GEI Consultants

Stormwater Management Design Report

14 Station Road
Town of Caledon (Bolton)

Submitted by:
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Certification

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1. Introduction

This revised report documents the proposed servicing and stormwater management system design for the proposed development at 14 Station Road in Town of Caledon (Bolton), and addresses comments received from the Town of Caledon (dated June 25, 2024).

The Owner is required to have a Professional Engineer design a stormwater management system and have said Engineer supervise and certify that the stormwater management system was installed in accordance with the approvals given under Section 41 of the Planning Act.

The topographic survey of the site was completed by Schaeffer Dzaldov Bennett LTD. (dated November 8, 2023). The site layout was prepared by Alexander Budrevics and Associates Limited. (Dated January 16, 2026).

2. Site Information

The site is located at 14 Station Road in the Town of Caledon (Bolton). The site is bound by existing residential development to the north, landscaped area to the east, Station Road to the south and an existing retirement residence to the west.

Under existing conditions, the site is generally characterized by steep topography, with an approximate 3:1 slope extending from the central portion of the development site toward both the north and south. Surface runoff from the site follows this slope, draining toward the existing residential development and Station Road.

At this time, the intent of the Owner is to construct proposed parking and driveway access connected with Station Road.

3. Stormwater Management Design

3.1. Stormwater Management Criteria

The stormwater management criteria for the site are as follows:

1. Post-development flows from the site are to be attenuated to the allowable release rates provided in the Stormwater Management Design Brief for 232 and 240 King Street West (Stantec, May 5, 2016).
2. Enhanced (80% TSS removal) quality control treatment is required for runoff generated by the site.
3. The first 5 mm of rainfall through an entire development area is retained.

The Town of Caledon Storm parameters and the total depth of rainfall used for the full range of design storms are as follows:

Table 1. IDF Curve Parameters (Chicago Rainfall Distribution)

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
a =	1,070	1,593	2,221	3,158	3,886	4,688
b =	7.85	11.00	12.00	15.00	16.00	17.00
c =	0.8759	0.8789	0.908	0.9335	0.9495	0.9624
r =	0.400	0.400	0.400	0.400	0.400	0.400
Duration (minutes) =	180	180	180	180	180	180
Rainfall Depth (mm) =	32.725	47.265	56.290	68.990	77.647	87.079

The Horton infiltration method was used in the runoff calculations. The parameters used in MIDUSS are as follows:

Table 2. Horton Infiltration Parameters

	Impervious Areas	Pervious Areas
Maximum Infiltration	0.0 mm/hr	75.0 mm/hr
Minimum Infiltration	0.0 mm/hr	12.5 mm/hr
Lag Constant	0.0 hr	0.25 hr
Depression Storage	1.5 mm	5.0 mm

The hydrologic model MIDUSS was used to create runoff hydrographs and to route the flows through the storage structures.

3.2. Existing Condition Drainage Areas

For the existing condition analysis, the area being developed was modelled as four (4) drainage catchments (see Figure No. 1).

Catchment 10 (0.10 hectares, c=0.33) represents the northwesterly portion of the site. As per the Stormwater Management Design Brief for 232 and 240 King Street West (Stantec, May 5, 2016), runoff from Catchment 10 discharges to the existing stormwater management system in the residential development area, via sheetflow overland and the existing off-site storm sewers.

Catchment 20 (0.16 hectares, c=0.33) represents the northeasterly portion of the site. As per the Stormwater Management Design Brief for 232 and 240 King Street West (Stantec, May 5, 2016), runoff from Catchment 20 discharges to the existing stormwater management system located west of the existing retirement residence, via the existing on-site swale and off-site storm sewers.

Catchment 30 (0.24 hectares, c=0.33) represents the middle and southwesterly portions of the site. As per the Stormwater Management Design Brief for 232 and 240 King Street West (Stantec, May 5, 2016), runoff from Catchment 30 discharges to the existing stormwater management system located west of the existing retirement residence, via the existing on-site swale and off-site storm sewers.

Catchment 40 (0.05 hectares, c=0.33) represents a southeasterly portion of the site. Under existing conditions, runoff generated from Catchment 40 discharges to the existing storm sewers within the Station Road right-of-way via sheetflow overland.

The Modified Rational Method was used to calculate the runoff rates from Catchments 10 to 40, and the results are summarized in Table 3. The detailed calculations are appended in Appendix A.

Table 3. Runoff Rates

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Catchment 10	0.008 m^3/s	0.010 m^3/s	0.012 m^3/s	0.014 m^3/s	0.016 m^3/s	0.018 m^3/s
Catchment 20	0.013 m^3/s	0.016 m^3/s	0.020 m^3/s	0.023 m^3/s	0.026 m^3/s	0.029 m^3/s
Catchment 30	0.019 m^3/s	0.024 m^3/s	0.030 m^3/s	0.034 m^3/s	0.039 m^3/s	0.043 m^3/s
Catchment 40	0.004 m^3/s	0.005 m^3/s	0.006 m^3/s	0.007 m^3/s	0.008 m^3/s	0.009 m^3/s
Total	**0.043 m^3/s**	**0.055 m^3/s**	**0.068 m^3/s**	**0.079 m^3/s**	**0.089 m^3/s**	**0.099 m^3/s**

3.3. Allowable Release Rates

As per the Stormwater Management Design Brief for 232 and 240 King Street West, post-development flows are to be attenuated to the allowable release rates to three outlets based on a runoff coefficient of 0.33. The allowable release rates from the site under post-development conditions are as follows:

Table 4. Allowable Release Rate to Existing Residential Development Area (Catchment 10 and 20)

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Allowable Release Rates	0.021 m^3/s	0.026 m^3/s	0.032 m^3/s	0.037 m^3/s	0.042 m^3/s	0.047 m^3/s

Table 5. Allowable Release Rate to Existing Retirement Residence (Catchment 30)

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Allowable Release Rates	0.019 m^3/s	0.024 m^3/s	0.030 m^3/s	0.034 m^3/s	0.039 m^3/s	0.043 m^3/s

Table 6. Allowable Release Rate to Station Road Right-of-Way (Catchment 40)

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Allowable Release Rates	0.004 m^3/s	0.005 m^3/s	0.006 m^3/s	0.007 m^3/s	0.008 m^3/s	0.009 m^3/s

3.4. Post-Development Condition Drainage Areas

For the post-development condition analysis, the area being developed was modelled as four (4) drainage catchments (see Figure No. 2).

Catchment 100 (0.27-hectares, 65% Impervious) represents the westerly proposed parking and landscaped areas. Under post-development conditions, runoff generated from Catchment 100 will be directed to proposed Stormwater Management Facility No. 1 via the proposed on-site storm sewers, prior to discharging to the existing stormwater management system in the residential development area.

Proposed Stormwater Management Facility No. 1 has been designed with Stormtech MC-4500 chambers, providing approximately 129.9 m^3 of storage. Prior to discharging to the existing stormwater management system in the existing residential development area, discharge from Stormwater Management Facility No. 1 is controlled via a proposed 75mm orifice plate installed on the outlet pipe of proposed MH.6.

Catchment 200 (0.05-hectares, 0% Impervious) represents a westerly and easterly portion of the site. Under post-development conditions, runoff generated from Catchment 200 will continue to discharge, uncontrolled, to the existing stormwater management system in the residential development area.

Catchment 300 (0.22-hectares, 75% Impervious) represents the southerly proposed parking and landscaped areas. Under post-development conditions, runoff generated from Catchment 300 will be

directed to proposed Stormwater Management Facility No.2 via the proposed on-site storm sewers, prior to discharging to the existing stormwater management system on the existing retirement residence.

Proposed Stormwater Management Facility No. 2 has been designed with Stormtech MC-4500 chambers, providing approximately 86.5 m^3 of storage. Prior to discharging to the existing stormwater management system on the existing retirement residence, discharge from Stormwater Management Facility No. 2 is controlled via a proposed 60mm diameter orifice plate installed on the inlet pipe of proposed MH.4.

Catchment 400 (0.01-hectares, 0% Impervious) represents a southeasterly portion of the site. Under post-development conditions, runoff generated from Catchment 400 will continue to discharge, uncontrolled, to the existing storm sewers within the Station Road right-of-way.

Based on the Toronto and Region Conservation Authority design criteria, the first 5 mm of rainfall through an entire development area should be retained. Therefore, Catchment 100 and 200 require a storage volume of 16.0 m^3 and Catchment 300 and 400 require a storage volume of 11.5 m^3. Proposed Stormwater Management Facilities No.1 and No.2 have been designed to provide volumes of approximately 18.0 m^3 and 12.1 m^3, respectively, below the inverts of the outlet pipes. Therefore, 5 mm of rainfall retention has been provided by each proposed stormwater management facility. Flows generated which exceed these volumes, will discharge from the proposed outlet pipes.

Based on Table 3.2 of the Stormwater Management Planning and Design Manual (MOE, dated 2003), an imperviousness of 70% from the contributing drainage area requires 35 m^3/ha of storage volume for enhanced water quality in an infiltration facility. Therefore, the proposed stormwater management facilities No.1 and No.2 require 11.2 m^3 and 7.70 m^3 of storage volume respectively to satisfy the enhanced water quality criteria.

Stormwater Management Facilities No.1 and No.2 have been designed with approximately 129.9 m^3 and 86.5 m^3 respectively. Therefore, the proposed stormwater management facilities have the required storage volumes to provide Enhanced (80% TSS removal) water quality control. In addition to the water quality control provided by the stormwater management facilities, CB shields will be provided for each catchbasin or double catchbasin as a pre-treatment and supplement measure.

3.5. Routing

The hydrologic model MIDUSS was used to create the design storm runoff hydrographs and to route the hydrographs. A copy of the final printout of the hydrologic modelling is appended in Appendix A.

Table 7. Catchment 100 - Stage/Storage/Discharge Summary

	Available Capacity			Actual Capacity Used		
	Peak Flow m^3/s	Storage Volume m^3	Storage Elevation m	Peak Flow m^3/s	Storage Volume m^3	Storage Elevation m
Bottom of Stone	0.000	0.0	239.93	---	---	---
Bottom of Chambers	0.000	9.5	240.16	---	---	---
Invert of Outlet Pipe	0.000	18.0	240.26			
2-Year	---	---	---	0.011	27.9	240.38
5-Year	---	---	---	0.012	44.1	240.58
10-Year	---	---	---	0.013	58.8	240.77
25-Year	---	---	---	0.014	79.0	241.04
50-Year	---	---	---	0.015	94.3	241.27
100-Year	---	---	---	0.017	111.0	241.56
Top of Tank	0.017	117.2	241.68	---	---	---
Top of Stone	0.018	129.9	241.99	---	---	---
T/G CB.5	0.021	130.1	242.61	---	---	---
Weir	0.021	130.1	242.63	---	---	---
Overflow	0.181	136.7	242.78	---	---	---

Table 8. Catchment 300 - Stage/Storage/Discharge Summary

	Available Capacity			Actual Capacity Used		
	Peak Flow m^3/s	Storage Volume m^3	Storage Elevation m	Peak Flow m^3/s	Storage Volume m^3	Storage Elevation m
Bottom of Stone	0.000	0.0	239.37	---	---	---
Bottom of Chambers	0.000	6.5	239.60	---	---	---
Invert of Outlet Pipe	0.000	12.1	239.70			
2-Year	---	---	---	0.006	28.8	240.01
5-Year	---	---	---	0.008	46.2	240.35
10-Year	---	---	---	0.009	59.6	240.64
25-Year	---	---	---	0.010	77.5	241.11
Top of Tank	0.010	77.9	241.12	---	---	---
Top of Stone	0.011	86.5	241.43	---	---	---
T/G DCB.3	0.012	86.5	241.88	---	---	---
Weir	0.012	88.4	241.95	---	---	---
50-Year	---	---	---	0.015	88.7	241.95
100-Year	---	---	---	0.038	90.9	241.98
Overflow	0.172	103.6	242.10	---	---	---

3.6. Comparison of Allowable and Post-Development Flow Rates

The following table compares the post-development flow rates and the allowable release rates to the existing residential development.

Table 9. Comparison of Allowable Release Rate and Post Development Flow Rates to Existing Residential Development Area

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Allowable Release Rate	0.021 m^3/s	0.026 m^3/s	0.032 m^3/s	0.037 m^3/s	0.042 m^3/s	0.047 m^3/s
Post-Development Flow Rate	0.012 m^3/s	0.014 m^3/s	0.017 m^3/s	0.020 m^3/s	0.023 m^3/s	0.026 m^3/s

Therefore, under post-development conditions, flows discharging to the existing residential development area have been attenuated to less than the allowable release rates.

The following table compares the post-development flow rates and the allowable release rates to the existing retirement residence.

Table 10. Comparison of Allowable Release Rate and Post Development Flow Rates to Existing Retirement Residence

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Allowable Release Rate	0.025 m^3/s	0.032 m^3/s	0.039 m^3/s	0.046 m^3/s	0.052 m^3/s	0.058 m^3/s
Post-Development Flow Rate	0.006 m^3/s	0.008 m^3/s	0.009 m^3/s	0.010 m^3/s	0.015 m^3/s	0.038 m^3/s

Therefore, under post-development conditions, flows discharging to the existing retirement residence have been attenuated to less than the allowable release rates.

The following table compares the post-development flow rates and the allowable release rates to the existing storm sewers within the Station Road right-of-way.

Table 11. Comparison of Allowable Release Rate and Post Development Flow Rates to Station Road Right-of-Way

	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Allowable Release Rate	0.004 m^3/s	0.005 m^3/s	0.006 m^3/s	0.007 m^3/s	0.008 m^3/s	0.009 m^3/s
Post-Development Flow Rate	0.000 m^3/s	0.001 m^3/s	0.001 m^3/s	0.001 m^3/s	0.002 m^3/s	0.002 m^3/s

Therefore, under post-development conditions, flows discharging to the Station Road right-of-way have been attenuated to less than the allowable release rates.

4. Maintenance Plan

To ensure that the stormwater management system continues to function as designed and constructed, we recommend that the following inspections and maintenance activities be completed on an annual basis:

1. Is there any noticeable damage to the asphalt and grassed swale (i.e. erosion, blockages)? If yes, complete any necessary repairs.
2. Is there any indication of a spill (i.e. frothy water, oily sheen)? If yes, investigate, inform the appropriate agencies and complete the necessary clean-up and restoration.
3. Inspect all swales and overflow locations. Remove and dispose of any accumulated sediment, trash/litter, debris (i.e. sediment, garbage, leaves. etc.).

Please note that any structures identified during the annual inspection to be worn, missing or damaged are to be repaired or replaced within 48 hours.

5. Sediment and Erosion Control

A silt fence will be installed along the property boundary in all locations where runoff will discharge from the site to adjacent lands. The silt fence will serve to minimize the opportunity for waterborne sediments to be washed on to the adjacent properties.

Inspection and maintenance of all silt fencing will start after installation is complete. The fence will be inspected on a weekly basis during active construction or after a rainfall event of 13 mm or greater. Maintenance will be carried out, within 48 hours, on any part of the facility found to need repair.

Once construction and landscaping has been substantially completed, the silt fence will be removed, any accumulated sediment will be removed and the landscaping will be completed.

Prior to construction, a mud mat will be installed at the entrance/exit location for the site. Similarly, prior to construction silt sacks will be placed in each catchbasin, as outlined in the Erosion and Sediment Control Plan. Once construction and landscaping has been substantially completed, the mud mat, catchbasin silt sacks, and any accumulated sediment therein will be removed.

After construction of the complete development, erosion and sediment transport will be minimal.

6. Conclusions

In summary, the features of the design for the proposed development at 14 Station Road in the Town of Caledon (Bolton) are as follows:

1. The post-development flow rates for the 2 through 100-year design storm events have been attenuated to less than the allowable release rates.
2. Enhanced quality control (80% TSS removal) for the site is provided via the CB shields and the proposed stormwater management facilities.
3. Retention of the first 5mm of runoff generated by the site has been provided by the proposed stormwater management facilities.
4. Prior to construction, a silt fence will be installed along the property boundary in all locations where runoff will discharge from the site to adjacent lands. A mud mat will be installed at the entrance/exit location for the site. Silt sacks will be placed in each catchbasin, as outlined in the Erosion and Sediment Control Plan. This will minimize the transport of sediment off-site during the construction period

Appendix A Modified Rational Method Calculations

14 Station Street
Town of Caledon

GEI Consultants

423091
4-Feb-26

Allowable Flow - 2-100 year design storms

TOTAL CATCHMENT AREA **0.55** ha

IDF PARAMETERS

Parameters	2 year	5 year	10 year	25 year	50 year	100 year
a	1,070	1,593	2,221	3,158	3,886	4,688
b	7.850	11.000	12.000	15.000	16.000	17.000
c	0.876	0.879	0.908	0.934	0.950	0.962

PRE-DEVELOPMENT RUNOFF COEF.

Sub-Catchment	Landscape area (ha)	Building Roof (ha)	Gravel (ha)	CONC./ASPH (ha)	AREA	C
	C=0.33	C=0.95	C=0.90	C=0.95	(ha)	
10	0.10	-	-	-	0.10	0.33
20	0.16	-	-	-	0.16	0.33
30	0.24	-	-	-	0.24	0.33
40	0.05	-	-	-	0.05	0.33
TOTAL	0.55	-	-	-	0.55	0.33

Time of Concentration (Tc):

Sub-Catchment	L (m)	Sw (%)	Tc (min.)	Method
10			10	Inlet time
20			10	Inlet time
30			10	Inlet time

* L: Watershed length, m * Sw: Watershed slope,%

RAINFALL INTENSITY (mm/h) Intensity=a(t+b)-c

Sub-Catchment	2 year	5 year	10 year	25 year	50 year	100 year
10	85.718	109.677	134.162	156.471	176.192	196.536
20	85.718	109.677	134.162	156.471	176.192	196.536
30	85.718	109.677	134.162	156.471	176.192	196.536
40	85.718	109.677	134.162	156.471	176.192	196.536

DISCHARGE (m^3/sec)

Sub-Catchment	2 year	5 year	10 year	25 year	50 year	100 year
10	0.008	0.010	0.012	0.014	0.016	0.018
20	0.013	0.016	0.020	0.023	0.026	0.029
30	0.019	0.024	0.030	0.034	0.039	0.043
40	0.004	0.005	0.006	0.007	0.008	0.009
Total	0.043	0.055	0.068	0.079	0.089	0.099

* 2 to 10 year storm : Q X 1.0, * 25 year storm : Q X 1.1, * 50 year storm: Q x 1.2, 100year storm: Q x 1.25

RAIONNAL METHOD

Q = 2.778 CIA

Q = DIACHARGE, L/S
C = RUNOFF COEFFICIENT
Tc = TIME OF CONCENTRATION, min
L = CATCHMENT LENGTH, m

I = RAINFALL INTENSITY, mm/h
A = CATCHMENT AREA, ha
S_W = CATCHMENT SLOPE, %

BRANSBY WILLIAMS FORMULA (C > 0.4)

$Tc = 0.057 \times L / (S_W^{0.2} \times A^{0.1})$

AIRPORT FORMULA (C < 0.4)

$Tc = 3.26 \times (1.1 - C) \times L^{0.5} / S_W^{0.33}$

Appendix B Stage-Storage Discharge Tables

Catchment 100 - Stormwater Management Facility (MC-4500)

Stage / Storage / Discharge Calculations

Elev. (m)	Depth (m)	Surface Area (m^2)	Increm. Storage (m^3)	Total Storage (m^3)	
239.93	0.00			0.00	Bottom of Stone
239.98	0.05			2.11	
240.11	0.18			7.40	
240.16	0.23			9.51	Bottom of Tank
240.26	0.33			17.96	Invert of Outlet Pipe
240.36	0.43			26.33	
240.46	0.53			34.63	
240.74	0.81	Provised by ADS		56.86	
241.05	1.12			79.68	
241.35	1.42			100.18	
241.66	1.73			116.14	
241.68	1.75			117.22	Top of Tank
241.78	1.85			121.44	
241.89	1.96			125.67	
241.99	2.06			129.89	Top of Stone
242.61	2.68	0.36	0.18	130.07	T/G CB.5
242.63	2.70	6.41	0.07	130.14	Weir
242.78	2.85	80.91	6.55	136.69	Overflow

Orifice			Weir	
Invert =	239.50		d1 =	2.85
Q =	0.0211	m^3/s	h =	2.70
Cd =	0.6		H =	0.15
H =	3.24	m	2g =	19.62
2g =	19.62		L =	2.0
A =	0.0044	m^2		
D=	0.075	m	Q =	0.160
D/2=	0.0375	m		

Stage (m)	Storage (m^3)	Orifice Discharge (m^3/s)	Weir Discharge (m^3/s)	Total Discharge (m^3/s)	
239.93	0.0	0.0000	0.0000	0.0000	Bottom of Stone
239.98	2.1	0.0000	0.0000	0.0000	
240.11	7.4	0.0000	0.0000	0.0000	
240.16	9.5	0.0000	0.0000	0.0000	Bottom of Tank
240.26	18.0	0.0000	0.0000	0.0000	Invert of Outlet Pipe
240.36	26.3	0.0106	0.0000	0.0106	
240.46	34.6	0.0113	0.0000	0.0113	
240.74	56.9	0.0129	0.0000	0.0129	
241.05	79.7	0.0144	0.0000	0.0144	
241.35	100.2	0.0158	0.0000	0.0158	
241.66	116.1	0.0171	0.0000	0.0171	
241.68	117.2	0.0172	0.0000	0.0172	Top of Tank
241.78	121.4	0.0176	0.0000	0.0176	
241.89	125.7	0.0180	0.0000	0.0180	
241.99	129.9	0.0184	0.0000	0.0184	Top of Stone
242.61	130.1	0.0206	0.0000	0.0206	T/G CB.5
242.63	130.1	0.0206	0.0000	0.0206	Weir
242.78	136.7	0.0211	0.1597	0.1808	Overflow

Catchment 300 - Stormwater Management Facility (MC-4500)

Stage / Storage / Discharge Calculations

Elev. (m)	Depth (m)	Surface Area (m^2)	Increm. Storage (m^3)	Total Storage (m^3)	
239.37	0.00			0.00	Bottom of Stone
239.47	0.10			2.89	
239.60	0.23			6.50	Bottom of Tank
239.70	0.33			12.08	Invert of Outlet Pipe
239.80	0.43			17.60	
239.90	0.53			23.08	
240.21	0.84	Provided by ADS		39.05	
240.51	1.14			54.03	
240.79	1.42			66.41	
241.00	1.63			74.04	
241.12	1.75			77.86	Top of Tank
241.22	1.85			80.75	
241.35	1.98			84.36	
241.43	2.06			86.53	Top of Stone
241.88	2.51	0.00	0.00	86.53	T/G DCB.3
241.90	2.53	8.16	0.08	86.61	
241.93	2.56	39.08	0.71	87.32	
241.95	2.58	66.73	1.06	88.38	Weir
242.10	2.73	135.96	15.20	103.58	Overflow

Orifice			Weir	
Invert =	239.32		d1 =	2.73
Q =	0.013	m^3/s	h =	2.58
Cd =	0.6		H =	0.15
H =	2.78	m	2g =	19.62
2g =	19.62		L =	2.0
A =	0.0028	m^2		
D=	0.06	m	Q =	0.160
D/2=	0.03	m		

Stage (m)	Storage (m^3)	Orifice Discharge (m^3/s)	Weir Discharge (m^3/s)	Discharge Total (m^3/s)	
239.37	0.0	0.0000	0.0000	0.0000	Bottom of Stone
239.47	2.9	0.0000	0.0000	0.0000	
239.60	6.5	0.0000	0.0000	0.0000	Bottom of Tank
239.70	12.1	0.0000	0.0000	0.0000	Invert of Outlet Pipe
239.80	17.6	0.0050	0.0000	0.0050	
239.90	23.1	0.0056	0.0000	0.0056	
240.21	39.1	0.0070	0.0000	0.0070	
240.51	54.0	0.0081	0.0000	0.0081	
240.79	66.4	0.0090	0.0000	0.0090	
241.00	74.0	0.0097	0.0000	0.0097	
241.12	77.9	0.0100	0.0000	0.0100	Top of Tank
241.22	80.7	0.0103	0.0000	0.0103	
241.35	84.4	0.0106	0.0000	0.0106	
241.43	86.5	0.0108	0.0000	0.0108	Top of Stone
241.88	86.5	0.0120	0.0000	0.0120	T/G DCB.3
241.90	86.6	0.0120	0.0000	0.0120	
241.93	87.3	0.0121	0.0000	0.0121	
241.95	88.4	0.0121	0.0000	0.0121	Weir
242.10	103.6	0.0125	0.1598	0.1722	Overflow

Appendix C MIDUSS Post Development Modelling Files

```
"                MIDUSS Output ----------------------------------------------->"
"                MIDUSS version                            Version 2.25  rev. 473"
"                MIDUSS created                          Sunday, February 7, 2010"
"           10   Units used:                                          ie METRIC"
"                Job folder:                              C:\Users\patgri4018\"
"                  OneDrive - GEI Consultants, Inc\Work\423091  14 Station Road"
"                Output filename:                          423091  2-Year Post.out"
"                Licensee name:                                                 "
"                Company                                                        "
"                Date & Time last used:                  2/4/2026 at 12:12:02 PM"
" 31          TIME PARAMETERS"
"        5.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"     1070.000   Coefficient A"
"        7.850   Constant B"
"        0.876   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity           114.313    mm/hr"
"             Total depth                  32.725    mm"
"            6   002hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 100"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          100   Catchment 100"
"       65.000   % Impervious"
"        0.270   Total Area"
"       35.000   Flow length"
"        2.000   Overland Slope"
"        0.095   Pervious Area"
"       35.000   Pervious length"
"        2.000   Pervious slope"
"        0.176   Impervious Area"
"       35.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.165   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.833   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
```

```
"                    0.039     0.000     0.000     0.000 c.m/sec"
"             Catchment 100          Pervious   Impervious Total Area "
"             Surface Area           0.095      0.176      0.270      hectare"
"             Time of concentration  29.401     2.387      4.989      minutes"
"             Time to Centroid       134.840    89.714     94.061     minutes"
"             Rainfall depth         32.725     32.725     32.725     mm"
"             Rainfall volume        30.92      57.43      88.36      c.m"
"             Rainfall losses        27.325     5.454      13.109     mm"
"             Runoff depth           5.399      27.270     19.616     mm"
"             Runoff volume          5.10       47.86      52.96      c.m"
"             Runoff coefficient     0.165      0.833      0.599      "
"             Maximum flow           0.001      0.039      0.039      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.039     0.039     0.000     0.000"
" 54          POND DESIGN"
"         0.039   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"          53.0   Hydrograph volume    c.m"
"           18.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.930     0.000     0.000"
"                 239.980  1.01E-05     2.110"
"                 240.110  2.01E-05     7.400"
"                 240.160  3.01E-05     9.510"
"                 240.260  4.01E-05    17.960"
"                 240.360   0.01065    26.330"
"                 240.460   0.01128    34.630"
"                 240.740   0.01288    56.860"
"                 241.050   0.01444    79.680"
"                 241.350   0.01581   100.180"
"                 241.660   0.01711   116.140"
"                 241.680   0.01719   117.220"
"                 241.780   0.01758   121.440"
"                 241.890   0.01801   125.670"
"                 241.990   0.01839   129.890"
"                 242.610   0.02058   130.070"
"                 242.630   0.02065   130.140"
"                 242.780    0.1808   136.690"
"             Peak outflow                 0.011    c.m/sec"
"             Maximum level              240.379    metre"
"             Maximum storage             27.922    c.m"
"             Centroidal lag               2.924   hours"
"                  0.039     0.039     0.011     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
```

```
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.011    c.m/sec"
"             Hydrograph volume            37.932    c.m"
"                    0.039     0.039     0.011     0.011"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.039     0.000     0.011     0.011"
" 33          CATCHMENT 200"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          200   Catchment 200"
"        0.000   % Impervious"
"        0.050   Total Area"
"       15.000   Flow length"
"        2.000   Overland Slope"
"        0.050   Pervious Area"
"       15.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       15.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.165   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.001     0.000     0.011     0.011 c.m/sec"
"             Catchment 200          Pervious   Impervious Total Area "
"             Surface Area           0.050      0.000      0.050      hectare"
"             Time of concentration  17.684     1.436      17.684     minutes"
"             Time to Centroid       120.733    88.198     120.733    minutes"
"             Rainfall depth         32.725     32.725     32.725     mm"
"             Rainfall volume        16.36      0.00       16.36      c.m"
"             Rainfall losses        27.330     5.434      27.330     mm"
"             Runoff depth           5.395      27.291     5.395      mm"
"             Runoff volume          2.70       0.00       2.70       c.m"
"             Runoff coefficient     0.165      0.000      0.165      "
"             Maximum flow           0.001      0.000      0.001      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.001     0.001     0.011     0.011"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
```

```
"                    0.001     0.001     0.001     0.011"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.012    c.m/sec"
"             Hydrograph volume            40.629    c.m"
"                    0.001     0.001     0.001     0.012"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.001     0.000     0.001     0.012"
" 33          CATCHMENT 300"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          300   Catchment 300"
"       75.000   % Impervious"
"        0.220   Total Area"
"       25.000   Flow length"
"        2.000   Overland Slope"
"        0.055   Pervious Area"
"       25.000   Pervious length"
"        2.000   Pervious slope"
"        0.165   Impervious Area"
"       25.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.165   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.837   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.038     0.000     0.001     0.012 c.m/sec"
"             Catchment 300          Pervious   Impervious Total Area "
"             Surface Area           0.055      0.165      0.220      hectare"
"             Time of concentration  24.026     1.951      3.312      minutes"
"             Time to Centroid       128.382    88.984     91.413     minutes"
"             Rainfall depth         32.725     32.725     32.725     mm"
"             Rainfall volume        18.00      54.00      71.99      c.m"
"             Rainfall losses        27.327     5.341      10.837     mm"
"             Runoff depth           5.398      27.384     21.888     mm"
"             Runoff volume          2.97       45.18      48.15      c.m"
"             Runoff coefficient     0.165      0.837      0.669      "
"             Maximum flow           0.001      0.038      0.038      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
```

```
"                    0.038     0.038     0.001     0.012"
" 54          POND DESIGN"
"         0.038   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"          48.2   Hydrograph volume    c.m"
"           19.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.370     0.000     0.000"
"                 239.470  1.01E-05     2.890"
"                 239.600  2.01E-05     6.500"
"                 239.700  3.01E-05    12.080"
"                 239.800   0.00504    17.600"
"                 239.900   0.00557    23.080"
"                 240.210   0.00697    39.050"
"                 240.510   0.00810    54.030"
"                 240.790   0.00902    66.410"
"                 241.000   0.00965    74.040"
"                 241.120   0.01001    77.860"
"                 241.220   0.01029    80.750"
"                 241.350   0.01063    84.360"
"                 241.430   0.01084    86.530"
"                 241.880   0.01195    86.530"
"                 241.900   0.01200    86.610"
"                 241.930   0.01207    87.320"
"                 241.950   0.01212    88.380"
"                 242.100    0.1722   103.580"
"              Peak outflow                 0.006    c.m/sec"
"              Maximum level              240.011    metre"
"              Maximum storage             28.819    c.m"
"              Centroidal lag               2.877   hours"
"                   0.038     0.038     0.006     0.012 c.m/sec"
" 40           HYDROGRAPH   Combine    2"
"             6   Combine "
"             2   Node #"
"                 To Ex. Retirement"
"              Maximum flow                 0.006    c.m/sec"
"              Hydrograph volume           37.836    c.m"
"                       0.038     0.038     0.006     0.006"
" 40           HYDROGRAPH Start - New Tributary"
"             2   Start - New Tributary"
"                       0.038     0.000     0.006     0.006"
" 33           CATCHMENT 400"
"             1   Triangular SCS"
"             1   Equal length"
"             1   SCS method"
"           400   Catchmetn 400"
```

```
"        0.000   % Impervious"
"        0.010   Total Area"
"       10.000   Flow length"
"        2.000   Overland Slope"
"        0.010   Pervious Area"
"       10.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       10.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.165   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.000     0.000     0.006     0.006 c.m/sec"
"             Catchment 400          Pervious   Impervious Total Area "
"             Surface Area           0.010      0.000      0.010      hectare"
"             Time of concentration  13.865     1.126      13.865     minutes"
"             Time to Centroid       116.161    87.842     116.160    minutes"
"             Rainfall depth         32.725     32.725     32.725     mm"
"             Rainfall volume        3.27       0.00       3.27       c.m"
"             Rainfall losses        27.328     5.711      27.328     mm"
"             Runoff depth           5.396      27.013     5.396      mm"
"             Runoff volume          0.54       0.00       0.54       c.m"
"             Runoff coefficient     0.165      0.000      0.165      "
"             Maximum flow           0.000      0.000      0.000      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.000     0.000     0.006     0.006"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.000     0.000     0.000     0.006"
" 40          HYDROGRAPH   Combine    3"
"            6   Combine "
"            3   Node #"
"                To Station Road"
"             Maximum flow                 0.000    c.m/sec"
"             Hydrograph volume            0.540    c.m"
"                    0.000     0.000     0.000     0.000"
" 40          HYDROGRAPH   Confluence    1"
"            7   Confluence "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                 0.012    c.m/sec"
```

```
"             Hydrograph volume            40.629    c.m"
"                    0.000     0.012     0.000     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.000     0.012     0.012     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                 0.012    c.m/sec"
"             Hydrograph volume            40.629    c.m"
"                    0.000     0.012     0.012     0.012"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                To Ex. Retirement"
"             Maximum flow                 0.006    c.m/sec"
"             Hydrograph volume            37.836    c.m"
"                    0.000     0.006     0.012     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.000     0.006     0.006     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                 0.018    c.m/sec"
"             Hydrograph volume            78.466    c.m"
"                    0.000     0.006     0.006     0.018"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To Station Road"
"             Maximum flow                 0.000    c.m/sec"
"             Hydrograph volume            0.540    c.m"
"                    0.000     0.000     0.006     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.000     0.000     0.000     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                 0.018    c.m/sec"
"             Hydrograph volume            79.005    c.m"
"                    0.000     0.000     0.000     0.018"
" 40          HYDROGRAPH   Confluence    4"
"            7   Confluence "
"            4   Node #"
"                TOTAL"
```

```
"             Maximum flow                  0.018    c.m/sec"
"             Hydrograph volume            79.005    c.m"
"                     0.000     0.018     0.000     0.000"
" 38          START/RE-START TOTALS 4"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      0.550    hectare"
"             Total Impervious area                     0.341    hectare"
"             Total % impervious                       61.909"
" 19          EXIT"
```

```
"                MIDUSS Output ----------------------------------------------->"
"                MIDUSS version                            Version 2.25  rev. 473"
"                MIDUSS created                          Sunday, February 7, 2010"
"           10   Units used:                                          ie METRIC"
"                Job folder:                              C:\Users\patgri4018\"
"                  OneDrive - GEI Consultants, Inc\Work\423091  14 Station Road"
"                Output filename:                          423091  5-Year Post.out"
"                Licensee name:                                                 "
"                Company                                                        "
"                Date & Time last used:                  2/4/2026 at 12:14:32 PM"
" 31          TIME PARAMETERS"
"        5.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"     1593.000   Coefficient A"
"       11.000   Constant B"
"        0.879   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity           139.288    mm/hr"
"             Total depth                  47.265    mm"
"            6   005hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 100"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          100   Catchment 100"
"       65.000   % Impervious"
"        0.270   Total Area"
"       35.000   Flow length"
"        2.000   Overland Slope"
"        0.095   Pervious Area"
"       35.000   Pervious length"
"        2.000   Pervious slope"
"        0.176   Impervious Area"
"       35.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.258   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.877   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
```

```
"                    0.053     0.000     0.000     0.000 c.m/sec"
"             Catchment 100          Pervious   Impervious Total Area "
"             Surface Area           0.095      0.176      0.270      hectare"
"             Time of concentration  20.985     2.172      4.743      minutes"
"             Time to Centroid       124.085    89.055     93.841     minutes"
"             Rainfall depth         47.265     47.265     47.265     mm"
"             Rainfall volume        44.67      82.95      127.61     c.m"
"             Rainfall losses        35.082     5.817      16.060     mm"
"             Runoff depth           12.182     41.448     31.205     mm"
"             Runoff volume          11.51      72.74      84.25      c.m"
"             Runoff coefficient     0.258      0.877      0.660      "
"             Maximum flow           0.004      0.052      0.053      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.053     0.053     0.000     0.000"
" 54          POND DESIGN"
"         0.053   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"          84.3   Hydrograph volume    c.m"
"           18.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.930     0.000     0.000"
"                 239.980  1.01E-05     2.110"
"                 240.110  2.01E-05     7.400"
"                 240.160  3.01E-05     9.510"
"                 240.260  4.01E-05    17.960"
"                 240.360   0.01065    26.330"
"                 240.460   0.01128    34.630"
"                 240.740   0.01288    56.860"
"                 241.050   0.01444    79.680"
"                 241.350   0.01581   100.180"
"                 241.660   0.01711   116.140"
"                 241.680   0.01719   117.220"
"                 241.780   0.01758   121.440"
"                 241.890   0.01801   125.670"
"                 241.990   0.01839   129.890"
"                 242.610   0.02058   130.070"
"                 242.630   0.02065   130.140"
"                 242.780    0.1808   136.690"
"             Peak outflow                 0.012    c.m/sec"
"             Maximum level              240.579    metre"
"             Maximum storage             44.106    c.m"
"             Centroidal lag               2.623   hours"
"                  0.053     0.053     0.012     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
```

```
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.012    c.m/sec"
"             Hydrograph volume            68.934    c.m"
"                    0.053     0.053     0.012     0.012"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.053     0.000     0.012     0.012"
" 33          CATCHMENT 200"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          200   Catchment 200"
"        0.000   % Impervious"
"        0.050   Total Area"
"       15.000   Flow length"
"        2.000   Overland Slope"
"        0.050   Pervious Area"
"       15.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       15.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.257   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.003     0.000     0.012     0.012 c.m/sec"
"             Catchment 200          Pervious   Impervious Total Area "
"             Surface Area           0.050      0.000      0.050      hectare"
"             Time of concentration  12.622     1.307      12.622     minutes"
"             Time to Centroid       113.788    87.819     113.788    minutes"
"             Rainfall depth         47.265     47.265     47.265     mm"
"             Rainfall volume        23.63      0.00       23.63      c.m"
"             Rainfall losses        35.114     5.950      35.114     mm"
"             Runoff depth           12.151     41.315     12.151     mm"
"             Runoff volume          6.08       0.00       6.08       c.m"
"             Runoff coefficient     0.257      0.000      0.257      "
"             Maximum flow           0.003      0.000      0.003      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.003     0.003     0.012     0.012"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
```

```
"                    0.003     0.003     0.003     0.012"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.014    c.m/sec"
"             Hydrograph volume            75.010    c.m"
"                    0.003     0.003     0.003     0.014"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.003     0.000     0.003     0.014"
" 33          CATCHMENT 300"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          300   Catchment 300"
"       75.000   % Impervious"
"        0.220   Total Area"
"       25.000   Flow length"
"        2.000   Overland Slope"
"        0.055   Pervious Area"
"       25.000   Pervious length"
"        2.000   Pervious slope"
"        0.165   Impervious Area"
"       25.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.257   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.878   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.051     0.000     0.003     0.014 c.m/sec"
"             Catchment 300          Pervious   Impervious Total Area "
"             Surface Area           0.055      0.165      0.220      hectare"
"             Time of concentration  17.149     1.775      3.143      minutes"
"             Time to Centroid       119.340    88.470     91.217     minutes"
"             Rainfall depth         47.265     47.265     47.265     mm"
"             Rainfall volume        26.00      77.99      103.98     c.m"
"             Rainfall losses        35.098     5.746      13.084     mm"
"             Runoff depth           12.167     41.519     34.181     mm"
"             Runoff volume          6.69       68.51      75.20      c.m"
"             Runoff coefficient     0.257      0.878      0.723      "
"             Maximum flow           0.002      0.050      0.051      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
```

```
"                    0.051     0.051     0.003     0.014"
" 54          POND DESIGN"
"         0.051   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"          75.2   Hydrograph volume    c.m"
"           19.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.370     0.000     0.000"
"                 239.470  1.01E-05     2.890"
"                 239.600  2.01E-05     6.500"
"                 239.700  3.01E-05    12.080"
"                 239.800   0.00504    17.600"
"                 239.900   0.00557    23.080"
"                 240.210   0.00697    39.050"
"                 240.510   0.00810    54.030"
"                 240.790   0.00902    66.410"
"                 241.000   0.00965    74.040"
"                 241.120   0.01001    77.860"
"                 241.220   0.01029    80.750"
"                 241.350   0.01063    84.360"
"                 241.430   0.01084    86.530"
"                 241.880   0.01195    86.530"
"                 241.900   0.01200    86.610"
"                 241.930   0.01207    87.320"
"                 241.950   0.01212    88.380"
"                 242.100    0.1722   103.580"
"              Peak outflow                 0.008    c.m/sec"
"              Maximum level              240.354    metre"
"              Maximum storage             46.246    c.m"
"              Centroidal lag               2.894   hours"
"                   0.051     0.051     0.008     0.014 c.m/sec"
" 40           HYDROGRAPH   Combine    2"
"             6   Combine "
"             2   Node #"
"                 To Ex. Retirement"
"              Maximum flow                 0.008    c.m/sec"
"              Hydrograph volume           65.264    c.m"
"                       0.051     0.051     0.008     0.008"
" 40           HYDROGRAPH Start - New Tributary"
"             2   Start - New Tributary"
"                       0.051     0.000     0.008     0.008"
" 33           CATCHMENT 400"
"             1   Triangular SCS"
"             1   Equal length"
"             1   SCS method"
"           400   Catchmetn 400"
```

```
"        0.000   % Impervious"
"        0.010   Total Area"
"       10.000   Flow length"
"        2.000   Overland Slope"
"        0.010   Pervious Area"
"       10.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       10.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.256   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.001     0.000     0.008     0.008 c.m/sec"
"             Catchment 400          Pervious   Impervious Total Area "
"             Surface Area           0.010      0.000      0.010      hectare"
"             Time of concentration  9.896      1.024      9.896      minutes"
"             Time to Centroid       110.450    87.417     110.450    minutes"
"             Rainfall depth         47.265     47.265     47.265     mm"
"             Rainfall volume        4.73       0.00       4.73       c.m"
"             Rainfall losses        35.156     6.505      35.156     mm"
"             Runoff depth           12.108     40.760     12.108     mm"
"             Runoff volume          1.21       0.00       1.21       c.m"
"             Runoff coefficient     0.256      0.000      0.256      "
"             Maximum flow           0.001      0.000      0.001      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.001     0.001     0.008     0.008"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.001     0.001     0.008"
" 40          HYDROGRAPH   Combine    3"
"            6   Combine "
"            3   Node #"
"                To Station Road"
"             Maximum flow                  0.001    c.m/sec"
"             Hydrograph volume             1.211    c.m"
"                    0.001     0.001     0.001     0.001"
" 40          HYDROGRAPH   Confluence    1"
"            7   Confluence "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.014    c.m/sec"
```

```
"             Hydrograph volume            75.010    c.m"
"                    0.001     0.014     0.001     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.014     0.014     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                 0.014    c.m/sec"
"             Hydrograph volume            75.010    c.m"
"                    0.001     0.014     0.014     0.014"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                To Ex. Retirement"
"             Maximum flow                 0.008    c.m/sec"
"             Hydrograph volume            65.264    c.m"
"                    0.001     0.008     0.014     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.008     0.008     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                 0.022    c.m/sec"
"             Hydrograph volume           140.274    c.m"
"                    0.001     0.008     0.008     0.022"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To Station Road"
"             Maximum flow                 0.001    c.m/sec"
"             Hydrograph volume            1.211    c.m"
"                    0.001     0.001     0.008     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.001     0.001     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                 0.022    c.m/sec"
"             Hydrograph volume           141.484    c.m"
"                    0.001     0.001     0.001     0.022"
" 40          HYDROGRAPH   Confluence    4"
"            7   Confluence "
"            4   Node #"
"                TOTAL"
```

```
"             Maximum flow                  0.022    c.m/sec"
"             Hydrograph volume           141.484    c.m"
"                     0.001     0.022     0.001     0.000"
" 38          START/RE-START TOTALS 4"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      0.550    hectare"
"             Total Impervious area                     0.341    hectare"
"             Total % impervious                       61.909"
" 19          EXIT"
```

```
"                MIDUSS Output ----------------------------------------------->"
"                MIDUSS version                            Version 2.25  rev. 473"
"                MIDUSS created                          Sunday, February 7, 2010"
"           10   Units used:                                          ie METRIC"
"                Job folder:                              C:\Users\patgri4018\"
"                  OneDrive - GEI Consultants, Inc\Work\423091  14 Station Road"
"                Output filename:                      423091  10-Year Post.out"
"                Licensee name:                                               "
"                Company                                                      "
"                Date & Time last used:                 2/4/2026 at 12:17:19 PM"
" 31          TIME PARAMETERS"
"        5.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"     2221.000   Coefficient A"
"       12.000   Constant B"
"        0.908   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity          169.551    mm/hr"
"             Total depth                 56.290    mm"
"            6   010hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 100"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          100   Catchment 100"
"       65.000   % Impervious"
"        0.270   Total Area"
"       35.000   Flow length"
"        2.000   Overland Slope"
"        0.095   Pervious Area"
"       35.000   Pervious length"
"        2.000   Pervious slope"
"        0.176   Impervious Area"
"       35.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.306   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.895   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
```

```
"                    0.066     0.000     0.000     0.000 c.m/sec"
"             Catchment 100          Pervious   Impervious Total Area "
"             Surface Area           0.095      0.176      0.270      hectare"
"             Time of concentration  17.695     1.998      4.443      minutes"
"             Time to Centroid       118.013    87.815     92.518     minutes"
"             Rainfall depth         56.290     56.290     56.290     mm"
"             Rainfall volume        53.19      98.79      151.98     c.m"
"             Rainfall losses        39.042     5.937      17.524     mm"
"             Runoff depth           17.248     50.353     38.766     mm"
"             Runoff volume          16.30      88.37      104.67     c.m"
"             Runoff coefficient     0.306      0.895      0.689      "
"             Maximum flow           0.006      0.065      0.066      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.066     0.066     0.000     0.000"
" 54          POND DESIGN"
"         0.066   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"         104.7   Hydrograph volume    c.m"
"           18.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.930     0.000     0.000"
"                 239.980  1.01E-05     2.110"
"                 240.110  2.01E-05     7.400"
"                 240.160  3.01E-05     9.510"
"                 240.260  4.01E-05    17.960"
"                 240.360   0.01065    26.330"
"                 240.460   0.01128    34.630"
"                 240.740   0.01288    56.860"
"                 241.050   0.01444    79.680"
"                 241.350   0.01581   100.180"
"                 241.660   0.01711   116.140"
"                 241.680   0.01719   117.220"
"                 241.780   0.01758   121.440"
"                 241.890   0.01801   125.670"
"                 241.990   0.01839   129.890"
"                 242.610   0.02058   130.070"
"                 242.630   0.02065   130.140"
"                 242.780    0.1808   136.690"
"             Peak outflow                 0.013    c.m/sec"
"             Maximum level              240.766    metre"
"             Maximum storage             58.789    c.m"
"             Centroidal lag               2.614   hours"
"                  0.066     0.066     0.013     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
```

```
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.013    c.m/sec"
"             Hydrograph volume            90.109    c.m"
"                    0.066     0.066     0.013     0.013"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.066     0.000     0.013     0.013"
" 33          CATCHMENT 200"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          200   Catchment 200"
"        0.000   % Impervious"
"        0.050   Total Area"
"       15.000   Flow length"
"        2.000   Overland Slope"
"        0.050   Pervious Area"
"       15.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       15.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.306   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.004     0.000     0.013     0.013 c.m/sec"
"             Catchment 200          Pervious   Impervious Total Area "
"             Surface Area           0.050      0.000      0.050      hectare"
"             Time of concentration  10.643     1.202      10.643     minutes"
"             Time to Centroid       109.153    86.719     109.153    minutes"
"             Rainfall depth         56.290     56.290     56.290     mm"
"             Rainfall volume        28.15      0.00       28.15      c.m"
"             Rainfall losses        39.068     6.369      39.068     mm"
"             Runoff depth           17.222     49.921     17.222     mm"
"             Runoff volume          8.61       0.00       8.61       c.m"
"             Runoff coefficient     0.306      0.000      0.306      "
"             Maximum flow           0.004      0.000      0.004      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.004     0.004     0.013     0.013"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
```

```
"                    0.004     0.004     0.004     0.013"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.017    c.m/sec"
"             Hydrograph volume            98.720    c.m"
"                    0.004     0.004     0.004     0.017"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.004     0.000     0.004     0.017"
" 33          CATCHMENT 300"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          300   Catchment 300"
"       75.000   % Impervious"
"        0.220   Total Area"
"       25.000   Flow length"
"        2.000   Overland Slope"
"        0.055   Pervious Area"
"       25.000   Pervious length"
"        2.000   Pervious slope"
"        0.165   Impervious Area"
"       25.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.306   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.894   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.064     0.000     0.004     0.017 c.m/sec"
"             Catchment 300          Pervious   Impervious Total Area "
"             Surface Area           0.055      0.165      0.220      hectare"
"             Time of concentration  14.460     1.633      2.945      minutes"
"             Time to Centroid       113.963    87.276     90.005     minutes"
"             Rainfall depth         56.290     56.290     56.290     mm"
"             Rainfall volume        30.96      92.88      123.84     c.m"
"             Rainfall losses        39.082     5.940      14.225     mm"
"             Runoff depth           17.208     50.350     42.065     mm"
"             Runoff volume          9.46       83.08      92.54      c.m"
"             Runoff coefficient     0.306      0.894      0.747      "
"             Maximum flow           0.004      0.063      0.064      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
```

```
"                    0.064     0.064     0.004     0.017"
" 54          POND DESIGN"
"         0.064   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"          92.5   Hydrograph volume    c.m"
"           19.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.370     0.000     0.000"
"                 239.470  1.01E-05     2.890"
"                 239.600  2.01E-05     6.500"
"                 239.700  3.01E-05    12.080"
"                 239.800   0.00504    17.600"
"                 239.900   0.00557    23.080"
"                 240.210   0.00697    39.050"
"                 240.510   0.00810    54.030"
"                 240.790   0.00902    66.410"
"                 241.000   0.00965    74.040"
"                 241.120   0.01001    77.860"
"                 241.220   0.01029    80.750"
"                 241.350   0.01063    84.360"
"                 241.430   0.01084    86.530"
"                 241.880   0.01195    86.530"
"                 241.900   0.01200    86.610"
"                 241.930   0.01207    87.320"
"                 241.950   0.01212    88.380"
"                 242.100    0.1722   103.580"
"              Peak outflow                 0.009    c.m/sec"
"              Maximum level              240.636    metre"
"              Maximum storage             59.611    c.m"
"              Centroidal lag               2.985   hours"
"                   0.064     0.064     0.009     0.017 c.m/sec"
" 40           HYDROGRAPH   Combine    2"
"             6   Combine "
"             2   Node #"
"                 To Ex. Retirement"
"              Maximum flow                 0.009    c.m/sec"
"              Hydrograph volume           82.165    c.m"
"                       0.064     0.064     0.009     0.009"
" 40           HYDROGRAPH Start - New Tributary"
"             2   Start - New Tributary"
"                       0.064     0.000     0.009     0.009"
" 33           CATCHMENT 400"
"             1   Triangular SCS"
"             1   Equal length"
"             1   SCS method"
"           400   Catchmetn 400"
```

```
"        0.000   % Impervious"
"        0.010   Total Area"
"       10.000   Flow length"
"        2.000   Overland Slope"
"        0.010   Pervious Area"
"       10.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       10.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.306   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.001     0.000     0.009     0.009 c.m/sec"
"             Catchment 400          Pervious   Impervious Total Area "
"             Surface Area           0.010      0.000      0.010      hectare"
"             Time of concentration  8.345      0.942      8.345      minutes"
"             Time to Centroid       106.242    86.363     106.242    minutes"
"             Rainfall depth         56.290     56.290     56.290     mm"
"             Rainfall volume        5.63       0.00       5.63       c.m"
"             Rainfall losses        39.089     7.184      39.089     mm"
"             Runoff depth           17.201     49.106     17.201     mm"
"             Runoff volume          1.72       0.00       1.72       c.m"
"             Runoff coefficient     0.306      0.000      0.306      "
"             Maximum flow           0.001      0.000      0.001      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.001     0.001     0.009     0.009"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.001     0.001     0.009"
" 40          HYDROGRAPH   Combine    3"
"            6   Combine "
"            3   Node #"
"                To Station Road"
"             Maximum flow                  0.001    c.m/sec"
"             Hydrograph volume             1.720    c.m"
"                    0.001     0.001     0.001     0.001"
" 40          HYDROGRAPH   Confluence    1"
"            7   Confluence "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.017    c.m/sec"
```

```
"             Hydrograph volume            98.720    c.m"
"                    0.001     0.017     0.001     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.017     0.017     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.017    c.m/sec"
"             Hydrograph volume            98.720    c.m"
"                    0.001     0.017     0.017     0.017"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                To Ex. Retirement"
"             Maximum flow                  0.009    c.m/sec"
"             Hydrograph volume            82.165    c.m"
"                    0.001     0.009     0.017     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.009     0.009     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.025    c.m/sec"
"             Hydrograph volume           180.885    c.m"
"                    0.001     0.009     0.009     0.025"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To Station Road"
"             Maximum flow                  0.001    c.m/sec"
"             Hydrograph volume             1.720    c.m"
"                    0.001     0.001     0.009     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.001     0.001     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.026    c.m/sec"
"             Hydrograph volume           182.605    c.m"
"                    0.001     0.001     0.001     0.026"
" 40          HYDROGRAPH   Confluence    4"
"            7   Confluence "
"            4   Node #"
"                TOTAL"
```

```
"             Maximum flow                  0.026    c.m/sec"
"             Hydrograph volume           182.605    c.m"
"                     0.001     0.026     0.001     0.000"
" 38          START/RE-START TOTALS 4"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      0.550    hectare"
"             Total Impervious area                     0.341    hectare"
"             Total % impervious                       61.909"
" 19          EXIT"
```

```
"                MIDUSS Output ----------------------------------------------->"
"                MIDUSS version                            Version 2.25  rev. 473"
"                MIDUSS created                          Sunday, February 7, 2010"
"           10   Units used:                                          ie METRIC"
"                Job folder:                              C:\Users\patgri4018\"
"                  OneDrive - GEI Consultants, Inc\Work\423091  14 Station Road"
"                Output filename:                       423091  25-Year Post.out"
"                Licensee name:                                                 "
"                Company                                                        "
"                Date & Time last used:                  2/4/2026 at 12:18:49 PM"
" 31          TIME PARAMETERS"
"        5.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"     3158.000   Coefficient A"
"       15.000   Constant B"
"        0.933   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity          192.708    mm/hr"
"             Total depth                 68.990    mm"
"            6   025hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 100"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          100   Catchment 100"
"       65.000   % Impervious"
"        0.270   Total Area"
"       35.000   Flow length"
"        2.000   Overland Slope"
"        0.095   Pervious Area"
"       35.000   Pervious length"
"        2.000   Pervious slope"
"        0.176   Impervious Area"
"       35.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.365   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.910   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
```

```
"                    0.078     0.000     0.000     0.000 c.m/sec"
"             Catchment 100          Pervious   Impervious Total Area "
"             Surface Area           0.095      0.176      0.270      hectare"
"             Time of concentration  15.390     1.891      4.289      minutes"
"             Time to Centroid       113.855    87.203     91.938     minutes"
"             Rainfall depth         68.990     68.990     68.990     mm"
"             Rainfall volume        65.20      121.08     186.27     c.m"
"             Rainfall losses        43.790     6.187      19.348     mm"
"             Runoff depth           25.200     62.803     49.642     mm"
"             Runoff volume          23.81      110.22     134.03     c.m"
"             Runoff coefficient     0.365      0.910      0.720      "
"             Maximum flow           0.010      0.077      0.078      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.078     0.078     0.000     0.000"
" 54          POND DESIGN"
"         0.078   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"         134.0   Hydrograph volume    c.m"
"           18.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.930     0.000     0.000"
"                 239.980  1.01E-05     2.110"
"                 240.110  2.01E-05     7.400"
"                 240.160  3.01E-05     9.510"
"                 240.260  4.01E-05    17.960"
"                 240.360   0.01065    26.330"
"                 240.460   0.01128    34.630"
"                 240.740   0.01288    56.860"
"                 241.050   0.01444    79.680"
"                 241.350   0.01581   100.180"
"                 241.660   0.01711   116.140"
"                 241.680   0.01719   117.220"
"                 241.780   0.01758   121.440"
"                 241.890   0.01801   125.670"
"                 241.990   0.01839   129.890"
"                 242.610   0.02058   130.070"
"                 242.630   0.02065   130.140"
"                 242.780    0.1808   136.690"
"             Peak outflow                 0.014    c.m/sec"
"             Maximum level              241.041    metre"
"             Maximum storage             79.030    c.m"
"             Centroidal lag               2.717   hours"
"                  0.078     0.078     0.014     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
```

```
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.014    c.m/sec"
"             Hydrograph volume           118.581    c.m"
"                    0.078     0.078     0.014     0.014"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.078     0.000     0.014     0.014"
" 33          CATCHMENT 200"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          200   Catchment 200"
"        0.000   % Impervious"
"        0.050   Total Area"
"       15.000   Flow length"
"        2.000   Overland Slope"
"        0.050   Pervious Area"
"       15.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       15.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.364   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.007     0.000     0.014     0.014 c.m/sec"
"             Catchment 200          Pervious   Impervious Total Area "
"             Surface Area           0.050      0.000      0.050      hectare"
"             Time of concentration  9.257      1.137      9.257      minutes"
"             Time to Centroid       106.194    86.197     106.194    minutes"
"             Rainfall depth         68.990     68.990     68.990     mm"
"             Rainfall volume        34.49      0.00       34.49      c.m"
"             Rainfall losses        43.897     6.881      43.897     mm"
"             Runoff depth           25.093     62.109     25.093     mm"
"             Runoff volume          12.55      0.00       12.55      c.m"
"             Runoff coefficient     0.364      0.000      0.364      "
"             Maximum flow           0.007      0.000      0.007      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.007     0.007     0.014     0.014"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
```

```
"                    0.007     0.007     0.007     0.014"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.020    c.m/sec"
"             Hydrograph volume           131.127    c.m"
"                    0.007     0.007     0.007     0.020"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.007     0.000     0.007     0.020"
" 33          CATCHMENT 300"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          300   Catchment 300"
"       75.000   % Impervious"
"        0.220   Total Area"
"       25.000   Flow length"
"        2.000   Overland Slope"
"        0.055   Pervious Area"
"       25.000   Pervious length"
"        2.000   Pervious slope"
"        0.165   Impervious Area"
"       25.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.364   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.910   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.075     0.000     0.007     0.020 c.m/sec"
"             Catchment 300          Pervious   Impervious Total Area "
"             Surface Area           0.055      0.165      0.220      hectare"
"             Time of concentration  12.576     1.545      2.845      minutes"
"             Time to Centroid       110.334    86.693     89.478     minutes"
"             Rainfall depth         68.990     68.990     68.990     mm"
"             Rainfall volume        37.94      113.83     151.78     c.m"
"             Rainfall losses        43.845     6.231      15.635     mm"
"             Runoff depth           25.145     62.759     53.355     mm"
"             Runoff volume          13.83      103.55     117.38     c.m"
"             Runoff coefficient     0.364      0.910      0.773      "
"             Maximum flow           0.006      0.074      0.075      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
```

```
"                    0.075     0.075     0.007     0.020"
" 54          POND DESIGN"
"         0.075   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"         117.4   Hydrograph volume    c.m"
"           19.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.370     0.000     0.000"
"                 239.470  1.01E-05     2.890"
"                 239.600  2.01E-05     6.500"
"                 239.700  3.01E-05    12.080"
"                 239.800   0.00504    17.600"
"                 239.900   0.00557    23.080"
"                 240.210   0.00697    39.050"
"                 240.510   0.00810    54.030"
"                 240.790   0.00902    66.410"
"                 241.000   0.00965    74.040"
"                 241.120   0.01001    77.860"
"                 241.220   0.01029    80.750"
"                 241.350   0.01063    84.360"
"                 241.430   0.01084    86.530"
"                 241.880   0.01195    86.530"
"                 241.900   0.01200    86.610"
"                 241.930   0.01207    87.320"
"                 241.950   0.01212    88.380"
"                 242.100    0.1722   103.580"
"              Peak outflow                 0.010    c.m/sec"
"              Maximum level              241.108    metre"
"              Maximum storage             77.481    c.m"
"              Centroidal lag               3.102   hours"
"                   0.075     0.075     0.010     0.020 c.m/sec"
" 40           HYDROGRAPH   Combine    2"
"             6   Combine "
"             2   Node #"
"                 To Ex. Retirement"
"              Maximum flow                 0.010    c.m/sec"
"              Hydrograph volume          107.386    c.m"
"                       0.075     0.075     0.010     0.010"
" 40           HYDROGRAPH Start - New Tributary"
"             2   Start - New Tributary"
"                       0.075     0.000     0.010     0.010"
" 33           CATCHMENT 400"
"             1   Triangular SCS"
"             1   Equal length"
"             1   SCS method"
"           400   Catchmetn 400"
```

```
"        0.000   % Impervious"
"        0.010   Total Area"
"       10.000   Flow length"
"        2.000   Overland Slope"
"        0.010   Pervious Area"
"       10.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       10.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.363   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.001     0.000     0.010     0.010 c.m/sec"
"             Catchment 400          Pervious   Impervious Total Area "
"             Surface Area           0.010      0.000      0.010      hectare"
"             Time of concentration  7.258      0.892      7.258      minutes"
"             Time to Centroid       103.811    85.873     103.811    minutes"
"             Rainfall depth         68.990     68.990     68.990     mm"
"             Rainfall volume        6.90       0.00       6.90       c.m"
"             Rainfall losses        43.924     8.017      43.924     mm"
"             Runoff depth           25.066     60.973     25.066     mm"
"             Runoff volume          2.51       0.00       2.51       c.m"
"             Runoff coefficient     0.363      0.000      0.363      "
"             Maximum flow           0.001      0.000      0.001      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.001     0.001     0.010     0.010"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.001     0.001     0.001     0.010"
" 40          HYDROGRAPH   Combine    3"
"            6   Combine "
"            3   Node #"
"                To Station Road"
"             Maximum flow                  0.001    c.m/sec"
"             Hydrograph volume             2.507    c.m"
"                    0.001     0.001     0.001     0.001"
" 40          HYDROGRAPH   Confluence    1"
"            7   Confluence "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.020    c.m/sec"
```

```
"             Hydrograph volume           131.127    c.m"
"                     0.001     0.020     0.001     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.001     0.020     0.020     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.020    c.m/sec"
"             Hydrograph volume           131.127    c.m"
"                     0.001     0.020     0.020     0.020"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                To Ex. Retirement"
"             Maximum flow                  0.010    c.m/sec"
"             Hydrograph volume           107.386    c.m"
"                     0.001     0.010     0.020     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.001     0.010     0.010     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.029    c.m/sec"
"             Hydrograph volume           238.513    c.m"
"                     0.001     0.010     0.010     0.029"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To Station Road"
"             Maximum flow                  0.001    c.m/sec"
"             Hydrograph volume             2.507    c.m"
"                     0.001     0.001     0.010     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.001     0.001     0.001     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.030    c.m/sec"
"             Hydrograph volume           241.020    c.m"
"                     0.001     0.001     0.001     0.030"
" 40          HYDROGRAPH   Confluence    4"
"            7   Confluence "
"            4   Node #"
"                TOTAL"
```

```
"             Maximum flow                  0.030    c.m/sec"
"             Hydrograph volume           241.020    c.m"
"                     0.001     0.030     0.001     0.000"
" 38          START/RE-START TOTALS 4"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      0.550    hectare"
"             Total Impervious area                     0.341    hectare"
"             Total % impervious                       61.909"
" 19          EXIT"
```

```
"                MIDUSS Output ----------------------------------------------->"
"                MIDUSS version                            Version 2.25  rev. 473"
"                MIDUSS created                          Sunday, February 7, 2010"
"           10   Units used:                                          ie METRIC"
"                Job folder:                              C:\Users\patgri4018\"
"                  OneDrive - GEI Consultants, Inc\Work\423091  14 Station Road"
"                Output filename:                      423091  50-Year Post.out"
"                Licensee name:                                               "
"                Company                                                      "
"                Date & Time last used:                 2/4/2026 at 12:20:59 PM"
" 31          TIME PARAMETERS"
"        5.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"     3886.000   Coefficient A"
"       16.000   Constant B"
"        0.950   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity          215.802    mm/hr"
"             Total depth                 77.647    mm"
"            6   050hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 100"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          100   Catchment 100"
"       65.000   % Impervious"
"        0.270   Total Area"
"       35.000   Flow length"
"        2.000   Overland Slope"
"        0.095   Pervious Area"
"       35.000   Pervious length"
"        2.000   Pervious slope"
"        0.176   Impervious Area"
"       35.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.400   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.919   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
```

```
"                    0.090     0.000     0.000     0.000 c.m/sec"
"             Catchment 100          Pervious   Impervious Total Area "
"             Surface Area           0.095      0.176      0.270      hectare"
"             Time of concentration  14.056     1.804      4.129      minutes"
"             Time to Centroid       111.224    86.655     91.318     minutes"
"             Rainfall depth         77.647     77.647     77.647     mm"
"             Rainfall volume        73.38      136.27     209.65     c.m"
"             Rainfall losses        46.599     6.288      20.397     mm"
"             Runoff depth           31.049     71.360     57.251     mm"
"             Runoff volume          29.34      125.24     154.58     c.m"
"             Runoff coefficient     0.400      0.919      0.737      "
"             Maximum flow           0.013      0.087      0.090      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.090     0.090     0.000     0.000"
" 54          POND DESIGN"
"         0.090   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"         154.6   Hydrograph volume    c.m"
"           18.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.930     0.000     0.000"
"                 239.980  1.01E-05     2.110"
"                 240.110  2.01E-05     7.400"
"                 240.160  3.01E-05     9.510"
"                 240.260  4.01E-05    17.960"
"                 240.360   0.01065    26.330"
"                 240.460   0.01128    34.630"
"                 240.740   0.01288    56.860"
"                 241.050   0.01444    79.680"
"                 241.350   0.01581   100.180"
"                 241.660   0.01711   116.140"
"                 241.680   0.01719   117.220"
"                 241.780   0.01758   121.440"
"                 241.890   0.01801   125.670"
"                 241.990   0.01839   129.890"
"                 242.610   0.02058   130.070"
"                 242.630   0.02065   130.140"
"                 242.780    0.1808   136.690"
"             Peak outflow                 0.015    c.m/sec"
"             Maximum level              241.265    metre"
"             Maximum storage             94.341    c.m"
"             Centroidal lag               2.787   hours"
"                  0.090     0.090     0.015     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
```

```
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.015    c.m/sec"
"             Hydrograph volume           139.129    c.m"
"                    0.090     0.090     0.015     0.015"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.090     0.000     0.015     0.015"
" 33          CATCHMENT 200"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          200   Catchment 200"
"        0.000   % Impervious"
"        0.050   Total Area"
"       15.000   Flow length"
"        2.000   Overland Slope"
"        0.050   Pervious Area"
"       15.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       15.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.399   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.008     0.000     0.015     0.015 c.m/sec"
"             Catchment 200          Pervious   Impervious Total Area "
"             Surface Area           0.050      0.000      0.050      hectare"
"             Time of concentration  8.454      1.085      8.454      minutes"
"             Time to Centroid       104.168    85.720     104.168    minutes"
"             Rainfall depth         77.647     77.647     77.647     mm"
"             Rainfall volume        38.82      0.00       38.82      c.m"
"             Rainfall losses        46.653     7.323      46.653     mm"
"             Runoff depth           30.995     70.324     30.995     mm"
"             Runoff volume          15.50      0.00       15.50      c.m"
"             Runoff coefficient     0.399      0.000      0.399      "
"             Maximum flow           0.008      0.000      0.008      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.008     0.008     0.015     0.015"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
```

```
"                    0.008     0.008     0.008     0.015"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.023    c.m/sec"
"             Hydrograph volume           154.626    c.m"
"                    0.008     0.008     0.008     0.023"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.008     0.000     0.008     0.023"
" 33          CATCHMENT 300"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          300   Catchment 300"
"       75.000   % Impervious"
"        0.220   Total Area"
"       25.000   Flow length"
"        2.000   Overland Slope"
"        0.055   Pervious Area"
"       25.000   Pervious length"
"        2.000   Pervious slope"
"        0.165   Impervious Area"
"       25.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.399   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.917   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.086     0.000     0.008     0.023 c.m/sec"
"             Catchment 300          Pervious   Impervious Total Area "
"             Surface Area           0.055      0.165      0.220      hectare"
"             Time of concentration  11.486     1.474      2.743      minutes"
"             Time to Centroid       107.981    86.181     88.944     minutes"
"             Rainfall depth         77.647     77.647     77.647     mm"
"             Rainfall volume        42.71      128.12     170.82     c.m"
"             Rainfall losses        46.631     6.408      16.464     mm"
"             Runoff depth           31.016     71.239     61.184     mm"
"             Runoff volume          17.06      117.55     134.60     c.m"
"             Runoff coefficient     0.399      0.917      0.788      "
"             Maximum flow           0.008      0.084      0.086      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
```

```
"                    0.086     0.086     0.008     0.023"
" 54          POND DESIGN"
"         0.086   Current peak flow    c.m/sec"
"         0.052   Target outflow    c.m/sec"
"         134.6   Hydrograph volume    c.m"
"           19.   Number of stages"
"         0.000   Minimum water level    metre"
"         3.000   Maximum water level    metre"
"         0.000   Starting water level    metre"
"             0   Keep Design Data: 1 = True; 0 = False"
"                   Level Discharge    Volume"
"                 239.370     0.000     0.000"
"                 239.470  1.01E-05     2.890"
"                 239.600  2.01E-05     6.500"
"                 239.700  3.01E-05    12.080"
"                 239.800   0.00504    17.600"
"                 239.900   0.00557    23.080"
"                 240.210   0.00697    39.050"
"                 240.510   0.00810    54.030"
"                 240.790   0.00902    66.410"
"                 241.000   0.00965    74.040"
"                 241.120   0.01001    77.860"
"                 241.220   0.01029    80.750"
"                 241.350   0.01063    84.360"
"                 241.430   0.01084    86.530"
"                 241.880   0.01195    86.530"
"                 241.900   0.01200    86.610"
"                 241.930   0.01207    87.320"
"                 241.950   0.01212    88.380"
"                 242.100    0.1722   103.580"
"              Peak outflow                 0.015    c.m/sec"
"              Maximum level              241.953    metre"
"              Maximum storage             88.724    c.m"
"              Centroidal lag               3.125   hours"
"                   0.086     0.086     0.015     0.023 c.m/sec"
" 40           HYDROGRAPH   Combine    2"
"             6   Combine "
"             2   Node #"
"                 To Ex. Retirement"
"              Maximum flow                 0.015    c.m/sec"
"              Hydrograph volume          124.344    c.m"
"                       0.086     0.086     0.015     0.015"
" 40           HYDROGRAPH Start - New Tributary"
"             2   Start - New Tributary"
"                       0.086     0.000     0.015     0.015"
" 33           CATCHMENT 400"
"             1   Triangular SCS"
"             1   Equal length"
"             1   SCS method"
"           400   Catchmetn 400"
```

```
"        0.000   % Impervious"
"        0.010   Total Area"
"       10.000   Flow length"
"        2.000   Overland Slope"
"        0.010   Pervious Area"
"       10.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       10.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.397   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.002     0.000     0.015     0.015 c.m/sec"
"             Catchment 400          Pervious   Impervious Total Area "
"             Surface Area           0.010      0.000      0.010      hectare"
"             Time of concentration  6.629      0.851      6.629      minutes"
"             Time to Centroid       102.035    85.425     102.035    minutes"
"             Rainfall depth         77.647     77.647     77.647     mm"
"             Rainfall volume        7.76       0.00       7.76       c.m"
"             Rainfall losses        46.858     8.745      46.858     mm"
"             Runoff depth           30.790     68.903     30.790     mm"
"             Runoff volume          3.08       0.00       3.08       c.m"
"             Runoff coefficient     0.397      0.000      0.397      "
"             Maximum flow           0.002      0.000      0.002      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.002     0.002     0.015     0.015"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.002     0.002     0.002     0.015"
" 40          HYDROGRAPH   Combine    3"
"            6   Combine "
"            3   Node #"
"                To Station Road"
"             Maximum flow                 0.002    c.m/sec"
"             Hydrograph volume            3.079    c.m"
"                    0.002     0.002     0.002     0.002"
" 40          HYDROGRAPH   Confluence    1"
"            7   Confluence "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                 0.023    c.m/sec"
```

```
"             Hydrograph volume           154.626    c.m"
"                     0.002     0.023     0.002     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.002     0.023     0.023     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.023    c.m/sec"
"             Hydrograph volume           154.626    c.m"
"                     0.002     0.023     0.023     0.023"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                To Ex. Retirement"
"             Maximum flow                  0.015    c.m/sec"
"             Hydrograph volume           124.344    c.m"
"                     0.002     0.015     0.023     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.002     0.015     0.015     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.033    c.m/sec"
"             Hydrograph volume           278.971    c.m"
"                     0.002     0.015     0.015     0.033"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To Station Road"
"             Maximum flow                  0.002    c.m/sec"
"             Hydrograph volume             3.079    c.m"
"                     0.002     0.002     0.015     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.002     0.002     0.002     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.034    c.m/sec"
"             Hydrograph volume           282.050    c.m"
"                     0.002     0.002     0.002     0.034"
" 40          HYDROGRAPH   Confluence    4"
"            7   Confluence "
"            4   Node #"
"                TOTAL"
```

```
"             Maximum flow                  0.034    c.m/sec"
"             Hydrograph volume           282.050    c.m"
"                     0.002     0.034     0.002     0.000"
" 38          START/RE-START TOTALS 4"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                      0.550    hectare"
"             Total Impervious area                     0.341    hectare"
"             Total % impervious                       61.909"
" 19          EXIT"
```

```
"                MIDUSS Output ----------------------------------------------->"
"                MIDUSS version                            Version 2.25  rev. 473"
"                MIDUSS created                          Sunday, February 7, 2010"
"           10   Units used:                                          ie METRIC"
"                Job folder:                                C:\Users\patgri4018\"
"                  OneDrive - GEI Consultants, Inc\Work\423091  14 Station Road"
"                Output filename:                      423091  100-Year Post.out"
"                Licensee name:                                                 "
"                Company                                                        "
"                Date & Time last used:                  2/4/2026 at 12:03:21 PM"
" 31          TIME PARAMETERS"
"        5.000   Time Step"
"      180.000   Max. Storm length"
"     1500.000   Max. Hydrograph"
" 32          STORM Chicago storm"
"            1   Chicago storm"
"     4688.000   Coefficient A"
"       17.000   Constant B"
"        0.962   Exponent C"
"        0.400   Fraction R"
"      180.000   Duration"
"        1.000   Time step multiplier"
"             Maximum intensity          239.354    mm/hr"
"             Total depth                 87.079    mm"
"            6   100hyd   Hydrograph extension used in this file"
" 33          CATCHMENT 100"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          100   Catchment 100"
"       65.000   % Impervious"
"        0.270   Total Area"
"       35.000   Flow length"
"        2.000   Overland Slope"
"        0.095   Pervious Area"
"       35.000   Pervious length"
"        2.000   Pervious slope"
"        0.176   Impervious Area"
"       35.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.433   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.926   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
```

```
"                    0.102     0.000     0.000     0.000 c.m/sec"
"             Catchment 100          Pervious   Impervious Total Area "
"             Surface Area           0.095      0.176      0.270      hectare"
"             Time of concentration  12.957     1.728      3.987      minutes"
"             Time to Centroid       109.081    86.229     90.826     minutes"
"             Rainfall depth         87.079     87.079     87.079     mm"
"             Rainfall volume        82.29      152.82     235.11     c.m"
"             Rainfall losses        49.361     6.437      21.460     mm"
"             Runoff depth           37.718     80.643     65.619     mm"
"             Runoff volume          35.64      141.53     177.17     c.m"
"             Runoff coefficient     0.433      0.926      0.754      "
"             Maximum flow           0.016      0.098      0.102      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.102     0.102     0.000     0.000"
" 54          POND DESIGN"
"        0.102   Current peak flow    c.m/sec"
"        0.052   Target outflow    c.m/sec"
"        177.2   Hydrograph volume    c.m"
"          18.   Number of stages"
"        0.000   Minimum water level    metre"
"        3.000   Maximum water level    metre"
"        0.000   Starting water level    metre"
"            0   Keep Design Data: 1 = True; 0 = False"
"                  Level Discharge    Volume"
"                239.930     0.000     0.000"
"                239.980  1.00E-07     2.110"
"                240.110  1.00E-07     7.400"
"                240.160  1.00E-07     9.510"
"                240.260  1.00E-07    17.960"
"                240.360   0.01065    26.330"
"                240.460   0.01128    34.630"
"                240.740   0.01288    56.860"
"                241.050   0.01444    79.680"
"                241.350   0.01581   100.180"
"                241.660   0.01711   116.140"
"                241.680   0.01719   117.220"
"                241.780   0.01758   121.440"
"                241.890   0.01801   125.670"
"                241.990   0.01839   129.890"
"                242.610   0.02058   130.070"
"                242.630   0.02065   130.140"
"                242.780    0.1808   136.690"
"             Peak outflow                 0.017    c.m/sec"
"             Maximum level              241.560    metre"
"             Maximum storage            110.999    c.m"
"             Centroidal lag               2.655   hours"
"                  0.102     0.102     0.017     0.000 c.m/sec"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
```

```
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.017    c.m/sec"
"             Hydrograph volume           159.303    c.m"
"                    0.102     0.102     0.017     0.017"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.102     0.000     0.017     0.017"
" 33          CATCHMENT 200"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          200   Catchment 200"
"        0.000   % Impervious"
"        0.050   Total Area"
"       15.000   Flow length"
"        2.000   Overland Slope"
"        0.050   Pervious Area"
"       15.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       15.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.433   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.011     0.000     0.017     0.017 c.m/sec"
"             Catchment 200          Pervious   Impervious Total Area "
"             Surface Area           0.050      0.000      0.050      hectare"
"             Time of concentration  7.793      1.039      7.793      minutes"
"             Time to Centroid       102.638    85.356     102.638    minutes"
"             Rainfall depth         87.079     87.079     87.079     mm"
"             Rainfall volume        43.54      0.00       43.54      c.m"
"             Rainfall losses        49.364     7.844      49.364     mm"
"             Runoff depth           37.715     79.235     37.715     mm"
"             Runoff volume          18.86      0.00       18.86      c.m"
"             Runoff coefficient     0.433      0.000      0.433      "
"             Maximum flow           0.011      0.000      0.011      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.011     0.011     0.017     0.017"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
```

```
"                    0.011     0.011     0.011     0.017"
" 40          HYDROGRAPH   Combine    1"
"            6   Combine "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.026    c.m/sec"
"             Hydrograph volume           178.161    c.m"
"                    0.011     0.011     0.011     0.026"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                    0.011     0.000     0.011     0.026"
" 33          CATCHMENT 300"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          300   Catchment 300"
"       75.000   % Impervious"
"        0.220   Total Area"
"       25.000   Flow length"
"        2.000   Overland Slope"
"        0.055   Pervious Area"
"       25.000   Pervious length"
"        2.000   Pervious slope"
"        0.165   Impervious Area"
"       25.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.434   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.923   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.097     0.000     0.011     0.026 c.m/sec"
"             Catchment 300          Pervious   Impervious Total Area "
"             Surface Area           0.055      0.165      0.220      hectare"
"             Time of concentration  10.589     1.412      2.654      minutes"
"             Time to Centroid       106.092    85.785     88.533     minutes"
"             Rainfall depth         87.079     87.079     87.079     mm"
"             Rainfall volume        47.89      143.68     191.57     c.m"
"             Rainfall losses        49.326     6.662      17.328     mm"
"             Runoff depth           37.754     80.417     69.751     mm"
"             Runoff volume          20.76      132.69     153.45     c.m"
"             Runoff coefficient     0.434      0.923      0.801      "
"             Maximum flow           0.011      0.094      0.097      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
```

```
"                    0.097     0.097     0.011     0.026"
" 54          POND DESIGN"
"        0.097   Current peak flow    c.m/sec"
"        0.052   Target outflow    c.m/sec"
"        153.5   Hydrograph volume    c.m"
"          19.   Number of stages"
"        0.000   Minimum water level    metre"
"        3.000   Maximum water level    metre"
"        0.000   Starting water level    metre"
"            0   Keep Design Data: 1 = True; 0 = False"
"                  Level Discharge    Volume"
"                239.370     0.000     0.000"
"                239.470  1.00E-07     2.890"
"                239.600  1.00E-07     6.500"
"                239.700  1.00E-07    12.080"
"                239.800   0.00504    17.600"
"                239.900   0.00557    23.080"
"                240.210   0.00697    39.050"
"                240.510   0.00810    54.030"
"                240.790   0.00902    66.410"
"                241.000   0.00965    74.040"
"                241.120   0.01001    77.860"
"                241.220   0.01029    80.750"
"                241.350   0.01063    84.360"
"                241.430   0.01084    86.530"
"                241.880   0.01195    86.530"
"                241.900   0.01200    86.610"
"                241.930   0.01207    87.320"
"                241.950   0.01212    88.380"
"                242.100    0.1722   103.580"
"             Peak outflow                 0.038    c.m/sec"
"             Maximum level              241.975    metre"
"             Maximum storage             90.881    c.m"
"             Centroidal lag               2.775   hours"
"                  0.097     0.097     0.038     0.026 c.m/sec"
" 40          HYDROGRAPH   Combine    2"
"            6   Combine "
"            2   Node #"
"                To Ex. Retirement"
"             Maximum flow                 0.038    c.m/sec"
"             Hydrograph volume          143.207    c.m"
"                      0.097     0.097     0.038     0.038"
" 40          HYDROGRAPH Start - New Tributary"
"            2   Start - New Tributary"
"                      0.097     0.000     0.038     0.038"
" 33          CATCHMENT 400"
"            1   Triangular SCS"
"            1   Equal length"
"            1   SCS method"
"          400   Catchmetn 400"
```

```
"        0.000   % Impervious"
"        0.010   Total Area"
"       10.000   Flow length"
"        2.000   Overland Slope"
"        0.010   Pervious Area"
"       10.000   Pervious length"
"        2.000   Pervious slope"
"        0.000   Impervious Area"
"       10.000   Impervious length"
"        2.000   Impervious slope"
"        0.250   Pervious Manning 'n'"
"       75.000   Pervious SCS Curve No."
"        0.430   Pervious Runoff coefficient"
"        0.100   Pervious Ia/S coefficient"
"        8.467   Pervious Initial abstraction"
"        0.015   Impervious Manning 'n'"
"       98.000   Impervious SCS Curve No."
"        0.000   Impervious Runoff coefficient"
"        0.100   Impervious Ia/S coefficient"
"        0.518   Impervious Initial abstraction"
"                    0.002     0.000     0.038     0.038 c.m/sec"
"             Catchment 400          Pervious   Impervious Total Area "
"             Surface Area           0.010      0.000      0.010      hectare"
"             Time of concentration  6.110      0.815      6.110      minutes"
"             Time to Centroid       100.594    85.080     100.594    minutes"
"             Rainfall depth         87.079     87.079     87.079     mm"
"             Rainfall volume        8.71       0.00       8.71       c.m"
"             Rainfall losses        49.646     9.562      49.646     mm"
"             Runoff depth           37.433     77.517     37.433     mm"
"             Runoff volume          3.74       0.00       3.74       c.m"
"             Runoff coefficient     0.430      0.000      0.430      "
"             Maximum flow           0.002      0.000      0.002      c.m/sec"
" 40          HYDROGRAPH Add Runoff "
"            4   Add Runoff "
"                    0.002     0.002     0.038     0.038"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                    0.002     0.002     0.002     0.038"
" 40          HYDROGRAPH   Combine    3"
"            6   Combine "
"            3   Node #"
"                To Station Road"
"             Maximum flow                  0.002    c.m/sec"
"             Hydrograph volume             3.743    c.m"
"                    0.002     0.002     0.002     0.002"
" 40          HYDROGRAPH   Confluence    1"
"            7   Confluence "
"            1   Node #"
"                To Ex. Residential"
"             Maximum flow                  0.026    c.m/sec"
```

```
"             Hydrograph volume           178.161    c.m"
"                     0.002     0.026     0.002     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.002     0.026     0.026     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.026    c.m/sec"
"             Hydrograph volume           178.161    c.m"
"                     0.002     0.026     0.026     0.026"
" 40          HYDROGRAPH   Confluence    2"
"            7   Confluence "
"            2   Node #"
"                To Ex. Retirement"
"             Maximum flow                  0.038    c.m/sec"
"             Hydrograph volume           143.207    c.m"
"                     0.002     0.038     0.026     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.002     0.038     0.038     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.062    c.m/sec"
"             Hydrograph volume           321.370    c.m"
"                     0.002     0.038     0.038     0.062"
" 40          HYDROGRAPH   Confluence    3"
"            7   Confluence "
"            3   Node #"
"                To Station Road"
"             Maximum flow                  0.002    c.m/sec"
"             Hydrograph volume             3.743    c.m"
"                     0.002     0.002     0.038     0.000"
" 40          HYDROGRAPH Copy to Outflow"
"            8   Copy to Outflow"
"                     0.002     0.002     0.002     0.000"
" 40          HYDROGRAPH   Combine    4"
"            6   Combine "
"            4   Node #"
"                TOTAL"
"             Maximum flow                  0.063    c.m/sec"
"             Hydrograph volume           325.113    c.m"
"                     0.002     0.002     0.002     0.063"
" 40          HYDROGRAPH   Confluence    4"
"            7   Confluence "
"            4   Node #"
"                TOTAL"
```

```
"             Maximum flow                  0.063    c.m/sec"
"             Hydrograph volume           325.113    c.m"
"                     0.002     0.063     0.002     0.000"
" 38          START/RE-START TOTALS 4"
"            3   Runoff Totals on EXIT"
"             Total Catchment area                     1.370    hectare"
"             Total Impervious area                    0.857    hectare"
"             Total % impervious                      62.518"
" 19          EXIT"
```