NODE 2

NODE 1

14m MTO SETBACK

BUILDING A

BUILDING B

1 STOREY CONCRETE BLOCK BUILDING "BARBER HASKILL"

3 STOREY BRICK SIDED HOTEL "QUALITY INN"

5	1.11 | 0.78
6	0.03 | 0.90
4	0.14 | 0.80
7	0.81 | 0.66
1	0.45 | 0.90
8	0.07 | 0.90
2	0.19 | 0.89
3	0.06 | 0.90

LEGEND

- DRAINAGE AREA BOUNDARY
- GRASSED AREAS TO BE PAVED
- IMPERVIOUS AREA
- OVERLAND FLOW ROUTE
- DRAINAGE AREA IN HA
- X / X X — CATCHMENT # / RUNOFF COEFFICIENT

REGIONAL: N/A

STAMP

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DESIGN	F.F./S.K.	CH'KD	N.M.	DATE
DRAWN	N.V.	CH'KD		DECEMBER, 2022

Chisholm, Fleming and Associates
consulting engineers

MIDLAND INN

PROPOSED DRAINAGE AREA PLAN

MUNICIPAL DRAWING NO.

REGIONAL DRAWING NO.

CONTRACT NO.

SHEET 1 OF 1

Drawing: Y:\295-01 MIDLAND INN\3-CAD\SHEETS\295-01 PROPOSED DRAINAGE AREA PLAN.DWG
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STORM SEWER DESIGN CALCULATIONS

MIDLAND INN

PROJECT # 295-01

DESIGNED BY NV

DATE SEP. 2023

CHECKED BY SK

DATE SEP. 2023

MINIMUM DROP (mm) 30 (0deg), 75 (1-45 deg), 150 (46-90deg)

MAXIMUM MH SPACING 110m (300-750mm PIPE), 130m (525-1050mm PIPE), 150m (1200mm PIPE)

MAXIMUM CB SPACING 80m

I100yr=2193.1/(tc+9.04)^0.871

I5yr=1135.4/((tc+7.5)^0.841

Q=0.0028CIA

STORM FREQUENCY 5-yr for STM sewer system, 100-yr for STM storage system

DESIGN 'n' 0.013

MINIMUM COVER 1.5m

Cc=sum(AiCi)/sum(Ai)

MINIMUM/ MAXIMUM VELOCITY 0.75m/s / 5 m/s

MAXIMUM % LOAD 90%

LOCATION				DRAINAGE AREA				RUNOFF			PIPE SELECTION																REMARKS
FROM		TO		A	C	AxC	Cum. AxC	Cum. Tc Ti=15	i	Q	D	Pipe So	Qf	Vf	Pipe L	Time of Flow	% Load Q/Qf	V/Vf	Vactual	DROP IN UPSTREAM	FALL IN SEWER	UPSTREAM			DOWNSTREAM			
MH NO.	STA.	MH NO.	STA.	ha.				min.	mm/h	m3/s	mm	%	m3/s	m/s	m	min.						SURF. OR T/G	INVERT	COVER	SURF. OR T/G	INVERT	COVER	
CB1		EX.DCB2		0.07	0.90	0.063	0.063	15.00	82.79	0.014	300	1.00%	0.097	1.37	14.2	0.24	15.0%	0.72	0.98		0.14	220.88	219.88	0.70	220.91	219.74	0.87	
NODE 2		EX.DCB2		0.19	0.89	0.169	0.169	15.00	82.79	0.039	300	2.43%	0.151	2.13	19.4	0.18	25.8%	0.84	1.79		0.47	221.38	220.08	1.00	220.91	219.61	1.00	
EX.DCB2		EX.DCB3		0.06	0.90	0.054	0.286	15.24	82.05	0.065	300	7.51%	0.265	3.75	64.6	0.35	24.6%	0.83	3.11	0.15	4.85	220.91	219.59	1.02	216.43	214.74	1.39	
EX.DCB3		OGS4		0.14	0.80	0.112	0.398	15.59	81.02	0.090	300	1.10%	0.101	1.43	1.8	0.02	88.3%	1.07	1.54	0.15	0.02	216.43	214.59	1.54	216.29	214.57	1.42	
OGS4		MH5					0.398	15.61	80.96	0.090	300	1.10%	0.101	1.43	18.2	0.20	88.3%	1.07	1.54	0.03	0.20	216.57	214.55	1.73	216.55	214.34	1.91	
MH5		MH6					0.398	15.80	80.38	0.089	1500	0.55%	5.242	2.97	36.8	0.53	1.7%	0.39	1.16	2.46	0.18	216.55	211.89	3.16	214.51	211.71	1.30	Storage Pipe
Building C		MH6		0.04	0.90	0.036	0.036	15.00	82.79	0.008	100	6.00%	0.013	1.61	6.6	0.07	65.4%	1.05	1.69		0.40	214.67	213.62	0.95	214.51	213.22	1.19	
MH6		CBMH9					0.434	16.33	78.87	0.023	200	0.51%	0.023	0.75	5.3	0.12	100.0%	1.00	0.75	0.07	0.03	214.51	211.63	2.68	214.30	211.61	2.50	Restrictor Pipe
NODE 1		NODE 3		0.45	0.90	0.405	0.405	15.00	82.79	0.093	300	6.42%	0.245	3.47	117.8	0.61	38.0%	0.93	3.22		7.56	222.02	220.95	0.77	214.83	213.39	1.14	
CB7		NODE 3		0.03	0.90	0.026	0.026	15.00	82.79	0.006	150	1.00%	0.015	0.86	11.5	0.24	39.4%	0.94	0.81		0.12	214.71	213.58	0.98	214.83	213.46	1.21	
NODE 3		MH8					0.431	15.61	80.95	0.097	300	6.42%	0.245	3.47	22.6	0.12	39.6%	0.94	3.26		1.45	214.83	213.39	1.14	214.62	211.94	2.38	
Buidling D		MH8		0.04	0.90	0.036	0.036	15.00	82.79	0.008	100	6.00%	0.013	1.61	4.5	0.04	65.4%	1.05	1.69		0.27	214.78	213.45	1.24	214.62	213.18	1.34	
MH8		CBMH9					0.441	15.61	80.95	0.099	300	6.42%	0.245	3.47	4.5	0.02	40.5%	0.95	3.29	1.48	0.29	214.62	211.91	2.41	214.30	211.62	2.38	
CBMH9		Ditch		1.95	0.72	1.401	2.204	16.45	78.55	0.481	650	0.55%	0.563	1.70	14.6	0.13	85.5%	1.07	1.81	0.07	0.08	214.30	211.53	2.12	214.11	211.45	2.01	

Appendix C – Site Servicing Plan

KING STREET

HERITAGE DRIVE (HWY 12)

TBM 215.83
PUNCHING ARROW ON
FIRE HYDRANT

6.6m–100mm STM @ 6.0%

4.5m–200mm STM @ 0.5%

MH#6 (2400mm)
T/G 214.51
W.INV 213.22
S.INV 211.71
N.INV 211.63

INV. 213.62
50mm WS

CEMENT GROUT AND ABANDON 300mm STM

CONCRETE ENCASE WS

CONCRETE ENCASE SAN

REPLACE CB WITH
CBMH#9 (1800mm)
T/G 214.30
N. INV 211.53
S. INV 211.62
S/W INV 211.61

MAINTAIN EX. 6.0m–300mm STM @ 6.4%

MH#8
T/G 214.62
N.INV 211.91
E.INV 213.18
S.INV 211.94

4.5m–100mm STM @ 6.0%

INV. 211.83

BLDG C
SAN

F.F.
214.90

SAN. MH (1200mm)
T/G 215.11
S.INV 212.18
E.INV 213.05
N.INV 212.15

INV. 213.45

BLDG D
F.F. 215.00

4.5%

SAN

INV 213.99

PLUG AND ABANDON 300mm STM

36.8m–1500mm CONC. STM WITH
DETENTION STORAGE @ 0.5%

18.2m–300mm STM @ 1.1%

CONCRETE ENCASE STM

OGS#4 (1200mm)
T/G 216.57
W.INV 214.57
E.INV 214.54

EX.DCB#3
E.INV 214.59

11.5m–150mm STM @ 1.0%

MH#5 (3000mm)
T/G 216.29
W.INV 214.34
N.INV 211.89

CB#7
T/G 214.71
E.INV 213.58

1.8m–300mm STM @ 1.1%

BUILDING A

CB#1
T/G 220.88
E.INV 219.87

EX.DCB#2
W.INV 219.74

14.7m–300mm STM @ 1.0%

14m M.T.O. SETBACK

Temp. Snow
Storage F/W
Solar Melt

Internal Garbage
Storage Area

BUILDING B

1 STOREY CONCRETE BLOCK BUILDING

HomeDept

CONSTRUCTION NORTH

NOTES

1. ALL STORM LATERALS ARE TO BE OF 100mm DIA. UNLESS NOTED OTHERWISE
2. ALL SANITARY LATERALS ARE TO BE OF 150mm DIA. UNLESS NOTED OTHERWISE
3. ALL WATER SERVICES ARE TO BE OF 25mm DIA. UNLESS NOTED OTHERWISE

Drawing: Y:\295-01 MIDLAND INN\3-CAD\SHEETS\295-01 SITE SERVICING PLAN.DWG
Layout Tab: SITE SERVICING PLAN
Date: 03/06/2024 Time: 10:40:52 AM

REGIONAL	N/A	STAMP	
SCALE	1:500 HORIZ.		

NO.	DATE	BY	REVISIONS
1	29/09/2023	N.V.	FSR

DESIGN	F.F./S.K.	CH'KD	N.M.	DATE
DRAWN	N.V.	CH'KD		DECEMBER, 2022

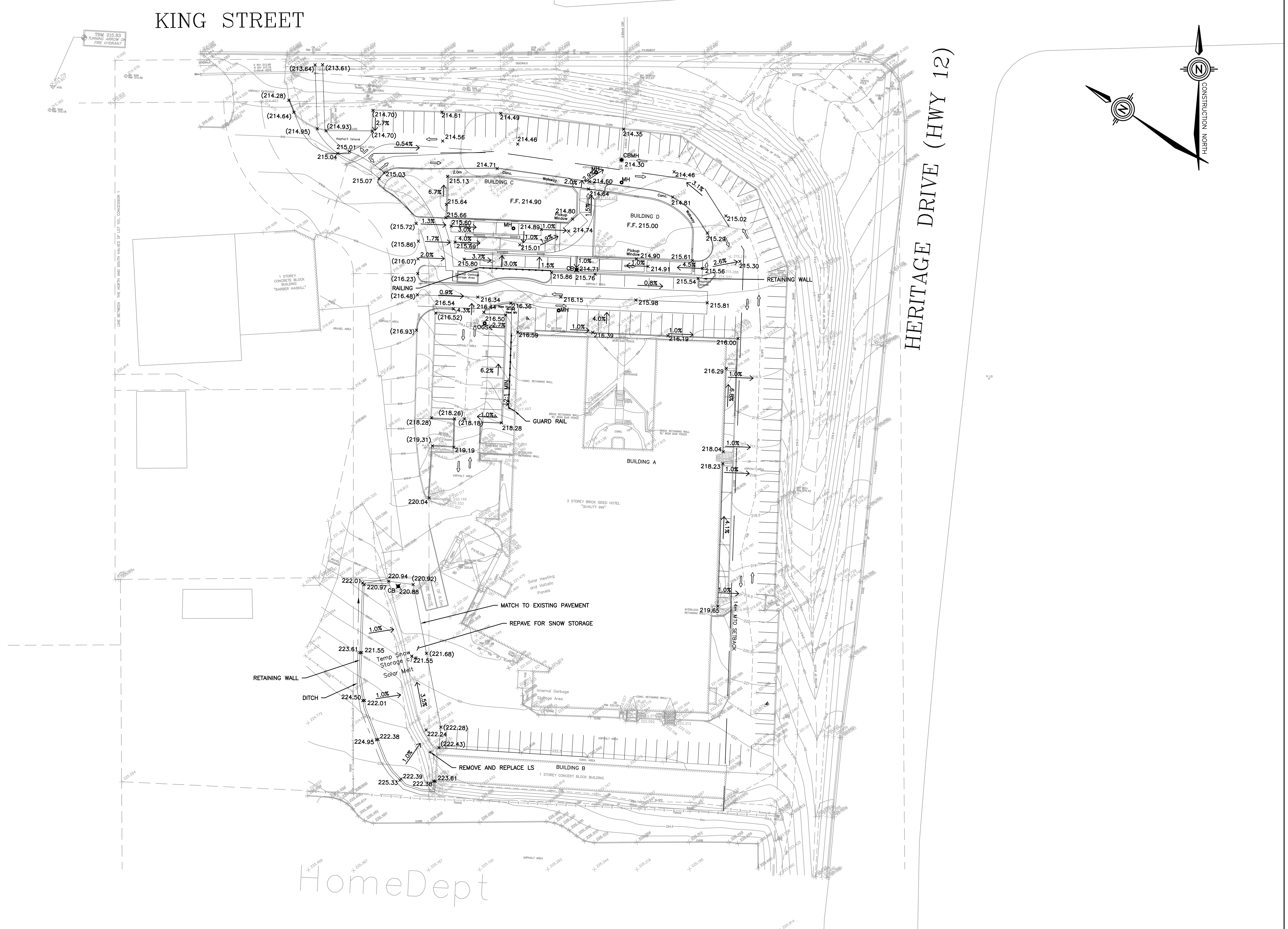
Chisholm, Fleming and Associates
consulting engineers

MIDLAND INN

SITE SERVICING PLAN

MUNICIPAL DRAWING NO.	REGIONAL DRAWING NO.
CONTRACT NO.	SHEET 1 OF 1

Appendix D – Proposed Grading Plan



LEGEND

REGIONAL	STAMP
N/A	

SCALE
1:500 HORIZ.

NO.	DATE	BY	REVISIONS
1	13/10/2023	N.V.	FSR

DESIGN	S.K.	CH'KD	N.M.	DATE
DRAWN	N.V.	CH'KD		DECEMBER, 2022

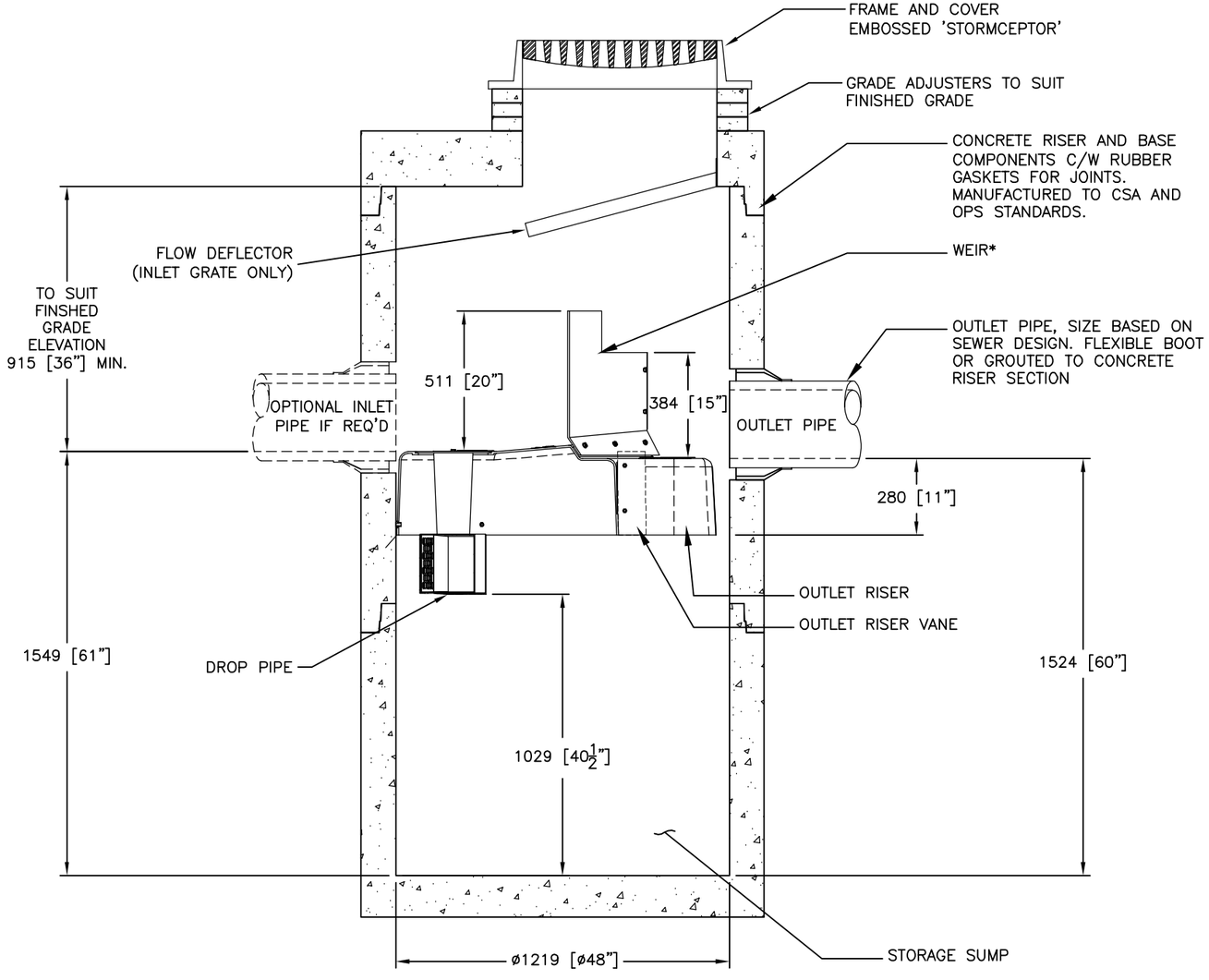
Chisholm, Fleming and Associates
consulting engineers

MIDLAND INN
GRADING PLAN

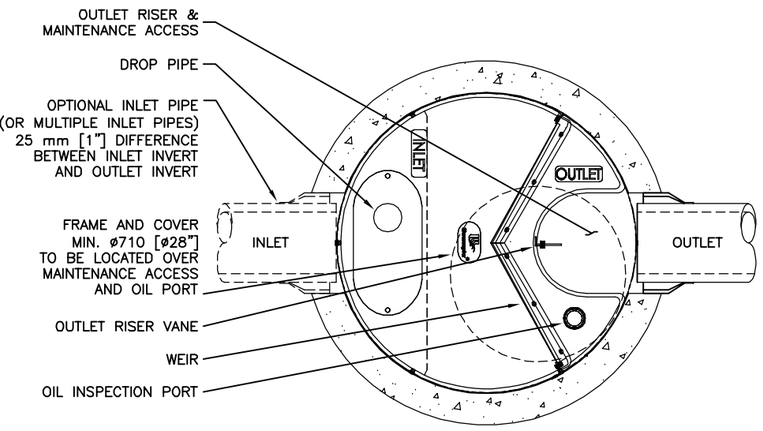
MUNICIPAL DRAWING NO.	REGIONAL DRAWING NO.
CONTRACT NO.	SHEET 1 OF 1

Drawing: Y:\295-01 MIDLAND INN\3-CAD\SHEETS\295-01 GRADING PLAN.DWG
Layout Tab: GRADING PLAN
Date: 03/06/2024 Time: 10:39:53 AM

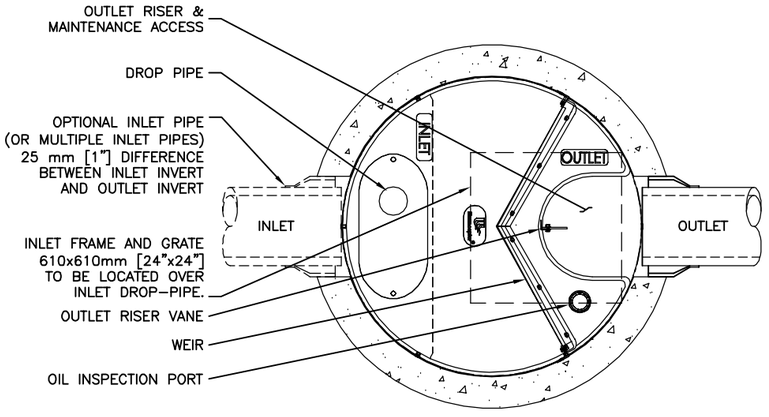
Appendix E – Stormcepter EF Sizing Report



SECTION VIEW



PLAN VIEW (STANDARD)



PLAN VIEW (INLET TOP)

FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL STORMCEPTOR REPRESENTATIVE. SITE SPECIFIC DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD REVISIONS TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED EXCEPT WHERE NOTED ON BYPASS STRUCTURE (IF REQUIRED).

GENERAL NOTES:

* MAXIMUM SURFACE LOADING RATE (SLR) INTO LOWER CHAMBER THROUGH DROP PIPE IS 1135 L/min/m^2 (27.9 gpm/ft^2) FOR STORMCEPTOR EF4 AND 535 L/min/m^2 (13.1 gpm/ft^2) FOR STORMCEPTOR EF04 (OIL CAPTURE CONFIGURATION). WEIR HEIGHT IS 150 mm (6 INCH) FOR EF04.

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
2. STORMCEPTOR STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN FOR INFORMATIONAL PURPOSES ONLY.
3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONDUITS CONNECTING TO COMPLETE THE STORMCEPTOR SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S SITE/UTILITY PLAN FOR STRUCTURE ORIENTATION.
5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECT BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

INSTALLATION NOTES

A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STRUCTURE (LIFTING CLUTCHES PROVIDED)
C. CONTRACTOR WILL INSTALL AND LEVEL THE STRUCTURE, SEALING THE JOINTS, LINE ENTRY AND EXIT POINTS (NON-SHRINK GROUT WITH APPROVED WATERSTOP OR FLEXIBLE BOOT)
D. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT THE DEVICE FROM CONSTRUCTION-RELATED EROSION RUNOFF.
E. DEVICE ACTIVATION, BY CONTRACTOR, SHALL OCCUR ONLY AFTER SITE HAS BEEN STABILIZED AND THE STORMCEPTOR UNIT IS CLEAN AND FREE OF DEBRIS.

STANDARD DETAIL
NOT FOR CONSTRUCTION

SITE SPECIFIC DATA REQUIREMENTS

STORMCEPTOR MODEL	EF4
STRUCTURE ID	*
WATER QUALITY FLOW RATE (L/s)	*
PEAK FLOW RATE (L/s)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
DRAINAGE AREA (HA)	*
DRAINAGE AREA IMPERVIOUSNESS (%)	*

PIPE DATA:	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

* PER ENGINEER OF RECORD

MARK	DATE	REVISION DESCRIPTION	BY
1	6/8/18	UPDATES	JSK
0	5/26/17	INITIAL RELEASE	JSK

Stormceptor® EF

SCALE = NTS

imbrium®
7007 RIDGE ROAD, SUITE 550, HANOVER, MD 21076
USA: 888-279-9828 CA: 800-388-4601 INTL: +1-416-960-9900

DATE: 5/26/2017

DESIGNED:	DRAWN:
JSK	JSK
CHECKED:	APPROVED:
BSF	SP
PROJECT No.:	SEQUENCE No.:
EF4	*

SHEET: 1 OF 1

Stormceptor®

FORTERRA

Stormceptor® EF Sizing Report

STORMCEPTOR®
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

06/15/2023

Province:	Ontario
City:	Midland
Nearest Rainfall Station:	BARRIE-ORO
Climate Station Id:	6117700
Years of Rainfall Data:	14

Site Name:	Quality Inn
Drainage Area (ha):	0.46
% Imperviousness:	95.00

Runoff Coefficient 'c': 0.87

Particle Size Distribution:	CA ETV
Target TSS Removal (%):	50.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	13.04
Oil / Fuel Spill Risk Site?	No
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	
Site Sediment Transport Rate (kg/ha/yr):	

Project Name:	Quality Inn
Project Number:	
Designer Name:	Frank Fisl
Designer Company:	Watercom Engineering Inc.
Designer Email:	ffisl@watercom.ca
Designer Phone:	416-575-9360
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EF4	58
EF6	63
EF8	66
EF10	68
EF12	69

Recommended Stormceptor EF Model: EF4

Estimated Net Annual Sediment (TSS) Load Reduction (%): 58

Water Quality Runoff Volume Capture (%): > 90

imbrium

THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Stormceptor® EF Sizing Report

Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.5	9.4	9.4	0.56	33.0	28.0	70	6.6	6.6
1	20.0	29.4	1.11	67.0	56.0	69	13.8	20.4
2	15.3	44.7	2.23	134.0	111.0	62	9.4	29.8
3	10.4	55.1	3.34	200.0	167.0	57	5.9	35.8
4	7.5	62.6	4.45	267.0	223.0	53	4.0	39.8
5	7.5	70.1	5.56	334.0	278.0	52	3.9	43.7
6	4.7	74.9	6.68	401.0	334.0	50	2.4	46.0
7	4.0	78.8	7.79	467.0	389.0	48	1.9	48.0
8	2.7	81.6	8.90	534.0	445.0	48	1.3	49.3
9	2.3	83.9	10.01	601.0	501.0	47	1.1	50.3
10	2.8	86.6	11.13	668.0	556.0	47	1.3	51.6
11	1.9	88.6	12.24	734.0	612.0	46	0.9	52.5
12	1.9	90.5	13.35	801.0	668.0	46	0.9	53.4
13	1.9	92.4	14.46	868.0	723.0	45	0.9	54.3
14	1.6	94.0	15.58	935.0	779.0	45	0.7	55.0
15	2.0	96.0	16.69	1001.0	834.0	45	0.9	55.9
16	0.3	96.3	17.80	1068.0	890.0	45	0.1	56.0
17	0.3	96.6	18.91	1135.0	946.0	44	0.1	56.1
18	0.3	96.9	20.03	1202.0	1001.0	44	0.1	56.3
19	0.3	97.2	21.14	1268.0	1057.0	45	0.1	56.4
20	0.3	97.5	22.25	1335.0	1113.0	45	0.1	56.5
21	0.0	97.5	23.36	1402.0	1168.0	46	0.0	56.5
22	0.0	97.5	24.48	1469.0	1224.0	47	0.0	56.5
23	0.4	97.9	25.59	1535.0	1279.0	48	0.2	56.7
24	0.4	98.3	26.70	1602.0	1335.0	48	0.2	56.9
25	0.8	99.1	27.81	1669.0	1391.0	49	0.4	57.3
30	0.9	100.0	33.38	2003.0	1669.0	41	0.4	57.7
35	0.0	100.0	38.94	2336.0	1947.0	35	0.0	57.7
40	0.0	100.0	44.50	2670.0	2225.0	31	0.0	57.7
45	0.0	100.0	50.07	3004.0	2503.0	27	0.0	57.7
Estimated Net Annual Sediment (TSS) Load Reduction =								**58 %**

Climate Station ID: 6117700 *Years of Rainfall Data*: 14

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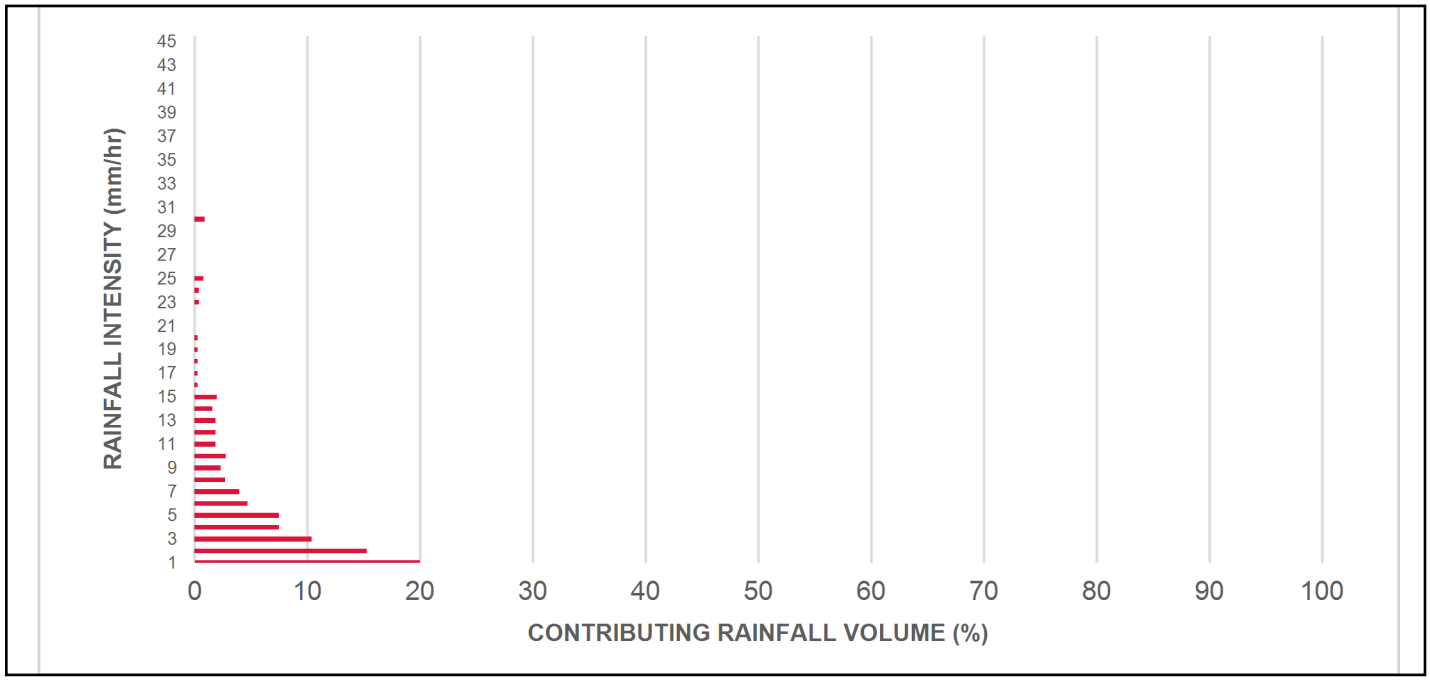
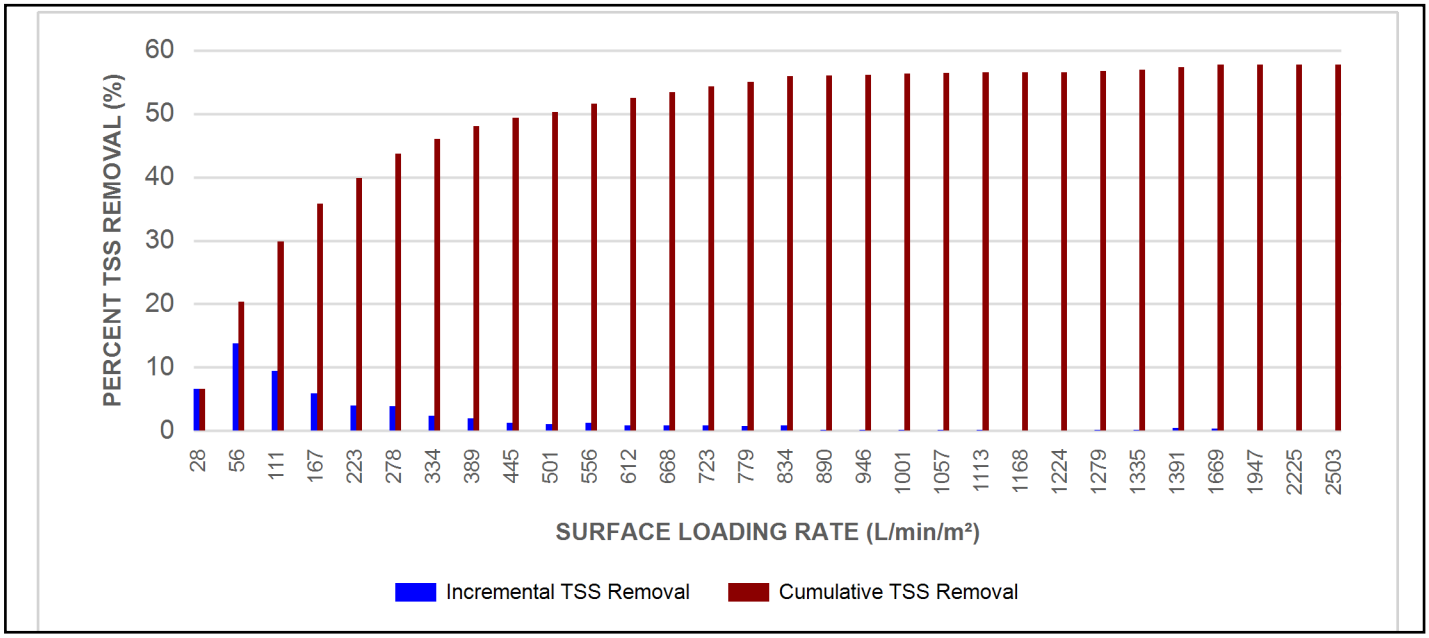
RAINFALL DATA FROM BARRIE-ORO RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

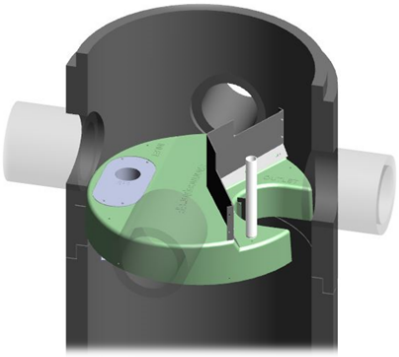
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

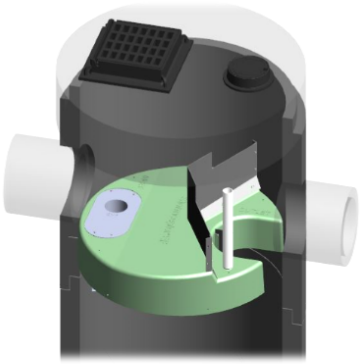
DESIGN FLEXIBILITY

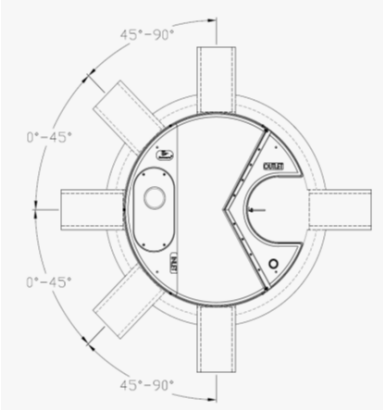
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

Table of TSS Removal vs Surface Loading Rate Based on Third-Party Test Results Stormceptor® EF

SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL	SLR (L/min/m²)	TSS % REMOVAL
1	70	660	46	1320	48	1980	35
30	70	690	46	1350	48	2010	34
60	67	720	45	1380	49	2040	34
90	63	750	45	1410	49	2070	33
120	61	780	45	1440	48	2100	33
150	58	810	45	1470	47	2130	32
180	56	840	45	1500	46	2160	32
210	54	870	45	1530	45	2190	31
240	53	900	45	1560	44	2220	31
270	52	930	44	1590	43	2250	30
300	51	960	44	1620	42	2280	30
330	50	990	44	1650	42	2310	30
360	49	1020	44	1680	41	2340	29
390	48	1050	45	1710	40	2370	29
420	48	1080	45	1740	39	2400	29
450	48	1110	45	1770	39	2430	28
480	47	1140	46	1800	38	2460	28
510	47	1170	46	1830	37	2490	28
540	47	1200	47	1860	37	2520	27
570	46	1230	47	1890	36	2550	27
600	46	1260	47	1920	36	2580	27
630	46	1290	48	1950	35		

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The **minimum** sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1

4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

Appendix F – Water Quality Balance Calculations

Runoff Quality Control Calculation

	Reference	Area (m^2)	Draining through OGS?
Area to be converted from grass to pavement	A	848	yes
	B	612	no
Area to be converted from pavement to building	C	0	yes
	D	782	no
Pavement area remaining as pavement	E	2,875	yes
	F	13,543	no
Building area remaining as building	G	844	yes
	H	4,621	no

Sediment loading on pavement per square metre L $kg/m^2/yr$

Sediment loading originating from individual areas	A	848	x L		
	B	612	x L		
	C	0	x L	(roof)	
	D	0	x L	(roof)	
	E	2875	x L		
	F	13543	x L		
	G	0	x L	(roof)	
	H	0	x L	(roof)	
	Total	**17878**	**x L**		(1)

Target TSS removal for areas being converted from grass to pavement 80%

Sediment loading subject to treatment	A	848	x L	
	B	612	x L	
	Total	**1460**	**x L**	

Required sediment removal (80% of loading) **1168** **x L** (2)

Sediment loading originating from areas draining through OGS	A	848	x L		
	E	2875	x L		
	Total	**3723**	**x L**		(3)

Required TSS removal for OGS design **31%** (2) / (3)

TSS removal based on OGS design **58%** (4)

Sediment removal from treated area 2159 x L (3) x (4) (5)

Total Sediment Removal Rate **12%** (5) / (1)

Appendix G – Ministry of Transportation IDF Curve for the Town of Midland

Ontario IDF CURVE LOOKUP

Active coordinate

44° 43' 45" N, 79° 52' 14" W (44.729167,-79.870833)

Retrieved: Thu, 27 Apr 2023 16:03:52 GMT

Location summary

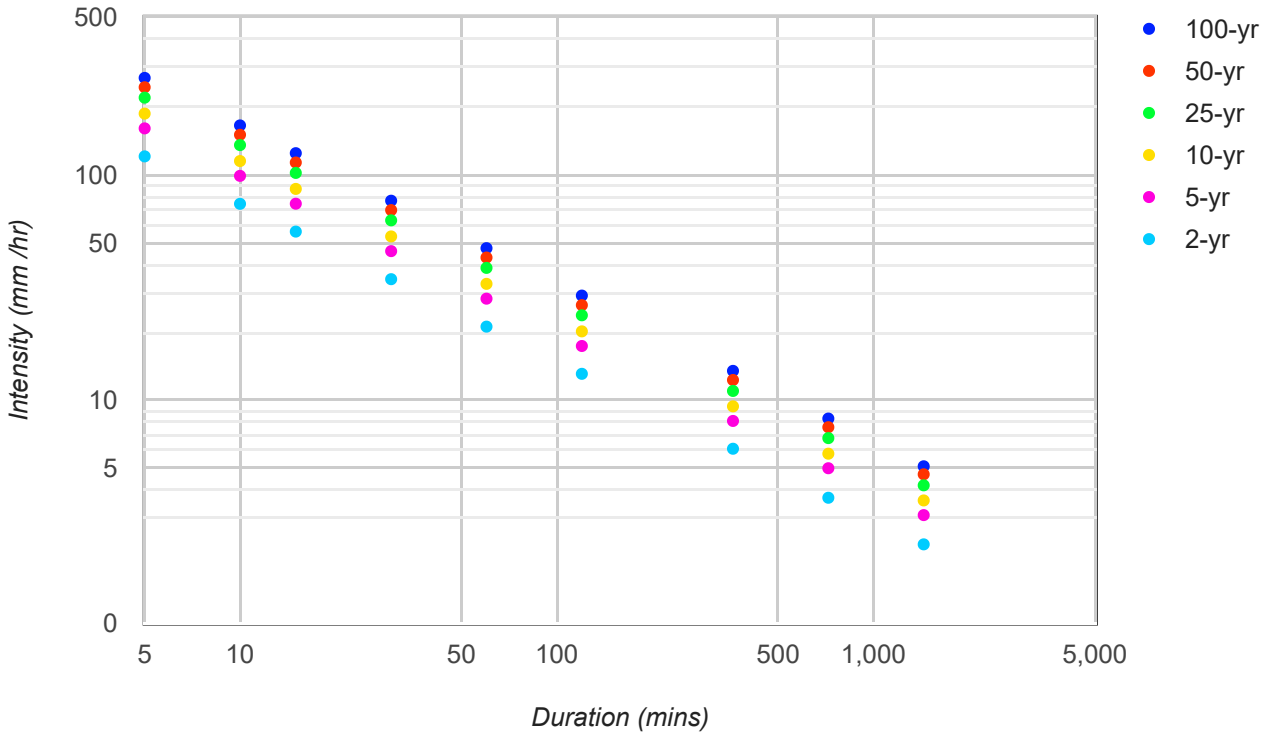
These are the locations in the selection.

IDF Curve: 44° 43' 45" N, 79° 52' 14" W (44.729167,-79.870833)

Results

An IDF curve was found.

Coordinate: 44.729167, -79.870833
IDF curve year: 2010



Coefficient summary

IDF Curve: 44° 43' 45" N, 79° 52' 14" W (44.729167,-79.870833)

Retrieved: Thu, 27 Apr 2023 16:03:52 GMT

Data year: 2010
IDF curve year: 2010

Return period	2-yr	5-yr	10-yr	25-yr	50-yr	100-yr
A	21.2	28.2	32.8	38.6	42.9	47.2
B	-0.699	-0.699	-0.699	-0.699	-0.699	-0.699

Statistics

Rainfall intensity (mm hr^{-1})

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	120.4	74.2	55.9	34.4	21.2	13.1	6.1	3.7	2.3
5-yr	160.2	98.7	74.3	45.8	28.2	17.4	8.1	5.0	3.1
10-yr	186.3	114.8	86.4	53.2	32.8	20.2	9.4	5.8	3.6
25-yr	219.2	135.1	101.7	62.7	38.6	23.8	11.0	6.8	4.2
50-yr	243.7	150.1	113.1	69.6	42.9	26.4	12.3	7.6	4.7
100-yr	268.1	165.1	124.4	76.6	47.2	29.1	13.5	8.3	5.1

Rainfall depth (mm)

Duration	5-min	10-min	15-min	30-min	1-hr	2-hr	6-hr	12-hr	24-hr
2-yr	10.0	12.4	14.0	17.2	21.2	26.1	36.4	44.8	55.2
5-yr	13.3	16.4	18.6	22.9	28.2	34.7	48.4	59.6	73.4
10-yr	15.5	19.1	21.6	26.6	32.8	40.4	56.2	69.3	85.4
25-yr	18.3	22.5	25.4	31.3	38.6	47.6	66.2	81.5	100.5
50-yr	20.3	25.0	28.3	34.8	42.9	52.9	73.6	90.6	111.7
100-yr	22.3	27.5	31.1	38.3	47.2	58.2	80.9	99.7	122.9

Terms of Use

Appendix H – VO2 Output Calculations

EXISTING CONDITIONS
12-HOUR SCS TYPE II DISTRIBUTION

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

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM, Version 2.1
       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\Visual OTTHYMO 2.2.4\voin.dat
Output filename: C:\Users\Frank Fisl\Desktop\QualityInnVO2\QualityInn\Existing Condition.out
Summary filename: C:\Users\Frank Fisl\Desktop\QualityInnVO2\QualityInn\Existing Condition.sum

DATE: 2023-07-13 TIME: 12:15:37

USER:

COMMENTS: _____

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

```
--------------------
|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 12-hr\
|                  |              002yr,12hr SCS.stm
| Ptotal= 44.81 mm |    Comments: 2-yr, 12-hr SCS Type II Distribution Sto
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.12	3.25	1.79	6.25	8.06	9.25	1.57
.50	1.12	3.50	1.79	6.50	8.06	9.50	1.57
.75	1.12	3.75	1.79	6.75	3.58	9.75	1.57
1.00	1.12	4.00	1.79	7.00	3.58	10.00	1.57
1.25	1.12	4.25	2.69	7.25	2.69	10.25	.90
1.50	1.12	4.50	2.69	7.50	2.69	10.50	.90
1.75	1.12	4.75	3.58	7.75	2.69	10.75	.90
2.00	1.12	5.00	3.58	8.00	2.69	11.00	.90
2.25	1.34	5.25	5.38	8.25	1.57	11.25	.90
2.50	1.34	5.50	5.38	8.50	1.57	11.50	.90
2.75	1.34	5.75	21.50	8.75	1.57	11.75	.90
3.00	1.34	6.00	59.14	9.00	1.57	12.00	.90

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.12	3.083	1.79	6.083	8.06	9.08	1.57
.167	1.12	3.167	1.79	6.167	8.06	9.17	1.57
.250	1.12	3.250	1.79	6.250	8.06	9.25	1.57
.333	1.12	3.333	1.79	6.333	8.06	9.33	1.57
.417	1.12	3.417	1.79	6.417	8.06	9.42	1.57
.500	1.12	3.500	1.79	6.500	8.06	9.50	1.57
.583	1.12	3.583	1.79	6.583	3.58	9.58	1.57
.667	1.12	3.667	1.79	6.667	3.58	9.67	1.57
.750	1.12	3.750	1.79	6.750	3.58	9.75	1.57
.833	1.12	3.833	1.79	6.833	3.58	9.83	1.57
.917	1.12	3.917	1.79	6.917	3.58	9.92	1.57
1.000	1.12	4.000	1.79	7.000	3.58	10.00	1.57
1.083	1.12	4.083	2.69	7.083	2.69	10.08	.90
1.167	1.12	4.167	2.69	7.167	2.69	10.17	.90
1.250	1.12	4.250	2.69	7.250	2.69	10.25	.90
1.333	1.12	4.333	2.69	7.333	2.69	10.33	.90
1.417	1.12	4.417	2.69	7.417	2.69	10.42	.90
1.500	1.12	4.500	2.69	7.500	2.69	10.50	.90
1.583	1.12	4.583	3.58	7.583	2.69	10.58	.90
1.667	1.12	4.667	3.58	7.667	2.69	10.67	.90
1.750	1.12	4.750	3.58	7.750	2.69	10.75	.90
1.833	1.12	4.833	3.58	7.833	2.69	10.83	.90
1.917	1.12	4.917	3.58	7.917	2.69	10.92	.90
2.000	1.12	5.000	3.58	8.000	2.69	11.00	.90
2.083	1.34	5.083	5.38	8.083	1.57	11.08	.90
2.167	1.34	5.167	5.38	8.167	1.57	11.17	.90
2.250	1.34	5.250	5.38	8.250	1.57	11.25	.90
2.333	1.34	5.333	5.38	8.333	1.57	11.33	.90
2.417	1.34	5.417	5.38	8.417	1.57	11.42	.90
2.500	1.34	5.500	5.38	8.500	1.57	11.50	.90
2.583	1.34	5.583	21.50	8.583	1.57	11.58	.90
2.667	1.34	5.667	21.50	8.667	1.57	11.67	.90
2.750	1.34	5.750	21.50	8.750	1.57	11.75	.90
2.833	1.34	5.833	59.14	8.833	1.57	11.83	.90
2.917	1.34	5.917	59.14	8.917	1.57	11.92	.90
3.000	1.34	6.000	59.14	9.000	1.57	12.00	.90

Max.Eff.Inten.(mm/hr)=		59.14	32.57	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.62 (ii)	13.67 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		.29	.08	
				TOTALS
PEAK FLOW	(cms)=	.09	.02	.100 (iii)
TIME TO PEAK	(hrs)=	6.00	6.08	6.00

```
     RUNOFF VOLUME    (mm)=      43.80        21.28          35.91
     TOTAL RAINFALL   (mm)=      44.80        44.80          44.80
     RUNOFF COEFFICIENT   =        .98          .47            .80

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

       (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  (0005) |   Area    (ha)=   1.16
|ID= 1 DT= 5.0 min |   Total Imp(%)=  73.00   Dir. Conn.(%)=  73.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .85          .31
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     87.90        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     59.14        32.57
               over (min)       5.00        15.00
     Storage Coeff.  (min)=      2.92 (ii)   13.97 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .28          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .14          .02          .154 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.08          6.00
     RUNOFF VOLUME    (mm)=     43.81        21.28         37.72
     TOTAL RAINFALL   (mm)=     44.80        44.80         44.80
     RUNOFF COEFFICIENT   =       .98          .47            .84

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .45          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     54.80        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     59.14       467.02
               over (min)       5.00         5.00
     Storage Coeff.  (min)=      2.20 (ii)    3.58 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .30          .26
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .07          .00          .074 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=     43.80        21.28         43.58
     TOTAL RAINFALL   (mm)=     44.80        44.80         44.80
     RUNOFF COEFFICIENT   =       .98          .47            .97

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

       (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  (0004) |   Area    (ha)=    .14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .10          .04
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     30.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     59.14        32.57
               over (min)       5.00        15.00
     Storage Coeff.  (min)=      1.55 (ii)   12.60 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .33          .08
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .02          .00          .019 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.08          6.00
     RUNOFF VOLUME    (mm)=     43.80        21.28         37.45
     TOTAL RAINFALL   (mm)=     44.80        44.80         44.80
     RUNOFF COEFFICIENT   =       .98          .47            .84

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

       (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  (0003) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .06          .01
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     21.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     59.14        34.59
               over (min)       5.00        10.00
     Storage Coeff.  (min)=      1.26 (ii)    6.00 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .33          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .01          .00          .010 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=     43.80        21.28         39.74
     TOTAL RAINFALL   (mm)=     44.80        44.80         44.80
     RUNOFF COEFFICIENT   =       .98          .47            .89
```

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

(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 (0002)	Area (ha)= .22
ID= 1 DT= 5.0 min	Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.19	.03	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	38.30	40.00	
Mannings n =	.013	.250	
Max.Eff.Inten.(mm/hr)=	59.14	34.59	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.77 (ii)	6.12 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	.32	.15	
			TOTALS
PEAK FLOW (cms)=	.03	.00	.033 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	43.80	21.28	40.41
TOTAL RAINFALL (mm)=	44.80	44.80	44.80
RUNOFF COEFFICIENT =	.98	.47	.90

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

(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 (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0003):	.07	.010	6.00	39.74
	+ ID2= 2 (0002):	.22	.033	6.00	40.41
	ID = 3 (0007):	.29	.044	6.00	40.25

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0004):	.14	.019	6.00	37.45
	+ ID2= 2 (0007):	.29	.044	6.00	40.25
	ID = 3 (0008):	.43	.062	6.00	39.34

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0009)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	.45	.074	6.00	43.58
	+ ID2= 2 (0008):	.43	.062	6.00	39.34
	ID = 3 (0009):	.88	.136	6.00	41.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0005):	1.16	.154	6.00	37.72
	+ ID2= 2 (0009):	.88	.136	6.00	41.51
	ID = 3 (0010):	2.04	.290	6.00	39.35

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0006):	.81	.100	6.00	35.91
	+ ID2= 2 (0010):	2.04	.290	6.00	39.35
	ID = 3 (0011):	2.85	.390	6.00	38.37

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV2\QualityInn\design storms\SCS 12-hr\005yr,12hr SCS.stm
Ptotal= 59.61 mm	Comments: 5-yr, 12-hr SCS Type II Distribution Sto

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.49	3.25	2.38	6.25	10.73	9.25	2.09
.50	1.49	3.50	2.38	6.50	10.73	9.50	2.09
.75	1.49	3.75	2.38	6.75	4.77	9.75	2.09
1.00	1.49	4.00	2.38	7.00	4.77	10.00	2.09
1.25	1.49	4.25	3.58	7.25	3.58	10.25	1.19
1.50	1.49	4.50	3.58	7.50	3.58	10.50	1.19
1.75	1.49	4.75	4.77	7.75	3.58	10.75	1.19
2.00	1.49	5.00	4.77	8.00	3.58	11.00	1.19
2.25	1.79	5.25	7.15	8.25	2.09	11.25	1.19
2.50	1.79	5.50	7.15	8.50	2.09	11.50	1.19
2.75	1.79	5.75	28.61	8.75	2.09	11.75	1.19
3.00	1.79	6.00	78.67	9.00	2.09	12.00	1.19

CALIB	
STANDHYD (0006)	Area (ha)= .81
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.49	3.083	2.38	6.083	10.73	9.08	2.09
.167	1.49	3.167	2.38	6.167	10.73	9.17	2.09
.250	1.49	3.250	2.38	6.250	10.73	9.25	2.09
.333	1.49	3.333	2.38	6.333	10.73	9.33	2.09
.417	1.49	3.417	2.38	6.417	10.73	9.42	2.09
.500	1.49	3.500	2.38	6.500	10.73	9.50	2.09
.583	1.49	3.583	2.38	6.583	4.77	9.58	2.09
.667	1.49	3.667	2.38	6.667	4.77	9.67	2.09
.750	1.49	3.750	2.38	6.750	4.77	9.75	2.09
.833	1.49	3.833	2.38	6.833	4.77	9.83	2.09
.917	1.49	3.917	2.38	6.917	4.77	9.92	2.09
1.000	1.49	4.000	2.38	7.000	4.77	10.00	2.09
1.083	1.49	4.083	3.58	7.083	3.58	10.08	1.19
1.167	1.49	4.167	3.58	7.167	3.58	10.17	1.19
1.250	1.49	4.250	3.58	7.250	3.58	10.25	1.19
1.333	1.49	4.333	3.58	7.333	3.58	10.33	1.19
1.417	1.49	4.417	3.58	7.417	3.58	10.42	1.19
1.500	1.49	4.500	3.58	7.500	3.58	10.50	1.19
1.583	1.49	4.583	4.77	7.583	3.58	10.58	1.19
1.667	1.49	4.667	4.77	7.667	3.58	10.67	1.19
1.750	1.49	4.750	4.77	7.750	3.58	10.75	1.19
1.833	1.49	4.833	4.77	7.833	3.58	10.83	1.19
1.917	1.49	4.917	4.77	7.917	3.58	10.92	1.19
2.000	1.49	5.000	4.77	8.000	3.58	11.00	1.19
2.083	1.79	5.083	7.15	8.083	2.09	11.08	1.19
2.167	1.79	5.167	7.15	8.167	2.09	11.17	1.19
2.250	1.79	5.250	7.15	8.250	2.09	11.25	1.19
2.333	1.79	5.333	7.15	8.333	2.09	11.33	1.19
2.417	1.79	5.417	7.15	8.417	2.09	11.42	1.19
2.500	1.79	5.500	7.15	8.500	2.09	11.50	1.19
2.583	1.79	5.583	28.61	8.583	2.09	11.58	1.19
2.667	1.79	5.667	28.61	8.667	2.09	11.67	1.19
2.750	1.79	5.750	28.61	8.750	2.09	11.75	1.19
2.833	1.79	5.833	78.67	8.833	2.09	11.83	1.19
2.917	1.79	5.917	78.67	8.917	2.09	11.92	1.19
3.000	1.79	6.000	78.67	9.000	2.09	12.00	1.19

Max.Eff.Inten.(mm/hr)=		78.67	52.83	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.34 (ii)	11.45 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		.30	.09	
				TOTALS
PEAK FLOW	(cms)=	.11	.03	.139 (iii)
TIME TO PEAK	(hrs)=	6.00	6.08	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	49.57
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.83

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

(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 (0005)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 73.00 Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.85	.31	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	87.90	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		78.67	52.83	
over (min)		5.00	15.00	
Storage Coeff. (min)=		2.60 (ii)	11.71 (ii)	
Unit Hyd. Tpeak (min)=		5.00	15.00	
Unit Hyd. peak (cms)=		.29	.09	
				TOTALS
PEAK FLOW	(cms)=	.18	.03	.211 (iii)
TIME TO PEAK	(hrs)=	6.00	6.08	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	51.64
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.87

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

(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 (0001)	Area (ha)= .45
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.45	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.80	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		78.67	713.23	
over (min)		5.00	5.00	
Storage Coeff. (min)=		1.96 (ii)	3.20 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		.31	.27	
				TOTALS
PEAK FLOW	(cms)=	.10	.00	.098 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	58.35
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.98

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

(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 (0004)	Area (ha)= .14			
ID= 1 DT= 5.0 min	Total Imp(%)= 72.00	Dir. Conn.(%)= 72.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.10	.04	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	30.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		78.67	52.83	
over (min)		5.00	15.00	
Storage Coeff.	(min)=	1.38 (ii)	10.49 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	.33	.09	
				TOTALS
PEAK FLOW	(cms)=	.02	.00	.025 (iii)
TIME TO PEAK	(hrs)=	6.00	6.08	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	51.34
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.86

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

(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 (0003)	Area (ha)= .07			
ID= 1 DT= 5.0 min	Total Imp(%)= 82.00	Dir. Conn.(%)= 82.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.06	.01	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	21.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		78.67	52.83	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	1.12 (ii)	5.36 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.34	.16	
				TOTALS
PEAK FLOW	(cms)=	.01	.00	.014 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	53.95
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.90

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

(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 (0002)	Area (ha)= .22			
ID= 1 DT= 5.0 min	Total Imp(%)= 85.00	Dir. Conn.(%)= 85.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.19	.03	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	38.30	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		78.67	52.83	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	1.58 (ii)	5.46 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.33	.16	
				TOTALS
PEAK FLOW	(cms)=	.04	.00	.045 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	54.72
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.92

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

(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 (0007)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0003):	.07	.014	6.00	53.95
	+ ID2= 2 (0002):	.22	.045	6.00	54.72
	ID = 3 (0007):	.29	.059	6.00	54.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0004):	.14	.025	6.00	51.34
	+ ID2= 2 (0007):	.29	.059	6.00	54.53
	ID = 3 (0008):	.43	.085	6.00	53.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0009)					
1 + 2 = 3		AREA	QPEAK	TPEAK	R.V.
		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	.45	.098	6.00	58.35

```
       + ID2= 2 (0008):      .43    .085     6.00    53.49
         ================================================
         ID = 3 (0009):      .88    .183     6.00    55.98

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

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0005):     1.16    .211     6.00    51.64
       + ID2= 2 (0009):      .88    .183     6.00    55.98
         ================================================
         ID = 3 (0010):     2.04    .394     6.00    53.51

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

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--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0006):      .81    .139     6.00    49.57
       + ID2= 2 (0010):     2.04    .394     6.00    53.51
         ================================================
         ID = 3 (0011):     2.85    .533     6.00    52.39

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

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


--------------------
|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 12-hr\
|                  |              010yr,12hr SCS.stm
| Ptotal= 69.31 mm |    Comments: 10-yr, 12-hr SCS Type II Distribution St
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```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.73	3.25	2.77	6.25	12.47	9.25	2.43
.50	1.73	3.50	2.77	6.50	12.47	9.50	2.43
.75	1.73	3.75	2.77	6.75	5.54	9.75	2.43
1.00	1.73	4.00	2.77	7.00	5.54	10.00	2.43
1.25	1.73	4.25	4.16	7.25	4.16	10.25	1.39
1.50	1.73	4.50	4.16	7.50	4.16	10.50	1.39
1.75	1.73	4.75	5.54	7.75	4.16	10.75	1.39
2.00	1.73	5.00	5.54	8.00	4.16	11.00	1.39
2.25	2.08	5.25	8.32	8.25	2.43	11.25	1.39
2.50	2.08	5.50	8.32	8.50	2.43	11.50	1.39
2.75	2.08	5.75	33.26	8.75	2.43	11.75	1.39
3.00	2.08	6.00	91.48	9.00	2.43	12.00	1.39

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--------------------
| CALIB            |
| STANDHYD  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .28
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      73.50        40.00
     Mannings n           =       .013         .250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.73	3.083	2.77	6.083	12.47	9.08	2.43
.167	1.73	3.167	2.77	6.167	12.47	9.17	2.43
.250	1.73	3.250	2.77	6.250	12.47	9.25	2.43
.333	1.73	3.333	2.77	6.333	12.47	9.33	2.43
.417	1.73	3.417	2.77	6.417	12.47	9.42	2.43
.500	1.73	3.500	2.77	6.500	12.47	9.50	2.43
.583	1.73	3.583	2.77	6.583	5.54	9.58	2.43
.667	1.73	3.667	2.77	6.667	5.54	9.67	2.43
.750	1.73	3.750	2.77	6.750	5.54	9.75	2.43
.833	1.73	3.833	2.77	6.833	5.54	9.83	2.43
.917	1.73	3.917	2.77	6.917	5.54	9.92	2.43
1.000	1.73	4.000	2.77	7.000	5.54	10.00	2.43
1.083	1.73	4.083	4.16	7.083	4.16	10.08	1.39
1.167	1.73	4.167	4.16	7.167	4.16	10.17	1.39
1.250	1.73	4.250	4.16	7.250	4.16	10.25	1.39
1.333	1.73	4.333	4.16	7.333	4.16	10.33	1.39
1.417	1.73	4.417	4.16	7.417	4.16	10.42	1.39
1.500	1.73	4.500	4.16	7.500	4.16	10.50	1.39
1.583	1.73	4.583	5.54	7.583	4.16	10.58	1.39
1.667	1.73	4.667	5.54	7.667	4.16	10.67	1.39
1.750	1.73	4.750	5.54	7.750	4.16	10.75	1.39
1.833	1.73	4.833	5.54	7.833	4.16	10.83	1.39
1.917	1.73	4.917	5.54	7.917	4.16	10.92	1.39
2.000	1.73	5.000	5.54	8.000	4.16	11.00	1.39
2.083	2.08	5.083	8.32	8.083	2.43	11.08	1.39
2.167	2.08	5.167	8.32	8.167	2.43	11.17	1.39
2.250	2.08	5.250	8.32	8.250	2.43	11.25	1.39
2.333	2.08	5.333	8.32	8.333	2.43	11.33	1.39
2.417	2.08	5.417	8.32	8.417	2.43	11.42	1.39
2.500	2.08	5.500	8.32	8.500	2.43	11.50	1.39
2.583	2.08	5.583	33.26	8.583	2.43	11.58	1.39
2.667	2.08	5.667	33.26	8.667	2.43	11.67	1.39
2.750	2.08	5.750	33.26	8.750	2.43	11.75	1.39
2.833	2.08	5.833	91.48	8.833	2.43	11.83	1.39
2.917	2.08	5.917	91.48	8.917	2.43	11.92	1.39
3.000	2.08	6.000	91.48	9.000	2.43	12.00	1.39

```
     Max.Eff.Inten.(mm/hr)=      91.48        65.34
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.20 (ii)   10.57 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .30          .09
                                                        *TOTALS*
     PEAK FLOW       (cms)=       .13          .03          .165 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.08         6.00
     RUNOFF VOLUME    (mm)=     68.31        40.82        58.68
     TOTAL RAINFALL   (mm)=     69.31        69.31        69.31
     RUNOFF COEFFICIENT   =       .99          .59          .85

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

      (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 (0005)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 73.00 Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.85	.31	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	87.90	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		91.48	65.34	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	2.45 (ii)	7.36 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.30	.13	
				TOTALS
PEAK FLOW	(cms)=	.21	.05	.261 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	68.31	40.82	60.89
TOTAL RAINFALL	(mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT	=	.99	.59	.88

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

(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 (0001)	Area (ha)= .45
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.45	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.80	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		91.48	882.14	
over (min)		5.00	5.00	
Storage Coeff.	(min)=	1.85 (ii)	3.01 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.32	.28	
				TOTALS
PEAK FLOW	(cms)=	.11	.00	.114 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	68.31	40.82	68.03
TOTAL RAINFALL	(mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT	=	.99	.59	.98

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

(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 (0004)	Area (ha)= .14
ID= 1 DT= 5.0 min	Total Imp(%)= 72.00 Dir. Conn.(%)= 72.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.10	.04	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	30.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		91.48	65.34	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	1.30 (ii)	9.67 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.33	.11	
				TOTALS
PEAK FLOW	(cms)=	.03	.01	.031 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	68.31	40.82	60.58
TOTAL RAINFALL	(mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT	=	.99	.59	.87

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

(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 (0003)	Area (ha)= .07
ID= 1 DT= 5.0 min	Total Imp(%)= 82.00 Dir. Conn.(%)= 82.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.06	.01	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	21.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		91.48	65.34	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	1.06 (ii)	5.04 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.34	.16	
				TOTALS
PEAK FLOW	(cms)=	.01	.00	.017 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	68.31	40.82	63.34
TOTAL RAINFALL	(mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT	=	.99	.59	.91

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

(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 (0002)	Area (ha)= .22

|ID= 1 DT= 5.0 min | Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.03
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	38.30	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)	=	91.48	65.34
over (min)		5.00	10.00
Storage Coeff. (min)	=	1.49 (ii)	5.14 (ii)
Unit Hyd. Tpeak (min)	=	5.00	10.00
Unit Hyd. peak (cms)	=	.33	.16

		TOTALS
PEAK FLOW	(cms)=	.05 .01 .053 (iii)
TIME TO PEAK	(hrs)=	6.00 6.00 6.00
RUNOFF VOLUME	(mm)=	68.31 40.82 64.18
TOTAL RAINFALL	(mm)=	69.31 69.31 69.31
RUNOFF COEFFICIENT	=	.99 .59 .93

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

(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 (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0003):		.07	.017	6.00	63.34
+ ID2= 2 (0002):		.22	.053	6.00	64.18
ID = 3 (0007):		.29	.069	6.00	63.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0004):		.14	.031	6.00	60.58
+ ID2= 2 (0007):		.29	.069	6.00	63.98
ID = 3 (0008):		.43	.100	6.00	62.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0009)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0001):		.45	.114	6.00	68.03
+ ID2= 2 (0008):		.43	.100	6.00	62.87
ID = 3 (0009):		.88	.214	6.00	65.51

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0005):		1.16	.261	6.00	60.89
+ ID2= 2 (0009):		.88	.214	6.00	65.51
ID = 3 (0010):		2.04	.475	6.00	62.88

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0006):		.81	.165	6.00	58.68
+ ID2= 2 (0010):		2.04	.475	6.00	62.88
ID = 3 (0011):		2.85	.640	6.00	61.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 12-hr\ 025yr,12hr SCS.stm
Ptotal= 81.51 mm	Comments: 25-yr, 12-hr SCS Type II Distribution St

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	2.04	3.25	3.26	6.25	14.67	9.25	2.85
.50	2.04	3.50	3.26	6.50	14.67	9.50	2.85
.75	2.04	3.75	3.26	6.75	6.52	9.75	2.85
1.00	2.04	4.00	3.26	7.00	6.52	10.00	2.85
1.25	2.04	4.25	4.89	7.25	4.89	10.25	1.63
1.50	2.04	4.50	4.89	7.50	4.89	10.50	1.63
1.75	2.04	4.75	6.52	7.75	4.89	10.75	1.63
2.00	2.04	5.00	6.52	8.00	4.89	11.00	1.63
2.25	2.45	5.25	9.78	8.25	2.85	11.25	1.63
2.50	2.45	5.50	9.78	8.50	2.85	11.50	1.63
2.75	2.45	5.75	39.12	8.75	2.85	11.75	1.63
3.00	2.45	6.00	107.58	9.00	2.85	12.00	1.63

CALIB STANDHYD (0006)	Area (ha)= .81
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	2.04	3.083	3.26	6.083	14.67	9.08	2.85
.167	2.04	3.167	3.26	6.167	14.67	9.17	2.85
.250	2.04	3.250	3.26	6.250	14.67	9.25	2.85
.333	2.04	3.333	3.26	6.333	14.67	9.33	2.85
.417	2.04	3.417	3.26	6.417	14.67	9.42	2.85
.500	2.04	3.500	3.26	6.500	14.67	9.50	2.85
.583	2.04	3.583	3.26	6.583	6.52	9.58	2.85
.667	2.04	3.667	3.26	6.667	6.52	9.67	2.85
.750	2.04	3.750	3.26	6.750	6.52	9.75	2.85
.833	2.04	3.833	3.26	6.833	6.52	9.83	2.85
.917	2.04	3.917	3.26	6.917	6.52	9.92	2.85
1.000	2.04	4.000	3.26	7.000	6.52	10.00	2.85
1.083	2.04	4.083	4.89	7.083	4.89	10.08	1.63
1.167	2.04	4.167	4.89	7.167	4.89	10.17	1.63
1.250	2.04	4.250	4.89	7.250	4.89	10.25	1.63
1.333	2.04	4.333	4.89	7.333	4.89	10.33	1.63
1.417	2.04	4.417	4.89	7.417	4.89	10.42	1.63
1.500	2.04	4.500	4.89	7.500	4.89	10.50	1.63
1.583	2.04	4.583	6.52	7.583	4.89	10.58	1.63
1.667	2.04	4.667	6.52	7.667	4.89	10.67	1.63
1.750	2.04	4.750	6.52	7.750	4.89	10.75	1.63
1.833	2.04	4.833	6.52	7.833	4.89	10.83	1.63
1.917	2.04	4.917	6.52	7.917	4.89	10.92	1.63
2.000	2.04	5.000	6.52	8.000	4.89	11.00	1.63
2.083	2.45	5.083	9.78	8.083	2.85	11.08	1.63
2.167	2.45	5.167	9.78	8.167	2.85	11.17	1.63
2.250	2.45	5.250	9.78	8.250	2.85	11.25	1.63
2.333	2.45	5.333	9.78	8.333	2.85	11.33	1.63
2.417	2.45	5.417	9.78	8.417	2.85	11.42	1.63
2.500	2.45	5.500	9.78	8.500	2.85	11.50	1.63
2.583	2.45	5.583	39.12	8.583	2.85	11.58	1.63
2.667	2.45	5.667	39.12	8.667	2.85	11.67	1.63
2.750	2.45	5.750	39.12	8.750	2.85	11.75	1.63
2.833	2.45	5.833	107.58	8.833	2.85	11.83	1.63
2.917	2.45	5.917	107.58	8.917	2.85	11.92	1.63
3.000	2.45	6.000	107.58	9.000	2.85	12.00	1.63

Max.Eff.Inten.(mm/hr)=	107.58	81.47	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.06 (ii)	9.72 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	.31	.11	
			TOTALS
PEAK FLOW (cms)=	.16	.05	.205 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	80.50	51.28	70.27
TOTAL RAINFALL (mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT =	.99	.63	.86

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

(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 (0005)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 73.00 Dir. Conn.(%)= 73.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.85	.31	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	87.90	40.00	
Mannings n =	.013	.250	
Max.Eff.Inten.(mm/hr)=	107.58	81.47	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.30 (ii)	6.90 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	.30	.14	
			TOTALS
PEAK FLOW (cms)=	.25	.06	.312 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	80.50	51.28	72.61
TOTAL RAINFALL (mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT =	.99	.63	.89

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

(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 (0001)	Area (ha)= .45
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.45	.00	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	54.80	40.00	
Mannings n =	.013	.250	
Max.Eff.Inten.(mm/hr)=	107.58	1099.78	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.73 (ii)	2.82 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.32	.28	
			TOTALS
PEAK FLOW (cms)=	.13	.00	.134 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	80.50	51.28	80.21
TOTAL RAINFALL (mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT =	.99	.63	.98

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

(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 (0004)	Area (ha)= .14
ID= 1 DT= 5.0 min	Total Imp(%)= 72.00 Dir. Conn.(%)= 72.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.10	.04

```
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     107.58        81.47
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.22 (ii)    5.92 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .33          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .03          .01          .038 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      80.50        51.28         72.30
     TOTAL RAINFALL   (mm)=      81.51        81.51         81.51
     RUNOFF COEFFICIENT   =        .99          .63           .89

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

       (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  (0003) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .06          .01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      21.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     107.58        81.47
               over (min)        5.00         5.00
     Storage Coeff.  (min)=        .99 (ii)    4.73 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .22
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .020 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      80.50        51.28         75.23
     TOTAL RAINFALL   (mm)=      81.51        81.51         81.51
     RUNOFF COEFFICIENT   =        .99          .63           .92

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

       (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  (0002) |   Area    (ha)=    .22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  85.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .19          .03
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     107.58        81.47
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.39 (ii)    4.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .33          .22
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .06          .01          .063 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      80.51        51.28         76.11
     TOTAL RAINFALL   (mm)=      81.51        81.51         81.51
     RUNOFF COEFFICIENT   =        .99          .63           .93

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

       (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   (0007) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0003):       .07     .020     6.00    75.23
        + ID2= 2 (0002):       .22     .063     6.00    76.11
          ================================================
          ID = 3 (0007):       .29     .083     6.00    75.90

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0004):       .14     .038     6.00    72.30
        + ID2= 2 (0007):       .29     .083     6.00    75.90
          ================================================
          ID = 3 (0008):       .43     .121     6.00    74.73

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0001):       .45     .134     6.00    80.21
        + ID2= 2 (0008):       .43     .121     6.00    74.73
          ================================================
          ID = 3 (0009):       .88     .255     6.00    77.53

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
```

```
          ID1= 1 (0005):     1.16    .312     6.00    72.61
        + ID2= 2 (0009):      .88    .255     6.00    77.53
          ================================================
          ID = 3 (0010):     2.04    .567     6.00    74.73

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

```
--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0006):      .81    .205     6.00    70.27
        + ID2= 2 (0010):     2.04    .567     6.00    74.73
          ================================================
          ID = 3 (0011):     2.85    .772     6.00    73.46

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

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


--------------------
|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 12-hr\
|                  |              050yr,12hr SCS.stm
| Ptotal= 90.61 mm |    Comments: 50-yr, 12-hr SCS Type II Distribution St
--------------------
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .25    2.27 |  3.25    3.62 |  6.25   16.31 |  9.25    3.17
                 .50    2.27 |  3.50    3.62 |  6.50   16.31 |  9.50    3.17
                 .75    2.27 |  3.75    3.62 |  6.75    7.25 |  9.75    3.17
                1.00    2.27 |  4.00    3.62 |  7.00    7.25 | 10.00    3.17
                1.25    2.27 |  4.25    5.44 |  7.25    5.44 | 10.25    1.81
                1.50    2.27 |  4.50    5.44 |  7.50    5.44 | 10.50    1.81
                1.75    2.27 |  4.75    7.25 |  7.75    5.44 | 10.75    1.81
                2.00    2.27 |  5.00    7.25 |  8.00    5.44 | 11.00    1.81
                2.25    2.72 |  5.25   10.87 |  8.25    3.17 | 11.25    1.81
                2.50    2.72 |  5.50   10.87 |  8.50    3.17 | 11.50    1.81
                2.75    2.72 |  5.75   43.49 |  8.75    3.17 | 11.75    1.81
                3.00    2.72 |  6.00  119.59 |  9.00    3.17 | 12.00    1.81
```

```
--------------------
| CALIB            |
| STANDHYD  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .28
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     73.50        40.00
     Mannings n           =      .013         .250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    2.27 | 3.083    3.62 | 6.083   16.31 |  9.08    3.17
                .167    2.27 | 3.167    3.62 | 6.167   16.31 |  9.17    3.17
                .250    2.27 | 3.250    3.62 | 6.250   16.31 |  9.25    3.17
                .333    2.27 | 3.333    3.62 | 6.333   16.31 |  9.33    3.17
                .417    2.27 | 3.417    3.62 | 6.417   16.31 |  9.42    3.17
                .500    2.27 | 3.500    3.62 | 6.500   16.31 |  9.50    3.17
                .583    2.27 | 3.583    3.62 | 6.583    7.25 |  9.58    3.17
                .667    2.27 | 3.667    3.62 | 6.667    7.25 |  9.67    3.17
                .750    2.27 | 3.750    3.62 | 6.750    7.25 |  9.75    3.17
                .833    2.27 | 3.833    3.62 | 6.833    7.25 |  9.83    3.17
                .917    2.27 | 3.917    3.62 | 6.917    7.25 |  9.92    3.17
               1.000    2.27 | 4.000    3.62 | 7.000    7.25 | 10.00    3.17
               1.083    2.27 | 4.083    5.44 | 7.083    5.44 | 10.08    1.81
               1.167    2.27 | 4.167    5.44 | 7.167    5.44 | 10.17    1.81
               1.250    2.27 | 4.250    5.44 | 7.250    5.44 | 10.25    1.81
               1.333    2.27 | 4.333    5.44 | 7.333    5.44 | 10.33    1.81
               1.417    2.27 | 4.417    5.44 | 7.417    5.44 | 10.42    1.81
               1.500    2.27 | 4.500    5.44 | 7.500    5.44 | 10.50    1.81
               1.583    2.27 | 4.583    7.25 | 7.583    5.44 | 10.58    1.81
               1.667    2.27 | 4.667    7.25 | 7.667    5.44 | 10.67    1.81
               1.750    2.27 | 4.750    7.25 | 7.750    5.44 | 10.75    1.81
               1.833    2.27 | 4.833    7.25 | 7.833    5.44 | 10.83    1.81
               1.917    2.27 | 4.917    7.25 | 7.917    5.44 | 10.92    1.81
               2.000    2.27 | 5.000    7.25 | 8.000    5.44 | 11.00    1.81
               2.083    2.72 | 5.083   10.87 | 8.083    3.17 | 11.08    1.81
               2.167    2.72 | 5.167   10.87 | 8.167    3.17 | 11.17    1.81
               2.250    2.72 | 5.250   10.87 | 8.250    3.17 | 11.25    1.81
               2.333    2.72 | 5.333   10.87 | 8.333    3.17 | 11.33    1.81
               2.417    2.72 | 5.417   10.87 | 8.417    3.17 | 11.42    1.81
               2.500    2.72 | 5.500   10.87 | 8.500    3.17 | 11.50    1.81
               2.583    2.72 | 5.583   43.49 | 8.583    3.17 | 11.58    1.81
               2.667    2.72 | 5.667   43.49 | 8.667    3.17 | 11.67    1.81
               2.750    2.72 | 5.750   43.49 | 8.750    3.17 | 11.75    1.81
               2.833    2.72 | 5.833  119.59 | 8.833    3.17 | 11.83    1.81
               2.917    2.72 | 5.917  119.59 | 8.917    3.17 | 11.92    1.81
               3.000    2.72 | 6.000  119.59 | 9.000    3.17 | 12.00    1.81

     Max.Eff.Inten.(mm/hr)=     119.59        93.67
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.98 (ii)    9.22 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .31          .12
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .17          .06          .231 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00         6.00
     RUNOFF VOLUME    (mm)=      89.61        59.29        78.99
     TOTAL RAINFALL   (mm)=      90.61        90.61        90.61
     RUNOFF COEFFICIENT   =        .99          .65          .87

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

       (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  (0005) |   Area    (ha)=   1.16
|ID= 1 DT= 5.0 min |   Total Imp(%)=  73.00   Dir. Conn.(%)=  73.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .85          .31
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     87.90        40.00
     Mannings n           =      .013         .250
```

```
     Max.Eff.Inten.(mm/hr)=     119.59        93.67
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      2.20 (ii)    6.61 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .30          .14
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .28          .07          .350 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=     89.61        59.29         81.42
     TOTAL RAINFALL   (mm)=     90.61        90.61         90.61
     RUNOFF COEFFICIENT   =       .99          .65           .90

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .45          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     54.80        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     119.59      1264.48
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      1.66 (ii)    2.70 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .32          .29
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .15          .00          .149 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=     89.61        59.29         89.31
     TOTAL RAINFALL   (mm)=     90.61        90.61         90.61
     RUNOFF COEFFICIENT   =       .99          .65           .99

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

       (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  (0004) |   Area    (ha)=    .14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .10          .04
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     30.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     119.59        93.67
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      1.17 (ii)    5.67 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .34          .15
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .03          .01          .042 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=     89.61        59.29         81.10
     TOTAL RAINFALL   (mm)=     90.61        90.61         90.61
     RUNOFF COEFFICIENT   =       .99          .65           .90

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

       (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  (0003) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .06          .01
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     21.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     119.59        93.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       .95 (ii)    4.53 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .34          .23
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .02          .00          .022 (iii)
     TIME TO PEAK    (hrs)=      5.92         6.00          6.00
     RUNOFF VOLUME    (mm)=     89.61        59.29         84.14
     TOTAL RAINFALL   (mm)=     90.61        90.61         90.61
     RUNOFF COEFFICIENT   =       .99          .65           .93

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

       (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  (0002) |   Area    (ha)=    .22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  85.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .19          .03
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     38.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     119.59        93.67
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      1.34 (ii)    4.62 (ii)
```

```
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .33          .22
                                                  *TOTALS*
     PEAK FLOW       (cms)=        .06          .01          .071 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      89.61        59.29         85.05
     TOTAL RAINFALL   (mm)=      90.61        90.61         90.61
     RUNOFF COEFFICIENT   =        .99          .65           .94

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

       (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 (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0003):	.07	.022	6.00	84.14
	+ ID2= 2 (0002):	.22	.071	6.00	85.05
	ID = 3 (0007):	.29	.093	6.00	84.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0004):	.14	.042	6.00	81.10
	+ ID2= 2 (0007):	.29	.093	6.00	84.83
	ID = 3 (0008):	.43	.135	6.00	83.61

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0009)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0001):	.45	.149	6.00	89.31
	+ ID2= 2 (0008):	.43	.135	6.00	83.61
	ID = 3 (0009):	.88	.284	6.00	86.53

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0005):	1.16	.350	6.00	81.42
	+ ID2= 2 (0009):	.88	.284	6.00	86.53
	ID = 3 (0010):	2.04	.634	6.00	83.62

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0006):	.81	.231	6.00	78.99
	+ ID2= 2 (0010):	2.04	.634	6.00	83.62
	ID = 3 (0011):	2.85	.865	6.00	82.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 12-hr\ 100yr,12hr SCS.stm
Ptotal= 99.69 mm	Comments: 100-yr, 12-hr SCS Type II Distribution S

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	2.49	3.25	3.99	6.25	17.95	9.25	3.49
.50	2.49	3.50	3.99	6.50	17.95	9.50	3.49
.75	2.49	3.75	3.99	6.75	7.98	9.75	3.49
1.00	2.49	4.00	3.99	7.00	7.98	10.00	3.49
1.25	2.49	4.25	5.98	7.25	5.98	10.25	1.99
1.50	2.49	4.50	5.98	7.50	5.98	10.50	1.99
1.75	2.49	4.75	7.98	7.75	5.98	10.75	1.99
2.00	2.49	5.00	7.98	8.00	5.98	11.00	1.99
2.25	2.99	5.25	11.96	8.25	3.49	11.25	1.99
2.50	2.99	5.50	11.96	8.50	3.49	11.50	1.99
2.75	2.99	5.75	47.86	8.75	3.49	11.75	1.99
3.00	2.99	6.00	131.60	9.00	3.49	12.00	1.99

CALIB	
STANDHYD (0006)	Area (ha)= .81
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	2.49	3.083	3.99	6.083	17.95	9.08	3.49
.167	2.49	3.167	3.99	6.167	17.95	9.17	3.49
.250	2.49	3.250	3.99	6.250	17.95	9.25	3.49
.333	2.49	3.333	3.99	6.333	17.95	9.33	3.49
.417	2.49	3.417	3.99	6.417	17.95	9.42	3.49
.500	2.49	3.500	3.99	6.500	17.95	9.50	3.49
.583	2.49	3.583	3.99	6.583	7.98	9.58	3.49

.667	2.49	3.667	3.99	6.667	7.98	9.67	3.49
.750	2.49	3.750	3.99	6.750	7.98	9.75	3.49
.833	2.49	3.833	3.99	6.833	7.98	9.83	3.49
.917	2.49	3.917	3.99	6.917	7.98	9.92	3.49
1.000	2.49	4.000	3.99	7.000	7.98	10.00	3.49
1.083	2.49	4.083	5.98	7.083	5.98	10.08	1.99
1.167	2.49	4.167	5.98	7.167	5.98	10.17	1.99
1.250	2.49	4.250	5.98	7.250	5.98	10.25	1.99
1.333	2.49	4.333	5.98	7.333	5.98	10.33	1.99
1.417	2.49	4.417	5.98	7.417	5.98	10.42	1.99
1.500	2.49	4.500	5.98	7.500	5.98	10.50	1.99
1.583	2.49	4.583	7.98	7.583	5.98	10.58	1.99
1.667	2.49	4.667	7.98	7.667	5.98	10.67	1.99
1.750	2.49	4.750	7.98	7.750	5.98	10.75	1.99
1.833	2.49	4.833	7.98	7.833	5.98	10.83	1.99
1.917	2.49	4.917	7.98	7.917	5.98	10.92	1.99
2.000	2.49	5.000	7.98	8.000	5.98	11.00	1.99
2.083	2.99	5.083	11.96	8.083	3.49	11.08	1.99
2.167	2.99	5.167	11.96	8.167	3.49	11.17	1.99
2.250	2.99	5.250	11.96	8.250	3.49	11.25	1.99
2.333	2.99	5.333	11.96	8.333	3.49	11.33	1.99
2.417	2.99	5.417	11.96	8.417	3.49	11.42	1.99
2.500	2.99	5.500	11.96	8.500	3.49	11.50	1.99
2.583	2.99	5.583	47.86	8.583	3.49	11.58	1.99
2.667	2.99	5.667	47.86	8.667	3.49	11.67	1.99
2.750	2.99	5.750	47.86	8.750	3.49	11.75	1.99
2.833	2.99	5.833	131.60	8.833	3.49	11.83	1.99
2.917	2.99	5.917	131.60	8.917	3.49	11.92	1.99
3.000	2.99	6.000	131.60	9.000	3.49	12.00	1.99

Max.Eff.Inten.(mm/hr)=	131.60	105.96		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.90 (ii)	6.84 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	.32	.14		
			TOTALS	
PEAK FLOW (cms)=	.19	.07	.263 (iii)	
TIME TO PEAK (hrs)=	6.00	6.00	6.00	
RUNOFF VOLUME (mm)=	98.69	67.41	87.74	
TOTAL RAINFALL (mm)=	99.69	99.69	99.69	
RUNOFF COEFFICIENT =	.99	.68	.88	

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

(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 (0005)	Area (ha)= 1.16		
ID= 1 DT= 5.0 min	Total Imp(%)= 73.00	Dir. Conn.(%)= 73.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.85	.31	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	87.90	40.00	
Mannings n =	.013	.250	

Max.Eff.Inten.(mm/hr)=	131.60	105.96		
over (min)	5.00	10.00		
Storage Coeff. (min)=	2.12 (ii)	6.37 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	.31	.15		
			TOTALS	
PEAK FLOW (cms)=	.31	.08	.388 (iii)	
TIME TO PEAK (hrs)=	6.00	6.00	6.00	
RUNOFF VOLUME (mm)=	98.69	67.41	90.24	
TOTAL RAINFALL (mm)=	99.69	99.69	99.69	
RUNOFF COEFFICIENT =	.99	.68	.91	

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

(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 (0001)	Area (ha)= .45		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.45	.00	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	54.80	40.00	
Mannings n =	.013	.250	

Max.Eff.Inten.(mm/hr)=	131.60	1430.47		
over (min)	5.00	5.00		
Storage Coeff. (min)=	1.60 (ii)	2.60 (ii)		
Unit Hyd. Tpeak (min)=	5.00	5.00		
Unit Hyd. peak (cms)=	.33	.29		
			TOTALS	
PEAK FLOW (cms)=	.16	.00	.164 (iii)	
TIME TO PEAK (hrs)=	6.00	6.00	6.00	
RUNOFF VOLUME (mm)=	98.69	67.41	98.38	
TOTAL RAINFALL (mm)=	99.69	99.69	99.69	
RUNOFF COEFFICIENT =	.99	.68	.99	

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

(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 (0004)	Area (ha)= .14		
ID= 1 DT= 5.0 min	Total Imp(%)= 72.00	Dir. Conn.(%)= 72.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.10	.04	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	30.60	40.00	
Mannings n =	.013	.250	

Max.Eff.Inten.(mm/hr)=	131.60	105.96		
over (min)	5.00	10.00		
Storage Coeff. (min)=	1.12 (ii)	5.46 (ii)		
Unit Hyd. Tpeak (min)=	5.00	10.00		
Unit Hyd. peak (cms)=	.34	.16		
			TOTALS	
PEAK FLOW (cms)=	.04	.01	.047 (iii)	

```
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      98.69        67.41         89.91
     TOTAL RAINFALL   (mm)=      99.69        99.69         99.69
     RUNOFF COEFFICIENT   =        .99          .68           .90

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

       (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  (0003) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .06          .01
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     21.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    131.60       105.96
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      .91 (ii)    4.36 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      .34          .23
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .02          .00        .025 (iii)
     TIME TO PEAK    (hrs)=     5.92         6.00         6.00
     RUNOFF VOLUME    (mm)=     98.69        67.41        93.05
     TOTAL RAINFALL   (mm)=     99.69        99.69        99.69
     RUNOFF COEFFICIENT   =       .99          .68          .93

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

       (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  (0002) |   Area    (ha)=    .22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  85.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .19          .03
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     38.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    131.60       105.96
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      1.29 (ii)   4.45 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=      .33          .23
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .07          .01        .078 (iii)
     TIME TO PEAK    (hrs)=     6.00         6.00         6.00
     RUNOFF VOLUME    (mm)=     98.69        67.41        93.98
     TOTAL RAINFALL   (mm)=     99.69        99.69        99.69
     RUNOFF COEFFICIENT   =       .99          .68          .94

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

       (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   (0007) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0003):      .07    .025     6.00    93.05
        + ID2= 2 (0002):      .22    .078     6.00    93.98
          ================================================
          ID = 3 (0007):      .29    .103     6.00    93.76

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0004):      .14    .047     6.00    89.91
        + ID2= 2 (0007):      .29    .103     6.00    93.76
          ================================================
          ID = 3 (0008):      .43    .150     6.00    92.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0001):      .45    .164     6.00    98.38
        + ID2= 2 (0008):      .43    .150     6.00    92.51
          ================================================
          ID = 3 (0009):      .88    .314     6.00    95.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0005):     1.16    .388     6.00    90.24
        + ID2= 2 (0009):      .88    .314     6.00    95.51
          ================================================
          ID = 3 (0010):     2.04    .702     6.00    92.51

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
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```
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0006):       .81    .263     6.00    87.74
        + ID2= 2 (0010):     2.04    .702     6.00    92.51
          ================================================
          ID = 3 (0011):     2.85    .965     6.00    91.16

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
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EXISTING CONDITIONS
24-HOUR SCS TYPE II DISTRIBUTION

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

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM, Version 2.1
       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\Visual OTTHYMO 2.2.4\voin.dat
Output filename: C:\Users\Frank Fisl\Desktop\QualityInnVO2\QualityInn\Existing Condition.out
Summary filename: C:\Users\Frank Fisl\Desktop\QualityInnVO2\QualityInn\Existing Condition.sum

DATE: 2023-07-13 TIME: 12:17:04

USER:

COMMENTS: _____

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  ***************************
  ** SIMULATION NUMBER:   1 **
  ***************************
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|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 24-hr\
|                  |              002yr,24hr SCS.stm
| Ptotal= 55.18 mm |    Comments: 2-yr, 24-hr SCS Type II Distribution Sto
--------------------
```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.61	6.25	.99	12.25	7.95	18.25	.99
.50	.61	6.50	.99	12.50	7.95	18.50	.99
.75	.61	6.75	.99	12.75	4.08	18.75	.99
1.00	.61	7.00	.99	13.00	4.08	19.00	.99
1.25	.61	7.25	1.21	13.25	2.98	19.25	.99
1.50	.61	7.50	1.21	13.50	2.98	19.50	.99
1.75	.61	7.75	1.21	13.75	2.32	19.75	.99
2.00	.61	8.00	1.21	14.00	2.32	20.00	.99
2.25	.72	8.25	1.44	14.25	1.66	20.25	.66
2.50	.72	8.50	1.44	14.50	1.66	20.50	.66
2.75	.72	8.75	1.55	14.75	1.66	20.75	.66
3.00	.72	9.00	1.55	15.00	1.66	21.00	.66
3.25	.72	9.25	1.77	15.25	1.66	21.25	.66
3.50	.72	9.50	1.77	15.50	1.66	21.50	.66
3.75	.72	9.75	1.99	15.75	1.66	21.75	.66
4.00	.72	10.00	1.99	16.00	1.66	22.00	.66
4.25	.88	10.25	2.54	16.25	.99	22.25	.66
4.50	.88	10.50	2.54	16.50	.99	22.50	.66
4.75	.88	10.75	3.42	16.75	.99	22.75	.66
5.00	.88	11.00	3.42	17.00	.99	23.00	.66
5.25	.88	11.25	5.30	17.25	.99	23.25	.66
5.50	.88	11.50	5.30	17.50	.99	23.50	.66
5.75	.88	11.75	22.96	17.75	.99	23.75	.66
6.00	.88	12.00	60.94	18.00	.99	24.00	.66

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--------------------
| CALIB            |
| STANDHYD  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.61	6.083	.99	12.083	7.96	18.08	.99
.167	.61	6.167	.99	12.167	7.95	18.17	.99
.250	.61	6.250	.99	12.250	7.95	18.25	.99
.333	.61	6.333	.99	12.333	7.95	18.33	.99
.417	.61	6.417	.99	12.417	7.95	18.42	.99
.500	.61	6.500	.99	12.500	7.95	18.50	.99
.583	.61	6.583	.99	12.583	4.08	18.58	.99
.667	.61	6.667	.99	12.667	4.08	18.67	.99
.750	.61	6.750	.99	12.750	4.08	18.75	.99
.833	.61	6.833	.99	12.833	4.08	18.83	.99
.917	.61	6.917	.99	12.917	4.08	18.92	.99
1.000	.61	7.000	.99	13.000	4.08	19.00	.99
1.083	.61	7.083	1.21	13.083	2.98	19.08	.99
1.167	.61	7.167	1.21	13.167	2.98	19.17	.99
1.250	.61	7.250	1.21	13.250	2.98	19.25	.99
1.333	.61	7.333	1.21	13.333	2.98	19.33	.99
1.417	.61	7.417	1.21	13.417	2.98	19.42	.99
1.500	.61	7.500	1.21	13.500	2.98	19.50	.99
1.583	.61	7.583	1.21	13.583	2.32	19.58	.99
1.667	.61	7.667	1.21	13.667	2.32	19.67	.99
1.750	.61	7.750	1.21	13.750	2.32	19.75	.99
1.833	.61	7.833	1.21	13.833	2.32	19.83	.99
1.917	.61	7.917	1.21	13.917	2.32	19.92	.99
2.000	.61	8.000	1.21	14.000	2.32	20.00	.99
2.083	.72	8.083	1.44	14.083	1.66	20.08	.66
2.167	.72	8.167	1.44	14.167	1.66	20.17	.66
2.250	.72	8.250	1.44	14.250	1.66	20.25	.66
2.333	.72	8.333	1.44	14.333	1.66	20.33	.66
2.417	.72	8.417	1.44	14.417	1.66	20.42	.66
2.500	.72	8.500	1.44	14.500	1.66	20.50	.66
2.583	.72	8.583	1.55	14.583	1.66	20.58	.66
2.667	.72	8.667	1.55	14.667	1.66	20.67	.66
2.750	.72	8.750	1.55	14.750	1.66	20.75	.66

2.833	.72	8.833	1.55	14.833	1.66	20.83	.66
2.917	.72	8.917	1.55	14.917	1.66	20.92	.66
3.000	.72	9.000	1.55	15.000	1.66	21.00	.66
3.083	.72	9.083	1.77	15.083	1.66	21.08	.66
3.167	.72	9.167	1.77	15.167	1.66	21.17	.66
3.250	.72	9.250	1.77	15.250	1.66	21.25	.66
3.333	.72	9.333	1.77	15.333	1.66	21.33	.66
3.417	.72	9.417	1.77	15.417	1.66	21.42	.66
3.500	.72	9.500	1.77	15.500	1.66	21.50	.66
3.583	.72	9.583	1.99	15.583	1.66	21.58	.66
3.667	.72	9.667	1.99	15.667	1.66	21.67	.66
3.750	.72	9.750	1.99	15.750	1.66	21.75	.66
3.833	.72	9.833	1.99	15.833	1.66	21.83	.66
3.917	.72	9.917	1.99	15.917	1.66	21.92	.66
4.000	.72	10.000	1.99	16.000	1.66	22.00	.66
4.083	.88	10.083	2.54	16.083	.99	22.08	.66
4.167	.88	10.167	2.54	16.167	.99	22.17	.66
4.250	.88	10.250	2.54	16.250	.99	22.25	.66
4.333	.88	10.333	2.54	16.333	.99	22.33	.66
4.417	.88	10.417	2.54	16.417	.99	22.42	.66
4.500	.88	10.500	2.54	16.500	.99	22.50	.66
4.583	.88	10.583	3.42	16.583	.99	22.58	.66
4.667	.88	10.667	3.42	16.667	.99	22.67	.66
4.750	.88	10.750	3.42	16.750	.99	22.75	.66
4.833	.88	10.833	3.42	16.833	.99	22.83	.66
4.917	.88	10.917	3.42	16.917	.99	22.92	.66
5.000	.88	11.000	3.42	17.000	.99	23.00	.66
5.083	.88	11.083	5.30	17.083	.99	23.08	.66
5.167	.88	11.167	5.30	17.167	.99	23.17	.66
5.250	.88	11.250	5.30	17.250	.99	23.25	.66
5.333	.88	11.333	5.30	17.333	.99	23.33	.66
5.417	.88	11.417	5.30	17.417	.99	23.42	.66
5.500	.88	11.500	5.30	17.500	.99	23.50	.66
5.583	.88	11.583	22.96	17.583	.99	23.58	.66
5.667	.88	11.667	22.96	17.667	.99	23.67	.66
5.750	.88	11.750	22.96	17.750	.99	23.75	.66
5.833	.88	11.833	60.94	17.833	.99	23.83	.66
5.917	.88	11.917	60.94	17.917	.99	23.92	.66
6.000	.88	12.000	60.94	18.000	.99	24.00	.66

Max.Eff.Inten.(mm/hr)=	60.94	37.26	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.59 (ii)	13.06 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	.29	.08	
			TOTALS
PEAK FLOW (cms)=	.09	.02	.106 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	54.18	29.26	45.45
TOTAL RAINFALL (mm)=	55.19	55.19	55.19
RUNOFF COEFFICIENT =	.98	.53	.82

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

(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 (0005)	Area (ha)=	1.16	
ID= 1 DT= 5.0 min	Total Imp(%)=	73.00	Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.85	.31
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.90	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		60.94	37.26
over (min)		5.00	15.00
Storage Coeff. (min)=		2.88 (ii)	13.36 (ii)
Unit Hyd. Tpeak (min)=		5.00	15.00
Unit Hyd. peak (cms)=		.28	.08
			TOTALS
PEAK FLOW (cms)=		.14	.02 .162 (iii)
TIME TO PEAK (hrs)=		12.00	12.08 12.00
RUNOFF VOLUME (mm)=		54.19	29.26 47.45
TOTAL RAINFALL (mm)=		55.19	55.19 55.19
RUNOFF COEFFICIENT =		.98	.53 .86

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

(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 (0001)	Area (ha)=	.45	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.45	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	54.80	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		60.94	526.26
over (min)		5.00	5.00
Storage Coeff. (min)=		2.17 (ii)	3.54 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		.31	.26
			TOTALS
PEAK FLOW (cms)=		.08	.00 .076 (iii)
TIME TO PEAK (hrs)=		12.00	12.00 12.00
RUNOFF VOLUME (mm)=		54.18	29.26 53.93
TOTAL RAINFALL (mm)=		55.19	55.19 55.19
RUNOFF COEFFICIENT =		.98	.53 .98

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

(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 (0004)	Area (ha)=	.14	
ID= 1 DT= 5.0 min	Total Imp(%)=	72.00	Dir. Conn.(%)= 72.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.10	.04
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00

```
     Length            (m)=      30.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      60.94        37.26
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.53 (ii)   12.01 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .33          .09
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .020 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      54.18        29.26         47.17
     TOTAL RAINFALL   (mm)=      55.19        55.19         55.19
     RUNOFF COEFFICIENT   =        .98          .53           .85

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

       (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  (0003) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .06          .01
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     21.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      60.94        38.98
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.24 (ii)    5.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .33          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .011 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      54.19        29.26         49.69
     TOTAL RAINFALL   (mm)=      55.19        55.19         55.19
     RUNOFF COEFFICIENT   =        .98          .53           .90

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

       (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  (0002) |   Area    (ha)=    .22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  85.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .19          .03
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     38.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      60.94        38.98
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.75 (ii)    6.05 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .32          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .03          .00          .035 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      54.18        29.26         50.43
     TOTAL RAINFALL   (mm)=      55.19        55.19         55.19
     RUNOFF COEFFICIENT   =        .98          .53           .91

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

       (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   (0007) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0003):      .07    .011    12.00    49.69
        + ID2= 2 (0002):      .22    .035    12.00    50.43
          ================================================
          ID = 3 (0007):      .29    .046    12.00    50.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0004):      .14    .020    12.00    47.17
        + ID2= 2 (0007):      .29    .046    12.00    50.25
          ================================================
          ID = 3 (0008):      .43    .065    12.00    49.25

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0001):      .45    .076    12.00    53.93
        + ID2= 2 (0008):      .43    .065    12.00    49.25
          ================================================
          ID = 3 (0009):      .88    .141    12.00    51.64

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0005):     1.16    .162    12.00    47.45
        + ID2= 2 (0009):      .88    .141    12.00    51.64
```

ID = 3 (0010):	2.04	.302	12.00	49.26

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0006):	.81	.106	12.00	45.45
+ ID2= 2 (0010):	2.04	.302	12.00	49.26
ID = 3 (0011):	2.85	.409	12.00	48.17

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM | Ptotal= 73.37 mm

Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 24-hr\ 005yr,24hr SCS.stm

Comments: 5-yr, 24-hr SCS Type II Distribution Sto

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.81	6.25	1.32	12.25	10.57	18.25	1.32
.50	.81	6.50	1.32	12.50	10.57	18.50	1.32
.75	.81	6.75	1.32	12.75	5.43	18.75	1.32
1.00	.81	7.00	1.32	13.00	5.43	19.00	1.32
1.25	.81	7.25	1.61	13.25	3.96	19.25	1.32
1.50	.81	7.50	1.61	13.50	3.96	19.50	1.32
1.75	.81	7.75	1.61	13.75	3.08	19.75	1.32
2.00	.81	8.00	1.61	14.00	3.08	20.00	1.32
2.25	.95	8.25	1.91	14.25	2.20	20.25	.88
2.50	.95	8.50	1.91	14.50	2.20	20.50	.88
2.75	.95	8.75	2.06	14.75	2.20	20.75	.88
3.00	.95	9.00	2.06	15.00	2.20	21.00	.88
3.25	.95	9.25	2.35	15.25	2.20	21.25	.88
3.50	.95	9.50	2.35	15.50	2.20	21.50	.88
3.75	.95	9.75	2.64	15.75	2.20	21.75	.88
4.00	.95	10.00	2.64	16.00	2.20	22.00	.88
4.25	1.17	10.25	3.38	16.25	1.32	22.25	.88
4.50	1.17	10.50	3.38	16.50	1.32	22.50	.88
4.75	1.17	10.75	4.55	16.75	1.32	22.75	.88
5.00	1.17	11.00	4.55	17.00	1.32	23.00	.88
5.25	1.17	11.25	7.05	17.25	1.32	23.25	.88
5.50	1.17	11.50	7.05	17.50	1.32	23.50	.88
5.75	1.17	11.75	30.53	17.75	1.32	23.75	.88
6.00	1.17	12.00	81.03	18.00	1.32	24.00	.88

CALIB | STANDHYD (0006) | ID= 1 DT= 5.0 min

Area (ha)= .81

Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.81	6.083	1.32	12.083	10.58	18.08	1.32
.167	.81	6.167	1.32	12.167	10.57	18.17	1.32
.250	.81	6.250	1.32	12.250	10.57	18.25	1.32
.333	.81	6.333	1.32	12.333	10.57	18.33	1.32
.417	.81	6.417	1.32	12.417	10.57	18.42	1.32
.500	.81	6.500	1.32	12.500	10.57	18.50	1.32
.583	.81	6.583	1.32	12.583	5.43	18.58	1.32
.667	.81	6.667	1.32	12.667	5.43	18.67	1.32
.750	.81	6.750	1.32	12.750	5.43	18.75	1.32
.833	.81	6.833	1.32	12.833	5.43	18.83	1.32
.917	.81	6.917	1.32	12.917	5.43	18.92	1.32
1.000	.81	7.000	1.32	13.000	5.43	19.00	1.32
1.083	.81	7.083	1.61	13.083	3.96	19.08	1.32
1.167	.81	7.167	1.61	13.167	3.96	19.17	1.32
1.250	.81	7.250	1.61	13.250	3.96	19.25	1.32
1.333	.81	7.333	1.61	13.333	3.96	19.33	1.32
1.417	.81	7.417	1.61	13.417	3.96	19.42	1.32
1.500	.81	7.500	1.61	13.500	3.96	19.50	1.32
1.583	.81	7.583	1.61	13.583	3.08	19.58	1.32
1.667	.81	7.667	1.61	13.667	3.08	19.67	1.32
1.750	.81	7.750	1.61	13.750	3.08	19.75	1.32
1.833	.81	7.833	1.61	13.833	3.08	19.83	1.32
1.917	.81	7.917	1.61	13.917	3.08	19.92	1.32
2.000	.81	8.000	1.61	14.000	3.08	20.00	1.32
2.083	.95	8.083	1.91	14.083	2.20	20.08	.88
2.167	.95	8.167	1.91	14.167	2.20	20.17	.88
2.250	.95	8.250	1.91	14.250	2.20	20.25	.88
2.333	.95	8.333	1.91	14.333	2.20	20.33	.88
2.417	.95	8.417	1.91	14.417	2.20	20.42	.88
2.500	.95	8.500	1.91	14.500	2.20	20.50	.88
2.583	.95	8.583	2.06	14.583	2.20	20.58	.88
2.667	.95	8.667	2.06	14.667	2.20	20.67	.88
2.750	.95	8.750	2.06	14.750	2.20	20.75	.88
2.833	.95	8.833	2.06	14.833	2.20	20.83	.88
2.917	.95	8.917	2.06	14.917	2.20	20.92	.88
3.000	.95	9.000	2.06	15.000	2.20	21.00	.88
3.083	.95	9.083	2.35	15.083	2.20	21.08	.88
3.167	.95	9.167	2.35	15.167	2.20	21.17	.88
3.250	.95	9.250	2.35	15.250	2.20	21.25	.88
3.333	.95	9.333	2.35	15.333	2.20	21.33	.88
3.417	.95	9.417	2.35	15.417	2.20	21.42	.88
3.500	.95	9.500	2.35	15.500	2.20	21.50	.88
3.583	.95	9.583	2.64	15.583	2.20	21.58	.88
3.667	.95	9.667	2.64	15.667	2.20	21.67	.88
3.750	.95	9.750	2.64	15.750	2.20	21.75	.88
3.833	.95	9.833	2.64	15.833	2.20	21.83	.88
3.917	.95	9.917	2.64	15.917	2.20	21.92	.88
4.000	.95	10.000	2.64	16.000	2.20	22.00	.88
4.083	1.17	10.083	3.38	16.083	1.32	22.08	.88
4.167	1.17	10.167	3.38	16.167	1.32	22.17	.88
4.250	1.17	10.250	3.38	16.250	1.32	22.25	.88
4.333	1.17	10.333	3.38	16.333	1.32	22.33	.88
4.417	1.17	10.417	3.38	16.417	1.32	22.42	.88
4.500	1.17	10.500	3.38	16.500	1.32	22.50	.88
4.583	1.17	10.583	4.55	16.583	1.32	22.58	.88
4.667	1.17	10.667	4.55	16.667	1.32	22.67	.88
4.750	1.17	10.750	4.55	16.750	1.32	22.75	.88
4.833	1.17	10.833	4.55	16.833	1.32	22.83	.88
4.917	1.17	10.917	4.55	16.917	1.32	22.92	.88

5.000	1.17	11.000	4.55	17.000	1.32	23.00	.88
5.083	1.17	11.083	7.05	17.083	1.32	23.08	.88
5.167	1.17	11.167	7.05	17.167	1.32	23.17	.88
5.250	1.17	11.250	7.05	17.250	1.32	23.25	.88
5.333	1.17	11.333	7.05	17.333	1.32	23.33	.88
5.417	1.17	11.417	7.05	17.417	1.32	23.42	.88
5.500	1.17	11.500	7.05	17.500	1.32	23.50	.88
5.583	1.17	11.583	30.53	17.583	1.32	23.58	.88
5.667	1.17	11.667	30.53	17.667	1.32	23.67	.88
5.750	1.17	11.750	30.53	17.750	1.32	23.75	.88
5.833	1.17	11.833	81.02	17.833	1.32	23.83	.88
5.917	1.17	11.917	81.03	17.917	1.32	23.92	.88
6.000	1.17	12.000	81.03	18.000	1.32	24.00	.88

Max.Eff.Inten.(mm/hr)=	81.03	58.47	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.31 (ii)	11.06 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	.30	.09	
			TOTALS
PEAK FLOW (cms)=	.12	.03	.147 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	72.37	44.26	62.53
TOTAL RAINFALL (mm)=	73.37	73.37	73.37
RUNOFF COEFFICIENT =	.99	.60	.85

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

(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 (0005)	Area (ha)=	1.16	
ID= 1 DT= 5.0 min	Total Imp(%)=	73.00	Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.85	.31
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.90	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	81.03	58.47	
over (min)	5.00	15.00	
Storage Coeff. (min)=	2.57 (ii)	11.32 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	.29	.09	
			TOTALS
PEAK FLOW (cms)=	.19	.03	.221 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	72.37	44.26	64.78
TOTAL RAINFALL (mm)=	73.37	73.37	73.37
RUNOFF COEFFICIENT =	.99	.60	.88

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

(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 (0001)	Area (ha)=	.45	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.45	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	54.80	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	81.03	789.37	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.94 (ii)	3.16 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.31	.27	
			TOTALS
PEAK FLOW (cms)=	.10	.00	.101 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	72.37	44.26	72.08
TOTAL RAINFALL (mm)=	73.37	73.37	73.37
RUNOFF COEFFICIENT =	.99	.60	.98

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

(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 (0004)	Area (ha)=	.14	
ID= 1 DT= 5.0 min	Total Imp(%)=	72.00	Dir. Conn.(%)= 72.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.10	.04
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.60	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	81.03	58.47	
over (min)	5.00	15.00	
Storage Coeff. (min)=	1.37 (ii)	10.11 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	.33	.10	
			TOTALS
PEAK FLOW (cms)=	.02	.00	.027 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	72.37	44.26	64.45
TOTAL RAINFALL (mm)=	73.37	73.37	73.37
RUNOFF COEFFICIENT =	.99	.60	.88

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

(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

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| STANDHYD  (0003) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .06          .01
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     21.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     81.03        58.47
               over (min)       5.00        10.00
     Storage Coeff.  (min)=     1.11 (ii)    5.29 (ii)
     Unit Hyd. Tpeak (min)=     5.00        10.00
     Unit Hyd. peak  (cms)=      .34          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .01          .00          .015 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=    72.37        44.26         67.30
     TOTAL RAINFALL   (mm)=    73.37        73.37         73.37
     RUNOFF COEFFICIENT   =      .99          .60           .92

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

       (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  (0002) |   Area    (ha)=    .22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  85.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .19          .03
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     38.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     81.03        58.47
               over (min)       5.00        10.00
     Storage Coeff.  (min)=     1.56 (ii)    5.40 (ii)
     Unit Hyd. Tpeak (min)=     5.00        10.00
     Unit Hyd. peak  (cms)=      .33          .16
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .04          .00          .047 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=    72.37        44.26         68.14
     TOTAL RAINFALL   (mm)=    73.37        73.37         73.37
     RUNOFF COEFFICIENT   =      .99          .60           .93

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

       (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   (0007) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0003):      .07    .015    12.00    67.30
        + ID2= 2 (0002):      .22    .047    12.00    68.14
          ================================================
          ID = 3 (0007):      .29    .062    12.00    67.94

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0004):      .14    .027    12.00    64.45
        + ID2= 2 (0007):      .29    .062    12.00    67.94
          ================================================
          ID = 3 (0008):      .43    .088    12.00    66.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0001):      .45    .101    12.00    72.08
        + ID2= 2 (0008):      .43    .088    12.00    66.80
          ================================================
          ID = 3 (0009):      .88    .189    12.00    69.50

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0005):     1.16    .221    12.00    64.78
        + ID2= 2 (0009):      .88    .189    12.00    69.50
          ================================================
          ID = 3 (0010):     2.04    .410    12.00    66.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0006):      .81    .147    12.00    62.53
        + ID2= 2 (0010):     2.04    .410    12.00    66.81
          ================================================
          ID = 3 (0011):     2.85    .557    12.00    65.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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


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|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
```

	O2\QualityInn\design storms\SCS 24-hr\
	010yr,24hr SCS.stm
Ptotal= 85.40 mm	Comments: 10-yr, 24-hr SCS Type II Distribution St

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.94	6.25	1.54	12.25	12.30	18.25	1.54
.50	.94	6.50	1.54	12.50	12.30	18.50	1.54
.75	.94	6.75	1.54	12.75	6.32	18.75	1.54
1.00	.94	7.00	1.54	13.00	6.32	19.00	1.54
1.25	.94	7.25	1.88	13.25	4.61	19.25	1.54
1.50	.94	7.50	1.88	13.50	4.61	19.50	1.54
1.75	.94	7.75	1.88	13.75	3.59	19.75	1.54
2.00	.94	8.00	1.88	14.00	3.59	20.00	1.54
2.25	1.11	8.25	2.22	14.25	2.56	20.25	1.02
2.50	1.11	8.50	2.22	14.50	2.56	20.50	1.02
2.75	1.11	8.75	2.39	14.75	2.56	20.75	1.02
3.00	1.11	9.00	2.39	15.00	2.56	21.00	1.02
3.25	1.11	9.25	2.73	15.25	2.56	21.25	1.02
3.50	1.11	9.50	2.73	15.50	2.56	21.50	1.02
3.75	1.11	9.75	3.07	15.75	2.56	21.75	1.02
4.00	1.11	10.00	3.07	16.00	2.56	22.00	1.02
4.25	1.37	10.25	3.93	16.25	1.54	22.25	1.02
4.50	1.37	10.50	3.93	16.50	1.54	22.50	1.02
4.75	1.37	10.75	5.29	16.75	1.54	22.75	1.02
5.00	1.37	11.00	5.29	17.00	1.54	23.00	1.02
5.25	1.37	11.25	8.20	17.25	1.54	23.25	1.02
5.50	1.37	11.50	8.20	17.50	1.54	23.50	1.02
5.75	1.37	11.75	35.53	17.75	1.54	23.75	1.02
6.00	1.37	12.00	94.28	18.00	1.54	24.00	1.02

CALIB	
STANDHYD (0006)	Area (ha)= .81
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.94	6.083	1.54	12.083	12.31	18.08	1.54
.167	.94	6.167	1.54	12.167	12.30	18.17	1.54
.250	.94	6.250	1.54	12.250	12.30	18.25	1.54
.333	.94	6.333	1.54	12.333	12.30	18.33	1.54
.417	.94	6.417	1.54	12.417	12.30	18.42	1.54
.500	.94	6.500	1.54	12.500	12.30	18.50	1.54
.583	.94	6.583	1.54	12.583	6.32	18.58	1.54
.667	.94	6.667	1.54	12.667	6.32	18.67	1.54
.750	.94	6.750	1.54	12.750	6.32	18.75	1.54
.833	.94	6.833	1.54	12.833	6.32	18.83	1.54
.917	.94	6.917	1.54	12.917	6.32	18.92	1.54
1.000	.94	7.000	1.54	13.000	6.32	19.00	1.54
1.083	.94	7.083	1.88	13.083	4.61	19.08	1.54
1.167	.94	7.167	1.88	13.167	4.61	19.17	1.54
1.250	.94	7.250	1.88	13.250	4.61	19.25	1.54
1.333	.94	7.333	1.88	13.333	4.61	19.33	1.54
1.417	.94	7.417	1.88	13.417	4.61	19.42	1.54
1.500	.94	7.500	1.88	13.500	4.61	19.50	1.54
1.583	.94	7.583	1.88	13.583	3.59	19.58	1.54
1.667	.94	7.667	1.88	13.667	3.59	19.67	1.54
1.750	.94	7.750	1.88	13.750	3.59	19.75	1.54
1.833	.94	7.833	1.88	13.833	3.59	19.83	1.54
1.917	.94	7.917	1.88	13.917	3.59	19.92	1.54
2.000	.94	8.000	1.88	14.000	3.59	20.00	1.54
2.083	1.11	8.083	2.22	14.083	2.56	20.08	1.02
2.167	1.11	8.167	2.22	14.167	2.56	20.17	1.02
2.250	1.11	8.250	2.22	14.250	2.56	20.25	1.02
2.333	1.11	8.333	2.22	14.333	2.56	20.33	1.02
2.417	1.11	8.417	2.22	14.417	2.56	20.42	1.02
2.500	1.11	8.500	2.22	14.500	2.56	20.50	1.02
2.583	1.11	8.583	2.39	14.583	2.56	20.58	1.02
2.667	1.11	8.667	2.39	14.667	2.56	20.67	1.02
2.750	1.11	8.750	2.39	14.750	2.56	20.75	1.02
2.833	1.11	8.833	2.39	14.833	2.56	20.83	1.02
2.917	1.11	8.917	2.39	14.917	2.56	20.92	1.02
3.000	1.11	9.000	2.39	15.000	2.56	21.00	1.02
3.083	1.11	9.083	2.73	15.083	2.56	21.08	1.02
3.167	1.11	9.167	2.73	15.167	2.56	21.17	1.02
3.250	1.11	9.250	2.73	15.250	2.56	21.25	1.02
3.333	1.11	9.333	2.73	15.333	2.56	21.33	1.02
3.417	1.11	9.417	2.73	15.417	2.56	21.42	1.02
3.500	1.11	9.500	2.73	15.500	2.56	21.50	1.02
3.583	1.11	9.583	3.07	15.583	2.56	21.58	1.02
3.667	1.11	9.667	3.07	15.667	2.56	21.67	1.02
3.750	1.11	9.750	3.07	15.750	2.56	21.75	1.02
3.833	1.11	9.833	3.07	15.833	2.56	21.83	1.02
3.917	1.11	9.917	3.07	15.917	2.56	21.92	1.02
4.000	1.11	10.000	3.07	16.000	2.56	22.00	1.02
4.083	1.37	10.083	3.93	16.083	1.54	22.08	1.02
4.167	1.37	10.167	3.93	16.167	1.54	22.17	1.02
4.250	1.37	10.250	3.93	16.250	1.54	22.25	1.02
4.333	1.37	10.333	3.93	16.333	1.54	22.33	1.02
4.417	1.37	10.417	3.93	16.417	1.54	22.42	1.02
4.500	1.37	10.500	3.93	16.500	1.54	22.50	1.02
4.583	1.37	10.583	5.29	16.583	1.54	22.58	1.02
4.667	1.37	10.667	5.29	16.667	1.54	22.67	1.02
4.750	1.37	10.750	5.29	16.750	1.54	22.75	1.02
4.833	1.37	10.833	5.29	16.833	1.54	22.83	1.02
4.917	1.37	10.917	5.29	16.917	1.54	22.92	1.02
5.000	1.37	11.000	5.29	17.000	1.54	23.00	1.02
5.083	1.37	11.083	8.20	17.083	1.54	23.08	1.02
5.167	1.37	11.167	8.20	17.167	1.54	23.17	1.02
5.250	1.37	11.250	8.20	17.250	1.54	23.25	1.02
5.333	1.37	11.333	8.20	17.333	1.54	23.33	1.02
5.417	1.37	11.417	8.20	17.417	1.54	23.42	1.02
5.500	1.37	11.500	8.20	17.500	1.54	23.50	1.02
5.583	1.37	11.583	35.53	17.583	1.54	23.58	1.02
5.667	1.37	11.667	35.53	17.667	1.54	23.67	1.02
5.750	1.37	11.750	35.53	17.750	1.54	23.75	1.02
5.833	1.37	11.833	94.27	17.833	1.54	23.83	1.02
5.917	1.37	11.917	94.28	17.917	1.54	23.92	1.02
6.000	1.37	12.000	94.28	18.000	1.54	24.00	1.02

Max.Eff.Inten.(mm/hr)=	94.28	71.78		
over (min)	5.00	15.00		
Storage Coeff. (min)=	2.17 (ii)	10.23 (ii)		
Unit Hyd. Tpeak (min)=	5.00	15.00		
Unit Hyd. peak (cms)=	.31	.09		
				TOTALS
PEAK FLOW (cms)=	.14	.04		.174 (iii)
TIME TO PEAK (hrs)=	12.00	12.08		12.00
RUNOFF VOLUME (mm)=	84.40	54.68		73.99
TOTAL RAINFALL (mm)=	85.40	85.40		85.40
RUNOFF COEFFICIENT =	.99	.64		.87

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

(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 (0005)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 73.00 Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.85	.31	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	87.90	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		94.28	71.78	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	2.42 (ii)	7.27 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.30	.14	
				TOTALS
PEAK FLOW	(cms)=	.22	.05	.273 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	84.40	54.68	76.37
TOTAL RAINFALL	(mm)=	85.40	85.40	85.40
RUNOFF COEFFICIENT	=	.99	.64	.89

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

(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 (0001)	Area (ha)= .45
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.45	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.80	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		94.28	969.06	
over (min)		5.00	5.00	
Storage Coeff.	(min)=	1.82 (ii)	2.97 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.32	.28	
				TOTALS
PEAK FLOW	(cms)=	.12	.00	.118 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	84.40	54.68	84.09
TOTAL RAINFALL	(mm)=	85.40	85.40	85.40
RUNOFF COEFFICIENT	=	.99	.64	.98

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

(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 (0004)	Area (ha)= .14
ID= 1 DT= 5.0 min	Total Imp(%)= 72.00 Dir. Conn.(%)= 72.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.10	.04	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	30.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		94.28	71.78	
over (min)		5.00	10.00	
Storage Coeff.	(min)=	1.29 (ii)	6.24 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.33	.15	
				TOTALS
PEAK FLOW	(cms)=	.03	.01	.033 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	84.40	54.68	76.05
TOTAL RAINFALL	(mm)=	85.40	85.40	85.40
RUNOFF COEFFICIENT	=	.99	.64	.89

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

(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 (0003)	Area (ha)= .07
ID= 1 DT= 5.0 min	Total Imp(%)= 82.00 Dir. Conn.(%)= 82.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.06	.01	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	21.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		94.28	71.78	
over (min)		5.00	5.00	
Storage Coeff.	(min)=	1.04 (ii)	4.98 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.22	
				TOTALS
PEAK FLOW	(cms)=	.02	.00	.017 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	84.40	54.68	79.04
TOTAL RAINFALL	(mm)=	85.40	85.40	85.40
RUNOFF COEFFICIENT	=	.99	.64	.93

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

(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  (0002) |   Area    (ha)=    .22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  85.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .19          .03
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     38.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     94.28        71.78
               over (min)       5.00        10.00
     Storage Coeff.  (min)=      1.47 (ii)    5.08 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .33          .16
                                                      *TOTALS*
     PEAK FLOW       (cms)=       .05          .01          .055 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     84.40        54.68         79.92
     TOTAL RAINFALL   (mm)=     85.40        85.40         85.40
     RUNOFF COEFFICIENT   =       .99          .64           .94

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

      (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   (0007) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0003):      .07    .017    12.00    79.04
       + ID2= 2 (0002):      .22    .055    12.00    79.92
         ================================================
         ID = 3 (0007):      .29    .072    12.00    79.71

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0004):      .14    .033    12.00    76.05
       + ID2= 2 (0007):      .29    .072    12.00    79.71
         ================================================
         ID = 3 (0008):      .43    .106    12.00    78.52

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0001):      .45    .118    12.00    84.09
       + ID2= 2 (0008):      .43    .106    12.00    78.52
         ================================================
         ID = 3 (0009):      .88    .223    12.00    81.37

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0005):     1.16    .273    12.00    76.37
       + ID2= 2 (0009):      .88    .223    12.00    81.37
         ================================================
         ID = 3 (0010):     2.04    .496    12.00    78.53

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |        AREA    QPEAK    TPEAK     R.V.
--------------------        (ha)    (cms)    (hrs)     (mm)
         ID1= 1 (0006):      .81    .174    12.00    73.99
       + ID2= 2 (0010):     2.04    .496    12.00    78.53
         ================================================
         ID = 3 (0011):     2.85    .670    12.00    77.24

    NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 24-hr\
|                  |              025yr,24hr SCS.stm
| Ptotal=100.55 mm |    Comments: 25-yr, 24-hr SCS Type II Distribution St
--------------------
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .25    1.11 |  6.25    1.81 | 12.25   14.47 | 18.25    1.81
                 .50    1.11 |  6.50    1.81 | 12.50   14.47 | 18.50    1.81
                 .75    1.11 |  6.75    1.81 | 12.75    7.44 | 18.75    1.81
                1.00    1.11 |  7.00    1.81 | 13.00    7.44 | 19.00    1.81
                1.25    1.11 |  7.25    2.21 | 13.25    5.43 | 19.25    1.81
                1.50    1.11 |  7.50    2.21 | 13.50    5.43 | 19.50    1.81
                1.75    1.11 |  7.75    2.21 | 13.75    4.22 | 19.75    1.81
                2.00    1.11 |  8.00    2.21 | 14.00    4.22 | 20.00    1.81
                2.25    1.31 |  8.25    2.61 | 14.25    3.02 | 20.25    1.21
                2.50    1.31 |  8.50    2.61 | 14.50    3.02 | 20.50    1.21
                2.75    1.31 |  8.75    2.81 | 14.75    3.02 | 20.75    1.21
                3.00    1.31 |  9.00    2.81 | 15.00    3.02 | 21.00    1.21
                3.25    1.31 |  9.25    3.22 | 15.25    3.02 | 21.25    1.21
                3.50    1.31 |  9.50    3.22 | 15.50    3.02 | 21.50    1.21
                3.75    1.31 |  9.75    3.62 | 15.75    3.02 | 21.75    1.21
                4.00    1.31 | 10.00    3.62 | 16.00    3.02 | 22.00    1.21
                4.25    1.61 | 10.25    4.62 | 16.25    1.81 | 22.25    1.21
                4.50    1.61 | 10.50    4.62 | 16.50    1.81 | 22.50    1.21
                4.75    1.61 | 10.75    6.23 | 16.75    1.81 | 22.75    1.21
                5.00    1.61 | 11.00    6.23 | 17.00    1.81 | 23.00    1.21
```

5.25	1.61	11.25	9.65	17.25	1.81	23.25	1.21
5.50	1.61	11.50	9.65	17.50	1.81	23.50	1.21
5.75	1.61	11.75	41.81	17.75	1.81	23.75	1.21
6.00	1.61	12.00	110.95	18.00	1.81	24.00	1.21

CALIB			
STANDHYD (0006)	Area (ha)=	.81	
ID= 1 DT= 5.0 min	Total Imp(%)=	65.00	Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.11	6.083	1.81	12.083	14.48	18.08	1.81
.167	1.11	6.167	1.81	12.167	14.47	18.17	1.81
.250	1.11	6.250	1.81	12.250	14.47	18.25	1.81
.333	1.11	6.333	1.81	12.333	14.47	18.33	1.81
.417	1.11	6.417	1.81	12.417	14.47	18.42	1.81
.500	1.11	6.500	1.81	12.500	14.47	18.50	1.81
.583	1.11	6.583	1.81	12.583	7.44	18.58	1.81
.667	1.11	6.667	1.81	12.667	7.44	18.67	1.81
.750	1.11	6.750	1.81	12.750	7.44	18.75	1.81
.833	1.11	6.833	1.81	12.833	7.44	18.83	1.81
.917	1.11	6.917	1.81	12.917	7.44	18.92	1.81
1.000	1.11	7.000	1.81	13.000	7.44	19.00	1.81
1.083	1.11	7.083	2.21	13.083	5.43	19.08	1.81
1.167	1.11	7.167	2.21	13.167	5.43	19.17	1.81
1.250	1.11	7.250	2.21	13.250	5.43	19.25	1.81
1.333	1.11	7.333	2.21	13.333	5.43	19.33	1.81
1.417	1.11	7.417	2.21	13.417	5.43	19.42	1.81
1.500	1.11	7.500	2.21	13.500	5.43	19.50	1.81
1.583	1.11	7.583	2.21	13.583	4.22	19.58	1.81
1.667	1.11	7.667	2.21	13.667	4.22	19.67	1.81
1.750	1.11	7.750	2.21	13.750	4.22	19.75	1.81
1.833	1.11	7.833	2.21	13.833	4.22	19.83	1.81
1.917	1.11	7.917	2.21	13.917	4.22	19.92	1.81
2.000	1.11	8.000	2.21	14.000	4.22	20.00	1.81
2.083	1.31	8.083	2.61	14.083	3.02	20.08	1.21
2.167	1.31	8.167	2.61	14.167	3.02	20.17	1.21
2.250	1.31	8.250	2.61	14.250	3.02	20.25	1.21
2.333	1.31	8.333	2.61	14.333	3.02	20.33	1.21
2.417	1.31	8.417	2.61	14.417	3.02	20.42	1.21
2.500	1.31	8.500	2.61	14.500	3.02	20.50	1.21
2.583	1.31	8.583	2.81	14.583	3.02	20.58	1.21
2.667	1.31	8.667	2.81	14.667	3.02	20.67	1.21
2.750	1.31	8.750	2.81	14.750	3.02	20.75	1.21
2.833	1.31	8.833	2.81	14.833	3.02	20.83	1.21
2.917	1.31	8.917	2.81	14.917	3.02	20.92	1.21
3.000	1.31	9.000	2.81	15.000	3.02	21.00	1.21
3.083	1.31	9.083	3.22	15.083	3.02	21.08	1.21
3.167	1.31	9.167	3.22	15.167	3.02	21.17	1.21
3.250	1.31	9.250	3.22	15.250	3.02	21.25	1.21
3.333	1.31	9.333	3.22	15.333	3.02	21.33	1.21
3.417	1.31	9.417	3.22	15.417	3.02	21.42	1.21
3.500	1.31	9.500	3.22	15.500	3.02	21.50	1.21
3.583	1.31	9.583	3.62	15.583	3.02	21.58	1.21
3.667	1.31	9.667	3.62	15.667	3.02	21.67	1.21
3.750	1.31	9.750	3.62	15.750	3.02	21.75	1.21
3.833	1.31	9.833	3.62	15.833	3.02	21.83	1.21
3.917	1.31	9.917	3.62	15.917	3.02	21.92	1.21
4.000	1.31	10.000	3.62	16.000	3.02	22.00	1.21
4.083	1.61	10.083	4.62	16.083	1.81	22.08	1.21
4.167	1.61	10.167	4.62	16.167	1.81	22.17	1.21
4.250	1.61	10.250	4.62	16.250	1.81	22.25	1.21
4.333	1.61	10.333	4.62	16.333	1.81	22.33	1.21
4.417	1.61	10.417	4.62	16.417	1.81	22.42	1.21
4.500	1.61	10.500	4.62	16.500	1.81	22.50	1.21
4.583	1.61	10.583	6.23	16.583	1.81	22.58	1.21
4.667	1.61	10.667	6.23	16.667	1.81	22.67	1.21
4.750	1.61	10.750	6.23	16.750	1.81	22.75	1.21
4.833	1.61	10.833	6.23	16.833	1.81	22.83	1.21
4.917	1.61	10.917	6.23	16.917	1.81	22.92	1.21
5.000	1.61	11.000	6.23	17.000	1.81	23.00	1.21
5.083	1.61	11.083	9.65	17.083	1.81	23.08	1.21
5.167	1.61	11.167	9.65	17.167	1.81	23.17	1.21
5.250	1.61	11.250	9.65	17.250	1.81	23.25	1.21
5.333	1.61	11.333	9.65	17.333	1.81	23.33	1.21
5.417	1.61	11.417	9.65	17.417	1.81	23.42	1.21
5.500	1.61	11.500	9.65	17.500	1.81	23.50	1.21
5.583	1.61	11.583	41.81	17.583	1.81	23.58	1.21
5.667	1.61	11.667	41.81	17.667	1.81	23.67	1.21
5.750	1.61	11.750	41.81	17.750	1.81	23.75	1.21
5.833	1.61	11.833	110.94	17.833	1.81	23.83	1.21
5.917	1.61	11.917	110.95	17.917	1.81	23.92	1.21
6.000	1.61	12.000	110.95	18.000	1.81	24.00	1.21

Max.Eff.Inten.(mm/hr)=	110.95	88.79	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.04 (ii)	9.44 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	.31	.12	
			TOTALS
PEAK FLOW (cms)=	.16	.05	.216 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	99.55	68.19	88.57
TOTAL RAINFALL (mm)=	100.55	100.55	100.55
RUNOFF COEFFICIENT =	.99	.68	.88

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

(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 (0005)	Area (ha)=	1.16	
ID= 1 DT= 5.0 min	Total Imp(%)=	73.00	Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.85	.31
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.90	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	110.95	88.79
over (min)	5.00	10.00
Storage Coeff. (min)=	2.27 (ii)	6.82 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	.30	.14

```
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .26          .07          .326 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         91.08
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .91

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .45          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      54.80        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.95      1198.70
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.71 (ii)    2.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .32          .28
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .14          .00          .138 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         99.23
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .99

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

       (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  (0004) |   Area    (ha)=    .14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .10          .04
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.95        88.79
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.20 (ii)    5.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .33          .15
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .03          .01          .040 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         90.73
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .90

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

       (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  (0003) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .06          .01
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      21.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.95        88.79
               over (min)        5.00         5.00
     Storage Coeff.  (min)=        .98 (ii)    4.67 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .22
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .021 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         93.90
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .93

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

       (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  (0002) |   Area    (ha)=    .22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  85.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .19          .03
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      38.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     110.95        88.79
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.38 (ii)    4.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .33          .22
                                                        *TOTALS*
     PEAK FLOW       (cms)=        .06          .01          .066 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         94.84
```

```
     TOTAL RAINFALL   (mm)=     100.55       100.55         100.55
     RUNOFF COEFFICIENT   =        .99          .68            .94

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

       (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   (0007) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0003):      .07    .021    12.00    93.90
        + ID2= 2 (0002):      .22    .066    12.00    94.84
          ================================================
          ID = 3 (0007):      .29    .086    12.00    94.61

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0004):      .14    .040    12.00    90.73
        + ID2= 2 (0007):      .29    .086    12.00    94.61
          ================================================
          ID = 3 (0008):      .43    .126    12.00    93.35

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0001):      .45    .138    12.00    99.23
        + ID2= 2 (0008):      .43    .126    12.00    93.35
          ================================================
          ID = 3 (0009):      .88    .264    12.00    96.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0005):     1.16    .326    12.00    91.08
        + ID2= 2 (0009):      .88    .264    12.00    96.36
          ================================================
          ID = 3 (0010):     2.04    .591    12.00    93.36

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0006):      .81    .216    12.00    88.57
        + ID2= 2 (0010):     2.04    .591    12.00    93.36
          ================================================
          ID = 3 (0011):     2.85    .806    12.00    91.99

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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


--------------------
|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 24-hr\
|                  |              050yr,24hr SCS.stm
| Ptotal=111.70 mm |    Comments: 50-yr, 24-hr SCS Type II Distribution St
--------------------

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .25    1.23 |  6.25    2.01 | 12.25   16.08 | 18.25    2.01
                 .50    1.23 |  6.50    2.01 | 12.50   16.08 | 18.50    2.01
                 .75    1.23 |  6.75    2.01 | 12.75    8.27 | 18.75    2.01
                1.00    1.23 |  7.00    2.01 | 13.00    8.27 | 19.00    2.01
                1.25    1.23 |  7.25    2.46 | 13.25    6.03 | 19.25    2.01
                1.50    1.23 |  7.50    2.46 | 13.50    6.03 | 19.50    2.01
                1.75    1.23 |  7.75    2.46 | 13.75    4.69 | 19.75    2.01
                2.00    1.23 |  8.00    2.46 | 14.00    4.69 | 20.00    2.01
                2.25    1.45 |  8.25    2.90 | 14.25    3.35 | 20.25    1.34
                2.50    1.45 |  8.50    2.90 | 14.50    3.35 | 20.50    1.34
                2.75    1.45 |  8.75    3.13 | 14.75    3.35 | 20.75    1.34
                3.00    1.45 |  9.00    3.13 | 15.00    3.35 | 21.00    1.34
                3.25    1.45 |  9.25    3.57 | 15.25    3.35 | 21.25    1.34
                3.50    1.45 |  9.50    3.57 | 15.50    3.35 | 21.50    1.34
                3.75    1.45 |  9.75    4.02 | 15.75    3.35 | 21.75    1.34
                4.00    1.45 | 10.00    4.02 | 16.00    3.35 | 22.00    1.34
                4.25    1.79 | 10.25    5.14 | 16.25    2.01 | 22.25    1.34
                4.50    1.79 | 10.50    5.14 | 16.50    2.01 | 22.50    1.34
                4.75    1.79 | 10.75    6.93 | 16.75    2.01 | 22.75    1.34
                5.00    1.79 | 11.00    6.93 | 17.00    2.01 | 23.00    1.34
                5.25    1.79 | 11.25   10.72 | 17.25    2.01 | 23.25    1.34
                5.50    1.79 | 11.50   10.72 | 17.50    2.01 | 23.50    1.34
                5.75    1.79 | 11.75   46.47 | 17.75    2.01 | 23.75    1.34
                6.00    1.79 | 12.00  123.32 | 18.00    2.01 | 24.00    1.34

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--------------------
| CALIB            |
| STANDHYD  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53           .28
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      73.50         40.00
     Mannings n           =       .013          .250

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


                          ---- TRANSFORMED HYETOGRAPH ----
                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                .083    1.23 | 6.083    2.01 |12.083   16.09 | 18.08    2.01
```

.167	1.23	6.167	2.01	12.167	16.08	18.17	2.01
.250	1.23	6.250	2.01	12.250	16.08	18.25	2.01
.333	1.23	6.333	2.01	12.333	16.08	18.33	2.01
.417	1.23	6.417	2.01	12.417	16.08	18.42	2.01
.500	1.23	6.500	2.01	12.500	16.08	18.50	2.01
.583	1.23	6.583	2.01	12.583	8.27	18.58	2.01
.667	1.23	6.667	2.01	12.667	8.27	18.67	2.01
.750	1.23	6.750	2.01	12.750	8.27	18.75	2.01
.833	1.23	6.833	2.01	12.833	8.27	18.83	2.01
.917	1.23	6.917	2.01	12.917	8.27	18.92	2.01
1.000	1.23	7.000	2.01	13.000	8.27	19.00	2.01
1.083	1.23	7.083	2.46	13.083	6.03	19.08	2.01
1.167	1.23	7.167	2.46	13.167	6.03	19.17	2.01
1.250	1.23	7.250	2.46	13.250	6.03	19.25	2.01
1.333	1.23	7.333	2.46	13.333	6.03	19.33	2.01
1.417	1.23	7.417	2.46	13.417	6.03	19.42	2.01
1.500	1.23	7.500	2.46	13.500	6.03	19.50	2.01
1.583	1.23	7.583	2.46	13.583	4.69	19.58	2.01
1.667	1.23	7.667	2.46	13.667	4.69	19.67	2.01
1.750	1.23	7.750	2.46	13.750	4.69	19.75	2.01
1.833	1.23	7.833	2.46	13.833	4.69	19.83	2.01
1.917	1.23	7.917	2.46	13.917	4.69	19.92	2.01
2.000	1.23	8.000	2.46	14.000	4.69	20.00	2.01
2.083	1.45	8.083	2.90	14.083	3.35	20.08	1.34
2.167	1.45	8.167	2.90	14.167	3.35	20.17	1.34
2.250	1.45	8.250	2.90	14.250	3.35	20.25	1.34
2.333	1.45	8.333	2.90	14.333	3.35	20.33	1.34
2.417	1.45	8.417	2.90	14.417	3.35	20.42	1.34
2.500	1.45	8.500	2.90	14.500	3.35	20.50	1.34
2.583	1.45	8.583	3.13	14.583	3.35	20.58	1.34
2.667	1.45	8.667	3.13	14.667	3.35	20.67	1.34
2.750	1.45	8.750	3.13	14.750	3.35	20.75	1.34
2.833	1.45	8.833	3.13	14.833	3.35	20.83	1.34
2.917	1.45	8.917	3.13	14.917	3.35	20.92	1.34
3.000	1.45	9.000	3.13	15.000	3.35	21.00	1.34
3.083	1.45	9.083	3.57	15.083	3.35	21.08	1.34
3.167	1.45	9.167	3.57	15.167	3.35	21.17	1.34
3.250	1.45	9.250	3.57	15.250	3.35	21.25	1.34
3.333	1.45	9.333	3.57	15.333	3.35	21.33	1.34
3.417	1.45	9.417	3.57	15.417	3.35	21.42	1.34
3.500	1.45	9.500	3.57	15.500	3.35	21.50	1.34
3.583	1.45	9.583	4.02	15.583	3.35	21.58	1.34
3.667	1.45	9.667	4.02	15.667	3.35	21.67	1.34
3.750	1.45	9.750	4.02	15.750	3.35	21.75	1.34
3.833	1.45	9.833	4.02	15.833	3.35	21.83	1.34
3.917	1.45	9.917	4.02	15.917	3.35	21.92	1.34
4.000	1.45	10.000	4.02	16.000	3.35	22.00	1.34
4.083	1.79	10.083	5.14	16.083	2.01	22.08	1.34
4.167	1.79	10.167	5.14	16.167	2.01	22.17	1.34
4.250	1.79	10.250	5.14	16.250	2.01	22.25	1.34
4.333	1.79	10.333	5.14	16.333	2.01	22.33	1.34
4.417	1.79	10.417	5.14	16.417	2.01	22.42	1.34
4.500	1.79	10.500	5.14	16.500	2.01	22.50	1.34
4.583	1.79	10.583	6.93	16.583	2.01	22.58	1.34
4.667	1.79	10.667	6.93	16.667	2.01	22.67	1.34
4.750	1.79	10.750	6.93	16.750	2.01	22.75	1.34
4.833	1.79	10.833	6.93	16.833	2.01	22.83	1.34
4.917	1.79	10.917	6.93	16.917	2.01	22.92	1.34
5.000	1.79	11.000	6.93	17.000	2.01	23.00	1.34
5.083	1.79	11.083	10.72	17.083	2.01	23.08	1.34
5.167	1.79	11.167	10.72	17.167	2.01	23.17	1.34
5.250	1.79	11.250	10.72	17.250	2.01	23.25	1.34
5.333	1.79	11.333	10.72	17.333	2.01	23.33	1.34
5.417	1.79	11.417	10.72	17.417	2.01	23.42	1.34
5.500	1.79	11.500	10.72	17.500	2.01	23.50	1.34
5.583	1.79	11.583	46.47	17.583	2.01	23.58	1.34
5.667	1.79	11.667	46.47	17.667	2.01	23.67	1.34
5.750	1.79	11.750	46.47	17.750	2.01	23.75	1.34
5.833	1.79	11.833	123.31	17.833	2.01	23.83	1.34
5.917	1.79	11.917	123.32	17.917	2.01	23.92	1.34
6.000	1.79	12.000	123.32	18.000	2.01	24.00	1.34

Max.Eff.Inten.(mm/hr)=	123.32	101.52	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.95 (ii)	8.97 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	.31	.12	
			TOTALS
PEAK FLOW (cms)=	.18	.06	.243 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	110.70	78.33	99.36
TOTAL RAINFALL (mm)=	111.70	111.70	111.70
RUNOFF COEFFICIENT =	.99	.70	.89

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

(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 (0005)	Area (ha)=	1.16	
ID= 1 DT= 5.0 min	Total Imp(%)=	73.00	Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.85	.31
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	87.90	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	123.32	101.52	
over (min)	5.00	10.00	
Storage Coeff. (min)=	2.17 (ii)	6.53 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	.31	.14	
			TOTALS
PEAK FLOW (cms)=	.29	.08	.366 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	110.70	78.33	101.96
TOTAL RAINFALL (mm)=	111.70	111.70	111.70
RUNOFF COEFFICIENT =	.99	.70	.91

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

(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 (0001)	Area (ha)=	.45	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.45	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	54.80	40.00

```
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     123.32      1370.55
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.64 (ii)    2.67 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .32          .29
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .15          .00          .154 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.70        78.34        110.37
     TOTAL RAINFALL   (mm)=     111.70       111.70        111.70
     RUNOFF COEFFICIENT   =        .99          .70           .99

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

       (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  (0004) |   Area    (ha)=    .14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  72.00   Dir. Conn.(%)=  72.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .10          .04
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     30.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     123.32       101.52
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.15 (ii)    5.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .34          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .03          .01          .044 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.70        78.33        101.62
     TOTAL RAINFALL   (mm)=     111.70       111.70        111.70
     RUNOFF COEFFICIENT   =        .99          .70           .91

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

       (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  (0003) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  82.00   Dir. Conn.(%)=  82.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .06          .01
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     21.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     123.32       101.52
               over (min)        5.00         5.00
     Storage Coeff.  (min)=        .94 (ii)    4.48 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .23
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .023 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.70        78.33        104.86
     TOTAL RAINFALL   (mm)=     111.70       111.70        111.70
     RUNOFF COEFFICIENT   =        .99          .70           .94

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

       (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  (0002) |   Area    (ha)=    .22
|ID= 1 DT= 5.0 min |   Total Imp(%)=  85.00   Dir. Conn.(%)=  85.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .19          .03
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     38.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     123.32       101.52
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.32 (ii)    4.56 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .33          .23
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .06          .01          .073 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.70        78.34        105.83
     TOTAL RAINFALL   (mm)=     111.70       111.70        111.70
     RUNOFF COEFFICIENT   =        .99          .70           .95

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

       (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   (0007) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0003):      .07    .023    12.00   104.86
        + ID2= 2 (0002):      .22    .073    12.00   105.83
          ================================================
          ID = 3 (0007):      .29    .096    12.00   105.60

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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```

ADD HYD (0008)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0004):	.14	.044	12.00	101.62	
+ ID2= 2 (0007):	.29	.096	12.00	105.60	
ID = 3 (0008):	.43	.141	12.00	104.30	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0009)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0001):	.45	.154	12.00	110.37	
+ ID2= 2 (0008):	.43	.141	12.00	104.30	
ID = 3 (0009):	.88	.295	12.00	107.41	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0005):	1.16	.366	12.00	101.96	
+ ID2= 2 (0009):	.88	.295	12.00	107.41	
ID = 3 (0010):	2.04	.660	12.00	104.31	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)	
ID1= 1 (0006):	.81	.243	12.00	99.36	
+ ID2= 2 (0010):	2.04	.660	12.00	104.31	
ID = 3 (0011):	2.85	.903	12.00	102.90	

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 24-hr\ 100yr,24hr SCS.stm
Ptotal=122.88 mm	Comments: 100-yr, 24-hr SCS Type II Distribution S

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.35	6.25	2.21	12.25	17.70	18.25	2.21
.50	1.35	6.50	2.21	12.50	17.70	18.50	2.21
.75	1.35	6.75	2.21	12.75	9.09	18.75	2.21
1.00	1.35	7.00	2.21	13.00	9.09	19.00	2.21
1.25	1.35	7.25	2.70	13.25	6.64	19.25	2.21
1.50	1.35	7.50	2.70	13.50	6.64	19.50	2.21
1.75	1.35	7.75	2.70	13.75	5.16	19.75	2.21
2.00	1.35	8.00	2.70	14.00	5.16	20.00	2.21
2.25	1.60	8.25	3.20	14.25	3.69	20.25	1.47
2.50	1.60	8.50	3.20	14.50	3.69	20.50	1.47
2.75	1.60	8.75	3.44	14.75	3.69	20.75	1.47
3.00	1.60	9.00	3.44	15.00	3.69	21.00	1.47
3.25	1.60	9.25	3.93	15.25	3.69	21.25	1.47
3.50	1.60	9.50	3.93	15.50	3.69	21.50	1.47
3.75	1.60	9.75	4.42	15.75	3.69	21.75	1.47
4.00	1.60	10.00	4.42	16.00	3.69	22.00	1.47
4.25	1.97	10.25	5.65	16.25	2.21	22.25	1.47
4.50	1.97	10.50	5.65	16.50	2.21	22.50	1.47
4.75	1.97	10.75	7.62	16.75	2.21	22.75	1.47
5.00	1.97	11.00	7.62	17.00	2.21	23.00	1.47
5.25	1.97	11.25	11.80	17.25	2.21	23.25	1.47
5.50	1.97	11.50	11.80	17.50	2.21	23.50	1.47
5.75	1.97	11.75	51.13	17.75	2.21	23.75	1.47
6.00	1.97	12.00	135.68	18.00	2.21	24.00	1.47

CALIB STANDHYD (0006) | ID= 1 DT= 5.0 min	Area (ha)= .81 Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.53	.28
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	73.50	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.35	6.083	2.21	12.083	17.71	18.08	2.21
.167	1.35	6.167	2.21	12.167	17.70	18.17	2.21
.250	1.35	6.250	2.21	12.250	17.70	18.25	2.21
.333	1.35	6.333	2.21	12.333	17.70	18.33	2.21
.417	1.35	6.417	2.21	12.417	17.70	18.42	2.21
.500	1.35	6.500	2.21	12.500	17.70	18.50	2.21
.583	1.35	6.583	2.21	12.583	9.09	18.58	2.21
.667	1.35	6.667	2.21	12.667	9.09	18.67	2.21
.750	1.35	6.750	2.21	12.750	9.09	18.75	2.21
.833	1.35	6.833	2.21	12.833	9.09	18.83	2.21
.917	1.35	6.917	2.21	12.917	9.09	18.92	2.21
1.000	1.35	7.000	2.21	13.000	9.09	19.00	2.21
1.083	1.35	7.083	2.70	13.083	6.64	19.08	2.21
1.167	1.35	7.167	2.70	13.167	6.64	19.17	2.21
1.250	1.35	7.250	2.70	13.250	6.64	19.25	2.21
1.333	1.35	7.333	2.70	13.333	6.64	19.33	2.21
1.417	1.35	7.417	2.70	13.417	6.64	19.42	2.21
1.500	1.35	7.500	2.70	13.500	6.64	19.50	2.21
1.583	1.35	7.583	2.70	13.583	5.16	19.58	2.21
1.667	1.35	7.667	2.70	13.667	5.16	19.67	2.21
1.750	1.35	7.750	2.70	13.750	5.16	19.75	2.21
1.833	1.35	7.833	2.70	13.833	5.16	19.83	2.21
1.917	1.35	7.917	2.70	13.917	5.16	19.92	2.21
2.000	1.35	8.000	2.70	14.000	5.16	20.00	2.21
2.083	1.60	8.083	3.20	14.083	3.69	20.08	1.47
2.167	1.60	8.167	3.20	14.167	3.69	20.17	1.47
2.250	1.60	8.250	3.20	14.250	3.69	20.25	1.47

2.333	1.60	8.333	3.20	14.333	3.69	20.33	1.47
2.417	1.60	8.417	3.20	14.417	3.69	20.42	1.47
2.500	1.60	8.500	3.20	14.500	3.69	20.50	1.47
2.583	1.60	8.583	3.44	14.583	3.69	20.58	1.47
2.667	1.60	8.667	3.44	14.667	3.69	20.67	1.47
2.750	1.60	8.750	3.44	14.750	3.69	20.75	1.47
2.833	1.60	8.833	3.44	14.833	3.69	20.83	1.47
2.917	1.60	8.917	3.44	14.917	3.69	20.92	1.47
3.000	1.60	9.000	3.44	15.000	3.69	21.00	1.47
3.083	1.60	9.083	3.93	15.083	3.69	21.08	1.47
3.167	1.60	9.167	3.93	15.167	3.69	21.17	1.47
3.250	1.60	9.250	3.93	15.250	3.69	21.25	1.47
3.333	1.60	9.333	3.93	15.333	3.69	21.33	1.47
3.417	1.60	9.417	3.93	15.417	3.69	21.42	1.47
3.500	1.60	9.500	3.93	15.500	3.69	21.50	1.47
3.583	1.60	9.583	4.42	15.583	3.69	21.58	1.47
3.667	1.60	9.667	4.42	15.667	3.69	21.67	1.47
3.750	1.60	9.750	4.42	15.750	3.69	21.75	1.47
3.833	1.60	9.833	4.42	15.833	3.69	21.83	1.47
3.917	1.60	9.917	4.42	15.917	3.69	21.92	1.47
4.000	1.60	10.000	4.42	16.000	3.69	22.00	1.47
4.083	1.97	10.083	5.65	16.083	2.21	22.08	1.47
4.167	1.97	10.167	5.65	16.167	2.21	22.17	1.47
4.250	1.97	10.250	5.65	16.250	2.21	22.25	1.47
4.333	1.97	10.333	5.65	16.333	2.21	22.33	1.47
4.417	1.97	10.417	5.65	16.417	2.21	22.42	1.47
4.500	1.97	10.500	5.65	16.500	2.21	22.50	1.47
4.583	1.97	10.583	7.62	16.583	2.21	22.58	1.47
4.667	1.97	10.667	7.62	16.667	2.21	22.67	1.47
4.750	1.97	10.750	7.62	16.750	2.21	22.75	1.47
4.833	1.97	10.833	7.62	16.833	2.21	22.83	1.47
4.917	1.97	10.917	7.62	16.917	2.21	22.92	1.47
5.000	1.97	11.000	7.62	17.000	2.21	23.00	1.47
5.083	1.97	11.083	11.80	17.083	2.21	23.08	1.47
5.167	1.97	11.167	11.80	17.167	2.21	23.17	1.47
5.250	1.97	11.250	11.80	17.250	2.21	23.25	1.47
5.333	1.97	11.333	11.80	17.333	2.21	23.33	1.47
5.417	1.97	11.417	11.80	17.417	2.21	23.42	1.47
5.500	1.97	11.500	11.80	17.500	2.21	23.50	1.47
5.583	1.97	11.583	51.13	17.583	2.21	23.58	1.47
5.667	1.97	11.667	51.13	17.667	2.21	23.67	1.47
5.750	1.97	11.750	51.13	17.750	2.21	23.75	1.47
5.833	1.97	11.833	135.67	17.833	2.21	23.83	1.47
5.917	1.97	11.917	135.68	17.917	2.21	23.92	1.47
6.000	1.97	12.000	135.68	18.000	2.21	24.00	1.47

Max.Eff.Inten.(mm/hr)=	135.68	114.31	
over (min)	5.00	10.00	
Storage Coeff. (min)=	1.88 (ii)	6.76 (ii)	
Unit Hyd. Tpeak (min)=	5.00	10.00	
Unit Hyd. peak (cms)=	.32	.14	
			TOTALS
PEAK FLOW (cms)=	.20	.08	.275 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	121.88	88.64	110.24
TOTAL RAINFALL (mm)=	122.88	122.88	122.88
RUNOFF COEFFICIENT =	.99	.72	.90

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

(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 (0005)	Area (ha)= 1.16
ID= 1 DT= 5.0 min	Total Imp(%)= 73.00 Dir. Conn.(%)= 73.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.85	.31	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	87.90	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		135.68	114.31	
over (min)		5.00	10.00	
Storage Coeff. (min)=		2.09 (ii)	6.29 (ii)	
Unit Hyd. Tpeak (min)=		5.00	10.00	
Unit Hyd. peak (cms)=		.31	.15	
				TOTALS
PEAK FLOW	(cms)=	.32	.09	.406 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	121.88	88.64	112.90
TOTAL RAINFALL	(mm)=	122.88	122.88	122.88
RUNOFF COEFFICIENT	=	.99	.72	.92

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

(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 (0001)	Area (ha)= .45
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.45	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.80	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.(mm/hr)=		135.68	1543.14	
over (min)		5.00	5.00	
Storage Coeff. (min)=		1.58 (ii)	2.57 (ii)	
Unit Hyd. Tpeak (min)=		5.00	5.00	
Unit Hyd. peak (cms)=		.33	.29	
				TOTALS
PEAK FLOW	(cms)=	.17	.00	.169 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	121.88	88.64	121.54
TOTAL RAINFALL	(mm)=	122.88	122.88	122.88
RUNOFF COEFFICIENT	=	.99	.72	.99

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

(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 (0004)	Area (ha)= .14

|ID= 1 DT= 5.0 min | Total Imp(%)= 72.00 Dir. Conn.(%)= 72.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.10	.04
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.60	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		135.68	114.31
over (min)		5.00	10.00
Storage Coeff. (min)=		1.11 (ii)	5.39 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		.34	.16

		TOTALS
PEAK FLOW	(cms)=	.04	.01	.049 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	121.88	88.64	112.56
TOTAL RAINFALL	(mm)=	122.88	122.88	122.88
RUNOFF COEFFICIENT	=	.99	.72	.92

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

(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 (0003)	Area (ha)= .07
ID= 1 DT= 5.0 min	Total Imp(%)= 82.00 Dir. Conn.(%)= 82.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.06	.01
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	21.60	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		135.68	114.31
over (min)		5.00	5.00
Storage Coeff. (min)=		.90 (ii)	4.31 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		.34	.23

		TOTALS
PEAK FLOW	(cms)=	.02	.00	.026 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	121.88	88.64	115.89
TOTAL RAINFALL	(mm)=	122.88	122.88	122.88
RUNOFF COEFFICIENT	=	.99	.72	.94

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

(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 (0002)	Area (ha)= .22
ID= 1 DT= 5.0 min	Total Imp(%)= 85.00 Dir. Conn.(%)= 85.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.03
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	38.30	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		135.68	114.31
over (min)		5.00	5.00
Storage Coeff. (min)=		1.27 (ii)	4.39 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		.33	.23

		TOTALS
PEAK FLOW	(cms)=	.07	.01	.081 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	121.88	88.64	116.88
TOTAL RAINFALL	(mm)=	122.88	122.88	122.88
RUNOFF COEFFICIENT	=	.99	.72	.95

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

(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 (0007)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0003):	.07	.026	12.00	115.89
+ ID2= 2 (0002):	.22	.081	12.00	116.88
ID = 3 (0007):	.29	.106	12.00	116.64

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0004):	.14	.049	12.00	112.56
+ ID2= 2 (0007):	.29	.106	12.00	116.64
ID = 3 (0008):	.43	.156	12.00	115.31

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0009)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0001):	.45	.169	12.00	121.54
+ ID2= 2 (0008):	.43	.156	12.00	115.31
ID = 3 (0009):	.88	.325	12.00	118.50

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

```
--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0005):     1.16    .406    12.00   112.90
        + ID2= 2 (0009):      .88    .325    12.00   118.50
          ================================================
          ID = 3 (0010):     2.04    .730    12.00   115.31

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0006):      .81    .275    12.00   110.24
        + ID2= 2 (0010):     2.04    .730    12.00   115.31
          ================================================
          ID = 3 (0011):     2.85   1.006    12.00   113.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
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FUTURE CONDITIONS
12-HOUR SCS TYPE II DISTRIBUTION

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

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM, Version 2.1
       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\Visual OTTHYMO 2.2.4\voin.dat
Output filename: C:\Users\Frank Fisl\Desktop\QualityInnVO2\QualityInn\Stor.2,3,4,7.out
Summary filename: C:\Users\Frank Fisl\Desktop\QualityInnVO2\QualityInn\Stor.2,3,4,7.sum

DATE: 2023-08-04 TIME: 12:32:42

USER:

COMMENTS: _____

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  ****************************
  ** SIMULATION NUMBER:   1 **
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|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 12-hr\
|                  |              002yr,12hr SCS.stm
| Ptotal= 44.81 mm |    Comments: 2-yr, 12-hr SCS Type II Distribution Sto
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TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.12	3.25	1.79	6.25	8.06	9.25	1.57
.50	1.12	3.50	1.79	6.50	8.06	9.50	1.57
.75	1.12	3.75	1.79	6.75	3.58	9.75	1.57
1.00	1.12	4.00	1.79	7.00	3.58	10.00	1.57
1.25	1.12	4.25	2.69	7.25	2.69	10.25	.90
1.50	1.12	4.50	2.69	7.50	2.69	10.50	.90
1.75	1.12	4.75	3.58	7.75	2.69	10.75	.90
2.00	1.12	5.00	3.58	8.00	2.69	11.00	.90
2.25	1.34	5.25	5.38	8.25	1.57	11.25	.90
2.50	1.34	5.50	5.38	8.50	1.57	11.50	.90
2.75	1.34	5.75	21.50	8.75	1.57	11.75	.90
3.00	1.34	6.00	59.14	9.00	1.57	12.00	.90

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| CALIB            |
| STANDHYD  (0002) |   Area    (ha)=    .19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  98.00   Dir. Conn.(%)=  98.00
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```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.12	3.083	1.79	6.083	8.06	9.08	1.57
.167	1.12	3.167	1.79	6.167	8.06	9.17	1.57
.250	1.12	3.250	1.79	6.250	8.06	9.25	1.57
.333	1.12	3.333	1.79	6.333	8.06	9.33	1.57
.417	1.12	3.417	1.79	6.417	8.06	9.42	1.57
.500	1.12	3.500	1.79	6.500	8.06	9.50	1.57
.583	1.12	3.583	1.79	6.583	3.58	9.58	1.57
.667	1.12	3.667	1.79	6.667	3.58	9.67	1.57
.750	1.12	3.750	1.79	6.750	3.58	9.75	1.57
.833	1.12	3.833	1.79	6.833	3.58	9.83	1.57
.917	1.12	3.917	1.79	6.917	3.58	9.92	1.57
1.000	1.12	4.000	1.79	7.000	3.58	10.00	1.57
1.083	1.12	4.083	2.69	7.083	2.69	10.08	.90
1.167	1.12	4.167	2.69	7.167	2.69	10.17	.90
1.250	1.12	4.250	2.69	7.250	2.69	10.25	.90
1.333	1.12	4.333	2.69	7.333	2.69	10.33	.90
1.417	1.12	4.417	2.69	7.417	2.69	10.42	.90
1.500	1.12	4.500	2.69	7.500	2.69	10.50	.90
1.583	1.12	4.583	3.58	7.583	2.69	10.58	.90
1.667	1.12	4.667	3.58	7.667	2.69	10.67	.90
1.750	1.12	4.750	3.58	7.750	2.69	10.75	.90
1.833	1.12	4.833	3.58	7.833	2.69	10.83	.90
1.917	1.12	4.917	3.58	7.917	2.69	10.92	.90
2.000	1.12	5.000	3.58	8.000	2.69	11.00	.90
2.083	1.34	5.083	5.38	8.083	1.57	11.08	.90
2.167	1.34	5.167	5.38	8.167	1.57	11.17	.90
2.250	1.34	5.250	5.38	8.250	1.57	11.25	.90
2.333	1.34	5.333	5.38	8.333	1.57	11.33	.90
2.417	1.34	5.417	5.38	8.417	1.57	11.42	.90
2.500	1.34	5.500	5.38	8.500	1.57	11.50	.90
2.583	1.34	5.583	21.50	8.583	1.57	11.58	.90
2.667	1.34	5.667	21.50	8.667	1.57	11.67	.90
2.750	1.34	5.750	21.50	8.750	1.57	11.75	.90
2.833	1.34	5.833	59.14	8.833	1.57	11.83	.90
2.917	1.34	5.917	59.14	8.917	1.57	11.92	.90
3.000	1.34	6.000	59.14	9.000	1.57	12.00	.90

Max.Eff.Inten.	(mm/hr)=	59.14	1000.18	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.70 (ii)	3.53 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.32	.26	
				TOTALS
PEAK FLOW	(cms)=	.03	.00	.031 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00

```
     RUNOFF VOLUME    (mm)=      43.80        21.28          43.35
     TOTAL RAINFALL   (mm)=      44.80        44.80          44.80
     RUNOFF COEFFICIENT   =        .98          .47            .97

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

       (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  (0003) |   Area    (ha)=    .05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .05          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      19.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      59.14      1000.18
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.17 (ii)    2.55 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .29
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .009 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      43.80        21.28         43.58
     TOTAL RAINFALL   (mm)=      44.80        44.80         44.80
     RUNOFF COEFFICIENT   =        .98          .47           .97

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

       (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  (0004) |   Area    (ha)=    .14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .12          .02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      59.14        35.72
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.55 (ii)    5.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .33          .15
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .021 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      43.80        21.28         40.64
     TOTAL RAINFALL   (mm)=      44.80        44.80         44.80
     RUNOFF COEFFICIENT   =        .98          .47           .91

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

       (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  (0012) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .07          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      21.90        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      59.14       250.05
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.27 (ii)    2.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .33          .29
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .01          .00           .012 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      43.80        21.28         43.58
     TOTAL RAINFALL   (mm)=      44.80        44.80         44.80
     RUNOFF COEFFICIENT   =        .98          .47           .97

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

       (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  (0015) |   Area    (ha)=    .04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
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                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .04          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      59.14       125.02
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.06 (ii)    2.45 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .30
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .01          .00           .007 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      43.80        21.28         41.86
     TOTAL RAINFALL   (mm)=      44.80        44.80         44.80
     RUNOFF COEFFICIENT   =        .98          .47           .93
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***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(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 (0001)	Area (ha)= .45			
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.45	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.80	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	59.14	62.51	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	2.20 (ii)	3.58 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.30	.26	
				TOTALS
PEAK FLOW	(cms)=	.07	.00	.074 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	43.80	21.28	43.58
TOTAL RAINFALL	(mm)=	44.80	44.80	44.80
RUNOFF COEFFICIENT	=	.98	.47	.97

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

(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 (0005)	Area (ha)= 1.10			
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00	Dir. Conn.(%)= 80.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.88	.22	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	85.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	59.14	32.57	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.87 (ii)	13.93 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	.28	.08	
				TOTALS
PEAK FLOW	(cms)=	.14	.01	.155 (iii)
TIME TO PEAK	(hrs)=	6.00	6.08	6.00
RUNOFF VOLUME	(mm)=	43.80	21.28	39.29
TOTAL RAINFALL	(mm)=	44.80	44.80	44.80
RUNOFF COEFFICIENT	=	.98	.47	.88

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

(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 (0006)	Area (ha)= .81			
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 65.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.53	.28	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	73.50	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	59.14	32.57	
over	(min)	5.00	15.00	
Storage Coeff.	(min)=	2.62 (ii)	13.67 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	15.00	
Unit Hyd. peak	(cms)=	.29	.08	
				TOTALS
PEAK FLOW	(cms)=	.09	.02	.100 (iii)
TIME TO PEAK	(hrs)=	6.00	6.08	6.00
RUNOFF VOLUME	(mm)=	43.80	21.28	35.91
TOTAL RAINFALL	(mm)=	44.80	44.80	44.80
RUNOFF COEFFICIENT	=	.98	.47	.80

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

(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 (0007)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	.19	.031	6.00	43.35
+ ID2= 2 (0003):	.05	.009	6.00	43.58
ID = 3 (0007):	.24	.040	6.00	43.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)				
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	.24	.040	6.00	43.40
+ ID2= 2 (0004):	.14	.021	6.00	40.64
ID = 3 (0008):	.38	.061	6.00	42.40

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0013)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0008):	.38	.061	6.00	42.40
	+ ID2= 2 (0012):	.07	.012	6.00	43.58
	ID = 3 (0013):	.46	.073	6.00	42.58

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0013):	.46	.073	6.00	42.58
	+ ID2= 2 (0015):	.04	.007	6.00	41.86
	ID = 3 (0016):	.50	.080	6.00	42.52

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0014)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	.0000	.0000	.1020	.0052
	.0360	.0007	.1080	.0059
	.0510	.0013	.1140	.0066
	.0620	.0019	.1200	.0072
	.0720	.0025	.1250	.0082
	.0810	.0032	.1300	.0087
	.0880	.0039	.1350	.0089
	.0950	.0046	.0000	.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	.50	.08	6.00	42.52
OUTFLOW: ID= 1 (0014)	.50	.07	6.00	42.52

PEAK FLOW REDUCTION [Qout/Qin](%)= 85.46
TIME SHIFT OF PEAK FLOW (min)= .00
MAXIMUM STORAGE USED (ha.m.)= .0024

ADD HYD (0009)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0014):	.50	.068	6.00	42.52
	+ ID2= 2 (0001):	.45	.074	6.00	43.58
	ID = 3 (0009):	.95	.142	6.00	43.03

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0009):	.95	.142	6.00	43.03
	+ ID2= 2 (0005):	1.10	.155	6.00	39.29
	ID = 3 (0010):	2.05	.297	6.00	41.02

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)					
1 + 2 = 3		AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
	ID1= 1 (0010):	2.05	.297	6.00	41.02
	+ ID2= 2 (0006):	.81	.100	6.00	35.91
	ID = 3 (0011):	2.86	.397	6.00	39.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 12-hr\ 005yr,12hr SCS.stm
Ptotal= 59.61 mm	Comments: 5-yr, 12-hr SCS Type II Distribution Sto

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.49	3.25	2.38	6.25	10.73	9.25	2.09
.50	1.49	3.50	2.38	6.50	10.73	9.50	2.09
.75	1.49	3.75	2.38	6.75	4.77	9.75	2.09
1.00	1.49	4.00	2.38	7.00	4.77	10.00	2.09
1.25	1.49	4.25	3.58	7.25	3.58	10.25	1.19
1.50	1.49	4.50	3.58	7.50	3.58	10.50	1.19
1.75	1.49	4.75	4.77	7.75	3.58	10.75	1.19
2.00	1.49	5.00	4.77	8.00	3.58	11.00	1.19
2.25	1.79	5.25	7.15	8.25	2.09	11.25	1.19
2.50	1.79	5.50	7.15	8.50	2.09	11.50	1.19
2.75	1.79	5.75	28.61	8.75	2.09	11.75	1.19
3.00	1.79	6.00	78.67	9.00	2.09	12.00	1.19

CALIB		
STANDHYD (0002)	Area (ha)=	.19
ID= 1 DT= 5.0 min	Total Imp(%)=	98.00 Dir. Conn.(%)= 98.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.49	3.083	2.38	6.083	10.73	9.08	2.09
.167	1.49	3.167	2.38	6.167	10.73	9.17	2.09
.250	1.49	3.250	2.38	6.250	10.73	9.25	2.09

.333	1.49	3.333	2.38	6.333	10.73	9.33	2.09
.417	1.49	3.417	2.38	6.417	10.73	9.42	2.09
.500	1.49	3.500	2.38	6.500	10.73	9.50	2.09
.583	1.49	3.583	2.38	6.583	4.77	9.58	2.09
.667	1.49	3.667	2.38	6.667	4.77	9.67	2.09
.750	1.49	3.750	2.38	6.750	4.77	9.75	2.09
.833	1.49	3.833	2.38	6.833	4.77	9.83	2.09
.917	1.49	3.917	2.38	6.917	4.77	9.92	2.09
1.000	1.49	4.000	2.38	7.000	4.77	10.00	2.09
1.083	1.49	4.083	3.58	7.083	3.58	10.08	1.19
1.167	1.49	4.167	3.58	7.167	3.58	10.17	1.19
1.250	1.49	4.250	3.58	7.250	3.58	10.25	1.19
1.333	1.49	4.333	3.58	7.333	3.58	10.33	1.19
1.417	1.49	4.417	3.58	7.417	3.58	10.42	1.19
1.500	1.49	4.500	3.58	7.500	3.58	10.50	1.19
1.583	1.49	4.583	4.77	7.583	3.58	10.58	1.19
1.667	1.49	4.667	4.77	7.667	3.58	10.67	1.19
1.750	1.49	4.750	4.77	7.750	3.58	10.75	1.19
1.833	1.49	4.833	4.77	7.833	3.58	10.83	1.19
1.917	1.49	4.917	4.77	7.917	3.58	10.92	1.19
2.000	1.49	5.000	4.77	8.000	3.58	11.00	1.19
2.083	1.79	5.083	7.15	8.083	2.09	11.08	1.19
2.167	1.79	5.167	7.15	8.167	2.09	11.17	1.19
2.250	1.79	5.250	7.15	8.250	2.09	11.25	1.19
2.333	1.79	5.333	7.15	8.333	2.09	11.33	1.19
2.417	1.79	5.417	7.15	8.417	2.09	11.42	1.19
2.500	1.79	5.500	7.15	8.500	2.09	11.50	1.19
2.583	1.79	5.583	28.61	8.583	2.09	11.58	1.19
2.667	1.79	5.667	28.61	8.667	2.09	11.67	1.19
2.750	1.79	5.750	28.61	8.750	2.09	11.75	1.19
2.833	1.79	5.833	78.67	8.833	2.09	11.83	1.19
2.917	1.79	5.917	78.67	8.917	2.09	11.92	1.19
3.000	1.79	6.000	78.67	9.000	2.09	12.00	1.19

Max.Eff.Inten.	(mm/hr)=	78.67	302.70
over	(min)	5.00	5.00
Storage Coeff.	(min)=	1.51 (ii)	3.15 (ii)
Unit Hyd. Tpeak	(min)=	5.00	5.00
Unit Hyd. peak	(cms)=	.33	.27

				TOTALS
PEAK FLOW	(cms)=	.04	.00	.041 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	58.09
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.97

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

(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 (0003)	Area	(ha)=	.05
ID= 1 DT= 5.0 min	Total Imp	(%)=	99.00
	Dir. Conn.	(%)=	99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.05	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	19.10	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.	(mm/hr)=	78.67	302.70
over	(min)	5.00	5.00
Storage Coeff.	(min)=	1.04 (ii)	2.28 (ii)
Unit Hyd. Tpeak	(min)=	5.00	5.00
Unit Hyd. peak	(cms)=	.34	.30

				TOTALS
PEAK FLOW	(cms)=	.01	.00	.012 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	58.35
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.98

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

(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 (0004)	Area	(ha)=	.14
ID= 1 DT= 5.0 min	Total Imp	(%)=	86.00
	Dir. Conn.	(%)=	86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.12	.02
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.60	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.	(mm/hr)=	78.67	52.83
over	(min)	5.00	10.00
Storage Coeff.	(min)=	1.38 (ii)	5.14 (ii)
Unit Hyd. Tpeak	(min)=	5.00	10.00
Unit Hyd. peak	(cms)=	.33	.16

				TOTALS
PEAK FLOW	(cms)=	.03	.00	.029 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	58.61	32.81	54.98
TOTAL RAINFALL	(mm)=	59.61	59.61	59.61
RUNOFF COEFFICIENT	=	.98	.55	.92

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

(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 (0012)	Area	(ha)=	.07
ID= 1 DT= 5.0 min	Total Imp	(%)=	99.00
	Dir. Conn.	(%)=	99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.07	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	21.90	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.	(mm/hr)=	78.67	369.82
over	(min)	5.00	5.00
Storage Coeff.	(min)=	1.13 (ii)	2.37 (ii)

```
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .30
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .016 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      58.61        32.81         58.35
     TOTAL RAINFALL   (mm)=      59.61        59.61         59.61
     RUNOFF COEFFICIENT   =        .98          .55           .98

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

       (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  (0015) |   Area    (ha)=    .04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .04          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     16.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     78.67       184.91
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      .95 (ii)    2.18 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .34          .31
                                                          *TOTALS*
     PEAK FLOW       (cms)=       .01          .00          .009 (iii)
     TIME TO PEAK    (hrs)=      5.92         6.00          6.00
     RUNOFF VOLUME    (mm)=     58.61        32.81         58.35
     TOTAL RAINFALL   (mm)=     59.61        59.61         59.61
     RUNOFF COEFFICIENT   =       .98          .55           .98

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .45          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     54.80        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     78.67        92.46
               over (min)        5.00         5.00
     Storage Coeff.  (min)=      1.96 (ii)    3.20 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .31          .27
                                                          *TOTALS*
     PEAK FLOW       (cms)=       .10          .00          .098 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=     58.61        32.81         58.35
     TOTAL RAINFALL   (mm)=     59.61        59.61         59.61
     RUNOFF COEFFICIENT   =       .98          .55           .98

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

       (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  (0005) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .88          .22
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     85.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     78.67        52.83
               over (min)        5.00        10.00
     Storage Coeff.  (min)=      2.56 (ii)    7.02 (ii)
     Unit Hyd. Tpeak (min)=      5.00        10.00
     Unit Hyd. peak  (cms)=       .29          .14
                                                          *TOTALS*
     PEAK FLOW       (cms)=       .19          .03          .218 (iii)
     TIME TO PEAK    (hrs)=      6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=     58.61        32.81         53.45
     TOTAL RAINFALL   (mm)=     59.61        59.61         59.61
     RUNOFF COEFFICIENT   =       .98          .55           .90

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

       (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  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .28
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     73.50        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     78.67        52.83
               over (min)        5.00        15.00
     Storage Coeff.  (min)=      2.34 (ii)   11.45 (ii)
     Unit Hyd. Tpeak (min)=      5.00        15.00
     Unit Hyd. peak  (cms)=       .30          .09
                                                          *TOTALS*
     PEAK FLOW       (cms)=       .11          .03          .139 (iii)
```

```
     TIME TO PEAK     (hrs)=       6.00         6.08          6.00
     RUNOFF VOLUME     (mm)=      58.61        32.81         49.57
     TOTAL RAINFALL    (mm)=      59.61        59.61         59.61
     RUNOFF COEFFICIENT   =        .98          .55           .83

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

       (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   (0007) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0002):       .19    .041     6.00    58.09
       + ID2= 2 (0003):       .05    .012     6.00    58.35
         ================================================
         ID = 3 (0007):       .24    .053     6.00    58.15

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0007):       .24    .053     6.00    58.15
       + ID2= 2 (0004):       .14    .029     6.00    54.98
         ================================================
         ID = 3 (0008):       .38    .082     6.00    57.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0013) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0008):       .38    .082     6.00    57.00
       + ID2= 2 (0012):       .07    .016     6.00    58.35
         ================================================
         ID = 3 (0013):       .46    .098     6.00    57.21

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0016) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0013):       .46    .098     6.00    57.21
       + ID2= 2 (0015):       .04    .009     6.00    58.35
         ================================================
         ID = 3 (0016):       .50    .106     6.00    57.30

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |   .1020      .0052
                          .0360      .0007    |   .1080      .0059
                          .0510      .0013    |   .1140      .0066
                          .0620      .0019    |   .1200      .0072
                          .0720      .0025    |   .1250      .0082
                          .0810      .0032    |   .1300      .0087
                          .0880      .0039    |   .1350      .0089
                          .0950      .0046    |   .0000      .0000

                                    AREA     QPEAK     TPEAK       R.V.
                                    (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (0016)           .50       .11      6.00      57.30
     OUTFLOW: ID= 1 (0014)           .50       .08      6.00      57.30

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 78.91
                    TIME SHIFT OF PEAK FLOW          (min)=   .00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  .0038

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--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0014):       .50    .084     6.00    57.30
       + ID2= 2 (0001):       .45    .098     6.00    58.35
         ================================================
         ID = 3 (0009):       .95    .182     6.00    57.80

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0009):       .95    .182     6.00    57.80
       + ID2= 2 (0005):      1.10    .218     6.00    53.45
         ================================================
         ID = 3 (0010):      2.05    .400     6.00    55.46

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
         ID1= 1 (0010):      2.05    .400     6.00    55.46
       + ID2= 2 (0006):       .81    .139     6.00    49.57
         ================================================
         ID = 3 (0011):      2.86    .539     6.00    53.79

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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


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|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
```

	O2\QualityInn\design storms\SCS 12-hr\
	010yr,12hr SCS.stm
Ptotal= 69.31 mm	Comments: 10-yr, 12-hr SCS Type II Distribution St

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.73	3.25	2.77	6.25	12.47	9.25	2.43
.50	1.73	3.50	2.77	6.50	12.47	9.50	2.43
.75	1.73	3.75	2.77	6.75	5.54	9.75	2.43
1.00	1.73	4.00	2.77	7.00	5.54	10.00	2.43
1.25	1.73	4.25	4.16	7.25	4.16	10.25	1.39
1.50	1.73	4.50	4.16	7.50	4.16	10.50	1.39
1.75	1.73	4.75	5.54	7.75	4.16	10.75	1.39
2.00	1.73	5.00	5.54	8.00	4.16	11.00	1.39
2.25	2.08	5.25	8.32	8.25	2.43	11.25	1.39
2.50	2.08	5.50	8.32	8.50	2.43	11.50	1.39
2.75	2.08	5.75	33.26	8.75	2.43	11.75	1.39
3.00	2.08	6.00	91.48	9.00	2.43	12.00	1.39

CALIB	
STANDHYD (0002)	Area (ha)= .19
ID= 1 DT= 5.0 min	Total Imp(%)= 98.00 Dir. Conn.(%)= 98.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.73	3.083	2.77	6.083	12.47	9.08	2.43
.167	1.73	3.167	2.77	6.167	12.47	9.17	2.43
.250	1.73	3.250	2.77	6.250	12.47	9.25	2.43
.333	1.73	3.333	2.77	6.333	12.47	9.33	2.43
.417	1.73	3.417	2.77	6.417	12.47	9.42	2.43
.500	1.73	3.500	2.77	6.500	12.47	9.50	2.43
.583	1.73	3.583	2.77	6.583	5.54	9.58	2.43
.667	1.73	3.667	2.77	6.667	5.54	9.67	2.43
.750	1.73	3.750	2.77	6.750	5.54	9.75	2.43
.833	1.73	3.833	2.77	6.833	5.54	9.83	2.43
.917	1.73	3.917	2.77	6.917	5.54	9.92	2.43
1.000	1.73	4.000	2.77	7.000	5.54	10.00	2.43
1.083	1.73	4.083	4.16	7.083	4.16	10.08	1.39
1.167	1.73	4.167	4.16	7.167	4.16	10.17	1.39
1.250	1.73	4.250	4.16	7.250	4.16	10.25	1.39
1.333	1.73	4.333	4.16	7.333	4.16	10.33	1.39
1.417	1.73	4.417	4.16	7.417	4.16	10.42	1.39
1.500	1.73	4.500	4.16	7.500	4.16	10.50	1.39
1.583	1.73	4.583	5.54	7.583	4.16	10.58	1.39
1.667	1.73	4.667	5.54	7.667	4.16	10.67	1.39
1.750	1.73	4.750	5.54	7.750	4.16	10.75	1.39
1.833	1.73	4.833	5.54	7.833	4.16	10.83	1.39
1.917	1.73	4.917	5.54	7.917	4.16	10.92	1.39
2.000	1.73	5.000	5.54	8.000	4.16	11.00	1.39
2.083	2.08	5.083	8.32	8.083	2.43	11.08	1.39
2.167	2.08	5.167	8.32	8.167	2.43	11.17	1.39
2.250	2.08	5.250	8.32	8.250	2.43	11.25	1.39
2.333	2.08	5.333	8.32	8.333	2.43	11.33	1.39
2.417	2.08	5.417	8.32	8.417	2.43	11.42	1.39
2.500	2.08	5.500	8.32	8.500	2.43	11.50	1.39
2.583	2.08	5.583	33.26	8.583	2.43	11.58	1.39
2.667	2.08	5.667	33.26	8.667	2.43	11.67	1.39
2.750	2.08	5.750	33.26	8.750	2.43	11.75	1.39
2.833	2.08	5.833	91.48	8.833	2.43	11.83	1.39
2.917	2.08	5.917	91.48	8.917	2.43	11.92	1.39
3.000	2.08	6.000	91.48	9.000	2.43	12.00	1.39

				TOTALS
Max.Eff.Inten.	(mm/hr)=	91.48	462.28	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.42 (ii)	2.97 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.33	.28	
PEAK FLOW	(cms)=	.05	.00	.048 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	68.31	40.82	67.76
TOTAL RAINFALL	(mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT	=	.99	.59	.98

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

(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 (0003)	Area (ha)= .05
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.05	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	19.10	40.00
Mannings n	=	.013	.250

				TOTALS
Max.Eff.Inten.	(mm/hr)=	91.48	462.28	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	.98 (ii)	2.14 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.31	
PEAK FLOW	(cms)=	.01	.00	.014 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	68.31	40.82	68.03
TOTAL RAINFALL	(mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT	=	.99	.59	.98

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

(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 (0004)	Area (ha)= .14
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)

Surface Area (ha)=	.12	.02	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	30.60	40.00	
Mannings n =	.013	.250	
Max.Eff.Inten.(mm/hr)=	91.48	65.34	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.30 (ii)	4.84 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.33	.22	
			TOTALS
PEAK FLOW (cms)=	.03	.00	.034 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	68.31	40.82	64.45
TOTAL RAINFALL (mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT =	.99	.59	.93

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

(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 (0012)	Area (ha)= .07		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.07	.00	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	21.90	40.00	
Mannings n =	.013	.250	
Max.Eff.Inten.(mm/hr)=	91.48	457.41	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.06 (ii)	2.23 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.34	.30	
			TOTALS
PEAK FLOW (cms)=	.02	.00	.018 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	68.31	40.82	68.03
TOTAL RAINFALL (mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT =	.99	.59	.98

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

(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 (0015)	Area (ha)= .04		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.04	.00	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	16.30	40.00	
Mannings n =	.013	.250	
Max.Eff.Inten.(mm/hr)=	91.48	228.70	
over (min)	5.00	5.00	
Storage Coeff. (min)=	.89 (ii)	2.06 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.34	.31	
			TOTALS
PEAK FLOW (cms)=	.01	.00	.010 (iii)
TIME TO PEAK (hrs)=	5.92	6.00	6.00
RUNOFF VOLUME (mm)=	68.31	40.82	68.03
TOTAL RAINFALL (mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT =	.99	.59	.98

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

(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 (0001)	Area (ha)= .45		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.45	.00	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	54.80	40.00	
Mannings n =	.013	.250	
Max.Eff.Inten.(mm/hr)=	91.48	114.35	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.85 (ii)	3.01 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.32	.28	
			TOTALS
PEAK FLOW (cms)=	.11	.00	.114 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	68.31	40.82	68.03
TOTAL RAINFALL (mm)=	69.31	69.31	69.31
RUNOFF COEFFICIENT =	.99	.59	.98

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

(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 (0005)	Area (ha)= 1.10		
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00	Dir. Conn.(%)= 80.00	
	IMPERVIOUS	PERVIOUS (i)	
Surface Area (ha)=	.88	.22	
Dep. Storage (mm)=	1.00	1.50	
Average Slope (%)=	1.00	2.00	
Length (m)=	85.60	40.00	

Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)	=	91.48	65.34
over (min)		5.00	10.00
Storage Coeff. (min)	=	2.41 (ii)	6.61 (ii)
Unit Hyd. Tpeak (min)	=	5.00	10.00
Unit Hyd. peak (cms)	=	.30	.14

				TOTALS
PEAK FLOW	(cms)	=	.22	.03	.257 (iii)
TIME TO PEAK	(hrs)	=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)	=	68.31	40.82	62.81
TOTAL RAINFALL	(mm)	=	69.31	69.31	69.31
RUNOFF COEFFICIENT		=	.99	.59	.91

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

(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 (0006)	Area (ha)	=	.81
ID= 1 DT= 5.0 min	Total Imp(%)	=	65.00 Dir. Conn.(%) = 65.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha) =	.53	.28
Dep. Storage	(mm) =	1.00	1.50
Average Slope	(%) =	1.00	2.00
Length	(m) =	73.50	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)	=	91.48	65.34
over (min)		5.00	15.00
Storage Coeff. (min)	=	2.20 (ii)	10.57 (ii)
Unit Hyd. Tpeak (min)	=	5.00	15.00
Unit Hyd. peak (cms)	=	.30	.09

				TOTALS
PEAK FLOW	(cms)	=	.13	.03	.165 (iii)
TIME TO PEAK	(hrs)	=	6.00	6.08	6.00
RUNOFF VOLUME	(mm)	=	68.31	40.82	58.68
TOTAL RAINFALL	(mm)	=	69.31	69.31	69.31
RUNOFF COEFFICIENT		=	.99	.59	.85

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

(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 (0007)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	.19	.048	6.00	67.76
+ ID2= 2 (0003):	.05	.014	6.00	68.03
ID = 3 (0007):	.24	.062	6.00	67.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	.24	.062	6.00	67.82
+ ID2= 2 (0004):	.14	.034	6.00	64.45
ID = 3 (0008):	.38	.096	6.00	66.59

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0013)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0008):	.38	.096	6.00	66.59
+ ID2= 2 (0012):	.07	.018	6.00	68.03
ID = 3 (0013):	.46	.114	6.00	66.82

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0013):	.46	.114	6.00	66.82
+ ID2= 2 (0015):	.04	.010	6.00	68.03
ID = 3 (0016):	.50	.124	6.00	66.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0014)
IN= 2---> OUT= 1
DT= 5.0 min

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
.0000	.0000	.1020	.0052
.0360	.0007	.1080	.0059
.0510	.0013	.1140	.0066
.0620	.0019	.1200	.0072
.0720	.0025	.1250	.0082
.0810	.0032	.1300	.0087
.0880	.0039	.1350	.0089
.0950	.0046	.0000	.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	.50	.12	6.00	66.92
OUTFLOW: ID= 1 (0014)	.50	.09	6.00	66.92

PEAK FLOW REDUCTION [Qout/Qin](%)= 75.34
TIME SHIFT OF PEAK FLOW (min)= .00
MAXIMUM STORAGE USED (ha.m.)= .0049

ADD HYD (0009)

	AREA	QPEAK	TPEAK	R.V.

	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0014):	.50	.094	6.00	66.92
+ ID2= 2 (0001):	.45	.114	6.00	68.03
ID = 3 (0009):	.95	.208	6.00	67.45

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0009):	.95	.208	6.00	67.45
+ ID2= 2 (0005):	1.10	.257	6.00	62.81
ID = 3 (0010):	2.05	.464	6.00	64.96

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)				
1 + 2 = 3	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):	2.05	.464	6.00	64.96
+ ID2= 2 (0006):	.81	.165	6.00	58.68
ID = 3 (0011):	2.86	.629	6.00	63.18

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 12-hr\ 025yr,12hr SCS.stm
Ptotal= 81.51 mm	Comments: 25-yr, 12-hr SCS Type II Distribution St

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	2.04	3.25	3.26	6.25	14.67	9.25	2.85
.50	2.04	3.50	3.26	6.50	14.67	9.50	2.85
.75	2.04	3.75	3.26	6.75	6.52	9.75	2.85
1.00	2.04	4.00	3.26	7.00	6.52	10.00	2.85
1.25	2.04	4.25	4.89	7.25	4.89	10.25	1.63
1.50	2.04	4.50	4.89	7.50	4.89	10.50	1.63
1.75	2.04	4.75	6.52	7.75	4.89	10.75	1.63
2.00	2.04	5.00	6.52	8.00	4.89	11.00	1.63
2.25	2.45	5.25	9.78	8.25	2.85	11.25	1.63
2.50	2.45	5.50	9.78	8.50	2.85	11.50	1.63
2.75	2.45	5.75	39.12	8.75	2.85	11.75	1.63
3.00	2.45	6.00	107.58	9.00	2.85	12.00	1.63

CALIB		
STANDHYD (0002)	Area (ha)=	.19
ID= 1 DT= 5.0 min	Total Imp(%)=	98.00 Dir. Conn.(%)= 98.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	2.04	3.083	3.26	6.083	14.67	9.08	2.85
.167	2.04	3.167	3.26	6.167	14.67	9.17	2.85
.250	2.04	3.250	3.26	6.250	14.67	9.25	2.85
.333	2.04	3.333	3.26	6.333	14.67	9.33	2.85
.417	2.04	3.417	3.26	6.417	14.67	9.42	2.85
.500	2.04	3.500	3.26	6.500	14.67	9.50	2.85
.583	2.04	3.583	3.26	6.583	6.52	9.58	2.85
.667	2.04	3.667	3.26	6.667	6.52	9.67	2.85
.750	2.04	3.750	3.26	6.750	6.52	9.75	2.85
.833	2.04	3.833	3.26	6.833	6.52	9.83	2.85
.917	2.04	3.917	3.26	6.917	6.52	9.92	2.85
1.000	2.04	4.000	3.26	7.000	6.52	10.00	2.85
1.083	2.04	4.083	4.89	7.083	4.89	10.08	1.63
1.167	2.04	4.167	4.89	7.167	4.89	10.17	1.63
1.250	2.04	4.250	4.89	7.250	4.89	10.25	1.63
1.333	2.04	4.333	4.89	7.333	4.89	10.33	1.63
1.417	2.04	4.417	4.89	7.417	4.89	10.42	1.63
1.500	2.04	4.500	4.89	7.500	4.89	10.50	1.63
1.583	2.04	4.583	6.52	7.583	4.89	10.58	1.63
1.667	2.04	4.667	6.52	7.667	4.89	10.67	1.63
1.750	2.04	4.750	6.52	7.750	4.89	10.75	1.63
1.833	2.04	4.833	6.52	7.833	4.89	10.83	1.63
1.917	2.04	4.917	6.52	7.917	4.89	10.92	1.63
2.000	2.04	5.000	6.52	8.000	4.89	11.00	1.63
2.083	2.45	5.083	9.78	8.083	2.85	11.08	1.63
2.167	2.45	5.167	9.78	8.167	2.85	11.17	1.63
2.250	2.45	5.250	9.78	8.250	2.85	11.25	1.63
2.333	2.45	5.333	9.78	8.333	2.85	11.33	1.63
2.417	2.45	5.417	9.78	8.417	2.85	11.42	1.63
2.500	2.45	5.500	9.78	8.500	2.85	11.50	1.63
2.583	2.45	5.583	39.12	8.583	2.85	11.58	1.63
2.667	2.45	5.667	39.12	8.667	2.85	11.67	1.63
2.750	2.45	5.750	39.12	8.750	2.85	11.75	1.63
2.833	2.45	5.833	107.58	8.833	2.85	11.83	1.63
2.917	2.45	5.917	107.58	8.917	2.85	11.92	1.63
3.000	2.45	6.000	107.58	9.000	2.85	12.00	1.63

				TOTALS
Max.Eff.Inten.	(mm/hr)=	107.58	571.76	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.34 (ii)	2.78 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.33	.28	
PEAK FLOW	(cms)=	.06	.00	.057 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	80.50	51.28	79.92
TOTAL RAINFALL	(mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT	=	.99	.63	.98

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

(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 (0003)	Area (ha)=	.05			
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)=	99.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.05	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	19.10	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	107.58	571.76	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	.92 (ii)	2.01 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.31	
				TOTALS
PEAK FLOW	(cms)=	.02	.00	.016 (iii)
TIME TO PEAK	(hrs)=	5.92	6.00	6.00
RUNOFF VOLUME	(mm)=	80.50	51.28	80.21
TOTAL RAINFALL	(mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT	=	.99	.63	.98

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

(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 (0004)	Area (ha)=	.14			
ID= 1 DT= 5.0 min	Total Imp(%)=	86.00	Dir. Conn.(%)=	86.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.12	.02	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	30.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	107.58	81.47	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.22 (ii)	4.54 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.33	.23	
				TOTALS
PEAK FLOW	(cms)=	.04	.00	.040 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	80.50	51.28	76.40
TOTAL RAINFALL	(mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT	=	.99	.63	.94

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

(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 (0012)	Area (ha)=	.07			
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)=	99.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.07	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	21.90	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	107.58	570.26	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.00 (ii)	2.09 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.31	
				TOTALS
PEAK FLOW	(cms)=	.02	.00	.021 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	80.50	51.28	80.21
TOTAL RAINFALL	(mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT	=	.99	.63	.98

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

(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 (0015)	Area (ha)=	.04			
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)=	99.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.04	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	16.30	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	107.58	285.13	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	.84 (ii)	1.93 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.31	
				TOTALS
PEAK FLOW	(cms)=	.01	.00	.012 (iii)
TIME TO PEAK	(hrs)=	5.92	6.00	6.00
RUNOFF VOLUME	(mm)=	80.50	51.28	80.21
TOTAL RAINFALL	(mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT	=	.99	.63	.98

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

(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 (0001) | Area (ha)= .45
|ID= 1 DT= 5.0 min | Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.45	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.80	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	107.58	142.56	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.73 (ii)	2.82 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.32	.28	
				TOTALS
PEAK FLOW	(cms)=	.13	.00	.134 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	80.50	51.28	80.21
TOTAL RAINFALL	(mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT	=	.99	.63	.98

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

(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 (0005) | Area (ha)= 1.10
|ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.88	.22	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	85.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	107.58	81.47	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	2.26 (ii)	6.20 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.30	.15	
				TOTALS
PEAK FLOW	(cms)=	.26	.04	.305 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	80.50	51.28	74.66
TOTAL RAINFALL	(mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT	=	.99	.63	.92

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

(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 (0006) | Area (ha)= .81
|ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.53	.28	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	73.50	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	107.58	81.47	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	2.06 (ii)	9.72 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.31	.11	
				TOTALS
PEAK FLOW	(cms)=	.16	.05	.205 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	80.50	51.28	70.27
TOTAL RAINFALL	(mm)=	81.51	81.51	81.51
RUNOFF COEFFICIENT	=	.99	.63	.86

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

(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 (0007) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0002):	.19	.057	6.00	79.92
+ ID2= 2 (0003):	.05	.016	6.00	80.21
ID = 3 (0007):	.24	.073	6.00	79.98

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0008) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0007):	.24	.073	6.00	79.98
+ ID2= 2 (0004):	.14	.040	6.00	76.40
ID = 3 (0008):	.38	.113	6.00	78.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0013) |
| 1 + 2 = 3 |

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0008):	.38	.113	6.00	78.68
+ ID2= 2 (0012):	.07	.021	6.00	80.21
ID = 3 (0013):	.46	.135	6.00	78.92

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0016) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0013):       .46     .135     6.00     78.92
        + ID2= 2 (0015):       .04     .012     6.00     80.21
          ================================================
          ID = 3 (0016):       .50     .147     6.00     79.03

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.
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--------------------
| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |    (cms)     (ha.m.)
                          .0000      .0000    |    .1020      .0052
                          .0360      .0007    |    .1080      .0059
                          .0510      .0013    |    .1140      .0066
                          .0620      .0019    |    .1200      .0072
                          .0720      .0025    |    .1250      .0082
                          .0810      .0032    |    .1300      .0087
                          .0880      .0039    |    .1350      .0089
                          .0950      .0046    |    .0000      .0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (0016)      .50       .15      6.00      79.03
     OUTFLOW: ID= 1 (0014)      .50       .11      6.00      79.02

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 72.56
                    TIME SHIFT OF PEAK FLOW         (min)=   .00
                    MAXIMUM  STORAGE   USED       (ha.m.)=  .0063
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--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0014):       .50     .106     6.00     79.02
        + ID2= 2 (0001):       .45     .134     6.00     80.21
          ================================================
          ID = 3 (0009):       .95     .241     6.00     79.59

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

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0009):       .95     .241     6.00     79.59
        + ID2= 2 (0005):      1.10     .305     6.00     74.66
          ================================================
          ID = 3 (0010):      2.05     .546     6.00     76.94

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

```
--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0010):      2.05     .546     6.00     76.94
        + ID2= 2 (0006):       .81     .205     6.00     70.27
          ================================================
          ID = 3 (0011):      2.86     .751     6.00     75.05

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

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  ****************************
  ** SIMULATION NUMBER:   5 **
  ****************************
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|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 12-hr\
|                  |              050yr,12hr SCS.stm
| Ptotal= 90.61 mm |    Comments: 50-yr, 12-hr SCS Type II Distribution St
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```

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	2.27	3.25	3.62	6.25	16.31	9.25	3.17
.50	2.27	3.50	3.62	6.50	16.31	9.50	3.17
.75	2.27	3.75	3.62	6.75	7.25	9.75	3.17
1.00	2.27	4.00	3.62	7.00	7.25	10.00	3.17
1.25	2.27	4.25	5.44	7.25	5.44	10.25	1.81
1.50	2.27	4.50	5.44	7.50	5.44	10.50	1.81
1.75	2.27	4.75	7.25	7.75	5.44	10.75	1.81
2.00	2.27	5.00	7.25	8.00	5.44	11.00	1.81
2.25	2.72	5.25	10.87	8.25	3.17	11.25	1.81
2.50	2.72	5.50	10.87	8.50	3.17	11.50	1.81
2.75	2.72	5.75	43.49	8.75	3.17	11.75	1.81
3.00	2.72	6.00	119.59	9.00	3.17	12.00	1.81

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--------------------
| CALIB            |
| STANDHYD  (0002) |   Area    (ha)=    .19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  98.00   Dir. Conn.(%)=  98.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .19           .00
     Dep. Storage     (mm)=       1.00          1.50
     Average Slope     (%)=       1.00          2.00
     Length            (m)=      35.60         40.00
     Mannings n           =       .013          .250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	2.27	3.083	3.62	6.083	16.31	9.08	3.17
.167	2.27	3.167	3.62	6.167	16.31	9.17	3.17
.250	2.27	3.250	3.62	6.250	16.31	9.25	3.17
.333	2.27	3.333	3.62	6.333	16.31	9.33	3.17
.417	2.27	3.417	3.62	6.417	16.31	9.42	3.17
.500	2.27	3.500	3.62	6.500	16.31	9.50	3.17
.583	2.27	3.583	3.62	6.583	7.25	9.58	3.17
.667	2.27	3.667	3.62	6.667	7.25	9.67	3.17
.750	2.27	3.750	3.62	6.750	7.25	9.75	3.17
.833	2.27	3.833	3.62	6.833	7.25	9.83	3.17
.917	2.27	3.917	3.62	6.917	7.25	9.92	3.17
1.000	2.27	4.000	3.62	7.000	7.25	10.00	3.17
1.083	2.27	4.083	5.44	7.083	5.44	10.08	1.81

1.167	2.27	4.167	5.44	7.167	5.44	10.17	1.81
1.250	2.27	4.250	5.44	7.250	5.44	10.25	1.81
1.333	2.27	4.333	5.44	7.333	5.44	10.33	1.81
1.417	2.27	4.417	5.44	7.417	5.44	10.42	1.81
1.500	2.27	4.500	5.44	7.500	5.44	10.50	1.81
1.583	2.27	4.583	7.25	7.583	5.44	10.58	1.81
1.667	2.27	4.667	7.25	7.667	5.44	10.67	1.81
1.750	2.27	4.750	7.25	7.750	5.44	10.75	1.81
1.833	2.27	4.833	7.25	7.833	5.44	10.83	1.81
1.917	2.27	4.917	7.25	7.917	5.44	10.92	1.81
2.000	2.27	5.000	7.25	8.000	5.44	11.00	1.81
2.083	2.72	5.083	10.87	8.083	3.17	11.08	1.81
2.167	2.72	5.167	10.87	8.167	3.17	11.17	1.81
2.250	2.72	5.250	10.87	8.250	3.17	11.25	1.81
2.333	2.72	5.333	10.87	8.333	3.17	11.33	1.81
2.417	2.72	5.417	10.87	8.417	3.17	11.42	1.81
2.500	2.72	5.500	10.87	8.500	3.17	11.50	1.81
2.583	2.72	5.583	43.49	8.583	3.17	11.58	1.81
2.667	2.72	5.667	43.49	8.667	3.17	11.67	1.81
2.750	2.72	5.750	43.49	8.750	3.17	11.75	1.81
2.833	2.72	5.833	119.59	8.833	3.17	11.83	1.81
2.917	2.72	5.917	119.59	8.917	3.17	11.92	1.81
3.000	2.72	6.000	119.59	9.000	3.17	12.00	1.81

Max.Eff.Inten.(mm/hr)=	119.59	712.82	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.28 (ii)	2.66 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.33	.29	
			TOTALS
PEAK FLOW (cms)=	.06	.00	.063 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	89.61	59.29	89.00
TOTAL RAINFALL (mm)=	90.61	90.61	90.61
RUNOFF COEFFICIENT =	.99	.65	.98

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

(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 (0003)	Area (ha)=	.05	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.05	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	19.10	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	119.59	712.82	
over (min)	5.00	5.00	
Storage Coeff. (min)=	.88 (ii)	1.93 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.34	.31	
			TOTALS
PEAK FLOW (cms)=	.02	.00	.018 (iii)
TIME TO PEAK (hrs)=	5.92	6.00	6.00
RUNOFF VOLUME (mm)=	89.61	59.29	89.31
TOTAL RAINFALL (mm)=	90.61	90.61	90.61
RUNOFF COEFFICIENT =	.99	.65	.99

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

(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 (0004)	Area (ha)=	.14	
ID= 1 DT= 5.0 min	Total Imp(%)=	86.00	Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.12	.02
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.60	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	119.59	93.67	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.17 (ii)	4.35 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.34	.23	
			TOTALS
PEAK FLOW (cms)=	.04	.01	.045 (iii)
TIME TO PEAK (hrs)=	6.00	6.00	6.00
RUNOFF VOLUME (mm)=	89.61	59.29	85.35
TOTAL RAINFALL (mm)=	90.61	90.61	90.61
RUNOFF COEFFICIENT =	.99	.65	.94

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

(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 (0012)	Area (ha)=	.07	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.07	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	21.90	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.(mm/hr)=	119.59	655.66	
over (min)	5.00	5.00	
Storage Coeff. (min)=	.96 (ii)	2.00 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.34	.31	
			TOTALS
PEAK FLOW (cms)=	.02	.00	.024 (iii)
TIME TO PEAK (hrs)=	5.92	6.00	6.00
RUNOFF VOLUME (mm)=	89.61	59.29	89.31
TOTAL RAINFALL (mm)=	90.61	90.61	90.61
RUNOFF COEFFICIENT =	.99	.65	.99

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

(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 (0015)	Area (ha)= .04
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.04	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	16.30	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	119.59	327.83	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	.80 (ii)	1.85 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.32	
				TOTALS
PEAK FLOW	(cms)=	.01	.00	.013 (iii)
TIME TO PEAK	(hrs)=	5.92	6.00	6.00
RUNOFF VOLUME	(mm)=	89.61	59.29	89.31
TOTAL RAINFALL	(mm)=	90.61	90.61	90.61
RUNOFF COEFFICIENT	=	.99	.65	.99

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

(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 (0001)	Area (ha)= .45
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.45	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.80	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	119.59	163.91	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.66 (ii)	2.70 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.32	.29	
				TOTALS
PEAK FLOW	(cms)=	.15	.00	.149 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	89.61	59.29	89.31
TOTAL RAINFALL	(mm)=	90.61	90.61	90.61
RUNOFF COEFFICIENT	=	.99	.65	.99

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

(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 (0005)	Area (ha)= 1.10
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.88	.22	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	85.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	119.59	93.67	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	2.17 (ii)	5.94 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.31	.15	
				TOTALS
PEAK FLOW	(cms)=	.29	.05	.342 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	89.61	59.29	83.54
TOTAL RAINFALL	(mm)=	90.61	90.61	90.61
RUNOFF COEFFICIENT	=	.99	.65	.92

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

(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 (0006)	Area (ha)= .81
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.53	.28	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	73.50	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	119.59	93.67	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.98 (ii)	9.22 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.31	.12	
				TOTALS
PEAK FLOW	(cms)=	.17	.06	.231 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00	6.00
RUNOFF VOLUME	(mm)=	89.61	59.29	78.99
TOTAL RAINFALL	(mm)=	90.61	90.61	90.61
RUNOFF COEFFICIENT	=	.99	.65	.87

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

(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 (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0002):	.19	.063	6.00	89.00
	+ ID2= 2 (0003):	.05	.018	6.00	89.31
	ID = 3 (0007):	.24	.081	6.00	89.07

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0007):	.24	.081	6.00	89.07
	+ ID2= 2 (0004):	.14	.045	6.00	85.35
	ID = 3 (0008):	.38	.126	6.00	87.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0013)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0008):	.38	.126	6.00	87.72
	+ ID2= 2 (0012):	.07	.024	6.00	89.31
	ID = 3 (0013):	.46	.150	6.00	87.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0013):	.46	.150	6.00	87.97
	+ ID2= 2 (0015):	.04	.013	6.00	89.31
	ID = 3 (0016):	.50	.163	6.00	88.08

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0014)		OUTFLOW	STORAGE	OUTFLOW	STORAGE
IN= 2---> OUT= 1		(cms)	(ha.m.)	(cms)	(ha.m.)
DT= 5.0 min		.0000	.0000	.1020	.0052
		.0360	.0007	.1080	.0059
		.0510	.0013	.1140	.0066
		.0620	.0019	.1200	.0072
		.0720	.0025	.1250	.0082
		.0810	.0032	.1300	.0087
		.0880	.0039	.1350	.0089
		.0950	.0046	.0000	.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	.50	.16	6.00	88.08
OUTFLOW: ID= 1 (0014)	.50	.11	6.00	88.07

PEAK FLOW REDUCTION [Qout/Qin](%)= 70.25
TIME SHIFT OF PEAK FLOW (min)= .00
MAXIMUM STORAGE USED (ha.m.)= .0074

ADD HYD (0009)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0014):	.50	.115	6.00	88.07
	+ ID2= 2 (0001):	.45	.149	6.00	89.31
	ID = 3 (0009):	.95	.264	6.00	88.66

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0009):	.95	.264	6.00	88.66
	+ ID2= 2 (0005):	1.10	.342	6.00	83.54
	ID = 3 (0010):	2.05	.606	6.00	85.91

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0010):	2.05	.606	6.00	85.91
	+ ID2= 2 (0006):	.81	.231	6.00	78.99
	ID = 3 (0011):	2.86	.837	6.00	83.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV2\QualityInn\design storms\SCS 12-hr\100yr,12hr SCS.stm
Ptotal= 99.69 mm	Comments: 100-yr, 12-hr SCS Type II Distribution S

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	2.49	3.25	3.99	6.25	17.95	9.25	3.49
.50	2.49	3.50	3.99	6.50	17.95	9.50	3.49
.75	2.49	3.75	3.99	6.75	7.98	9.75	3.49
1.00	2.49	4.00	3.99	7.00	7.98	10.00	3.49

1.25	2.49	4.25	5.98	7.25	5.98	10.25	1.99
1.50	2.49	4.50	5.98	7.50	5.98	10.50	1.99
1.75	2.49	4.75	7.98	7.75	5.98	10.75	1.99
2.00	2.49	5.00	7.98	8.00	5.98	11.00	1.99
2.25	2.99	5.25	11.96	8.25	3.49	11.25	1.99
2.50	2.99	5.50	11.96	8.50	3.49	11.50	1.99
2.75	2.99	5.75	47.86	8.75	3.49	11.75	1.99
3.00	2.99	6.00	131.60	9.00	3.49	12.00	1.99

CALIB	
STANDHYD (0002)	Area (ha)= .19
ID= 1 DT= 5.0 min	Total Imp(%)= 98.00 Dir. Conn.(%)= 98.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	2.49	3.083	3.99	6.083	17.95	9.08	3.49
.167	2.49	3.167	3.99	6.167	17.95	9.17	3.49
.250	2.49	3.250	3.99	6.250	17.95	9.25	3.49
.333	2.49	3.333	3.99	6.333	17.95	9.33	3.49
.417	2.49	3.417	3.99	6.417	17.95	9.42	3.49
.500	2.49	3.500	3.99	6.500	17.95	9.50	3.49
.583	2.49	3.583	3.99	6.583	7.98	9.58	3.49
.667	2.49	3.667	3.99	6.667	7.98	9.67	3.49
.750	2.49	3.750	3.99	6.750	7.98	9.75	3.49
.833	2.49	3.833	3.99	6.833	7.98	9.83	3.49
.917	2.49	3.917	3.99	6.917	7.98	9.92	3.49
1.000	2.49	4.000	3.99	7.000	7.98	10.00	3.49
1.083	2.49	4.083	5.98	7.083	5.98	10.08	1.99
1.167	2.49	4.167	5.98	7.167	5.98	10.17	1.99
1.250	2.49	4.250	5.98	7.250	5.98	10.25	1.99
1.333	2.49	4.333	5.98	7.333	5.98	10.33	1.99
1.417	2.49	4.417	5.98	7.417	5.98	10.42	1.99
1.500	2.49	4.500	5.98	7.500	5.98	10.50	1.99
1.583	2.49	4.583	7.98	7.583	5.98	10.58	1.99
1.667	2.49	4.667	7.98	7.667	5.98	10.67	1.99
1.750	2.49	4.750	7.98	7.750	5.98	10.75	1.99
1.833	2.49	4.833	7.98	7.833	5.98	10.83	1.99
1.917	2.49	4.917	7.98	7.917	5.98	10.92	1.99
2.000	2.49	5.000	7.98	8.000	5.98	11.00	1.99
2.083	2.99	5.083	11.96	8.083	3.49	11.08	1.99
2.167	2.99	5.167	11.96	8.167	3.49	11.17	1.99
2.250	2.99	5.250	11.96	8.250	3.49	11.25	1.99
2.333	2.99	5.333	11.96	8.333	3.49	11.33	1.99
2.417	2.99	5.417	11.96	8.417	3.49	11.42	1.99
2.500	2.99	5.500	11.96	8.500	3.49	11.50	1.99
2.583	2.99	5.583	47.86	8.583	3.49	11.58	1.99
2.667	2.99	5.667	47.86	8.667	3.49	11.67	1.99
2.750	2.99	5.750	47.86	8.750	3.49	11.75	1.99
2.833	2.99	5.833	131.60	8.833	3.49	11.83	1.99
2.917	2.99	5.917	131.60	8.917	3.49	11.92	1.99
3.000	2.99	6.000	131.60	9.000	3.49	12.00	1.99

Max.Eff.Inten.(mm/hr)=		131.60	819.57
over (min)		5.00	5.00
Storage Coeff. (min)=		1.23 (ii)	2.56 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		.33	.29
			TOTALS
PEAK FLOW	(cms)=	.07	.00 .069 (iii)
TIME TO PEAK	(hrs)=	6.00	6.00 6.00
RUNOFF VOLUME	(mm)=	98.69	67.42 98.06
TOTAL RAINFALL	(mm)=	99.69	99.69 99.69
RUNOFF COEFFICIENT	=	.99	.68 .98

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

(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 (0003)	Area (ha)= .05
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.05	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	19.10	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		131.60	819.57
over (min)		5.00	5.00
Storage Coeff. (min)=		.85 (ii)	1.85 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		.34	.32
			TOTALS
PEAK FLOW	(cms)=	.02	.00 .020 (iii)
TIME TO PEAK	(hrs)=	5.92	6.00 6.00
RUNOFF VOLUME	(mm)=	98.69	67.42 98.38
TOTAL RAINFALL	(mm)=	99.69	99.69 99.69
RUNOFF COEFFICIENT	=	.99	.68 .99

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

(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 (0004)	Area (ha)= .14
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00 Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.12	.02
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.60	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		131.60	105.96
over (min)		5.00	5.00
Storage Coeff. (min)=		1.12 (ii)	4.18 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00

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     Unit Hyd. peak  (cms)=        .34          .24
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .04          .01           .050 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00           6.00
     RUNOFF VOLUME    (mm)=      98.69        67.41          94.30
     TOTAL RAINFALL   (mm)=      99.69        99.69          99.69
     RUNOFF COEFFICIENT   =        .99          .68            .95

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

       (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  (0012) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .07          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      21.90        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     131.60       741.72
               over (min)        5.00         5.00
     Storage Coeff.  (min)=        .92 (ii)    1.93 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .31
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .03          .00           .026 (iii)
     TIME TO PEAK    (hrs)=       5.92         6.00           6.00
     RUNOFF VOLUME    (mm)=      98.69        67.41          98.38
     TOTAL RAINFALL   (mm)=      99.69        99.69          99.69
     RUNOFF COEFFICIENT   =        .99          .68            .99

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

       (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  (0015) |   Area    (ha)=    .04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .04          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     131.60       370.86
               over (min)        5.00         5.00
     Storage Coeff.  (min)=        .77 (ii)    1.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .32
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .01          .00           .015 (iii)
     TIME TO PEAK    (hrs)=       5.92         6.00           6.00
     RUNOFF VOLUME    (mm)=      98.69        67.41          98.38
     TOTAL RAINFALL   (mm)=      99.69        99.69          99.69
     RUNOFF COEFFICIENT   =        .99          .68            .99

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .45          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      54.80        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     131.60       185.43
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.60 (ii)    2.60 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .33          .29
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .16          .00           .164 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00           6.00
     RUNOFF VOLUME    (mm)=      98.69        67.41          98.38
     TOTAL RAINFALL   (mm)=      99.69        99.69          99.69
     RUNOFF COEFFICIENT   =        .99          .68            .99

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

       (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  (0005) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .88          .22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      85.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     131.60       105.96
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.09 (ii)    5.72 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .31          .15
                                                          *TOTALS*
     PEAK FLOW       (cms)=        .32          .06           .378 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00           6.00
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     RUNOFF VOLUME     (mm)=      98.69        67.41          92.43
     TOTAL RAINFALL    (mm)=      99.69        99.69          99.69
     RUNOFF COEFFICIENT   =        .99          .68            .93

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

       (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  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .28
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      73.50        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     131.60       105.96
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.90 (ii)    6.84 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .32          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .19          .07          .263 (iii)
     TIME TO PEAK    (hrs)=       6.00         6.00          6.00
     RUNOFF VOLUME    (mm)=      98.69        67.41         87.74
     TOTAL RAINFALL   (mm)=      99.69        99.69         99.69
     RUNOFF COEFFICIENT   =        .99          .68           .88

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

       (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   (0007) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0002):      .19     .069     6.00     98.06
        + ID2= 2 (0003):      .05     .020     6.00     98.38
          ================================================
          ID = 3 (0007):      .24     .089     6.00     98.13

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0007):      .24     .089     6.00     98.13
        + ID2= 2 (0004):      .14     .050     6.00     94.30
          ================================================
          ID = 3 (0008):      .38     .139     6.00     96.74

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0013) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0008):      .38     .139     6.00     96.74
        + ID2= 2 (0012):      .07     .026     6.00     98.38
          ================================================
          ID = 3 (0013):      .46     .165     6.00     97.00

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0016) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0013):      .46     .165     6.00     97.00
        + ID2= 2 (0015):      .04     .015     6.00     98.38
          ================================================
          ID = 3 (0016):      .50     .180     6.00     97.11

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .1020      .0052
                          .0360      .0007    |    .1080      .0059
                          .0510      .0013    |    .1140      .0066
                          .0620      .0019    |    .1200      .0072
                          .0720      .0025    |    .1250      .0082
                          .0810      .0032    |    .1300      .0087
                          .0880      .0039    |    .1350      .0089
                          .0950      .0046    |    .0000      .0000

                              AREA     QPEAK     TPEAK       R.V.
                              (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (0016)     .50       .18      6.00      97.11
     OUTFLOW: ID= 1 (0014)     .50       .12      6.00      97.11

                PEAK   FLOW   REDUCTION [Qout/Qin](%)= 68.05
                TIME SHIFT OF PEAK FLOW         (min)=   .00
                MAXIMUM  STORAGE   USED       (ha.m.)=  .0085

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--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0014):      .50     .122     6.00     97.11
        + ID2= 2 (0001):      .45     .164     6.00     98.38
          ================================================
          ID = 3 (0009):      .95     .287     6.00     97.71

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0009):       .95    .287     6.00    97.71
        + ID2= 2 (0005):     1.10    .378     6.00    92.43
          ================================================
          ID = 3 (0010):     2.05    .665     6.00    94.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0010):     2.05    .665     6.00    94.87
        + ID2= 2 (0006):      .81    .263     6.00    87.74
          ================================================
          ID = 3 (0011):     2.86    .928     6.00    92.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
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FUTURE CONDITIONS
24-HOUR SCS TYPE II DISTRIBUTION

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

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

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM, Version 2.1
      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\Visual OTTHYMO 2.2.4\voin.dat
Output filename: C:\Users\Frank Fisl\Desktop\QualityInnVO2\QualityInn\Stor.2,3,4,7.out
Summary filename: C:\Users\Frank Fisl\Desktop\QualityInnVO2\QualityInn\Stor.2,3,4,7.sum

DATE: 2023-08-04 TIME: 12:33:50

USER:

COMMENTS: _____

```
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  ****************************
  ** SIMULATION NUMBER:   1 **
  ****************************
```

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 24-hr\ 002yr,24hr SCS.stm
Ptotal= 55.18 mm	Comments: 2-yr, 24-hr SCS Type II Distribution Sto

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.61	6.25	.99	12.25	7.95	18.25	.99
.50	.61	6.50	.99	12.50	7.95	18.50	.99
.75	.61	6.75	.99	12.75	4.08	18.75	.99
1.00	.61	7.00	.99	13.00	4.08	19.00	.99
1.25	.61	7.25	1.21	13.25	2.98	19.25	.99
1.50	.61	7.50	1.21	13.50	2.98	19.50	.99
1.75	.61	7.75	1.21	13.75	2.32	19.75	.99
2.00	.61	8.00	1.21	14.00	2.32	20.00	.99
2.25	.72	8.25	1.44	14.25	1.66	20.25	.66
2.50	.72	8.50	1.44	14.50	1.66	20.50	.66
2.75	.72	8.75	1.55	14.75	1.66	20.75	.66
3.00	.72	9.00	1.55	15.00	1.66	21.00	.66
3.25	.72	9.25	1.77	15.25	1.66	21.25	.66
3.50	.72	9.50	1.77	15.50	1.66	21.50	.66
3.75	.72	9.75	1.99	15.75	1.66	21.75	.66
4.00	.72	10.00	1.99	16.00	1.66	22.00	.66
4.25	.88	10.25	2.54	16.25	.99	22.25	.66
4.50	.88	10.50	2.54	16.50	.99	22.50	.66
4.75	.88	10.75	3.42	16.75	.99	22.75	.66
5.00	.88	11.00	3.42	17.00	.99	23.00	.66
5.25	.88	11.25	5.30	17.25	.99	23.25	.66
5.50	.88	11.50	5.30	17.50	.99	23.50	.66
5.75	.88	11.75	22.96	17.75	.99	23.75	.66
6.00	.88	12.00	60.94	18.00	.99	24.00	.66

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--------------------
| CALIB             |
| STANDHYD  (0002) |   Area    (ha)=    .19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  98.00   Dir. Conn.(%)=  98.00
--------------------
```

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.61	6.083	.99	12.083	7.96	18.08	.99
.167	.61	6.167	.99	12.167	7.95	18.17	.99
.250	.61	6.250	.99	12.250	7.95	18.25	.99
.333	.61	6.333	.99	12.333	7.95	18.33	.99
.417	.61	6.417	.99	12.417	7.95	18.42	.99
.500	.61	6.500	.99	12.500	7.95	18.50	.99
.583	.61	6.583	.99	12.583	4.08	18.58	.99
.667	.61	6.667	.99	12.667	4.08	18.67	.99
.750	.61	6.750	.99	12.750	4.08	18.75	.99
.833	.61	6.833	.99	12.833	4.08	18.83	.99
.917	.61	6.917	.99	12.917	4.08	18.92	.99
1.000	.61	7.000	.99	13.000	4.08	19.00	.99
1.083	.61	7.083	1.21	13.083	2.98	19.08	.99
1.167	.61	7.167	1.21	13.167	2.98	19.17	.99
1.250	.61	7.250	1.21	13.250	2.98	19.25	.99
1.333	.61	7.333	1.21	13.333	2.98	19.33	.99
1.417	.61	7.417	1.21	13.417	2.98	19.42	.99
1.500	.61	7.500	1.21	13.500	2.98	19.50	.99
1.583	.61	7.583	1.21	13.583	2.32	19.58	.99
1.667	.61	7.667	1.21	13.667	2.32	19.67	.99
1.750	.61	7.750	1.21	13.750	2.32	19.75	.99
1.833	.61	7.833	1.21	13.833	2.32	19.83	.99
1.917	.61	7.917	1.21	13.917	2.32	19.92	.99
2.000	.61	8.000	1.21	14.000	2.32	20.00	.99
2.083	.72	8.083	1.44	14.083	1.66	20.08	.66
2.167	.72	8.167	1.44	14.167	1.66	20.17	.66
2.250	.72	8.250	1.44	14.250	1.66	20.25	.66
2.333	.72	8.333	1.44	14.333	1.66	20.33	.66
2.417	.72	8.417	1.44	14.417	1.66	20.42	.66
2.500	.72	8.500	1.44	14.500	1.66	20.50	.66
2.583	.72	8.583	1.55	14.583	1.66	20.58	.66
2.667	.72	8.667	1.55	14.667	1.66	20.67	.66
2.750	.72	8.750	1.55	14.750	1.66	20.75	.66

2.833	.72	8.833	1.55	14.833	1.66	20.83	.66
2.917	.72	8.917	1.55	14.917	1.66	20.92	.66
3.000	.72	9.000	1.55	15.000	1.66	21.00	.66
3.083	.72	9.083	1.77	15.083	1.66	21.08	.66
3.167	.72	9.167	1.77	15.167	1.66	21.17	.66
3.250	.72	9.250	1.77	15.250	1.66	21.25	.66
3.333	.72	9.333	1.77	15.333	1.66	21.33	.66
3.417	.72	9.417	1.77	15.417	1.66	21.42	.66
3.500	.72	9.500	1.77	15.500	1.66	21.50	.66
3.583	.72	9.583	1.99	15.583	1.66	21.58	.66
3.667	.72	9.667	1.99	15.667	1.66	21.67	.66
3.750	.72	9.750	1.99	15.750	1.66	21.75	.66
3.833	.72	9.833	1.99	15.833	1.66	21.83	.66
3.917	.72	9.917	1.99	15.917	1.66	21.92	.66
4.000	.72	10.000	1.99	16.000	1.66	22.00	.66
4.083	.88	10.083	2.54	16.083	.99	22.08	.66
4.167	.88	10.167	2.54	16.167	.99	22.17	.66
4.250	.88	10.250	2.54	16.250	.99	22.25	.66
4.333	.88	10.333	2.54	16.333	.99	22.33	.66
4.417	.88	10.417	2.54	16.417	.99	22.42	.66
4.500	.88	10.500	2.54	16.500	.99	22.50	.66
4.583	.88	10.583	3.42	16.583	.99	22.58	.66
4.667	.88	10.667	3.42	16.667	.99	22.67	.66
4.750	.88	10.750	3.42	16.750	.99	22.75	.66
4.833	.88	10.833	3.42	16.833	.99	22.83	.66
4.917	.88	10.917	3.42	16.917	.99	22.92	.66
5.000	.88	11.000	3.42	17.000	.99	23.00	.66
5.083	.88	11.083	5.30	17.083	.99	23.08	.66
5.167	.88	11.167	5.30	17.167	.99	23.17	.66
5.250	.88	11.250	5.30	17.250	.99	23.25	.66
5.333	.88	11.333	5.30	17.333	.99	23.33	.66
5.417	.88	11.417	5.30	17.417	.99	23.42	.66
5.500	.88	11.500	5.30	17.500	.99	23.50	.66
5.583	.88	11.583	22.96	17.583	.99	23.58	.66
5.667	.88	11.667	22.96	17.667	.99	23.67	.66
5.750	.88	11.750	22.96	17.750	.99	23.75	.66
5.833	.88	11.833	60.94	17.833	.99	23.83	.66
5.917	.88	11.917	60.94	17.917	.99	23.92	.66
6.000	.88	12.000	60.94	18.000	.99	24.00	.66

Max.Eff.Inten.(mm/hr)=	60.94	927.15	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.68 (ii)	3.49 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.32	.26	
			TOTALS
PEAK FLOW (cms)=	.03	.00	.032 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	54.19	29.26	53.68
TOTAL RAINFALL (mm)=	55.19	55.19	55.19
RUNOFF COEFFICIENT =	.98	.53	.97

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

(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 (0003)	Area (ha)=	.05	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.05	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	19.10	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		60.94	927.15
over (min)		5.00	5.00
Storage Coeff. (min)=		1.15 (ii)	2.52 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		.34	.29
			TOTALS
PEAK FLOW (cms)=		.01	.00 .009 (iii)
TIME TO PEAK (hrs)=		12.00	12.00 12.00
RUNOFF VOLUME (mm)=		54.19	29.26 53.94
TOTAL RAINFALL (mm)=		55.19	55.19 55.19
RUNOFF COEFFICIENT =		.98	.53 .98

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

(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 (0004)	Area (ha)=	.14	
ID= 1 DT= 5.0 min	Total Imp(%)=	86.00	Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.12	.02
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.60	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		60.94	38.98
over (min)		5.00	10.00
Storage Coeff. (min)=		1.53 (ii)	5.69 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		.33	.15
			TOTALS
PEAK FLOW (cms)=		.02	.00 .022 (iii)
TIME TO PEAK (hrs)=		12.00	12.00 12.00
RUNOFF VOLUME (mm)=		54.18	29.26 50.69
TOTAL RAINFALL (mm)=		55.19	55.19 55.19
RUNOFF COEFFICIENT =		.98	.53 .92

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

(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 (0012)	Area (ha)=	.07	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.07	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00

```
     Length            (m)=      21.90        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      60.94       272.87
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.25 (ii)    2.62 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .33          .29
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .012 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      54.18        29.26         53.93
     TOTAL RAINFALL   (mm)=      55.19        55.19         55.19
     RUNOFF COEFFICIENT   =        .98          .53           .98

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

       (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  (0015) |   Area    (ha)=    .04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .04          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      60.94       136.44
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.05 (ii)    2.42 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .30
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .007 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      54.19        29.26         51.30
     TOTAL RAINFALL   (mm)=      55.19        55.19         55.19
     RUNOFF COEFFICIENT   =        .98          .53           .93

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .45          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      54.80        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      60.94        68.22
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       2.17 (ii)    3.54 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .31          .26
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .08          .00          .076 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      54.18        29.26         53.93
     TOTAL RAINFALL   (mm)=      55.19        55.19         55.19
     RUNOFF COEFFICIENT   =        .98          .53           .98

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

       (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  (0005) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .88          .22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      85.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      60.94        38.98
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.84 (ii)    7.78 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .28          .13
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .15          .02          .168 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      54.19        29.26         49.20
     TOTAL RAINFALL   (mm)=      55.19        55.19         55.19
     RUNOFF COEFFICIENT   =        .98          .53           .89

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

       (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  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .28
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      73.50        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      60.94        37.26
```

over (min)	5.00	15.00	
Storage Coeff. (min)=	2.59 (ii)	13.06 (ii)	
Unit Hyd. Tpeak (min)=	5.00	15.00	
Unit Hyd. peak (cms)=	.29	.08	
			TOTALS
PEAK FLOW (cms)=	.09	.02	.106 (iii)
TIME TO PEAK (hrs)=	12.00	12.08	12.00
RUNOFF VOLUME (mm)=	54.18	29.26	45.45
TOTAL RAINFALL (mm)=	55.19	55.19	55.19
RUNOFF COEFFICIENT =	.98	.53	.82

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

(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 (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):		.19	.032	12.00	53.68
+ ID2= 2 (0003):		.05	.009	12.00	53.94
ID = 3 (0007):		.24	.041	12.00	53.74

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0007):		.24	.041	12.00	53.74
+ ID2= 2 (0004):		.14	.022	12.00	50.69
ID = 3 (0008):		.38	.063	12.00	52.63

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0013)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0008):		.38	.063	12.00	52.63
+ ID2= 2 (0012):		.07	.012	12.00	53.93
ID = 3 (0013):		.46	.076	12.00	52.83

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0013):		.46	.076	12.00	52.83
+ ID2= 2 (0015):		.04	.007	12.00	51.30
ID = 3 (0016):		.50	.082	12.00	52.71

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0014)	IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
			.0000	.0000	.1020	.0052
			.0360	.0007	.1080	.0059
			.0510	.0013	.1140	.0066
			.0620	.0019	.1200	.0072
			.0720	.0025	.1250	.0082
			.0810	.0032	.1300	.0087
			.0880	.0039	.1350	.0089
			.0950	.0046	.0000	.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	.50	.08	12.00	52.71
OUTFLOW: ID= 1 (0014)	.50	.07	12.00	52.71

PEAK FLOW REDUCTION [Qout/Qin](%)= 85.06
TIME SHIFT OF PEAK FLOW (min)= .00
MAXIMUM STORAGE USED (ha.m.)= .0026

ADD HYD (0009)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0014):		.50	.070	12.00	52.71
+ ID2= 2 (0001):		.45	.076	12.00	53.93
ID = 3 (0009):		.95	.146	12.00	53.29

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0009):		.95	.146	12.00	53.29
+ ID2= 2 (0005):		1.10	.168	12.00	49.20
ID = 3 (0010):		2.05	.313	12.00	51.09

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0010):		2.05	.313	12.00	51.09
+ ID2= 2 (0006):		.81	.106	12.00	45.45
ID = 3 (0011):		2.86	.419	12.00	49.49

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

****

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 24-hr\ 005yr,24hr SCS.stm
Ptotal= 73.37 mm	Comments: 5-yr, 24-hr SCS Type II Distribution Sto

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	.81	6.25	1.32	12.25	10.57	18.25	1.32
.50	.81	6.50	1.32	12.50	10.57	18.50	1.32
.75	.81	6.75	1.32	12.75	5.43	18.75	1.32
1.00	.81	7.00	1.32	13.00	5.43	19.00	1.32
1.25	.81	7.25	1.61	13.25	3.96	19.25	1.32
1.50	.81	7.50	1.61	13.50	3.96	19.50	1.32
1.75	.81	7.75	1.61	13.75	3.08	19.75	1.32
2.00	.81	8.00	1.61	14.00	3.08	20.00	1.32
2.25	.95	8.25	1.91	14.25	2.20	20.25	.88
2.50	.95	8.50	1.91	14.50	2.20	20.50	.88
2.75	.95	8.75	2.06	14.75	2.20	20.75	.88
3.00	.95	9.00	2.06	15.00	2.20	21.00	.88
3.25	.95	9.25	2.35	15.25	2.20	21.25	.88
3.50	.95	9.50	2.35	15.50	2.20	21.50	.88
3.75	.95	9.75	2.64	15.75	2.20	21.75	.88
4.00	.95	10.00	2.64	16.00	2.20	22.00	.88
4.25	1.17	10.25	3.38	16.25	1.32	22.25	.88
4.50	1.17	10.50	3.38	16.50	1.32	22.50	.88
4.75	1.17	10.75	4.55	16.75	1.32	22.75	.88
5.00	1.17	11.00	4.55	17.00	1.32	23.00	.88
5.25	1.17	11.25	7.05	17.25	1.32	23.25	.88
5.50	1.17	11.50	7.05	17.50	1.32	23.50	.88
5.75	1.17	11.75	30.53	17.75	1.32	23.75	.88
6.00	1.17	12.00	81.03	18.00	1.32	24.00	.88

CALIB	
STANDHYD (0002)	Area (ha)= .19
ID= 1 DT= 5.0 min	Total Imp(%)= 98.00 Dir. Conn.(%)= 98.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.81	6.083	1.32	12.083	10.58	18.08	1.32
.167	.81	6.167	1.32	12.167	10.57	18.17	1.32
.250	.81	6.250	1.32	12.250	10.57	18.25	1.32
.333	.81	6.333	1.32	12.333	10.57	18.33	1.32
.417	.81	6.417	1.32	12.417	10.57	18.42	1.32
.500	.81	6.500	1.32	12.500	10.57	18.50	1.32
.583	.81	6.583	1.32	12.583	5.43	18.58	1.32
.667	.81	6.667	1.32	12.667	5.43	18.67	1.32
.750	.81	6.750	1.32	12.750	5.43	18.75	1.32
.833	.81	6.833	1.32	12.833	5.43	18.83	1.32
.917	.81	6.917	1.32	12.917	5.43	18.92	1.32
1.000	.81	7.000	1.32	13.000	5.43	19.00	1.32
1.083	.81	7.083	1.61	13.083	3.96	19.08	1.32
1.167	.81	7.167	1.61	13.167	3.96	19.17	1.32
1.250	.81	7.250	1.61	13.250	3.96	19.25	1.32
1.333	.81	7.333	1.61	13.333	3.96	19.33	1.32
1.417	.81	7.417	1.61	13.417	3.96	19.42	1.32
1.500	.81	7.500	1.61	13.500	3.96	19.50	1.32
1.583	.81	7.583	1.61	13.583	3.08	19.58	1.32
1.667	.81	7.667	1.61	13.667	3.08	19.67	1.32
1.750	.81	7.750	1.61	13.750	3.08	19.75	1.32
1.833	.81	7.833	1.61	13.833	3.08	19.83	1.32
1.917	.81	7.917	1.61	13.917	3.08	19.92	1.32
2.000	.81	8.000	1.61	14.000	3.08	20.00	1.32
2.083	.95	8.083	1.91	14.083	2.20	20.08	.88
2.167	.95	8.167	1.91	14.167	2.20	20.17	.88
2.250	.95	8.250	1.91	14.250	2.20	20.25	.88
2.333	.95	8.333	1.91	14.333	2.20	20.33	.88
2.417	.95	8.417	1.91	14.417	2.20	20.42	.88
2.500	.95	8.500	1.91	14.500	2.20	20.50	.88
2.583	.95	8.583	2.06	14.583	2.20	20.58	.88
2.667	.95	8.667	2.06	14.667	2.20	20.67	.88
2.750	.95	8.750	2.06	14.750	2.20	20.75	.88
2.833	.95	8.833	2.06	14.833	2.20	20.83	.88
2.917	.95	8.917	2.06	14.917	2.20	20.92	.88
3.000	.95	9.000	2.06	15.000	2.20	21.00	.88
3.083	.95	9.083	2.35	15.083	2.20	21.08	.88
3.167	.95	9.167	2.35	15.167	2.20	21.17	.88
3.250	.95	9.250	2.35	15.250	2.20	21.25	.88
3.333	.95	9.333	2.35	15.333	2.20	21.33	.88
3.417	.95	9.417	2.35	15.417	2.20	21.42	.88
3.500	.95	9.500	2.35	15.500	2.20	21.50	.88
3.583	.95	9.583	2.64	15.583	2.20	21.58	.88
3.667	.95	9.667	2.64	15.667	2.20	21.67	.88
3.750	.95	9.750	2.64	15.750	2.20	21.75	.88
3.833	.95	9.833	2.64	15.833	2.20	21.83	.88
3.917	.95	9.917	2.64	15.917	2.20	21.92	.88
4.000	.95	10.000	2.64	16.000	2.20	22.00	.88
4.083	1.17	10.083	3.38	16.083	1.32	22.08	.88
4.167	1.17	10.167	3.38	16.167	1.32	22.17	.88
4.250	1.17	10.250	3.38	16.250	1.32	22.25	.88
4.333	1.17	10.333	3.38	16.333	1.32	22.33	.88
4.417	1.17	10.417	3.38	16.417	1.32	22.42	.88
4.500	1.17	10.500	3.38	16.500	1.32	22.50	.88
4.583	1.17	10.583	4.55	16.583	1.32	22.58	.88
4.667	1.17	10.667	4.55	16.667	1.32	22.67	.88
4.750	1.17	10.750	4.55	16.750	1.32	22.75	.88
4.833	1.17	10.833	4.55	16.833	1.32	22.83	.88
4.917	1.17	10.917	4.55	16.917	1.32	22.92	.88
5.000	1.17	11.000	4.55	17.000	1.32	23.00	.88
5.083	1.17	11.083	7.05	17.083	1.32	23.08	.88
5.167	1.17	11.167	7.05	17.167	1.32	23.17	.88
5.250	1.17	11.250	7.05	17.250	1.32	23.25	.88
5.333	1.17	11.333	7.05	17.333	1.32	23.33	.88
5.417	1.17	11.417	7.05	17.417	1.32	23.42	.88
5.500	1.17	11.500	7.05	17.500	1.32	23.50	.88
5.583	1.17	11.583	30.53	17.583	1.32	23.58	.88
5.667	1.17	11.667	30.53	17.667	1.32	23.67	.88
5.750	1.17	11.750	30.53	17.750	1.32	23.75	.88
5.833	1.17	11.833	81.02	17.833	1.32	23.83	.88
5.917	1.17	11.917	81.03	17.917	1.32	23.92	.88
6.000	1.17	12.000	81.03	18.000	1.32	24.00	.88

Max.Eff.Inten.(mm/hr)=	81.03	341.09	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.50 (ii)	3.11 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.33	.27	
			TOTALS

PEAK FLOW (cms)=	.04	.00	.043 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	72.37	44.26	71.81
TOTAL RAINFALL (mm)=	73.37	73.37	73.37
RUNOFF COEFFICIENT =	.99	.60	.98

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

(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 (0003)	Area (ha)= .05		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.05	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	19.10	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	81.03	341.09	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.03 (ii)	2.25 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.30	
				TOTALS
PEAK FLOW	(cms)=	.01	.00	.012 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	72.37	44.26	72.09
TOTAL RAINFALL	(mm)=	73.37	73.37	73.37
RUNOFF COEFFICIENT	=	.99	.60	.98

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

(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 (0004)	Area (ha)= .14		
ID= 1 DT= 5.0 min	Total Imp(%)= 86.00	Dir. Conn.(%)= 86.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.12	.02	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	30.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	81.03	58.47	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.37 (ii)	5.08 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.33	.16	
				TOTALS
PEAK FLOW	(cms)=	.03	.00	.030 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	72.37	44.26	68.42
TOTAL RAINFALL	(mm)=	73.37	73.37	73.37
RUNOFF COEFFICIENT	=	.99	.60	.93

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

(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 (0012)	Area (ha)= .07		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.07	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	21.90	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	81.03	409.30	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.12 (ii)	2.34 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.30	
				TOTALS
PEAK FLOW	(cms)=	.02	.00	.016 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	72.37	44.26	72.09
TOTAL RAINFALL	(mm)=	73.37	73.37	73.37
RUNOFF COEFFICIENT	=	.99	.60	.98

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

(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 (0015)	Area (ha)= .04		
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00	

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.04	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	16.30	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	81.03	204.65	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	.94 (ii)	2.16 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.31	
				TOTALS
PEAK FLOW	(cms)=	.01	.00	.009 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	72.37	44.26	68.57
TOTAL RAINFALL	(mm)=	73.37	73.37	73.37

```
     RUNOFF COEFFICIENT   =        .99          .60           .93

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .45          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      54.80        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      81.03       102.33
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.94 (ii)    3.16 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .31          .27
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .10          .00          .101 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      72.37        44.26         72.08
     TOTAL RAINFALL   (mm)=      73.37        73.37         73.37
     RUNOFF COEFFICIENT   =        .99          .60           .98

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

       (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  (0005) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .88          .22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      85.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      81.03        58.47
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.53 (ii)    6.94 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .29          .14
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .20          .03          .228 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      72.37        44.26         66.74
     TOTAL RAINFALL   (mm)=      73.37        73.37         73.37
     RUNOFF COEFFICIENT   =        .99          .60           .91

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

       (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  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .28
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      73.50        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=      81.03        58.47
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       2.31 (ii)   11.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=        .30          .09
                                                    *TOTALS*
     PEAK FLOW       (cms)=        .12          .03           .147 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.08         12.00
     RUNOFF VOLUME    (mm)=      72.37        44.26         62.53
     TOTAL RAINFALL   (mm)=      73.37        73.37         73.37
     RUNOFF COEFFICIENT   =        .99          .60           .85

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

       (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   (0007) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0002):       .19     .043    12.00    71.81
        + ID2= 2 (0003):       .05     .012    12.00    72.09
          ================================================
          ID = 3 (0007):       .24     .055    12.00    71.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0007):       .24     .055    12.00    71.87
        + ID2= 2 (0004):       .14     .030    12.00    68.42
          ================================================
          ID = 3 (0008):       .38     .085    12.00    70.62

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0013) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0008):       .38    .085    12.00    70.62
        + ID2= 2 (0012):       .07    .016    12.00    72.09
          ================================================
          ID = 3 (0013):       .46    .101    12.00    70.85

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0016) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0013):       .46    .101    12.00    70.85
        + ID2= 2 (0015):       .04    .009    12.00    68.57
          ================================================
          ID = 3 (0016):       .50    .110    12.00    70.66

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |    (cms)     (ha.m.)
                          .0000      .0000    |    .1020      .0052
                          .0360      .0007    |    .1080      .0059
                          .0510      .0013    |    .1140      .0066
                          .0620      .0019    |    .1200      .0072
                          .0720      .0025    |    .1250      .0082
                          .0810      .0032    |    .1300      .0087
                          .0880      .0039    |    .1350      .0089
                          .0950      .0046    |    .0000      .0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (0016)       .50       .11     12.00      70.66
     OUTFLOW: ID= 1 (0014)       .50       .09     12.00      70.66

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 78.24
                  TIME SHIFT OF PEAK FLOW         (min)=   .00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  .0041

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

--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0014):       .50    .086    12.00    70.66
        + ID2= 2 (0001):       .45    .101    12.00    72.08
          ================================================
          ID = 3 (0009):       .95    .187    12.00    71.34

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0009):       .95    .187    12.00    71.34
        + ID2= 2 (0005):      1.10    .228    12.00    66.74
          ================================================
          ID = 3 (0010):      2.05    .415    12.00    68.87

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)      (mm)
          ID1= 1 (0010):      2.05    .415    12.00    68.87
        + ID2= 2 (0006):       .81    .147    12.00    62.53
          ================================================
          ID = 3 (0011):      2.86    .561    12.00    67.07

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
|    READ STORM    |    Filename: C:\Users\Frank Fisl\Desktop\QualityInnV
|                  |              O2\QualityInn\design storms\SCS 24-hr\
|                  |              010yr,24hr SCS.stm
| Ptotal= 85.40 mm |    Comments: 10-yr, 24-hr SCS Type II Distribution St
--------------------

                TIME    RAIN |  TIME    RAIN |  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr |   hrs   mm/hr
                 .25     .94 |  6.25    1.54 | 12.25   12.30 | 18.25    1.54
                 .50     .94 |  6.50    1.54 | 12.50   12.30 | 18.50    1.54
                 .75     .94 |  6.75    1.54 | 12.75    6.32 | 18.75    1.54
                1.00     .94 |  7.00    1.54 | 13.00    6.32 | 19.00    1.54
                1.25     .94 |  7.25    1.88 | 13.25    4.61 | 19.25    1.54
                1.50     .94 |  7.50    1.88 | 13.50    4.61 | 19.50    1.54
                1.75     .94 |  7.75    1.88 | 13.75    3.59 | 19.75    1.54
                2.00     .94 |  8.00    1.88 | 14.00    3.59 | 20.00    1.54
                2.25    1.11 |  8.25    2.22 | 14.25    2.56 | 20.25    1.02
                2.50    1.11 |  8.50    2.22 | 14.50    2.56 | 20.50    1.02
                2.75    1.11 |  8.75    2.39 | 14.75    2.56 | 20.75    1.02
                3.00    1.11 |  9.00    2.39 | 15.00    2.56 | 21.00    1.02
                3.25    1.11 |  9.25    2.73 | 15.25    2.56 | 21.25    1.02
                3.50    1.11 |  9.50    2.73 | 15.50    2.56 | 21.50    1.02
                3.75    1.11 |  9.75    3.07 | 15.75    2.56 | 21.75    1.02
                4.00    1.11 | 10.00    3.07 | 16.00    2.56 | 22.00    1.02
                4.25    1.37 | 10.25    3.93 | 16.25    1.54 | 22.25    1.02
                4.50    1.37 | 10.50    3.93 | 16.50    1.54 | 22.50    1.02
                4.75    1.37 | 10.75    5.29 | 16.75    1.54 | 22.75    1.02
                5.00    1.37 | 11.00    5.29 | 17.00    1.54 | 23.00    1.02
                5.25    1.37 | 11.25    8.20 | 17.25    1.54 | 23.25    1.02
                5.50    1.37 | 11.50    8.20 | 17.50    1.54 | 23.50    1.02
                5.75    1.37 | 11.75   35.53 | 17.75    1.54 | 23.75    1.02
                6.00    1.37 | 12.00   94.28 | 18.00    1.54 | 24.00    1.02

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

--------------------
| CALIB            |
| STANDHYD  (0002) |   Area     (ha)=    .19
|ID= 1 DT= 5.0 min |   Total Imp(%)=  98.00   Dir. Conn.(%)=  98.00
--------------------

                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .19           .00
```

Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	.94	6.083	1.54	12.083	12.31	18.08	1.54
.167	.94	6.167	1.54	12.167	12.30	18.17	1.54
.250	.94	6.250	1.54	12.250	12.30	18.25	1.54
.333	.94	6.333	1.54	12.333	12.30	18.33	1.54
.417	.94	6.417	1.54	12.417	12.30	18.42	1.54
.500	.94	6.500	1.54	12.500	12.30	18.50	1.54
.583	.94	6.583	1.54	12.583	6.32	18.58	1.54
.667	.94	6.667	1.54	12.667	6.32	18.67	1.54
.750	.94	6.750	1.54	12.750	6.32	18.75	1.54
.833	.94	6.833	1.54	12.833	6.32	18.83	1.54
.917	.94	6.917	1.54	12.917	6.32	18.92	1.54
1.000	.94	7.000	1.54	13.000	6.32	19.00	1.54
1.083	.94	7.083	1.88	13.083	4.61	19.08	1.54
1.167	.94	7.167	1.88	13.167	4.61	19.17	1.54
1.250	.94	7.250	1.88	13.250	4.61	19.25	1.54
1.333	.94	7.333	1.88	13.333	4.61	19.33	1.54
1.417	.94	7.417	1.88	13.417	4.61	19.42	1.54
1.500	.94	7.500	1.88	13.500	4.61	19.50	1.54
1.583	.94	7.583	1.88	13.583	3.59	19.58	1.54
1.667	.94	7.667	1.88	13.667	3.59	19.67	1.54
1.750	.94	7.750	1.88	13.750	3.59	19.75	1.54
1.833	.94	7.833	1.88	13.833	3.59	19.83	1.54
1.917	.94	7.917	1.88	13.917	3.59	19.92	1.54
2.000	.94	8.000	1.88	14.000	3.59	20.00	1.54
2.083	1.11	8.083	2.22	14.083	2.56	20.08	1.02
2.167	1.11	8.167	2.22	14.167	2.56	20.17	1.02
2.250	1.11	8.250	2.22	14.250	2.56	20.25	1.02
2.333	1.11	8.333	2.22	14.333	2.56	20.33	1.02
2.417	1.11	8.417	2.22	14.417	2.56	20.42	1.02
2.500	1.11	8.500	2.22	14.500	2.56	20.50	1.02
2.583	1.11	8.583	2.39	14.583	2.56	20.58	1.02
2.667	1.11	8.667	2.39	14.667	2.56	20.67	1.02
2.750	1.11	8.750	2.39	14.750	2.56	20.75	1.02
2.833	1.11	8.833	2.39	14.833	2.56	20.83	1.02
2.917	1.11	8.917	2.39	14.917	2.56	20.92	1.02
3.000	1.11	9.000	2.39	15.000	2.56	21.00	1.02
3.083	1.11	9.083	2.73	15.083	2.56	21.08	1.02
3.167	1.11	9.167	2.73	15.167	2.56	21.17	1.02
3.250	1.11	9.250	2.73	15.250	2.56	21.25	1.02
3.333	1.11	9.333	2.73	15.333	2.56	21.33	1.02
3.417	1.11	9.417	2.73	15.417	2.56	21.42	1.02
3.500	1.11	9.500	2.73	15.500	2.56	21.50	1.02
3.583	1.11	9.583	3.07	15.583	2.56	21.58	1.02
3.667	1.11	9.667	3.07	15.667	2.56	21.67	1.02
3.750	1.11	9.750	3.07	15.750	2.56	21.75	1.02
3.833	1.11	9.833	3.07	15.833	2.56	21.83	1.02
3.917	1.11	9.917	3.07	15.917	2.56	21.92	1.02
4.000	1.11	10.000	3.07	16.000	2.56	22.00	1.02
4.083	1.37	10.083	3.93	16.083	1.54	22.08	1.02
4.167	1.37	10.167	3.93	16.167	1.54	22.17	1.02
4.250	1.37	10.250	3.93	16.250	1.54	22.25	1.02
4.333	1.37	10.333	3.93	16.333	1.54	22.33	1.02
4.417	1.37	10.417	3.93	16.417	1.54	22.42	1.02
4.500	1.37	10.500	3.93	16.500	1.54	22.50	1.02
4.583	1.37	10.583	5.29	16.583	1.54	22.58	1.02
4.667	1.37	10.667	5.29	16.667	1.54	22.67	1.02
4.750	1.37	10.750	5.29	16.750	1.54	22.75	1.02
4.833	1.37	10.833	5.29	16.833	1.54	22.83	1.02
4.917	1.37	10.917	5.29	16.917	1.54	22.92	1.02
5.000	1.37	11.000	5.29	17.000	1.54	23.00	1.02
5.083	1.37	11.083	8.20	17.083	1.54	23.08	1.02
5.167	1.37	11.167	8.20	17.167	1.54	23.17	1.02
5.250	1.37	11.250	8.20	17.250	1.54	23.25	1.02
5.333	1.37	11.333	8.20	17.333	1.54	23.33	1.02
5.417	1.37	11.417	8.20	17.417	1.54	23.42	1.02
5.500	1.37	11.500	8.20	17.500	1.54	23.50	1.02
5.583	1.37	11.583	35.53	17.583	1.54	23.58	1.02
5.667	1.37	11.667	35.53	17.667	1.54	23.67	1.02
5.750	1.37	11.750	35.53	17.750	1.54	23.75	1.02
5.833	1.37	11.833	94.27	17.833	1.54	23.83	1.02
5.917	1.37	11.917	94.28	17.917	1.54	23.92	1.02
6.000	1.37	12.000	94.28	18.000	1.54	24.00	1.02

Max.Eff.Inten.	(mm/hr)=	94.28	511.63	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.41 (ii)	2.93 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.33	.28	
				TOTALS
PEAK FLOW	(cms)=	.05	.00	.050 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	84.40	54.68	83.80
TOTAL RAINFALL	(mm)=	85.40	85.40	85.40
RUNOFF COEFFICIENT	=	.99	.64	.98

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

(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 (0003)	Area	(ha)= .05	
ID= 1 DT= 5.0 min	Total Imp	(%)= 99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.05	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	19.10	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.	(mm/hr)=	94.28	511.63	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	.97 (ii)	2.12 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.31	
				TOTALS
PEAK FLOW	(cms)=	.01	.00	.014 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	84.40	54.68	84.10
TOTAL RAINFALL	(mm)=	85.40	85.40	85.40
RUNOFF COEFFICIENT	=	.99	.64	.98

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

(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  (0004) |   Area    (ha)=    .14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .12          .02
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     30.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     94.28        71.78
                over (min)        5.00         5.00
     Storage Coeff.  (min)=     1.29 (ii)    4.78 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .33          .22
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .03          .00        .035 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.00       12.00
     RUNOFF VOLUME    (mm)=    84.40        54.68       80.23
     TOTAL RAINFALL   (mm)=    85.40        85.40       85.40
     RUNOFF COEFFICIENT   =      .99          .64         .94

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

       (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  (0012) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .07          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     21.90        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     94.28       502.47
                over (min)        5.00         5.00
     Storage Coeff.  (min)=     1.05 (ii)    2.20 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .34          .30
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .02          .00        .019 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.00       12.00
     RUNOFF VOLUME    (mm)=    84.40        54.68       84.10
     TOTAL RAINFALL   (mm)=    85.40        85.40       85.40
     RUNOFF COEFFICIENT   =      .99          .64         .98

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

       (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  (0015) |   Area    (ha)=    .04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .04          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     16.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     94.28       251.24
                over (min)        5.00         5.00
     Storage Coeff.  (min)=      .88 (ii)    2.03 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .34          .31
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .01          .00        .010 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.00       12.00
     RUNOFF VOLUME    (mm)=    84.40        54.68       84.10
     TOTAL RAINFALL   (mm)=    85.40        85.40       85.40
     RUNOFF COEFFICIENT   =      .99          .64         .98

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .45          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     54.80        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     94.28       125.62
                over (min)        5.00         5.00
     Storage Coeff.  (min)=     1.82 (ii)    2.97 (ii)
     Unit Hyd. Tpeak (min)=     5.00         5.00
     Unit Hyd. peak  (cms)=      .32          .28
                                                    *TOTALS*
     PEAK FLOW       (cms)=      .12          .00        .118 (iii)
     TIME TO PEAK    (hrs)=    12.00        12.00       12.00
     RUNOFF VOLUME    (mm)=    84.40        54.68       84.09
     TOTAL RAINFALL   (mm)=    85.40        85.40       85.40
     RUNOFF COEFFICIENT   =      .99          .64         .98

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

       (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            |
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| STANDHYD (0005) | Area (ha)= 1.10
|ID= 1 DT= 5.0 min | Total Imp(%)= 80.00 Dir. Conn.(%)= 80.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.88	.22
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	85.60	40.00
Mannings n =	.013	.250
Max.Eff.Inten.(mm/hr)=	94.28	71.78
over (min)	5.00	10.00
Storage Coeff. (min)=	2.38 (ii)	6.53 (ii)
Unit Hyd. Tpeak (min)=	5.00	10.00
Unit Hyd. peak (cms)=	.30	.14

	TOTALS
PEAK FLOW (cms)=	.23 .04 .268 (iii)
TIME TO PEAK (hrs)=	12.00 12.00 12.00
RUNOFF VOLUME (mm)=	84.40 54.68 78.45
TOTAL RAINFALL (mm)=	85.40 85.40 85.40
RUNOFF COEFFICIENT =	.99 .64 .92

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

(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 (0006) | Area (ha)= .81
|ID= 1 DT= 5.0 min | Total Imp(%)= 65.00 Dir. Conn.(%)= 65.00

	IMPERVIOUS	PERVIOUS (i)
Surface Area (ha)=	.53	.28
Dep. Storage (mm)=	1.00	1.50
Average Slope (%)=	1.00	2.00
Length (m)=	73.50	40.00
Mannings n =	.013	.250
Max.Eff.Inten.(mm/hr)=	94.28	71.78
over (min)	5.00	15.00
Storage Coeff. (min)=	2.17 (ii)	10.23 (ii)
Unit Hyd. Tpeak (min)=	5.00	15.00
Unit Hyd. peak (cms)=	.31	.09

	TOTALS
PEAK FLOW (cms)=	.14 .04 .174 (iii)
TIME TO PEAK (hrs)=	12.00 12.08 12.00
RUNOFF VOLUME (mm)=	84.40 54.68 73.99
TOTAL RAINFALL (mm)=	85.40 85.40 85.40
RUNOFF COEFFICIENT =	.99 .64 .87

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

(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 (0007) |
| 1 + 2 = 3 |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0002):	.19	.050	12.00	83.80
+ ID2= 2 (0003):	.05	.014	12.00	84.10
ID = 3 (0007):	.24	.064	12.00	83.87

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0008) |
| 1 + 2 = 3 |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0007):	.24	.064	12.00	83.87
+ ID2= 2 (0004):	.14	.035	12.00	80.23
ID = 3 (0008):	.38	.099	12.00	82.55

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0013) |
| 1 + 2 = 3 |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0008):	.38	.099	12.00	82.55
+ ID2= 2 (0012):	.07	.019	12.00	84.10
ID = 3 (0013):	.46	.118	12.00	82.79

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| ADD HYD (0016) |
| 1 + 2 = 3 |

	AREA	QPEAK	TPEAK	R.V.
	(ha)	(cms)	(hrs)	(mm)
ID1= 1 (0013):	.46	.118	12.00	82.79
+ ID2= 2 (0015):	.04	.010	12.00	84.10
ID = 3 (0016):	.50	.129	12.00	82.90

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT= 5.0 min |

OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
.0000	.0000	.1020	.0052
.0360	.0007	.1080	.0059
.0510	.0013	.1140	.0066
.0620	.0019	.1200	.0072
.0720	.0025	.1250	.0082
.0810	.0032	.1300	.0087
.0880	.0039	.1350	.0089
.0950	.0046	.0000	.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	.50	.13	12.00	82.90
OUTFLOW: ID= 1 (0014)	.50	.10	12.00	82.89

PEAK FLOW REDUCTION [Qout/Qin](%)= 75.07

TIME SHIFT OF PEAK FLOW (min)= .00
MAXIMUM STORAGE USED (ha.m.)= .0052

ADD HYD (0009)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0014):	.50	.096	12.00	82.89
	+ ID2= 2 (0001):	.45	.118	12.00	84.09
	ID = 3 (0009):	.95	.214	12.00	83.46

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0009):	.95	.214	12.00	83.46
	+ ID2= 2 (0005):	1.10	.268	12.00	78.45
	ID = 3 (0010):	2.05	.482	12.00	80.77

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0010):	2.05	.482	12.00	80.77
	+ ID2= 2 (0006):	.81	.174	12.00	73.99
	ID = 3 (0011):	2.86	.656	12.00	78.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV02\QualityInn\design storms\SCS 24-hr\025yr,24hr SCS.stm
Ptotal=100.55 mm	Comments: 25-yr, 24-hr SCS Type II Distribution St

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.11	6.25	1.81	12.25	14.47	18.25	1.81
.50	1.11	6.50	1.81	12.50	14.47	18.50	1.81
.75	1.11	6.75	1.81	12.75	7.44	18.75	1.81
1.00	1.11	7.00	1.81	13.00	7.44	19.00	1.81
1.25	1.11	7.25	2.21	13.25	5.43	19.25	1.81
1.50	1.11	7.50	2.21	13.50	5.43	19.50	1.81
1.75	1.11	7.75	2.21	13.75	4.22	19.75	1.81
2.00	1.11	8.00	2.21	14.00	4.22	20.00	1.81
2.25	1.31	8.25	2.61	14.25	3.02	20.25	1.21
2.50	1.31	8.50	2.61	14.50	3.02	20.50	1.21
2.75	1.31	8.75	2.81	14.75	3.02	20.75	1.21
3.00	1.31	9.00	2.81	15.00	3.02	21.00	1.21
3.25	1.31	9.25	3.22	15.25	3.02	21.25	1.21
3.50	1.31	9.50	3.22	15.50	3.02	21.50	1.21
3.75	1.31	9.75	3.62	15.75	3.02	21.75	1.21
4.00	1.31	10.00	3.62	16.00	3.02	22.00	1.21
4.25	1.61	10.25	4.62	16.25	1.81	22.25	1.21
4.50	1.61	10.50	4.62	16.50	1.81	22.50	1.21
4.75	1.61	10.75	6.23	16.75	1.81	22.75	1.21
5.00	1.61	11.00	6.23	17.00	1.81	23.00	1.21
5.25	1.61	11.25	9.65	17.25	1.81	23.25	1.21
5.50	1.61	11.50	9.65	17.50	1.81	23.50	1.21
5.75	1.61	11.75	41.81	17.75	1.81	23.75	1.21
6.00	1.61	12.00	110.95	18.00	1.81	24.00	1.21

CALIB		
STANDHYD (0002)	Area (ha)=	.19
ID= 1 DT= 5.0 min	Total Imp(%)=	98.00 Dir. Conn.(%)= 98.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.11	6.083	1.81	12.083	14.48	18.08	1.81
.167	1.11	6.167	1.81	12.167	14.47	18.17	1.81
.250	1.11	6.250	1.81	12.250	14.47	18.25	1.81
.333	1.11	6.333	1.81	12.333	14.47	18.33	1.81
.417	1.11	6.417	1.81	12.417	14.47	18.42	1.81
.500	1.11	6.500	1.81	12.500	14.47	18.50	1.81
.583	1.11	6.583	1.81	12.583	7.44	18.58	1.81
.667	1.11	6.667	1.81	12.667	7.44	18.67	1.81
.750	1.11	6.750	1.81	12.750	7.44	18.75	1.81
.833	1.11	6.833	1.81	12.833	7.44	18.83	1.81
.917	1.11	6.917	1.81	12.917	7.44	18.92	1.81
1.000	1.11	7.000	1.81	13.000	7.44	19.00	1.81
1.083	1.11	7.083	2.21	13.083	5.43	19.08	1.81
1.167	1.11	7.167	2.21	13.167	5.43	19.17	1.81
1.250	1.11	7.250	2.21	13.250	5.43	19.25	1.81
1.333	1.11	7.333	2.21	13.333	5.43	19.33	1.81
1.417	1.11	7.417	2.21	13.417	5.43	19.42	1.81
1.500	1.11	7.500	2.21	13.500	5.43	19.50	1.81
1.583	1.11	7.583	2.21	13.583	4.22	19.58	1.81
1.667	1.11	7.667	2.21	13.667	4.22	19.67	1.81
1.750	1.11	7.750	2.21	13.750	4.22	19.75	1.81
1.833	1.11	7.833	2.21	13.833	4.22	19.83	1.81
1.917	1.11	7.917	2.21	13.917	4.22	19.92	1.81
2.000	1.11	8.000	2.21	14.000	4.22	20.00	1.81
2.083	1.31	8.083	2.61	14.083	3.02	20.08	1.21
2.167	1.31	8.167	2.61	14.167	3.02	20.17	1.21
2.250	1.31	8.250	2.61	14.250	3.02	20.25	1.21
2.333	1.31	8.333	2.61	14.333	3.02	20.33	1.21
2.417	1.31	8.417	2.61	14.417	3.02	20.42	1.21
2.500	1.31	8.500	2.61	14.500	3.02	20.50	1.21
2.583	1.31	8.583	2.81	14.583	3.02	20.58	1.21
2.667	1.31	8.667	2.81	14.667	3.02	20.67	1.21
2.750	1.31	8.750	2.81	14.750	3.02	20.75	1.21
2.833	1.31	8.833	2.81	14.833	3.02	20.83	1.21
2.917	1.31	8.917	2.81	14.917	3.02	20.92	1.21

3.000	1.31	9.000	2.81	15.000	3.02	21.00	1.21
3.083	1.31	9.083	3.22	15.083	3.02	21.08	1.21
3.167	1.31	9.167	3.22	15.167	3.02	21.17	1.21
3.250	1.31	9.250	3.22	15.250	3.02	21.25	1.21
3.333	1.31	9.333	3.22	15.333	3.02	21.33	1.21
3.417	1.31	9.417	3.22	15.417	3.02	21.42	1.21
3.500	1.31	9.500	3.22	15.500	3.02	21.50	1.21
3.583	1.31	9.583	3.62	15.583	3.02	21.58	1.21
3.667	1.31	9.667	3.62	15.667	3.02	21.67	1.21
3.750	1.31	9.750	3.62	15.750	3.02	21.75	1.21
3.833	1.31	9.833	3.62	15.833	3.02	21.83	1.21
3.917	1.31	9.917	3.62	15.917	3.02	21.92	1.21
4.000	1.31	10.000	3.62	16.000	3.02	22.00	1.21
4.083	1.61	10.083	4.62	16.083	1.81	22.08	1.21
4.167	1.61	10.167	4.62	16.167	1.81	22.17	1.21
4.250	1.61	10.250	4.62	16.250	1.81	22.25	1.21
4.333	1.61	10.333	4.62	16.333	1.81	22.33	1.21
4.417	1.61	10.417	4.62	16.417	1.81	22.42	1.21
4.500	1.61	10.500	4.62	16.500	1.81	22.50	1.21
4.583	1.61	10.583	6.23	16.583	1.81	22.58	1.21
4.667	1.61	10.667	6.23	16.667	1.81	22.67	1.21
4.750	1.61	10.750	6.23	16.750	1.81	22.75	1.21
4.833	1.61	10.833	6.23	16.833	1.81	22.83	1.21
4.917	1.61	10.917	6.23	16.917	1.81	22.92	1.21
5.000	1.61	11.000	6.23	17.000	1.81	23.00	1.21
5.083	1.61	11.083	9.65	17.083	1.81	23.08	1.21
5.167	1.61	11.167	9.65	17.167	1.81	23.17	1.21
5.250	1.61	11.250	9.65	17.250	1.81	23.25	1.21
5.333	1.61	11.333	9.65	17.333	1.81	23.33	1.21
5.417	1.61	11.417	9.65	17.417	1.81	23.42	1.21
5.500	1.61	11.500	9.65	17.500	1.81	23.50	1.21
5.583	1.61	11.583	41.81	17.583	1.81	23.58	1.21
5.667	1.61	11.667	41.81	17.667	1.81	23.67	1.21
5.750	1.61	11.750	41.81	17.750	1.81	23.75	1.21
5.833	1.61	11.833	110.94	17.833	1.81	23.83	1.21
5.917	1.61	11.917	110.95	17.917	1.81	23.92	1.21
6.000	1.61	12.000	110.95	18.000	1.81	24.00	1.21

Max.Eff.Inten.(mm/hr)=	110.95	628.09	
over (min)	5.00	5.00	
Storage Coeff. (min)=	1.32 (ii)	2.75 (ii)	
Unit Hyd. Tpeak (min)=	5.00	5.00	
Unit Hyd. peak (cms)=	.33	.28	
			TOTALS
PEAK FLOW (cms)=	.06	.00	.058 (iii)
TIME TO PEAK (hrs)=	12.00	12.00	12.00
RUNOFF VOLUME (mm)=	99.55	68.19	98.92
TOTAL RAINFALL (mm)=	100.55	100.55	100.55
RUNOFF COEFFICIENT =	.99	.68	.98

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

(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 (0003)	Area (ha)=	.05	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.05	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	19.10	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		110.95	628.09
over (min)		5.00	5.00
Storage Coeff. (min)=		.91 (ii)	1.98 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		.34	.31
			TOTALS
PEAK FLOW (cms)=		.02	.00 .017 (iii)
TIME TO PEAK (hrs)=		12.00	12.00 12.00
RUNOFF VOLUME (mm)=		99.55	68.19 99.24
TOTAL RAINFALL (mm)=		100.55	100.55 100.55
RUNOFF COEFFICIENT =		.99	.68 .99

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

(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 (0004)	Area (ha)=	.14	
ID= 1 DT= 5.0 min	Total Imp(%)=	86.00	Dir. Conn.(%)= 86.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.12	.02
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	30.60	40.00
Mannings n	=	.013	.250
Max.Eff.Inten.(mm/hr)=		110.95	88.79
over (min)		5.00	5.00
Storage Coeff. (min)=		1.20 (ii)	4.48 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		.33	.23
			TOTALS
PEAK FLOW (cms)=		.04	.00 .042 (iii)
TIME TO PEAK (hrs)=		12.00	12.00 12.00
RUNOFF VOLUME (mm)=		99.55	68.19 95.15
TOTAL RAINFALL (mm)=		100.55	100.55 100.55
RUNOFF COEFFICIENT =		.99	.68 .95

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

(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 (0012)	Area (ha)=	.07	
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.07	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	21.90	40.00
Mannings n	=	.013	.250

```
     Max.Eff.Inten.(mm/hr)=     110.95       621.55
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       .99 (ii)    2.06 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .31
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .022 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         99.24
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .99

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

       (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  (0015) |   Area    (ha)=    .04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .04          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     16.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     110.95       310.77
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       .83 (ii)    1.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .32
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .012 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         99.24
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .99

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .45          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     54.80        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     110.95       155.39
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.71 (ii)    2.79 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .32          .28
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .14          .00          .138 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         99.23
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .99

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

       (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  (0005) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .88          .22
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     85.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     110.95        88.79
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.23 (ii)    6.12 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .30          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .27          .05          .318 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         93.28
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .93

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

       (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  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .53          .28
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     73.50        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=     110.95        88.79
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       2.04 (ii)    9.44 (ii)
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     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .31          .12
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .16          .05          .216 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=      99.55        68.19         88.57
     TOTAL RAINFALL   (mm)=     100.55       100.55        100.55
     RUNOFF COEFFICIENT   =        .99          .68           .88

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

       (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 (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0002):	.19	.058	12.00	98.92
	+ ID2= 2 (0003):	.05	.017	12.00	99.24
	ID = 3 (0007):	.24	.075	12.00	98.99

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0007):	.24	.075	12.00	98.99
	+ ID2= 2 (0004):	.14	.042	12.00	95.15
	ID = 3 (0008):	.38	.117	12.00	97.60

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0013)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0008):	.38	.117	12.00	97.60
	+ ID2= 2 (0012):	.07	.022	12.00	99.24
	ID = 3 (0013):	.46	.139	12.00	97.85

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0013):	.46	.139	12.00	97.85
	+ ID2= 2 (0015):	.04	.012	12.00	99.24
	ID = 3 (0016):	.50	.152	12.00	97.97

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0014)	IN= 2---> OUT= 1	DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
			.0000	.0000	.1020	.0052
			.0360	.0007	.1080	.0059
			.0510	.0013	.1140	.0066
			.0620	.0019	.1200	.0072
			.0720	.0025	.1250	.0082
			.0810	.0032	.1300	.0087
			.0880	.0039	.1350	.0089
			.0950	.0046	.0000	.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	.50	.15	12.00	97.97
OUTFLOW: ID= 1 (0014)	.50	.11	12.00	97.96

PEAK FLOW REDUCTION [Qout/Qin](%)= 72.01
TIME SHIFT OF PEAK FLOW (min)= .00
MAXIMUM STORAGE USED (ha.m.)= .0067

ADD HYD (0009)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0014):	.50	.109	12.00	97.96
	+ ID2= 2 (0001):	.45	.138	12.00	99.23
	ID = 3 (0009):	.95	.248	12.00	98.57

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0009):	.95	.248	12.00	98.57
	+ ID2= 2 (0005):	1.10	.318	12.00	93.28
	ID = 3 (0010):	2.05	.566	12.00	95.72

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0010):	2.05	.566	12.00	95.72
	+ ID2= 2 (0006):	.81	.216	12.00	88.57
	ID = 3 (0011):	2.86	.782	12.00	93.69

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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  ****************************
  ** SIMULATION NUMBER:   5 **
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READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 24-hr\ 050yr,24hr SCS.stm
Ptotal=111.70 mm	Comments: 50-yr, 24-hr SCS Type II Distribution St

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.23	6.25	2.01	12.25	16.08	18.25	2.01
.50	1.23	6.50	2.01	12.50	16.08	18.50	2.01
.75	1.23	6.75	2.01	12.75	8.27	18.75	2.01
1.00	1.23	7.00	2.01	13.00	8.27	19.00	2.01
1.25	1.23	7.25	2.46	13.25	6.03	19.25	2.01
1.50	1.23	7.50	2.46	13.50	6.03	19.50	2.01
1.75	1.23	7.75	2.46	13.75	4.69	19.75	2.01
2.00	1.23	8.00	2.46	14.00	4.69	20.00	2.01
2.25	1.45	8.25	2.90	14.25	3.35	20.25	1.34
2.50	1.45	8.50	2.90	14.50	3.35	20.50	1.34
2.75	1.45	8.75	3.13	14.75	3.35	20.75	1.34
3.00	1.45	9.00	3.13	15.00	3.35	21.00	1.34
3.25	1.45	9.25	3.57	15.25	3.35	21.25	1.34
3.50	1.45	9.50	3.57	15.50	3.35	21.50	1.34
3.75	1.45	9.75	4.02	15.75	3.35	21.75	1.34
4.00	1.45	10.00	4.02	16.00	3.35	22.00	1.34
4.25	1.79	10.25	5.14	16.25	2.01	22.25	1.34
4.50	1.79	10.50	5.14	16.50	2.01	22.50	1.34
4.75	1.79	10.75	6.93	16.75	2.01	22.75	1.34
5.00	1.79	11.00	6.93	17.00	2.01	23.00	1.34
5.25	1.79	11.25	10.72	17.25	2.01	23.25	1.34
5.50	1.79	11.50	10.72	17.50	2.01	23.50	1.34
5.75	1.79	11.75	46.47	17.75	2.01	23.75	1.34
6.00	1.79	12.00	123.32	18.00	2.01	24.00	1.34

CALIB STANDHYD (0002) ID= 1 DT= 5.0 min	Area (ha)= .19 Total Imp(%)= 98.00 Dir. Conn.(%)= 98.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.23	6.083	2.01	12.083	16.09	18.08	2.01
.167	1.23	6.167	2.01	12.167	16.08	18.17	2.01
.250	1.23	6.250	2.01	12.250	16.08	18.25	2.01
.333	1.23	6.333	2.01	12.333	16.08	18.33	2.01
.417	1.23	6.417	2.01	12.417	16.08	18.42	2.01
.500	1.23	6.500	2.01	12.500	16.08	18.50	2.01
.583	1.23	6.583	2.01	12.583	8.27	18.58	2.01
.667	1.23	6.667	2.01	12.667	8.27	18.67	2.01
.750	1.23	6.750	2.01	12.750	8.27	18.75	2.01
.833	1.23	6.833	2.01	12.833	8.27	18.83	2.01
.917	1.23	6.917	2.01	12.917	8.27	18.92	2.01
1.000	1.23	7.000	2.01	13.000	8.27	19.00	2.01
1.083	1.23	7.083	2.46	13.083	6.03	19.08	2.01
1.167	1.23	7.167	2.46	13.167	6.03	19.17	2.01
1.250	1.23	7.250	2.46	13.250	6.03	19.25	2.01
1.333	1.23	7.333	2.46	13.333	6.03	19.33	2.01
1.417	1.23	7.417	2.46	13.417	6.03	19.42	2.01
1.500	1.23	7.500	2.46	13.500	6.03	19.50	2.01
1.583	1.23	7.583	2.46	13.583	4.69	19.58	2.01
1.667	1.23	7.667	2.46	13.667	4.69	19.67	2.01
1.750	1.23	7.750	2.46	13.750	4.69	19.75	2.01
1.833	1.23	7.833	2.46	13.833	4.69	19.83	2.01
1.917	1.23	7.917	2.46	13.917	4.69	19.92	2.01
2.000	1.23	8.000	2.46	14.000	4.69	20.00	2.01
2.083	1.45	8.083	2.90	14.083	3.35	20.08	1.34
2.167	1.45	8.167	2.90	14.167	3.35	20.17	1.34
2.250	1.45	8.250	2.90	14.250	3.35	20.25	1.34
2.333	1.45	8.333	2.90	14.333	3.35	20.33	1.34
2.417	1.45	8.417	2.90	14.417	3.35	20.42	1.34
2.500	1.45	8.500	2.90	14.500	3.35	20.50	1.34
2.583	1.45	8.583	3.13	14.583	3.35	20.58	1.34
2.667	1.45	8.667	3.13	14.667	3.35	20.67	1.34
2.750	1.45	8.750	3.13	14.750	3.35	20.75	1.34
2.833	1.45	8.833	3.13	14.833	3.35	20.83	1.34
2.917	1.45	8.917	3.13	14.917	3.35	20.92	1.34
3.000	1.45	9.000	3.13	15.000	3.35	21.00	1.34
3.083	1.45	9.083	3.57	15.083	3.35	21.08	1.34
3.167	1.45	9.167	3.57	15.167	3.35	21.17	1.34
3.250	1.45	9.250	3.57	15.250	3.35	21.25	1.34
3.333	1.45	9.333	3.57	15.333	3.35	21.33	1.34
3.417	1.45	9.417	3.57	15.417	3.35	21.42	1.34
3.500	1.45	9.500	3.57	15.500	3.35	21.50	1.34
3.583	1.45	9.583	4.02	15.583	3.35	21.58	1.34
3.667	1.45	9.667	4.02	15.667	3.35	21.67	1.34
3.750	1.45	9.750	4.02	15.750	3.35	21.75	1.34
3.833	1.45	9.833	4.02	15.833	3.35	21.83	1.34
3.917	1.45	9.917	4.02	15.917	3.35	21.92	1.34
4.000	1.45	10.000	4.02	16.000	3.35	22.00	1.34
4.083	1.79	10.083	5.14	16.083	2.01	22.08	1.34
4.167	1.79	10.167	5.14	16.167	2.01	22.17	1.34
4.250	1.79	10.250	5.14	16.250	2.01	22.25	1.34
4.333	1.79	10.333	5.14	16.333	2.01	22.33	1.34
4.417	1.79	10.417	5.14	16.417	2.01	22.42	1.34
4.500	1.79	10.500	5.14	16.500	2.01	22.50	1.34
4.583	1.79	10.583	6.93	16.583	2.01	22.58	1.34
4.667	1.79	10.667	6.93	16.667	2.01	22.67	1.34
4.750	1.79	10.750	6.93	16.750	2.01	22.75	1.34
4.833	1.79	10.833	6.93	16.833	2.01	22.83	1.34
4.917	1.79	10.917	6.93	16.917	2.01	22.92	1.34
5.000	1.79	11.000	6.93	17.000	2.01	23.00	1.34
5.083	1.79	11.083	10.72	17.083	2.01	23.08	1.34
5.167	1.79	11.167	10.72	17.167	2.01	23.17	1.34
5.250	1.79	11.250	10.72	17.250	2.01	23.25	1.34
5.333	1.79	11.333	10.72	17.333	2.01	23.33	1.34
5.417	1.79	11.417	10.72	17.417	2.01	23.42	1.34
5.500	1.79	11.500	10.72	17.500	2.01	23.50	1.34
5.583	1.79	11.583	46.47	17.583	2.01	23.58	1.34
5.667	1.79	11.667	46.47	17.667	2.01	23.67	1.34
5.750	1.79	11.750	46.47	17.750	2.01	23.75	1.34
5.833	1.79	11.833	123.31	17.833	2.01	23.83	1.34
5.917	1.79	11.917	123.32	17.917	2.01	23.92	1.34
6.000	1.79	12.000	123.32	18.000	2.01	24.00	1.34

Max.Eff.Inten.	(mm/hr)=	123.32	776.93	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.26 (ii)	2.63 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.33	.29	
				TOTALS
PEAK FLOW	(cms)=	.06	.00	.065 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00

```
     RUNOFF VOLUME    (mm)=     110.70        78.34         110.05
     TOTAL RAINFALL   (mm)=     111.70       111.70         111.70
     RUNOFF COEFFICIENT   =        .99          .70            .99

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

       (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  (0003) |   Area    (ha)=    .05
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .05          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      19.10        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     123.32       776.93
               over (min)        5.00         5.00
     Storage Coeff.  (min)=        .87 (ii)    1.90 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .32
                                                     *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .019 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.70        78.33         110.37
     TOTAL RAINFALL   (mm)=     111.70       111.70         111.70
     RUNOFF COEFFICIENT   =        .99          .70            .99

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

       (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  (0004) |   Area    (ha)=    .14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .12          .02
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      30.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     123.32       101.52
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.15 (ii)    4.29 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .23
                                                     *TOTALS*
     PEAK FLOW       (cms)=        .04          .01          .047 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.70        78.34         106.16
     TOTAL RAINFALL   (mm)=     111.70       111.70         111.70
     RUNOFF COEFFICIENT   =        .99          .70            .95

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

       (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  (0012) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .07          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      21.90        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     123.32       710.66
               over (min)        5.00         5.00
     Storage Coeff.  (min)=        .94 (ii)    1.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .31
                                                     *TOTALS*
     PEAK FLOW       (cms)=        .02          .00          .025 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.70        78.33         110.37
     TOTAL RAINFALL   (mm)=     111.70       111.70         111.70
     RUNOFF COEFFICIENT   =        .99          .70            .99

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

       (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  (0015) |   Area    (ha)=    .04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                            IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .04          .00
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      16.30        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     123.32       355.33
               over (min)        5.00         5.00
     Storage Coeff.  (min)=        .79 (ii)    1.82 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=        .34          .32
                                                     *TOTALS*
     PEAK FLOW       (cms)=        .01          .00          .014 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     110.70        78.33         110.37
     TOTAL RAINFALL   (mm)=     111.70       111.70         111.70
     RUNOFF COEFFICIENT   =        .99          .70            .99
```

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

(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 (0001)	Area (ha)= .45			
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00	Dir. Conn.(%)= 99.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.45	.00	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	54.80	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	123.32	177.66	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.64 (ii)	2.67 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.32	.29	
				TOTALS
PEAK FLOW	(cms)=	.15	.00	.154 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	110.70	78.34	110.37
TOTAL RAINFALL	(mm)=	111.70	111.70	111.70
RUNOFF COEFFICIENT	=	.99	.70	.99

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

(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 (0005)	Area (ha)= 1.10			
ID= 1 DT= 5.0 min	Total Imp(%)= 80.00	Dir. Conn.(%)= 80.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.88	.22	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	85.60	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	123.32	101.52	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	2.14 (ii)	5.87 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.31	.15	
				TOTALS
PEAK FLOW	(cms)=	.30	.05	.356 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	110.70	78.33	104.22
TOTAL RAINFALL	(mm)=	111.70	111.70	111.70
RUNOFF COEFFICIENT	=	.99	.70	.93

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

(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 (0006)	Area (ha)= .81			
ID= 1 DT= 5.0 min	Total Imp(%)= 65.00	Dir. Conn.(%)= 65.00		

		IMPERVIOUS	PERVIOUS (i)	
Surface Area	(ha)=	.53	.28	
Dep. Storage	(mm)=	1.00	1.50	
Average Slope	(%)=	1.00	2.00	
Length	(m)=	73.50	40.00	
Mannings n	=	.013	.250	
Max.Eff.Inten.	(mm/hr)=	123.32	101.52	
over	(min)	5.00	10.00	
Storage Coeff.	(min)=	1.95 (ii)	8.97 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	10.00	
Unit Hyd. peak	(cms)=	.31	.12	
				TOTALS
PEAK FLOW	(cms)=	.18	.06	.243 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	110.70	78.33	99.36
TOTAL RAINFALL	(mm)=	111.70	111.70	111.70
RUNOFF COEFFICIENT	=	.99	.70	.89

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

(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 (0007)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0002):	.19	.065	12.00	110.05
	+ ID2= 2 (0003):	.05	.019	12.00	110.37
	ID = 3 (0007):	.24	.084	12.00	110.12

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0008)		AREA	QPEAK	TPEAK	R.V.
1 + 2 = 3		(ha)	(cms)	(hrs)	(mm)
	ID1= 1 (0007):	.24	.084	12.00	110.12
	+ ID2= 2 (0004):	.14	.047	12.00	106.16
	ID = 3 (0008):	.38	.130	12.00	108.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0013)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0008):	.38	.130	12.00	108.68
+ ID2= 2 (0012):	.07	.025	12.00	110.37
ID = 3 (0013):	.46	.155	12.00	108.95

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0016)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0013):	.46	.155	12.00	108.95
+ ID2= 2 (0015):	.04	.014	12.00	110.37
ID = 3 (0016):	.50	.169	12.00	109.06

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

RESERVOIR (0014)				
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	.0000	.0000	.1020	.0052
	.0360	.0007	.1080	.0059
	.0510	.0013	.1140	.0066
	.0620	.0019	.1200	.0072
	.0720	.0025	.1250	.0082
	.0810	.0032	.1300	.0087
	.0880	.0039	.1350	.0089
	.0950	.0046	.0000	.0000

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0016)	.50	.17	12.00	109.06
OUTFLOW: ID= 1 (0014)	.50	.12	12.00	109.06

PEAK FLOW REDUCTION [Qout/Qin](%)= 70.09
TIME SHIFT OF PEAK FLOW (min)= .00
MAXIMUM STORAGE USED (ha.m.)= .0078

ADD HYD (0009)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0014):	.50	.118	12.00	109.06
+ ID2= 2 (0001):	.45	.154	12.00	110.37
ID = 3 (0009):	.95	.272	12.00	109.68

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0010)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0009):	.95	.272	12.00	109.68
+ ID2= 2 (0005):	1.10	.356	12.00	104.22
ID = 3 (0010):	2.05	.628	12.00	106.75

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

ADD HYD (0011)					
1 + 2 = 3	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
ID1= 1 (0010):	2.05	.628	12.00	106.75
+ ID2= 2 (0006):	.81	.243	12.00	99.36
ID = 3 (0011):	2.86	.871	12.00	104.65

NOTE: PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

READ STORM	Filename: C:\Users\Frank Fisl\Desktop\QualityInnV O2\QualityInn\design storms\SCS 24-hr\ 100yr,24hr SCS.stm
Ptotal=122.88 mm	Comments: 100-yr, 24-hr SCS Type II Distribution S

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.25	1.35	6.25	2.21	12.25	17.70	18.25	2.21
.50	1.35	6.50	2.21	12.50	17.70	18.50	2.21
.75	1.35	6.75	2.21	12.75	9.09	18.75	2.21
1.00	1.35	7.00	2.21	13.00	9.09	19.00	2.21
1.25	1.35	7.25	2.70	13.25	6.64	19.25	2.21
1.50	1.35	7.50	2.70	13.50	6.64	19.50	2.21
1.75	1.35	7.75	2.70	13.75	5.16	19.75	2.21
2.00	1.35	8.00	2.70	14.00	5.16	20.00	2.21
2.25	1.60	8.25	3.20	14.25	3.69	20.25	1.47
2.50	1.60	8.50	3.20	14.50	3.69	20.50	1.47
2.75	1.60	8.75	3.44	14.75	3.69	20.75	1.47
3.00	1.60	9.00	3.44	15.00	3.69	21.00	1.47
3.25	1.60	9.25	3.93	15.25	3.69	21.25	1.47
3.50	1.60	9.50	3.93	15.50	3.69	21.50	1.47
3.75	1.60	9.75	4.42	15.75	3.69	21.75	1.47
4.00	1.60	10.00	4.42	16.00	3.69	22.00	1.47
4.25	1.97	10.25	5.65	16.25	2.21	22.25	1.47
4.50	1.97	10.50	5.65	16.50	2.21	22.50	1.47
4.75	1.97	10.75	7.62	16.75	2.21	22.75	1.47
5.00	1.97	11.00	7.62	17.00	2.21	23.00	1.47
5.25	1.97	11.25	11.80	17.25	2.21	23.25	1.47
5.50	1.97	11.50	11.80	17.50	2.21	23.50	1.47
5.75	1.97	11.75	51.13	17.75	2.21	23.75	1.47
6.00	1.97	12.00	135.68	18.00	2.21	24.00	1.47

CALIB		
STANDHYD (0002)	Area (ha)= .19	
ID= 1 DT= 5.0 min	Total Imp(%)= 98.00	Dir. Conn.(%)= 98.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.19	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00

Length	(m)=	35.60	40.00
Mannings n	=	.013	.250

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

---- TRANSFORMED HYETOGRAPH ----

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
.083	1.35	6.083	2.21	12.083	17.71	18.08	2.21
.167	1.35	6.167	2.21	12.167	17.70	18.17	2.21
.250	1.35	6.250	2.21	12.250	17.70	18.25	2.21
.333	1.35	6.333	2.21	12.333	17.70	18.33	2.21
.417	1.35	6.417	2.21	12.417	17.70	18.42	2.21
.500	1.35	6.500	2.21	12.500	17.70	18.50	2.21
.583	1.35	6.583	2.21	12.583	9.09	18.58	2.21
.667	1.35	6.667	2.21	12.667	9.09	18.67	2.21
.750	1.35	6.750	2.21	12.750	9.09	18.75	2.21
.833	1.35	6.833	2.21	12.833	9.09	18.83	2.21
.917	1.35	6.917	2.21	12.917	9.09	18.92	2.21
1.000	1.35	7.000	2.21	13.000	9.09	19.00	2.21
1.083	1.35	7.083	2.70	13.083	6.64	19.08	2.21
1.167	1.35	7.167	2.70	13.167	6.64	19.17	2.21
1.250	1.35	7.250	2.70	13.250	6.64	19.25	2.21
1.333	1.35	7.333	2.70	13.333	6.64	19.33	2.21
1.417	1.35	7.417	2.70	13.417	6.64	19.42	2.21
1.500	1.35	7.500	2.70	13.500	6.64	19.50	2.21
1.583	1.35	7.583	2.70	13.583	5.16	19.58	2.21
1.667	1.35	7.667	2.70	13.667	5.16	19.67	2.21
1.750	1.35	7.750	2.70	13.750	5.16	19.75	2.21
1.833	1.35	7.833	2.70	13.833	5.16	19.83	2.21
1.917	1.35	7.917	2.70	13.917	5.16	19.92	2.21
2.000	1.35	8.000	2.70	14.000	5.16	20.00	2.21
2.083	1.60	8.083	3.20	14.083	3.69	20.08	1.47
2.167	1.60	8.167	3.20	14.167	3.69	20.17	1.47
2.250	1.60	8.250	3.20	14.250	3.69	20.25	1.47
2.333	1.60	8.333	3.20	14.333	3.69	20.33	1.47
2.417	1.60	8.417	3.20	14.417	3.69	20.42	1.47
2.500	1.60	8.500	3.20	14.500	3.69	20.50	1.47
2.583	1.60	8.583	3.44	14.583	3.69	20.58	1.47
2.667	1.60	8.667	3.44	14.667	3.69	20.67	1.47
2.750	1.60	8.750	3.44	14.750	3.69	20.75	1.47
2.833	1.60	8.833	3.44	14.833	3.69	20.83	1.47
2.917	1.60	8.917	3.44	14.917	3.69	20.92	1.47
3.000	1.60	9.000	3.44	15.000	3.69	21.00	1.47
3.083	1.60	9.083	3.93	15.083	3.69	21.08	1.47
3.167	1.60	9.167	3.93	15.167	3.69	21.17	1.47
3.250	1.60	9.250	3.93	15.250	3.69	21.25	1.47
3.333	1.60	9.333	3.93	15.333	3.69	21.33	1.47
3.417	1.60	9.417	3.93	15.417	3.69	21.42	1.47
3.500	1.60	9.500	3.93	15.500	3.69	21.50	1.47
3.583	1.60	9.583	4.42	15.583	3.69	21.58	1.47
3.667	1.60	9.667	4.42	15.667	3.69	21.67	1.47
3.750	1.60	9.750	4.42	15.750	3.69	21.75	1.47
3.833	1.60	9.833	4.42	15.833	3.69	21.83	1.47
3.917	1.60	9.917	4.42	15.917	3.69	21.92	1.47
4.000	1.60	10.000	4.42	16.000	3.69	22.00	1.47
4.083	1.97	10.083	5.65	16.083	2.21	22.08	1.47
4.167	1.97	10.167	5.65	16.167	2.21	22.17	1.47
4.250	1.97	10.250	5.65	16.250	2.21	22.25	1.47
4.333	1.97	10.333	5.65	16.333	2.21	22.33	1.47
4.417	1.97	10.417	5.65	16.417	2.21	22.42	1.47
4.500	1.97	10.500	5.65	16.500	2.21	22.50	1.47
4.583	1.97	10.583	7.62	16.583	2.21	22.58	1.47
4.667	1.97	10.667	7.62	16.667	2.21	22.67	1.47
4.750	1.97	10.750	7.62	16.750	2.21	22.75	1.47
4.833	1.97	10.833	7.62	16.833	2.21	22.83	1.47
4.917	1.97	10.917	7.62	16.917	2.21	22.92	1.47
5.000	1.97	11.000	7.62	17.000	2.21	23.00	1.47
5.083	1.97	11.083	11.80	17.083	2.21	23.08	1.47
5.167	1.97	11.167	11.80	17.167	2.21	23.17	1.47
5.250	1.97	11.250	11.80	17.250	2.21	23.25	1.47
5.333	1.97	11.333	11.80	17.333	2.21	23.33	1.47
5.417	1.97	11.417	11.80	17.417	2.21	23.42	1.47
5.500	1.97	11.500	11.80	17.500	2.21	23.50	1.47
5.583	1.97	11.583	51.13	17.583	2.21	23.58	1.47
5.667	1.97	11.667	51.13	17.667	2.21	23.67	1.47
5.750	1.97	11.750	51.13	17.750	2.21	23.75	1.47
5.833	1.97	11.833	135.67	17.833	2.21	23.83	1.47
5.917	1.97	11.917	135.68	17.917	2.21	23.92	1.47
6.000	1.97	12.000	135.68	18.000	2.21	24.00	1.47

Max.Eff.Inten.	(mm/hr)=	135.68	888.32	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	1.22 (ii)	2.53 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.33	.29	
				TOTALS
PEAK FLOW	(cms)=	.07	.00	.071 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	121.88	88.64	121.21
TOTAL RAINFALL	(mm)=	122.88	122.88	122.88
RUNOFF COEFFICIENT	=	.99	.72	.99

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

(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 (0003)	Area	(ha)= .05	
ID= 1 DT= 5.0 min	Total Imp	(%)= 99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	.05	.00
Dep. Storage	(mm)=	1.00	1.50
Average Slope	(%)=	1.00	2.00
Length	(m)=	19.10	40.00
Mannings n	=	.013	.250

Max.Eff.Inten.	(mm/hr)=	135.68	888.32	
over	(min)	5.00	5.00	
Storage Coeff.	(min)=	.84 (ii)	1.83 (ii)	
Unit Hyd. Tpeak	(min)=	5.00	5.00	
Unit Hyd. peak	(cms)=	.34	.32	
				TOTALS
PEAK FLOW	(cms)=	.02	.00	.021 (iii)
TIME TO PEAK	(hrs)=	12.00	12.00	12.00
RUNOFF VOLUME	(mm)=	121.88	88.64	121.54
TOTAL RAINFALL	(mm)=	122.88	122.88	122.88
RUNOFF COEFFICIENT	=	.99	.72	.99

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

(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  (0004) |   Area    (ha)=    .14
|ID= 1 DT= 5.0 min |   Total Imp(%)=  86.00   Dir. Conn.(%)=  86.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .12          .02
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     30.60        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68       114.31
                 over (min)       5.00         5.00
     Storage Coeff.  (min)=      1.11 (ii)    4.13 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .34          .24
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .05          .01       .052 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00      12.00
     RUNOFF VOLUME    (mm)=    121.88        88.64     117.22
     TOTAL RAINFALL   (mm)=    122.88       122.88     122.88
     RUNOFF COEFFICIENT   =       .99          .72        .95

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

       (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  (0012) |   Area    (ha)=    .07
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .07          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     21.90        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68       800.14
                 over (min)       5.00         5.00
     Storage Coeff.  (min)=       .91 (ii)    1.90 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .34          .32
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .03          .00       .027 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00      12.00
     RUNOFF VOLUME    (mm)=    121.88        88.64     121.54
     TOTAL RAINFALL   (mm)=    122.88       122.88     122.88
     RUNOFF COEFFICIENT   =       .99          .72        .99

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

       (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            |
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| STANDHYD  (0015) |   Area    (ha)=    .04
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .04          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     16.30        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68       400.07
                 over (min)       5.00         5.00
     Storage Coeff.  (min)=       .76 (ii)    1.76 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .34          .32
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .01          .00       .015 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00      12.00
     RUNOFF VOLUME    (mm)=    121.88        88.64     121.55
     TOTAL RAINFALL   (mm)=    122.88       122.88     122.88
     RUNOFF COEFFICIENT   =       .99          .72        .99

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

       (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  (0001) |   Area    (ha)=    .45
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       .45          .00
     Dep. Storage     (mm)=      1.00         1.50
     Average Slope     (%)=      1.00         2.00
     Length            (m)=     54.80        40.00
     Mannings n           =      .013         .250

     Max.Eff.Inten.(mm/hr)=    135.68       200.04
                 over (min)       5.00         5.00
     Storage Coeff.  (min)=      1.58 (ii)    2.57 (ii)
     Unit Hyd. Tpeak (min)=      5.00         5.00
     Unit Hyd. peak  (cms)=       .33          .29
                                                    *TOTALS*
     PEAK FLOW       (cms)=       .17          .00       .169 (iii)
     TIME TO PEAK    (hrs)=     12.00        12.00      12.00
     RUNOFF VOLUME    (mm)=    121.88        88.64     121.54
     TOTAL RAINFALL   (mm)=    122.88       122.88     122.88
     RUNOFF COEFFICIENT   =       .99          .72        .99

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

       (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  (0005) |   Area    (ha)=   1.10
|ID= 1 DT= 5.0 min |   Total Imp(%)=  80.00   Dir. Conn.(%)=  80.00
```

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--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .88          .22
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      85.60        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     135.68       114.31
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       2.06 (ii)    5.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .31          .15
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .33          .06          .394 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     121.88        88.64        115.23
     TOTAL RAINFALL   (mm)=     122.88       122.88        122.88
     RUNOFF COEFFICIENT   =        .99          .72           .94

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

       (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  (0006) |   Area    (ha)=    .81
|ID= 1 DT= 5.0 min |   Total Imp(%)=  65.00   Dir. Conn.(%)=  65.00
--------------------
                              IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        .53          .28
     Dep. Storage     (mm)=       1.00         1.50
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      73.50        40.00
     Mannings n           =       .013         .250

     Max.Eff.Inten.(mm/hr)=     135.68       114.31
               over (min)         5.00        10.00
     Storage Coeff.  (min)=       1.88 (ii)    6.76 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=        .32          .14
                                                      *TOTALS*
     PEAK FLOW       (cms)=        .20          .08          .275 (iii)
     TIME TO PEAK    (hrs)=      12.00        12.00         12.00
     RUNOFF VOLUME    (mm)=     121.88        88.64        110.24
     TOTAL RAINFALL   (mm)=     122.88       122.88        122.88
     RUNOFF COEFFICIENT   =        .99          .72           .90

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

       (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   (0007) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0002):      .19    .071    12.00   121.21
        + ID2= 2 (0003):      .05    .021    12.00   121.54
          ================================================
          ID = 3 (0007):      .24    .092    12.00   121.29

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0008) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0007):      .24    .092    12.00   121.29
        + ID2= 2 (0004):      .14    .052    12.00   117.22
          ================================================
          ID = 3 (0008):      .38    .144    12.00   119.81

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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--------------------
| ADD HYD   (0013) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0008):      .38    .144    12.00   119.81
        + ID2= 2 (0012):      .07    .027    12.00   121.54
          ================================================
          ID = 3 (0013):      .46    .171    12.00   120.08

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0016) |
|   1 +  2 =  3    |         AREA    QPEAK    TPEAK     R.V.
--------------------         (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0013):      .46    .171    12.00   120.08
        + ID2= 2 (0015):      .04    .015    12.00   121.55
          ================================================
          ID = 3 (0016):      .50    .186    12.00   120.20

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

--------------------------------------------------------------------------------
--------------------
| RESERVOIR (0014) |
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          .0000      .0000    |    .1020      .0052
                          .0360      .0007    |    .1080      .0059
                          .0510      .0013    |    .1140      .0066
                          .0620      .0019    |    .1200      .0072
                          .0720      .0025    |    .1250      .0082
                          .0810      .0032    |    .1300      .0087
                          .0880      .0039    |    .1350      .0089
                          .0950      .0046    |    .0000      .0000

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
     INFLOW : ID= 2 (0016)      .50       .19     12.00     120.20
     OUTFLOW: ID= 1 (0014)      .50       .12     12.00     120.20

               PEAK   FLOW   REDUCTION [Qout/Qin](%)= 67.10
               TIME SHIFT OF PEAK FLOW          (min)=   .00
               MAXIMUM  STORAGE   USED       (ha.m.)=  .0090
```

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

--------------------
| ADD HYD   (0009) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0014):       .50    .125    12.00   120.20
        + ID2= 2 (0001):       .45    .169    12.00   121.54
          ================================================
          ID = 3 (0009):       .95    .294    12.00   120.83

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0010) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0009):       .95    .294    12.00   120.83
        + ID2= 2 (0005):      1.10    .394    12.00   115.23
          ================================================
          ID = 3 (0010):      2.05    .688    12.00   117.82

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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

--------------------
| ADD HYD   (0011) |
|   1 +  2 =  3    |          AREA    QPEAK    TPEAK     R.V.
--------------------          (ha)    (cms)    (hrs)     (mm)
          ID1= 1 (0010):      2.05    .688    12.00   117.82
        + ID2= 2 (0006):       .81    .275    12.00   110.24
          ================================================
          ID = 3 (0011):      2.86    .963    12.00   115.67

     NOTE:  PEAK FLOWS DO NOT INCLUDE BASEFLOWS IF ANY.

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 FINISH
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Appendix I – Storage-Discharge Relationship Calculations

STAGE - STORAGE - DISCHARGE CALCULATIONS

Volume of a partially filled cylinder

volume =

$$L\left(R^2\cos^{-1}\left(\frac{R-D}{R}\right)-(R-D)\sqrt{2RD-D^2}\right)$$

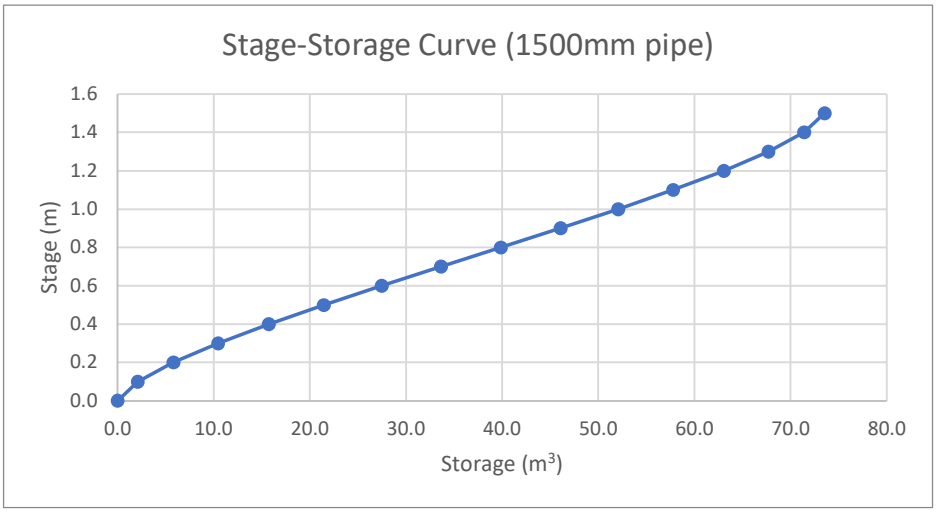
where:
R is the **radius** of the cylinder.
D is the depth.
L is the length of the cylinder

Notes:

- The result of the $\cos^{-1}$ function in the formula is in radians.
- The formula uses the radius of the cylinder. This is half its diameter.
- All inputs must be in the same units. The result will be in those cubic units. So for example if the inputs are in inches, the result will be in cubic inches. If necessary the result must be converted to liquid volume units such as gallons.

Pipe diameter	1500 mm
Pipe radius, R	0.75 m
Length, L	41.6 m

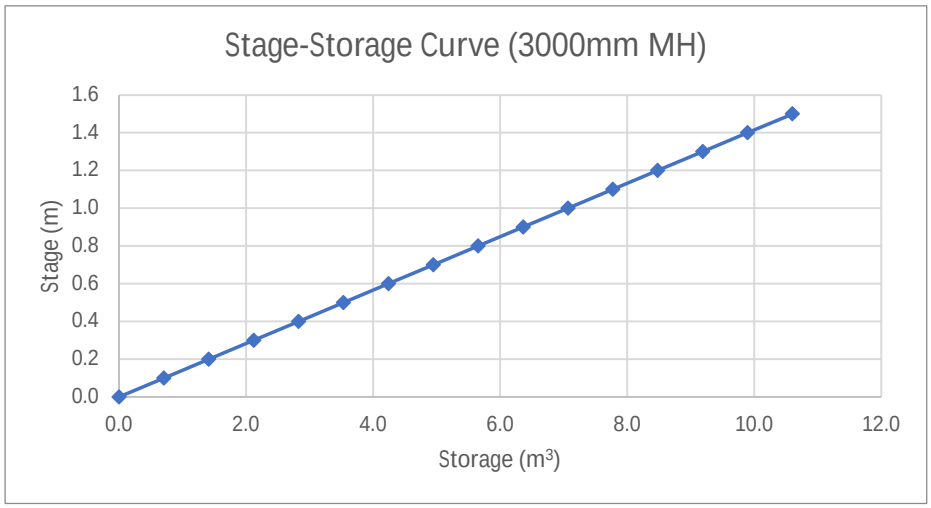
Depth, D (m)	Volume (m^3)
0.0	0.0
0.1	2.1
0.2	5.8
0.3	10.5
0.4	15.7
0.5	21.5
0.6	27.5
0.7	33.6
0.8	39.9
0.9	46.1
1.0	52.1
1.1	57.8
1.2	63.0
1.3	67.7
1.4	71.4
1.5	73.5



Volume of Partially Filled Manhole

Manhole diameter 3000 mm
Manhole radius 1.5 m

Depth (m)	Volume (m^3)
0.0	0.0
0.1	0.7
0.2	1.4
0.3	2.1
0.4	2.8
0.5	3.5
0.6	4.2
0.7	4.9
0.8	5.7
0.9	6.4
1.0	7.1
1.1	7.8
1.2	8.5
1.3	9.2
1.4	9.9
1.5	10.6



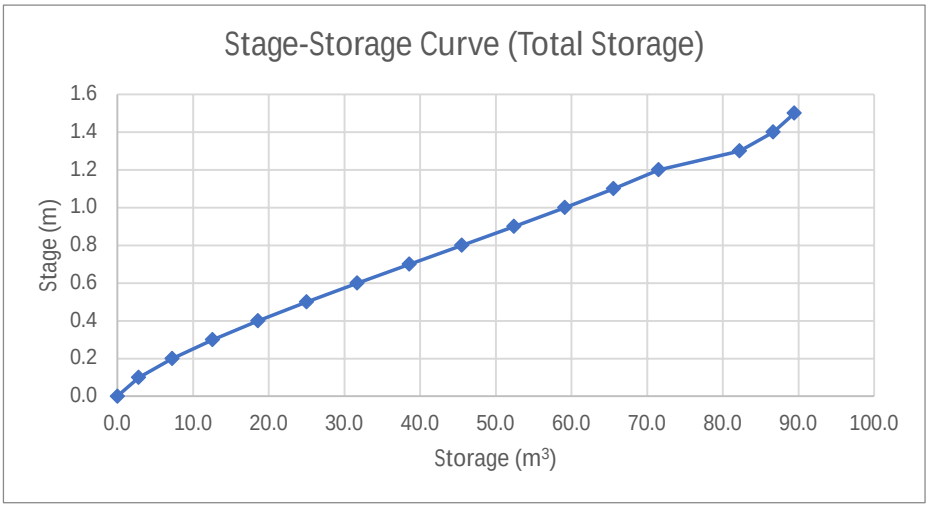
Pipe Storage

dia.	length	volume
300	11.6	0.8
300	64	4.5
Total		5.3

Pipe storage starts at storage depth of 1.2m (estimated based on inverts at MH#5)

Total Stage-Storage Curve

Depth (m)	Volume (m^3)
0.0	0.0
0.1	2.8
0.2	7.2
0.3	12.6
0.4	18.6
0.5	25.0
0.6	31.7
0.7	38.6
0.8	45.5
0.9	52.4
1.0	59.1
1.1	65.6
1.2	71.5
1.3	82.2
1.4	86.6
1.5	89.5



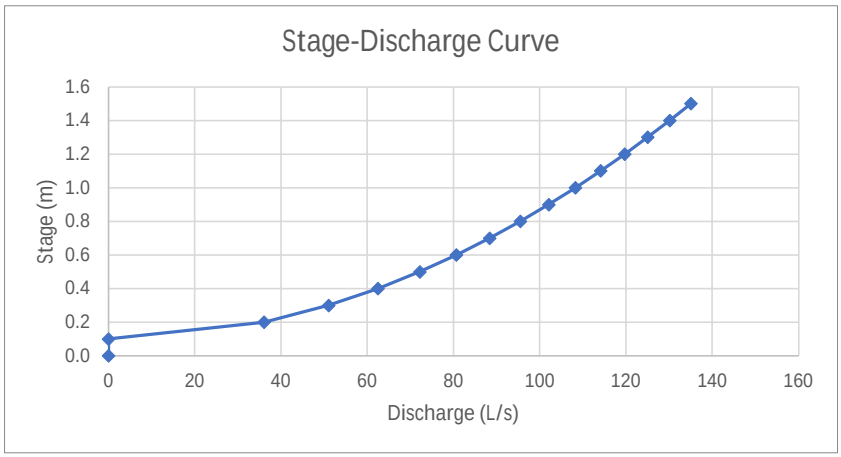
Stage-Discharge Curve

Orifice Equation $Q = C_d A (2gh)^{1/2}$

(Vertical Orifice)

Orifice diameter =	200	mm	
Area =	0.031	m^2	
g =	9.81	m/s^2	
C_d =	0.82		(tube)
Orifice invert =	0.00	m	(arbitrary)

Depth (m)	Head (m)	Q (L/s)
0.0	0.00	0
0.1	0.00	0
0.2	0.10	36
0.3	0.20	51
0.4	0.30	62
0.5	0.40	72
0.6	0.50	81
0.7	0.60	88
0.8	0.70	95
0.9	0.80	102
1.0	0.90	108
1.1	1.00	114
1.2	1.10	120
1.3	1.20	125
1.4	1.30	130
1.5	1.40	135



Storage-Discharge Curve

Depth (m)	Volume (m^3)	Q (L/s)
0.0	0	0
0.1	3	0
0.2	7	36
0.3	13	51
0.4	19	62
0.5	25	72
0.6	32	81
0.7	39	88
0.8	46	95
0.9	52	102
1.0	59	108
1.1	66	114
1.2	72	120
1.3	82	125
1.4	87	130
1.5	89	135

Q (m^3/s)	olume (ha m)
0.000	0.0000
0.000	0.0003
0.036	0.0007
0.051	0.0013
0.062	0.0019
0.072	0.0025
0.081	0.0032
0.088	0.0039
0.095	0.0046
0.102	0.0052
0.108	0.0059
0.114	0.0066
0.120	0.0072
0.125	0.0082
0.130	0.0087
0.135	0.0089