



Functional Servicing and Stormwater Management Design Report

302-306 Edinburgh Road South

City of Guelph, Ontario

Submitted to: Mezcon Construction Ltd. Preston Street Guelph, ON

Submitted by: GEI Consultants Canada Ltd. Woodlawn Road West, Guelph, ON

January 14, 2025 Project No. 2408455



Angela Kroetsch, P.Eng. Senior Project Manager

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1. Introduction

This Functional Servicing and Stormwater Management Design Report has been prepared to document the proposed site servicing and stormwater management design for the residential development at 302-306 Edinburgh Road South in the City of Guelph.

The Owner is required to have a Professional Engineer design a stormwater management system and have the said Engineer supervise and certify that the stormwater management system was installed in accordance with the approvals issued by the City of Guelph.

Topographic survey was completed by Van Harten Land Surveyors in November 2024. The Site Grading and Servicing Plans have been prepared by GEI Consultants Canada Ltd. dated January 2025.

2. Site Information

The site (302-306 Edinburgh Road South) consists of two (2) existing residential buildings along with the associated driveways. The site is approximately 0.364 ha in size and is located along Edinburgh Road South, approximately 70m east of the intersection of Edinburgh Road South and Young Street.

The site is bound by existing residential development to the north, east and west and Edinburgh Road South to the south.

3. Proposed Development

This proposed development consists of four (4) semi-detached dwellings (8 units total, each with a basement), along with driveway access to Edinburgh Road South.

3.1. Sanitary Servicing

The existing dwellings at 302-306 Edinburgh Road South are serviced by individual sanitary service laterals extended from the existing 300mm diameter sanitary sewer located on Edinburgh Road South.

Sanitary service for the proposed development will be provided via the extension of eight (8) 100mm diameter sanitary service laterals extended from the existing 300mm diameter sanitary sewer on Edinburgh Road South.

The following table summarizes the flows discharging from the site to the municipal sanitary sewer system. Sanitary sewer design sheets are found in Appendix A.

	Anticipated Sanitary Design Flow
Average Domestic Sanitary Sewer Flow (16 units @ 3.4 people per unit, @ 300 L/capita/day)	0.000194 m³/s
Peak Sanitary Sewer Flow (PF=4, based on Harmon's Formula)	0.000778 m ³ /s
Extraneous Flow	0.000091 m ³ /s
Total Sanitary Flow	0.000869 m ³ /s
Existing 300mm diameter Sanitary Sewer Capacity	0.049 m³/s

Therefore, the anticipated sanitary sewer flow discharging to the existing 300mm diameter sanitary sewer on Edinburgh Road South is 0.000869m³/s.

3.2. Storm Servicing

Currently, stormwater runoff generated from the site sheetflows overland towards the Edinburgh Road South right-of-way and to the adjacent properties to the north, east and west.

Following development, runoff generated from the rooftops and rear yard landscaped areas will be directed to proposed infiltration galleries located in the rear yard area. Any runoff exceeding the capacity of the proposed infiltration galleries will sheetflow overland to the Edinburgh Road South via a swale located along the west boundary of Parcel 1. Runoff generated from the front yard areas, and driveways will sheetflow overland to the Edinburgh Road South right-of-way.

The site's complete stormwater management design is described in Section 4.

3.3. Watermain Servicing

The existing dwellings at 302-306 Edinburgh Road South are currently serviced via individual water service laterals extended from the existing 200mm diameter watermain located on Edinburgh Road South.

Water service for the proposed development will be provided via the extension of eight (8) 50mm diameter water service laterals extended from the existing 200mm diameter watermain on Edinburgh Road South.

As per the City of Guelph Water and Wastewater Servicing Master Plan (dated June 5, 2023), the residential water servicing demand is 228 liters per capita per day (167 L/c/d residential + 61 L/c/day non-revenue water). Based on an occupancy of 4 people per unit, the total daily water demand per unit is 912 L/day. Therefore, the anticipated water demand is 14,592 L/day for the 16 units (8 units, each with a basement unit).

3.4. Foundation Drainage

Foundation drainage for the proposed development will be provided via sump pumps discharging to grade at the rear of each unit. No storm service laterals are proposed.

4. Stormwater Management

4.1. Design Criteria

From the City of Guelph Development Engineering Manual (dated October 2023), see Appendix G (Figure 4.2 Stormwater Control Criteria), 302-306 Edinburgh Road South is located within Policy Area 13. On this basis, the stormwater management criteria for the site are as follows:

- 1. Maintain predevelopment recharge rate, volume and hydroperiods under post-development conditions,
- 2. Provide a minimum of 5mm of volume control,
- 3. Provide an enhanced level water quality treatment and,
- 4. Control post-development peak flows to the pre-development level for all design storm events (2-100 year).

The City of Guelph Chicago Storm parameters used to model the 2-year to 100-year design storm events for the site are summarized in the following Table No. 2. These parameters are consistent with the City of Guelph Stormwater Management Master Plan (dated March 2023).

Coefficient	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
а	563.699	750.423	855.183	972.202	1054.539	1122.601
b	1.5	1.5	1.5	1.5	1.5	1.5
с	0.766	0.769	0.764	0.752	0.746	0.738
r	0.4	0.4	0.4	0.4	0.4	0.4
Duration (min)	240	240	240	240	240	240

Table No. 2: City of Guelph - Chicago Storm Parameters

The Horton infiltration method was used in the MIDUSS model. The following parameters summarized in Table No. 3 were used according to the City of Guelph Standards:

Table No. 3: MIDUSS Horton Parameters

	Impervious Areas	Pervious Areas
Maximum Infiltration (mm/hr)	0.0	75.0
Minimum Infiltration (mm/hr)	0.0	12.5
Lag Constant (hr)	0.00	0.25
Depression Storage (mm)	1.5	5.0

4.2. Existing Conditions

Under existing conditions, the 0.364-hectare site has been modelled as three (3) catchments (see Figure No. 1). The existing condition MIDUSS modelling files are included in Appendix B.

Catchment 101 (0.3270 hectares 38% impervious) represents the existing driveway, existing covered porch, existing walkway, existing landscaped area in the front yard, existing garage and shed in the rear yard and the existing building at 302 and 306 Edinburgh Road South. Runoff generated from this catchment currently sheetflows overland towards the Edinburgh Road South right-of-way.

Catchment 102 (0.0130 hectares 0% impervious) represents the existing landscaped area in the rear yard at 302 Edinburgh Road South. Runoff generated from this catchment currently sheetflows overland to the adjacent property to the west.

Catchment 103 (0.0240 hectares 0% impervious) represents the existing landscaped area and existing shed in the rear yard at 306 Edinburgh Road South. Runoff generated from this catchment currently sheetflows overland to the adjacent properties to the north and east.

4.2.1. Existing Condition Flow Rates

The hydrologic model MIDUSS was used to create the design storm runoff hydrographs and to route the hydrographs. A summary of the existing conditions peak flow rates from the site during the 2 to 100-year design storm events are provided in Table No. 4 below. The existing conditions MIDUSS output file is attached in Appendix B.

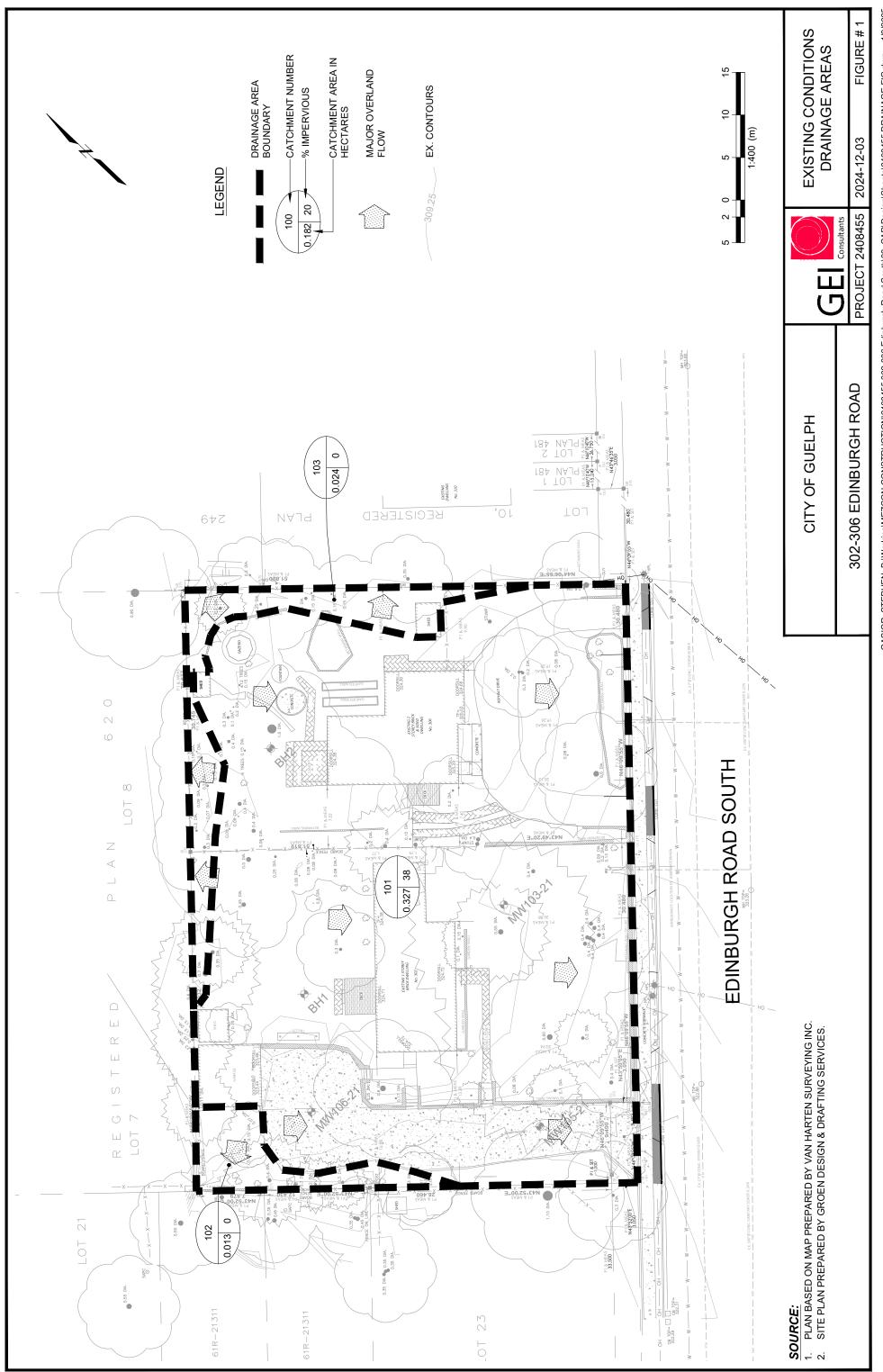
		Peak Flow Rate (m³/sec)				
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Catchment 101	0.034	0.048	0.057	0.070	0.080	0.090
Catchment 102	0.000	0.001	0.001	0.002	0.002	0.003
Catchment 103	0.001	0.002	0.002	0.003	0.004	0.005
Total Flow from Site	0.034	0.049	0.059	0.074	0.085	0.096

Table No. 4: Existing Condition Flow Rates

4.3. Allowable Release Rates

The City of Guelph criteria for Policy Area 13 requires that all post-development peak flows generated from the site be controlled to the pre-development level for all design storm events (2-100 year). Therefore, the allowable release rates from the site are as follows:

	Peak Flow Rate (m ³ /sec)					
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Total Flow from Site	0.034	0.049	0.059	0.074	0.085	0.096



GASIOR, STEPHEN B:\Working\MEZCON CONSTRUCTION\2408455 302-306 Edinburgh Road South\00_CAD\Design\Sheets\2408455 DRAINAGE FIG.dwg - 1/9/2025

4.4. Post-Development Conditions

For post-development analysis purposes, 302-306 Edinburgh Road South (0.364 hectares) was modelled as three (3) drainage catchments. The post-development drainage catchments are shown on Figure No. 2. The post-development MIDUSS computer modeling and stage-storage-discharge tables are attached in Appendix B.

Catchment 201 (0.1150-hectares, 50% impervious) represents the front yards and driveways in the front of the proposed semi-detached dwellings. Runoff generated from Catchment 201 will sheetflow overland to the Edinburgh Road South right-of-way uncontrolled.

Catchment 202 (0.2488-hectares, 45% impervious) represents the rooftop and rear yard area of Parcel 1 to 8. Runoff from Catchment 202 will sheetflow overland to the proposed infiltration galleries in the rear yard of Parcel 1 to 8. Runoff from Catchment 202 which exceeds the capacity of the infiltration galleries will sheetflow overland to the Edinburgh Road South right-of-way vie swale located west of Parcel 1.

The infiltration galleries located in the rear yards of Parcel 1 to 8, provides a storage volume of 25.60 m³. A blanket easement will be provided for drainage across Parcel 1 to 8. The alignment of infiltration galleries has shown on the engineering drawings.

All roof downspouts from Catchments 202 are to be directed to the rear yard areas. No roof downspouts are to be directed to the side yards. In addition to this, all runoff directed to the side yard area has been minimized to match existing drainage patterns.

Catchment 203 (0.0002-hectares, 0% impervious) represents the landscaped area in the rear yard of Parcel 1. Runoff generated from this catchment will sheetflow overland to the adjacent property to the west.

The parameters utilized in the Post-Development Condition Analysis are summarized in Table No. 6.

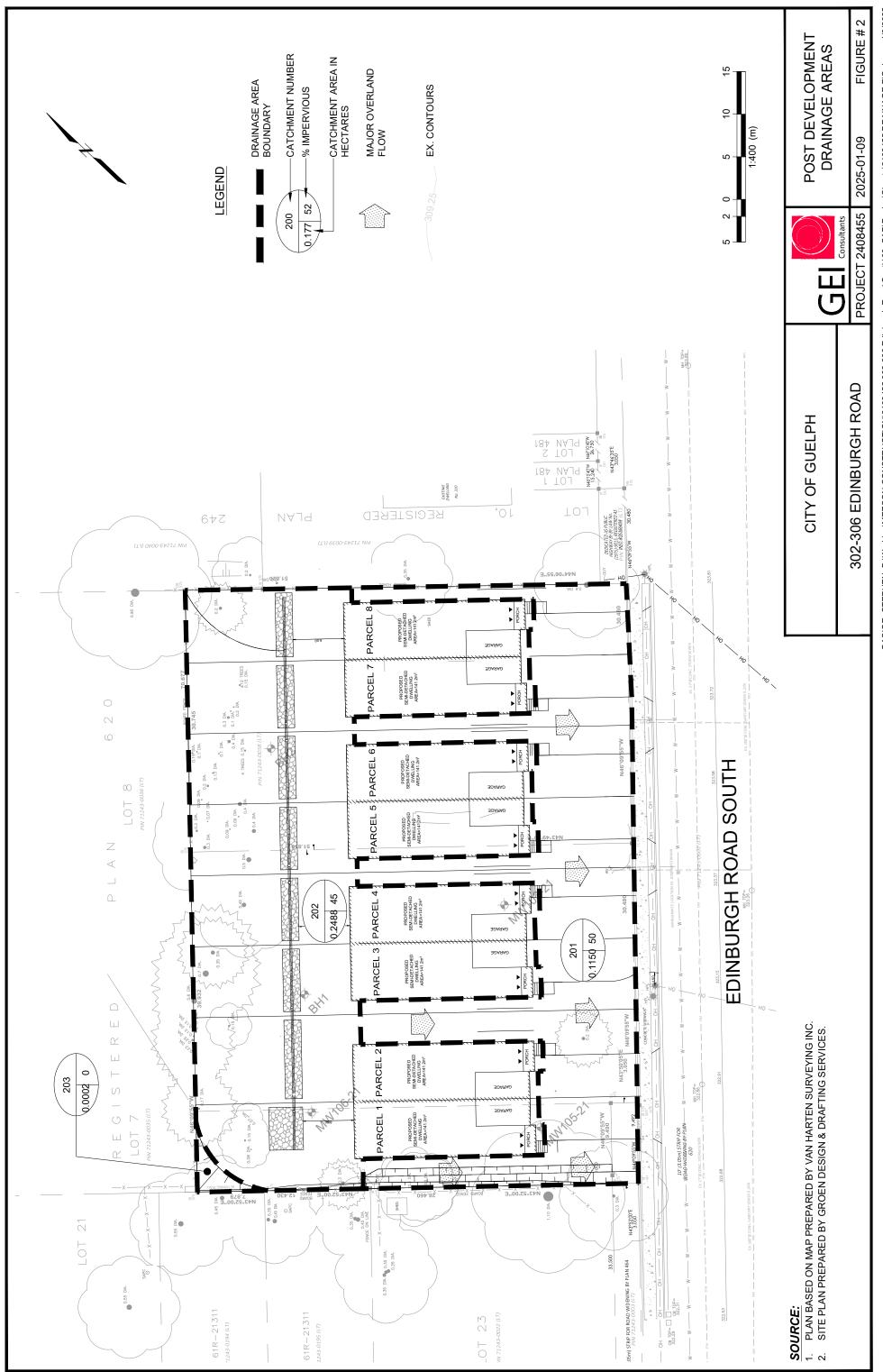
Catchment Area (Hectares)		Impervious Area (Hectares)	Imperviousness (%)	
Catchment 201	0.1150	0.0575	50	
Catchment 202	0.2488	0.1120	45	
Catchment 203	0.0002	0.0000	0	

Table No. 6: Proposed Drainage Areas:

4.5. Routing – Post-Development Conditions

The hydrologic model MIDUSS was used to create the design storm runoff hydrographs and to route the hydrographs.

The routing results for the proposed underground infiltration galleries are summarized in Table No. 7 below.



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		Available Capac	ity	Actual Capacity Used		
Storage and Control	Peak Flow m³/s	Storage Volume m ³	Storage Elevation m	Peak Flow m³∕s	Storage Volume m ³	Storage Elevation m
Bottom of Infiltration Galleries	0.000	0.000	321.450			
Top of Infiltration Galleries	0.001	25.600	322.050			
T/G of Inline Drain	0.001	26.313	323.310			
2 Year				0.002	27.596	323.430
Weir	0.001	27.590	323.430			
5 Year				0.015	27.849	323.446
10 Year				0.028	28.110	323.463
25 Year				0.040	28.566	323.492
50 Year				0.049	28.766	323.504
100 Year				0.056	29.033	323.521
Overflow	0.085	29.172	323.530			

Table No. 7: Infiltration Gallery No.1 to 8 (Catchment 202, Parcel 1 to 8) - Stage-Storage-Discharge
Capacity

A summary of the post-development condition flow rates for the 2-year to 100-year design storm events are provided in Table No. 8 below:

				Rate /sec)		
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Catchment 201	0.015	0.022	0.026	0.031	0.035	0.039
Catchment 202	0.002	0.015	0.028	0.040	0.049	0.056
Catchment 203	0.000	0.000	0.000	0.000	0.000	0.000
Total	0.017	0.023	0.043	0.059	0.071	0.081

A comparison of the existing condition flow rates, allowable release rates and post-development flow rates from the site for the 2-year to 100-year design storm events are provided in Table No. 9 below.

Table No. 9: Com	parison of Existing	Peak Flows and	Post-Development	Flow Rate from The Site
	parison of Existing	i can i iono ana	i obt bevelopment	

			-	w Rate ³ /sec)		
	2-Year	5-Year	10-Year	25-Year	50-Year	100-Year
Existing Condition Total Flow off site	0.034	0.049	0.059	0.074	0.085	0.096
Allowable Release Rate	0.034	0.049	0.059	0.074	0.085	0.096
Post-Development Condition Total Flow off-site	0.017	0.023	0.043	0.059	0.071	0.081

As shown in Table No. 9 above, all post-development flow rates from the site (for the 2 to 100-year design storm events) have been attenuated to be less than the existing condition flow rates, and the allowable release rates.

4.6. Volume Retention

As per the City of Guelph criteria a minimum of 5mm volume control is to be provided. Based on the area of the proposed development (0.364 ha), 18.20 m³ of runoff is to be retained on site to comply with the 5mm of volume control.

On-site retention for this development will be provided via infiltration galleries located in the rear yard of Parcel 1 to Parcel 8. The proposed infiltration galleries in the rear yards of Parcel 1 to Parcel 8 provide a storage volume of 25.60m³.

Therefore, eight (8) infiltration galleries have been designed to capture and retain 25.60m³ of runoff from the site.

The following table summarizes the retention storage volume provided in each infiltration gallery.

Lot Number	Required Retention Volume (m ³)	Provided Retention Volume (m ³)
Parcel 1 – Infiltration Gallery 1	2.35	3.2
Parcel 2 – Infiltration Gallery 2	2.35	3.2
Parcel 3 – Infiltration Gallery 3	2.25	3.2
Parcel 4 – Infiltration Gallery 4	2.25	3.2
Parcel 5 – Infiltration Gallery 5	2.25	3.2
Parcel 6 – Infiltration Gallery 6	2.25	3.2
Parcel 7 – Infiltration Gallery 7	2.25	3.2
Parcel 8 – Infiltration Gallery 8	2.25	3.2
Total Retention	18.20	25.60

Table No. 10: Post-Development Required and Proposed Retention Storage Volume

Therefore, based on Table 10, the first 5mm of rainfall on-site has been retained on site.

4.7. Quality Control Treatment

Quality control treatment for runoff generated from the site will be provided by directing runoff over grassed surfaces prior to discharge from the site.

5. Water Balance

In order to determine the hydraulic conductivity of the on-site soil, a Guelph Permeameter test was completed for 302-306 Edinburgh Road South by CMT Engineering Ltd. on November 5, 2024. Four separate tests were completed at two (2) Test Locations, associated with 302-306 Edinburgh Road South, and were run at depths of 2.4m and 3.9m below the existing grade. The results of the Guelph Permeameter completed by CMT Engineering Ltd., and the calculated design infiltration rate for 302-306 Edinburgh Road South are shown below. CMT Engineering Ltd.'s complete Guelph Permeameter Test report is attached as Appendix C.

The design infiltration rate was determined through the process specified in Appendix C of the CVC / TRCA Low Impact Development Stormwater Management Planning and Design Guide V1.0 (dated 2011). The Safety Correction Factor is per Table C2 and the conversion of hydraulic conductivity (cm/s) to infiltration rate (mm/hr) is as per Figure C1.

	Approximate Galle		Below	Gallery	Ratio of Infiltration		Design
Test Location	Hydraulic Conductivity (cm/s)	Infiltration Rate (mm/hr)	Hydraulic Conductivity (cm/s)	Infiltration Rate (mm/hr)	Rate at Gallery Bottom to Below Gallery	Safety Factor	Infiltration Rate (mm/hr)
I	8.39E-4	70.5	3.94E-4	58.2	1.21	2.5	28.2
II	9.32E-4	73.1	7.23E-4	67.3	1.09	2.5	29.2

Table No. 11: Permeameter Test Results and Design Infiltration Rate

Under existing conditions, the annual recharge volume for the site is 774 m³/year. As provided in the Monthly Water Balance calculations (Thornthwaite and Mather), under post development conditions, the 0.364-ha site provides a total recharge volume of 2048 m³ via the infiltration galleries. The infiltration galleries were located to ensure the required 1.0 m separation from the high groundwater level was maintained. Monthly water balance summary for all catchments is shown in the Table 12 below.

Therefore, the proposed development provides a total of 2048 m³ of recharge annually, which is more than 774 m³ provided under existing conditions. The required annual post-development recharge volume for the site meets the required volume recharge for Policy Area 13 from the City's Development Engineering Manual (dated October 2023).

The complete Monthly Water Balance calculation is provided in the Appendix D.

Month		Existing Rech (m	-		P	roposed Rec (m	-	ne
WORKI		Catchment				Catchment		
	101	102	103	Total	201	202	203	Total
Jan	16	1	2	18	5	41	0	46
Feb	8	0	1	9	2	21	0	23
Mar	4	0	1	5	1	11	0	12
Apr	72	4	8	84	21	187	0	208
May	185	11	20	217	54	485	0	539
Jun	109	5	10	125	33	294	0	327
Jul	73	3	5	80	23	201	0	225
Aug	53	1	3	57	18	151	0	169
Sep	38	1	1	40	13	111	0	125
Oct	26	0	1	27	9	77	0	86
Nov	65	3	6	75	19	173	0	192
Dec	32	2	3	37	10	86	0	96
Total	681	33	60	774	209	1,838	1	2,048

Table No. 12: Monthly Water Balance Summary

6. Erosion Protection and Sediment Control

A silt fence is to be installed along the perimeter of the property. The silt fence serves to minimize the opportunity for sediment to leave the site.

Upon completion of the grading, any area not subject to active construction within 30 days will be topsoiled and hydroseeded as per OPSS PROV 804. Inspection and maintenance of all silt fencing will start after installation is complete. The silt 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 silt fence 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. After construction of the complete development, erosion and sediment transport will be minimal.

7. Conclusions

In summary, the features of the design for the proposed development are as follows:

- 1. Sanitary service for each Parcel will be provided by individual 100mm diameter sanitary service lateral extended from the existing 300mm diameter sanitary sewer on Edinburgh Road South.
- 2. Water service for each Parcel will be provided by individual 50mm diameter water service lateral extended from the existing 200mm diameter watermain on Edinburgh Road South.
- 3. Foundation drainage will be provided via a sump pump discharging to grade at the rear of each unit. No storm service laterals are proposed.
- 4. The first 5mm of rainfall on-site has been retained in the proposed depression storage and bioretention swale on-site.
- 5. All post-development flow rates from the site (for the 2 to 100-year design storm events) have been attenuated to be less than the existing condition flow rates.
- 6. All roof downspouts from Catchments 202 are to be directed to the rear yard areas. No roof downspouts are to be directed to the side yards.
- 7. All runoff directed to the side yards match existing drainage patterns.
- 8. The 302-306 Edinburgh Road South annual water balance recharge volume is 2048 m³per year, approximately 1274 m³ more than the existing condition recharge volume of 774 m³ per year.

All of which is respectfully submitted.

GEI Consultants Canada Ltd.



Senior Project Manager



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Appendix A Sanitary Sewer Flow Calculation

A.1. Sanitary Sewer Flow Calculations

A.1. Sanitary Sewer Flow Calculations

PROJECT:		302-306 Edinburgh Road South City of Guelph	ad South						SAN	IITAF	SANITARY SEWER DESIGN	WEF	S DE	SIGN					Ĕ	Residential:		0.00347 L/s/cap	cab	
DATE:		January 10, 2025									City	of Gl	City of Guelph											
DESIGNED BY: CHECKED BY:		H.B A.E.K									Ś	Sheet 1 of 1	f 1											
Q(i) = Cum. Area	(ha) * Infilt	Q(i) = Cum. Area (ha) * Infiltration Rate / 1000			2	Manning Equation:		:ull Cap.= (D/2/1000)	√2*Pi*(D/4/	Full Cap= (D/2/1000)^2*P1*(D/4/1000)^0.667*(1/n)*(S/100)^0.5	(1/n)*(S/1(00)^0.5			Average Daily Flow	y Flow			= c		0.013		
Infiltra	Infiltration Rate:	0.25 1	0.25 L/ha/s				Ц	D = Diameter (mm)	ər (mm)								Per Person =		300 L/p/d	Σ	Max Peak Fac. =	=	4.000	
							(U	S = Slope (%)	(%							Minimum	Minimum Full Velocity=		0.6 m/s	Σ	Min Peak Fac.	 	4.000	
Peakin	ig Factor :	Peaking Factor : F = 1 + (14/(4+P^0.5))		۵.	P = Population/1000	ion/1000	c	i = 0.013 (f	oVC & Coi	ncrete), 0.0	n = 0.013 (PVC & Concrete), 0.016 (Vitrified Clay)	Jay)												
					RESIDENTI	RESIDENTIAL AREA AND POPULATION	AD POPULA	VTION		-	Commercial		Industustrial		Institutional	C++	r Peak	Ĭ			Pipe			
	From	10	Area	Number of	Proposed Density		Cumulative			Peak Flow	Area Cu Ar	Cum. Ar Area Ar	Area Cum. Area	n. Area	a Cum. Area	l. Peak Flow		Extraneous I otal Flow Flow	Distance	Diameter	Slope Ca	Capacity (Full)	Velocity	
			(ha)		(p/unit)	Population	Area P	Population	Factor	(m ³ /s)	(ha) (h	(ha) (h	(ha) (ha)	a) (ha)) (ha)	(m ³ /s)	$Q(i) = (m^3/s)$) (m ³ /s)	(E)	(mm)	i) (%)	(m ³ /s) (Full A (m/s) (Actual (m/s)
	Parcel 1	Ex. 300mm dia San	0.047	2	3.4	6.8	0.047	6.8	4.000	9.44E-05							0.000012	0.000106	26.1	100	2.00 0.	0.0073 0	0.929 0	0.000
	Parcel 2	Ex. 300mm dia San	0.047	2	3.4	6.8	0.094	14.0	4.000 0	0.000194							0.000024	0.000218	26.2	100	2.00 0.	0.0073 0	0.929 0	0.214
	Parcel 3	Ex. 300mm dia San	0.045	2	3.4	6.8	0.139	21.0	4.000 0	0.000292							0.000035	0.000326	26.4	100	2.00 0.	0.0073 0	0.929 0	0.214
Road	Parcel 4	Ex. 300mm dia San	0.045	2	3.4	6.8	0.184	28.0	4.000 0	0.000389							0.000046	0.000435	26.5	100	2.00 0.	0.0073 0	0.929 0	0.214
South	Parcel 5	Ex. 300mm dia San	0.045	2	3.4	6.8	0.229	35.0	4.000 0	0.000486							0.000057	0.000543	26.6	100	2.00 0.	0.0073 0	0.929 0	0.214
	Parcel 6	Ex. 300mm dia San	0.045	2	3.4	6.8	0.274	42.0	4.000 0	0.000583							0.000069	0.000652	26.7	100	2.00 0.	0.0073 0	0.929 0	0.214
	Parcel 7	Ex. 300mm dia San	0.045	2	3.4	6.8	0.319	49.0	4.000 0	0.000681							0.000080	0.000760	26.7	100	2.00 0.	0.0073 0	0.929 0	0.214
	Parcel 8	Ex. 300mm dia San	0.045	2	3.4	6.8	0.364	56.0	4.000 0	0.000778							0.000091	0.000869	26.8	100	2.00 0.	0.0073 0	0.929 0	0.214

Appendix B Stage-Storage-Discharge Tables, Hydraulic Modelling Output Files

- **B.1. Stage-Storage-Discharge Tables**
- **B.2.** Existing Condition MIDUSS Modelling Output Files
- **B.3.** Post-development MIDUSS Modelling Output Files

B.1. Stage-Storage-Discharge Tables

302-306 Edinburgh Road South City of Guelph Our File: 2408455 Revised : January 2025

CATCHMENT 202 - INFILTRATION GALLERIES

	ST	AGE STORAGE V	OLUME CALCUL	ATIONS	
ELEV	DEPTH	SURFACE	INCR.	ACCUM.	_
		AREA	VOLUME	STORAGE	
				VOLUME	
(m)	(m)	(sq m)	(cu m)	(cu m)	
320.13	0.000	0.0	0.000	0.000	Seasonal High Groundwater Elevation
321.45	0.000	128.0	0.000	0.000	Bottom of Gallery
321.55	0.100	128.0	4.267	4.267	
321.65	0.200	128.0	4.267	8.533	
321.75	0.300	128.0	4.267	12.800	
321.85	0.400	128.0	4.267	17.067	
321.95	0.500	128.0	4.267	21.333	
322.05	0.600	128.0	4.267	25.600	Top of Gallery
322.35	0.900	0.6	0.170	25.770	
322.65	1.200	0.6	0.170	25.939	
322.95	1.500	0.6	0.170	26.109	
323.31	1.860	0.6	0.204	26.313	T/G of inline drain
323.33	1.875	9.3	0.074	26.386	
323.43	1.980	13.6	1.204	27.590	Weir
323.53	2.080	18.0	1.582	29.172	Overflow
BOTTO			0	VERFLOW WI	FIR
L(dw) =	60.00		Q =	0.085	cu m/s
W(dw) =	2.13		d1 =	1.980	m
Perimeter=	124.27		h =	2.080	m
D(dw) =	0.60		= H =	0.100	m
A(c) =	128.00		2g =	19.620	
VOL(dw)=	76.80	•	L =	2.000	m
VOL(dw)=	25.60		L -	2.000	
K =		mm/hr	(BH2 Desian Inf	iltration Rate a	s per Geotechnical Investigation Report)
K =	8.11E-06		ι Ο		

302-306 Edinburgh Road South City of Guelph Our File: 2408455 Revised : January 2025

CATCHMENT 202 - INFILTRATION GALLERIES

BOTTOM INFILTRATION ONLY - EACH INFILTRATION GALLERY

	GALLERY 1	GALLERY 2	GALLERY 3	GALLERY 4	GALLERY 5	GALLERY 6	GALLERY 7	GALLERY 8	Total	
L(dw) =	4.00	8.00	8.00	8.00	8.00	8.00	8.00	8.00	60.00	m
W(dw) =	4.00	2.00	2.00	2.00	2.00	2.00	2.00	2.00	2.13	m
Perimeter=	16.00	20.00	20.00	20.00	20.00	20.00	20.00	20.00	124.27	m
D(dw) =	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	0.60	m
A(c) =	16.0	16.0	16.0	16.0	16.0	16.0	16.0	16.0	128.00	sq m
VOL(dw)=	9.6	9.6	9.6	9.6	9.6	9.6	9.6	9.6	76.8	cu m
VOL(st)=	3.2	3.2	3.2	3.2	3.2	3.2	3.2	3.2	25.6	cu m
K =	29.20	29.20	29.20	29.20	29.20	29.20	29.20	29.20	29.20	mm/hr
K =	8.11E-06	8.11E-06	m/s							

STAGE/STORAGE/DISCHARGE TABLE

ELEV.	STAGE	STORAGE		WEIR	TOTAL	
		VOLUME	DISCHARGE	DISCHARGE		
(m)	(m)	(m ³)	(m³/s)	(m³/s)	(m³/s)	
321.45	0.000	0.000	0.00000	0.000	0.00000	Bottom of Gallery
321.55	0.100	4.267	0.00104	0.000	0.00104	
321.65	0.200	8.533	0.00104	0.000	0.00104	
321.75	0.300	12.800	0.00104	0.000	0.00104	
321.85	0.400	17.067	0.00104	0.000	0.00104	
321.95	0.500	21.333	0.00104	0.000	0.00104	
322.05	0.600	25.600	0.00104	0.000	0.00104	Top of Gallery
322.35	0.900	25.770	0.00105	0.000	0.00105	
322.65	1.200	25.939	0.00105	0.000	0.00105	
322.95	1.500	26.109	0.00106	0.000	0.00106	
323.31	1.860	26.313	0.00106	0.000	0.00106	T/G of inline drain
323.33	1.875	26.386	0.00114	0.000	0.00114	
323.43	1.980	27.590	0.00125	0.000	0.00125	Weir
323.53	2.080	29.172	0.00000	0.085	0.08471	Overflow

B.2. Existing Condition MIDUSS Modelling Output Files

" MIDUSS Output ----->" 1 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 2408455 - 302-306 Edinburgh Road" 6 " 7 Output filename: 2408455 - Existing.out" gmbp" " 8 Licensee name: " 9 Company ... 12/18/2024 at 3:46:59 PM" 10 Date & Time last used: " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" " 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago sto. " 1 Chicago storm" " 563.699 Coefficient A" 15 STORM Chicago storm" .. 16 17 18 ... 1.500 Constant B" 19 " 0.766 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity129.248mm/hr"Total depth33.713mm" 24 " 25 " 4 2hyd Hydrograph extension used in this file" 26 **"** 33 CATCHMENT 101" CATCHMENT IOT 1 Triangular SCS" 1 Equal length" 1 SCS method" 101 Catchment 101" ... 27 ... 28 " 29 1 SCS method" 101 Catchment 101" 38.000 % Impervious" 0.327 Total Area" 20.000 Flow length" " 30 " 31 32 " 0.327Total Area"20.000Flow length"2.000Overland Slope"0.203Pervious Area"20.000Pervious length"2.000Pervious slope"0.124Impervious Area"20.000Impervious length"2.000Impervious slope"0.250Pervious Manning 'n'"75.000Pervious SCS Curve No."0.172Pervious Runoff coefficient"0.100Pervious Ia/S coefficient" 33 " 34 " 35 " 36 " 37 " 38 " 39 40 " 41 " ... 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.839 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.034 0.000 0.000 0.000 c.m/sec" 51 ...

 0.034
 0.000
 0.000
 c.m/sec"

 Catchment 101
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.203
 0.124
 0.327
 hectare"

 Time of concentration
 18.289
 1.616
 5.792
 minutes"

 Time to Centroid
 163.465
 118.678
 129.896
 minutes"

 Rainfall depth
 33.713
 33.713
 33.713
 mm"

 Rainfall volume
 68.35
 41.89
 110.24
 c.m"

 Rainfall losses
 27.918
 5.423
 19.370
 mm"

 Runoff depth
 5.795
 28.290
 14.343
 mm"

 Runoff coefficient
 0.172
 0.839
 0.425
 "

 Maximum flow
 0.003
 0.033
 0.034
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff
 "

 " 52 53 " 54 " 55 ... 56 " 57 **"** 58 " 59 " " 60 ... 61 ... 62 **"** 40 63 4 Add Runoff " 0.034 0.034 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.034 0.034 0.034 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70		6 Combine "				
71	"	1 Node #"				
72	"	Flows off-site"				
73	"	Maximum flow	0.03	c.m/se	ec"	
74	"	Hydrograph volume	46.90			
75	"	0.034 0.034		0.034"		
76	" 40	HYDROGRAPH Start - New				
77 78		2 Start - New Tributar 0.034 0.000		0.034"		
79	" 33	CATCHMENT 102"	0.034	0.034		
80	"	1 Triangular SCS"				
81	"	1 Equal length"				
82	"	1 SCS method"				
83	"	102 Catchment 102"				
84		0.000 % Impervious"				
85		0.013 Total Area"				
86 87		5.000 Flow length" 2.000 Overland Slope"				
88	"	0.013 Pervious Area"				
89	"	5.000 Pervious length"				
90	"	2.000 Pervious slope"				
91	"	0.000 Impervious Area"				
92	"	5.000 Impervious length"				
93	"	2.000 Impervious slope"				
94 95		0.250 Pervious Manning 'n' 75.000 Pervious SCS Curve N				
96		0.172 Pervious Runoff coef				
97	"	0.100 Pervious Ia/S coeffi				
98	"	8.467 Pervious Initial abs				
99	"	0.015 Impervious Manning '	'n '"			
100	"	98.000 Impervious SCS Curve				
101		0.000 Impervious Runoff co				
102	"	0.100 Impervious Ia/S coef				
103 104		0.518 Impervious Initial a 0.000 0.000			.m/sec"	
105	"	Catchment 102	Pervious	Impervious		
106	"	Surface Area		0.000	0.013	hectare"
107	"	Time of concentration		0.703	7.961	minutes"
108	"	Time to Centroid		0.000	147.889	minutes"
109		Rainfall depth	33.713	33.713	33.713	mm"
110		Rainfall volume		0.00	4.38	c.m"
111 112		Rainfall losses		33.713 0.000	27.924 5.789	mm"
113		Runoff denth				
114	"	Runoff depth Bunoff volume				mm" C.m"
	"	Runoff volume	0.75	0.00	0.75	mm" c.m" "
115			0.75 0.172	0.00		c.m"
		Runoff volume Runoff coefficient	0.75 0.172 0.000	0.00	0.75 0.172	c.m" "
115 116 117	" " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff "	0.75 0.172 0.000	0.00 0.000 0.000	0.75 0.172	c.m" "
115 116 117 118	" " 40 "	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000	0.75 0.172 0.000 0.034	0.00 0.000 0.000	0.75 0.172	c.m" "
115 116 117 118 119	" " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf	0.75 0.172 0.000 0.034	0.00 0.000 0.000	0.75 0.172	c.m" "
115 116 117 118 119 120	" 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow"	0.75 0.172 0.000 0.034	0.00 0.000 0.000 0.034"	0.75 0.172	c.m" "
115 116 117 118 119	" 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf	0.75 0.172 0.000 0.034	0.00 0.000 0.000	0.75 0.172	c.m" "
115 116 117 118 119 120 121	" 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000	0.75 0.172 0.000 0.034 flow" 0.000	0.00 0.000 0.000 0.034"	0.75 0.172	c.m" "
115 116 117 118 119 120 121 122 123 124	" 40 " 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #"	0.75 0.172 0.000 0.034 flow" 0.000	0.00 0.000 0.000 0.034"	0.75 0.172	c.m" "
115 116 117 118 119 120 121 122 123 124 125	" 40 " 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site"	0.75 0.172 0.000 ' 0.034 Elow" 0.000 1"	0.00 0.000 0.034" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126	" 40 " 40 " 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow	0.75 0.172 0.000 ' 0.034 Elow" 0.000 1" 0.033	0.00 0.000 0.034" 0.034" 4 c.m/se	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127	" 40 " 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.03 47.65	0.00 0.000 0.034" 0.034" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127 128	" 40 " 40 " 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.000	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.003 47.65 0.000	0.00 0.000 0.034" 0.034" 4 c.m/se	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127	" 40 " 40 " 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume	0.75 0.172 0.000 0.034 Elow" 0.000 1" 0.03 47.65 0.000 Tributary"	0.00 0.000 0.034" 0.034" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131	" 40 " 40 " 40 " 40 " 40 " 40	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.000 HYDROGRAPH Start - New 2 Start - New Tributar 0.000 0.000	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.000 1" 0.000 Tributary" cy"	0.00 0.000 0.034" 0.034" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132	" 40 " 40 " 40 " 40 " 40 " 40 " 40 " 33	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.000 HYDROGRAPH Start - New 2 Start - New Tributar 0.000 0.000 CATCHMENT 103"	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.000 1" 0.000 Tributary" cy"	0.00 0.000 0.034" 0.034" 64 c.m/se 64 c.m" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133	" 40 " 40 " 40 " 40 " 40 " 40 " 40 " 33	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.000 HYDROGRAPH Start - New 2 Start - New Tributar 0.000 0.000 CATCHMENT 103" 1 Triangular SCS"	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.000 1" 0.000 Tributary" cy"	0.00 0.000 0.034" 0.034" 64 c.m/se 64 c.m" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134	" 40 " 40 " 40 " 40 " 40 " 40 " 33	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.000 HYDROGRAPH Start - New 2 Start - New Tributar 0.000 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length"	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.000 1" 0.000 Tributary" cy"	0.00 0.000 0.034" 0.034" 64 c.m/se 64 c.m" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135	" 40 " 40 " 40 " 40 " 40 " 40 " 40 " 33	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.000 HYDROGRAPH Start - New 2 Start - New Tributar 0.000 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method"	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.000 1" 0.000 Tributary" cy"	0.00 0.000 0.034" 0.034" 64 c.m/se 64 c.m" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136	" 40 " 40 " 40 " 40 " 40 " 40 " 33	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.000 HYDROGRAPH Start - New 2 Start - New Tributar 0.000 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Catchment 103"	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.000 1" 0.000 Tributary" cy"	0.00 0.000 0.034" 0.034" 64 c.m/se 64 c.m" 0.034"	0.75 0.172 0.000	c.m" "
115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135	" 40 " 40 " 40 " 40 " 40 " 40 " 33	Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff " 4 Add Runoff " 0.000 0.000 HYDROGRAPH Copy to Outf 8 Copy to Outflow" 0.000 0.000 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.000 HYDROGRAPH Start - New 2 Start - New Tributar 0.000 0.000 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method"	0.75 0.172 0.000 0.034 flow" 0.000 1" 0.000 1" 0.000 Tributary" cy"	0.00 0.000 0.034" 0.034" 64 c.m/se 64 c.m" 0.034"	0.75 0.172 0.000	c.m" "

139	"	5.000 Flow length"				
140	"	2.000 Overland Slope"				
141	"	0.024 Pervious Area"				
142	"	5.000 Pervious length"				
143	"	2.000 Pervious slope"				
144	"	0.000 Impervious Area"				
145	"	5.000 Impervious length"				
146	"	2.000 Impervious slope"				
147	"	0.250 Pervious Manning 'r				
148	"	75.000 Pervious SCS Curve				
149	"	0.172 Pervious Runoff coe				
150	"	0.100 Pervious Ia / S coeff				
151	"	8.467 Pervious Initial at				
152	"	0.015 Impervious Manning				
153	"	98.000 Impervious SCS Curv				
154	"	0.000 Impervious Runoff o				
155	"	0.100 Impervious Ia / S coe				
156	"	0.518 Impervious Initial				
157	"	0.001 0.00			c.m/sec"	
158	"	Catchment 103	Pervious	-	Total Area	
159	"	Surface Area	0.024	0.000	0.024	hectare"
160	"	Time of concentration	7.961	0.703	7.961	minutes"
161	"	Time to Centroid	147.889	117.275	147.888	minutes"
162	"	Rainfall depth	33.713	33.713	33.713	mm"
163	"	Rainfall volume	8.09	0.00	8.09	c.m"
164	"	Rainfall losses	27.924	6.727	27.924	mm"
165	"	Runoff depth	5.789	26.986	5.789	mm"
166	"	Runoff volume	1.39	0.00	1.39	c.m"
167	"	Runoff coefficient	0.172	0.000	0.172	
168	"	Maximum flow	0.001	0.000	0.001	c.m/sec"
169	" 4	40 HYDROGRAPH Add Runoff	"			
170	"	4 Add Runoff "				
171	"	0.001 0.00		0.034"		
172	" 4	40 HYDROGRAPH Copy to Out	flow"			
173	"	8 Copy to Outflow"				
174	"	0.001 0.00		0.034"		
175	" 4		1"			
176	"	6 Combine "				
177	"	1 Node #"				
178	"	Flows off-site"				
179	"	Maximum flow	0.03		ec"	
180	"	Hydrograph volume	49.04			
181	"	0.001 0.00		0.034"		
182	" 4		ce 1"			
183	"	7 Confluence "				
184	"	1 Node #"				
185	"	Flows off-site"				
186	"	Maximum flow	0.03		ec"	
187	"	Hydrograph volume	49.04			
188	"	0.001 0.03	34 0.001	0.000"		
189	" (
190		2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"	_			
192	"	Maximum flow	0.03	•	ec"	
193	"	Hydrograph volume	49.04	43 c.m"		
194	"					
195		3 Runoff Totals on EX	ΥΤ.Π.	-	264	
196		Total Catchment area				care"
197	"	Total Impervious area				care"
198		Total % impervious		34.	.137"	
199	"	19 EXIT"				
200						

" MIDUSS Output ----->" 1 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" 5 C:\Users\nbnacc\bcchccr 2408455 - 302-306 Edinburgh Road" ... 6 " Output filename: 2408455 - Existing 5yr.out" 7 " gmbp" 8 Licensee name: " 9 Company ... 10 Date & Time last used: 12/18/2024 at 3:51:08 PM" TIME PARAMETERS" " 31 11 5.000 Time Step" 12 " 240.000 Max. Storm length" ... 13 " 1500.000 Max. Hydrograph" 14

 15
 " 32
 STORM Chicago storm"

 16
 " 1
 Chicago storm"

 17
 " 750.423
 Coefficient A"

 18
 " 1.500
 Constant B"

 18 1.500 Constant B" 19 " 0.769 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity171.091mm/hr"Total depth44.147mm" 24 " 25 " 4 5hyd Hydrograph extension used in this file" 26 **"** 33 CATCHMENT 101" CATCHMENT IOI 1 Triangular SCS" 1 Equal length" 1 SCS method" 1 Catchment 101" ... 27 " 28 1 Equal length" 1 SCS method" 101 Catchment 101" 38.000 % Impervious" 0.327 Total Area" 20.000 Flow length" 2.000 Overland Slope" 0.203 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.124 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Slope" 0.250 Pervious SCS Curve No." 0.239 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" " 29 30 " " 31 32 " 33 " 34 " 35 " 36 " 37 " 38 " 39 " 40 " 41 " 42 " 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 45 **"** 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 46 " 47 **"** 0.867 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.048 0.000 0.000 0.000 c.m/sec"
 0.048
 0.000
 0.000
 c.m/sec"

 Catchment 101
 Pervious
 Impervious Total Area "

 Surface Area
 0.203
 0.124
 0.327
 hectare"

 Time of concentration
 13.688
 1.430
 5.236
 minutes"

 Time to Centroid
 153.660
 117.147
 128.483
 minutes"

 Rainfall depth
 44.147
 44.147
 mm"

 Rainfall losses
 33.590
 54.86
 144.36
 c.m"

 Runoff depth
 10.558
 38.258
 21.084
 mm"

 Runoff coefficient
 0.239
 0.867
 0.478
 "

 Maximum flow
 0.008
 0.046
 0.048
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff "
 4
 51 ... " 52 53 " 54 " " 55 56 " 57 **"** 58 " 59 " " 60 ... 61 " 62 **"** 40 63 4 Add Runoff " 0.048 0.048 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" " 40 66 " 67 8 Copy to Outflow" 0.048 0.048 0.048 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70	"		6 Combine "				
71	"		1 Node #"				
72	"		Flows off-site"				
73	"		Maximum flow	0.0		ec"	
74	"		Hydrograph volume	68.9	44 c.m" 0.048"		
75 76		4 0	0.048 0.048 HYDROGRAPH Start - New Tri	0.048 hutary"			
77	"	10	2 Start - New Tributary"	bucary			
78	"		0.048 0.000	0.048	0.048"		
79		33	CATCHMENT 102"				
80			1 Triangular SCS"				
81 82			1 Equal length" 1 SCS method"				
83	"		102 Catchment 102"				
84	"		0.000 % Impervious"				
85	"		0.013 Total Area"				
86			5.000 Flow length"				
87 88			2.000 Overland Slope" 0.013 Pervious Area"				
89	"		5.000 Pervious length"				
90	"		2.000 Pervious slope"				
91	"		0.000 Impervious Area"				
92			5.000 Impervious length"				
93 94	"		2.000 Impervious slope" 0.250 Pervious Manning 'n'"				
95	"		75.000 Pervious SCS Curve No."				
96	"		0.238 Pervious Runoff coeffic	ient"			
97	"		0.100 Pervious Ia/S coefficie				
98			8.467 Pervious Initial abstra	ction"			
99 100			0.015 Impervious Manning 'n'" 98.000 Impervious SCS Curve No				
101	"		0.000 Impervious Runoff coeff				
102	"		0.100 Impervious Ia/S coeffic				
103	"		0.518 Impervious Initial abst	raction'			
104			0.001 0.000	0.048		c.m/sec"	
105 106			Catchment 102 Per Surface Area 0.0	vious 13	Impervious 0.000	Total Area 0.013	
107	"		Time of concentration 5.9		0.622	5.958	hectare" minutes"
108	"			.572	116.271	141.572	minutes"
109	"		Rainfall depth 44.		44.147	44.147	mm"
110	"		Rainfall volume 5.7		0.00	5.74	c.m"
111 112				624 523	7.826 36.321	33.624 10.524	mm " mm "
113	"		Runoff volume 1.3		0.00	1.37	c.m"
114	"		Runoff coefficient 0.2		0.000	0.238	"
115	"		Maximum flow 0.0	01	0.000	0.001	c.m/sec"
116		40	HYDROGRAPH Add Runoff "				
117 118			4 Add Runoff " 0.001 0.001	0.048	0.048"		
119	" (40	HYDROGRAPH Copy to Outflow		0.010		
120	"		8 Copy to Outflow"				
121	"		0.001 0.001	0.001	0.048"		
122		40	HYDROGRAPH Combine 1"				
123 124			6 Combine " 1 Node #"				
125	"		Flows off-site"				
126	"		Maximum flow	0.0	48 c.m/se	ec"	
127	"		Hydrograph volume	70.3			
128	"	10	0.001 0.001	0.001			
129 130	" 4	τU	HYDROGRAPH Start - New Tri 2 Start - New Tributary"	buldry"			
131	"		0.001 0.000	0.001	0.048"		
132	"	33	CATCHMENT 103"				
133			1 Triangular SCS"				
134	"		1 Equal length"				
135 136			1 SCS method" 103 Catchment 103"				
137	"		0.000 % Impervious"				
138	"		0.024 Total Area"				

139 140 141	" "	5.000 Flow length" 2.000 Overland Slope" 0.024 Pervious Area"				
142	"	5.000 Pervious length"				
143	"	2.000 Pervious slope"				
144	"	0.000 Impervious Area"				
145	"	5.000 Impervious length"				
146		2.000 Impervious slope"				
147	"	0.250 Pervious Manning 'r				
148 149		75.000 Pervious SCS Curve 0.238 Pervious Runoff coe				
150	"	0.100 Pervious Ia/S coeff				
151	"	8.467 Pervious Initial ab				
152	"	0.015 Impervious Manning				
153	"	98.000 Impervious SCS Curv				
154	"	0.000 Impervious Runoff c				
155	"	0.100 Impervious Ia / S coe				
156	"	0.518 Impervious Initial			<i>,</i>	
157		0.002 0.00			c.m/sec"	
158 159		Catchment 103 Surface Area	Pervious 0.024	1mpervious 0.000	Total Area 0.024	" hectare"
160		Time of concentration	5.958	0.622	5.958	minutes"
161	"	Time to Centroid	141.572	116.271	141.572	minutes"
162	"	Rainfall depth	44.147	44.147	44.147	mm"
163	"	Rainfall volume	10.60	0.00	10.60	c.m"
164	"	Rainfall losses	33.624	7.826	33.624	mm"
165	"	Runoff depth	10.523	36.321	10.524	mm"
166	"	Runoff volume	2.53	0.00	2.53	c.m"
167	"	Runoff coefficient	0.238	0.000	0.238	"
168 169		40 Maximum flow HYDROGRAPH Add Runoff	0.002	0.000	0.002	c.m/sec"
170		40 HIDROGRAFH Add Runoff 4 Add Runoff "				
171	"	0.002 0.00	0.001	0.048"		
172	"	40 HYDROGRAPH Copy to Out				
173	"	8 Copy to Outflow"				
174	"	0.002 0.00	0.002	0.048"		
175	"		1"			
176		6 Combine "				
177	"	1 Node #"				
178 179		Flows off-site" Maximum flow	0.04	49 c.m/se	~~ "	
180	"	Hydrograph volume	72.83			
181	"	0.002 0.00		0.049"		
182	"					
183	"	7 Confluence "				
184	"	1 Node #"				
185	"	Flows off-site"				
186	"	Maximum flow	0.04		ec"	
187 188		Hydrograph volume 0.002 0.04	72.83 9 0.002	38 c.m" 0.000"		
189	"		9 0.002	0.000		
190	"	2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"				
192	"	Maximum flow	0.04	49 c.m/se	ec"	
193	"	Hydrograph volume	72.83	38 c.m"		
194	"					
195	"	3 Runoff Totals on EX	IT"	<u>^</u>		
196 197		Total Catchment area				care"
197		Total Impervious area Total % impervious			.124 hect .137"	care"
199	"			54.		
200						

" MIDUSS Output ----->" 1 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " C:\Users\hbhatt\Desktop\MIDUSS\" 5 Job folder: 2408455 - 302-306 Edinburgh Road" ... 6 " Output filename: 7 2408455 - Existing 10yr.out" " gmbp" 8 Licensee name: " 9 Company ... 10 12/18/2024 at 3:52:07 PM" Date & Time last used: " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" " 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago storm" " 1 Chicago storm" " 855.183 Coefficient A" 15 "
"
" 16 17 18 1.500 Constant B" 19 " 0.764 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity196.822mm/hr"Total depth51.710mm" 24 " 25 " 5 10hyd Hydrograph extension used in this file" CATCHMENT 101" 25 26 **" 33** CATCHMENT IOI 1 Triangular SCS" 1 Equal length" 1 SCS method" Cotchment 101" ... 27 ... 28 " 29 1 SCS method" 101 Catchment 101" 38.000 % Impervious" 0.327 Total Area" 20.000 Flow length" " 30 " 31 32 " 0.327Total Area"20.000Flow length"2.000Overland Slope"0.203Pervious Area"20.000Pervious length"2.000Pervious slope"0.124Impervious Area"20.000Impervious length"2.000Impervious slope"0.250Pervious Manning 'n'"75.000Pervious SCS Curve No."0.282Pervious Runoff coefficient"0.100Pervious Ia/S coefficient" 33 " 34 " 35 " 36 " 37 " 38 " 39 40 " 41 " ... 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.880 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.057 0.000 0.000 0.000 c.m/sec"

 0.057
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 101
 Pervious
 Impervious Total Area "

 Surface Area
 0.203
 0.124
 0.327
 hectare"

 Time of concentration
 11.934
 1.346
 4.982
 minutes"

 Time to Centroid
 149.897
 116.646
 128.066
 minutes"

 Rainfall depth
 51.710
 51.710
 51.710
 mm"

 Rainfall volume
 104.84
 64.25
 169.09
 c.m"

 Rainfall losses
 37.114
 6.182
 25.360
 mm"

 Runoff depth
 14.596
 45.528
 26.350
 mm"

 Runoff coefficient
 0.282
 0.880
 0.510
 "

 Maximum flow
 0.012
 0.054
 0.057
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff<"</td>
 4

 51 ... " 52 53 " 54 " 55 ... 56 " 57 **"** 58 " 59 " ... 60 ... 61 ... 62 63 **"** 40 4 Add Runoff " 0.057 0.057 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.057 0.057 0.057 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

		(Cambina II				
70 71		6 Combine " 1 Node #"				
71	"	1 Node #" Flows off-site"				
73	"	Maximum flow	0.05	7 c.m/se	~ "	
74	"	Hydrograph volume	86.16		C	
75	"	0.057 0.05		0.057"		
76	" 40	HYDROGRAPH Start - New				
77	"	2 Start - New Tributa				
78	"	0.057 0.00		0.057"		
79	" 33	CATCHMENT 102"				
80	"	1 Triangular SCS"				
81	"	1 Equal length"				
82	"	1 SCS method"				
83	"	102 Catchment 102"				
84	"	0.000 % Impervious"				
85		0.013 Total Area"				
86	"	5.000 Flow length"				
87		2.000 Overland Slope"				
88 89		0.013 Pervious Area" 5.000 Pervious length"				
90	"	5.000 Pervious length" 2.000 Pervious slope"				
90	"	0.000 Impervious Area"				
92	"	5.000 Impervious length"				
93	"	2.000 Impervious slope"				
94	"	0.250 Pervious Manning 'n				
95	"	75.000 Pervious SCS Curve				
96	"	0.282 Pervious Runoff coe				
97	"	0.100 Pervious Ia/S coeff	icient"			
98	"	8.467 Pervious Initial ab	straction"			
99	"	0.015 Impervious Manning	'n'"			
100	"	98.000 Impervious SCS Curv	e No."			
101	"	0.000 Impervious Runoff c				
102	"	0.100 Impervious Ia/S coe				
103	"	0.518 Impervious Initial			<i>,</i>	
104		0.001 0.00			.m/sec"	
105 106		Catchment 102 Surface Area		Impervious 0.000	0.013	
100	"	Time of concentration			5.194	hectare" minutes"
108	"	Time to Centroid			139.230	minutes"
100					51.710	mm"
	"	Rainfall depth	51.710	51./10		
	"	Rainfall depth Rainfall volume	51.710 6.72	51.710 0.00		c.m"
110 111		Rainfall volume	6.72	0.00	6.72 37.133	c.m" mm"
110	"		6.72 37.133	0.00 8.587	6.72	
110 111		Rainfall volume Rainfall losses	6.72 37.133 14.577	0.00 8.587 43.123	6.72 37.133	mm "
110 111 112 113 114	" "	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient	6.72 37.133 14.577 1.89 0.282	0.00 8.587 43.123 0.00 0.000	6.72 37.133 14.577	mm" mm" c.m" "
110 111 112 113 114 115	"" " "	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow	6.72 37.133 14.577 1.89 0.282 0.001	0.00 8.587 43.123 0.00 0.000	6.72 37.133 14.577 1.89	mm" mm" c.m"
110 111 112 113 114 115 116	" " " "	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff	6.72 37.133 14.577 1.89 0.282 0.001	0.00 8.587 43.123 0.00 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117	" " " " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff "	6.72 37.133 14.577 1.89 0.282 0.001	0.00 8.587 43.123 0.00 0.000 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118	" " " " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00	6.72 37.133 14.577 1.89 0.282 0.001	0.00 8.587 43.123 0.00 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119	" " " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out	6.72 37.133 14.577 1.89 0.282 0.001	0.00 8.587 43.123 0.00 0.000 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120	" " " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow"	0.00 8.587 43.123 0.00 0.000 0.000 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121	" " " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001	0.00 8.587 43.123 0.00 0.000 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122	" " " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow"	0.00 8.587 43.123 0.00 0.000 0.000 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123	" " " 40 "	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine "	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001	0.00 8.587 43.123 0.00 0.000 0.000 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122	" " 40 " 40 "	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001	0.00 8.587 43.123 0.00 0.000 0.000 0.000	6.72 37.133 14.577 1.89 0.282	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124	" " 40 " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine "	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125	" " 40 " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128	" 40 " 40 " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129	" 40 " 40 " 40 " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130	" 40 " 40 " 40 " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New 2 Start - New Tributa	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary" ry"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m" 0.058"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131	" 40 " 40 " 40 " 40	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.001 0.00	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary" ry"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132	" 40 " 40 " 40 " 40 " 40 " 40 " 40 " 33	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.001 0.00 CATCHMENT 103"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary" ry"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m" 0.058"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133	" 40 " 40 " 40 " 40 " 40 " 33	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.001 0.00 CATCHMENT 103" 1 Triangular SCS"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary" ry"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m" 0.058"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134	" 40 " 40 " 40 " 40 " 40 " 40 " 40 " 33	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.001 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary" ry"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m" 0.058"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135	" 40 " 40 " 40 " 40 " 40 " 33	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.001 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary" ry"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m" 0.058"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136	" 40 " 40 " 40 " 40 " 40 " 33	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.001 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Catchment 103"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary" ry"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m" 0.058"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "
110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135	" 40 " 40 " 40 " 40 " 40 " 33	Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.001 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.001 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.001 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.001 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method"	6.72 37.133 14.577 1.89 0.282 0.001 " 1 0.057 flow" 1 0.001 1" 0.055 88.055 1 0.001 Tributary" ry"	0.00 8.587 43.123 0.00 0.000 0.000 0.057" 0.057" 8 c.m/se 9 c.m" 0.058"	6.72 37.133 14.577 1.89 0.282 0.001	mm" mm" c.m" "

139	"	5.000 Flow length"				
140		2.000 Overland Slope"				
141		0.024 Pervious Area"				
142	"	5.000 Pervious length"				
143		2.000 Pervious slope"				
144		0.000 Impervious Area"				
145		5.000 Impervious length"				
146		2.000 Impervious slope"				
147		0.250 Pervious Manning 'n'				
148		75.000 Pervious SCS Curve N				
149		0.282 Pervious Runoff coef				
150		0.100 Pervious Ia/S coeffi				
151		8.467 Pervious Initial abs				
152		0.015 Impervious Manning '				
153	"	98.000 Impervious SCS Curve				
154		0.000 Impervious Runoff co				
155		0.100 Impervious Ia/S coef				
156	"	0.518 Impervious Initial a			<i>,</i>	
157		0.002 0.000			c.m/sec"	
158		Catchment 103	Pervious	Impervious		
159	"	Surface Area	0.024	0.000	0.024	hectare"
160		Time of concentration	5.194	0.586	5.194	minutes"
161		Time to Centroid	139.231	115.983	139.230	minutes"
162		Rainfall depth	51.710	51.710	51.710	mm"
163		Rainfall volume	12.41	0.00	12.41	c.m"
164		Rainfall losses	37.133	8.587	37.133	mm ''
165	"	Runoff depth	14.577	43.123	14.577	mm"
166		Runoff volume	3.50	0.00	3.50	c.m" "
167		Runoff coefficient	0.282	0.000	0.282	
168		Maximum flow	0.002	0.000	0.002	c.m/sec"
169						
170		4 Add Runoff "	0 001	0 0504		
171		0.002 0.002		0.058"		
172		40 HYDROGRAPH Copy to Outf	TOM			
173		8 Copy to Outflow"		0.0504		
174		0.002 0.002	2 0.002 1"	0.058"		
175			Τ			
176 177		6 Combine "				
	"	1 Node #"				
178 179		Flows off-site"	0.05			
180	"	Maximum flow Hydrograph yolumo	91.55			
181	"	Hydrograph volume 0.002 0.002		0.059"		
182	"			0.039		
183	"	7 Confluence "	÷ 1			
184	"	1 Node #"				
185	"	Flows off-site"				
186	"	Maximum flow	0.05	59 c.m/se	۰. ۲	
187	"	Hydrograph volume	91.55			
188	"	0.002 0.059		0.000"		
189	"		0.002	0.000		
190	"	2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"				
192	"	Maximum flow	0.05	59 c.m/se	c"	
193	"	Hydrograph volume	91.55			
194	"			C • III		
195	"	3 Runoff Totals on EXI				
196	"	Total Catchment area		0.	364 hect	care"
197	"	Total Impervious area				care"
198	"	Total % impervious			137"	
199	"	=				
200						

" MIDUSS Output ----->" 1 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " C:\Users\hbhatt\Desktop\MIDUSS\" 5 Job folder: 2408455 - 302-306 Edinburgh Road" ... 6 " Output filename: 7 2408455 - Existing 25yr.out" " gmbp" 8 Licensee name: " 9 Company ... 10 Date & Time last used: 12/18/2024 at 3:52:59 PM" " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" " 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago storm" " 1 Chicago storm" " 972.202 Coefficient A" " 1.500 Constant B" " 0.752 Europeant C" 15 ... 16 17 18 ... 19 " 0.752 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity228.875mm/hr"Total depth62.786mm" 24 " 25 " 5 25hyd Hydrograph extension used in this file" CATCHMENT 101" 26 " 33 CATCHMENT IOI 1 Triangular SCS" 1 Equal length" 1 SCS method" Cotchment 101" ... 27 ... 28 " 29 1 SCS method" 101 Catchment 101" 38.000 % Impervious" 0.327 Total Area" 20.000 Flow length" " 30 " 31 32 " 20.000 Flow length" 2.000 Overland Slope" 0.203 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.124 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No." 0.337 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" 33 " 34 " 35 " 36 " 37 " 38 " 39 40 " 41 " ... 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.895 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.070 0.000 0.000 0.000 c.m/sec"

 0.070
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 101
 Pervious
 Impervious Total Area "

 Surface Area
 0.203
 0.124
 0.327
 hectare"

 Time of concentration
 10.327
 1.262
 4.709
 minutes"

 Time to Centroid
 146.776
 116.413
 127.960
 minutes"

 Rainfall depth
 62.786
 62.786
 62.786
 mm"

 Rainfall volume
 127.29
 78.02
 205.31
 c.m"

 Rainfall losses
 41.654
 6.598
 28.333
 mm"

 Runoff depth
 21.132
 56.188
 34.453
 mm"

 Runoff coefficient
 0.337
 0.895
 0.549
 "

 Maximum flow
 0.018
 0.064
 0.070
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff<"</td>
 4

 51 ... " 52 53 " 54 " " 55 56 " 57 **"** 58 " 59 " ... 60 ... 61 ... 62 63 **"** 40 4 Add Runoff " 0.070 0.070 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.070 0.070 0.070 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

7.0	"				
70 71		6 Combine " 1 Node #"			
71	"	Flows off-site"			
73		Maximum flow	0.07	0 c.m/sec"	
74	"	Hydrograph volume	112.66		
75	"	0.070 0.070		0.070"	
76	" 4				
77	"	2 Start - New Tributar			
78	"	0.070 0.000		0.070"	
79	" 3				
80	"	1 Triangular SCS"			
81	"	1 Equal length"			
82	"	1 SCS method"			
83	"	102 Catchment 102"			
84	"	0.000 % Impervious"			
85	"	0.013 Total Area"			
86	"	5.000 Flow length"			
87		2.000 Overland Slope"			
88 89		0.013 Pervious Area" 5.000 Pervious length"			
90	"	5.000 Pervious length" 2.000 Pervious slope"			
91	"	0.000 Impervious Area"			
92	"	5.000 Impervious length"			
93	"	2.000 Impervious slope"			
94	"	0.250 Pervious Manning 'n'	"		
95	"	75.000 Pervious SCS Curve N			
96	"	0.335 Pervious Runoff coef	ficient"		
97	"	0.100 Pervious Ia / S coeffi	cient"		
98	"	8.467 Pervious Initial abs	traction"		
99	"	0.015 Impervious Manning '			
100		98.000 Impervious SCS Curve			
101		0.000 Impervious Runoff cc			
102	"	0.100 Impervious Ia/S coef			
103	"	0.518 Impervious Initial a		0.070	!!
104 105		0.002 0.000 Catchment 102		0.070 c.m/s Impervious Tota	
105	"			0.000 0.01	
107	"			0.549 4.49	
108	"			115.841 137.	
109	"	Rainfall depth		62.786 62.7	
110	"	Rainfall volume	8.16	0.00 8.16	6 c.m"
111	"	Rainfall losses	41.728	9.659 41.7	728 mm"
112	"	-	21.058	53.127 21.0)58 mm"
113	"			0.00 2.74	
114	"			0.000 0.33	
115	"			0.000 0.00)2 c.m/sec"
116	" 4 "				
117 118	"	4 Add Runoff " 0.002 0.002	0.070	0.070"	
119	" 4			0.070	
120	"	8 Copy to Outflow"	TOM		
121	"	0.002 0.002	0.002	0.070"	
122	" 4		1"		
123	"	6 Combine "			
124	"	1 Node #"			
125		Flows off-site"			
126	"	Maximum flow	0.07		
127	"	Hydrograph volume	115.40		
128	"	0.002 0.002		0.072"	
129	" 4 "				
130 131		2 Start - New Tributar 0.002 0.000	-	0.072"	
131	" 3		0.002	0.072	
133	"	1 Triangular SCS"			
134	"	1 Equal length"			
135	"	1 SCS method"			
136	"	103 Catchment 103"			
137	"	0.000 % Impervious"			
138	"	0.024 Total Area"			
TOO					

139 140 141 142 143 144	" " "	<pre>5.000 Flow length" 2.000 Overland Slope" 0.024 Pervious Area" 5.000 Pervious length" 2.000 Pervious slope" 0.000 Impervious Area"</pre>				
145	"	5.000 Impervious length"				
146 147	"	2.000 Impervious slope"				
147		0.250 Pervious Manning 'n' 75.000 Pervious SCS Curve No				
149	"	0.335 Pervious Runoff coef:				
150	"	0.100 Pervious Ia/S coeffic				
151	"	8.467 Pervious Initial abs				
152 153		0.015 Impervious Manning ' 98.000 Impervious SCS Curve				
154	"	0.000 Impervious Runoff co				
155	"	0.100 Impervious Ia/S coef	ficient"			
156	"	0.518 Impervious Initial al			<i>,</i>	
157 158		0.003 0.000 Catchment 103	0.002 Pervious		c.m/sec" Total Area	
159	"		0.024	0.000	0.024	hectare"
160	"		4.495	0.549	4.495	minutes"
161	"		137.491	115.841	137.491	minutes"
162	"	-	62.786	62.786	62.786	mm "
163 164			15.07 41.728	0.00 9.659	15.07 41.728	c.m" mm"
165	"		21.058	53.127	21.058	mm"
166	"	-	5.05	0.00	5.05	c.m"
167	"		0.335	0.000	0.335	"
168	"		0.003	0.000	0.003	c.m/sec"
169	" 4					
170 171		4 Add Runoff " 0.003 0.003	0.002	0.072"		
172	" 4			0.072		
173	"	8 Copy to Outflow"				
174	"	0.003 0.003		0.072"		
175	" 4		1"			
176 177		6 Combine " 1 Node #"				
178	"	Flows off-site"				
179	"	Maximum flow	0.07	c.m/se	ec"	
180	"	Hydrograph volume	120.45			
181 182	" "4	0.003 0.003 0 HYDROGRAPH Confluence		0.074"		
183	" 4	0 HYDROGRAPH Confluence 7 Confluence "	T			
184	"	1 Node #"				
185	"	Flows off-site"				
186		Maximum flow	0.07	· · · ·	C"	
187 188	"	Hydrograph volume 0.003 0.074	120.45 0.003	64 c.m" 0.000"		
189	" 6		0.003	0.000		
190	"	2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"				
192		Maximum flow	0.07	•	c"	
193 194	" "3	<pre>Hydrograph volume START/RE-START TOTALS 1</pre>	" 120.45	64 c.m"		
194 195	יי יי	3 Runoff Totals on EXI				
196	"	Total Catchment area		0.	.364 hect	care"
197	"	Total Impervious area				care"
198	יי יי 1	Total % impervious		34.	137"	
199 200	" 1	9 EXIT"				

... MIDUSS Output ----->" 1 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " C:\Users\hbhatt\Desktop\MIDUSS\" 5 Job folder: C:\Users\hbnatt\Desktop\MIDUSS\" 2408455 - 302-306 Edinburgh Road" ... 6 " Output filename: 7 2408455 - Existing 50yr.out" " gmbp" 8 Licensee name: " 9 Company ... 10 Date & Time last used: 12/18/2024 at 3:53:46 PM" " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" " 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago sto. " 1 Chicago storm" " 1054.539 Coefficient A" 15 STORM Chicago storm" " 16 17 1.500 Constant B" 18 ... 19 " 0.746 Exponent C" 0.400 Fraction R" " 20 " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity251.085mm/hr"Total depth70.383mm" 24 " 25 " 5 50hyd Hydrograph extension used in this file" CATCHMENT 101" 25 26 **"** 33 CATCHMENT IOI 1 Triangular SCS" 1 Equal length" 1 SCS method" 101 Catchment 101" ... 27 ... 28 " 29 l SCS method" 101 Catchment 101" 38.000 % Impervious" 0.327 Total Area" 20.000 Flow length" " 30 " 31 32 " 20.000 Flow length" 2.000 Overland Slope" 0.203 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.124 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No." 0.370 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" 33 " 34 " 35 " 36 " 37 " 38 " ... 39 40 " 41 " 42 " 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 45 **"** 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 46 " 47 **"** 0.902 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.080 0.000 0.000 0.000 c.m/sec"
 0.080
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 101
 Pervious
 Impervious Total Area "

 Surface Area
 0.203
 0.124
 0.327
 hectare"

 Time of concentration
 9.525
 1.214
 4.545
 minutes"

 Time to Centroid
 145.042
 116.207
 127.764
 minutes"

 Rainfall depth
 70.383
 70.383
 70.383
 minutes"

 Rainfall volume
 142.69
 87.46
 230.15
 c.m"

 Rainfall losses
 44.357
 6.903
 30.125
 mm"

 Runoff depth
 26.025
 63.479
 40.258
 mm"

 Runoff coefficient
 0.370
 0.902
 0.572
 "

 Maximum flow
 0.025
 0.071
 0.080
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff
 "
 51 " " 52 53 " 54 " 55 ... 56 " 57 **"** 58 " 59 " ... 60 ... 61 ... 62 63 **"** 40 4 Add Runoff " 0.080 0.080 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.080 0.080 0.080 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

	"				
70 71		6 Combine " 1 Node #"			
71		1 Node #" Flows off-site"			
73		Maximum flow	0.08	0 c.m/sec	
74		Hydrograph volume	131.64		
75	"	0.080 0.08		0.080"	
76	" 4				
77	"	2 Start - New Tributa			
78	"	0.080 0.00		0.080"	
79	" 33	CATCHMENT 102"			
80	"	1 Triangular SCS"			
81	"	1 Equal length"			
82	"	1 SCS method"			
83	"	102 Catchment 102"			
84	"	0.000 % Impervious"			
85	"	0.013 Total Area"			
86		5.000 Flow length"			
87		2.000 Overland Slope"			
88 89		0.013 Pervious Area" 5.000 Pervious length"			
90		5.000 Pervious length" 2.000 Pervious slope"			
90		0.000 Impervious Area"			
92	"	5.000 Impervious length"			
93	"	2.000 Impervious slope"			
94	"	0.250 Pervious Manning 'n			
95	"	75.000 Pervious SCS Curve			
96	"	0.367 Pervious Runoff coe			
97	"	0.100 Pervious Ia / S coeff			
98	"	8.467 Pervious Initial ab	straction"		
99	"	0.015 Impervious Manning	'n'"		
100	"	98.000 Impervious SCS Curv	e No."		
101	"	0.000 Impervious Runoff c			
102	"	0.100 Impervious Ia/S coe			
103	"	0.518 Impervious Initial			<i>.</i>
104	"	0.002 0.00		0.080 c.	
105		Catchment 102		Impervious T	
106 107		Surface Area			.013 hectare"
LU/		mime of concentration	1 1 1 6	0 500 /	116 minutoall
	"	Time of concentration			.146 minutes"
108		Time to Centroid	136.539	115.699 1	36.538 minutes"
108 109	"	Time to Centroid Rainfall depth	136.539 70.383	115.699 1 70.383 7	36.538 minutes" 0.383 mm"
108 109 110	" "	Time to Centroid Rainfall depth Rainfall volume	136.539 70.383 9.15	115.699170.38370.009	36.538 minutes" 0.383 mm" .15 c.m"
108 109 110 111	" "	Time to Centroid Rainfall depth Rainfall volume Rainfall losses	136.539 70.383 9.15 44.577	115.699170.38370.00910.4464	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm"
108 109 110	" " "	Time to Centroid Rainfall depth Rainfall volume	136.539 70.383 9.15 44.577 25.806	115.699170.38370.00910.446459.9372	36.538 minutes" 0.383 mm" .15 c.m"
108 109 110 111 112	" " "	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth	136.539 70.383 9.15 44.577 25.806 3.35	115.699170.38370.00910.446459.93720.003	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm"
108 109 110 111 112 113 114 115		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002	115.699170.38370.00910.446459.93720.0030.0000	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m"
108 109 110 111 112 113 114 115 116	" " " " "	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002	115.699170.38370.00910.446459.93720.0030.0000	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117	" " " " " "	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff "	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117 118	" " " " " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080	115.699170.38370.00910.446459.93720.0030.0000	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117 118 119	" " " " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117 118 119 120	" " " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117 118 119 120 121	" " " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122	" " " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123	" " " " " 4 " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine "	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124	" " " " 4 " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 "
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125	" " " " 4 " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124	" " " " 4 " " 4	Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.080" 0.080" 2 c.m/sec	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.002	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.080" 0.080" 2 c.m/sec	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New 2 Start - New Tributa	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary" ry"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m" 0.082"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.002 0.00	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary" ry"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.002 0.00 CATCHMENT 103"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary" ry"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m" 0.082"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.002 0.00 CATCHMENT 103" 1 Triangular SCS"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary" ry"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m" 0.082"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.002 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary" ry"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m" 0.082"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.002 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary" ry"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m" 0.082"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.002 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method" 103 Catchment 103"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary" ry"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m" 0.082"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"
108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135		Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.002 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.002 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.002 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.002 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length" 1 SCS method"	136.539 70.383 9.15 44.577 25.806 3.35 0.367 0.002 " 2 0.080 flow" 2 0.002 1" 0.08 134.99 2 0.002 Tributary" ry"	115.699 1 70.383 7 0.00 9 10.446 4 59.937 2 0.00 3 0.000 0 0.000 0 0.000 0 0.080" 2 c.m/sec 8 c.m" 0.082"	36.538 minutes" 0.383 mm" .15 c.m" 4.577 mm" 5.806 mm" .35 c.m" .367 " .002 c.m/sec"

139	"	5.000 Flow length"				
140	"	2.000 Overland Slope"				
141	"	0.024 Pervious Area"				
142	"	5.000 Pervious length"				
143	"	2.000 Pervious slope"				
144	"	0.000 Impervious Area"				
145	"	5.000 Impervious length"				
146	"	2.000 Impervious slope"				
147	"	0.250 Pervious Manning 'n				
148	"	75.000 Pervious SCS Curve	No."			
149	"	0.367 Pervious Runoff coe				
150	"	0.100 Pervious Ia/S coeff				
151	"	8.467 Pervious Initial ab				
152	"	0.015 Impervious Manning				
153	"	98.000 Impervious SCS Curv				
154	"	0.000 Impervious Runoff c				
155	"	0.100 Impervious Ia/S coe		_		
156	"	0.518 Impervious Initial				
157	"	0.004 0.00			c.m/sec"	
158		Catchment 103	Pervious	-	Total Area	
159		Surface Area	0.024	0.000	0.024	hectare"
160		Time of concentration	4.146	0.528	4.146	minutes"
161		Time to Centroid	136.539	115.699	136.538	minutes"
162	"	Rainfall depth	70.383	70.383	70.383	mm "
163		Rainfall volume	16.89	0.00	16.89	c.m"
164		Rainfall losses	44.577	10.446	44.577	mm "
165		Runoff depth	25.806	59.937	25.806	mm"
166		Runoff volume	6.19	0.00	6.19	c.m" "
167		Runoff coefficient	0.367	0.000	0.367	
168		Maximum flow	0.004	0.000	0.004	c.m/sec"
169						
170 171		4 Add Runoff " 0.004 0.00	4 0.002	0.082"		
172	"			0.002		
173		8 Copy to Outflow"	LIOW			
174	"	0.004 0.00	4 0.004	0.082"		
175	"		1"	0.002		
176	"	6 Combine "	1			
177	"	1 Node #"				
178	"	Flows off-site"				
179	"	Maximum flow	0.08	85 c.m/se	ec"	
180	"	Hydrograph volume	141.19		-	
181	"	0.004 0.00		0.085"		
182	"					
183	"	7 Confluence "				
184	"	1 Node #"				
185	"	Flows off-site"				
186	"	Maximum flow	0.08	35 c.m/se	ec"	
187	"	Hydrograph volume	141.19	92 c.m"		
188	"	0.004 0.08	5 0.004	0.000"		
189	" (64 SHOW TABLE"				
190	"	2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"				
192	"	Maximum flow	0.08		ec"	
193	"	Hydrograph volume	141.19	92 c.m"		
194	"					
195	"	3 Runoff Totals on EX	IT"			
196	"	Total Catchment area				care"
197		Total Impervious area				care"
198	"	Total % impervious		34.	137"	
199	"	19 EXIT"				
200						

" 1 MIDUSS Output ----->" 2 " Version 2.25 rev. 473" MIDUSS version " 3 Sunday, February 07, 2010" MIDUSS created ... 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 2408455 - 302-306 Edinburgh Road" 6 Output filename: 2408455 - Existing 100yr.out" " 7 " 8 gmbp" Licensee name: " 9 Company ... 10 12/18/2024 at 3:54:31 PM" Date & Time last used: " 31 TIME PARAMETERS" 11 5.000 Time Step" " 12 " 13 240.000 Max. Storm length" 14 " 1500.000 Max. Hydrograph" 15 " 32 STORM Chicago storm" " 1 Chicago storm" 16 " 17 18 " 1122.601 Coefficient A" 1.500 Constant B" 19 " 0.738 Exponent C" 0.400 Fraction R" 20 " " 21 22 " 240.000 Duration" 23 " 1.000 Time step multiplier" 24 " Maximum intensity271.357mm/hr"Total depth78.288mm" 25 **"** ... 6 100hyd Hydrograph extension used in this file" 26 " <u>3</u>3 CATCHMENT 101" 1 Triangular SCS" 1 Equal length" 1 SCS method" 27 ... 28 " 29 " 30 101 Catchment 101" 38.000 % Impervious" 0.327 Total Area" 20.000 Flow length" " 31 " 32 33 " 34 " 20.000 Flow length" 2.000 Overland Slope" 0.203 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.124 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 35 " 36 " 37 " " 38 " 39 " 40 41 " 2.000 Impervious slope" 0.250 Pervious Manning 'n'" ... 42 43 **"** 75.000 Pervious SCS Curve No."
0.402 Pervious Runoff coefficient" 44 " 45 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No."
0.908 Impervious Runoff coefficient"
0.100 Impervious Ia/S coefficient" 46 " " 47 " 48 " 49 50 " 51 " 0.518 Impervious Initial abstraction" 0.090 0.000 0.000 0.000 c.m/sec" "

 0.090
 0.000
 0.000
 c.m/sec"

 Catchment 101
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.203
 0.124
 0.327
 hectare"

 Time of concentration
 8.898
 1.175
 4.416
 minutes"

 Time to Centroid
 143.694
 116.081
 127.671
 minutes"

 Rainfall depth
 78.288
 78.288
 mm"

 Rainfall volume
 158.72
 97.28
 256.00
 c.m"

 Rainfall losses
 46.790
 7.240
 31.761
 mm"

 Runoff depth
 31.497
 71.047
 46.526
 mm"

 Runoff coefficient
 0.402
 0.908
 0.594
 "

 Maximum flow
 0.032
 0.078
 0.090
 c.m/sec"

 HYDROGRAPH Add Runoff<"</td>
 4
 Add Runoff<"</td>
 4
 Add Runoff

 52 53 " 54 " 55 " ... 56 57 ... 58 " ... 59 ... 60 ... 61 " 62 63 " " 40 64 " 4 Add Runoff " 65 " 0.090 0.090 0.000 0.000" 66 " 40 HYDROGRAPH Copy to Outflow" 67 " 8 Copy to Outflow" 68 ... 0.090 0.090 0.090 0.000" 69

70	"	40	HYDROGRAPH Combine	1"			
71	"	10	6 Combine "	1			
72	"		1 Node #"				
73	"		Flows off-site"				
74	"		Maximum flow	0.09		ec"	
75 76			Hydrograph volume 0.090 0.09	152.14 0 0.090	41 c.m" 0.090"		
77	"	40	HYDROGRAPH Start - New		0.090		
78	"	10	2 Start - New Tributa				
79	"		0.090 0.00	-	0.090"		
80	"	33	CATCHMENT 102"				
81			1 Triangular SCS"				
82 83	"		1 Equal length" 1 SCS method"				
84	"		102 Catchment 102"				
85	"		0.000 % Impervious"				
86	"		0.013 Total Area"				
87	"		5.000 Flow length"				
88			2.000 Overland Slope"				
89 90	"		0.013 Pervious Area" 5.000 Pervious length"				
90 91	"		5.000 Pervious length" 2.000 Pervious slope"				
92	"		0.000 Impervious Area"				
93	"		5.000 Impervious length"				
94	"		2.000 Impervious slope"				
95	"		0.250 Pervious Manning 'n				
96 97			75.000 Pervious SCS Curve 0.396 Pervious Runoff coe				
98	"		0.100 Pervious Ia/S coeff				
99	"		8.467 Pervious Initial ab				
100	"		0.015 Impervious Manning	'n'"			
101	"		98.000 Impervious SCS Curv				
102	"		0.000 Impervious Runoff c				
103 104			0.100 Impervious Ia/S coe				
			() 518 The The Thirt 12	abetraction			
	"		0.518 Impervious Initial 0.003 0.00			c.m/sec"	
105 106	" "		0.518 Impervious Initial 0.003 0.00 Catchment 102		0.090 0	c.m/sec" Total Area	"
105 106 107	" "		0.003 0.00 Catchment 102 Surface Area	0 0.090 Pervious 0.013	0.090 d Impervious 0.000	Total Area 0.013	hectare"
105 106 107 108	" " "		0.003 0.00 Catchment 102 Surface Area Time of concentration	0 0.090 Pervious 0.013 3.873	0.090 d Impervious 0.000 0.511	Total Area 0.013 3.873	hectare" minutes"
105 106 107 108 109	" " "		0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid	0 0.090 Pervious 0.013 3.873 135.965	0.090 d Impervious 0.000 0.511 115.631	Total Area 0.013 3.873 135.965	hectare" minutes" minutes"
105 106 107 108 109 110	" " "		0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth	0 0.090 Pervious 0.013 3.873 135.965 78.288	0.090 d Impervious 0.000 0.511 115.631 78.288	Total Area 0.013 3.873 135.965 78.288	hectare" minutes" minutes" mm"
105 106 107 108 109	" " "		0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid	0 0.090 Pervious 0.013 3.873 135.965	0.090 d Impervious 0.000 0.511 115.631	Total Area 0.013 3.873 135.965	hectare" minutes" minutes"
105 106 107 108 109 110 111 112 113	"" " "		0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00	Total Area 0.013 3.873 135.965 78.288 10.18	hectare" minutes" mm" c.m"
105 106 107 108 109 110 111 112 113 114			0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03	0.090 c Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03	hectare" minutes" mm" c.m" mm" c.m"
105 106 107 108 109 110 111 112 113 114 115			0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	0.090 c Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	0.090 c Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03	hectare" minutes" mm" c.m" mm" c.m"
105 106 107 108 109 110 111 112 113 114 115 116 117		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	0.090 c Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	0.090 c Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090	0.090 c Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121			0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow"	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine "	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine "	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.000" 0.090"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.09	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 0.090"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.003 0.00	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.09 156.1 3 0.003	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 0.090"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.003 0.00 HYDROGRAPH Start - New	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.09 156.1 3 0.003 Tributary"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 0.090"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.003 0.00 HYDROGRAPH Start - New	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.003 1" 0.003 Tributary" ry"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 92 c.m/sc 70 c.m" 0.092"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133		40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.003 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.003 0.00 CATCHMENT 103"	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.003 1" 0.003 Tributary" ry"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 92 c.m/sc 70 c.m" 0.092"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134		40 40 40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.003 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.003 0.00 CATCHMENT 103" 1 Triangular SCS"	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.003 1" 0.003 Tributary" ry"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 92 c.m/sc 70 c.m" 0.092"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135		40 40 40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.003 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.003 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length"	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.003 1" 0.003 Tributary" ry"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 92 c.m/sc 70 c.m" 0.092"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136		40 40 40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.003 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.003 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length"	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.003 1" 0.003 Tributary" ry"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 92 c.m/sc 70 c.m" 0.092"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "
105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135		40 40 40	0.003 0.00 Catchment 102 Surface Area Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.003 0.00 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.003 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.003 0.00 HYDROGRAPH Start - New 2 Start - New Tributa 0.003 0.00 CATCHMENT 103" 1 Triangular SCS" 1 Equal length"	0 0.090 Pervious 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003 " 3 0.090 flow" 3 0.003 1" 0.003 1" 0.003 Tributary" ry"	0.090 d Impervious 0.000 0.511 115.631 78.288 0.00 11.154 67.133 0.00 0.000 0.000 0.000 0.090" 0.090" 92 c.m/sc 70 c.m" 0.092"	Total Area 0.013 3.873 135.965 78.288 10.18 47.297 30.991 4.03 0.396 0.003	hectare" minutes" mm" c.m" mm" c.m" "

139	"		0.024 Total Area"							
140	"		5.000 Flow length"							
141	"		2.000 Overland Slop	be"						
142	"		0.024 Pervious Area	ì"						
143	"		5.000 Pervious leng	Jth"						
144	"		2.000 Pervious slop	be"						
145	"		0.000 Impervious A	rea"						
146	"		5.000 Impervious le							
147	"		2.000 Impervious si							
148	"		0.250 Pervious Man							
149	"		75.000 Pervious SCS							
150	"		0.396 Pervious Runo							
151	"		0.100 Pervious Ia/							
152	"		8.467 Pervious Init							
153	"		0.015 Impervious Ma							
154	"		98.000 Impervious S							
155	"		0.000 Impervious Ru							
156	"		0.100 Impervious Ia							
157	"		0.518 Impervious In			"				
158	"		0.005	0.00			0.092 0	mleac		
159	"		Catchment 103	0.00	Pervious		ervious			"
160	"		Surface Area		0.024	0.00		0.024	Area	hectare"
161	"		Time of concents	cation	3.873	0.51		3.873		minutes"
162	"		Time to Centroid		135.965	115.		135.96	5	minutes"
163	"		Rainfall depth	1	78.288			78.288		mm"
	"		-			78.2				
164	"		Rainfall volume		18.79	0.00		18.79		c.m"
165			Rainfall losses		47.297	11.1		47.297		mm "
166			Runoff depth		30.991	67.1		30.991		mm "
167			Runoff volume		7.44	0.00		7.44		c.m" "
168			Runoff coefficie	ent	0.396	0.00		0.396		
169		4.0	Maximum flow		0.005	0.00	0	0.005		c.m/sec"
170	"	40	HYDROGRAPH Add I	lunofi						
171			4 Add Runoff "							
172		4.0	0.005	0.00			0.092"			
173	"	40	HYDROGRAPH Copy		t⊥ow"					
174	"		8 Copy to Outf							
175	"		0.005	0.00			0.092"			
176		40		nbine	1"					
177	"		6 Combine "							
178	"		1 Node #"							
179	"		Flows off-sit	le"						
180	"		Maximum flow			96	c.m/se	ec"		
181			Hydrograph volu		163.6		c.m"			
182			0.005	0.00			0.096"			
183	"	40		nfluenc	e 1"					
184			7 Confluence "							
185			1 Node #"							
186			Flows off-sit	je"						
187	"		Maximum flow		0.0		c.m/se	ec"		
188	"		Hydrograph volu		163.6		c.m"			
189	"		0.005	0.09	6 0.005		0.000"			
190	"	64	SHOW TABLE"							
191	"		2 Flow hydrogra							
192	"		4 Inflow Hydrod	Jraph"						
193	"		Maximum flow		0.0		c.m/se	ec"		
194	"		Hydrograph volu		163.6	08	c.m"			
195	"	38	START /RE- START 1							
196	"		3 Runoff Totals		IT"					
197	"		Total Catchment					.364		tare"
198	"		Total Impervious					.124	hec	tare"
199	"		Total % impervio	ous			34.	.137"		
200	"	19	EXIT"							
201										

Functional Servicing and Stormwater Management Design Report 302-306 Edinburgh Road South City of Guelph, Ontario January 14, 2025

B.3. Post-development MIDUSS Modelling Output Files

" 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" " 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" ... 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" 2408455 - 302-306 Edinburgh Road" ... 6 Output filename: 2408455 - Post Development 2yr.out" " 7 " gmbp" 8 Licensee name: " 9 Company ... 1/14/2025 at 11:30:46 AM" 10 Date & Time last used: " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" ... 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago sto. " 1 Chicago storm" " 563.699 Coefficient A" 15 STORM Chicago storm" .. 16 17 18 ... 1.500 Constant B" 19 " 0.766 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity129.248mm/hr"Total depth33.713mm" 24 " 25 " 4 2hyd Hydrograph extension used in this file" " 33 CATCHMENT 201" 26 CATCHMENT 201 1 Triangular SCS" 1 Equal length" 1 SCS method" 201 Catchment 201" ... 27 ... 28 " 29 1 SCS method" 201 Catchment 201" 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" 30 " " 31 32 " 0.113Total Area20.000Flow length"2.000Overland Slope"0.058Pervious Area"20.000Pervious slope"0.058Impervious Area"20.000Impervious Area"20.000Impervious length"2.000Impervious slope"0.250Pervious Manning 'n'"75.000Pervious SCS Curve No."0.172Pervious Runoff coefficient"0.100Pervious Ia/S coefficient" 33 " 34 " 35 " 36 " 37 " 38 " ... 39 40 " 41 " ... 42 43 **"** 44 " 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.839 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.015 0.000 0.000 0.000 c.m/sec" 51 ...

 0.015
 0.000
 0.000
 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 18.289
 1.616
 4.451
 minutes"

 Time to Centroid
 163.465
 118.678
 126.292
 minutes"

 Rainfall depth
 33.713
 33.713
 33.713
 mm"

 Rainfall volume
 19.38
 19.38
 38.77
 c.m"

 Rainfall losses
 27.918
 5.423
 16.670
 mm"

 Runoff depth
 5.795
 28.290
 17.042
 mm"

 Runoff coefficient
 0.172
 0.839
 0.506
 "

 Maximum flow
 0.001
 0.015
 0.015
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff
 "

 " 52 53 " 54 " 55 ... 56 " 57 **"** 58 " 59 60 ... 61 ... 62 63 **"** 40 4 Add Runoff " 0.015 0.015 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.015 0.015 0.015 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70	"	6 Combine "				
70		1 Node #"				
72	"	Flows off-site"				
73	"	Maximum flow	0.01	5 c.m/se	с"	
74	"	Hydrograph volume	19.59		-	
75	"	0.015 0.01		0.015"		
76	" 4					
77	"	2 Start - New Tributa	-			
78	"	0.015 0.00	0 0.015	0.015"		
79	" 3	CATCHMENT 202"				
80 81		1 Triangular SCS" 1 Egual length"				
82	"	1 Equal length" 1 SCS method"				
83	"	202 Catchment 202"				
84	"	45.000 % Impervious"				
85	"	0.249 Total Area"				
86	"	15.000 Flow length"				
87	"	2.000 Overland Slope"				
88	"	0.137 Pervious Area"				
89		15.000 Pervious length"				
90 91		2.000 Pervious slope"				
91	"	0.112 Impervious Area" 15.000 Impervious length"				
93	"	2.000 Impervious slope"				
94	"	0.250 Pervious Manning 'n				
95	"	75.000 Pervious SCS Curve				
96	"	0.172 Pervious Runoff coe	fficient"			
97	"	0.100 Pervious Ia / S coeff	icient"			
98	"	8.467 Pervious Initial ab				
99		0.015 Impervious Manning				
100		98.000 Impervious SCS Curv				
101 102		0.834 Impervious Runoff c 0.100 Impervious Ia/S coe				
102	"	0.100 Impervious Ia/S coe 0.518 Impervious Initial				
103	"			0.015 c	.m/sec"	
105	"	Catchment 202	Pervious	Impervious		"
106	"	Surface Area	0.137	-	0.249	hectare"
107	"	Time of concentration	15.389	1.360	4.180	minutes"
108	"	Time to Centroid	159.109		126.410	minutes"
109	"	Rainfall depth	33.713		33.713	mm"
110		Rainfall volume	46.13		83.88	c.m"
111 112		Rainfall losses Runoff depth	27.923 5.790		17.873 15.840	mm" mm"
113	"	Runoff volume	7.92		39.41	c.m"
114	"	Runoff coefficient	0.172		0.470	"
115	"	Maximum flow	0.003		0.031	c.m/sec"
116	" 4	HYDROGRAPH Add Runoff	"			
117	"	4 Add Runoff "				
118	"	0.031 0.03		0.015"		
119	" 4		flow"			
120		8 Copy to Outflow" 0.031 0.03	1 0 0 2 1	0.0151		
121 122	" 4		1 0.031 1"	0.015"		
123	"	6 Combine "	Ţ			
124	"	1 Node #"				
125	"	Flows off-site"				
126	"	Maximum flow	0.04	c.m/se	с"	
127	"	Hydrograph volume	59.00			
128	"	0.031 0.03		0.046"		
129	" 4					
130 131		2 Start - New Tributa 0.031 0.00	-	0.046"		
131 132	" 3		0.031	0.040		
133	"	1 Triangular SCS"				
134	"	1 Equal length"				
135	"	1 SCS method"				
136	"	203 Catchment 203"				
137	"	0.000 % Impervious"				
138	"	0.000 Total Area"				

139 140 141 142 143	"" "" "	<pre>2.000 Flow length" 5.000 Overland Slope" 0.000 Pervious Area" 2.000 Pervious length" 5.000 Pervious slope"</pre>				
144 145		0.000 Impervious Area" 2.000 Impervious length"				
146	"	5.000 Impervious slope"				
147	"	0.250 Pervious Manning 'n'"				
148	"	75.000 Pervious SCS Curve No."				
149	"	0.169 Pervious Runoff coeffici				
150	"	0.100 Pervious Ia/S coefficier				
151 152		8.467 Pervious Initial abstrac 0.015 Impervious Manning 'n'"	:tion"			
153	"	98.000 Impervious SCS Curve No.	. "			
154	"	0.000 Impervious Runoff coeffi				
155	"	0.100 Impervious Ia/S coeffici				
156	"	0.518 Impervious Initial abstr			/	
157 158		0.000 0.000 Catchment 203 Perv	0.031 vious	U.U46 c Impervious	c.m/sec"	
159	"	Surface Area 0.00		0.000	0.000	hectare"
160	"	Time of concentration 3.49		0.308	3.490	minutes"
161	"	Time to Centroid 141.		117.144	141.495	minutes"
162	"	Rainfall depth 33.7		33.713	33.713	mm"
163	"	Rainfall volume 0.07		0.00	0.07	c.m"
164 165		Rainfall losses 28.0 Runoff depth 5.68		8.193 25.520	28.029 5.683	mm" mm"
166	"	Runoff volume 0.01		0.00	0.01	c.m"
167	"	Runoff coefficient 0.16		0.000	0.169	"
168	"	Maximum flow 0.00		0.000	0.000	c.m/sec"
169	" 4					
170	"	4 Add Runoff "	0 0 0 1	0.0464		
171 172	" 4	0.000 0.000 40 HYDROGRAPH Copy to Outflow'	0.031	0.046"		
173	"	8 Copy to Outflow"				
174	"	0.000 0.000	0.000	0.046"		
175	" 4					
176	"	6 Combine "				
177	"	1 Node #"				
178 179		Flows off-site" Maximum flow	0.04	c.m/se	~~ "	
180	"	Hydrograph volume	59.02			
181	"	0.000 0.000	0.000	0.046"		
182	" 4		1"			
183	"	7 Confluence "				
184 185	"	1 Node #" Flows off site"				
185		Flows off-site" Maximum flow	0.04	c.m/se	۰	
187	"	Hydrograph volume	59.02			
188	"	0.000 0.046	0.000	0.000"		
189	" (
190		2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"	0.07		~ "	
192 193		Maximum flow Hydrograph volume	0.04 59.02	•		
194	" 3		00.02			
195	"	3 Runoff Totals on EXIT"				
196	"	Total Catchment area				tare"
197	"	Total Impervious area				tare"
198 199	" 1	Total % impervious 19 EXIT"		46.	555"	
200	-					

" MIDUSS Output ----->" 1 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " Job folder: 5 C:\Users\hbhatt\Desktop\MIDUSS\" 2408455 - 302-306 Edinburgh Road" ... 6 Output filename: 2408455 - Post Development 5yr.out" " 7 " gmbp" 8 Licensee name: " 9 Company ... 10 Date & Time last used: 1/14/2025 at 11:38:44 AM" " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" ... 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago storm" " 1 Chicago storm" " 750.423 Coefficient A" 15 " 16 17 18 " 1.500 Constant B" 19 " 0.769 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity171.091mm/hr"Total depth44.147mm" 24 " 25 " 4 5hyd Hydrograph extension used in this file" 26 **"** 33 CATCHMENT 201" CATCHMENI 201 1 Triangular SCS" 1 Equal length" 1 SCS method" 201 Catchment 201" ... 27 " 28 " 29 1 SCS method" 201 Catchment 201" 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" 30 " " 31 32 " 0.115 Total Area" 20.000 Flow length" 2.000 Overland Slope" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No." 0.239 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" 33 " 34 " 35 " 36 " 37 " 38 " 39 40 " 41 " ... 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.867 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.022 0.000 0.000 0.000 c.m/sec"

 0.022
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area "

 Surface Area
 0.058
 0.058
 0.115

 Time of concentration
 13.688
 1.430
 4.081
 minutes"

 Time to Centroid
 153.660
 117.147
 125.044
 minutes"

 Rainfall depth
 44.147
 44.147
 mm"

 Rainfall volume
 25.38
 25.38
 50.77
 c.m"

 Rainfall losses
 33.590
 5.889
 19.739
 mm"

 Runoff depth
 10.558
 38.258
 24.408
 mm"

 Runoff coefficient
 0.239
 0.867
 0.553
 "

 Maximum flow
 0.002
 0.021
 0.022
 c.m/sec"

 HYDROGRAPH Add Runoff<"</td>
 4
 Add Runoff<"</td>
 4
 Add Runoff

 51 ... " 52 53 " 54 " 55 ... 56 " 57 **"** 58 " 59 " " 60 ... 61 ... 62 **"** 40 63 4 Add Runoff " 0.022 0.022 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.022 0.022 0.022 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70			6 Combine "	
70			6 Combine " 1 Node #"	
72	"		Flows off-site"	
73	"		Maximum flow 0.022 c.m/sec"	
74	"		Hydrograph volume 28.069 c.m"	
75	"		0.022 0.022 0.022 0.022"	
76	"	40	HYDROGRAPH Start - New Tributary"	
77	"		2 Start - New Tributary"	
78	"		0.022 0.000 0.022 0.022"	
79		33		
80	"		1 Triangular SCS"	
81			1 Equal length"	
82	"		1 SCS method"	
83 84			202 Catchment 202" 45.000 % Impervious"	
85			45.000 % Impervious" 0.249 Total Area"	
86	"		15.000 Flow length"	
87	"		2.000 Overland Slope"	
88	"		0.137 Pervious Area"	
89	"		15.000 Pervious length"	
90	"		2.000 Pervious slope"	
91	"		0.112 Impervious Area"	
92	"		15.000 Impervious length"	
93	"		2.000 Impervious slope"	
94			0.250 Pervious Manning 'n'"	
95	"		75.000 Pervious SCS Curve No."	
96 97			0.239 Pervious Runoff coefficient"	
97	"		0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"	
99	"		0.015 Impervious Manning 'n'"	
100	"		98.000 Impervious SCS Curve No."	
101	"		0.861 Impervious Runoff coefficient"	
102	"		0.100 Impervious Ia/S coefficient"	
103	"		0.518 Impervious Initial abstraction"	
104	"		0.044 0.000 0.022 0.022 c.m/sec	
105	"		Catchment 202 Pervious Impervious Total A	Area "
106	"		Surface Area 0.137 0.112 0.249	hectare"
107	"		Time of concentration 11.518 1.203 3.820	minutes"
108 109			Time to Centroid150.203116.893125.344Rainfall depth44.14744.14744.147	4 minutes" mm"
110	"		Rainfall volume 60.46 49.47 109.93	c.m"
111	"		Rainfall losses 33.575 6.133 21.226	mm"
112	"		Runoff depth 10.573 38.014 22.921	mm "
113	"		Runoff volume 14.48 42.60 57.07	c.m"
114	"		Runoff coefficient 0.239 0.861 0.519	"
115	"		Maximum flow 0.006 0.042 0.044	c.m/sec"
116	"	40		
117			4 Add Runoff "	
118	"	10	0.044 0.044 0.022 0.022"	
119 120	"	40	HYDROGRAPH Copy to Outflow" 8 Copy to Outflow"	
120	"		0.044 0.044 0.044 0.022"	
121	"	40		
123	"	- 0	6 Combine "	
124	"		1 Node #"	
125	"		Flows off-site"	
126	"		Maximum flow 0.066 c.m/sec"	
127	"		Hydrograph volume 85.143 c.m"	
128		4.0	0.044 0.044 0.044 0.066"	
129	"	40		
130 131			2 Start - New Tributary" 0.044 0.000 0.044 0.066"	
132	"	२२		
133			1 Triangular SCS"	
134	"		1 Equal length"	
135	"		1 SCS method"	
136	"		203 Catchment 203"	
137	"		0.000 % Impervious"	
138			0.000 Total Area"	

139 140 141 142 143	"" " "	<pre>2.000 Flow length" 5.000 Overland Slope" 0.000 Pervious Area" 2.000 Pervious length" 5.000 Pervious slope"</pre>				
144		0.000 Impervious Area"				
145 146	"	2.000 Impervious length" 5.000 Impervious slope"				
140	"	5.000 Impervious slope" 0.250 Pervious Manning 'n'	. "			
148	"	75.000 Pervious SCS Curve N				
149	"	0.237 Pervious Runoff coef				
150	"	0.100 Pervious Ia/S coeffi				
151	"	8.467 Pervious Initial abs				
152 153		0.015 Impervious Manning ' 98.000 Impervious SCS Curve				
154	"	0.000 Impervious Runoff co				
155	"	0.100 Impervious Ia/S coef				
156	"	0.518 Impervious Initial a				
157	"	0.000 0.000			c.m/sec"	
158	"	Catchment 203	Pervious	-	Total Area	
159 160		Surface Area Time of concentration	0.000 2.612	0.000 0.273	0.000 2.612	hectare" minutes"
161	"	Time to Centroid	136.249	115.644	136.248	minutes"
162	"	Rainfall depth	44.147	44.147	44.147	mm"
163	"	Rainfall volume	0.09	0.00	0.09	c.m"
164		Rainfall losses	33.694	9.703	33.694	mm"
165	"	Runoff depth Runoff volume	10.454	34.445	10.454	mm"
166 167	"	Runoff coefficient	0.02 0.237	0.00	0.02 0.237	c.m" "
168	"	Maximum flow	0.000	0.000	0.000	c.m/sec"
169	" 4					·
170	"	4 Add Runoff "				
171	"	0.000 0.000		0.066"		
172 173	" 4 "	1 2	LOW"			
174	"	8 Copy to Outflow" 0.000 0.000	0.000	0.066"		
175	" 4		1"	0.000		
176	"	6 Combine "				
177	"	1 Node #"				
178	"	Flows off-site"	0.07		11	
179 180		Maximum flow Hydrograph volume	0.00 85.10		30.	
181	"			0.066"		
182	" 4					
183	"	7 Confluence "				
184	"	1 Node #"				
185 186		Flows off-site" Maximum flow	0.00	66 c.m/se		
187	"	Hydrograph volume	85.16		30	
188	"	0.000 0.066		0.000"		
189	" 6	4 SHOW TABLE"				
190	"	2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"	0.07		11	
192 193		Maximum flow Hydrograph volume	0.00 85.10		30	
194	" 3			- C •III		
195	"	3 Runoff Totals on EXI				
196	"	Total Catchment area				tare"
197		Total Impervious area				tare"
198 199	" 1	Total % impervious 9 EXIT"		46.	.554"	
200	Ť					

" 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " Job folder: 5 C:\Users\hbhatt\Desktop\MIDUSS\" 2408455 - 302-306 Edinburgh Road" ... 6 Output filename: 2408455 - Post Development 10yr.out" " 7 " gmbp" 8 Licensee name: " 9 Company " 1/14/2025 at 11:39:41 AM" 10 Date & Time last used: " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" " 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago storm" " 1 Chicago storm" " 855.183 Coefficient A" 15 .. 16 17 18 ... 1.500 Constant B" 19 " 0.764 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity196.822mm/hr"Total depth51.710mm" 24 " 25 " 5 10hyd Hydrograph extension used in this file" .. " 33 CATCHMENT 201" 26 CATCHMENI 201 1 Triangular SCS" 1 Equal length" 1 SCS method" 201 Catchment 201" ... 27 " 28 " 29 l SCS method" 201 Catchment 201" 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" " 30 " 31 32 " 20.000 Flow length" 2.000 Overland Slope" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No." 0.282 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" 33 " 34 " 35 " 36 " 37 " 38 " ... 39 40 " 41 " ... 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.880 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.026 0.000 0.000 0.000 c.m/sec" 51 "

 0.026
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 11.934
 1.346
 3.916
 minutes"

 Time to Centroid
 149.897
 116.646
 124.718
 minutes"

 Rainfall depth
 51.710
 51.710
 51.710
 mm"

 Rainfall volume
 29.73
 29.73
 59.47
 c.m"

 Rainfall losses
 37.114
 6.182
 21.648
 mm"

 Runoff depth
 14.596
 45.528
 30.062
 mm"

 Runoff coefficient
 0.282
 0.880
 0.581
 "

 Maximum flow
 0.003
 0.025
 0.026
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff
 "

 " 52 53 " 54 " 55 ... 56 " 57 **"** 58 " 59 " ... 60 ... 61 ... 62 63 " 40 4 Add Runoff " 0.026 0.026 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.026 0.026 0.026 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70		(Cambina II				
70 71		6 Combine " 1 Node #"				
71	"	1 Node #" Flows off-site"				
73	"	Maximum flow	0.02	6 c.m/se		
74	"	Hydrograph volume	34.57			
75	"	0.026 0.026	0.026	0.026"		
76	" 40	HYDROGRAPH Start - New 7		0.020		
77	"	2 Start - New Tributary				
78	"	0.026 0.000	0.026	0.026"		
79	" 33	CATCHMENT 202"				
80	"	1 Triangular SCS"				
81	"	1 Equal length"				
82	"	1 SCS method"				
83	"	202 Catchment 202"				
84	"	45.000 % Impervious"				
85		0.249 Total Area"				
86	"	15.000 Flow length"				
87		2.000 Overland Slope"				
88 89		0.137 Pervious Area" 15.000 Pervious length"				
90	"	15.000Pervious length"2.000Pervious slope"				
91		0.112 Impervious Area"				
92	"	15.000 Impervious length"				
93	"	2.000 Impervious slope"				
94	"	0.250 Pervious Manning 'n''	ı			
95	"	75.000 Pervious SCS Curve No				
96	"	0.281 Pervious Runoff coeff	ficient"			
97	"	0.100 Pervious Ia/S coeffic	cient"			
98	"	8.467 Pervious Initial abst	raction"			
99	"	0.015 Impervious Manning 'r				
100	"	98.000 Impervious SCS Curve				
101		0.874 Impervious Runoff coe				
102		0.100 Impervious Ia/S coeff				
103	"	0.518 Impervious Initial ak				
104		0.052 0.000 Catchment 202 F	0.026		.m/sec"	
105 106				Impervious 0.112	0.249	
100	"			1.133	3.645	hectare" minutes"
108	"				125.070	minutes"
109	"		51.710	51.710	51.710	mm"
110	"	1	0.82		128.76	c.m"
111	"		37.185	6.518	23.385	mm"
112	"	Runoff depth 1	4.524	45.192	28.325	mm"
113	"				70.53	c.m"
114	"				0.548	"
115	"		0.009	0.050	0.052	c.m/sec"
116	4 0	HYDROGRAPH Add Runoff "				
117	"	4 Add Runoff "	0.026	0.026"		
118 119	" 40	0.052 0.052 HYDROGRAPH Copy to Outfl		0.020		
120	40 "	8 Copy to Outflow"	_Ow			
121		0.052 0.052	0.052	0.026"		
122	" 40	HYDROGRAPH Combine	1"	0.020		
123	"	6 Combine "				
124	"	1 Node #"				
125	"	Flows off-site"				
126	"	Maximum flow	0.07	8 c.m/se	ec"	
127	"	Hydrograph volume	105.09			
128	"	0.052 0.052	0.052	0.078"		
129	" 40	HYDROGRAPH Start - New T				
130	"	2 Start - New Tributary		0.078"		
131 132	" 33	0.052 0.000	0.052	0.0/8"		
132 133	" 33 "	CATCHMENT 203" 1 Triangular SCS"				
134		1 Equal length"				
135						
TOO	"					
$135 \\ 136$	"					
		1 SCS method"				
136	"	1 SCS method" 203 Catchment 203"				

139 140 141 142 143 144	" " "	<pre>2.000 Flow length" 5.000 Overland Slope" 0.000 Pervious Area" 2.000 Pervious length" 5.000 Pervious slope" 0.000 Impervious Area"</pre>				
145	"	2.000 Impervious length"				
146	"	5.000 Impervious slope"				
147		0.250 Pervious Manning 'n'				
148 149	"	75.000 Pervious SCS Curve N 0.279 Pervious Runoff coef				
150	"	0.100 Pervious Ia/S coeffi				
151	"	8.467 Pervious Initial abs				
152	"	0.015 Impervious Manning '				
153	"	98.000 Impervious SCS Curve				
154 155		0.000 Impervious Runoff cc 0.100 Impervious Ia/S coef				
156	"	0.518 Impervious Initial a		,		
157	"	0.000 0.000			c.m/sec"	
158	"	Catchment 203	Pervious	Impervious	Total Area	
159		Surface Area	0.000	0.000	0.000	hectare"
160	"	Time of concentration	2.277	0.257	2.277	minutes"
161 162		Time to Centroid Rainfall depth	134.659 51.710	115.102 51.710	134.659 51.710	minutes" mm"
163	"	Rainfall volume	0.10	0.00	0.10	c.m"
164	"	Rainfall losses	37.260	10.784	37.260	mm"
165	"	Runoff depth	14.450	40.926	14.450	mm"
166	"	Runoff volume	0.03	0.00	0.03	c.m" "
167 168		Runoff coefficient Maximum flow	0.279	0.000	0.279 0.000	" c.m/sec"
169	" 4(0.000	0.000	C.m/sec
170	"	4 Add Runoff "				
171	"	0.000 0.000		0.078"		
172	" 4(Elow"			
173 174		8 Copy to Outflow" 0.000 0.000	0.000	0.078"		
175	" 4(1"	0.078		
176	"	6 Combine "	-			
177	"	1 Node #"				
178		Flows off-site"	0.07			
179 180		Maximum flow	0.07 105.12		€C"	
181	"	Hydrograph volume 0.000 0.000		0.078"		
182	" 4(0.070		
183	"	7 Confluence "				
184		1 Node #"				
185 186	"	Flows off-site"	0.07	79 a m/aa	!	
187	"	Maximum flow Hydrograph volume	105.12		30	
188	"	0.000 0.078		0.000"		
189	" 64	4 SHOW TABLE"				
190	"	2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"	0.05	70	11	
192 193		Maximum flow Hydrograph volume	0.07		≥C "	
193	" 38					
195	"	3 Runoff Totals on EXI				
196	"	Total Catchment area				tare"
197		Total Impervious area				tare"
198 199	" 19	Total % impervious EXIT"		46.	.554"	
200	± .					

" 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" " 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " Job folder: 5 C:\Users\hbhatt\Desktop\MIDUSS\" ... 2408455 - 302-306 Edinburgh Road" 6 Output filename: 2408455 - Post Development 25yr.out" " 7 " 8 gmbp" Licensee name: " 9 Company " 1/14/2025 at 11:41:31 AM" 10 Date & Time last used: " 31 TIME PARAMETERS" 11 12 " 5.000 Time Step" 240.000 Max. Storm length" " 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago sto. " 1 Chicago storm" " 972.202 Coefficient A" 15 STORM Chicago storm" .. 16 17 18 ... 1.500 Constant B" 19 " 0.752 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity228.875mm/hr"Total depth62.786mm" 24 " 25 " 5 25hyd Hydrograph extension used in this file" **"** 33 CATCHMENT 201" 26 1 Triangular SCS" ... 27 1 Equal length" 1 SCS method" " 28 " 29 1 SCS method" 201 Catchment 201" 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" " 30 " 31 32 " 33 " 20.000 Flow length" 2.000 Overland Slope" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Slope" 0.250 Pervious SCS Curve No." 0.337 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" 34 " 35 " 36 " 37 " 38 " ... 39 " 40 41 " ... 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.895 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 " 50 0.518 Impervious Initial abstraction" 0.031 0.000 0.000 0.000 c.m/sec" 51 "

 0.031
 0.000
 0.000
 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 10.327
 1.262
 3.739
 minutes"

 Time to Centroid
 146.776
 116.413
 124.712
 minutes"

 Rainfall depth
 62.786
 62.786
 62.786
 mm"

 Rainfall volume
 36.10
 36.10
 72.20
 c.m"

 Rainfall losses
 41.654
 6.598
 24.126
 mm"

 Runoff depth
 21.132
 56.188
 38.660
 mm"

 Runoff coefficient
 0.337
 0.895
 0.616
 "

 Maximum flow
 0.005
 0.030
 0.031
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff
 "

 " 52 53 " 54 " 55 ... 56 " 57 " 58 " 59 " ... 60 ... 61 ... 62 63 " 40 4 Add Runoff " 0.031 0.031 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.031 0.031 0.031 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70		6 Combine "				
71	"	1 Node #"				
72	"	Flows off-site"				
73	"	Maximum flow	0.03	1 c.m/sec	c"	
74	"	Hydrograph volume	44.45			
75	"	0.031 0.031	0.031	0.031"		
76	" 40	HYDROGRAPH Start - New 7	-			
77		2 Start - New Tributary		0.001		
78 79	" " 33	0.031 0.000 CATCHMENT 202"	0.031	0.031"		
80	" 33 "	1 Triangular SCS"				
81	"	1 Equal length"				
82	"	1 SCS method"				
83	"	202 Catchment 202"				
84	"	45.000 % Impervious"				
85	"	0.249 Total Area"				
86		15.000 Flow length"				
87		2.000 Overland Slope"				
88 89		0.137 Pervious Area" 15.000 Pervious length"				
90	"	15.000 Pervious length" 2.000 Pervious slope"				
91	"	0.112 Impervious Area"				
92	"	15.000 Impervious length"				
93	"	2.000 Impervious slope"				
94	"	0.250 Pervious Manning 'n''				
95		75.000 Pervious SCS Curve No				
96		0.338 Pervious Runoff coeff				
97 98		0.100 Pervious Ia/S coeffic				
90 99	"	8.467 Pervious Initial abst 0.015 Impervious Manning 'r				
100	"	98.000 Impervious SCS Curve				
101	"	0.887 Impervious Runoff coe				
102	"	0.100 Impervious Ia/S coeff				
103	"	0.518 Impervious Initial ak				
104		0.064 0.000	0.031	0.031 c		
105	"			Impervious 5		
106).249	hectare"
107 108	"				3.484 124.968	minutes" minutes"
100	"				52.786	mm"
110	"	-			156.34	c.m"
111	"		11.592	7.105 2	26.073	mm"
112	"				36.713	mm"
113					91.42	c.m"
114	"				0.585	"
115 116	" 40	Maximum flow (HYDROGRAPH Add Runoff "	0.015	0.059 (0.064	c.m/sec"
117	"	4 Add Runoff "				
118	"	0.064 0.064	0.031	0.031"		
119	" 40	HYDROGRAPH Copy to Outfl	_OW"			
120	"	8 Copy to Outflow"				
121	"	0.064 0.064	0.064	0.031"		
122	" 40 "	HYDROGRAPH Combine	1"			
123 124		6 Combine " 1 Node #"				
125	"	Flows off-site"				
126	"	Maximum flow	0.09	6 c.m/sec	2"	
127	"	Hydrograph volume	135.87			
128	"	0.064 0.064	0.064	0.096"		
129	" 40	HYDROGRAPH Start - New 7				
130		2 Start - New Tributary		0.000		
131	" " >>	0.064 0.000	0.064	0.096"		
132 133	" 33 "	CATCHMENT 203" 1 Triangular SCS"				
134		1 Equal length"				
135	"	1 SCS method"				
136	"	203 Catchment 203"				
137	"					
		0.000 % Impervious"				
138	"	0.000 % Impervious" 0.000 Total Area"				

139	"	2.000 Flow length"				
140	"	5.000 Overland Slope"				
141	"	0.000 Pervious Area"				
142	"	2.000 Pervious length"				
143	"	5.000 Pervious slope"				
144	"	0.000 Impervious Area"				
145	"	2.000 Impervious length"				
146	"	5.000 Impervious slope"				
147	"	0.250 Pervious Manning 'r	ı"'			
148	"	75.000 Pervious SCS Curve	No."			
149	"	0.334 Pervious Runoff coe				
150	"	0.100 Pervious Ia / S coefi				
151	"	8.467 Pervious Initial at				
152	"	0.015 Impervious Manning				
153	"	98.000 Impervious SCS Curv				
154	"	0.000 Impervious Runoff of				
155	"	0.100 Impervious Ia / S coe				
156	"	0.518 Impervious Initial				
157	"	0.000 0.00			c.m/sec"	
158	"	Catchment 203	Pervious	-	Total Area	
159	"	Surface Area	0.000	0.000	0.000	hectare"
160	"	Time of concentration	1.970	0.241	1.970	minutes"
161	"	Time to Centroid	133.258	114.688	133.258	minutes"
162	"	Rainfall depth	62.786	62.786	62.786	mm "
163	"	Rainfall volume	0.13	0.00	0.13	c.m"
164	"	Rainfall losses	41.836	12.425	41.836	mm ''
165	"	Runoff depth	20.950	50.361	20.950	mm"
166		Runoff volume	0.04	0.00	0.04	c.m"
167		Runoff coefficient	0.334	0.000	0.334	"
168		Maximum flow	0.000	0.000	0.000	c.m/sec"
169			"			
170	"	4 Add Runoff "		0.000		
171		0.000 0.00		0.096"		
172		1 2	CITOM.			
173		8 Copy to Outflow"		0.000		
174 175		0.000 0.00 40 HYDROGRAPH Combine	0.000 1"	0.096"		
176			T			
177	"	6 Combine " 1 Node #"				
178	"	Flows off-site"				
179	"	Maximum flow	0.09	96 c.m/se		
180	"	Hydrograph volume	135.92			
181	"	0.000 0.00				
182	"			0.090		
183	"	7 Confluence "				
184	"	1 Node #"				
185	"	Flows off-site"				
186	"	Maximum flow	0.0	96 c.m/se	ec"	
187	"	Hydrograph volume	135.93			
188	"	0.000 0.09				
189	"					
190	"	2 Flow hydrograph"				
191	"	4 Inflow Hydrograph"				
192	"	Maximum flow	0.0	96 c.m/se	ec"	
193	"	Hydrograph volume	135.93	•		
194	"		1"			
195	"	3 Runoff Totals on EX				
196	"	Total Catchment area		0.	.364 hect	care"
197	"	Total Impervious area		0.	.170 hect	care"
198	"	Total % impervious		46.	. 554"	
199	"	19 EXIT"				
200						

... 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" " 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " Job folder: 5 C:\Users\hbhatt\Desktop\MIDUSS\" 2408455 - 302-306 Edinburgh Road" ... 6 Output filename: 2408455 - Post Development 50yr.out" " 7 " 8 gmbp" Licensee name: " 9 Company " 1/14/2025 at 11:43:04 AM" 10 Date & Time last used: " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" ... 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago sto. " 1 Chicago storm" " 1054.540 Coefficient A" 15 STORM Chicago storm" " 16 ... 17 18 ... 1.500 Constant B" 19 " 0.746 Exponent C" " 0.400 Fraction R" 20 " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity251.085mm/hr"Total depth70.383mm" 24 " 25 " 5 50hyd Hydrograph extension used in this file" .. " 33 CATCHMENT 201" CATCHMENI 201 1 Triangular SCS" 1 Equal length" 1 SCS method" 201 Catchment 201" 26 ... 27 " 28 " 29 l SCS method" 201 Catchment 201" 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" " 30 " 31 32 " 33 " 20.000 Flow length" 2.000 Overland Slope" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No." 0.370 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" 34 " 35 " 36 " 37 " 38 " ... 39 40 " 41 " ... 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.902 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 " ... 49 ... 50 0.518 Impervious Initial abstraction" 0.035 0.000 0.000 0.000 c.m/sec" 51 "

 0.035
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 9.525
 1.214
 3.631
 minutes"

 Time to Centroid
 145.042
 116.207
 124.591
 minutes"

 Rainfall depth
 70.383
 70.383
 70.383
 mm"

 Rainfall volume
 40.47
 40.47
 80.94
 c.m"

 Rainfall losses
 44.357
 6.903
 25.630
 mm"

 Runoff depth
 26.025
 63.480
 44.753
 mm"

 Runoff coefficient
 0.370
 0.902
 0.636
 "

 Maximum flow
 0.007
 0.033
 0.035
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff
 "

 " 52 53 " 54 " 55 ... 56 " 57 **"** 58 " 59 " ... 60 ... 61 ... 62 **"** 40 63 4 Add Runoff " 0.035 0.035 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" " 40 66 " 67 8 Copy to Outflow" 0.035 0.035 0.035 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

. / ()	"	6 Combine "				
70 71	"	1 Node #"				
72	"	Flows off-site"				
73	"	Maximum flow	0.03	5 c.m/sec		
74	"	Hydrograph volume	51.46			
75	"	0.035 0.03	5 0.035	0.035"		
76	" 40	HYDROGRAPH Start - New	Tributary"			
77	"	2 Start - New Tributa				
78	"	0.035 0.00	0.035	0.035"		
79	" 33	CATCHMENT 202"				
80	"	1 Triangular SCS"				
81 82		1 Equal length" 1 SCS method"				
o∠ 83	"	202 Catchment 202"				
84	"	45.000 % Impervious"				
85	"	0.249 Total Area"				
86	"	15.000 Flow length"				
87	"	2.000 Overland Slope"				
88	"	0.137 Pervious Area"				
89		15.000 Pervious length"				
90	"	2.000 Pervious slope"				
91 92		0.112 Impervious Area" 15.000 Impervious length"				
93	"	2.000 Impervious slope"				
94	"	0.250 Pervious Manning 'n				
95	"	75.000 Pervious SCS Curve				
96	"	0.371 Pervious Runoff coe				
97	"	0.100 Pervious Ia/S coeff	icient"			
98	"	8.467 Pervious Initial ab				
99		0.015 Impervious Manning				
100	"	98.000 Impervious SCS Curv				
101 102		0.893 Impervious Runoff c 0.100 Impervious Ia/S coe				
102	"	0.518 Impervious Initial				
104	"	0.071 0.00		0.035 c.	.m/sec"	
105	"	Catchment 202		Impervious I		
106				-		
TOO	"	Surface Area	0.137	0.112 0).249 hectare"	•
107	"	Time of concentration	8.015	1.021 3	3.375 minutes"	•
107 108	" "	Time of concentration Time to Centroid	8.015 142.643	1.021 3 115.806 1	8.375 minutes" 24.838 minutes"	•
107 108 109	" " "	Time of concentration Time to Centroid Rainfall depth	8.015 142.643 70.383	1.021 3 115.806 1 70.383 7	8.375 minutes" .24.838 minutes" 70.383 mm"	•
107 108 109 110	" " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume	8.015 142.643 70.383 96.39	1.0213115.806170.383778.861	8.375 minutes" 24.838 minutes" 70.383 mm" .75.25 c.m"	•
107 108 109 110 111	" " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses	8.015 142.643 70.383 96.39 44.297	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2	3.375 minutes" 24.838 minutes" 70.383 mm" 275.25 c.m" 27.753 mm"	•
107 108 109 110 111 112	"" " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth	8.015 142.643 70.383 96.39 44.297 26.086	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4	3.375 minutes" 24.838 minutes" 70.383 mm" 275.25 c.m" 27.753 mm" 42.630 mm"	•
107 108 109 110 111	""	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses	8.015 142.643 70.383 96.39 44.297 26.086 35.72	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1	3.375 minutes" 24.838 minutes" 70.383 mm" 275.25 c.m" 27.753 mm"	•
107 108 109 110 111 112 113		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m"	•
107 108 109 110 111 112 113 114 115 116	" " " " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m" 0.606 "	•
107 108 109 110 111 112 113 114 115 116 117	" " " " " " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff "	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m" 0.606 "	•
107 108 109 110 111 112 113 114 115 116 117 118	" " " " " " " 4(Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m" 0.606 "	•
107 108 109 110 111 112 113 114 115 116 117 118 119	" " " " " " 40	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m" 0.606 "	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120	" " " " " " " 4(Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow"	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m" 0.606 "	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121	" " " " " 4 ("	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m" 0.606 "	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120	" " " " " 4 (Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m" 0.606 "	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124	" " " " 40 "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0	3.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" 27.753 mm" 42.630 mm" .06.15 c.m" 0.606 "	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125	" " " " 40	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site"	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126	" " " " 40 " 40	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.10	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	7
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127	" " " " 40 " 40	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.10 157.61	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128	" " " " 40 " 40	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.10 157.61 1 0.071	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	7
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129	" " " " 40 " 40	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07 HYDROGRAPH Start - New	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.10 157.61 1 0.071 Tributary"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07 HYDROGRAPH Start - New 2 Start - New Tributa	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.100 157.61 1 0.071 Tributary" ry"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.071 0.00	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.10 157.61 1 0.071 Tributary" ry"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m" 0.106"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.071 0.00 CATCHMENT 203" 1 Triangular SCS"	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.100 157.61 1 0.071 Tributary" ry"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m" 0.106"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	7
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.071 0.00 CATCHMENT 203" 1 Triangular SCS" 1 Equal length"	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.100 157.61 1 0.071 Tributary" ry"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m" 0.106"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135		Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.071 0.00 CATCHMENT 203" 1 Triangular SCS" 1 Equal length" 1 SCS method"	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.100 157.61 1 0.071 Tributary" ry"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m" 0.106"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	•
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136		Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.071 0.00 CATCHMENT 203" 1 Triangular SCS" 1 Equal length" 1 SCS method" 203 Catchment 203"	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.100 157.61 1 0.071 Tributary" ry"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m" 0.106"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	7
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135		Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.071 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.071 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.071 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.071 0.00 CATCHMENT 203" 1 Triangular SCS" 1 Equal length" 1 SCS method"	8.015 142.643 70.383 96.39 44.297 26.086 35.72 0.371 0.022 " 1 0.035 flow" 1 0.071 1" 0.100 157.61 1 0.071 Tributary" ry"	1.021 3 115.806 1 70.383 7 78.86 1 7.533 2 62.850 4 70.42 1 0.893 0 0.065 0 0.035" 0.035" 6 c.m/sec 3 c.m" 0.106"	8.375 minutes" .24.838 minutes" 70.383 mm" .75.25 c.m" .77.753 mm" .2.630 mm" .06.15 c.m" .606 " .071 c.m/sec"	•

139 140 141 142 143 144		<pre>2.000 Flow length" 5.000 Overland Slope" 0.000 Pervious Area" 2.000 Pervious length" 5.000 Pervious slope" 0.000 Impervious Area"</pre>
145 146	"	2.000 Impervious length" 5.000 Impervious slope"
140	"	0.250 Pervious Manning 'n'"
148	"	75.000 Pervious SCS Curve No."
149		0.365 Pervious Runoff coefficient"
150 151	"	0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
151	"	0.015 Impervious Manning 'n'"
153	"	98.000 Impervious SCS Curve No."
154	"	0.000 Impervious Runoff coefficient"
155	"	0.100 Impervious Ia/S coefficient"
156 157		0.518 Impervious Initial abstraction" 0.000 0.000 0.071 0.106 c.m/sec"
158	"	Catchment 203 Pervious Impervious Total Area "
159	"	Surface Area 0.000 0.000 0.000 hectare'
160		Time of concentration 1.818 0.232 1.818 minutes'
161 162	"	Time to Centroid132.479114.416132.479minutes'Rainfall depth70.38370.38370.383mm"
163	"	Rainfall volume 0.14 0.00 0.14 c.m"
164	"	Rainfall losses 44.670 13.578 44.670 mm"
165	"	Runoff depth 25.712 56.805 25.713 mm"
166	"	Runoff volume 0.05 0.00 0.05 c.m" Runoff coefficient 0.365 0.000 0.365 "
167 168		Runoff coefficient 0.365 0.000 0.365 " Maximum flow 0.000 0.000 0.000 c.m/sec"
169	" 4	
170	"	4 Add Runoff "
171	"	0.000 0.000 0.071 0.106"
172	" 4	
173 174		8 Copy to Outflow" 0.000 0.000 0.000 0.106"
175	" 4	
176	"	6 Combine "
177	"	1 Node #"
178 179	"	Flows off-site"
180	"	Maximum flow 0.106 c.m/sec" Hydrograph volume 157.665 c.m"
181	"	0.000 0.000 0.000 0.106"
182	" 4	
183		7 Confluence "
184 185	"	1 Node #" Flows off-site"
186	"	Maximum flow 0.106 c.m/sec"
187	"	Hydrograph volume 157.665 c.m"
188	"	0.000 0.106 0.000 0.000"
189	" 6	
190 191		2 Flow hydrograph" 4 Inflow Hydrograph"
192	"	Maximum flow 0.106 c.m/sec"
193	"	Hydrograph volume 157.665 c.m"
194	" 3	
195 196	"	3 Runoff Totals on EXIT" Total Catchment area 0.364 hectare"
190	"	Total Impervious area 0.170 hectare"
198	"	Total % impervious 46.554"
199	" 1	9 EXIT"
200		

" 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 6 2408455 - 302-306 Edinburgh Road" Output filename: 2408455 - Post Development 100yr.out" " 7 " 8 gmbp" Licensee name: " 9 Company ... 1/14/2025 at 11:45:51 AM" 10 Date & Time last used: " 31 TIME PARAMETERS" 11 5.000 Time Step" 12 " 240.000 Max. Storm length" ... 13 " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago storm" " 1 Chicago storm" " 1122.601 Coefficient A" " 1.500 Constant B" " 0.722 Evenent C" 15 " 16 17 18 ... 19 " 0.738 Exponent C" 0.400 Fraction R" " 20 " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity271.357mm/hr"Total depth78.288mm" 24 " 25 " 6 100hyd Hydrograph extension used in this file" CATCHMENT 201" " " 33 26 CATCHMENI 201 1 Triangular SCS" 1 Equal length" 1 SCS method" 201 Catchment 201" ... 27 ... 28 " 29 1 SCS method" 201 Catchment 201" 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" " 30 " 31 32 " 20.000 Flow length" 2.000 Overland Slope" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No." 0.402 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" 33 " 34 " 35 " 36 " 37 " 38 " 39 40 " 41 " ... 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " 47 **"** 0.908 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" 48 **"** ... 49 ... 50 0.518 Impervious Initial abstraction" 0.039 0.000 0.000 0.000 c.m/sec" 51 ...

 0.039
 0.000
 0.000
 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 8.898
 1.175
 3.547
 minutes"

 Time to Centroid
 143.694
 116.081
 124.562
 minutes"

 Rainfall depth
 78.288
 78.288
 78.288
 mm"

 Rainfall volume
 45.02
 45.02
 90.03
 c.m"

 Rainfall losses
 46.790
 7.240
 27.015
 mm"

 Runoff depth
 31.497
 71.047
 51.272
 mm"

 Runoff coefficient
 0.402
 0.908
 0.655
 "

 Maximum flow
 0.009
 0.036
 0.039
 c.m/sec"

 HYDROGRAPH Add Runoff
 "
 4
 Add Runoff
 "

 " 52 53 " 54 " 55 ... 56 " 57 **"** 58 " 59 60 ... 61 ... 62 63 **"** 40 4 Add Runoff " 0.039 0.039 0.000 0.000" " 64 " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.039 0.039 0.039 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70	"	Combine "				
70 71		6 Combine " 1 Node #"				
71	"	Flows off-site"				
73	"	Maximum flow	0.03	9 c.m/se	~ "	
74		Hydrograph volume	58.96		C	
75	"	0.039 0.03		0.039"		
76	" 4(
77	"	2 Start - New Tributa				
78	"	0.039 0.00		0.039"		
79	" 33	CATCHMENT 202"				
80	"	1 Triangular SCS"				
81	"	1 Equal length"				
82	"	1 SCS method"				
83	"	202 Catchment 202"				
84		45.000 % Impervious"				
85	"	0.249 Total Area"				
86	"	15.000 Flow length"				
87 88		2.000 Overland Slope" 0.137 Pervious Area"				
00 89						
90	"	15.000 Pervious length" 2.000 Pervious slope"				
91	"	0.112 Impervious Area"				
92		15.000 Impervious length"				
93	"	2.000 Impervious slope"				
94	"	0.250 Pervious Manning 'n				
95	"	75.000 Pervious SCS Curve				
96	"	0.401 Pervious Runoff coe	fficient"			
97	"	0.100 Pervious Ia / S coeff	icient"			
98	"	8.467 Pervious Initial ab	straction"			
99	"	0.015 Impervious Manning				
100	"	98.000 Impervious SCS Curv				
101		0.898 Impervious Runoff c				
102	"	0.100 Impervious Ia/S coe				
103	"	0.518 Impervious Initial				
104		0.079 0.00		0.039 c		
105		Catchment 202		Impervious		
116		Surface Area		0 112		hootaro"
106	"	Surface Area			0.249	hectare"
107		Time of concentration	7.487	0.989	3.285	minutes"
107 108	"	Time of concentration Time to Centroid	7.487 141.549	0.989 115.622	3.285 124.782	minutes" minutes"
107	" "	Time of concentration Time to Centroid Rainfall depth	7.487 141.549 78.288	0.989 115.622 78.288	3.285 124.782 78.288	minutes" minutes" mm"
107 108 109	" " "	Time of concentration Time to Centroid	7.487 141.549 78.288 107.21	0.989 115.622 78.288 87.72	3.285 124.782	minutes" minutes"
107 108 109 110	" " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume	7.487 141.549 78.288 107.21 46.856	0.989 115.622 78.288 87.72 7.972	3.285 124.782 78.288 194.94	minutes" minutes" mm" c.m"
107 108 109 110 111	" " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses	7.487 141.549 78.288 107.21 46.856 31.432	0.989 115.622 78.288 87.72 7.972 70.316	3.285 124.782 78.288 194.94 29.358	minutes" minutes" mm" c.m" mm"
107 108 109 110 111 112 113 114	" " " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" mm"
107 108 109 110 111 112 113 114 115	"" "" "" "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898	3.285 124.782 78.288 194.94 29.358 48.930 121.83	minutes" minutes" mm" c.m" mm" c.m"
107 108 109 110 111 112 113 114 115 116	"" "" "" ""	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117	"" " " " " " "	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff "	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118	"" "" "" "" " 4 (Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 "	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119	"" "" "" "" "4(Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 "	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120	" " " " " 4(Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121	" " " " " 4("	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122	" " " " " 4(Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123	" " " " " 4() " " 4() " " " 4()	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine "	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122	" " " " 4() " " 4() " " 4()	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124	" " " " 4() " " 4() " " 4() " " 4()	Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine "	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127	" " " " 4 (" " 4 (Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New 2 Start - New Tributa	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary" ry"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m" 0.119"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.079 0.00	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary" ry"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.079 0.00 CATCHMENT 203"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary" ry"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m" 0.119"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.079 0.00 CATCHMENT 203" 1 Triangular SCS"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary" ry"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m" 0.119"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.079 0.00 CATCHMENT 203" 1 Triangular SCS" 1 Equal length"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary" ry"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m" 0.119"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.079 0.00 CATCHMENT 203" 1 Triangular SCS" 1 Equal length" 1 SCS method"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary" ry"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m" 0.119"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136		Time of concentration Time to Centroid Rainfall depth Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.079 0.00 CATCHMENT 203" 1 Triangular SCS" 1 Equal length" 1 SCS method" 203 Catchment 203"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary" ry"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m" 0.119"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "
107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135		Time of concentration Time to Centroid Rainfall depth Rainfall volume Rainfall losses Runoff depth Runoff volume Runoff coefficient Maximum flow HYDROGRAPH Add Runoff 4 Add Runoff " 0.079 0.07 HYDROGRAPH Copy to Out 8 Copy to Outflow" 0.079 0.07 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.079 0.07 HYDROGRAPH Start - New 2 Start - New Tributa 0.079 0.00 CATCHMENT 203" 1 Triangular SCS" 1 Equal length" 1 SCS method"	7.487 141.549 78.288 107.21 46.856 31.432 43.05 0.401 0.027 " 9 0.039 flow" 9 0.079 1" 0.11 180.79 9 0.079 Tributary" ry"	0.989 115.622 78.288 87.72 7.972 70.316 78.79 0.898 0.071 0.039" 0.039" 9 c.m/se 8 c.m" 0.119"	3.285 124.782 78.288 194.94 29.358 48.930 121.83 0.625 0.079	minutes" minutes" mm" c.m" mm" c.m" "

139	"	2.000 Flow length"				
140		5.000 Overland Slope"				
141 142		0.000 Pervious Area" 2.000 Pervious length"				
143	"	2.000 Pervious length" 5.000 Pervious slope"				
144	"	0.000 Impervious Area"				
145	"	2.000 Impervious length"				
146	"	5.000 Impervious slope"				
147	"	0.250 Pervious Manning 'r	ı ''			
148	"	75.000 Pervious SCS Curve				
149	"	0.396 Pervious Runoff coe	efficient"			
150	"	0.100 Pervious Ia/S coeff	ficient"			
151	"	8.467 Pervious Initial ak				
152	"	0.015 Impervious Manning				
153		98.000 Impervious SCS Curv				
154		0.000 Impervious Runoff o				
155	"	0.100 Impervious Ia/S coe				
156		0.518 Impervious Initial				
157 158		0.000 0.00 Catchment 203	0.079 Pervious		c.m/sec" Total Area	
159	"	Surface Area	0.000	0.000	0.000	hectare"
160	"	Time of concentration	1.698	0.224	1.698	minutes"
161	"	Time to Centroid	132.048	114.252	132.048	minutes"
162	"	Rainfall depth	78.288	78.288	78.288	mm"
163	"	Rainfall volume	0.16	0.00	0.16	c.m"
164	"	Rainfall losses	47.254	14.793	47.254	mm"
165	"	Runoff depth	31.034	63.494	31.034	mm"
166	"	Runoff volume	0.06	0.00	0.06	c.m"
167	"	Runoff coefficient	0.396	0.000	0.396	"
168	"	Maximum flow	0.000	0.000	0.000	c.m/sec"
169	"		"			
170	"	4 Add Runoff "				
171	"	0.000 0.00		0.119"		
172	"	40 HYDROGRAPH Copy to Out	cflow"			
173		8 Copy to Outflow"		0 110		
174 175		0.000 0.00 40 HYDROGRAPH Combine	0.000 1"	0.119"		
176		6 Combine "	T			
177	"	1 Node #"				
178	"	Flows off-site"				
179	"	Maximum flow	0.11	19 c.m / se	ec"	
180	"	Hydrograph volume	180.80			
181	"	0.000 0.00	0.000	0.119"		
182	"		ce 1"			
183	"	7 Confluence "				
184	"	1 Node #"				
185		Flows off-site"				
186	"	Maximum flow	0.11		ec"	
187		Hydrograph volume 0.000 0.11	180.80 19 0.000			
188 189	"		19 0.000	0.000"		
190	"	2 Flow hydrograph"				
190	"	4 Inflow Hydrograph"				
192	"	Maximum flow	0.13	19 c.m/se	ec"	
193	"	Hydrograph volume	180.80	•		
194	"					
195	"	3 Runoff Totals on EX				
196	"	Total Catchment area				care"
197	"	Total Impervious area				care"
198	"	Total % impervious		46.	.554"	
199	"	19 EXIT"				
200						

... 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" " 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 6 2408455 - 302-306 Edinburgh Road" 7 " Output filename: 2408455 - Post Development Controlled 2yr.out" " gmbp" 8 Licensee name: " 9 Company ... 10 1/10/2025 at 1:28:12 PM" Date & Time last used: " 31 TIME PARAMETERS" 11 5.000 Time Step" ... 12 " 13 240.000 Max. Storm length" " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago sto 1 Chicago storm" 563.699 Coefficient A" 15 STORM Chicago storm" " 16 ... 17 " 18 1.500 Constant B" 19 " 0.766 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" " 22 1.000 Time step multiplier" 23 " Maximum intensity129.248mm/hr"Total depth33.713mm" 24 " 25 " 4 2hyd Hydrograph extension used in this file" " 33 CATCHMENT 201" 26 1 Triangular SCS" " 27 " 1 Equal length" 1 SCS method" 28 " 29 201 Catchment 201" 201 Catciment 1 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" 0.000 Overland Slop " 30 " 31 " 32 33 " 20.000 Flow length" 2.000 Overland Slope" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious SCS Curve No 34 " 35 " 36 " 37 " " 38 ... 39 " 40 41 " 0.250Pervious Families75.000Pervious SCS Curve No."0.172Pervious Runoff coefficient"Dervious Ta/S coefficient" " 42 43 **"** 44 **"** 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " " 47 0.839 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" ... 48 " 49 50 " 0.518 Impervious Initial abstraction"

 0.015
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 18.289
 1.616
 4.451
 minutes"

 Time to Centroid
 163.465
 118.678
 126.292
 minutes"

 Rainfall depth
 33.713
 33.713
 33.713
 mm"

 Rainfall volume
 19.38
 19.38
 38.77
 c.m"

 Rainfall losses
 27.918
 5.423
 16.670
 mm"

 Runoff depth
 5.795
 28.290
 17.042
 mm"

 Runoff coefficient
 0.172
 0.839
 0.506
 "

 Maximum flow
 0.001
 0.015
 0.015
 c.m/sec"

 0.015 0.000 0.000 0.000 c.m/sec" 51 ... " 52 53 " 54 " 55 " " 56 57 " 58 " ... 59 " 60 " 61 ... 62 63 " 40 HYDROGRAPH Add Runoff " " 64 4 Add Runoff " " 0.015 0.015 0.000 0.000" 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.015 0.015 0.015 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70 " 6 Combine " 71 " 1 Node #" " 72 Flows off-site" 73 ... 0.015 c.m/sec" Maximum flow " 19.599 74 Hydrograph volume c.m" 0.015 0.015 0.015 " 75 0.015" " 76 40 HYDROGRAPH Start - New Tributary" 77 " 2 Start - New Tributary" " 78 0.015 0.000 0.015 0.015" " CATCHMENT 202" 79 33 ... 1 Triangular SCS" 80 ... 81 1 Equal length" " 82 1 SCS method" ... 202 Catchment 202" 83 45.000 % Impervious" " 84 " Total Area" 85 0.249 ... Flow length" 86 15.000 " 87 2.000 Overland Slope" 88 " 0.137 Pervious Area" 89 " 15.000 Pervious length" " 90 2.000 Pervious slope" " 91 0.112 Impervious Area" " 92 15.000 Impervious length" " 2.000 Impervious slope" 93 " 0.250 94 Pervious Manning 'n'" 75.000 Pervious Running II 0.172 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" " 95 " 96 " 97 " 98 8.467 Pervious Initial abstraction" " 99 0.015 Impervious Manning 'n'" " 100 98.000 Impervious SCS Curve No." " 101 0.834 Impervious Runoff coefficient" " 102 0.100 Impervious Ia/S coefficient" " 103 0.518 Impervious Initial abstraction" ... 104 0.031 0.000 0.015 0.015 c.m/sec" Catchment 202PerviousImperviousTotal AreaSurface Area0.1370.1120.249hectare"Time of concentration15.3891.3604.180minutes" " 105 " 106 107 " Time of concentration15.3691.3601.160Time to Centroid159.109118.182126.410Rainfall depth33.71333.71333.713Rainfall volume46.1737.7883.94Rainfall losses27.9235.58917.873 108 " minutes" 109 " mm" " 110 Rainfall volume c.m" " 111 Rainfall losses mm" " Runoff depth Runoff volume 112 5.790 28.124 15.840 mm" ... 113 7.93 31.51 39.44 c.m" Runoff coefficient0.172Maximum flow0.003 114 " 0.834 0.470 ... " 115 0.031 0.031 c.m/sec" **"** 40 116 HYDROGRAPH Add Runoff " " 117 4 Add Runoff " " 118 0.031 0.031 0.015 0.015" **"** 54 119 POND DESIGN" 120 ... 0.031 Current peak flow c.m/sec" " 121 0.016 Target outflow c.m/sec" 122 " 39.4 Hydrograph volume c.m" 123 " 14. Number of stages" 124 " 0.000 Minimum water level metre" " 125 3.000 Maximum water level metre" Starting water level metre" 126 ... 0.000 " 127 0 Keep Design Data: 1 = True; 0 = False" 128 " Level Discharge Volume" ... 0.000" 129 321.450 0.000 130 ... 321.550 0.00104 4.267" " 131 321.650 0.00104 8.533" 132 " 321.750 0.00104 12.800" " 133 321.850 0.00104 17.067" " 134 321.950 0.00104 21.333" ... 135 322.050 0.00104 25.600" " 136 25.770" 322.350 0.00105 ... 137 25.939" 322.650 0.00105 " 138 322.950 0.00106 26.109"

1.0.0		
139	"	323.310 0.00106 26.313"
140 141		323.325 0.00114 26.386" 323.430 0.00125 27.500"
141		323.430 0.00125 27.590" 323.530 0.08471 29.172"
143	"	Peak outflow 0.002 c.m/sec"
144	"	Maximum level 323.430 metre"
145	"	Maximum storage 27.596 c.m"
146	"	Centroidal lag 6.394 hours"
147	"	0.031 0.031 0.002 0.015 c.m/sec"
148	" 40	
149		6 Combine "
150	"	1 Node #"
151 152		Flows off-site" Maximum flow 0.017 c.m/sec"
153	"	Hydrograph volume 59.060 c.m"
154	"	0.031 0.031 0.002 $0.017"$
155	" 40	
156	"	2 Start - New Tributary"
157	"	0.031 0.000 0.002 0.017"
158	" 33	
159	"	1 Triangular SCS"
160		1 Equal length" 1 SCS method"
161 162		1 SCS method" 203 Catchment 203"
163	"	0.000 % Impervious"
164	"	0.000 Total Area"
165	"	2.000 Flow length"
166	"	5.000 Overland Slope"
167	"	0.000 Pervious Area"
168	"	2.000 Pervious length"
169	"	5.000 Pervious slope"
170 171	"	0.000 Impervious Area"
171		2.000 Impervious length" 5.000 Impervious slope"
173	"	0.250 Pervious Manning 'n'"
174	"	75.000 Pervious SCS Curve No."
175	"	0.169 Pervious Runoff coefficient"
176	"	0.100 Pervious Ia/S coefficient"
177	"	8.467 Pervious Initial abstraction"
178	"	0.015 Impervious Manning 'n'"
179	"	98.000 Impervious SCS Curve No."
180 181		0.000 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient"
182	"	0.518 Impervious Initial abstraction"
183	"	0.000 0.000 0.002 0.017 c.m/sec"
184	"	Catchment 203 Pervious Impervious Total Area "
185	"	Surface Area 0.000 0.000 0.000 hectare"
186	"	Time of concentration 3.490 0.308 3.490 minutes"
187		Time to Centroid 141.495 117.144 141.495 minutes"
188	"	Rainfall depth 33.713 33.713 33.713 mm" Dainfall welume 0.07 0.00 0.07 0.07
189 190		Rainfall volume0.070.000.07c.m"Rainfall losses28.0298.19328.029mm"
191	"	Runoff depth 5.683 25.520 5.683 mm"
192	"	Runoff volume 0.01 0.00 0.01 c.m"
193	"	Runoff coefficient 0.169 0.000 0.169 "
194	"	Maximum flow 0.000 0.000 0.000 c.m/sec"
195	" 40	
196	"	4 Add Runoff "
197 100	" " (0.000 0.000 0.002 0.017"
198 199	" 4("	HYDROGRAPH Copy to Outflow" 8 Copy to Outflow"
200	"	0.000 0.000 0.000 0.017"
200	" 40	
202	"	6 Combine "
203	"	1 Node #"
204	"	Flows off-site"
205	"	Maximum flow 0.017 c.m/sec"
206 207		Hydrograph volume 59.071 c.m" 0.000 0.000 0.000 0.017"
201		0.000 0.000 0.017

208	" 40	HYDROGRAPH Confluence	1"		
209		7 Confluence "			
210	"	1 Node #"			
211	"	Flows off-site"			
212	"	Maximum flow	0.017	c.m/sec"	
213	"	Hydrograph volume	59.071	c.m"	
214		0.000 0.017	0.000	0.000"	
215	" 64	SHOW TABLE"			
216	"	2 Flow hydrograph"			
217	"	4 Inflow Hydrograph"			
218	"	Maximum flow	0.017	c.m/sec"	
219	"	Hydrograph volume	59.071	c.m"	
220	" 38	START/RE-START TOTALS 1"			
221	"	3 Runoff Totals on EXIT"			
222	"	Total Catchment area		0.364	hectare"
223	"	Total Impervious area		0.170	hectare"
224	"	Total % impervious		46.554"	
225	" 19	EXIT"			
226					

... 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" " 3 MIDUSS created Sunday, February 07, 2010" ... 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 6 2408455 - 302-306 Edinburgh Road" " 7 Output filename: 2408455 - Post Development Controlled 5yr.out" " "admp 8 Licensee name: " 9 Company ... 10 Date & Time last used: 1/10/2025 at 1:31:37 PM" " 31 TIME PARAMETERS" 11 5.000 Time Step" ... 12 " 13 240.000 Max. Storm length" " 1500.000 Max. Hydrograph" 14 " 32 STORM Chicago sto 1 Chicago storm" 750.423 Coefficient A" 15 STORM Chicago storm" " 16 ... 17 ... 18 1.500 Constant B" 19 " 0.769 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" 22 " 1.000 Time step multiplier" 23 " Maximum intensity171.091mm/hr"Total depth44.147mm" 24 " 25 " 4 5hyd Hydrograph extension used in this file" " 33 CATCHMENT 201" 26 1 Triangular SCS" " 27 " 1 Equal length" 1 SCS method" 28 " 29 201 Catchment 1 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" 0verland Slop 201 Catchment 201" " 30 " 31 " 32 33 " 20.000 Flow length" 2.000 Overland Slope" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious SCS Curve No 34 " 35 " 36 " 37 " " 38 ... 39 " 40 41 " 75.000Pervious SCS Curve No."0.239Pervious Runoff coefficient" " 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'"
98.000 Impervious SCS Curve No." 45 **"** 46 " " 47 0.867 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" ... 48 " 49 50 " 0.518 Impervious Initial abstraction"

 0.022
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 13.688
 1.430
 4.081
 minutes"

 Time to Centroid
 153.660
 117.147
 125.044
 minutes"

 Rainfall depth
 44.147
 44.147
 mm"

 Rainfall volume
 25.38
 25.38
 50.77
 c.m"

 Rainfall losses
 33.590
 5.889
 19.739
 mm"

 Runoff depth
 10.558
 38.258
 24.408
 mm"

 Runoff coefficient
 0.239
 0.867
 0.553
 "

 Maximum flow
 0.002
 0.021
 0.022
 c.m/sec"

 0.022 0.000 0.000 0.000 c.m/sec" 51 ... " 52 53 " 54 " 55 " " 56 57 " 58 " 59 ... " 60 " 61 " 62 63 " 40 HYDROGRAPH Add Runoff " " 64 4 Add Runoff " 0.022 0.022 0.000 0.000" " 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.022 0.022 0.022 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70 " 6 Combine " 71 " 1 Node #" " 72 Flows off-site" 73 ... 0.022 Maximum flow c.m/sec" Hydrograph volume " 28.069 74 c.m" 0.022 0.022 0.022 " 75 0.022" " 76 40 HYDROGRAPH Start - New Tributary" 77 " 2 Start - New Tributary" " 78 0.000 0.022 0.022" 0.022 " CATCHMENT 202" 79 33 ... 1 Triangular SCS" 80 ... 81 1 Equal length" " 1 SCS method" 82 ... 202 Catchment 202" 83 45.000 % Impervious" " 84 " 0.249 Total Area" 85 ... Flow length" 86 15.000 " 87 2.000 Overland Slope" 88 " 0.137 Pervious Area" " 89 15.000 Pervious length" " 90 2.000 Pervious slope" " 91 0.112 Impervious Area" " 92 15.000 Impervious length" ... 2.000 Impervious slope" 93 " 0.250 94 Pervious Manning 'n'" 75.000 Pervious Running II 0.239 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" " 95 " 96 " 97 " 98 8.467 Pervious Initial abstraction" " 99 0.015 Impervious Manning 'n'" " 100 98.000 Impervious SCS Curve No." " 101 0.861 Impervious Runoff coefficient" " 102 0.100 Impervious Ia/S coefficient" " 103 0.518 Impervious Initial abstraction" ... 0.022 c.m/sec" 104 0.044 0.000 0.022

 0.044
 0.000
 0.022
 0.022 c.m/sec"

 Catchment 202
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.137
 0.112
 0.249
 hectare"

 Time of concentration
 11.518
 1.203
 3.820
 minutes"

 Time to Centroid
 150.203
 116.893
 125.344
 minutes"

 Rainfall depth
 44.147
 44.147
 mm"

 Rainfall volume
 60.46
 49.47
 109.93
 c.m"

 Rainfall losses
 33.575
 6.133
 21.226
 mm"

 Runoff depth
 10.573
 38.014
 22.921
 mm"

 Runoff volume
 14.48
 42.60
 57.07
 c.m"

 " 105 " 106 107 " 108 " 109 " " 110 Rainfall volume " 111 Rainfall losses " Runoff depth Runoff volume 112 ... 113 Runoff coefficient0.239Maximum flow0.006 114 " 0.861 0.519 ... " 115 0.042 0.044 c.m/sec" " 40 116 HYDROGRAPH Add Runoff " " 4 Add Runoff " 117 " 118 0.044 0.044 0.022 0.022" **"** 54 119 POND DESIGN" 120 " 0.044 Current peak flow c.m/sec" " 121 0.016 Target outflow c.m/sec" 122 " 57.1 Hydrograph volume c.m" 123 " 14. Number of stages" 124 " 0.000 Minimum water level metre" " 125 3.000 Maximum water level metre" Starting water level metre" 126 ... 0.000 " 127 0 Keep Design Data: 1 = True; 0 = False" 128 " Level Discharge Volume" ... 0.000" 129 321.450 0.000 130 ... 321.550 0.00104 4.267" " 131 321.650 0.00104 8.533" 132 " 321.750 0.00104 12.800" " 133 321.850 0.00104 17.067" " 134 321.950 0.00104 21.333" 135 " 322.050 0.00104 25.600" 136 " 25.770" 322.350 0.00105 ... 137 25.939" 322.650 0.00105 " 138 322.950 0.00106 26.109"

139		323.310 0.00106 26.313"	
140	"	323.325 0.00114 26.386"	
141		323.430 0.00125 27.590" 323.530 0.08471 29.172"	
142 143		323.530 0.08471 29.172" Peak outflow 0.015 c.m/sec"	
144	"	Maximum level 323.446 metre"	
145	"	Maximum storage 27.849 c.m"	
146	"	Centroidal lag 5.128 hours"	
147	"	0.044 0.044 0.015 0.022 c.m/sec"	
148	" 40		
149	"	6 Combine "	
150	"	1 Node #"	
151	"	Flows off-site"	
152	"	Maximum flow 0.023 c.m/sec"	
153		Hydrograph volume 86.448 c.m"	
154	"	0.044 0.044 0.015 0.023"	
155	. 40	1	
156	"	2 Start - New Tributary"	
157		0.044 0.000 0.015 0.023" CDECUMENT 202"	
158 159	" 33	CATCHMENT 203" 1 Triangular SCS"	
160	"	1 Equal length"	
161	"	1 SCS method"	
162	"	203 Catchment 203"	
163	"	0.000 % Impervious"	
164	"	0.000 Total Area"	
165	"	2.000 Flow length"	
166	"	5.000 Overland Slope"	
167	"	0.000 Pervious Area"	
168	"	2.000 Pervious length"	
169		5.000 Pervious slope"	
170	"	0.000 Impervious Area"	
171		2.000 Impervious length"	
172 173		5.000 Impervious slope" 0.250 Pervious Manning 'n'"	
173 174		0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No."	
175	"	0.237 Pervious Runoff coefficient"	
176	"	0.100 Pervious Ia/S coefficient"	
177	"	8.467 Pervious Initial abstraction"	
178	"	0.015 Impervious Manning 'n'"	
179	"	98.000 Impervious SCS Curve No."	
180	"	0.000 Impervious Runoff coefficient"	
181	"	0.100 Impervious Ia/S coefficient"	
182	"	0.518 Impervious Initial abstraction"	
183	"	0.000 0.000 0.015 0.023 c.m/sec"	
184		Catchment 203 Pervious Impervious Total Area "	
185	"	Surface Area 0.000 0.000 0.000 hectare" Time of concentration 2.612 0.273 2.612 minutes"	
186 187		Time of concentration 2.612 0.273 2.612 minutes" Time to Centroid 136.249 115.644 136.248 minutes"	
188	"	Rainfall depth 44.147 44.147 44.147 mm"	
189		Rainfall volume 0.09 0.00 0.09 c.m"	
190		Rainfall losses 33.694 9.703 33.694 mm"	
191	"	Runoff depth 10.454 34.445 10.454 mm"	
192	"	Runoff volume 0.02 0.00 0.02 c.m"	
193	"	Runoff coefficient 0.237 0.000 0.237 "	
194	"	Maximum flow 0.000 0.000 0.000 c.m/sec"	
195	" 40		
196	"	4 Add Runoff "	
197	" 40	0.000 0.000 0.015 0.023"	
198	" 40 "		
199 200		8 Copy to Outflow" 0.000 0.000 0.000 0.023"	
200	" 40		
201	-40 ''	6 Combine "	
203		1 Node #"	
204	"	Flows off-site"	
205	"	Maximum flow 0.023 c.m/sec"	
206	"	Hydrograph volume 86.469 c.m"	
207	"	0.000 0.000 0.000 0.023"	

208	" 40	HYDROGRAPH Confluence	1"		
209		7 Confluence "			
210		1 Node #"			
211	"	Flows off-site"			
212	"	Maximum flow	0.023	c.m/sec"	
213	"	Hydrograph volume	86.469	c.m"	
214		0.000 0.023	0.000	0.000"	
215	" 64	SHOW TABLE"			
216	"	2 Flow hydrograph"			
217	"	4 Inflow Hydrograph"			
218	**	Maximum flow	0.023	c.m/sec"	
219	"	Hydrograph volume	86.469	c.m"	
220	" 38	START/RE-START TOTALS 1"			
221	"	3 Runoff Totals on EXIT"			
222	"	Total Catchment area		0.364	hectare"
223	"	Total Impervious area		0.170	hectare"
224	"	Total % impervious		46.554"	
225	" 19	EXIT"			
226					

... 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" " 3 MIDUSS created Sunday, February 07, 2010" " 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 6 2408455 - 302-306 Edinburgh Road" " 7 Output filename: 2408455 - Post Development Controlled 10yr.out" " "admp 8 Licensee name: " 9 Company ... 10 1/10/2025 at 1:32:53 PM" Date & Time last used: " 31 TIME PARAMETERS" 11 ... 5.000 Time Step" 12 " 13 240.000 Max. Storm length" " 1500.000 Max. Hydrograph" 14 " 32 15 STORM Chicago storm" 1 Chicago storm" 855.183 Coefficient A" " 16 " 17 " 18 1.500 Constant B" 19 " 0.764 Exponent C" " 20 0.400 Fraction R" " 21 240.000 Duration" " 22 1.000 Time step multiplier" 23 " Maximum intensity 196.822 mm/hr" 24 " 51.710 mm" Total depth 25 " 5 10hyd Hydrograph extension used in this file" " 33 CATCHMENT 201" 26 1 Triangular SCS" " 27 1 Equal length" 1 SCS method" " 28 " 29 201 Catchment 201" " 30 201 Catching and Solution Strength Stre " 31 " 32 33 " 34 " 2.000 Overland Slope" 0.058 Pervious Area" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No 35 " 36 " 37 " " 38 ... 39 " 40 41 " 75.000 Pervious SCS Curve No." 0.282 Pervious Runoff coefficient" " 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 45 **"** 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'" 46 " ... 98.000 Impervious SCS Curve No." 47 0.880 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" " 48 " 49 50 " 0.518 Impervious Initial abstraction" 51 ... 0.026 0.000 0.000 0.000 c.m/sec"

 0.026
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 11.934
 1.346
 3.916
 minutes"

 Time to Centroid
 149.897
 116.646
 124.718
 minutes"

 Rainfall depth
 51.710
 51.710
 51.710
 mm"

 Rainfall volume
 29.73
 29.73
 59.47
 c.m"

 Rainfall losses
 37.114
 6.182
 21.648
 mm"

 Runoff depth
 14.596
 45.528
 30.062
 mm"

 Runoff coefficient
 0.282
 0.880
 0.581
 "

 Maximum flow
 0.003
 0.025
 0.026
 c.m/sec"

 " 52 53 " 54 " 55 " " 56 57 " 58 " ... 59 " 60 ... 61 ... 62 63 " 40 HYDROGRAPH Add Runoff " " 64 4 Add Runoff " " 0.026 0.026 0.000 0.000" 65 HYDROGRAPH Copy to Outflow" **"** 40 66 " 67 8 Copy to Outflow" 0.026 0.026 0.026 0.000" " 68 **"** 40 HYDROGRAPH Combine 1" 69

70 " 6 Combine " 71 " 1 Node #" ... 72 Flows off-site" 73 ... 0.026 c.m/sec" Maximum flow " 34.571 74 Hydrograph volume c.m" 0.026 0.026 0.026 ... 75 0.026" " 76 40 HYDROGRAPH Start - New Tributary" 77 " 2 Start - New Tributary" " 78 0.026 0.000 0.026 0.026" " CATCHMENT 202" 79 33 ... 1 Triangular SCS" 80 ... 81 1 Equal length" " 82 1 SCS method" ... 202 Catchment 202" 83 45.000 % Impervious" " 84 " Total Area" 85 0.249 ... Flow length" 86 15.000 " 2.000 Overland Slope" 87 88 " 0.137 Pervious Area" 89 " 15.000 Pervious length" " 90 2.000 Pervious slope" " 91 0.112 Impervious Area" " 92 15.000 Impervious length" " 93 2.000 Impervious slope" " 0.250 94 Pervious Manning 'n'" 75.000 Pervious Running II 0.281 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" " 95 " 96 " 97 " 98 8.467 Pervious Initial abstraction" " 99 0.015 Impervious Manning 'n'" " 100 98.000 Impervious SCS Curve No." " 101 0.874 Impervious Runoff coefficient" " 102 0.100 Impervious Ia/S coefficient" " 103 0.518 Impervious Initial abstraction" ... 104 0.052 0.000 0.026 0.026 c.m/sec" Catchment 202PerviousImperviousTotal AreaSurface Area0.1370.1120.249hectare"Time of concentration10.0421.1333.645minutes" Catchment 202 Surface Area 0.137 0.112 Time of concentration 10.042 1.133 3.645 Time to Centroid 147.036 116.441 125.070 Trinfall depth 51.710 51.710 51.710 70.82 57.94 128.76 23.385 " 105 " 106 107 " 108 " minutes" 109 " mm" " 110 Rainfall volume c.m" " 23.385 37.185 111 Rainfall losses 6.518 mm" " 45.192 Runoff depth Runoff volume 14.524 112 28.325 mm" ... 113 19.89 50.64 70.53 c.m" Runoff coefficient0.281Maximum flow0.009 " 114 0.874 0.548 ... " 115 Maximum flow 0.050 0.052 c.m/sec" **"** 40 116 HYDROGRAPH Add Runoff " " 117 4 Add Runoff " " 118 0.052 0.052 0.026 0.026" " 54 119 POND DESIGN" 120 ... 0.052 Current peak flow c.m/sec" " 121 0.016 Target outflow c.m/sec" 122 " 70.5 Hydrograph volume c.m" 123 " 14. Number of stages" 124 " 0.000 Minimum water level metre" ... 125 3.000 Maximum water level metre" Starting water level metre" 126 ... 0.000 " 127 0 Keep Design Data: 1 = True; 0 = False" 128 " Level Discharge Volume" ... 0.000" 129 321.450 0.000 130 ... 321.550 0.00104 4.267" " 131 321.650 0.00104 8.533" 132 " 321.750 0.00104 12.800" " 133 321.850 0.00104 17.067" " 134 321.950 0.00104 21.333" ... 135 322.050 0.00104 25.600" " 136 25.770" 322.350 0.00105 ... 137 25.939" 322.650 0.00105 " 138 322.950 0.00106 26.109"

139	"	323.310 0.00106 26.313"
140	"	323.325 0.00114 26.386"
141		323.430 0.00125 27.590" 323.530 0.08471 29.172"
142 143		323.530 0.08471 29.172" Peak outflow 0.028 c.m/sec"
144	"	Maximum level 323.463 metre"
145	"	Maximum storage 28.110 c.m"
146	"	Centroidal lag 4.502 hours"
147	"	0.052 0.052 0.028 0.026 c.m/sec"
148	" 4	
149	"	6 Combine "
150	"	1 Node #"
151	"	Flows off-site"
152	"	Maximum flow 0.043 c.m/sec"
153	"	Hydrograph volume 108.567 c.m"
154	"	0.052 0.052 0.028 0.043"
155	" 4	1
156	"	2 Start - New Tributary"
157		0.052 0.000 0.028 0.043"
158 159	" 3	3 CATCHMENT 203" 1 Triangular SCS"
160	"	1 Equal length"
161	"	1 SCS method"
162	"	203 Catchment 203"
163	"	0.000 % Impervious"
164	"	0.000 Total Area"
165	"	2.000 Flow length"
166	"	5.000 Overland Slope"
167	"	0.000 Pervious Area"
168	"	2.000 Pervious length"
169	"	5.000 Pervious slope"
170	"	0.000 Impervious Area"
171		2.000 Impervious length"
172		5.000 Impervious slope"
173		0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No."
174 175	"	75.000 Pervious SCS Curve No." 0.279 Pervious Runoff coefficient"
176	"	0.100 Pervious Ia/S coefficient"
177	"	8.467 Pervious Initial abstraction"
178	"	0.015 Impervious Manning 'n'"
179	"	98.000 Impervious SCS Curve No."
180	"	0.000 Impervious Runoff coefficient"
181	"	0.100 Impervious Ia/S coefficient"
182	"	0.518 Impervious Initial abstraction"
183	"	0.000 0.000 0.028 0.043 c.m/sec"
184		Catchment 203 Pervious Impervious Total Area "
185		Surface Area 0.000 0.000 0.000 hectare"
186 187		Time of concentration 2.277 0.257 2.277 minutes" Time to Centroid 134.659 115.102 134.659 minutes"
188	"	Rainfall depth 51.710 51.710 51.710 minutes
189	"	Rainfall volume0.100.000.10c.m"
190	"	Rainfall losses 37.260 10.784 37.260 mm"
191	"	Runoff depth 14.450 40.926 14.450 mm"
192	"	Runoff volume 0.03 0.00 0.03 c.m"
193	"	Runoff coefficient 0.279 0.000 0.279 "
194	"	Maximum flow 0.000 0.000 0.000 c.m/sec"
195	" 4	
196		4 Add Runoff "
197		0.000 0.000 0.028 0.043"
198	" 4 "	1 1
199 200		8 Copy to Outflow" 0.000 0.000 0.000 0.043"
200 201	 " 4	
201	" 4	6 Combine "
202	"	1 Node #"
204	"	Flows off-site"
205	"	Maximum flow 0.043 c.m/sec"
206	"	Hydrograph volume 108.596 c.m"
207	"	0.000 0.000 0.000 0.043"

209 " 7 Confluence "	
210 " 1 Node #"	
211 " Flows off-site"	
212 " Maximum flow 0.043 c.m/sec"	
213 "Hydrograph volume 108.596 c.m"	
214 " 0.000 0.043 0.000 0.000"	
215 " 64 SHOW TABLE"	
216 " 2 Flow hydrograph"	
217 " 4 Inflow Hydrograph"	
218 " Maximum flow 0.043 c.m/sec"	
219 "Hydrograph volume 108.596 c.m"	
220 " 38 START/RE-START TOTALS 1"	
221 " 3 Runoff Totals on EXIT"	
222"Total Catchment area0.364	hectare"
223"Total Impervious area0.170	hectare"
224 " Total % impervious 46.554"	
225 " 19 EXIT"	
226	

... 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" " 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 6 2408455 - 302-306 Edinburgh Road" 7 " Output filename: 2408455 - Post Development Controlled 25yr.out" " "admp 8 Licensee name: " 9 Company ... 10 1/10/2025 at 1:34:25 PM" Date & Time last used: " 31 TIME PARAMETERS" 11 " 5.000 Time Step" 12 " 13 240.000 Max. Storm length" " 1500.000 Max. Hydrograph" 14 " 32 15 STORM Chicago storm" 1 Chicago storm" 972.202 Coefficient A" " 16 " 17 " 18 1.500 Constant B" 19 " 0.752 Exponent C" 20 " 0.400 Fraction R" " 21 240.000 Duration" " 22 1.000 Time step multiplier" 23 " Maximum intensity 228.875 mm/hr" 62.786 mm" 24 " Total depth " 25 5 25hyd Hydrograph extension used in this file" " 33 CATCHMENT 201" 26 1 Triangular SCS" ... 27 1 Equal length" " 28 1 SCS method" " 29 201 Catchment 201" " 30 201Catching50.000% Impervious"0.115Total Area"20.000Flow length"Catching Slop " 31 " 32 33 " 34 " 2.000 Overland Slope" 0.058 Pervious Area" 0.058 Pervious Area 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No 35 " 36 " " 37 ... 38 ... 39 " 40 41 " " 75.000 Pervious SCS Curve No."
0.337 Pervious Runoff coefficient" 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 45 **"** 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'" 46 " " 98.000 Impervious SCS Curve No." 47 0.895 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" " 48 " 49 50 " 0.518 Impervious Initial abstraction" 51 ... 0.031 0.000 0.000 0.000 c.m/sec"

 0.031
 0.000
 0.000
 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 10.327
 1.262
 3.739
 minutes"

 Time to Centroid
 146.776
 116.413
 124.712
 minutes"

 Rainfall depth
 62.786
 62.786
 62.786
 mm"

 Rainfall volume
 36.10
 36.10
 72.20
 c.m"

 Rainfall losses
 41.654
 6.598
 24.126
 mm"

 Runoff depth
 21.132
 56.188
 38.660
 mm"

 Runoff coefficient
 0.337
 0.895
 0.616
 "

 Maximum flow
 0.005
 0.030
 0.031
 c.m/sec"

 " 52 53 " 54 " 55 " ... 56 57 ... 58 " ... 59 ... 60 ... 61 " 62 63 " 40 HYDROGRAPH Add Runoff " " 64 4 Add Runoff " " 0.031 0.031 0.000 0.000" 65 **"** 40 HYDROGRAPH Copy to Outflow" 66 " 67 8 Copy to Outflow" " 0.031 0.031 0.031 0.000" 68 **"** 40 HYDROGRAPH Combine 1" 69

70 " 6 Combine " 71 " 1 Node #" " 72 Flows off-site" 73 ... 0.031 c.m/sec" Maximum flow " 44.459 74 Hydrograph volume c.m" 0.031 0.031 0.031 " 75 0.031" " 76 40 HYDROGRAPH Start - New Tributary" 77 " 2 Start - New Tributary" " 78 0.031 0.000 0.031 0.031" " CATCHMENT 202" 79 33 ... 1 Triangular SCS" 80 ... 81 1 Equal length" " 1 SCS method" 82 ... 202 Catchment 202" 83 45.000 % Impervious" " 84 " 0.249 Total Area" 85 ... Flow length" 86 15.000 " 87 2.000 Overland Slope" 88 " 0.137 Pervious Area" " 89 15.000 Pervious length" " 90 2.000 Pervious slope" " 91 0.112 Impervious Area" " 92 15.000 Impervious length" ... 2.000 Impervious slope" 93 " 0.250 94 Pervious Manning 'n'" 75.000 Pervious Running II 0.338 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" " 95 " 96 " 97 " 98 8.467 Pervious Initial abstraction" " 99 0.015 Impervious Manning 'n'" " 100 98.000 Impervious SCS Curve No." " 101 0.887 Impervious Runoff coefficient" " 102 0.100 Impervious Ia/S coefficient" " 103 0.518 Impervious Initial abstraction" ... 104 0.064 0.000 0.031 0.031 c.m/sec"

 Catchment 202
 Pervious
 Impervious Total Area

 Surface Area
 0.137
 0.112
 0.249

 Time of concentration
 8.689
 1.062
 3.484
 minutes"

 Time to Centroid
 144.072
 116.080
 124.968
 minutes"

 Rainfall depth
 62.786
 62.786
 62.786
 mm"

 Rainfall volume
 85.99
 70.35
 156.34
 c.m"

 Rainfall losses
 41.592
 7.105
 26.073
 mm"

 " 105 " 106 107 " 108 " 109 " 70.35 7.105 55.681 " 110 Rainfall volume " 111 Rainfall losses " Runoff depth21.194Runoff volume29.03 112 36.713 mm" ... 113 62.39 91.42 c.m" Runoff coefficient0.338Maximum flow0.015 114 " 0.887 0.585 ... " 115 0.059 0.064 c.m/sec" " 40 116 HYDROGRAPH Add Runoff " " 4 Add Runoff " 117 " 0.064 0.064 0.031 0.031" 118 **"** 54 119 POND DESIGN" 120 " 0.064 Current peak flow c.m/sec" " 121 0.016 Target outflow c.m/sec" 122 " 91.4 Hydrograph volume c.m" 123 " 14. Number of stages" 124 " 0.000 Minimum water level metre" " 125 3.000 Maximum water level metre" Starting water level metre" 126 ... 0.000 " 127 0 Keep Design Data: 1 = True; 0 = False" 128 " Level Discharge Volume" ... 0.000" 129 321.450 0.000 130 ... 321.550 0.00104 4.267" " 131 321.650 0.00104 8.533" 132 " 321.750 0.00104 12.800" " 133 321.850 0.00104 17.067" " 134 321.950 0.00104 21.333" 135 " 322.050 0.00104 25.600" 136 " 25.770" 322.350 0.00105 ... 137 25.939" 322.650 0.00105 " 138 322.950 0.00106 26.109"

139	"	323.310 0.00106 26.313"
140	"	323.325 0.00114 26.386"
141		323.430 0.00125 27.590" 223.530 0.00471 20.172"
142 143		323.530 0.08471 29.172" Peak outflow 0.040 c.m/sec"
144	"	Maximum level 323.492 metre"
145		Maximum storage 28.566 c.m"
146	"	Centroidal lag 4.140 hours"
147	"	0.064 0.064 0.040 0.031 c.m/sec"
148	" 40	
149	"	6 Combine "
150	"	1 Node #"
151	"	Flows off-site"
152	"	Maximum flow 0.059 c.m/sec"
153	"	Hydrograph volume 133.709 c.m"
154	"	0.064 0.064 0.040 0.059"
155	4 0	4
156	"	2 Start - New Tributary"
157		0.064 0.000 0.040 0.059" CATICUMENT 202"
158 159	" 33	CATCHMENT 203" 1 Triangular SCS"
160		1 Equal length"
161		1 SCS method"
162	"	203 Catchment 203"
163	"	0.000 % Impervious"
164	"	0.000 Total Area"
165	"	2.000 Flow length"
166	"	5.000 Overland Slope"
167	"	0.000 Pervious Area"
168	"	2.000 Pervious length"
169		5.000 Pervious slope"
170	"	0.000 Impervious Area"
171		2.000 Impervious length"
172 173		5.000 Impervious slope" 0.250 Pervious Manning 'n'"
173 174		0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No."
175	"	0.334 Pervious Runoff coefficient"
176	"	0.100 Pervious Ia/S coefficient"
177	"	8.467 Pervious Initial abstraction"
178	"	0.015 Impervious Manning 'n'"
179	"	98.000 Impervious SCS Curve No."
180	"	0.000 Impervious Runoff coefficient"
181	"	0.100 Impervious Ia/S coefficient"
182	"	0.518 Impervious Initial abstraction"
183	"	0.000 0.000 0.040 0.059 c.m/sec"
184		Catchment 203 Pervious Impervious Total Area "
185 186		Surface Area 0.000 0.000 0.000 hectare" Time of concentration 1.970 0.241 1.970 minutes"
187		Time to Centroid 133.258 114.688 133.258 minutes"
188	"	Rainfall depth 62.786 62.786 62.786 mm"
189	"	Rainfall volume 0.13 0.00 0.13 c.m"
190	"	Rainfall losses 41.836 12.425 41.836 mm"
191	"	Runoff depth 20.950 50.361 20.950 mm"
192	"	Runoff volume 0.04 0.00 0.04 c.m"
193	"	Runoff coefficient 0.334 0.000 0.334 "
194	"	Maximum flow 0.000 0.000 0.000 c.m/sec"
195	. 40	
196	"	4 Add Runoff "
197 198	" 40	0.000 0.000 0.040 0.059" HYDROCRARH Conv. to Outflow"
198 199	" 40	HYDROGRAPH Copy to Outflow" 8 Copy to Outflow"
200	"	0.000 0.000 0.000 0.059"
200	" 40	
202	"	6 Combine "
203	"	1 Node #"
204		Flows off-site"
205	"	Maximum flow 0.059 c.m/sec"
206	"	Hydrograph volume 133.751 c.m"
207	"	0.000 0.000 0.000 0.059"

208	" 40	HYDROGRAPH Confluence	1"		
209	"	7 Confluence "			
210	"	1 Node #"			
211	"	Flows off-site"			
212	"	Maximum flow	0.059	c.m/sec"	
213	"	Hydrograph volume	133.751	c.m"	
214	"	0.000 0.059	0.000	0.000"	
215	" 64	SHOW TABLE"			
216	"	2 Flow hydrograph"			
217	"	4 Inflow Hydrograph"			
218	"	Maximum flow	0.059	c.m/sec"	
219	"	Hydrograph volume	133.751	c.m"	
220	" 38	START/RE-START TOTALS 1"			
221	"	3 Runoff Totals on EXIT"			
222	"	Total Catchment area		0.364	hectare"
223	"	Total Impervious area		0.170	hectare"
224	"	Total % impervious		46.554"	
225	" 19	EXIT"			
226					

... 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" ... 3 MIDUSS created Sunday, February 07, 2010" " 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 6 2408455 - 302-306 Edinburgh Road" 7 " Output filename: 2408455 - Post Development Controlled 50yr.out" " "admp 8 Licensee name: " 9 Company ... 10 1/10/2025 at 1:35:33 PM" Date & Time last used: " 31 TIME PARAMETERS" 11 ... 5.000 Time Step" 12 " 13 240.000 Max. Storm length" " 1500.000 Max. Hydrograph" 14 " 32 15 STORM Chicago storm" 1 Chicago storm" 1054.539 Coefficient A" " 16 " 17 " 18 1.500 Constant B" 19 " 0.746 Exponent C" 20 " 0.400 Fraction R" " 21 240.000 Duration" " 22 1.000 Time step multiplier" 23 " Maximum intensity251.085mm/hr"Total depth70.383mm" 24 " ... 25 5 50hyd Hydrograph extension used in this file" " 33 CATCHMENT 201" 26 1 Triangular SCS" " 27 1 Equal length" 1 SCS method" " 28 " 29 201 Catchment 201" " 30 201 Caterment 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" " 31 " 32 33 " 34 " 2.000 Overland Slope" 0.058 Pervious Area" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No 35 " 36 " " 37 " 38 ... 39 " 40 41 " " 75.000 Pervious SCS Curve No."
0.370 Pervious Runoff coefficient" 42 43 **"** 44 **"** 0.100 Pervious Ia/S coefficient" 45 **"** 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'" 46 " " 98.000 Impervious SCS Curve No." 47 0.902 Impervious Runoff coefficient" 0.100 Impervious Ia/S coefficient" " 48 " 49 50 " 0.518 Impervious Initial abstraction" 51 ...
 0.035
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 9.525
 1.214
 3.631
 minutes"

 Time to Centroid
 145.042
 116.207
 124.591
 minutes"

 Rainfall depth
 70.383
 70.383
 70.383
 mm"

 Rainfall volume
 40.47
 40.47
 80.94
 c.m"

 Rainfall losses
 44.357
 6.903
 25.630
 mm"

 Runoff depth
 26.025
 63.479
 44.752
 mm"

 Runoff coefficient
 0.370
 0.902
 0.636
 "

 Maximum flow
 0.007
 0.033
 0.035
 c.m/sec"
 0.035 0.000 0.000 0.000 c.m/sec" " 52 53 " 54 " 55 " ... 56 57 ... 58 " ... 59 " 60 ... 61 " 62 63 " 40 HYDROGRAPH Add Runoff " " 64 4 Add Runoff " " 0.035 0.035 0.000 0.000" 65 HYDROGRAPH Copy to Outflow" " 40 66 " 67 8 Copy to Outflow" 0.035 0.035 0.035 0.000" " 68 **"** 40 HYDROGRAPH Combine 1" 69

70 " 6 Combine " 71 " 1 Node #" " 72 Flows off-site" 73 ... 0.035 c.m/sec" Maximum flow 51.465 " 74 Hydrograph volume c.m" 0.035 0.035 0.035 " 75 0.035" " 76 40 HYDROGRAPH Start - New Tributary" 77 " 2 Start - New Tributary" " 78 0.035 0.000 0.035 0.035" " CATCHMENT 202" 79 33 ... 1 Triangular SCS" 80 ... 81 1 Equal length" " 1 SCS method" 82 ... 202 Catchment 202" 83 45.000 % Impervious" " 84 " Total Area" 85 0.249 ... Flow length" 86 15.000 " 87 2.000 Overland Slope" 88 " 0.137 Pervious Area" 89 " 15.000 Pervious length" " 90 2.000 Pervious slope" " 91 0.112 Impervious Area" " 92 15.000 Impervious length" " 2.000 Impervious slope" 93 " 0.250 94 Pervious Manning 'n'" 75.000 Pervious Running II 0.371 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" " 95 " 96 " 97 " 98 8.467 Pervious Initial abstraction" " 99 0.015 Impervious Manning 'n'" " 100 98.000 Impervious SCS Curve No." " 101 0.893 Impervious Runoff coefficient" " 102 0.100 Impervious Ia/S coefficient" " 103 0.518 Impervious Initial abstraction" ... 104 0.071 0.000 0.035 0.035 c.m/sec" Catchment 202PerviousImpervious Total AreaSurface Area0.1370.1120.249Time of concentration8.0151.0213.375Time to Centroid142.643115.806124.838Rainfall depth70.38370.38370.383Rainfall volume96.3978.86175.25 " 105 " 106 107 " 108 " 109 " 96.39 " 110 Rainfall volume 78.86 175.25 c.m" 7.533 62.850 " 111 Rainfall losses 44.297 27.753 mm" " Runoff depth Runoff volume 112 26.086 42.630 mm" ... 113 35.72 70.42 106.15 c.m" Runoff coefficient0.371Maximum flow0.022 114 " 0.893 0.606 ... " 115 0.065 0.071 c.m/sec" **"** 40 116 HYDROGRAPH Add Runoff " " 117 4 Add Runoff " " 0.071 0.071 0.035 0.035" 118 " 54 119 POND DESIGN" 120 " 0.071 Current peak flow c.m/sec" " 121 0.016 Target outflow c.m/sec" 122 " 106.1 Hydrograph volume c.m" 123 " 14. Number of stages" 124 " 0.000 Minimum water level metre" " 125 3.000 Maximum water level metre" Starting water level metre" 126 ... 0.000 " 127 0 Keep Design Data: 1 = True; 0 = False" 128 " Level Discharge Volume" ... 129 0.000" 321.450 0.000 130 ... 321.550 0.00104 4.267" " 131 321.650 0.00104 8.533" 132 " 321.750 0.00104 12.800" " 133 321.850 0.00104 17.067" " 134 321.950 0.00104 21.333" ... 135 322.050 0.00104 25.600" " 136 25.770" 322.350 0.00105 ... 137 25.939" 322.650 0.00105 " 138 322.950 0.00106 26.109"

139		323.310 0.00106 26.313"
140	"	323.325 0.00114 26.386"
141		323.430 0.00125 27.590" 223.520 0.00471 20.172"
142 143		323.530 0.08471 29.172" Peak outflow 0.049 c.m/sec"
144	"	Maximum level 323.504 metre"
145		Maximum storage 28.766 c.m"
146	"	Centroidal lag 3.948 hours"
147	"	0.071 0.071 0.049 0.035 c.m/sec"
148	" 40	
149	"	6 Combine "
150	"	1 Node #"
151	"	Flows off-site"
152	"	Maximum flow 0.071 c.m/sec"
153	"	Hydrograph volume 151.454 c.m"
154	"	0.071 0.071 0.049 0.071"
155	" 40	1
156	"	2 Start - New Tributary"
157 150		0.071 0.000 0.049 0.071" CATCHIMENT 202"
158 159	" 33	CATCHMENT 203" 1 Triangular SCS"
160	"	1 Equal length"
161		1 SCS method"
162	"	203 Catchment 203"
163	"	0.000 % Impervious"
164	"	0.000 Total Area"
165	"	2.000 Flow length"
166	"	5.000 Overland Slope"
167	"	0.000 Pervious Area"
168	"	2.000 Pervious length"
169		5.000 Pervious slope"
170	"	0.000 Impervious Area"
171		2.000 Impervious length"
172 173		5.000 Impervious slope" 0.250 Pervious Manning 'n'"
$173 \\ 174$		0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No."
175	"	0.365 Pervious Runoff coefficient"
176	"	0.100 Pervious Ia/S coefficient"
177	"	8.467 Pervious Initial abstraction"
178	"	0.015 Impervious Manning 'n'"
179	"	98.000 Impervious SCS Curve No."
180	"	0.000 Impervious Runoff coefficient"
181	"	0.100 Impervious Ia/S coefficient"
182	"	0.518 Impervious Initial abstraction"
183		0.000 0.000 0.049 0.071 c.m/sec"
184	"	Catchment 203 Pervious Impervious Total Area "
185		Surface Area 0.000 0.000 0.000 hectare" Time of concentration 1.818 0.232 1.818 minutes"
186 187		Time of concentration 1.818 0.232 1.818 minutes" Time to Centroid 132.480 114.416 132.480 minutes"
188	"	Rainfall depth 70.383 70.383 70.383 mm"
189	"	Rainfall volume 0.14 0.00 0.14 c.m"
190	"	Rainfall losses 44.670 13.578 44.670 mm"
191	"	Runoff depth 25.712 56.805 25.712 mm"
192	"	Runoff volume 0.05 0.00 0.05 c.m"
193	"	Runoff coefficient 0.365 0.000 0.365 "
194	"	Maximum flow 0.000 0.000 0.000 c.m/sec"
195	" 40	
196	"	4 Add Runoff "
197	" " ^ C	0.000 0.000 0.049 0.071"
198 199	" 40 "	
200		8 Copy to Outflow" 0.000 0.000 0.000 0.071"
200	" 40	
201	"	6 Combine "
202	"	1 Node #"
204	"	Flows off-site"
205	"	Maximum flow 0.071 c.m/sec"
206	"	Hydrograph volume 151.505 c.m"
207	"	0.000 0.000 0.000 0.071"

210 " 1 Node #" 211 " Flows off-site" 212 " Maximum flow 0.071 c.m/sec" 213 " Hydrograph volume 151.505 c.m" 214 " 0.000 0.071 0.000 0.000" 215 " 64 SHOW TABLE" 2 Flow hydrograph" 216 " 2 Flow hydrograph" 2 0.071 c.m/sec" 217 " 4 Inflow Hydrograph" 2 151.505 c.m" 218 " Maximum flow 0.071 c.m/sec" 151.505 c.m" 219 " Hydrograph volume 151.505 c.m" 220 " 38 START/RE-START TOTALS 1" 22 " 0.364 hectare"	208	" 40	HYDROGRAPH Confluence	1"		
211 "Flows off-site" 212 "Maximum flow 0.071 c.m/sec" 213 "Hydrograph volume 151.505 c.m" 214 0.000 0.071 0.000 0.000" 215 64 SHOW TABLE" 0.000 0.000" 216 2 Flow hydrograph" 0.071 c.m/sec" 217 4 Inflow Hydrograph" 0.071 c.m/sec" 219 Maximum flow 0.071 c.m/sec" 219 Hydrograph volume 151.505 c.m" 220 38 START/RE-START TOTALS 1" 0.364 hectare" 221 3 Runoff Totals on EXIT" 0.364 hectare" 223 Total Catchment area 0.170 hectare" 224 Total Impervious area 0.170 hectare" 224 Total % impervious 46.554" 46.554"	209	"	7 Confluence "			
212 "Maximum flow 0.071 c.m/sec" 213 "Hydrograph volume 151.505 c.m" 214 0.000 0.071 0.000 215 64 SHOW TABLE" 216 2 Flow hydrograph" 217 4 Inflow Hydrograph" 218 Maximum flow 0.071 c.m/sec" 219 Hydrograph volume 151.505 c.m" 220 "38 START/RE-START TOTALS 1" 220 221 "38 START/RE-START TOTALS 1" 0.364 222 "Total Catchment area 0.170 hectare" 223 "Total Impervious area 0.170 hectare" 224 Total % impervious 46.554" 46.554"	210	"	1 Node #"			
213 "Hydrograph volume 151.505 c.m" 214 0.000 0.001 0.000" 215 "64 SHOW TABLE" 0.000 0.000" 216 "2 Flow hydrograph" 0.071 c.m/sec" 217 "4 Inflow Hydrograph" 0.071 c.m/sec" 218 "4 Maximum flow 0.071 c.m/sec" 219 "4 Hydrograph volume 151.505 c.m" 220 "38 START/RE-START TOTALS 1" 151.505 c.m" 221 "38 START/RE-START TOTALS 1" 0.364 hectare" 223 "501 Total Catchment area 0.364 hectare" 223 "501 Total Impervious area 0.170 hectare" 224 "501 19 EXIT" 46.554"	211	"	Flows off-site"			
214 0.000 0.071 0.000 0.000" 215 "64 SHOW TABLE" 0.000 0.000" 216 "2 Flow hydrograph" 0.071 c.m/sec" 217 "4 Inflow Hydrograph" 0.071 c.m/sec" 218 "4 Maximum flow 0.071 c.m/sec" 219 "4 Hydrograph volume 151.505 c.m" 220 "38 START/RE-START TOTALS 1" 221 3 Runoff Totals on EXIT" 222 "4 Total Catchment area 0.364 hectare" 223 "5011 Total Impervious area 0.170 hectare" 224 "5011 "5011 46.554" 46.554"	212	"	Maximum flow	0.071	c.m/sec"	
215"64SHOW TABLE"216"2217"4Inflow Hydrograph"218"Maximum flow0.071c.m/sec"219"Hydrograph volume151.505220"38START/RE-START TOTALS 1"221"3Runoff Totals on EXIT"222"Total Catchment area0.3640.170hectare"223"Total Impervious area0.170224"225"19EXIT"	213		Hydrograph volume	151.505	c.m"	
216"2Flow hydrograph"217"4Inflow Hydrograph"218"Maximum flow0.071c.m/sec"219"Hydrograph volume151.505c.m"220"38START/RE-START TOTALS 1"221"3Runoff Totals on EXIT"0.364222"Total Catchment area0.364223"Total Impervious area0.170224"Total % impervious46.554"225"19EXIT"	214	"	0.000 0.071	0.000	0.000"	
217"4Inflow Hydrograph"218"Maximum flow0.071c.m/sec"219"Hydrograph volume151.505c.m"220"38START/RE-START TOTALS 1"221"3Runoff Totals on EXIT"0.364hectare"223"Total Catchment area0.170hectare"224"Total % impervious46.554"46.554"	215	" 64	SHOW TABLE"			
217Maximum flow nyulograph218Maximum flow0.071c.m/sec"219Hydrograph volume151.505c.m"22038START/RE-START TOTALS 1"22132213Runoff Totals on EXIT"0.364hectare"222Total Catchment area0.364hectare"223Total Impervious area0.170hectare"224Total % impervious46.554"22519EXIT"	216	"	2 Flow hydrograph"			
219"Hydrograph volume151.505c.m"220"38START/RE-START TOTALS 1"221"3Runoff Totals on EXIT"222"Total Catchment area0.364223"Total Impervious area0.170224"Total % impervious46.554"225"19EXIT"	217	"	4 Inflow Hydrograph"			
210Inyclograph volume101.000C.m220" 38START/RE-START TOTALS 1"221" 3Runoff Totals on EXIT"222" Total Catchment area0.364223" Total Impervious area0.170224" Total % impervious46.554"225" 19EXIT"	218	"	Maximum flow	0.071	c.m/sec"	
221"3Runoff Totals on EXIT"222"Total Catchment area0.364hectare"223"Total Impervious area0.170hectare"224"Total % impervious46.554"225"19EXIT"46.554"	219	"	Hydrograph volume	151.505	c.m"	
222Total Catchment area0.364hectare"223"Total Impervious area0.170hectare"224"Total % impervious46.554"225"19EXIT"	220	" 38	START /re- start totals 1"			
223"Total Impervious area0.170hectare"224"Total % impervious46.554"225"19EXIT"	221	"	3 Runoff Totals on EXIT"			
224 " Total % impervious 46.554" 225 " 19 EXIT"	222	"	Total Catchment area		0.364	hectare"
225 " 19 EXIT"	223	"	Total Impervious area		0.170	hectare"
	224	"	Total % impervious		46.554"	
226	225	" 19	EXIT"			
	226					

... 1 MIDUSS Output ----->" 2 " MIDUSS version Version 2.25 rev. 473" " 3 Sunday, February 07, 2010" MIDUSS created " 4 10 Units used: ie METRIC" " 5 Job folder: C:\Users\hbhatt\Desktop\MIDUSS\" ... 6 2408455 - 302-306 Edinburgh Road" " 31 "TIME FRAME" " 5.000 Time Step" 7 TIME PARAMETERS" 8 9 240.000 Max. Storm length" " 10 1500.000 Max. Hydrograph" 11 " 32 STORM Chicago storm" 12 " 1 Chicago storm" 13 " 1122.601 Coefficient A" 14 " 1.500 Constant B" 0.738 Exponent C" 0.400 Fraction R" 240.000 Duration" " 15 ... 16 " 17 " 1.000 Time step multiplier" 18 19 " Maximum intensity271.357mm/hr"Total depth78.288mm" 20 ... " 21 6 100hyd Hydrograph extension used in this file" " 33 22 CATCHMENT 201" 23 " 1 Triangular SCS" 24 " 1 Equal length" 1 SCS method" 1 Equal length 1 SCS method" 201 Catchment 201" 50.000 % Impervious" 0.115 Total Area" 20.000 Flow length" 2 000 Overland Slappo 25 **"** 26 " ... 27 " 28 2.000 FLOW Length" 2.000 Overland Slope" 0.058 Pervious Area" 20.000 Pervious length" 2.000 Pervious " 29 30 " " 31 32 " 2.000 Pervious slope" 0.058 Impervious Area" 20.000 Impervious length" 33 " 34 " 35 " 20.000 Impervious length 2.000 Impervious slope" 0.250 Pervious Manning 'n'" 75.000 Pervious SCS Curve No." 0.402 Pervious Runoff coefficient" 0.100 Pervious Ia/S coefficient" 36 " " 37 " 38 ... 39 " 40 8.467 Pervious Initial abstraction"
0.015 Impervious Manning 'n'" 41 " " 42 43 **"** 98.000 Impervious SCS Curve No." 44 **"** 0.908 Impervious Runoff coefficient" 45 **"** 0.100 Impervious Ia/S coefficient" 46 " 0.518 Impervious Initial abstraction" 47 **"** 0.039 0.000 0.000 0.000 c.m/sec"

 0.039
 0.000
 0.000
 0.000 c.m/sec"

 Catchment 201
 Pervious
 Impervious Total Area
 "

 Surface Area
 0.058
 0.058
 0.115
 hectare"

 Time of concentration
 8.898
 1.175
 3.547
 minutes"

 Time to Centroid
 143.694
 116.081
 124.562
 minutes"

 Rainfall depth
 78.288
 78.288
 78.288
 mm"

 Rainfall volume
 45.02
 45.02
 90.03
 c.m"

 Rainfall losses
 46.790
 7.240
 27.015
 mm"

 Runoff depth
 31.497
 71.047
 51.272
 mm"

 Runoff coefficient
 0.402
 0.908
 0.655
 "

 Maximum flow
 0.009
 0.036
 0.039
 c.m/sec"

 48 " ... 49 " 50 " 51 52 " 53 " 54 " 55 56 57 ... " 58 **"** 40 HYDROGRAPH Add Runoff " 59 " 60 4 Add Runoff " 0.039 0.039 0.000 0.000" " 61 HYDROGRAPH Copy to Outflow" **"** 40 62 63 " 8 Copy to Outflow" 0.039 0.039 0.039 0.000" 64 ... **"** 40 HYDROGRAPH Combine 1" 65 " 66 6 Combine " " 67 1 Node #" ... Flows off-site" 68 ... 69 0.039 c.m/sec" Maximum flow

70	"		Undreament welves	E 9 0/	<pre>co</pre>		
70			Hydrograph volume 0.039 0.0	58.96 39 0.039	63 c.m" 0.039"		
71		40	HYDROGRAPH Start - Ne		0.039		
73	"	10	2 Start - New Tribut				
74	"		0.039 0.0	-	0.039"		
75	"	33	CATCHMENT 202"				
76	"		1 Triangular SCS"				
77	"		1 Equal length"				
78	"		1 SCS method"				
79			202 Catchment 202"				
80	"		45.000 % Impervious"				
81 82			0.249 Total Area" 15.000 Flow length"				
83			2.000 Overland Slope"				
84	"		0.137 Pervious Area"				
85	"		15.000 Pervious length"				
86	"		2.000 Pervious slope"				
87	"		0.112 Impervious Area"				
88	"		15.000 Impervious length"				
89			2.000 Impervious slope"				
90	"		0.250 Pervious Manning '				
91 92			75.000 Pervious SCS Curve 0.401 Pervious Runoff co				
93			0.100 Pervious Ia/S coef				
94			8.467 Pervious Initial a				
95	"		0.015 Impervious Manning				
96	"		98.000 Impervious SCS Cur				
97	"		0.898 Impervious Runoff	coefficient"			
98	"		0.100 Impervious Ia/S co				
99	"		0.518 Impervious Initial			<i>,</i>	
100			0.079 0.0			c.m/sec"	
101 102			Catchment 202 Surface Area	Pervious 0.137	0.112	Total Area 0.249	hectare"
102			Time of concentration		0.989	3.285	minutes"
104			Time to Centroid	141.549	115.622	124.782	minutes"
105	"		Rainfall depth	78.288	78.288	78.288	mm "
106	"		Rainfall volume	107.21	87.72	194.94	c.m"
107	"		Rainfall losses	46.856	7.972	29.358	mm"
108	"		Runoff depth	31.432	70.316	48.930	mm"
109	"		Runoff volume	43.05	78.79	121.83	c.m" "
110			Runoff coefficient	0.401 0.027	0.898 0.071	0.625 0.079	c.m/sec"
111 112		40	Maximum flow HYDROGRAPH Add Runoff		0.071	0.079	C.m/sec
113		10	4 Add Runoff "				
114	"		0.079 0.0	79 0.039	0.039"		
115	"	54	POND DESIGN"				
116	"		0.079 Current peak flow	c.m/sec"			
117	"			c.m/sec"			
118	"		121.8 Hydrograph volume	c.m"			
119 120	"		<pre>14. Number of stages" 0.000 Minimum water leve</pre>	1 motro"			
120			3.000 Maximum water leve				
121			0.000 Starting water lev				
123	"		0 Keep Design Data:		= False"		
124	"		Level Discharge	Volume"			
125	"		321.450 0.000	0.000"			
126	"		321.550 0.00104	4.267"			
127	"		321.650 0.00104	8.533"			
128 129			321.750 0.00104 321.850 0.00104	12.800" 17.067"			
130	"		321.850 0.00104 321.950 0.00104	21.333"			
131	"		322.050 0.00104	25.600"			
132	"		322.350 0.00105	25.770"			
133	"		322.650 0.00105	25.939"			
134	"		322.950 0.00106	26.109"			
135	"		323.310 0.00106	26.313"			
136	"		323.325 0.00114	26.386"			
137 138	"		323.4300.00125323.5300.08471	27.590" 29.172"			
T C C T			323.330 0.004/1	$\angle \mathcal{I} \cdot \perp I \angle$			

139		Peak outflow	0.0	56 c.m/se		
140	"	Maximum level	323.52			
141	"	Maximum storage	29.03			
142	"	Centroidal lag	3.6			
143	"	0.079 0.079	0.056	0.039 c.m	/sec"	
144	" 40	HYDROGRAPH Combine	1"			
145		6 Combine "				
146		1 Node #"				
147 148		Flows off-site" Maximum flow	0.08	81 c.m/se		
149	"	Hydrograph volume	176.6		30	
150	"	0.079 0.07		0.081"		
151	" 40	HYDROGRAPH Start - New				
152	"	2 Start - New Tributa	ry"			
153	"	0.079 0.00	0 0.056	0.081"		
154	" 33 "	CATCHMENT 203"				
155 156		1 Triangular SCS"				
156 157	"	1 Equal length" 1 SCS method"				
158	"	203 Catchment 203"				
159	"	0.000 % Impervious"				
160	"	0.000 Total Area"				
161	"	2.000 Flow length"				
162	"	5.000 Overland Slope"				
163		0.000 Pervious Area"				
164 165		2.000 Pervious length" 5.000 Pervious slope"				
166	"	0.000 Impervious Area"				
167	"	2.000 Impervious length"				
168	"	5.000 Impervious slope"				
169	"	0.250 Pervious Manning 'n				
170	"	75.000 Pervious SCS Curve				
171		0.396 Pervious Runoff coe				
172		0.100 Pervious Ia/S coeff 8.467 Pervious Initial ab				
173 174		8.467 Pervious Initial ab 0.015 Impervious Manning				
175	"	98.000 Impervious SCS Curv				
176	"	0.000 Impervious Runoff c				
177	"	0.100 Impervious Ia/S coe				
178	"	0.518 Impervious Initial				
179			0_0.056			
180 181		Catchment 203 Surface Area	Pervious 0.000	Impervious 0.000	Total Area 0.000	" hectare"
182	"	Time of concentration		0.224	1.698	minutes"
183	"	Time to Centroid	132.048	114.252	132.048	minutes"
184	"	Rainfall depth	78.288	78.288	78.288	mm"
185	"	Rainfall volume	0.16	0.00	0.16	c.m"
186	"	Rainfall losses	47.254	14.793	47.254	mm"
187		Runoff depth	31.034	63.494	31.034	mm"
188 189		Runoff volume Runoff coefficient	0.06 0.396	0.00	0.06 0.396	c.m" "
190	"	Maximum flow	0.000	0.000	0.000	c.m/sec"
191	" 40	HYDROGRAPH Add Runoff		0.000	0.000	0.117,000
192	"	4 Add Runoff "				
193	"	0.000 0.00		0.081"		
194	" 40	HYDROGRAPH Copy to Out	flow"			
195						
196	"	8 Copy to Outflow"	0 0 0 0 0	0 001 "		
197	"	0.000 0.00		0.081"		
197 198	"	0.000 0.00 HYDROGRAPH Combine	0 0.000 1"	0.081"		
198	" " " 40	0.000 0.00 HYDROGRAPH Combine 6 Combine "		0.081"		
	" " 40 "	0.000 0.00 HYDROGRAPH Combine		0.081"		
198 199 200 201	" " 40 "	0.000 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow	1"	81 c.m / se	ec"	
198 199 200 201 202	" " 40 " "	0.000 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume	1" 0.08 176.73	81 c.m/se 32 c.m"	ec"	
198 199 200 201 202 203	" 40 " " "	0.000 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.00	1" 0.08 176.73 0 0.000	81 c.m/se 32 c.m"	ec"	
198 199 200 201 202 203 204	" 40 " " " "	0.000 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.00 HYDROGRAPH Confluenc	1" 0.08 176.73 0 0.000	81 c.m/se 32 c.m"	ec"	
198 199 200 201 202 203 204 205	" 40 " " "	0.000 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.00 HYDROGRAPH Confluenc 7 Confluence "	1" 0.08 176.73 0 0.000	81 c.m/se 32 c.m"	ec"	
198 199 200 201 202 203 204	" 40 " 40 " 40 " 40	0.000 0.00 HYDROGRAPH Combine 6 Combine " 1 Node #" Flows off-site" Maximum flow Hydrograph volume 0.000 0.00 HYDROGRAPH Confluenc	1" 0.08 176.73 0 0.000	81 c.m/se 32 c.m"	ec"	

208 "		Maximum flow	0.081	c.m/sec"	
209 "		Hydrograph volume	176.732	c.m"	
				• • • • •	
210 "		0.000 0.081	0.000	0.000"	
211 "	64	SHOW TABLE"			
212 "		2 Flow hydrograph"			
213 "		4 Inflow Hydrograph"			
214 "		Maximum flow	0.081	c.m/sec"	
215 "		Hydrograph volume	176.732	c.m"	
216 "	38	START /re- start totals 1"			
217 "		3 Runoff Totals on EXIT"			
218 "		Total Catchment area		0.364	hectare"
219 "		Total Impervious area		0.170	hectare"
220 "		Total % impervious		46.554"	
221 "	19	EXIT"			
222					

Appendix C Geotechnical Report

C.1. In-situ Infiltration Testing and Monitoring Well Installation, completed by CMT Engineering inc. (dated November 5,2024)

C.2. Water Level Reading Letter, by CMT Engineering inc. (dated December 17,2024)

Functional Servicing and Stormwater Management Design Report 302-306 Edinburgh Road South City of Guelph, Ontario January 14, 2025

C.1. In-situ Infiltration Testing and Monitoring Well Installation, completed by CMT Engineering inc. (dated November 5,2024)

GEOTECHNICAL INVESTIGATION

INSITU INFILTRATION TESTING AND MONITORING WELL INSTALLATION 302 AND 306 EDINBURGH ROAD SOUTH GUELPH, ONTARIO

CMT Project 24-664.R01

Prepared For:

Mezcon Construction Ltd.

November 5, 2024





November 5, 2024

24-664.R01

Mezcon Construction Ltd. Surrey Street East Guelph, Ontario,

Attention: Mr. Zachary Fisher

Dear Zachary:

Re: Monitoring Well Installation and Infiltration Testing 302 and 306 Edinburgh Road South Guelph, Ontario

As requested, CMT Engineering Inc. conducted a geotechnical investigation which included monitoring well installation and in-situ infiltration testing at the above-referenced site, and we are pleased to present the enclosed report.

We trust that this information meets your present requirements, and we thank you for allowing us to undertake this project. Should you have any questions, please do not hesitate to contact our office.

Yours truly,



Jake Feeney, P.Eng.

tb

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1.0 INTRODUCTION

The services of CMT Engineering Inc. (CMT Inc.) were retained by Mr. Zachary Fisher of Mezcon Construction Ltd. to conduct a geotechnical investigation including monitoring well installation and in-situ infiltration testing for the proposed infiltration galleries to be constructed to service the site redevelopment at 302 and 306 Edinburgh Road South, in Guelph, Ontario.

A geotechnical investigation was previously completed by MTE for the subject site with the findings and recommendations provided in the report titled "*Geotechnical Investigation Report, Proposed Residential Development, 302 & 306 Edinburgh Road South, Guelph, Ontario*", MTE File Number 49495-100-rev100, and dated November 3, 2021. This report should be read in conjunction with the previously issued geotechnical report for the site.

It is understood that the proposed residential development requires insitu permeability testing in accordance with the Low Impact Development Stormwater Management Planning and Design Guide (LIDSMPDG) at the proposed infiltration gallery locations. Two (2) infiltration galleries are proposed for the site. Currently, the location and size of the proposed infiltration gallery(s) has not been determined. As such, in-situ permeability testing was conducted at depths of 2.4 m (7.9 ft) and 3.9 m (12.8 ft) below the ground surface. The location of the site is shown on Drawing 1.

The purpose of the geotechnical investigation was to assess the existing soil and groundwater conditions encountered in the boreholes advanced in the general locations of the proposed stormwater infiltration galleries. Included in the assessment are the soil classification and groundwater observations; soil parameters for design of infiltration galleries; and a summary of the laboratory test results.

The recommendations in this report are solely based on the soil conditions encountered in the boreholes located at the subject site.

2.0 EXISTING SITE CONDITIONS

The subject site contains two existing residential buildings with associated driveways. The site is bounded by residential properties in all directions and Edinburgh Road South to the southwest. The general site topography is relatively flat in elevation.

3.0 FIELD AND LABORATORY PROCEDURES

Prior to the commencement of the field drilling program, underground service locates were organized by CMT Inc. to ensure that underground utilities would not be damaged.

The field investigation was conducted on October 7, 2024, and comprised the advancement of two (2) boreholes (referenced as Boreholes 1 and 2), utilizing a Geoprobe 7822DT drillrig operated by CMT Drilling Inc. The boreholes were advanced to approximate depths ranging from 3.90 m (12.8 ft) to 4.57 m (15.0 ft) below the existing grade in the locations of the proposed infiltration galleries.

Boreholes 1 and 2 were advanced utilizing Macro core (MC5) direct push soil sampling, in accordance with ASTM D6282/D6282M-14 "Standard Guide for Direct Push Soil Sampling". Technical staff from CMT Inc. observed the drilling operation and collected and logged the recovered soil samples. A small portion of each sample was placed in a sealed, marked jar for moisture content determinations.

Representative samples from the following depths were submitted to the CMT Inc. laboratory in St. Clements, Ontario for grain size analyses:

- Borehole 1 approximate depth 1.52 m to 3.05 m (5.00 ft to 10.00 ft),
- Borehole 1 approximate depth 3.51 m to 4.57 (11.50 ft to 15.00 ft),
- Borehole 2 approximate depth 1.52 m to 3.05 m (5.00 ft to 10.00 ft),
- Borehole 2 approximate depth 3.35 m to 4.57 m (11.00 ft to 15.00 ft).

The borehole logs are provided in Appendix A and the grain size analyses are provided in Appendix B.

One (1) monitoring well was installed in Borehole 2 by CMT Inc and three (3) monitoring wells were installed during the MTE geotechnical investigation (referenced as MW103-21, MW105-21 and MW 106-21). The monitoring well at Borehole 2 comprised a 25 mm (1.0 inch) diameter PVC pipe with a 1.52 m (5.0 ft) long slotted screen. The monitoring well screen was backfilled with filter sand, and riser pipes backfilled with bentonite. The monitoring wells were installed in accordance with the Ontario Water Resources Act, Regulation 903 (O. Reg. 903) by well technicians licensed by the Ministry of the Environment, Conservation and Parks (MECP). The well records are provided in Appendix D.

The ground surface elevation at the borehole locations were surveyed by CMT Inc. following drilling on October 7, 2024. Borehole 1 was determined to have a ground surface elevation of about 324.16 m above sea level, while Borehole 2 was determined to have a ground surface elevation of about 324.23 m above sea level. The location of the boreholes are shown on Drawing 2.

4.0 <u>SUBSOIL CONDITIONS</u>

The soils encountered in the boreholes are described briefly below and a more detailed stratigraphic description is provided on the borehole logs in Appendix A. The following paragraphs have been simplified into terms of major soil strata. The soil boundaries indicated have been inferred from observations of sampling and drilling resistance and typically represent transitions from one soil type to another rather than exact planes of geological change. Further, the subsurface conditions are anticipated to vary beyond the borehole locations.

4.1. <u>Topsoil</u>

Dark brown, silty, organic topsoil was encountered at the surface of Boreholes 1 and 2. The topsoil ranged in thickness from approximately 150 mm to 300 mm, however the topsoil thickness should be expected to vary throughout the site. Materials noted as topsoil in this report were classified based on visual and textural evidence. Testing of organic content or for other nutrients was not carried out.

4.2. <u>Silty Sand Fill</u>

Brown silty sand fill with trace gravel was encountered underlying the topsoil at Borehole 2. The silty sand fill was considered to be moist, with a moisture content of about 9.9%. The silty sand fill was approximately 1,370 mm in thickness at the borehole location.

4.3. <u>Gravel and Sand/Gravelly Sand</u>

Brown gravel and sand to gravelly sand with trace silt and clay, was observed underlying the topsoil at Borehole 1 and underlying the silty sand fill at Borehole 2. The gravel and sand/gravelly sand was considered to be moist, with moisture contents ranging from about 1.5% to 3.7% (average 2.4%).

4.4. <u>Clayey Silt</u>

Brown clayey silt with some sand to sandy and trace gravel was encountered underlying the gravel and sand/gravelly sand at Boreholes 1 and 2. The clayey silt was considered to be moist, with moisture contents ranging from about 11.7% to 12.9% (average 12.3%).

4.5. <u>Groundwater</u>

In total, four (4) monitoring wells were installed on the subject site during the geotechnical investigations to measure the static groundwater levels. The water levels were measured by MTE and CMT Inc. personnel following installation on October 28, 2021, September 17, 2024, and subsequently on October 28, 2024.

The measured elevation of water in the monitoring wells, the estimated zone of wet to saturated soils, as well as the ground surface and bottom of borehole elevation, are provided in the following table:

Borehole No.	Ground Surface Elevation (m)	Measured Elevation of Water in Monitoring Well on October 28, 2021 (m)	Measured Elevation of Water in Monitoring Well on September 17, 2024 (m)	Measured Elevation of Water in Monitoring Well on October 28, 2024 (m)	Approximate Zone of Wet to Saturated Soils (m)	Approx. Bottom of Monitoring Well Elevation (m)
BH2	324.23	N/A	N/A	320.13 (4.10)	-	319.66
MW103- 21	324.00	318.70	319.74	319.63 (4.37)	-	317.40
MW105- 21	323.10	317.20	318.43	318.33 (4.77)	-	316.90
MW106- 21	323.40	316.40	317.59	317.64 (5.76)	-	316.00

Groundwater conditions are generally dependent on the amount of precipitation, control of surface water, as well as the time of year, and can fluctuate significantly in elevation and volume.

5.0 DISCUSSION AND RECOMMENDATIONS

This section of the report provides an interpretation of the factual geotechnical data obtained during the investigation and is intended for the guidance of the owner and design engineer. Where comments are made on construction, they are provided only to highlight those aspects which could affect the design of the project. Contractors bidding on or undertaking the work should make their own independent interpretation of the factual subsurface information provided as it affects their proposed construction means and methods, equipment selection, scheduling, pricing, and the like.

Utilizing the information gathered during the geotechnical investigation and assuming that the borehole information is representative of the subsoil conditions throughout the site, the following comments and recommendations are provided.

5.1. Soil Design Parameters

The following table provides the estimated soil design parameters for imported granular fill, as well as the existing native soils encountered on-site. It should be noted that earth pressure coefficients (Ka, Kp, Ko) provided are for flat ground surface conditions and will differ for areas with slopes or embankments.

The estimated soil design parameters can be utilized for the design of perimeter shoring, foundations and retaining walls, lateral earth pressure calculations, as required:

Soil Type	Soil Density (kg/m ³)	Friction Angle (Degree)	Coefficient of Active Pressure (K _a)	Coefficient of Passive Pressure (K _p)	Coefficient of At-Rest Pressure (K ₀)	Coefficient of Friction (µ)	Cohesion (kPa)
Imported Granular 'A' (OPSS 1010)	2,100	34°	0.28	3.54	0.44	0.45	0
Imported Granular 'B' (OPSS 1010)	2,050	32°	0.31	3.25	0.47	0.41	0
Silty Sand Fill	1,800	28°	0.36	2.77	0.53	0.35	0
Gravel and Sand	1,900	34°	0.28	3.54	0.44	0.45	0
Clayey Silt	1,800 to 1,900	28° to 32°	0.36 to 0.31	2.77 to 3.25	0.53 to 0.47	0.35 to 0.42	0 to 10

5.2. Infiltration Testing

Appendix C of the LIDSWMP recommends that at least one infiltration test should be conducted at the bottom elevation of the infiltration pit, plus one additional test at every soil horizon encountered within 1.5 m below the bottom elevation (a minimum of two tests per infiltration pit). Appendix C of the LIDSWMP also recommends that one test hole should be advanced for an infiltration pit with a footprint of less than 50 m².

The infiltration testing program was conducted on October 7, 2024, and was comprised of two (2) Guelph Permeameter Constant Head infiltration tests in Boreholes 1 and 2, in accordance with ASTM D5126 Section 4.1.6. The infiltration testing was conducted in

Borehole 1 at depths of about 2.4 m (7.9 ft) and 3.9 m (12.8 ft), and in Borehole 2 at depths of about 2.4 m (7.9 ft) and 3.9 m (12.8 ft). The test hole diameters were approximately 5.72 cm (2.25 in). Constant head permeability testing was conducted using a constant head setting of 10 cm.

The field hydraulic conductivity was converted to infiltration rates using Figure C1 of the LIDSWMP. Based on information gathered from the permeameter testing and borehole data, the following table provides the field saturated hydraulic conductivity, infiltration rate, test location and soil type for each test:

Test Location and Depth (m)	Approx. Elevation of Test (m)	Guelph Permeameter Field Hydraulic Conductivity (K _{fs}) (cm/sec)	No Safety Factor Applied - Infiltration Rate (mm/hour)	Soil Type
BH 1 (2.4)	321.76	8.39×10 ⁻⁴	70.5	Gravelly Sand
BH 1 (3.9)	320.26	3.94×10 ⁻⁴	58.2	Clayey Sandy Silt
BH 2 (2.4)	321.83	9.32×10 ⁻⁴	73.1	Gravel and Sand
BH 2 (3.9)	320.33	7.23×10 ⁻⁴	67.3	Clayey Silt

In order to determine the design infiltration rate, the ratio of the infiltration rate at the proposed bottom of the infiltration pit and the infiltration rate of the least permeable soil horizon within 1.5 m below the proposed bottom elevation of the infiltration gallery is calculated. As per LIDSWMP, the applicable safety factor from Table C2 is applied to the infiltration rate at the proposed base of the infiltration pit. As per Table 3.4.1 of the LIDSWMP, the minimum distance between the base of the infiltration trench and the elevation of the high-water table or bedrock is 1.0 m.

The following table provides the ratio of infiltration rates, safety correction factor and design infiltration rate for the proposed infiltration pit locations:

Proposed Infiltration Pit Location	Proposed Bottom of Infiltration Pit Elevation (m)	Ratio of Infiltration Rates	Safety Correction Factor	Design Infiltration Rate (mm/hour)
BH1	321.76	1.21	2.5	28.2
BH2	321.83	1.09	2.5	29.2

It is required that an inspection of the infiltration gallery base be conducted prior to backfilling to ensure that the soils encountered are consistent with the borehole data so suitable infiltration rates are achieved.

All infiltration structures must be designed as per the City of Guelph Development Engineering Manual, October 2023 (DEM), and the Low Impact Development Stormwater Management Planning and Design Guide (LIDSWMP), as required.

Based on the soil and groundwater data obtained during the geotechnical investigations and monitoring well installations, the highest groundwater elevation measured was at elevation of approximately 320.13 m or approximately 4.1 m (13.5 ft) below the ground surface and anticipated to be below (the target infiltration depths. As per the D.E.M., CMT Inc. will continue to monitor the ground water elevation in the monitoring wells installed at the site on a regular basis in order to collect additional groundwater data through the site development process.

In addition to the above requirements of the DEM, CMT Engineering Inc. recommends the following:

- That each downspout entering the infiltration gallery have a strainer/leaf deflector as well as a rainwater leader overflow outlet just above grade that is equipped with a splash pad to direct water away from the foundation.
- That regular inspection/maintenance of the downspout strainer/leaf deflector is performed to ensure continuous operation and reduce the potential for the accumulation of sediment that can impede the functionality of the infiltration gallery.

The field data sheets for the in-situ infiltration testing can be found in Appendix C of this report.

6.0 <u>LIMITATIONS OF THE INVESTIGATION</u>

The recommendations made in this report are in accordance with our present understanding of the project. We request that we be permitted to review our recommendations when the drawings and specifications are complete, or if the proposed construction should differ from that mentioned in this report.

It is important to emphasize that a soil investigation is, in fact, a random sampling of a site and the comments are based on the results obtained at the test locations only. It is therefore assumed that these results are representative of the subsoil conditions across the site. Should any conditions at the site be encountered which differ from those found at the test locations, we request that we be notified immediately in order to permit a reassessment of our recommendations.

It should be noted that this report specifically addresses geotechnical aspects of the project and does not include any investigations or assessments relating to potential subsurface

contamination. As such, there should be no assumptions or conclusions derived from this report with respect to potential soil or water contamination. Soil or water contamination is generally caused by the presence of xenobiotic (human-made) chemicals or other alteration processes in the natural soil and groundwater environment. If necessary, the investigation, assessment and rehabilitation of soil and water contaminants should be undertaken by qualified environmental specialists.

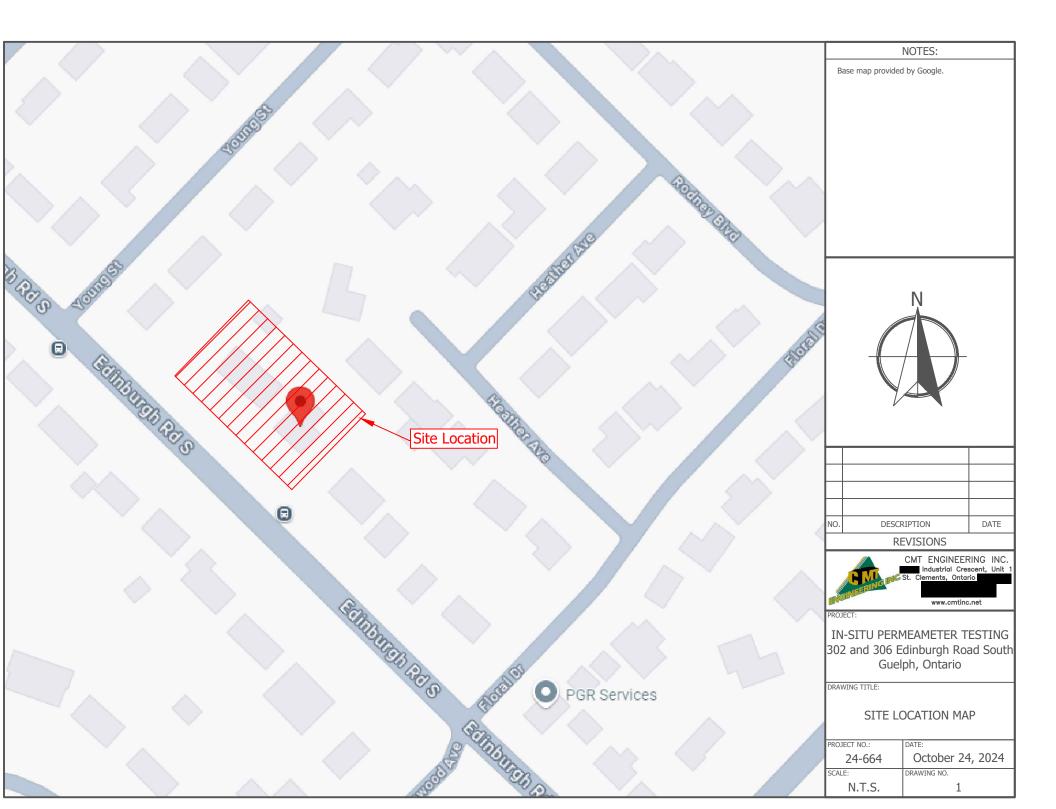
The samples obtained during the geotechnical investigation will be stored for a period of three months, after which time they will be disposed of unless alternative arrangements are made.

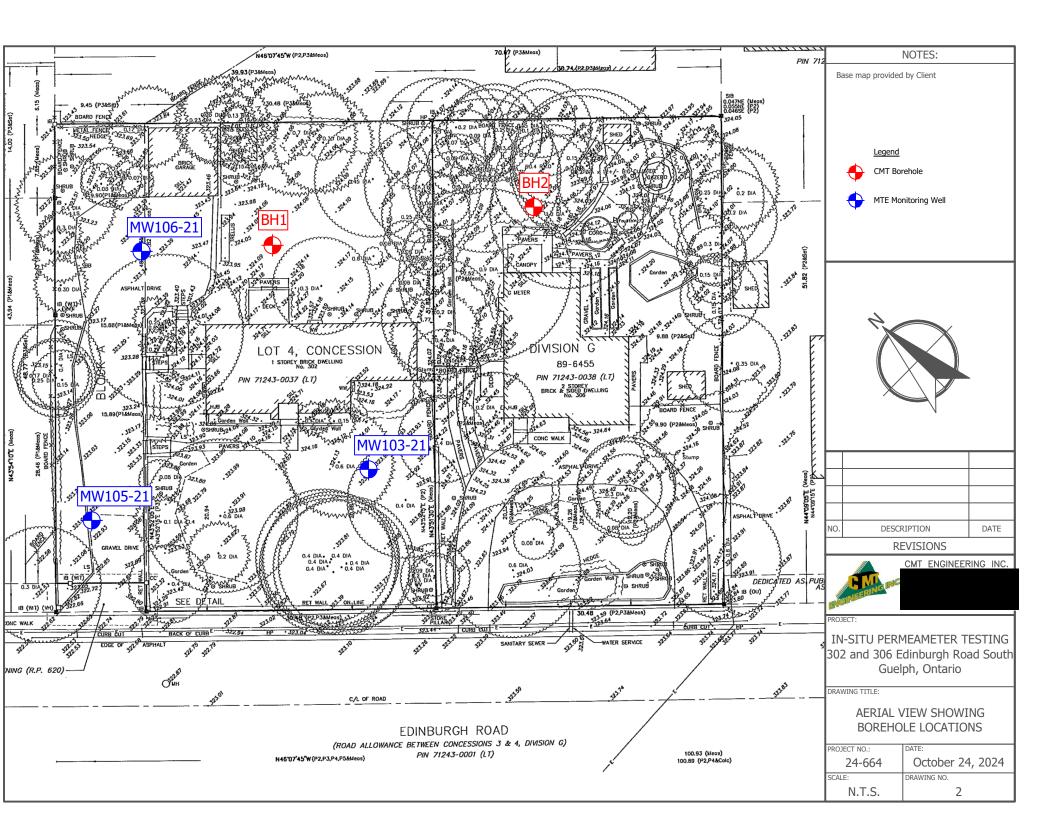
This report is intended solely for the client named. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the reliability of such third parties. The factual data, interpretation, and recommendations in this report pertain to a specific project as described in this report and are not applicable to any other project or site location. If the project is modified in concept, location or elevation, deviates from the assumptions stated herein, CMT Inc. should be given an opportunity to confirm that the recommendations are still valid. The subject geotechnical exploration and this report address only the geotechnical aspects of the proposed project; potential environmental impacts or related issues are beyond the defined scope of this work and have not been addressed.

We trust that this report meets with your present requirements. Should you have any questions, please do not hesitate to contact our office.









APPENDIX A

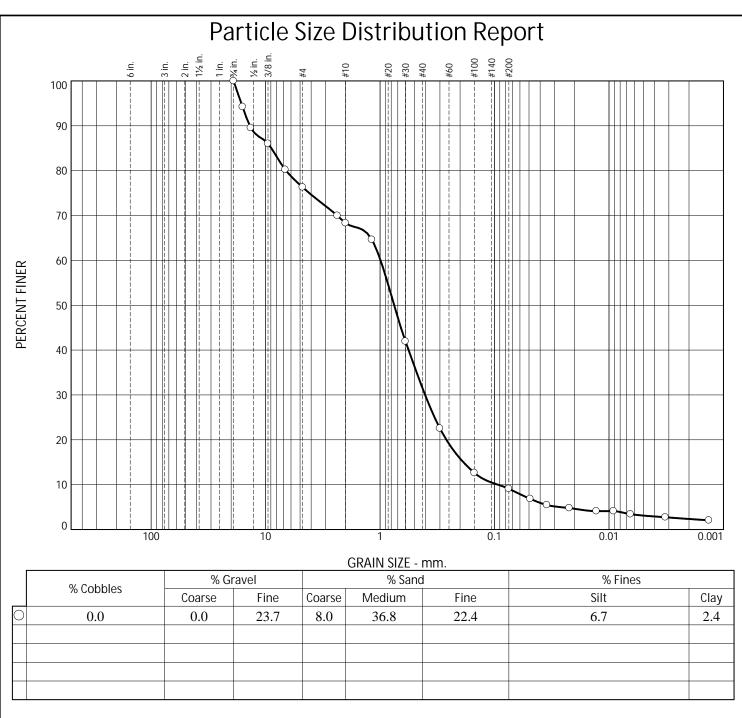
BOREHOLE LOGS

		CMT Engineering Inc.						BOR	EHC	DLE NU	IMBER 1
	GN	St. Clements, Ontario,								I	PAGE 1 OF 1
	GINEERI	Fax:	PROJECT: In-	-Situ Per	mea	meter Te	esting				
Sen 1			PROJECT ADD	RESS:	302	and 306	Edinbur	gh Road S	South		
PRC	JECT NU	IMBER: _24-664	PROJECT LOCATION: _Guelph, Ontario								
DRI	LING DA	TE : _24-10-7	GROUND ELEV	ATION:	32	4.16 m					
DRI	LING CO	ONTRACTOR: CMT DRILLING INC.	LOGGED BY:	J. Feen	әу						
DRI	LING EQ	UIPMENT: _Geoprobe 7822DT	SAMPLING ME	THOD:	MC	5					
DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	10	PT N VALUE / 20 30 CKET PEN. (KP 180 270 JRE CONTEN 24 36	40 'a)⊗ 360	WELL	DIAGRAM
	_~~~	Topsoil: Dark brown, silty, organic topsoil, moist (300 mm)	0.00, 324.16				:		:		
		Gravelly Sand: Brown gravelly sand, trace silt and clay, moist	0.30, 323.86	MC5 1	100						
1						2.1	•				
DT 24-10-29				MC5 2	100		7•				
3PJ_CMT_TEMPLATE_2020-05-15.0		Clayey Silt: Brown, clayey, sandy silt, trace gravel, moist Borehole open to about 3.90 m below the	3.51, 320.65	MC5 3	100		12.9				
BOREHOLE LOG WITH WELL2 24-644.GPJ CMT_TEMPLATE_2020-05-15.GDT 24-10-29		ground surface. No accumulated groundwater or seepage observed upon completion. Bottom of borehole at 3.90 m, Elevation 320.26 m.	, 								

			CMT Engineering Inc.							BO	REH	OL	E NU	JMBER 2
		CN	St. Clements, Ontario,											PAGE 1 OF 1
	ENG	INEER	Fax:	PROJECT: <u>In-</u>	-Situ Per	rmea	meter To	esting						
				PROJECT ADD	RESS:	302	and 306	6 Edinl	ourgh	Road	d South			
	PROJ	ECT NU	JMBER: _24-664	PROJECT LOC	ATION:	Gue	elph, On	tario						
	DRILL	ING DA	ATE: _24-10-7	GROUND ELEV	ATION:	32	4.23 m							
			ONTRACTOR: CMT Drilling Inc.	LOGGED BY:	J. Feen	еу								
Ľ	DRILL	ING EC	QUIPMENT: Geoprobe 7822DT	SAMPLING ME	THOD:	MC	5							
	DEPTH (m)	GRAPHIC LOG	MATERIAL DESCRIPTION	Depth, Elevation (m)	SAMPLE TYPE NUMBER	RECOVERY %	BLOW COUNTS (N VALUE)	10 ⊗ F) 30 T PEN.		-	WELL	DIAGRAM
		5			SAM NI	REC	(N BLOV				ENT (%)	•		
┝		$\sim \sim$	Topsoil: Dark brown, silty, organic topsoil,	0.00, 324.23			ш	12	<u>2 24</u> :	36	48	2/1		
	-		moist (150 mm) Silty Sand Fill: Brown silty sand fill, trace gravel, moist (1,370 mm)	0.15, 324.08	MC5 1	100						-		25mm Riser
	1 - - - -		Gravel and Sand: Brown gravel and sand,	1.52, 322.71				9.9						Bentonite Seal
5DT 24-10-29	2		trace silt and clay, moist	1.52, 322.71	MC5 2	100	1.5	•						
BOREHOLE LOG WITH WELL2 24-644.GPJ CMT_TEMPLATE_2020-05-15.GDT 24-10-29	- - - - - -		Clayey Silt: Brown, clayey silt, some sand, trace gravel, moist	3.35, 320.88	MC5 3	100								#2 Sand Pack 25mm Screen
WITH WELLZ 24-644.G			¥					11.7						Water level neasured at 4.10 m bgs 320.13 m) on October 28, 2024
BOREHOLE LUG			Bottom of borehole at 4.57 m, Elevation 319.66 m.					·			·		··· 1	

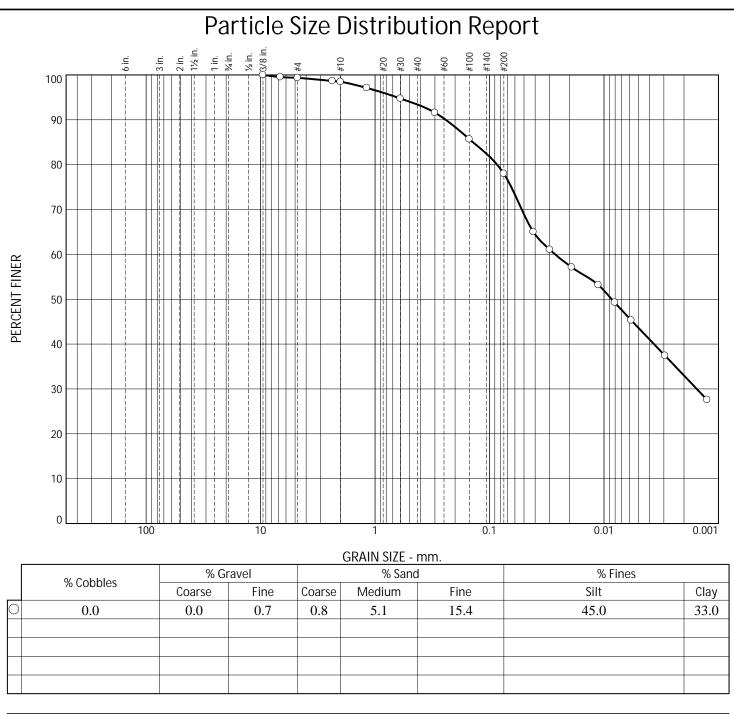
APPENDIX B

GRAIN SIZE ANALYSES



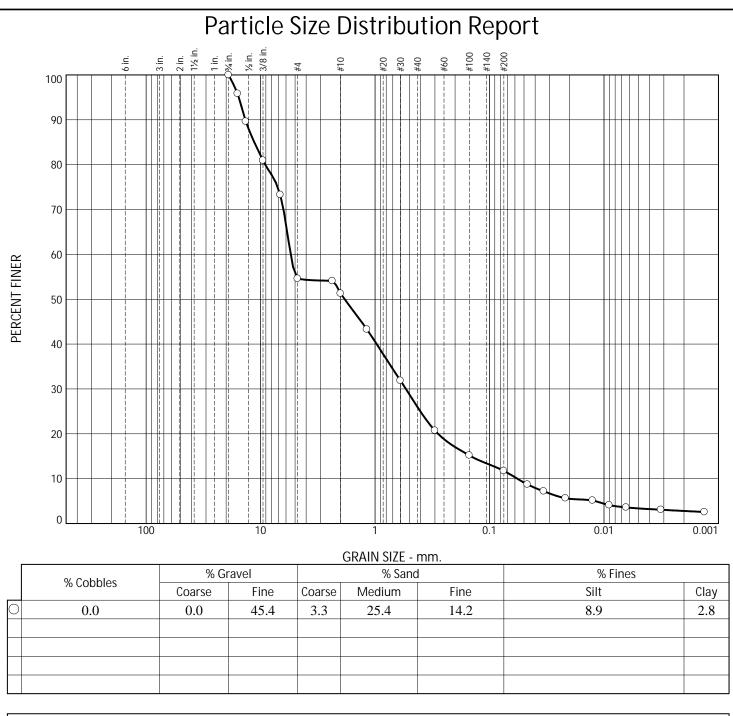
	SOIL DATA							
	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS			
0	BH1	2	1.52-3.05m	gravelly sand, trace silt and clay	SW-SM			
				Sampled by JF of CMT Engineering Inc. October 7, 2024				
				Tested by JM of CMT Engineering Inc. October 8, 2024				

CMT Engineering Inc.	Client: Mezcon Construction Ltd.	
	Project: 302 and 306 Edinburgh Road South,	
	Guelph, Ontario	
St. Clements, ON	Project No.: 24-664	Figure 1



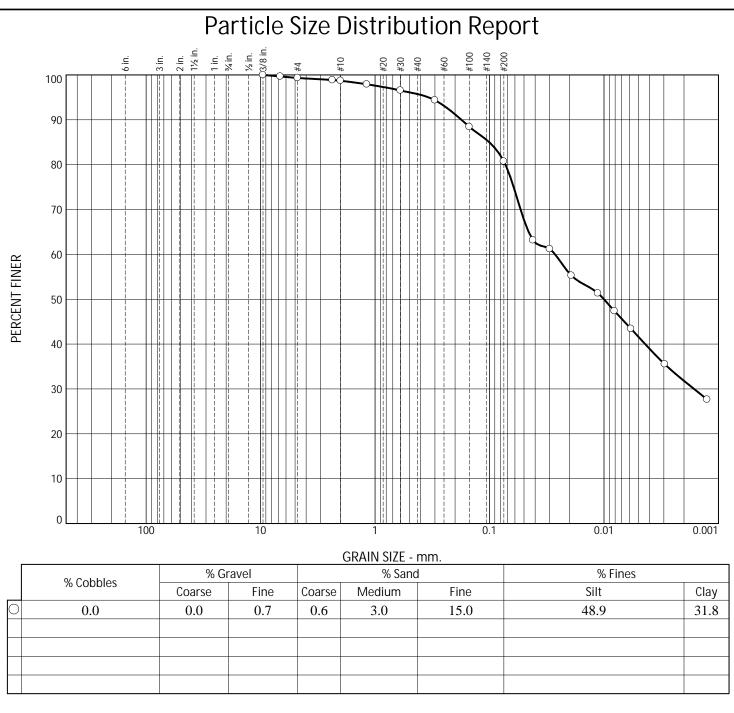
	SOIL DATA							
	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS			
0	BH1	3	3.51-4.57m	clayey, sandy silt, trace gravel	ML			
				Sampled by JF of CMT Engineering Inc. October 7, 2024				
				Tested by JM of CMT Engineering Inc. October 8, 2024				

CMT Engineering Inc.	Client: Mezcon Construction Ltd.	
	Project: 302 and 306 Edinburgh Road South,	
	Guelph, Ontario	
St. Clements, ON	Project No.: 24-664	Figure 2



	SOIL DATA						
	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS		
0	BH2	2	1.52-3.05m	gravel and sand, trace silt and clay	GP-GM		
				Sampled by JF of CMT Engineering Inc. October 7, 2024			
				Tested by JM of CMT Engineering Inc. October 8, 2024			

CMT Engineering Inc.	Client: Mezcon Construction Ltd.	
enn Engine en ng mer	Project: 302 and 306 Edinburgh Road South,	
	Guelph, Ontario	
St. Clements, ON	Project No.: 24-664	Figure 3



	SOIL DATA						
	SOURCE	SAMPLE NO.	DEPTH (ft.)	Material Description	USCS		
0	BH2	3	3.35-4.57m	clayey silt, some sand, trace gravel	ML		
				Sampled by JF of CMT Engineering Inc. October 7, 2024			
				Tested by JM of CMT Engineering Inc. October 8, 2024			

CMT Engineering Inc.	Client: Mezcon Construction Ltd.	
olvri Engineering nie.	Project: 302 and 306 Edinburgh Road South,	
	Guelph, Ontario	
St. Clements, ON	Project No.: 24-664	Figure 4

APPENDIX C

GUELPH PERMEAMETER FIELD SHEETS

Guelph Permeameter Field Data Sheet							
				Test #: 1	upper/lower		
	Infiltration Test		Job No:	24-664			
		burgh Rd. S., Guelph		J. Feeney			
Depth of Test			Date:	07-Oct-24			
Soil Type:	Gravelly Sand		BH:	1	notch up/notch dwn		
Water Height:	10 cm		Hole Diameter:	5.72 cm	35.22cm ² /2.16cm ²		
[1]	[2]	[3]	[4]	[5] = [3]/[4]			
Elapsed Time	Reading	Change in Height	Change in time	Infiltration rate	Notes		
min	cm	cm	min	cm/min			
0.5	5.5						
1	6	0.5	0.5	1			
1.5	6.5	0.5	0.5	1			
2	7.1	0.6	0.5	1.2			
2.5	7.6	0.5	0.5	1			
3	8.2	0.6	0.5	1.2			
3.5	8.8	0.6	0.5	1.2			
4	9.3	0.5	0.5	1			
4.5	9.8	0.5	0.5	1			
5	10.3	0.5	0.5	1			
5.5	10.8	0.5	0.5	1			
6	11.1	0.3	0.5	0.6			
6.5	11.7	0.6	0.5	1.2			
7	12.3	0.6	0.5	1.2			
7.5	12.6	0.3	0.5	0.6			
8	13	0.4	0.5	0.8			
8.5	13.5	0.5	0.5	1			
9	14	0.5	0.5	1			
9.5	14.5	0.5	0.5	1			
10	14.9	0.4	0.5	0.8			
11	15.8	0.9	1	0.9			
12	16.6	0.8		0.8			
13	17.6	1	1	1			
14	18.4	0.8	1	0.8			
15	19.3	0.9	1	0.9			
16	20.2	0.9	1	0.9			
17	21.1	0.9	1	0.9			
18	22 23	0.9	1	0.9			
19		1	1	1			
Notes:							
1) If there is less than 4mm in 20 minutes (0.2 mm/minute) the field hydraulic conductivity is less than 1.0x10^-6 cm/sec. After 3 to 5 consistent infiltration rate readings the infiltration rate is at steady state.							
a) Ensure tight se			eauings the inflitration	UTITALE IS AL STEADY	รเสเย.		
· •	<u> </u>	pormoomotor (ofter filling)	hoforo brocking and	1			
n) ⊏nsure ruber	stopper is back in	permeameter (after filling)	Delote Dreaking sea	1			

Guelph Permeameter Field Data Sheet							
				Test #: 2	upper/lower		
Project:	Infiltration Test	ting	Job No:	24-664			
Address:	302 & 306 Edi	nburgh Rd. S., Guelph	Tech:	J. Feeney			
Depth of Test	3.9 m		Date:	07-Oct-24			
Soil Type:	Clayey Sandy	Silt	BH:	1	<mark>notch up</mark> /notch dwn		
Water Height:	10 cm		Hole Diameter:	5.72 cm	35.22cm ² /2.16cm ²		
[1]	[2]	[3]	[4]	[5] = [3]/[4]			
Elapsed Time	Reading	Change in Height	Change in time		Notes		
min	cm	cm	min	cm/min			
0.5	1.5						
1	1.5	0	0.5	0			
2	2.5	1	1	1			
3	3.1	0.6	1	0.6			
4	3.7	0.6	1	0.6			
5	4.3	0.6	1	0.6			
6	4.9	0.6	1	0.6			
7	5.5	0.6	1	0.6			
8	6.1	0.6	1	0.6			
9	6.6	0.5	1	0.5			
10	7.2	0.6	1	0.6			
12	8.3	1.1	2	0.55			
14 16	9.4 10.6	<u> </u>	2	0.55 0.6			
18	11.8	1.2	2	0.6			
20	13	1.2	2	0.6			
20	13	1.2	۷.	0.0			
Notes:							
1) If there is less	than 4mm in 20 m	ninutes (0.2 mm/minute) the	field hydraulic cond	uctivity is less			
		5 consistent infiltration rate r	eadings the infiltrati	on rate is at steady	state.		
a) Ensure tight se	eal before filling						
b) Ensure rubber	stopper is back ir	n permeameter (after filling)	before breaking sea				

Guelph Permeameter Field Data Sheet								
				Test #: 3	s upper/lower			
Project:	Infiltration Test	ing	Job No:	24-664				
		burgh Rd. S., Guelph	Tech:	J. Feeney				
Depth of Test:			Date:	07-Oct-24				
Soil Type:	Gravel and Sar	nd	BH:	2	<mark>notch up</mark> /notch dwn			
Water Height:	10 cm		Hole Diameter:	5.72 cm	35.22cm ² /2.16cm ²			
[1]	[2]	[3]	[4]	[5] = [3]/[4]				
Elapsed Time	Reading	Change in Height	Change in time		Notes			
min	cm	cm	min	cm/min				
0.5	4.5							
1	5.5	1	0.5	2				
1.5	6	0.5	0.5	1				
2	6.5	0.5	0.5	1				
2.5	7.2	0.7	0.5	1.4				
3	8	0.8	0.5	1.6				
3.5	8.5	0.5	0.5	1				
4	9	0.5	0.5	1				
4.5	9.5	0.5	0.5	1				
5	10.1	0.6	0.5	1.2				
5.5	10.5	0.4	0.5	0.8				
6	11	0.5	0.5	1				
6.5	11.5	0.5	0.5	1				
7	12.1	0.6	0.5	1.2				
7.5 8	12.5 13	0.4	0.5 0.5	0.8				
о 8.5	13.5	0.5	0.5	1				
9	13.5	0.5	0.5	1				
9.5	14.5	0.5	0.5	1				
10	15	0.5	0.5	1				
10.5	15.5	0.5	0.5	1				
11	16	0.5	0.5	1				
11.5	16.5	0.5	0.5	1				
12	17	0.5	0.5	1				
12.5	17.5	0.5	0.5	1				
13	18	0.5	0.5	1	<u> </u>			
13.5	18.5	0.5	0.5	1				
14	19	0.5	0.5	1				
15	19.8	0.8	1	0.8				
16 20.9 1.1 1 1.1								
Notes:								
1) If there is less than 4mm in 20 minutes (0.2 mm/minute) the field hydraulic conductivity is less								
than 1.0x10^-6 cr	m/sec. After 3 to 5	consistent infiltration rate r	eadings the infiltration	on rate is at steady	state.			
a) Ensure tight se	eal before filling							
b) Ensure rubber	stopper is back in	permeameter (after filling)	before breaking sea	l				

Guelph Permeameter Field Data Sheet									
		-		Test #: 4	upper/lower				
Project:	Infiltration Test	ing	Job No:	24-664					
Address:	302 & 306 Edir	nburgh Rd. S., Guelph	Tech:	J. Feeney					
Depth of Test	3.9 m		Date:	07-Oct-24					
Soil Type:	Clayey Silt		BH:	2	notch up/notch dwn				
Water Height:	10 cm		Hole Diameter:	5.72 cm	35.22cm ² /2.16cm ²				
[1]	[2]	[3]	[4]	[5] = [3]/[4]					
Elapsed Time	Reading	Change in Height	Change in time		Notes				
min	cm	cm	min	cm/min					
0.5	2.9								
1	3.7	0.8	0.5	1.6					
1.5	4.3	0.6	0.5	1.2					
2	5	0.7	0.5	1.4					
3	6.4	1.4	1	1.4					
4	7.6	1.2	1	1.2					
5	8.8	1.2	1	1.2					
6	10.1	1.3	1	1.3					
7	11	0.9	1	0.9					
8	12.3	1.3	1	1.3					
9	13.3	1	1	1					
10	14.5	1.2	1	1.2					
12 14	16.7 18.8	2.2	2	1.1 1.05					
14	21	2.1	2	1.05					
18	23.2	2.2	2	1.1					
20	25.2	2.2	2	1.1					
20	20.4	۲.۲	۷۲	1.1					
Notes:									
1) If there is less	than 4mm in 20 m	inutes (0.2 mm/minute) the	field hydraulic cond	luctivity is less					
		consistent infiltration rate r	eadings the infiltrati	on rate is at steady	state.				
a) Ensure tight se	eal before filling								
b) Ensure rubber	stopper is back in	permeameter (after filling)	before breaking sea	al					

APPENDIX D

WELL RECORDS



General Instructions and Explanations for completing a Well Record

A completed electronic Well Record Form must be delivered to the well purchaser and the owner of the land on which the well is situated within 14 days after the date on which the well's structural stage is complete. The electronic Well Record must also be forwarded within 30 days after the date on which the well's structural stage is complete to the ministry through email to the following email address: <u>WellRecordSubmission@ontario.ca</u>

False and Misleading Information

Subsection 98(2) of the Ontario Water Resources Act, R.S.O. 1990 c. O. 40, states that:

"No person shall orally, in writing or electronically, give or submit false or misleading information in any statement, document or data, to any provincial officer, the Minister, the Ministry or the Agency, any employee in or agent of the Ministry or the Agency, or any person involved in carrying out a program of the Ministry or the Agency in respect of any matter related to this Act or the regulations."

Further, subsection 98(3) of the Act states that:

"No person shall include false or misleading information in any document or data required to be created, stored or submitted under this Act."

Measurements

All measurements must be recorded in the specified unit, metric or imperial by checking off the applicable box on the top of the form. You must use the checked unit consistently throughout the well record. Measurements must be reported to 1/10th of a metre if the unit is a metre. All measurements of depth must be referenced to ground surface.

Well Owner's Information

A "well owner" means the owner of land upon which a well is situated and includes a tenant or lessee of the land and a well purchaser. If the "well owner" is an individual, record the owner's last name and first name or if the "well owner" is a business, government or other organization, record the name in the "organization" area.

Well Location

Street Number/Name and City/town/Village must be provided, if available.

Geographic Township, Concession and Lot must be reported if the well is located in an area where such information exists.

UTM Coordinates must be recorded each time a Well Record is completed. Click the button [Test UTM in Map] to use the UTM Coordinates to plot the location to Google map. This allows verification of the UTM Coordinates. This will also automatically populate the County/District.

Municipal Plan and Sublet Number may be provided, if available.

Overburden and Bedrock Materials

For each formation encountered during construction, choose words from the lists that best describe the formation on the basis of general colour, most common material, other materials, and general description of the formation.

General Colours are White, Yellow, Grey, Brown, Blue, Red, Green and Black.

Examples of Materials are: Fill, Silt, Top Soil, Coarse Sand, Slate, Muck, Gravel, Limestone, Dolomite, Quartzite, Peat, Stones, Fine Sand, Shale, Granite, Clay, Boulders, Medium Sand, Sandstone, and Greenstone. Some definitions are as follows:

- Clay: Composed of very fine particles. Forms dense hard lumps or clods when dry and a very elastic putty-like mass when wet. It can be rolled between fingers to form a long, flexible ribbon.
- Silt: Grain size, midway between sand and clay. It may form clods which, when broken, feel soft and floury. When moist, it will form a cast that can be handled freely without breaking. Rolled between thumb and finger, it will not "ribbon" but will give a broken appearance.

- Sand: Grains are loose and granular and may be seen and felt readily. Squeezed in the hand when dry, it falls apart when the pressure is released. Squeezed when moist, it will form a cast that will crumble when touched. Should be listed as fine sand, medium sand or coarse sand.
- Gravel: Rock fragments greater than 0.3 cm in diameter.

Examples of General Descriptions are Loose, Cemented, Previously Dug or Bored, Porous, Layered, Previously Drilled, Dense, Soft, Wood Fragments, Packed, Hard.

Abandonment

To report abandonment of a well, check off the applicable box in Type on the top of the form. Details of abandonment must be recorded in the Abandonment and Sealing Section. Additional comments may be entered in the comments box under the Information section.

Annular Space

Record all material placed in the annular space around the single casing or around the permanent outer casing. If the well is a telescoped well [i.e., a well with an outer casing and inner casing(s)] or if the well is a multi-level nested test hole, report the depth from, depth to, material and volume placed for the annular space between two different sized casings or between the inner casing(s) and the side of the well in the "Comments" area of this electronic well record form.

Method of Construction

If the equipment used to construct the well is not on the list, check "Other (specify)" and record the type of equipment, check each equipment that applies.

Well Use

If the well's use is not provided on the list, check "Other (specify)" and record the use of the well. If the well has multiple uses, check each use that applies.

Status of Well

If the well's status is not provided on the list, check "Other (specify)" and record the use of the well. If the well has multiple statuses, check each use that applies.

Construction Record – Casing and Open Hole

Use negative values to report the top of casing above ground surface. For example, if the top of the casing is 0.4 metres above the ground surface and the bottom of the casing 6.0 metres below the ground surface, record the casing "Depth From" as -0.4.

If the top of casing is located below the ground surface (e.g., if a test hole is constructed and the top of casing is located below the ground surface in a flush mounted well vault), report the top of the casing from below ground surface. For example, if the top of the casing is 0.1 metres below the ground surface and the bottom of the casing is 6 metres below the ground surface, record the casing "Depth From" as 0.1.

Note: If a drive shoe is used, the shoe is considered casing and it must be reported if the shoe has a different inside diameter thickness.

If a portion of the well was created an open hole, record the location of the open hole on a separate row, including the diameter and the depth (top and bottom of open hole) from the ground surface.

Construction Record – Well Screen

A "well screen" means perforated pipe or tubing, unsealed concrete tiles or other material installed in a well to filter out particulate matter and form the water intake zone. Therefore, the length of a well screen includes any slotted or perforated area and unsealed area of pipe or tiles.

Water Details

- if groundwater was located, record the depth from the ground surface to the location of the groundwater resource, and
- record if the groundwater quality is "Untested," "Fresh" (i.e., not salty), or "Other (specify)." If "Other (specify)" is recorded, use the "Other (specify)" dropdown list toselect the type of groundwater (e.g., salty, blackish water, yellowish water, mineralized, etc.).

Check off "Gas" if natural gas was encountered during well construction.

Note: Natural gas encounters need to be immediately reported to the ministry at 1-800-268-6060, well purchaser and the owner of the land.

Results of Well Yield Testing

Check off "Pumping Discontinued" if pumping was discontinued before 1 hour of continuous pumping. Explain the reason why pumping was discontinued or in some cases not performed (e.g., the well went dry, impossible to install pump in small diameter well, static water level from test hole or dewatering well was obtained and is reported instead of completing a yield test etc.).

Note: Equipment breakdown is not an acceptable reason for checking off "Pumping Discontinued" on the well record form. If groundwater in the well is flowing out of the well, provide the rate of flow, and check off "Flowing Well" (i.e., static water level above the ground surface).

In the "Results of Well Yield Testing" section of the well record form, record:

- the depth to the intake of the pump,
- the rate of pumping and duration of pumping period during the yield test,
- the final water level when pumping stops,
- water level measurements made during pumping (drawdown) and recovery. All water level measurements must be referenced from below the ground surface for each time interval specified in the drawdown and recovery boxes.

If the water level measurements remain the same over a period of time, continue to measure and report the same water level measurement for the remaining pumping or recovery time intervals.

If pumping continuously for at least 1 hour, but the design of the well does not allow for water level measurements (e.g., driven point well), the person constructing the well is not required to report drawdown or recovery water level measurements.

Map of Well Location

In the "Map of Well Location" section of the well record form, click the map area to attach a map of the well location. The map must show sufficient information to locate the well, including:

- a mark on the map showing the well,
- a scale on the map, and
- where available, the name of the structure, street or surface water body nearest to the well.

Note: More than one map can be added to the well record form by clicking on "Add Map (+)" to add an additional map.

Information

Record any additional information (e.g., observations, tests, additional licensed well technicians who worked on the well, additional annular space details for a telescoped well or a multi-level nested test hole, reasons for not providing a well owner information package) in the comments area.

Declaration

Check the declaration statement to confirm that the person constructing the well agrees with the following statement: "I hereby confirm that I am the person who constructed the well and I hereby confirm that the information on the form is correct and accurate".

Validate

Click the validate button. If there is no missing information, you will be asked to enter the well tag again to make sure the well tag is entered correctly (only enter the numeric portion of the tag number). The audit number will then be changed from "**incomplete**" to an assigned audit number. The signature field will then be available. Click on "signature" to enter the well technician's electronic signature. For instructions on how to create an electronic signature, please visit the Adobe Digital IDs website using the following link: <u>https://helpx.adobe.com/acrobat/using/digital-ids.html</u>



Notice of Collection of Personal Information

Personal information contained on this form is collected pursuant to sections 35-50 and 75(2) of the Ontario Water Resources Act and section 16.3 of the Wells Regulation. This information will be used for the purpose of maintaining a public record of wells in Ontario. This form and the information contained on the form will be stored in the Ministry's well record database and made publicly available. Questions about this collection should be directed to the Water Well Customer Service Representative at the Wells Help Desk, 125 Resources Road, Toronto Ontario M9P 3V6, at 1-888-396-9355 or wellshelpdesk@ontario.ca.

Fields marked with an asterisk (*) are mandatory.

							Well Tag Nu	umber *
							A408616	
Type *								
Construction	n 🗌 A	bandonme	nt					
Measurement	recorded ir	n: *						
Metric	✓ Imperial							
1. Well Own	er's Infor	mation						
Last Name and	First Name	, or Organiz	zation is m	andatory. *				
Last Name					First Na	ame		
Organization Mezcon Cons	truction Lto	1			Email Address			
Current Addre	SS				·			
Unit Number	Street	Number *	Street N Surrey		City/Town/Village <mark>Guelph</mark>			
Country Canada				Province ON	Postal Code Telepho		Telephone Number	
2. Well Loca	tion							
Address of We	ell Location							
Unit Number	Street Num 306		treet Nam <mark>dinburgh</mark>				Township	
Lot Concession				I	County/District/Municipality			
City/Town Guelph						Province Postal Cod Ontario		Postal Code
UTM Coordinates Zone * Easting * Northing *				rthing *			Municipal Plan and	I Sublot Number
NAD 83	17	561156	48	319640	Test	JTM in Map		
Other								

3. Overburden and Bedrock Material *							
Well Depth *	15	(ft)					
General Colour	Most Common Material	Other Materials	General Description	Depth From	Depth To		

			(ft)	(ft)
Brown	Sand	Gravel	0	15

4. Annular Space *								
Depth From	Depth To	Type of Sealant Used (Material and Type)	Volume Placed					
(ft)	(ft)		(cubic feet)					
0	8	3/8 Holeplug	0.27					
8	15	#2 Sand	0.24					

5. Method of Constru	uction *								
Cable Tool R	otary (Conventional)	Rotary (Reverse)		Boring Air perc	ussion 🗌 Dia	amond			
Jetting D	riving 🗌 Digging	Rotary (Air)		🗌 Augering 🖌 Direct P	ush				
Other (specify)									
6. Well Use *									
Public	Industrial	Cooling & Air Co	ondit	tioning					
Domestic	Commercial	Not Used							
Livestock	Municipal	Monitoring							
Irrigation	Test Hole	Dewatering							
Other (specify)									
7. Status of Well *									
Water Supply	Replaceme	nt Well	٦ 🗌	Fest Hole					
Recharge Well	Dewatering	Well	✓ (Observation and/or Monit	toring Hole				
Alteration (Construct	tion) 🗌 Abandoned	I, Insufficient Supply	A	Abandoned, Poor Water	Quality				
Abandoned, other (s	pecify)								
Other (specify)									
8. Construction Rec	ord - Casing * (use	e negative number(s) to	indi	icate depth above ground	d surface)				
Inside Diameter Open Hole or Material (Galvanized, Fibreglass, Concrete, Plastic, Steel) Vall Depth From Depth To									

Diameter		THICKIESS	1	1
(in)			(ft)	(ft)
1	Plastic	0.133	0	10

9. Construction Record - Screen											
Outside	Material	Slot									
Diameter	(Plastic, Galvanized, Steel)	Number	Depth From	Depth To							
(in)			(ft)	(ft)							
1.315	Plastic	10	10	15							

10. Water Details														
Water found at			(11)	Gas	Kind of v	vətor	Fresh	<u> </u>	Jntested		ther			
	Depth		(ft)	Gas		alei			Jilesleu					
11. Hole Diam	otor													
	leter							1						
De	epth Fror	n			Depth	То					Diamete	r		
	(ft)				(ft)						(in)			
	0				15						3.5			
	· · · · ·													
12. Results o	f Well Y	ield Te	esting											
Pumping Dis	scontinue	d												
Explain														
If flowing give ra	ate													
Flowing (GPM)														
Draw down														
Time (min)	Static Level	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Level (ft)														
Recovery								•		•	•	•		
Time (mir	ı)	1	2	3	4	5	10	15	20	25	30	40	50	60
Water Lev (ft)	el													
After test of wel	l yield, w	ater wa	S											
Clear and sa	and free	Ot	ner (spec	cify)										
Pump intake se	t at Pum	nping ra	ite	Duratio	n of pump	ing		Final wa	ater leve	I end of	pumping	g Dis	sinfected	? *
	(ft)		(GPM)		hrs +		min				(ft)		Yes 🗸	No
Recommended	pump de	epth	Recom	mended	pump rate	e W	/ell produc	tion						
		(ft)			(GPN	1)			(GPM)					
13. Map of We	ell Loca	tion *												
Map 1. Please Cl	ick the ma	ip area l	pelow to i	mport an	image file	o use	e as the ma	p.	🗌 Mak	ke map a	area bigo	ger		



14. Information		
Well owner's information package delivered	Date Package Delivered (yyyy/mm/dd)	Date Work Completed (yyyy/mm/dd) * 2024/10/07
Comments		

15. Well Cont	ractor and Wel	I Tech	nnician	Information					
Business Name CMT Drilling Ir	of Well Contract	or *				Well Contractor's License Number * 7366			
Business Add	ess								
Unit Number 1	Street Number		reet Name dustrial C	e * Crescent					
City/Town/Villag St Clements	je *	·			Pro\ <mark>ON</mark>	vince		Postal Code *	
Business Telep	hone Number	Busine	ss Email	Address					
Last Name of W <mark>Black</mark>	/ell Technician *			First Name of Well Technic Chris	ian *		Well Technic 3711	ian's License Number *	
16. Declaratio	on *								
✓ I hereby con and accurate		perso	n who coi	nstructed the well and I here	eby c	onfirm that	the information	on on the form is correct	
Last Name <mark>Black</mark>			First Na Chris	ime		Email Add	ress		
Signature						Date Subr	mitted (yyyy/m	nm/dd)	
Chris Bl	ack	J		signed by Chris Black 024.11.12 14:28:54 -05'00'			2024/	/11/12	
17. Ministry U	Ise Only								
Audit Number									
2O2K ZE4S									

Functional Servicing and Stormwater Management Design Report 302-306 Edinburgh Road South City of Guelph, Ontario January 14, 2025

C.2. Water Level Reading Letter, by CMT Engineering inc. (dated December 17,2024)

24-664.R02



December 17, 2024

Mezcon Construction Ltd. Surrey Street East Guelph, Ontario,

Attention: Mr. Zachary Fisher

Dear Zachary:

Re: Water Level Readings 302 and 306 Edinburgh Road South Guelph, Ontario

As requested, CMT Engineering Inc. (CMT Inc.) has obtained water level readings from the monitoring wells (installed by CMT Inc. and MTE) located at 302 and 306 Edinburgh Road South in Guelph, Ontario.

Monitoring wells were installed at Borehole 2, Borehole 103-21, Borehole 105-21 and Borehole 106-21 at the above referenced site.

The following table details the approximate measured water levels and elevations, as well as the dates the water levels were obtained:

Borehole No.	Ground Surface Elevation (m)	Measured Elevation of Water in Monitoring Well on October 28, 2021 (m)	Measured Elevation of Water in Monitoring Well on September 17, 2024 (m)	Measured Elevation of Water in Monitoring Well on October 28, 2024 (m)	Measured Elevation of Water in Monitoring Well on December 17, 2024 (m)
BH2	324.23	N/A	N/A	320.13 (4.10)	319.83 (4.40)
MW103-21	324.00	318.70 (5.30)	319.74 (4.26)	319.63 (4.37)	319.58 (4.42)
MW105-21	323.10	317.20 (5.90)	318.43 (4.67)	318.33 (4.77)	318.13 (4.97)
MW106-21	323.40	316.40 (7.00)	317.59 (5.81)	317.64 (5.76)	317.21 (6.19)

Yours truly,



Jake Feeney, P. Eng. tb

Appendix D Water Balance Tables

D.1. Monthly Water Balance (Thornthwaite and Mather) Tables

D.1. Monthly Water Balance (Thornthwaite and Mather) Tables

EXISTING CONDITION

		Soil Type: Guelph Loam	Runoff Factor =	0.60
Total Site Area =	0.327 ha	Vegetation: Urban lawns	Evapotranspiration	
Percent Impervious =	38.0%	Root Zone Depth = 0.5m	Factor for Impervious	
		Soil Moisture Retention Capacity = 75mm	Surfaces =	0.34

Month	Daily Average Temperature	Monthly Heat Index	Unadjusted Daily Potential Evapotrans- piration	Correction Factors	Adjusted Potential Evapotrans- piration	Average Precipitation	P-PE	Accum. Pot. Water Loss	Storage	ΔS	Pervious ET	Actual Evapotrans- piration	Moisture Deficit	Moisture Surplus	Water Runoff	Snow Melt Runoff	Total Recharge & Runoff	Actual Runoff	Runoff Volume	Recharge Through Pervious Surfaces	Enhanced Recharge
	(°C)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ³)	(m ³)	(m ³)
Jan	-7.6	0.0	0.0	24.3	0.0	56.4	56.4		209.1	0.0	0.0	0.0	0.0	0.0	11.9	0.0	11.9	7	23	16	0
Feb	-6.9	0.0	0.0	24.6	0.0	50.8	50.8		259.9	0.0	0.0	0.0	0.0	0.0	5.9	0.0	5.9	4	12	8	0
Mar	-1.3	0.0	0.0	30.6	0.0	72.1	72.1		332.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	3.3	2	6	4	0
Apr	5.9	1.3	0.9	33.6	30.2	78.3	48.1		75.0	0.0	30.2	22.7	7.6	55.6	29.0	25.7	54.7	33	107	72	0
May	12.3	3.9	2.0	37.8	75.6	79.9	4.3		75.0	0.0	75.6	56.7	18.9	23.2	26.1	115.7	141.8	85	278	185	0
Jun	16.9	6.3	2.8	38.4	107.5	76.0	-31.5	-31.5	48.5	-26.5	102.5	76.8	30.7	25.7	25.9	57.8	83.7	50	164	109	0
Jul	19.7	8.0	3.3	38.7	127.7	88.5	-39.2	-70.7	28.0	-20.5	109.0	81.7	46.0	27.3	26.6	28.9	55.5	33	109	73	0
Aug	18.6	7.3	3.1	36.0	111.6	95.9	-15.7	-86.4	23.5	-4.5	100.4	75.3	36.3	25.1	25.9	14.5	40.4	24	79	53	0
Sep	14.1	4.8	2.3	31.2	71.8	92.1	20.3		43.8	20.3	71.8	53.8	18.0	18.0	21.9	7.3	29.2	18	57	38	0
Oct	7.9	2.0	1.3	28.5	37.1	69.2	32.2		75.0	31.2	37.1	27.8	9.3	10.3	16.1	4.0	20.1	12	39	26	0
Nov	2.4	0.3	0.4	24.3	9.7	86.3	76.6		75.0	0.0	9.7	7.3	2.4	79.0	47.6	2.1	49.7	30	97	65	0
Dec	-4.0	0.0	0.0	23.1	0.0	77.7	77.7		152.7	0.0	0.0	0.0	0.0	0.0	23.8	1.0	24.8	15	49	32	0
Total		33.9				923.2	352.0				536.3	402.0	169.2	264.2	263.9	257.0	520.9	286	1,022	681	0
																			Total Recharg	ge	681

Notes: Precipitation and Temperature data from Environment Canada Climate Normals 1971-2000 for the Guelph Arboretum

Monthly water balance strategy as outlined in the document Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance (Thornthwaite and Mather, 1957)

302-306 Edinburgh Road South City of Guelph Table 1 - Existing Condition Monthly Water Balance Catchment 101 Project No: 2408455

EXISTING CONDITION

		Soil Type: Guelph Loam	Runoff Factor =	0.36
Total Site Area =	0.013 ha	Vegetation: Urban lawns	Evapotranspiration	
Percent Impervious =	0.0%	Root Zone Depth = 0.5m	Factor for Impervious	
		Soil Moisture Retention Capacity = 75mm	Surfaces =	0.34

Month	Daily Average Temperature	Monthly Heat Index	Unadjusted Daily Potential Evapotrans- piration	Correction Factors	Adjusted Potential Evapotrans- piration	Average Precipitation	P-PE	Accum. Pot. Water Loss	Storage	ΔS	Pervious ET	Actual Evapotrans- piration	Moisture Deficit	Moisture Surplus	Water Runoff	Snow Melt Runoff	Total Recharge & Runoff	Actual Runoff	Runoff Volume	Recharge Through Pervious Surfaces	Enhanced Recharge
	(°C)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ³)	(m ³)	(m ³)
Jan	-7.6	0.0	0.0	24.3	0.0	56.4	56.4		209.1	0.0	0.0	0.0	0.0	0.0	9.7	0.0	9.7	3	0	1	0
Feb	-6.9	0.0	0.0	24.6	0.0	50.8	50.8		259.9	0.0	0.0	0.0	0.0	0.0	4.8	0.0	4.8	2	0	0	0
Mar	-1.3	0.0	0.0	30.6	0.0	72.1	72.1		332.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	3.3	1	0	0	0
Apr	5.9	1.3	0.9	33.6	30.2	78.3	48.1		75.0	0.0	30.2	30.2	0.0	48.1	25.2	25.7	50.9	18	2	4	0
May	12.3	3.9	2.0	37.8	75.6	79.9	4.3		75.0	0.0	75.6	75.6	0.0	4.3	14.8	115.7	130.4	46	6	11	0
Jun	16.9	6.3	2.8	38.4	107.5	76.0	-31.5	-31.5	48.5	-26.5	102.5	102.5	5.0	0.0	7.4	57.8	65.2	23	3	5	0
Jul	19.7	8.0	3.3	38.7	127.7	88.5	-39.2	-70.7	28.0	-20.5	109.0	109.0	18.7	0.0	3.7	28.9	32.6	12	2	3	0
Aug	18.6	7.3	3.1	36.0	111.6	95.9	-15.7	-86.4	23.5	-4.5	100.4	100.4	11.2	0.0	1.8	14.5	16.3	6	1	1	0
Sep	14.1	4.8	2.3	31.2	71.8	92.1	20.3		43.8	20.3	71.8	71.8	0.0	0.0	0.9	7.3	8.2	3	0	1	0
Oct	7.9	2.0	1.3	28.5	37.1	69.2	32.2		75.0	31.2	37.1	37.1	0.0	1.0	1.0	4.0	5.0	2	0	0	0
Nov	2.4	0.3	0.4	24.3	9.7	86.3	76.6		75.0	0.0	9.7	9.7	0.0	76.6	38.8	2.1	40.9	15	2	3	0
Dec	-4.0	0.0	0.0	23.1	0.0	77.7	77.7		152.7	0.0	0.0	0.0	0.0	0.0	19.4	1.0	20.4	7	1	2	0
Total		33.9				923.2	352.0				536.3	536.3	34.9	129.9	130.8	257.0	387.8	286	18	33	0
																			Total Recharg	ge	33

Notes: Precipitation and Temperature data from Environment Canada Climate Normals 1971-2000 for the Guelph Arboretum

Monthly water balance strategy as outlined in the document Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance (Thornthwaite and Mather, 1957)

302-306 Edinburgh Road South City of Guelph Table 2 - Existing Condition Monthly Water Balance Catchment 102 Project No: 2408455

EXISTING CONDITION

		Soil Type: Guelph Loam	Runoff Factor =	0.36
Total Site Area =	0.024 ha	Vegetation: Urban lawns	Evapotranspiration	
Percent Impervious =	0.0%	Root Zone Depth = 0.5m	Factor for Impervious	
		Soil Moisture Retention Capacity = 75mm	Surfaces =	0.34

Month	Daily Average Temperature	Monthly Heat Index	Unadjusted Daily Potential Evapotrans- piration	Correction Factors	Adjusted Potential Evapotrans- piration	Average Precipitation	P-PE	Accum. Pot. Water Loss	Storage	ΔS	Pervious ET	Actual Evapotrans- piration	Moisture Deficit	Moisture Surplus	Water Runoff	Snow Melt Runoff	Total Recharge & Runoff	Actual Runoff	Runoff Volume	Recharge Through Pervious Surfaces	Enhanced Recharge
	(°C)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ³)	(m ³)	(m ³)
Jan	-7.6	0.0	0.0	24.3	0.0	56.4	56.4		209.1	0.0	0.0	0.0	0.0	0.0	9.7	0.0	9.7	3	1	2	0
Feb	-6.9	0.0	0.0	24.6	0.0	50.8	50.8		259.9	0.0	0.0	0.0	0.0	0.0	4.8	0.0	4.8	2	0	1	0
Mar	-1.3	0.0	0.0	30.6	0.0	72.1	72.1		332.0	0.0	0.0	0.0	0.0	0.0	3.3	0.0	3.3	1	0	1	0
Apr	5.9	1.3	0.9	33.6	30.2	78.3	48.1		75.0	0.0	30.2	30.2	0.0	48.1	25.2	25.7	50.9	18	4	8	0
May	12.3	3.9	2.0	37.8	75.6	79.9	4.3		75.0	0.0	75.6	75.6	0.0	4.3	14.8	115.7	130.4	46	11	20	0
Jun	16.9	6.3	2.8	38.4	107.5	76.0	-31.5	-31.5	48.5	-26.5	102.5	102.5	5.0	0.0	7.4	57.8	65.2	23	6	10	0
Jul	19.7	8.0	3.3	38.7	127.7	88.5	-39.2	-70.7	28.0	-20.5	109.0	109.0	18.7	0.0	3.7	28.9	32.6	12	3	5	0
Aug	18.6	7.3	3.1	36.0	111.6	95.9	-15.7	-86.4	23.5	-4.5	100.4	100.4	11.2	0.0	1.8	14.5	16.3	6	1	3	0
Sep	14.1	4.8	2.3	31.2	71.8	92.1	20.3		43.8	20.3	71.8	71.8	0.0	0.0	0.9	7.3	8.2	3	1	1	0
Oct	7.9	2.0	1.3	28.5	37.1	69.2	32.2		75.0	31.2	37.1	37.1	0.0	1.0	1.0	4.0	5.0	2	0	1	0
Nov	2.4	0.3	0.4	24.3	9.7	86.3	76.6		75.0	0.0	9.7	9.7	0.0	76.6	38.8	2.1	40.9	15	3	6	0
Dec	-4.0	0.0	0.0	23.1	0.0	77.7	77.7		152.7	0.0	0.0	0.0	0.0	0.0	19.4	1.0	20.4	7	2	3	0
Total		33.9				923.2	352.0				536.3	536.3	34.9	129.9	130.8	257.0	387.8	286	33	60	0
																			Total Recharg	ge	60

Notes: Precipitation and Temperature data from Environment Canada Climate Normals 1971-2000 for the Guelph Arboretum

Monthly water balance strategy as outlined in the document Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance (Thornthwaite and Mather, 1957)

302-306 Edinburgh Road South City of Guelph Table 3 - Existing Condition Monthly Water Balance Catchment 103 Project No: 2408455

POST-DEVELOPMENT CONDITION

		Soil Type: Guelph Loam	Runoff Factor =	0.68
Total Site Area =	0.115 ha	Vegetation: Urban lawns		
Percent Impervious =	50.0%	Root Zone Depth = 0.5m	Evapotranspiration Factor for Impervious	
		Soil Moisture Retention Capacity = 75mm	Surfaces =	0.34

Month	Daily Average Temperature	Monthly Heat Index	Unadjusted Daily Potential Evapotrans- piration	Correction Factors	Adjusted Potential Evapotrans- piration	Average Precipitation	P-PE	Accum. Pot. Water Loss	Storage	ΔS	Actual Evapotrans- piration	Moisture Surplus	Water Runoff	Snow Melt Runoff	Total Recharge & Runoff	Actual Runoff	Runoff Volume	Recharge Through Pervious Surfaces	Enhanced Recharge
	(°C)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ³)	(m ³)	(m ³)
Jan	-7.6	0.0	0.0	24.3	0.0	56.4	56.4		209.1	0.0	0.0	0.0	12.6	0.0	12.6	9	10	5	0
Feb	-6.9	0.0	0.0	24.6	0.0	50.8	50.8		259.9	0.0	0.0	0.0	6.3	0.0	6.3	4	5	2	0
Mar	-1.3	0.0	0.0	30.6	0.0	72.1	72.1		332.0	0.0	0.0	0.0	3.3	0.0	3.3	2	3	1	0
Apr	5.9	1.3	0.9	33.6	30.2	78.3	48.1		75.0	0.0	20.3	58.0	30.2	25.7	55.9	38	44	21	0
May	12.3	3.9	2.0	37.8	75.6	79.9	4.3		75.0	0.0	50.7	29.2	29.7	115.7	145.4	98	113	54	0
Jun	16.9	6.3	2.8	38.4	107.5	76.0	-31.5	-31.5	48.5	-26.5	68.7	33.8	31.7	57.8	89.6	61	70	33	0
Jul	19.7	8.0	3.3	38.7	127.7	88.5	-39.2	-70.7	28.0	-20.5	73.1	35.9	33.8	28.9	62.7	42	49	23	0
Aug	18.6	7.3	3.1	36.0	111.6	95.9	-15.7	-86.4	23.5	-4.5	67.3	33.1	33.4	14.5	47.9	32	37	18	0
Sep	14.1	4.8	2.3	31.2	71.8	92.1	20.3		43.8	20.3	48.1	23.6	28.5	7.3	35.8	24	28	13	0
Oct	7.9	2.0	1.3	28.5	37.1	69.2	32.2		75.0	31.2	24.8	13.2	20.9	4.0	24.9	17	19	9	0
Nov	2.4	0.3	0.4	24.3	9.7	86.3	76.6		75.0	0.0	6.5	79.8	50.3	2.1	52.4	36	41	19	0
Dec	-4.0	0.0	0.0	23.1	0.0	77.7	77.7		152.7	0.0	0.0	0.0	25.2	1.0	26.2	18	20	10	0
Total		33.9				923.2	352.0				359.6	306.6	306.0	257.0	563.0	286	439	209	0
																	Total Recharg	je	209

Notes: Precipitation and Temperature data from Environment Canada Climate Normals 1971-2000 for the Guelph Arboretum

Monthly water balance strategy as outlined in the document Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance (Thornthwaite and Mather, 1957)

302-306 Edinburgh Road South City of Guelph Table 4 - Post-Development Condition Monthly Water Balance Catchment 201 Project No: 2408455

POST-DEVELOPMENT CONDITION

		Soil Type: Guelph Loam	Runoff Factor =	0.65
Total Site Area =	0.249 ha	Vegetation: Urban lawns		
Percent Impervious =	45.0%	Root Zone Depth = 0.5m	Evapotranspiration Factor for Impervious	
		Soil Moisture Retention Capacity = 75mm	Surfaces =	0.34

Month	Daily Average Temperature	Monthly Heat Index	Unadjusted Daily Potential Evapotrans- piration	Correction Factors	Adjusted Potential Evapotrans- piration	Average Precipitation	P-PE	Accum. Pot. Water Loss	Storage	ΔS	Actual Evapotrans- piration	Moisture Surplus	Water Runoff	Snow Melt Runoff	Total Recharge & Runoff	Actual Runoff	Runoff Volume	Recharge Through Pervious Surfaces	Enhanced Recharge
	(°C)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ³)	(m ³)	(m ³)
Jan	-7.6	0.0	0.0	24.3	0.0	56.4	56.4		209.1	0.0	0.0	0.0	12.3	0.0	12.3	8	20	11	31
Feb	-6.9	0.0	0.0	24.6	0.0	50.8	50.8		259.9	0.0	0.0	0.0	6.1	0.0	6.1	4	10	5	15
Mar	-1.3	0.0	0.0	30.6	0.0	72.1	72.1		332.0	0.0	0.0	0.0	3.3	0.0	3.3	2	5	3	8
Apr	5.9	1.3	0.9	33.6	30.2	78.3	48.1		75.0	0.0	21.3	57.0	29.7	25.7	55.4	36	89	49	138
May	12.3	3.9	2.0	37.8	75.6	79.9	4.3		75.0	0.0	53.2	26.7	28.2	115.7	143.9	93	231	127	358
Jun	16.9	6.3	2.8	38.4	107.5	76.0	-31.5	-31.5	48.5	-26.5	72.1	30.4	29.3	57.8	87.1	56	140	77	217
Jul	19.7	8.0	3.3	38.7	127.7	88.5	-39.2	-70.7	28.0	-20.5	76.7	32.3	30.8	28.9	59.7	39	96	53	149
Aug	18.6	7.3	3.1	36.0	111.6	95.9	-15.7	-86.4	23.5	-4.5	70.6	29.8	30.3	14.5	44.8	29	72	40	111
Sep	14.1	4.8	2.3	31.2	71.8	92.1	20.3		43.8	20.3	50.5	21.3	25.8	7.3	33.1	21	53	29	82
Oct	7.9	2.0	1.3	28.5	37.1	69.2	32.2		75.0	31.2	26.1	12.0	18.9	4.0	22.9	15	37	20	57
Nov	2.4	0.3	0.4	24.3	9.7	86.3	76.6		75.0	0.0	6.8	79.5	49.2	2.1	51.3	33	82	45	128
Dec	-4.0	0.0	0.0	23.1	0.0	77.7	77.7		152.7	0.0	0.0	0.0	24.6	1.0	25.6	17	41	23	64
Total		33.9				923.2	352.0				377.3	288.9	288.5	257.0	545.4	286	876	481	1,357
																	Total Recharg	e	1,838

Notes: Precipitation and Temperature data from Environment Canada Climate Normals 1971-2000 for the Guelph Arboretum

Monthly water balance strategy as outlined in the document Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance (Thornthwaite and Mather, 1957)

302-306 Edinburgh Road South City of Guelph Table 5 - Post-Development Condition Monthly Water Balance Catchment 202 Project No: 2408455

302-306 Edinburgh Road South City of Guelph Table 6: Monthly Enhanced Infiltration at Parcel 1 to 8 Catchment 202

Parcel 1 to 8 - Design of Infiltration Structure #1 to 8 Project No: 2408455 60.00 Length = m Wdith = 2.13 m Depth= 0.60 m Contact Area 127.80 sq m Storage 25.56 = Volume of Clear Stone = 76.68 cu m Clear Stone Void Ratio= 0.33333 Total Storage Volume of Structure = 25.56 cu m A = contact area of structure = 127.80 sq m Contact Area taken as the bottom of V = runoff volume to be infiltrated = 25.56 cu m the structure. P = percolation rate of native soils = 29.20 mm/h n = porosity of storage media (weighted) = 0.33 T = retention time = Solve for T T = (1000 x V) / (P x n x A) =20.76 hours or 0.9 day draindown period **Contributing Area** 0.25 ha Recharge Time 20.76 hours I 0.86 days 25.56 m³ **Recharge Volume Potential**

Month	Total Recharge & Runoff	No. of days	Max Potential Recharge	Available Recharge	Enhanced Recharge
	(mm)		(m ³)	(m ³)	(m ³)
Jan	12.3	31	916	31	31
Feb	6.1	28	828	15	15
Mar	3.3	31	916	8	8
Apr	55.4	30	887	138	138
May	143.9	31	916	358	358
Jun	87.1	30	887	217	217
Jul	59.7	31	916	149	149
Aug	44.8	31	916	111	111
Sep	33.1	30	887	82	82
Oct	22.9	31	916	57	57
Nov	51.3	30	887	128	128
Dec	25.6	31	916	64	64
Total	545.4	365	10,788	1,357	1,357

POST-DEVELOPMENT CONDITION

		Soil Type: Guelph Loam	Runoff Factor =	0.36
Total Site Area =	0.000 ha	Vegetation: Urban lawns		
Percent Impervious =	0.0%	Root Zone Depth = 0.5m	Evapotranspiration Factor for Impervious	
		Soil Moisture Retention Capacity = 75mm	Surfaces =	0.34

Month	Daily Average Temperature	Monthly Heat Index	Unadjusted Daily Potential Evapotrans- piration	Correction Factors	Adjusted Potential Evapotrans- piration	Average Precipitation	P-PE	Accum. Pot. Water Loss	Storage	∆S	Actual Evapotrans- piration	Moisture Surplus	Water Runoff	Snow Melt Runoff	Total Recharge & Runoff	Actual Runoff	Runoff Volume	Recharge Through Pervious Surfaces	Enhanced Recharge
	(°C)		(mm)		(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(m ³)	(m ³)	(m ³)
Jan	-7.6	0.0	0.0	24.3	0.0	56.4	56.4		209.1	0.0	0.0	0.0	9.7	0.0	9.7	3	0	0	0
Feb	-6.9	0.0	0.0	24.6	0.0	50.8	50.8		259.9	0.0	0.0	0.0	4.8	0.0	4.8	2	0	0	0
Mar	-1.3	0.0	0.0	30.6	0.0	72.1	72.1		332.0	0.0	0.0	0.0	3.3	0.0	3.3	1	0	0	0
Apr	5.9	1.3	0.9	33.6	30.2	78.3	48.1		75.0	0.0	30.2	48.1	25.2	25.7	50.9	18	0	0	0
May	12.3	3.9	2.0	37.8	75.6	79.9	4.3		75.0	0.0	75.6	4.3	14.8	115.7	130.4	46	0	0	0
Jun	16.9	6.3	2.8	38.4	107.5	76.0	-31.5	-31.5	48.5	-26.5	102.5	0.0	7.4	57.8	65.2	23	0	0	0
Jul	19.7	8.0	3.3	38.7	127.7	88.5	-39.2	-70.7	28.0	-20.5	109.0	0.0	3.7	28.9	32.6	12	0	0	0
Aug	18.6	7.3	3.1	36.0	111.6	95.9	-15.7	-86.4	23.5	-4.5	100.4	0.0	1.8	14.5	16.3	6	0	0	0
Sep	14.1	4.8	2.3	31.2	71.8	92.1	20.3		43.8	20.3	71.8	0.0	0.9	7.3	8.2	3	0	0	0
Oct	7.9	2.0	1.3	28.5	37.1	69.2	32.2		75.0	31.2	37.1	1.0	1.0	4.0	5.0	2	0	0	0
Nov	2.4	0.3	0.4	24.3	9.7	86.3	76.6		75.0	0.0	9.7	76.6	38.8	2.1	40.9	15	0	0	0
Dec	-4.0	0.0	0.0	23.1	0.0	77.7	77.7		152.7	0.0	0.0	0.0	19.4	1.0	20.4	7	0	0	0
Total		33.9				923.2	352.0				536.3	129.9	130.8	257.0	387.8	286	0	1	0
																	Total Recharg	e	1

Notes: Precipitation and Temperature data from Environment Canada Climate Normals 1971-2000 for the Guelph Arboretum

Monthly water balance strategy as outlined in the document Instructions and Tables for Computing Potential Evapotranspiration and the Water Balance (Thornthwaite and Mather, 1957)

302-306 Edinburgh Road South City of Guelph Table 4 - Post-Development Condition Monthly Water Balance Catchment 201 Project No: 2408455

302-306 Edinburgh Road South City of Guelph Table 7 - Monthly Water Balance Summary Project No: 2408455

	Existing	Recharge Volu	ume (m ³)	Propos	ed Recharge Volu	Total				
Month	Catchment 101	Catchment 102	Catchment 103	Catchment 201	Catchment 202	Catchment 202	Required Recharge Volume		harge Volume	
							(m ³)	(m ³)	(%)	
Jan	16	1	2	5	41	0	18	46	258%	
Feb	8	0	1	2	21	0	9	23	258%	
Mar	4	0	1	1	11	0	5	12	242%	
Apr	72	4	8	21	187	0	84	208	248%	
May	185	11	20	54	485	0	217	539	249%	
Jun	109	5	10	33	294	0	125	327	261%	
Jul	73	3	5	23	201	0	80	225	279%	
Aug	53	1	3	18	151	0	57	169	298%	
Sep	38	1	1	13	111	0	40	125	311%	
Oct	26	0	1	9	77	0	27	86	314%	
Nov	65	3	6	19	173	0	75	192	258%	
Dec	32	2	3	10	86	0	37	37 96		
Total	681	33	60	209	1,838	1	774	2,048	265%	