



APPENDIX E

STORM SEWER CALCULATION SHEET (RATIONAL METHOD)



Local Roads Return Frequency = 2 years
 Collector Roads Return Frequency = 5 years
 Arterial Roads Return Frequency = 10 years

Manning 0.013

Location	From Node	To Node	AREA (Ha)												FLOW						SEWER DATA												
			2 YEAR				5 YEAR				10 YEAR				100 YEAR				Time of	Intensity	Intensity	Intensity	Intensity	Peak Flow	DIA. (mm)	DIA. (mm)	TYPE	SLOPE	LENGTH	CAPACITY	VELOCITY	TIME OF	RATIO
			AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	Conc. (min)	2 Year (mm/h)	5 Year (mm/h)	10 Year (mm/h)	100 Year (mm/h)	Q (l/s)	(actual)	(nominal)	(%)	(m)	(l/s)	(m/s)	LOW (min)	Q/Q full	
STREET 3																																	
	119	120	0.28	0.70	0.54	0.54					0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	42	300	300	PVC	0.45	34.0	64.8688	0.9177	0.6175	0.645		
	120	121	0.10	0.70	0.19	0.74					0.00	0.00			0.00	0.00	10.62	74.51	101.04	118.43	173.10	55	300	300	PVC	0.45	12.5	64.8688	0.9177	0.2270	0.849		
	121	122	0.86	0.70	1.67	2.41					0.00	0.00			0.00	0.00	10.84	73.71	99.93	117.13	171.19	178	525	525	CONC	0.25	105.5	215.0311	0.9933	1.7701	0.827		
	122	126	0.86	0.70	1.67	4.09					0.00	0.00			0.00	0.00	12.61	68.04	92.15	107.96	157.73	278	525	525	CONC	1.55	108.5	535.4232	2.4734	0.7311	0.519		
Contribution From FRANK BENDER STREET, Pipe 124 - 126						1.30						0.00				0.00	11.64																
Contribution From FRANK BENDER STREET, Pipe 125 - 126						0.68						0.00				0.00	10.88																
	126	128	0.49	0.70	0.95	7.03					0.00	0.00			0.00	0.00	13.35	65.97	89.31	104.62	152.83	463	900	900	CONC	0.10	57.0	572.4707	0.8999	1.0557	0.810		
	128	130	0.71	0.70	1.38	8.41					0.00	0.00			0.00	0.00	14.40	63.22	85.54	100.19	146.32	531	975	975	CONC	0.10	86.5	708.6833	0.9492	1.5188	0.750		
	130	131	0.24	0.70	0.47	8.87					0.00	0.00			0.00	0.00	15.92	59.68	80.70	94.49	137.96	530	975	975	CONC	0.10	29.0	708.6833	0.9492	0.5092	0.747		
	131	132	0.11	0.70	0.21	9.09					0.00	0.00			0.00	0.00	16.43	58.59	79.21	92.74	135.39	532	975	975	CONC	0.10	13.5	708.6833	0.9492	0.2370	0.751		
To STREET 4, Pipe 132 - 134						9.09						0.00				0.00	16.67																
FERN CASEY STREET																																	
Contribution From JARGEAU ROAD, Pipe 49 - 51						0.00						2.49				0.00	12.29																
Contribution From JARGEAU ROAD, Pipe 50 - 51						0.00						1.63				0.00	10.51																
	51	55			0.00	0.00	0.38	0.70	0.74	4.86					0.00	0.00	12.29	69.01	93.49	109.53	160.04	454	900	900	CONC	0.10	83.0	572.4707	0.8999	1.5373	0.793		
	55	61	2.52	0.70	4.90	4.90				0.00	5.58				0.00	0.00	13.82	64.69	87.56	102.56	149.80	805	975	975	CONC	0.25	79.0	1120.5266	1.5008	0.8773	0.719		
	61	62			0.00	4.90	0.38	0.70	0.74	6.32					0.00	0.00	14.70	62.48	84.53	99.00	144.58	840	975	975	CONC	0.25	82.5	1120.5266	1.5008	0.9162	0.750		
	62	66			0.00	4.90	0.37	0.70	0.72	7.04					0.00	0.00	15.62	60.35	81.61	95.56	139.54	870	1050	1050	CONC	0.90	84.0	2590.5934	2.9918	0.4679	0.336		
To FRANK BENDER STREET, Pipe 66 - 67						4.90				7.04						0.00	16.09																
STREET 5																																	
Contribution From JARGEAU ROAD, Pipe 23 - 24						0.00						1.53				0.00	11.12																
	24	25	0.58	0.70	1.13	1.13				0.00	1.53				0.00	0.00	11.12	72.75	98.61	115.57	168.90	1439	1200	1200	CONC	0.65	45.0	3143.2568	2.7792	0.2699	0.532		
			1.05	0.70	2.04	3.17				0.00	1.53				0.00	0.00																	
	25	27			0.00	3.17	2.04	0.70	3.97	5.50					0.00	0.00	11.39	71.84	97.37	114.10	166.75	2203	1350	1350	CONC	0.35	81.5	3157.6496	2.2060	0.6157	0.698		
	27	29	0.59	0.70	1.15	4.32				0.00	5.50				0.00	0.00	12.01	69.87	94.66	110.91	162.07	2262	1350	1350	CONC	0.35	45.5	3157.6496	2.2060	0.3438	0.716		
	29	35	1.02	0.70	1.98	6.31				0.00	5.50				0.00	0.00	12.35	68.82	93.22	109.22	159.58	2386	1350	1350	CONC	0.40	79.0	3375.6694	2.3583	0.5583	0.707		
	35	36	1.06	0.70	2.06	8.37				0.00	5.50				0.00	0.00	12.91	67.18	90.98	106.58	155.71	2502	1500	1500	CONC	0.55	85.5	5242.4131	2.9666	0.4803	0.477		
To FRANK BENDER STREET, Pipe 36 - 37						8.37				5.50						0.00	13.39																
FRANK BENDER STREET																																	
To STREET 3, Pipe 126 - 128						0.35	0.70	0.68	0.68			0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	52	450	450	CONC	0.20	42.5	127.5033	0.8017	0.8835	0.410	
	123	124	0.50	0.70	0.97	0.97				0.00	0.00				0.00	0.00	10.00	76.81	104.19	122.14	178.56	75	375	375	PVC	0.30	51.5	96.0323	0.8695	0.9872	0.778		
	124	126	0.17	0.70	0.33	1.30				0.00	0.00				0.00	0.00	10.99	73.21	99.25	116.32	170.01	95	450	450	CONC	0.20	31.5	127.5033	0.8017	0.6549	0.749		
To STREET 3, Pipe 126 - 128						1.30				0.00						0.00	11.64																
	9	10			0.00	0.00	0.19	0.70	0.37	0.37					0.00	0.00	10.00	76.81	104.19	122.14	178.56	39	300	300	PVC	0.35	45.5	57.2089	0.8093	0.9370	0.673		
	10	11			0.00	0.00	0.44	0.70	0.86	1.23					0.00	0.00	10.94	73.39	99.49	116.60	170.42	122	375	375	PVC	0.95	103.0	170.8907	1.5473	1.1095	0.714		
					0.00	0.00			0.00	1.23					0.00	0.00																	
					0.00	0.00			0.00	1.23					0.00	0.00																	
					0.00	0.00			0.00	1.23					0.00	0.00	0.09	0.40															
	11	13			0.00	0.00	0.37	0.70	0.72	1.95					0.00	0.10	12.05	69.75	94.50	110.72	161.79	519	600	600	CONC	2.75	87.5	1018.2230	3.6012	0.4050	0.510		
Contribution From JARGEAU ROAD, Pipe 12 - 13						0.00				0.29					0.00	0.00	10.24																
Contribution From JARGEAU ROAD, Pipe 8 - 13						40.81				2.72					0.00	0.00	15.39																
	13	14			0.00	40.81	0.19	0.70	0.37	5.33					0.00	0.10	15.39	60.85	82.31	96.38	140.74	3682	2250	2250	CONC	0.10	42.0	6590.6247	1.6576	0.4223	0.559		
	14	15			0.00	40.81	0.39	0.70	0.76	6.09					0.00	0.10	15.82	59.91	81.01	94.86	138.50	3691	2250	2250	CONC	0.10	94.5	6590.6247	1.6576	0.9502	0.560		
	15	17			0.00	40.81	0.39	0.70	0.76	6.85					0.00	0.10	16.77	57.89	78.25	91.62	133.75	3637	2250	2250	CONC	0.10	94.5	6590.6247	1.6576	0.9502	0.552		
	17	18			0.00	40.81	0.32	0.70	0.62	7.47					0.00	0.10	17.72	56.02	75.70	88.61	129.34	3576	2250	2250	CONC	0.10	76.0	6590.6247	1.6576	0.7642	0.543		
					0.00	40.81	0.32	0.70	0.62	8.10					0.00	0.10																	
	18	19			0.00	40.81	3.87	0.40	4.30	12.40					0.00																		

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Manning 0.013

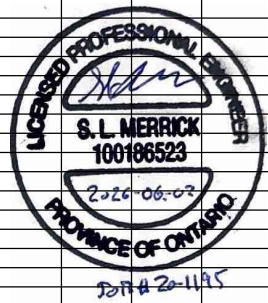
LOCATION			AREA (Ha)												FLOW						SEWER DATA																
Location	From Node	To Node	2 YEAR		5 YEAR				10 YEAR				100 YEAR				Time of Conc. (min)	Intensity 2 Year (mm/h)	Intensity 5 Year (mm/h)	Intensity 10 Year (mm/h)	Intensity 100 Year (mm/h)	Peak Flow Q (l/s)	DIA. (mm) (actual)	DIA. (mm) (nominal)	TYPE	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME OF LOW (min)	RATIO Q/Q full						
			AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R																Indiv. 2.78 AC	Accum. 2.78 AC				
	21	36			0.00	40.81	0.42	0.70	0.82	14.13			0.00	4.43							20.41	51.38	69.36	81.17	118.42	3767	2250	2250	CONC	0.10	100.0	6590.6247	1.6576	1.0055	0.572		
Contribution From STREET 5, Pipe 35 - 36						8.37				5.50			0.00	0.00							13.39				1439												
	36	37			0.00	49.18	0.30	0.70	0.58	20.22			0.00	4.43							21.42	49.86	67.29	78.73	114.85	5931	2400	2400	CONC	0.10	69.0	7828.3430	1.7304	0.6646	0.758		
	37	46			0.00	49.18	0.30	0.70	0.58	20.80			0.00	4.43							22.08	48.91	65.99	77.21	112.62	5889	2400	2400	CONC	0.10	72.0	7828.3430	1.7304	0.6935	0.752		
	46	47			0.00	49.18	0.12	0.70	0.23	21.04			0.00	4.43							22.77	47.96	64.70	75.69	110.39	5824	2400	2400	CONC	0.10	28.0	7828.3430	1.7304	0.2697	0.744		
					0.00	49.18	0.28	0.70	0.54	21.58			0.00	4.43							0.00	0.10															
	47	66			0.00	49.18	3.00	0.80	6.67	28.25			0.00	4.43							23.04	47.60	64.21	75.11	109.55	6257	2400	2400	CONC	0.10	66.5	7828.3430	1.7304	0.6405	0.799		
Contribution From FERN CASEY STREET, Pipe 62 - 66						4.90				7.04			0.00	0.00							16.09																
					0.36	0.70	0.70			54.78			0.00	35.29							0.00	0.10															
	66	67			2.34	0.70	4.55			59.34			0.00	35.29							23.68	46.77	63.08	73.79	107.60	7097	2400	2400	CONC	0.10	65.0	7828.3430	1.7304	0.6260	0.907		
	67	76			0.04	0.70	0.08			59.41			0.00	35.29							24.31	45.99	62.02	72.54	105.78	7011	2700	2700	CONC	0.10	32.5	10717.0825	1.8718	0.2894	0.654		
					0.25	0.70	0.49			59.90			0.00	35.29							0.00	0.10															
	76	77			1.58	0.70	3.07			62.98			0.00	35.29							24.60	45.64	61.54	71.98	104.96	7133	2700	2700	CONC	0.10	60.5	10717.0825	1.8718	0.5387	0.666		
	77	110			0.30	0.70	0.58			63.56			0.00	35.29							25.14	45.01	60.68	70.97	103.47	7084	2700	2700	CONC	0.10	69.0	10717.0825	1.8718	0.6144	0.661		
To STREET 4, Pipe 110 - 111						63.56				35.29			0.00	4.43							25.75					1758											
JARGEAU ROAD																																					
	12	13			0.00	0.00	0.15	0.70	0.29	0.29			0.00	0.00							10.00	76.81	104.19	122.14	178.56	30	300	300	PVC	4.00	39.0	193.4015	2.7361	0.2376	0.157		
To FRANK BENDER STREET, Pipe 13 - 14						0.00				0.29			0.00	0.00							10.24																
					0.00	0.00	0.15	0.70	0.29	0.29			0.00	0.00																							
	50	51			0.00	0.00	1.20	0.40	1.33	1.63			0.00	0.00							10.00	76.81	104.19	122.14	178.56	169	525	525	CONC	0.30	33.0	235.5548	1.0881	0.5055	0.719		
To FERN CASEY STREET, Pipe 51 - 55						0.00				1.63			0.00	0.00							10.51																
					0.00	0.00	0.40	0.40	0.44	0.44			0.00	0.00	0.00	0.00					10.00	76.81	104.19	122.14	178.56	1439	Constant Flow - 9.21 Ha of Innes Park Woods draining south										
	22	23			0.00	0.00	0.56	0.70	1.09	1.53			0.00	0.00							10.47	75.03	101.76	119.27	174.34	1595	1200	1200	CONC	0.40	85.0	2465.7735	2.1802	0.6498	0.647		
To STREET 5, Pipe 24 - 25						0.00				1.53			0.00	0.00							11.12					1439											
	48	49			0.00	0.00	0.41	0.70	0.80	0.80			0.00	0.00							10.00	76.81	104.19	122.14	178.56	83	375	375	PVC	0.65	88.0	141.3557	1.2799	1.1460	0.588		
	49	51			0.00	0.00	0.87	0.70	1.69	2.49			0.00	0.00							11.15	72.67	98.51	115.44	168.72	245	600	600	CONC	0.35	88.0	363.2541	1.2847	1.1416	0.675		
To FERN CASEY STREET, Pipe 51 - 55						0.00				2.49			0.00	0.00							12.29																
					0.00	0.00	0.55	0.70	1.07	1.07			0.00	0.00																							
	95	96			0.00	0.00	1.98	0.80	4.40	5.47			0.00	0.00							10.00	76.81	104.19	122.14	178.56	570	975	975	CONC	0.20	106.0	1002.2295	1.3424	1.3161	0.569		
To STREET 5, Pipe 95 - 96						0.00				5.47			0.00	0.00							11.12					806	Constant Flow - 85 L/s/Ha Area North-West of Innes Park Woods										
					0.00	0.00	0.59	0.70	1.15	6.62			0.00	0.00							11.32	72.10	97.72	114.52	167.36	2065	1500	1500	CONC	0.20	81.0	3161.2940	1.7889	0.7546	0.653		
To STREET 4, Pipe 99 - 100						0.00				6.62			0.00	0.00							12.07					1115	Constant Flow - 2.22 Ha Area West Innes Park Woods										
					0.00	0.00	0.13	0.70	0.25	0.25			0.00	0.00																							
	97	98			3.44	0.70	3.44			0.25			0.00	0.00							10.00	76.81	104.19	122.14	178.56	291	675	675	CONC	0.35	41.5	497.2987	1.3897	0.4977	0.585		
	98	99			0.00	3.44	0.16	0.70	0.31	0.56			0.00	0.00							10.50	74.95	101.64	119.13	174.13	315	825	825	CONC	0.15	77.0	555.9418	1.0400	1.2340	0.568		
To STREET 4, Pipe 99 - 100						3.44				0.56			0.00	0.00							11.73																
					0.00	0.00	1.62	0.80	3.60	3.60			0.00	0.00																							
	1	2			0.00	3.60	0.00	0.29	0.29	3.60			0.00	0.00																							
					0.00	3.60	0.00	0.29	0.29	3.60	1.77	0.90	4.43	4.43																							
	2	3			0.00	8.74	0.15	0.70	0.29	0.58			0.00	4.43							10.00	76.81	104.19	122.14	178.56	1243	1200	1200	CONC	0.20	65.5	1743.5652	1.5417	0.7081	0.713		
					0.00	8.74	0.15	0.70	0.29	0.58			0.00	4.43							0.00	0.00															
	2	3			5.82	0.80	12.94	21.68	0.00	0.58			0.00	4.43							10.71	74.19	100.60	117.90	172.33	2190	1500	1500	CONC	0.20	65.5	3161.2940	1.7889	0.6102	0.693		
	3	4			0.00	21.68	0.13	0.70	0.25	0.84			0.00	4.43																							

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Manning 0.013

LOCATION			AREA (Ha)																FLOW						SEWER DATA																		
			2 YEAR				5 YEAR				10 YEAR				100 YEAR				Time of Conc.	Intensity 2 Year	Intensity 5 Year	Intensity 10 Year	Intensity 100 Year	Peak Flow	DIA. (mm) (actual)	DIA. (mm) (nominal)	TYPE	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME OF LOW (min)	RATIO Q/Q full										
Location	From Node	To Node	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	(min)	(mm/h)	(mm/h)	(mm/h)	(mm/h)	Q (l/s)			(%)	(m)	(l/s)	(m/s)	LOW (min)	Q/Q full											
					0.00	24.31	0.20	0.70	0.39	1.79			0.00	4.43			0.00	0.00																									
	6	7	4.66	0.80	10.36	34.67	0.24	0.70	0.47	2.26			0.00	4.43			0.00	0.00	12.97	67.02	90.76	106.32	155.33	2957	1650	1650	CONC	0.20	83.5	4076.1052	1.9063	0.7300	0.725										
					0.00	34.67			0.00	2.26			0.00	4.43			0.00	0.00																									
	7	8	2.76	0.80	6.14	40.81	0.24	0.70	0.00	2.26			0.00	4.43			0.00	0.00	13.70	65.02	88.02	103.10	150.59	3309	1650	1650	CONC	0.20	101.5	4076.1052	1.9063	0.8874	0.812										
					0.00	40.81			0.00	2.26			0.00	4.43			0.00	0.00	14.58	62.76	84.92	99.46	145.25	3233	1800	1800	CONC	0.20	98.0	5140.6126	2.0201	0.8085	0.629										
To FRANK BENDER STREET, Pipe 13 - 14						40.81				2.72				4.43				0.00	15.39																								
STREET 4																																											
			2.53	0.70	4.92	4.92			0.00	0.00			0.00	0.00			0.00	0.00																									
	94	99			0.00	4.92	6.47	0.90	16.19	16.19			0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	2065	1650	1650	CONC	0.30	100.5	4992.1889	2.3347	0.7174	0.414										
Contribution From JARGEAU ROAD, Pipe 96 - 99						4.20				6.62			0.00	0.00				0.00	12.07																								
Contribution From JARGEAU ROAD, Pipe 98 - 99						3.44				0.56			0.00	0.00				0.00	11.73																								
	99	100			0.00	12.57	1.38	0.70	2.69	26.06			0.00	0.00			0.00	0.00	12.07	69.67	94.39	110.60	161.61	4451	1950	1950	CONC	0.30	81.0	7793.9831	2.6098	0.5173	0.571										
	100	106	1.94	0.70	3.78	16.35			0.00	26.06			0.00	0.00			0.00	0.00	12.59	68.12	92.26	108.09	157.92	4633	1950	1950	CONC	0.20	81.0	6363.7605	2.1309	0.6335	0.728										
	106	108	0.94	0.70	1.83	18.18			0.00	26.06			0.00	0.00			0.00	0.00	13.22	66.31	89.78	105.17	153.64	4660	1950	1950	CONC	0.20	79.0	6363.7605	2.1309	0.6179	0.732										
	108	109	0.65	0.70	1.26	19.44			0.00	26.06			0.00	0.00			0.00	0.00	13.84	64.65	87.50	102.49	149.71	4652	1950	1950	CONC	0.20	55.0	6363.7605	2.1309	0.4302	0.731										
	109	110	0.62	0.70	1.21	20.65			0.00	26.06			0.00	0.00			0.00	0.00	14.27	63.55	85.99	100.72	147.10	4668	1950	1950	CONC	0.35	52.0	8418.4639	2.8189	0.3075	0.554										
Contribution From FRANK BENDER STREET, Pipe 77 - 110						63.56				35.29			0.10	25.75				0.10	25.75																								
	110	111	0.20	0.70	0.39	84.60			0.00	61.35			0.00	4.43			0.00	0.10	25.75	44.30	59.72	69.84	101.82	10604	2700	2700	CONC	0.15	45.0	13125.6918	2.2925	0.3272	0.808										
	111	113	0.34	0.70	0.66	85.26			0.00	61.35			0.00	4.43			0.00	0.10	26.08	43.94	59.22	69.26	100.97	10569	2700	2700	CONC	0.15	82.0	13125.6918	2.2925	0.5962	0.805										
			0.28	0.70	0.54	85.80			0.00	61.35			0.00	4.43			0.00	0.10																									
	113	114			0.00	85.80	3.30	0.80	7.34	68.69			0.00	4.43			0.00	0.10	26.68	43.29	58.34	68.23	99.46	10907	2700	2700	CONC	0.15	67.5	13125.6918	2.2925	0.4907	0.831										
	114	115	0.04	0.70	0.08	85.88			0.00	68.69			0.00	4.43			0.00	0.10	27.17	42.78	57.64	67.40	98.25	10814	2700	2700	CONC	0.15	10.0	13125.6918	2.2925	0.0727	0.824										
	115	116	0.30	0.70	0.58	86.46			0.00	68.69			0.00	4.43			0.00	0.10	27.24	42.70	57.54	67.28	98.08	10825	2700	2700	CONC	0.15	71.0	13125.6918	2.2925	0.5162	0.825										
	116	117	0.29	0.70	0.56	87.03			0.00	68.69			0.00	4.43			0.00	0.10	27.76	42.17	56.82	66.44	96.85	10750	2700	2700	CONC	0.15	70.5	13125.6918	2.2925	0.5125	0.819										
	117	118	0.04	0.70	0.08	87.11			0.00	68.69			0.00	4.43			0.00	0.10	28.27	41.67	56.13	65.63	95.66	10658	2700	2700	CONC	0.15	10.0	13125.6918	2.2925	0.0727	0.812										
	118	132	0.11	0.70	0.21	87.32			0.00	68.69			0.00	4.43			0.00	0.10	28.34	41.59	56.04	65.52	95.49	10654	2700	2700	CONC	0.15	27.0	13125.6918	2.2925	0.1963	0.812										
Contribution From STREET 3, Pipe 131 - 132						9.09				0.00				0.00				0.00	16.67																								
	132	134	0.69	0.70	1.34	97.75			0.00	68.69			0.00	4.43			0.00	0.10	28.54	41.40	55.78	65.22	95.05	11050	2700	2700	CONC	0.15	85.0	13125.6918	2.2925	0.6180	0.842										
	134	135	0.59	0.70	1.15	98.90			0.00	68.69			0.00	4.43			0.00	0.10	29.16	40.82	54.98	64.28	93.67	10980	2700	2700	CONC	0.15	72.5	13125.6918	2.2925	0.5271	0.837										
	135	2150			0.00	98.90			0.00	68.69			0.00	4.43			0.00	0.10	29.68	40.33	54.32	63.50	92.54	10883	2700	2700	CONC	0.15	50.0	13125.6918	2.2925	0.3635	0.829										
	2150	HW1			0.00	98.90			0.00	68.69			0.00	4.43			0.00	0.10	30.05	40.00	53.87	62.98	91.77	10818	2700	2700	CONC	0.15	19.5	13125.6918	2.2925	0.1418	0.824										
STREET 1																																											
Constant flow from existing subdivision. Novatech design sheet C1-118224-STM 20220202																	0.00	0.00			17.22																						
	2121	2142	1.22	0.70	2.37	2.37			0.00	0.00			0.00	0.00			0.00	0.00	17.22	56.98	77.01	90.15	131.60	2441	1650	1650	CONC	0.10	83.5	2882.2416	1.3479	1.0324	0.847										



Definitions:
 Q = 2.78 AIR, where
 Q = Peak Flow in Litres per second (L/s)
 A = Areas in hectares (ha)
 I = Rainfall Intensity (mm/h)
 R = Runoff Coefficient

Notes:
 1) Ottawa Rainfall-Intensity Curve
 2) Min. Velocity = 0.80 m/s

Designed: CB PROJECT: TRAILSEDGE PHASE 5
 Checked: SLM LOCATION: City of Ottawa
 Dwg. Reference: 2 File Ref: 20-1195 Date: 2026-06-02 Sheet No. SHEET 4 OF 3

Swale Location	Area (ha)	C (-)	Indiv AxC	Acc AxC	100 Year Event			Ditch Data													
					T _c (min)	I (mm/hr)	Q (L/s)	min. depth (mm)	Side Slope (X:1)	Bot. Width (m)	Mannings n	Slope (%)	Length (m)	A _{flow} (m ²)	Wet. Per. (m)	R (m)	Velocity (m/s)	Qcap (L/s)	Time Flow (min)	Q / Q full (-)	
Cut-Off Swale 1																					
Parkette - Block 418 *	1.20	0.40	0.48	0.48	10.0	178.6	238														
Open Space - Block 300*	0.40	0.40	0.16	0.16	10.0	178.6	79														
Woodlot area getting into swale 1	9.21	0.40	3.68	3.68	15.4	140.5	1439														
Combined Swale 1					Q Sum	1756		1050	3	0	0.03	0.20	370	3.308	6.641	0.50	0.94	3,098.0	6.6	0.57	
Cut-Off Swale 2																					
Open Space Jargeau at Frank Bender*	0.09	0.40	0.04	0.04	10.0	178.6	18														
Woodlot area getting into swale 2	0.51	0.40	0.20	0.20	20.0	120.0	68														
Combined Swale 2					Q Sum	86		450	3	0	0.03	0.20	47	0.608	2.846	0.21	0.53	323.5	1.5	0.27	
Cut-Off Swale 3																					
Woodlot East of Frank Bender	1.88	0.40	0.75	0.75	20.0	120.0	251	550	3	0	0.03	0.20	246	0.908	3.479	0.26	0.61	552.3	6.7	0.45	
Cut-Off Swale 4																					
West of Innes Park Woods	2.22	0.40	0.89	0.89	18.7	125.3	309	790	3	0	0.03	0.20	146	1.872	4.996	0.37	0.77	1,450.7	3.1	0.21	

*Sizing contingency in the event that this area is required to drain toward the ditch.

Project Name: Trails Edge
 Project Number: 1195
 Designed By: JC
 Checked By: JP
 Date: 03-Feb-26



HGL Preliminary Analysis Based on Rational Method Flow

Name	Invert Elev. (m)	Rim Elev. (m)	Max. HGL (m)	Clearance: Rim-HGL (m)	Baseline (L/s)
1	86.518	91.19	88.05	3.14	1678
10	89.249	92.721	89.54	3.18	113
100	83.252	88.598	86.2	2.40	247
106	83.08	88.477	86.04	2.44	35
108	82.892	88.358	85.88	2.48	-12
109	81.939	88.277	85.77	2.51	21
11	88.045	92.566	88.42	4.15	536
110	81.381	87.949	85.67	2.28	-1597
111	81.303	87.881	85.59	2.29	-47
113	81.17	87.758	85.45	2.31	456
114	81.039	87.656	85.19	2.47	-126
115	80.994	87.641	85.04	2.60	15
116	80.877	88.374	84.91	3.46	-101
117	80.741	88.189	84.65	3.54	-125
118	80.696	88.173	84.51	3.66	-6
119	85.434	89.38	85.66	3.72	56
12	86.115	91.429	86.85	4.58	41
120	85.251	88.789	85.53	3.26	18
121	84.924	88.669	85.4	3.27	166
122	84.639	88.512	85.04	3.47	135
123	83.366	87.977	84.57	3.41	101
124	83.136	88.053	84.4	3.65	28
125	83.106	87.74	84.33	3.41	71
126	82.571	88.109	84.29	3.82	51
128	82.439	88.093	84.23	3.86	92
13	83.579	90.122	86.75	3.37	-136
130	82.342	88.217	84.14	4.08	-3
131	82.283	88.178	84.11	4.07	4
132	80.595	88.145	84.03	4.11	-184
134	80.437	87.765	83.87	3.90	-94
135	80.298	87.84	83.59	4.25	-131
14	83.507	90.055	86.73	3.33	12
15	83.402	89.729	86.68	3.05	-74
17	83.297	89.39	86.62	2.77	-82
18	83.211	89.117	86.58	2.54	380
19	83.103	88.959	86.5	2.46	-110
2	86.055	91.048	87.93	3.12	1278
20	83.058	88.941	86.46	2.48	57

HGL Preliminary Analysis Based on Rational Method Flow

Name	Invert Elev. (m)	Rim Elev. (m)	Max. HGL (m)	Clearance: Rim-HGL (m)	Baseline (L/s)
21	82.948	88.793	86.4	2.39	-68
2121	80.75	87.393	83	4.39	246
2150	80.163	87.84	83.37	4.47	-88
22	87.493	91.994	88.59	3.40	2005
23	86.578	90.817	88.13	2.69	148
24	86.214	90.453	87.62	2.83	104
25	85.273	90.122	87.47	2.65	716
27	84.958	89.448	87.22	2.23	80
29	84.789	89.379	87.07	2.31	168
3	85.867	90.861	87.81	3.05	-51
35	83.225	89.046	86.78	2.27	157
36	82.305	88.64	86.34	2.30	-457
37	82.226	88.54	86.27	2.27	-56
4	85.702	90.734	87.72	3.01	-34
46	82.144	88.432	86.19	2.24	-88
47	82.086	88.39	86.16	2.23	584
48	86.501	90.368	87.57	2.80	112
49	85.691	89.316	87.21	2.11	219
5	85.497	90.649	87.63	3.02	219
50	85.605	89.131	87.03	2.10	229
51	84.951	89.054	86.86	2.19	53
55	84.76	88.93	86.76	2.17	474
6	85.138	90.546	87.5	3.05	901
61	84.552	88.811	86.58	2.23	47
62	83.42	88.558	86.37	2.19	40
66	81.989	88.29	86.09	2.20	-40
67	81.624	88.193	85.99	2.20	-116
7	84.909	90.421	87.34	3.08	475
76	81.561	88.144	85.96	2.18	165
77	81.47	88.053	85.91	2.14	-66
8	84.508	90.269	87.09	3.18	-102
9	89.488	92.75	89.71	3.04	52
94	83.933	88.87	86.44	2.43	2787
95	85.13	89.128	86.77	2.36	770
96	84.378	88.893	86.65	2.24	2018
97	85.289	89.678	86.55	3.13	393
98	84.994	88.835	86.46	2.38	33
99	83.505	88.719	86.35	2.37	57

Project Name: Trails Edge
 Project Number: 1195
 Designed By: AL
 Checked By: JP
 Date: 27-Jan-26



Estimated Storage Volumes for Multi-Residential, Employment, and Park Blocks

Block ID	Total Contributing Area (ha)	Total area excluding 15m frontage (ha)	RC	Allowable Release Rate (L/s) *	Allowable Release Rate (L/s/ha)	Estimated 100-yr Uncontrolled Flow (L/s)**	Estimated Release Rate less Uncontrolled (L/s)	Total Area Peak Inflow 100-yr (L/s)	100-yr Estimated Storage Volume (m ³) ***	100-yr Estimated Storage Volume (m ³ /ha)
Controlled to 2-year										
414B	5.82	5.09	0.8	994	171	312	682	2510	1444	248
413	2.31	1.89	0.8	395	171	183	212	1010	596	258
External 413	1.62	1.62	0.8	277	171	0	277	730	408	252
412A	2.76	2.29	0.8	471	171	211	260	1240	734	266
414A	4.66	4.18	0.8	796	171	211	585	2070	1189	255
412B	1.18	0.91	0.8	202	171	129	73	560	349	296
Controlled to 5-year										
Future Block (lot 4)	6.47	6.11	0.9	1687	261	174	1513	3110	1347	208
373	1.38	1.05	0.7	280	203	130	150	550	247	179
411	3.87	3.87	0.4	448	116	0	448	720	261	67
301	2.04	1.47	0.7	414	203	215	199	770	336	165
300	0.40	0.40	0.4	46	115	0	46	140	72	179
418	1.20	1.20	0.4	138	115	0	138	280	121	101
294	1.98	1.98	0.7	402	203	0	402	780	351	177
410	3.00	2.22	0.8	695	232	353	342	1350	605	202
409	3.30	2.52	0.8	765	232	344	421	1470	637	193

* This is the total allowable release rate from this site. At the detailed design stage, the sum of minor and major system flow rates from each site should be equal or less than these values.

** Prorated flow based on total area peak runoff. For the purpose of estimating the 100-year storage volume, the first 15 m of each Multi-Residential and Employment block is assumed to drain uncontrolled toward the City right-of-way (ROW).

*** Estimation based on the PCSWMM Graphing Tool - Storage Calculator.

Prelim HGL Analysis PCSWMM Model Output Report - 100yr+35%

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Updated by Justine Craddock
20260203
DSEL

Element Count

Number of rain gages 0
Number of subcatchments ... 0
Number of nodes 78
Number of links 76
Number of pollutants 0
Number of land uses 0

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
1	JUNCTION	86.52	4.67	0.0	Yes
10	JUNCTION	89.25	3.47	0.0	Yes
100	JUNCTION	83.25	5.35	0.0	Yes
106	JUNCTION	83.08	5.40	0.0	Yes
108	JUNCTION	82.89	5.47	0.0	Yes
109	JUNCTION	81.94	6.34	0.0	Yes
11	JUNCTION	88.05	4.52	0.0	Yes
110	JUNCTION	81.38	6.57	0.0	Yes
111	JUNCTION	81.30	6.58	0.0	Yes
113	JUNCTION	81.17	6.59	0.0	Yes
114	JUNCTION	81.04	6.62	0.0	Yes
115	JUNCTION	80.99	6.65	0.0	Yes
116	JUNCTION	80.88	7.50	0.0	Yes
117	JUNCTION	80.74	7.45	0.0	Yes
118	JUNCTION	80.70	7.48	0.0	Yes
119	JUNCTION	85.43	3.95	0.0	Yes
12	JUNCTION	86.12	5.31	0.0	Yes
120	JUNCTION	85.25	3.54	0.0	Yes
121	JUNCTION	84.92	3.75	0.0	Yes
122	JUNCTION	84.64	3.87	0.0	Yes
123	JUNCTION	83.37	4.61	0.0	Yes
124	JUNCTION	83.14	4.92	0.0	Yes
125	JUNCTION	83.11	4.63	0.0	Yes
126	JUNCTION	82.57	5.54	0.0	Yes
128	JUNCTION	82.44	5.65	0.0	Yes
13	JUNCTION	83.58	6.54	0.0	Yes
130	JUNCTION	82.34	5.88	0.0	Yes
131	JUNCTION	82.28	5.89	0.0	Yes
132	JUNCTION	80.59	7.55	0.0	Yes
134	JUNCTION	80.44	7.33	0.0	Yes
135	JUNCTION	80.30	7.54	0.0	Yes
14	JUNCTION	83.51	6.55	0.0	Yes

15	JUNCTION	83.40	6.33	0.0	Yes
17	JUNCTION	83.30	6.09	0.0	Yes
18	JUNCTION	83.21	5.91	0.0	Yes
19	JUNCTION	83.10	5.86	0.0	Yes
2	JUNCTION	86.05	4.99	0.0	Yes
20	JUNCTION	83.06	5.88	0.0	Yes
21	JUNCTION	82.95	5.84	0.0	Yes
2121	JUNCTION	80.75	6.64	0.0	Yes
2150	JUNCTION	80.16	7.68	0.0	Yes
22	JUNCTION	87.49	4.50	0.0	Yes
23	JUNCTION	86.58	4.24	0.0	Yes
24	JUNCTION	86.21	4.24	0.0	Yes
25	JUNCTION	85.27	4.85	0.0	Yes
27	JUNCTION	84.96	4.49	0.0	Yes
29	JUNCTION	84.79	4.59	0.0	Yes
3	JUNCTION	85.87	4.99	0.0	Yes
35	JUNCTION	83.22	5.82	0.0	Yes
36	JUNCTION	82.31	6.33	0.0	Yes
37	JUNCTION	82.23	6.31	0.0	Yes
4	JUNCTION	85.70	5.03	0.0	Yes
46	JUNCTION	82.14	6.29	0.0	Yes
47	JUNCTION	82.09	6.30	0.0	Yes
48	JUNCTION	86.50	3.87	0.0	Yes
49	JUNCTION	85.69	3.62	0.0	Yes
5	JUNCTION	85.50	5.15	0.0	Yes
50	JUNCTION	85.61	3.53	0.0	Yes
51	JUNCTION	84.95	4.10	0.0	Yes
55	JUNCTION	84.76	4.17	0.0	Yes
6	JUNCTION	85.14	5.41	0.0	Yes
61	JUNCTION	84.55	4.26	0.0	Yes
62	JUNCTION	83.42	5.14	0.0	Yes
66	JUNCTION	81.99	6.30	0.0	Yes
67	JUNCTION	81.62	6.57	0.0	Yes
7	JUNCTION	84.91	5.51	0.0	Yes
76	JUNCTION	81.56	6.58	0.0	Yes
77	JUNCTION	81.47	6.58	0.0	Yes
8	JUNCTION	84.51	5.76	0.0	Yes
89	JUNCTION	89.49	3.26	0.0	Yes
94	JUNCTION	83.93	4.94	0.0	Yes
95	JUNCTION	85.13	4.00	0.0	Yes
96	JUNCTION	84.38	4.51	0.0	Yes
97	JUNCTION	85.29	4.39	0.0	Yes
98	JUNCTION	84.99	3.84	0.0	Yes
99	JUNCTION	83.50	5.21	0.0	Yes
2142	OUTFALL	80.63	1.65	0.0	
HW1	OUTFALL	79.00	3.83	0.0	

Link Summary

Name	Slope	Roughness	From Node	To Node	Type	Length	%
STM-100-106	0.2000	0.0130	100	106	CONDUIT	81.0	

STM-10-11	10	11	CONDUIT	103.0	
0.9505 0.0130					
STM-106-108	106	108	CONDUIT	79.0	
0.2000 0.0130					
STM-108-109	108	109	CONDUIT	55.0	
0.2000 0.0130					
STM-109-110	109	110	CONDUIT	52.0	
0.3500 0.0130					
STM-110-111	110	111	CONDUIT	45.0	
0.1511 0.0130					
STM-111-113	111	113	CONDUIT	82.0	
0.1500 0.0130					
STM-11-13	11	13	CONDUIT	87.5	
2.7530 0.0130					
STM-113-114	113	114	CONDUIT	67.5	
0.1496 0.0130					
STM-114-115	114	115	CONDUIT	10.0	
0.1500 0.0130					
STM-115-116	115	116	CONDUIT	71.0	
0.1507 0.0130					
STM-116-117	116	117	CONDUIT	70.5	
0.1504 0.0130					
STM-117-118	117	118	CONDUIT	10.0	
0.1500 0.0130					
STM-118-132	118	132	CONDUIT	27.0	
0.1519 0.0130					
STM-119-120	119	120	CONDUIT	34.0	
0.4500 0.0130					
STM-1-2	1	2	CONDUIT	65.5	
0.2000 0.0130					
STM-120-121	120	121	CONDUIT	12.5	
0.4480 0.0130					
STM-121-122	121	122	CONDUIT	105.5	
0.2502 0.0130					
STM-12-13	12	13	CONDUIT	39.0	
4.0032 0.0130					
STM-122-126	122	126	CONDUIT	108.5	
1.5504 0.0130					
STM-123-124	123	124	CONDUIT	51.5	
0.3010 0.0130					
STM-124-126	124	126	CONDUIT	31.5	
0.2000 0.0130					
STM-125-126	125	126	CONDUIT	42.5	
0.2000 0.0130					
STM-126-128	126	128	CONDUIT	57.0	
0.1000 0.0130					
STM-128-130	128	130	CONDUIT	86.5	
0.1006 0.0130					
STM-130-131	130	131	CONDUIT	29.0	
0.1000 0.0130					
STM-131-132	131	132	CONDUIT	13.5	
0.1037 0.0130					
STM-13-14	13	14	CONDUIT	42.0	
0.1000 0.0130					
STM-132-134	132	134	CONDUIT	85.0	
0.1506 0.0130					
STM-134-135	134	135	CONDUIT	72.5	
0.1503 0.0130					
STM-135-2150	135	2150	CONDUIT	50.0	
0.1500 0.0130					

STM-14-15	14	15	CONDUIT	94.5	
0.1005 0.0130					
STM-15-17	15	17	CONDUIT	94.5	
0.1005 0.0130					
STM-17-18	17	18	CONDUIT	76.0	
0.1000 0.0130					
STM-18-19	18	19	CONDUIT	77.5	
0.1006 0.0130					
STM-19-20	19	20	CONDUIT	15.0	
0.1000 0.0130					
STM-20-21	20	21	CONDUIT	99.5	
0.1005 0.0130					
STM-2121-2142	2121	2142	CONDUIT	83.5	
0.1437 0.0130					
STM-21-36	21	36	CONDUIT	100.0	
0.1000 0.0130					
STM-2150-HW1	2150	HW1	CONDUIT	19.5	
0.1487 0.0130					
STM-22-23	22	23	CONDUIT	85.0	
0.9000 0.0130					
STM-2-3	2	3	CONDUIT	65.5	
0.2000 0.0130					
STM-23-24	23	24	CONDUIT	85.0	
0.4000 0.0130					
STM-24-25	24	25	CONDUIT	45.0	
0.6511 0.0130					
STM-25-27	25	27	CONDUIT	81.5	
0.3497 0.0130					
STM-27-29	27	29	CONDUIT	45.5	
0.3495 0.0130					
STM-29-35	29	35	CONDUIT	79.0	
0.4000 0.0130					
STM-3-4	3	4	CONDUIT	54.0	
0.2000 0.0130					
STM-35-36	35	36	CONDUIT	85.5	
0.5497 0.0130					
STM-36-37	36	37	CONDUIT	69.0	
0.1000 0.0130					
STM-37-46	37	46	CONDUIT	72.0	
0.1000 0.0130					
STM-4-5	4	5	CONDUIT	54.5	
0.2000 0.0130					
STM-46-47	46	47	CONDUIT	28.0	
0.1000 0.0130					
STM-47-66	47	66	CONDUIT	66.5	
0.1008 0.0130					
STM-48-49	48	49	CONDUIT	88.0	
0.6500 0.0130					
STM-49-51	49	51	CONDUIT	88.0	
0.3500 0.0130					
STM-50-51	50	51	CONDUIT	33.0	
0.3000 0.0130					
STM-51-55	51	55	CONDUIT	83.0	
0.1000 0.0130					
STM-55-61	55	61	CONDUIT	79.0	
0.2506 0.0130					
STM-5-6	5	6	CONDUIT	68.5	
0.2000 0.0130					
STM-61-62	61	62	CONDUIT	82.5	
0.2497 0.0130					

STM-62-66	62	66	CONDUIT	84.0
0.9000 0.0130				
STM-66-67	66	67	CONDUIT	65.0
0.1000 0.0130				
STM-6-7	6	7	CONDUIT	83.5
0.2000 0.0130				
STM-67-76	67	76	CONDUIT	32.5
0.1015 0.0130				
STM-76-77	76	77	CONDUIT	60.5
0.1008 0.0130				
STM-77-110	77	110	CONDUIT	69.0
0.1000 0.0130				
STM-7-8	7	8	CONDUIT	101.5
0.2000 0.0130				
STM-8-13	8	13	CONDUIT	98.0
0.2000 0.0130				
STM-9-10	9	10	CONDUIT	45.5
0.3495 0.0130				
STM-94-99	94	99	CONDUIT	100.5
0.3005 0.0130				
STM-95-96	95	96	CONDUIT	106.0
0.2000 0.0130				
STM-96-99	96	99	CONDUIT	81.0
0.5000 0.0130				
STM-97-98	97	98	CONDUIT	41.5
0.3494 0.0130				
STM-98-99	98	99	CONDUIT	77.0
0.1506 0.0130				
STM-99-100	99	100	CONDUIT	81.0
0.3000 0.0130				

Cross Section Summary

Full Conduit Shape Flow	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels
STM-100-106	1.95	2.99	0.49	1.95	1
6.36					
STM-10-11	0.38	0.11	0.09	0.38	1
0.17					
STM-106-108	1.95	2.99	0.49	1.95	1
6.36					
STM-108-109	1.95	2.99	0.49	1.95	1
6.36					
STM-109-110	1.95	2.99	0.49	1.95	1
8.42					
STM-110-111	2.70	5.73	0.68	2.70	1
13.18					
STM-111-113	2.70	5.73	0.68	2.70	1
13.13					
STM-11-13	0.60	0.28	0.15	0.60	1
1.02					
STM-113-114	2.70	5.73	0.68	2.70	1
13.11					
STM-114-115	2.70	5.73	0.68	2.70	1

STM-115-116	CIRCULAR	2.70	5.73	0.68	2.70	1
13.16						
STM-116-117	CIRCULAR	2.70	5.73	0.68	2.70	1
13.14						
STM-117-118	CIRCULAR	2.70	5.73	0.68	2.70	1
13.13						
STM-118-132	CIRCULAR	2.70	5.73	0.68	2.70	1
13.21						
STM-119-120	CIRCULAR	0.30	0.07	0.07	0.30	1
0.06						
STM-1-2	CIRCULAR	1.20	1.13	0.30	1.20	1
1.74						
STM-120-121	CIRCULAR	0.30	0.07	0.07	0.30	1
0.06						
STM-121-122	CIRCULAR	0.53	0.22	0.13	0.53	1
0.22						
STM-12-13	CIRCULAR	0.30	0.07	0.07	0.30	1
0.19						
STM-122-126	CIRCULAR	0.53	0.22	0.13	0.53	1
0.54						
STM-123-124	CIRCULAR	0.38	0.11	0.09	0.38	1
0.10						
STM-124-126	CIRCULAR	0.45	0.16	0.11	0.45	1
0.13						
STM-125-126	CIRCULAR	0.45	0.16	0.11	0.45	1
0.13						
STM-126-128	CIRCULAR	0.90	0.64	0.23	0.90	1
0.57						
STM-128-130	CIRCULAR	0.97	0.75	0.24	0.97	1
0.71						
STM-130-131	CIRCULAR	0.97	0.75	0.24	0.97	1
0.71						
STM-131-132	CIRCULAR	0.97	0.75	0.24	0.97	1
0.72						
STM-13-14	CIRCULAR	2.25	3.98	0.56	2.25	1
6.59						
STM-132-134	CIRCULAR	2.70	5.73	0.68	2.70	1
13.15						
STM-134-135	CIRCULAR	2.70	5.73	0.68	2.70	1
13.14						
STM-135-2150	CIRCULAR	2.70	5.73	0.68	2.70	1
13.13						
STM-14-15	CIRCULAR	2.25	3.98	0.56	2.25	1
6.61						
STM-15-17	CIRCULAR	2.25	3.98	0.56	2.25	1
6.61						
STM-17-18	CIRCULAR	2.25	3.98	0.56	2.25	1
6.59						
STM-18-19	CIRCULAR	2.25	3.98	0.56	2.25	1
6.61						
STM-19-20	CIRCULAR	2.25	3.98	0.56	2.25	1
6.59						
STM-20-21	CIRCULAR	2.25	3.98	0.56	2.25	1
6.61						
STM-2121-2142	CIRCULAR	1.65	2.14	0.41	1.65	1
3.46						
STM-21-36	CIRCULAR	2.25	3.98	0.56	2.25	1
6.59						
STM-2150-HW1	CIRCULAR	2.70	5.73	0.68	2.70	1
13.07						

STM-22-23	CIRCULAR	1.05	0.87	0.26	1.05	1
2.59						
STM-2-3	CIRCULAR	1.50	1.77	0.38	1.50	1
3.16						
STM-23-24	CIRCULAR	1.20	1.13	0.30	1.20	1
2.47						
STM-24-25	CIRCULAR	1.20	1.13	0.30	1.20	1
3.15						
STM-25-27	CIRCULAR	1.35	1.43	0.34	1.35	1
3.16						
STM-27-29	CIRCULAR	1.35	1.43	0.34	1.35	1
3.16						
STM-29-35	CIRCULAR	1.35	1.43	0.34	1.35	1
3.38						
STM-3-4	CIRCULAR	1.50	1.77	0.38	1.50	1
3.16						
STM-35-36	CIRCULAR	1.50	1.77	0.38	1.50	1
5.24						
STM-36-37	CIRCULAR	2.40	4.52	0.60	2.40	1
7.83						
STM-37-46	CIRCULAR	2.40	4.52	0.60	2.40	1
7.83						
STM-4-5	CIRCULAR	1.50	1.77	0.38	1.50	1
3.16						
STM-46-47	CIRCULAR	2.40	4.52	0.60	2.40	1
7.83						
STM-47-66	CIRCULAR	2.40	4.52	0.60	2.40	1
7.86						
STM-48-49	CIRCULAR	0.38	0.11	0.09	0.38	1
0.14						
STM-49-51	CIRCULAR	0.60	0.28	0.15	0.60	1
0.36						
STM-50-51	CIRCULAR	0.53	0.22	0.13	0.53	1
0.24						
STM-51-55	CIRCULAR	0.90	0.64	0.23	0.90	1
0.57						
STM-55-61	CIRCULAR	0.97	0.75	0.24	0.97	1
1.12						
STM-5-6	CIRCULAR	1.50	1.77	0.38	1.50	1
3.16						
STM-61-62	CIRCULAR	0.97	0.75	0.24	0.97	1
1.12						
STM-62-66	CIRCULAR	1.05	0.87	0.26	1.05	1
2.59						
STM-66-67	CIRCULAR	2.40	4.52	0.60	2.40	1
7.83						
STM-6-7	CIRCULAR	1.65	2.14	0.41	1.65	1
4.08						
STM-67-76	CIRCULAR	2.70	5.73	0.68	2.70	1
10.80						
STM-76-77	CIRCULAR	2.70	5.73	0.68	2.70	1
10.76						
STM-77-110	CIRCULAR	2.70	5.73	0.68	2.70	1
10.72						
STM-7-8	CIRCULAR	1.65	2.14	0.41	1.65	1
4.08						
STM-8-13	CIRCULAR	1.80	2.54	0.45	1.80	1
5.14						
STM-9-10	CIRCULAR	0.30	0.07	0.07	0.30	1
0.06						

STM-94-99	CIRCULAR	1.65	2.14	0.41	1.65	1
5.00						
STM-95-96	CIRCULAR	0.97	0.75	0.24	0.97	1
1.00						
STM-96-99	CIRCULAR	1.50	1.77	0.38	1.50	1
5.00						
STM-97-98	CIRCULAR	0.68	0.36	0.17	0.68	1
0.50						
STM-98-99	CIRCULAR	0.82	0.53	0.21	0.82	1
0.56						
STM-99-100	CIRCULAR	1.95	2.99	0.49	1.95	1
7.80						

Transect Summary

Transect test
Area:

0.0001	0.0006	0.0013	0.0022	0.0037
0.0064	0.0102	0.0153	0.0215	0.0290
0.0376	0.0474	0.0585	0.0707	0.0841
0.0988	0.1143	0.1300	0.1457	0.1613
0.1770	0.1927	0.2083	0.2240	0.2397
0.2555	0.2727	0.2912	0.3109	0.3317
0.3538	0.3770	0.4015	0.4271	0.4539
0.4820	0.5112	0.5416	0.5732	0.6060
0.6401	0.6753	0.7117	0.7493	0.7881
0.8281	0.8693	0.9116	0.9552	1.0000

Hrad:

0.0194	0.0388	0.0582	0.0776	0.0724
0.0792	0.0933	0.1102	0.1284	0.1472
0.1666	0.1862	0.2061	0.2261	0.2462
0.2663	0.2996	0.3401	0.3805	0.4208
0.4610	0.5011	0.5410	0.5808	0.6206
0.6598	0.6947	0.7259	0.7537	0.7785
0.8007	0.8207	0.8386	0.8547	0.8693
0.8826	0.8948	0.9060	0.9163	0.9260
0.9350	0.9435	0.9516	0.9592	0.9666
0.9737	0.9805	0.9872	0.9936	1.0000

Width:

0.0062	0.0124	0.0185	0.0247	0.0452
0.0716	0.0980	0.1244	0.1508	0.1772
0.2036	0.2300	0.2564	0.2828	0.3092
0.3356	0.3451	0.3452	0.3452	0.3452
0.3453	0.3453	0.3454	0.3454	0.3454
0.3673	0.3936	0.4200	0.4464	0.4727
0.4991	0.5255	0.5518	0.5782	0.6045
0.6309	0.6573	0.6836	0.7100	0.7364
0.7627	0.7891	0.8155	0.8418	0.8682
0.8945	0.9209	0.9473	0.9736	1.0000

Analysis Options

Flow Units CMS

Process Models:

Rainfall/Runoff NO
 RDII NO
 Snowmelt NO
 Groundwater NO
 Flow Routing YES
 Ponding Allowed NO
 Water Quality NO
 Flow Routing Method DYNWAVE
 Surge Method EXTRAN
 Starting Date 04/22/2025 00:00:00
 Ending Date 04/23/2025 00:00:00
 Antecedent Dry Days 0.0
 Report Time Step 00:01:00
 Routing Time Step 1.00 sec
 Variable Time Step YES
 Maximum Trials 16
 Number of Threads 4
 Head Tolerance 0.000150 m

	Volume hectare-m	Volume 10 ⁶ ltr
Flow Routing Continuity		
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	0.000	0.000
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	162.780	1627.818
External Outflow	162.780	1627.818
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	1.220	12.198
Final Stored Volume	1.220	12.204
Continuity Error (%)	-0.000	

Time-Step Critical Elements

None

Highest Flow Instability Indexes

Link STM-19-20 (147)

Most Frequent Nonconverging Nodes

Node 2142 (0.01%)
 Node HW1 (0.01%)
 Node 96 (0.00%)
 Node 97 (0.00%)

Node 98 (0.00%)

Routing Time Step Summary

Minimum Time Step : 0.50 sec
 Average Time Step : 1.00 sec
 Maximum Time Step : 1.00 sec
 % of Time in Steady State : 0.00
 Average Iterations per Step : 2.39
 % of Steps Not Converging : 0.01
 Time Step Frequencies :
 1.000 - 0.871 sec : 100.00 %
 0.871 - 0.758 sec : 0.00 %
 0.758 - 0.660 sec : 0.00 %
 0.660 - 0.574 sec : 0.00 %
 0.574 - 0.500 sec : 0.00 %

Node Depth Summary

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
1	JUNCTION	1.53	1.53	88.05	0 00:00	1.53
10	JUNCTION	0.30	0.30	89.54	0 00:00	0.30
100	JUNCTION	2.95	2.95	86.20	0 00:00	2.95
106	JUNCTION	2.96	2.96	86.04	0 00:00	2.96
108	JUNCTION	2.99	2.99	85.88	0 00:00	2.99
109	JUNCTION	3.83	3.84	85.77	0 00:00	3.83
11	JUNCTION	0.38	0.38	88.42	0 00:06	0.38
110	JUNCTION	4.29	4.29	85.67	0 00:01	4.29
111	JUNCTION	4.29	4.29	85.59	0 00:02	4.29
113	JUNCTION	4.27	4.28	85.45	0 00:05	4.27
114	JUNCTION	4.15	4.15	85.19	0 00:00	4.15
115	JUNCTION	4.04	4.05	85.04	0 00:01	4.04
116	JUNCTION	4.03	4.03	84.91	0 00:05	4.03
117	JUNCTION	3.91	3.91	84.65	0 00:04	3.91
118	JUNCTION	3.81	3.81	84.51	0 00:01	3.81
119	JUNCTION	0.23	0.23	85.66	0 07:30	0.23
12	JUNCTION	0.73	0.73	86.85	0 00:01	0.73
120	JUNCTION	0.28	0.28	85.53	0 18:35	0.28
121	JUNCTION	0.47	0.47	85.40	0 00:03	0.47
122	JUNCTION	0.40	0.40	85.04	0 00:02	0.40
123	JUNCTION	1.20	1.21	84.57	0 00:01	1.21
124	JUNCTION	1.26	1.27	84.40	0 00:03	1.26
125	JUNCTION	1.22	1.23	84.33	0 00:04	1.23
126	JUNCTION	1.72	1.72	84.29	0 00:01	1.72
128	JUNCTION	1.78	1.79	84.23	0 00:02	1.79
13	JUNCTION	3.17	3.18	86.75	0 00:01	3.17
130	JUNCTION	1.79	1.79	84.14	0 00:03	1.79
131	JUNCTION	1.82	1.82	84.11	0 00:05	1.82

Node	Type	Flow	Volume ltr	Percent	Type	Maximum CMS	Maximum CMS	Time of Max Occurrence days hr:min	Lateral Volume 10 ⁶ ltr	10 ⁶
132	JUNCTION	3.43	3.44	84.03	0 00:00	3.43				
134	JUNCTION	3.43	3.43	83.87	0 00:06	3.43				
135	JUNCTION	3.29	3.30	83.59	0 00:01	3.29				
14	JUNCTION	3.22	3.22	86.73	0 00:06	3.22				
15	JUNCTION	3.27	3.27	86.68	0 00:00	3.27				
17	JUNCTION	3.32	3.33	86.62	0 00:05	3.33				
18	JUNCTION	3.37	3.37	86.58	0 00:02	3.37				
19	JUNCTION	3.40	3.40	86.50	0 00:06	3.40				
2	JUNCTION	1.87	1.87	87.93	0 00:04	1.87				
20	JUNCTION	3.40	3.40	86.46	0 00:00	3.40				
21	JUNCTION	3.45	3.45	86.40	0 00:00	3.45				
2121	JUNCTION	2.25	2.25	83.00	0 00:00	2.25				
2150	JUNCTION	3.20	3.20	83.37	0 00:02	3.20				
22	JUNCTION	1.09	1.09	88.59	0 00:00	1.09				
23	JUNCTION	1.55	1.55	88.13	0 00:00	1.55				
24	JUNCTION	1.41	1.41	87.62	0 00:00	1.41				
25	JUNCTION	2.20	2.20	87.47	0 00:03	2.20				
27	JUNCTION	2.26	2.26	87.22	0 00:04	2.26				
29	JUNCTION	2.28	2.28	87.07	0 00:00	2.28				
3	JUNCTION	1.94	1.94	87.81	0 00:00	1.94				
35	JUNCTION	3.55	3.56	86.78	0 00:00	3.55				
36	JUNCTION	4.03	4.03	86.34	0 00:01	4.03				
37	JUNCTION	4.04	4.04	86.27	0 00:03	4.04				
4	JUNCTION	2.02	2.02	87.72	0 00:06	2.02				
46	JUNCTION	4.05	4.05	86.19	0 00:02	4.05				
47	JUNCTION	4.08	4.08	86.16	0 00:00	4.08				
48	JUNCTION	1.07	1.07	87.57	0 00:03	1.07				
49	JUNCTION	1.52	1.52	87.21	0 00:04	1.52				
5	JUNCTION	2.13	2.13	87.63	0 00:04	2.13				
50	JUNCTION	1.42	1.42	87.03	0 00:00	1.42				
51	JUNCTION	1.91	1.91	86.86	0 00:00	1.91				
55	JUNCTION	2.00	2.00	86.76	0 00:00	2.00				
6	JUNCTION	2.36	2.36	87.50	0 00:02	2.36				
61	JUNCTION	2.02	2.03	86.58	0 00:06	2.02				
62	JUNCTION	2.94	2.95	86.37	0 00:04	2.95				
66	JUNCTION	4.10	4.10	86.09	0 00:03	4.10				
67	JUNCTION	4.36	4.37	85.99	0 00:01	4.36				
7	JUNCTION	2.43	2.43	87.34	0 00:01	2.43				
76	JUNCTION	4.40	4.40	85.96	0 00:01	4.40				
77	JUNCTION	4.44	4.44	85.91	0 00:02	4.44				
8	JUNCTION	2.58	2.59	87.09	0 00:01	2.59				
9	JUNCTION	0.22	0.22	89.71	0 00:00	0.22				
94	JUNCTION	2.50	2.51	86.44	0 00:00	2.51				
95	JUNCTION	1.63	1.64	86.77	0 00:00	1.63				
96	JUNCTION	2.26	2.27	86.65	0 00:00	2.26				
97	JUNCTION	1.26	1.26	86.55	0 00:00	1.26				
98	JUNCTION	1.46	1.47	86.46	0 00:00	1.46				
99	JUNCTION	2.84	2.85	86.35	0 00:00	2.84				
2142	OUTFALL	2.37	2.37	83.00	0 00:00	2.37				
HW1	OUTFALL	4.00	4.00	83.00	0 00:00	4.00				

Node Inflow Summary

None

Total	Flow	Maximum	Maximum	Lateral			
Inflow	Balance	Lateral	Total	Time of Max	Inflow		
Volume	Error	Inflow	Inflow	Occurrence	Volume		
Node	Percent	Type	CMS	CMS	days hr:min	10 ⁶ ltr	10 ⁶
1		JUNCTION	1.678	1.678	0 00:00	145	
145	-0.000						
10		JUNCTION	0.113	0.165	0 00:00	9.73	
14.2	-0.000						
100		JUNCTION	0.247	6.305	0 00:00	21.3	
545	-0.000						
106		JUNCTION	0.035	6.341	0 00:00	3.07	
548	-0.000						
108		JUNCTION	-0.012	6.341	0 00:00	-1.05	
548	0.000						
109		JUNCTION	0.021	6.349	0 00:00	1.78	
548	-0.000						
11		JUNCTION	0.536	0.701	0 00:00	46.3	
60.5	0.000						
110		JUNCTION	-1.597	15.913	0 00:01	-138	
1.37e+03	-0.000						
111		JUNCTION	-0.047	14.316	0 00:00	-4.06	
1.24e+03	-0.000						
113		JUNCTION	0.456	14.725	0 00:00	39.4	
1.27e+03	0.000						
127e+03	0.000	JUNCTION	-0.126	14.726	0 00:00	-10.8	
1.27e+03	0.000						
115		JUNCTION	0.015	14.615	0 00:01	1.27	
1.26e+03	0.000						
116		JUNCTION	-0.101	14.615	0 00:05	-8.72	
1.26e+03	0.000						
117		JUNCTION	-0.125	14.514	0 00:01	-10.8	
1.25e+03	0.000						
118		JUNCTION	-0.006	14.390	0 00:01	-0.518	
1.24e+03	0.000						
119		JUNCTION	0.056	0.056	0 00:00	4.88	
4.88	0.000						
12		JUNCTION	0.041	0.041	0 00:00	3.55	
3.55	0.000						
120		JUNCTION	0.018	0.074	0 00:01	1.55	
6.43	0.000						
121		JUNCTION	0.166	0.240	0 00:00	14.3	
20.7	-0.000						
122		JUNCTION	0.135	0.375	0 00:04	11.7	
32.4	0.000						
123		JUNCTION	0.101	0.101	0 00:00	8.72	
8.72	-0.000						
124		JUNCTION	0.028	0.129	0 00:01	2.42	
11.1	-0.000						
125		JUNCTION	0.071	0.071	0 00:00	6.1	
6.1	0.000						
126		JUNCTION	0.051	0.626	0 00:00	4.39	
54	0.000						
128		JUNCTION	0.092	0.718	0 00:00	7.93	
62	-0.000						

13		JUNCTION	-0.136	5.107	0 00:01	-11.7
441	-0.000	JUNCTION	-0.003	0.718	0 00:03	-0.22
130		JUNCTION	0.004	0.719	0 00:05	0.335
62	0.000	JUNCTION	-0.184	15.102	0 00:00	-15.9
131	0.000	JUNCTION	-0.094	14.918	0 00:00	-8.12
62.1		JUNCTION	-0.131	14.824	0 00:00	-11.3
132		JUNCTION	0.012	4.983	0 00:01	1.04
1.3e+03	0.000	JUNCTION	-0.074	4.983	0 00:03	-6.36
134		JUNCTION	-0.082	4.910	0 00:03	-7.05
1.29e+03	0.000	JUNCTION	0.380	5.208	0 00:01	32.8
135		JUNCTION	-0.110	5.208	0 00:02	-9.49
1.28e+03	-0.000	JUNCTION	1.278	2.956	0 00:04	110
14		JUNCTION	0.057	5.155	0 00:00	4.89
430	-0.000	JUNCTION	-0.068	5.155	0 00:03	-5.92
15		JUNCTION	0.246	0.246	0 00:00	21.3
430	0.000	JUNCTION	-0.088	14.693	0 00:00	-7.63
17		JUNCTION	2.005	2.005	0 00:00	173
424	-0.000	JUNCTION	0.148	2.153	0 17:01	12.8
18		JUNCTION	0.104	2.258	0 00:04	9.01
450	0.000	JUNCTION	0.716	2.974	0 00:04	61.9
29		JUNCTION	0.080	3.054	0 00:04	6.88
450	0.000	JUNCTION	0.168	3.221	0 00:05	14.5
2	-0.000	JUNCTION	-0.051	2.956	0 00:00	-4.38
255		JUNCTION	0.157	3.378	0 00:04	13.5
20	-0.000	JUNCTION	-0.457	8.464	0 00:00	-39.5
445	-0.000	JUNCTION	-0.056	8.007	0 00:02	-4.83
21		JUNCTION	-0.034	2.905	0 00:00	-2.9
445	-0.000	JUNCTION	-0.088	7.951	0 00:03	-7.64
2121		JUNCTION	0.584	8.447	0 00:00	50.5
21.3	0.000	JUNCTION	0.112	0.112	0 00:00	9.7
2150		JUNCTION				
1.27e+03	0.000	JUNCTION				
173	0.000	JUNCTION				
186	-0.000	JUNCTION				
24	-0.000	JUNCTION				
195	-0.000	JUNCTION				
25	0.000	JUNCTION				
257	0.000	JUNCTION				
27	-0.000	JUNCTION				
264	-0.000	JUNCTION				
29	0.000	JUNCTION				
278	0.000	JUNCTION				
3	-0.000	JUNCTION				
255	-0.000	JUNCTION				
35	-0.000	JUNCTION				
292	-0.000	JUNCTION				
36	0.000	JUNCTION				
731	0.000	JUNCTION				
37	-0.000	JUNCTION				
692	-0.000	JUNCTION				
4	0.000	JUNCTION				
251	0.000	JUNCTION				
46	0.000	JUNCTION				
687	0.000	JUNCTION				
47	0.000	JUNCTION				
730	0.000	JUNCTION				
48	0.000	JUNCTION				
9.7	-0.000	JUNCTION				

49		JUNCTION	0.219	0.331	0 00:04	18.9
28.6	-0.000	JUNCTION	0.219	3.091	0 00:00	18.9
5	0.000	JUNCTION	0.229	0.229	0 00:00	19.8
267	-0.000	JUNCTION	0.053	0.613	0 00:04	4.57
50	-0.000	JUNCTION	0.474	1.087	0 00:00	41
19.8	-0.000	JUNCTION	0.901	3.992	0 00:06	77.9
51	-0.000	JUNCTION	0.047	1.134	0 00:00	4.06
53	0.000	JUNCTION	0.040	1.175	0 00:00	3.48
55	0.000	JUNCTION	-0.040	9.622	0 00:00	-3.48
93.9	-0.000	JUNCTION	-0.116	9.581	0 00:00	-10
6	-0.000	JUNCTION	0.475	4.467	0 00:00	41
345	-0.000	JUNCTION	0.165	9.631	0 00:00	14.3
61	0.000	JUNCTION	-0.066	9.631	0 00:00	-5.72
98	0.000	JUNCTION	-0.102	4.467	0 00:00	-8.82
62	0.000	JUNCTION	0.052	0.052	0 00:00	4.49
101	0.000	JUNCTION	2.787	2.787	0 00:00	241
66	0.000	JUNCTION	0.770	0.770	0 00:00	66.5
831	-0.000	JUNCTION	2.018	2.788	0 00:00	174
67	-0.000	JUNCTION	0.393	0.393	0 00:00	33.9
828	-0.000	JUNCTION	0.033	0.426	0 00:00	2.87
7	-0.000	JUNCTION	0.057	6.058	0 00:00	4.9
386	-0.000	JUNCTION	0.000	0.246	0 00:00	0
76	-0.000	JUNCTION	0.000	0.000	0 00:00	0
832	-0.000	JUNCTION	0.000	14.604	0 00:00	0
77	-0.000	JUNCTION				
832	-0.000	JUNCTION				
8	0.000	JUNCTION				
386	0.000	JUNCTION				
9	0.000	JUNCTION				
4.49	-0.000	JUNCTION				
94	-0.000	JUNCTION				
241	-0.000	JUNCTION				
95	-0.000	JUNCTION				
66.5	-0.000	JUNCTION				
96	-0.000	JUNCTION				
241	-0.000	JUNCTION				
97	-0.000	JUNCTION				
33.9	-0.000	JUNCTION				
98	-0.000	JUNCTION				
36.8	-0.000	JUNCTION				
99	-0.000	JUNCTION				
523	-0.000	JUNCTION				
2142	-0.000	OUTFALL				
21.3	0.000	OUTFALL				
HW1	0.000	OUTFALL				
1.26e+03	0.000	OUTFALL				

Node Surge Summary

Surcharging occurs when water rises above the top of the highest conduit.

Node	Type	Hours Surcharged	Max. Height Above Crown Meters	Min. Depth Below Rim Meters
1	JUNCTION	24.00	0.328	3.144

100		JUNCTION	24.00	0.991	2.395
106		JUNCTION	24.00	1.002	2.435
108		JUNCTION	24.00	1.012	2.474
109		JUNCTION	24.00	1.042	2.503
110		JUNCTION	24.00	1.570	2.278
111		JUNCTION	24.00	1.577	2.291
113		JUNCTION	24.00	1.566	2.312
114		JUNCTION	24.00	1.418	2.469
115		JUNCTION	24.00	1.316	2.601
116		JUNCTION	24.00	1.320	3.467
117		JUNCTION	24.00	1.179	3.539
118		JUNCTION	24.00	1.080	3.667
112		JUNCTION	24.00	0.432	4.592
123		JUNCTION	24.00	0.833	3.403
124		JUNCTION	24.00	0.817	3.650
125		JUNCTION	24.00	0.777	3.407
126		JUNCTION	24.00	0.770	3.816
128		JUNCTION	24.00	0.812	3.867
13		JUNCTION	24.00	0.517	3.368
130		JUNCTION	24.00	0.810	4.080
131		JUNCTION	24.00	0.819	4.071
132		JUNCTION	24.00	0.676	4.114
134		JUNCTION	24.00	0.699	3.899
135		JUNCTION	24.00	0.566	4.246
14		JUNCTION	24.00	0.943	3.325
15		JUNCTION	24.00	1.014	3.053
17		JUNCTION	24.00	1.066	2.767
18		JUNCTION	24.00	1.112	2.534
19		JUNCTION	24.00	1.118	2.458
2		JUNCTION	24.00	0.338	3.123
20		JUNCTION	24.00	1.121	2.482
21		JUNCTION	24.00	1.190	2.395
2121		JUNCTION	24.00	0.601	4.392
2150		JUNCTION	24.00	0.445	4.472
22		JUNCTION	24.00	0.042	3.409
23		JUNCTION	24.00	0.349	2.690
24		JUNCTION	24.00	0.184	2.831
25		JUNCTION	24.00	0.350	2.651
27		JUNCTION	24.00	0.880	2.230
29		JUNCTION	24.00	0.920	2.310
3		JUNCTION	24.00	0.387	3.050
35		JUNCTION	24.00	0.959	2.264
36		JUNCTION	24.00	1.240	2.302
37		JUNCTION	24.00	1.630	2.274
4		JUNCTION	24.00	0.461	3.014
46		JUNCTION	24.00	1.638	2.240
47		JUNCTION	24.00	1.649	2.225
48		JUNCTION	24.00	0.693	2.799
49		JUNCTION	24.00	0.904	2.108
5		JUNCTION	24.00	0.537	3.019
50		JUNCTION	24.00	0.898	2.103
51		JUNCTION	24.00	0.828	2.195
55		JUNCTION	24.00	0.996	2.166
6		JUNCTION	24.00	0.639	3.047
61		JUNCTION	24.00	1.041	2.233
62		JUNCTION	24.00	1.046	2.191
66		JUNCTION	24.00	1.667	2.204

67		JUNCTION	24.00	1.666	2.203
7		JUNCTION	24.00	0.717	3.083
76		JUNCTION	24.00	1.673	2.180
77		JUNCTION	24.00	1.715	2.138
8		JUNCTION	24.00	0.738	3.175
94		JUNCTION	24.00	0.688	2.425
95		JUNCTION	24.00	0.666	2.357
96		JUNCTION	24.00	0.752	2.248
97		JUNCTION	24.00	0.590	3.124
98		JUNCTION	24.00	0.643	2.373
99		JUNCTION	24.00	0.647	2.369

Node Flooding Summary

No nodes were flooded.

Outfall Loading Summary

Outfall Node	Flow Freq	Avg Flow CMS	Max Flow CMS	Total Volume 10^6 ltr
2142	100.00	0.246	0.246	21.266
HW1	100.00	14.604	14.604	1261.632
System	100.00	14.850	14.851	1282.898

Link Flow Summary

Link	Type	Maximum Flow CMS	Time of Max Occurrence days hr:min	Maximum Veloc m/sec	Max/Full Flow	Max/Full Depth
STM-100-106	CONDUIT	6.305	0 00:00	2.11	0.99	1.00
STM-10-11	CONDUIT	0.165	0 00:00	1.76	0.96	0.79
STM-106-108	CONDUIT	6.341	0 00:00	2.12	1.00	1.00
STM-108-109	CONDUIT	6.329	0 00:00	2.12	0.99	1.00
STM-109-110	CONDUIT	6.350	0 00:00	2.13	0.75	1.00
STM-110-111	CONDUIT	14.316	0 00:00	2.50	1.09	1.00
STM-111-113	CONDUIT	14.269	0 00:00	2.49	1.09	1.00
STM-11-13	CONDUIT	0.701	0 00:00	2.84	0.69	0.81
STM-113-114	CONDUIT	14.726	0 00:00	2.57	1.12	1.00
STM-114-115	CONDUIT	14.601	0 00:01	2.55	1.11	1.00
STM-115-116	CONDUIT	14.615	0 00:05	2.55	1.11	1.00
STM-116-117	CONDUIT	14.514	0 00:01	2.53	1.10	1.00
STM-117-118	CONDUIT	14.390	0 00:01	2.51	1.10	1.00

Conduit	Hours Full			Hours	Hours
	Both Ends	Upstream	Dnstream	Above Full	Capacity
				Normal Flow	Limited
STM-100-106	24.00	24.00	24.00	0.01	0.01
STM-106-108	24.00	24.00	24.00	0.01	0.01
STM-108-109	24.00	24.00	24.00	0.01	0.01
STM-109-110	24.00	24.00	24.00	0.01	0.01
STM-110-111	24.00	24.00	24.00	24.00	24.00
STM-111-113	24.00	24.00	24.00	24.00	24.00
STM-11-13	0.01	0.01	24.00	0.01	0.01
STM-113-114	24.00	24.00	24.00	24.00	24.00
STM-114-115	24.00	24.00	24.00	24.00	24.00
STM-115-116	24.00	24.00	24.00	24.00	24.00
STM-116-117	24.00	24.00	24.00	24.00	24.00
STM-117-118	24.00	24.00	24.00	24.00	24.00
STM-118-132	24.00	24.00	24.00	24.00	24.00
STM-1-2	24.00	24.00	24.00	0.01	0.01
STM-120-121	0.01	0.01	0.01	24.00	0.01
STM-121-122	0.01	0.01	0.01	24.00	0.01
STM-12-13	24.00	24.00	24.00	0.01	0.01
STM-122-126	0.01	0.01	24.00	0.01	0.01
STM-123-124	24.00	24.00	24.00	24.00	24.00
STM-124-126	24.00	24.00	24.00	24.00	24.00
STM-125-126	24.00	24.00	24.00	0.01	0.01
STM-126-128	24.00	24.00	24.00	24.00	24.00
STM-128-130	24.00	24.00	24.00	24.00	24.00
STM-130-131	24.00	24.00	24.00	24.00	23.98
STM-131-132	24.00	24.00	24.00	0.01	24.00
STM-13-14	24.00	24.00	24.00	0.01	0.01
STM-132-134	24.00	24.00	24.00	24.00	24.00
STM-134-135	24.00	24.00	24.00	24.00	24.00
STM-135-2150	24.00	24.00	24.00	24.00	24.00
STM-14-15	24.00	24.00	24.00	0.01	0.01
STM-15-17	24.00	24.00	24.00	0.01	0.01
STM-17-18	24.00	24.00	24.00	0.01	0.01
STM-18-19	24.00	24.00	24.00	0.01	24.00
STM-19-20	24.00	24.00	24.00	0.01	24.00
STM-20-21	24.00	24.00	24.00	0.01	0.01
STM-2121-2142	24.00	24.00	24.00	0.01	0.01
STM-21-36	24.00	24.00	24.00	0.01	0.01
STM-2150-HW1	24.00	24.00	24.00	24.00	24.00
STM-22-23	24.00	24.00	24.00	0.01	0.01
STM-2-3	24.00	24.00	24.00	0.01	0.01
STM-23-24	24.00	24.00	24.00	0.01	24.00
STM-24-25	24.00	24.00	24.00	0.01	0.01
STM-25-27	24.00	24.00	24.00	0.01	0.01
STM-27-29	24.00	24.00	24.00	0.01	0.01
STM-29-35	24.00	24.00	24.00	0.01	0.01
STM-3-4	24.00	24.00	24.00	0.01	0.01
STM-35-36	24.00	24.00	24.00	0.01	0.01
STM-36-37	24.00	24.00	24.00	24.00	24.00
STM-37-46	24.00	24.00	24.00	24.00	24.00
STM-4-5	24.00	24.00	24.00	0.01	0.01
STM-46-47	24.00	24.00	24.00	24.00	13.20
STM-47-66	24.00	24.00	24.00	24.00	24.00

STM-48-49	24.00	24.00	24.00	0.01	0.01
STM-49-51	24.00	24.00	24.00	0.01	24.00
STM-50-51	24.00	24.00	24.00	0.01	24.00
STM-51-55	24.00	24.00	24.00	24.00	24.00
STM-55-61	24.00	24.00	24.00	0.01	0.01
STM-5-6	24.00	24.00	24.00	0.01	0.01
STM-61-62	24.00	24.00	24.00	24.00	24.00
STM-62-66	24.00	24.00	24.00	0.01	0.01
STM-66-67	24.00	24.00	24.00	24.00	24.00
STM-6-7	24.00	24.00	24.00	0.01	0.01
STM-67-76	24.00	24.00	24.00	0.01	0.01
STM-76-77	24.00	24.00	24.00	0.01	0.01
STM-77-110	24.00	24.00	24.00	0.01	24.00
STM-7-8	24.00	24.00	24.00	24.00	24.00
STM-8-13	24.00	24.00	24.00	0.01	24.00
STM-94-99	24.00	24.00	24.00	0.01	0.01
STM-95-96	24.00	24.00	24.00	0.01	0.01
STM-96-99	24.00	24.00	24.00	0.01	0.01
STM-97-98	24.00	24.00	24.00	0.01	0.01
STM-98-99	24.00	24.00	24.00	0.01	0.01
STM-99-100	24.00	24.00	24.00	0.01	0.01

Analysis begun on: Tue Feb 3 16:22:08 2026
 Analysis ended on: Tue Feb 3 16:22:18 2026
 Total elapsed time: 00:00:10

PCSWMM Status Report Chicago_3h_100y - Total Area (Private Blocks)

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Updated by: Andrea L
 DBSL
 Last Updated January 26, 2026

 Element Count

 Number of rain gages 3
 Number of subcatchments ... 16
 Number of nodes 3
 Number of links 1
 Number of pollutants 0
 Number of land uses 0

 Raingage Summary

Name	Data Source	Data Type	Recording Interval
Chicago_3h_100y	Chicago_3h_100y	INTENSITY	10 min.
Chicago_3h_2y	Chicago_3h	INTENSITY	10 min.
Chicago_3h_5y	Chicago_3h_5y	INTENSITY	10 min.

 Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage
Outlet					
S1	2.34	200.00	71.40	1.5000	Chicago_3h_100y
SUI					
S16_Lot4	6.47	450.00	100.00	1.5000	Chicago_3h_100y
OF1					
S2_Block373	1.38	110.40	71.40	1.5000	Chicago_3h_100y
OF1					
S2_Block411	3.87	238.89	28.60	1.5000	Chicago_3h_100y
OF1					
S26_Block414B	5.82	280.00	85.70	1.5000	Chicago_3h_100y
OF1					
S3_Block301	2.04	107.37	71.40	1.5000	Chicago_3h_100y
OF1					
S31_Block300	0.40	190.17	28.60	1.5000	Chicago_3h_100y
OF1					
S33_Block418	1.20	160.00	28.60	1.5000	Chicago_3h_100y
OF1					
S4_Block294	1.98	146.67	71.40	1.5000	Chicago_3h_100y
OF1					
S41.1_Block413	2.31	121.58	85.70	1.5000	Chicago_3h_100y
OF1					
S41.2_BlockExternal413	1.62	108.00	85.70	1.5000	Chicago_3h_100y
OF1					

	0.6401	0.6753	0.7117	0.7493	0.7881
	0.8281	0.8693	0.9116	0.9552	1.0000
Hrad:					
	0.0194	0.0388	0.0582	0.0776	0.0724
	0.0792	0.0933	0.1102	0.1284	0.1472
	0.1666	0.1862	0.2061	0.2261	0.2462
	0.2663	0.2996	0.3401	0.3805	0.4208
	0.4610	0.5011	0.5410	0.5808	0.6206
	0.6598	0.6947	0.7259	0.7537	0.7785
	0.8007	0.8207	0.8386	0.8547	0.8693
	0.8826	0.8948	0.9060	0.9163	0.9260
	0.9350	0.9435	0.9516	0.9592	0.9666
	0.9737	0.9805	0.9872	0.9936	1.0000
Width:					
	0.0062	0.0124	0.0185	0.0247	0.0452
	0.0716	0.0980	0.1244	0.1508	0.1772
	0.2036	0.2300	0.2564	0.2828	0.3092
	0.3356	0.3451	0.3452	0.3452	0.3452
	0.3453	0.3453	0.3454	0.3454	0.3454
	0.3673	0.3936	0.4200	0.4464	0.4727
	0.4991	0.5255	0.5518	0.5782	0.6045
	0.6309	0.6573	0.6836	0.7100	0.7364
	0.7627	0.7891	0.8155	0.8418	0.8682
	0.8945	0.9209	0.9473	0.9736	1.0000

 Analysis Options

 Flow Units CMS
 Process Models:
 Rainfall/Runoff YES
 RDII NO
 Snowmelt NO
 Groundwater NO
 Flow Routing YES
 Ponding Allowed NO
 Water Quality NO
 Infiltration Method HORTON
 Flow Routing Method DYNWAVE
 Surchage Method SLOT
 Starting Date 04/22/2025 00:00:00
 Ending Date 04/23/2025 00:00:00
 Antecedent Dry Days 0.0
 Report Time Step 00:01:00
 Wet Time Step 00:05:00
 Dry Time Step 00:05:00
 Routing Time Step 1.00 sec
 Variable Time Step YES
 Maximum Trials 16
 Number of Threads 1
 Head Tolerance 0.000150 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
*****	-----	-----

S44_Block412A	2.76	181.86	85.70	1.5000	Chicago_3h_100y
OF1					
S81_Block410	3.00	210.00	85.70	1.5000	Chicago_3h_100y
OF1					
S84_Block414A	4.66	280.00	85.70	1.5000	Chicago_3h_100y
OF1					
S89_Block409	3.30	200.00	85.70	1.5000	Chicago_3h_100y
OF1					
S9_Block412B	1.18	180.00	85.70	1.5000	Chicago_3h_100y
OF1					

 Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
MH66	OUTFALL	0.00	0.00	0.0	
OF1	OUTFALL	0.00	0.00	0.0	
SUI	STORAGE	0.00	1.71	0.0	

 Link Summary

Name	From Node	To Node	Type	Length	%
Slope Roughness					
Out1	SUI	MH66	OUTLET		

 Cross Section Summary

Full Conduit Flow	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels
-----	-----	-----	-----	-----	-----	-----

 Transect Summary

Transect test

Area:	0.0001	0.0006	0.0013	0.0022	0.0037
	0.0064	0.0102	0.0153	0.0215	0.0290
	0.0376	0.0474	0.0585	0.0707	0.0841
	0.0988	0.1143	0.1300	0.1457	0.1613
	0.1770	0.1927	0.2083	0.2240	0.2397
	0.2555	0.2727	0.2912	0.3109	0.3317
	0.3538	0.3770	0.4015	0.4271	0.4539
	0.4820	0.5112	0.5416	0.5732	0.6060

Total Precipitation	3.179	71.708
Evaporation Loss	0.000	0.000
Infiltration Loss	0.463	10.434
Surface Runoff	2.701	60.928
Final Storage	0.041	0.925
Continuity Error (%)	-0.808	

	Volume hectare-m	Volume 10 ⁶ ltr
Flow Routing Continuity	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	2.701	27.010
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	2.701	27.010
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.001	

 Time-Step Critical Elements

 None

 Highest Flow Instability Indexes

All links are stable.

 Most Frequent Nonconverging Nodes

Convergence obtained at all time steps.

 Routing Time Step Summary

Minimum Time Step	: 0.50 sec
Average Time Step	: 1.00 sec
Maximum Time Step	: 1.00 sec
% of Time in Steady State	: 0.00
Average Iterations per Step	: 2.05
% of Steps Not Converging	: 0.00
Time Step Frequencies	:
1.000 - 0.871 sec	: 100.00 %
0.871 - 0.758 sec	: 0.00 %
0.758 - 0.660 sec	: 0.00 %
0.660 - 0.574 sec	: 0.00 %

0.574 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Perv	Total	Total	Total	Total	Total	Total	Imperv
Runoff	Runoff	Precip	Peak	Runoff	Evap	Infil	Runoff
Subcatchment	mm	10^6 ltr	mm	Coeff	mm	mm	mm
mm	mm	10^6 ltr	CMS	mm	mm	mm	mm
S1			71.71	0.00	0.00	13.32	50.79
7.35	58.14	1.36	0.94	0.811			
S16_Lot4			71.71	0.00	0.00	0.00	71.13
0.00	71.13	4.60	3.11	0.992			
S2_Block373			71.71	0.00	0.00	13.38	50.79
7.29	58.08	0.80	0.55	0.810			
S2_Block411			71.71	0.00	0.00	36.94	20.31
14.40	34.71	1.34	0.72	0.484			
S26_Block414B			71.71	0.00	0.00	6.61	60.94
3.73	64.67	3.76	2.51	0.902			
S3_Block301			71.71	0.00	0.00	13.79	50.79
6.83	57.62	1.18	0.77	0.804			
S31_Block300			71.71	0.00	0.00	32.01	20.21
19.97	40.18	0.16	0.14	0.560			
S33_Block418			71.71	0.00	0.00	34.38	20.25
17.09	37.34	0.45	0.28	0.521			
S4_Block294			71.71	0.00	0.00	13.44	50.80
7.21	58.00	1.15	0.78	0.809			
S41.1_Block413			71.71	0.00	0.00	6.58	60.95
3.77	64.72	1.50	1.01	0.903			
S41.2_BlockExternal413			71.71	0.00	0.00	6.50	60.97
3.87	64.84	1.05	0.73	0.904			
S44_Block412A			71.71	0.00	0.00	6.51	60.97
3.86	64.83	1.79	1.24	0.904			
S81_Block410			71.71	0.00	0.00	6.49	60.97
3.89	64.86	1.95	1.35	0.904			
S84_Block414A			71.71	0.00	0.00	6.54	60.96
3.83	64.79	3.02	2.07	0.903			
S89_Block409			71.71	0.00	0.00	6.53	60.96
3.83	64.79	2.14	1.47	0.904			
S9_Block412B			71.71	0.00	0.00	6.32	60.91
4.15	65.06	0.77	0.56	0.907			

Node Depth Summary

Node	Type	Average Depth	Maximum Depth	Maximum HGL	Time of Max Occurrence	Reported Max Depth
		Meters	Meters	Meters	days hr:min	Meters

SU1		0.002	0.5	0.0	0.0	0.203	43.7	0
01:14	0.473							

Outfall Loading Summary

Outfall Node	Flow Freq	Avg Flow	Max Flow	Total Volume
	Pcnt	CMS	CMS	10^6 ltr
MH66	31.95	0.049	0.473	1.360
OF1	100.00	0.297	17.298	25.649
System	65.98	0.346	17.771	27.009

Link Flow Summary

Link	Type	Maximum Flow	Time of Max Occurrence	Maximum Veloc	Max/ Full Flow	Max/ Full Depth
		CMS	days hr:min	m/sec		
Out1	DUMMY	0.473	0 01:02			

Flow Classification Summary

Inlet Conduit Ctrl	Adjusted Length	Fraction of Time in Flow Class						
		Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd

Conduit Surcharging Summary

No conduits were surcharged.

Analysis begun on: Tue Jan 27 17:41:04 2026
Analysis ended on: Tue Jan 27 17:41:04 2026
Total elapsed time: < 1 sec

MH66	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
OF1	OUTFALL	0.00	0.00	0.00	0 00:00	0.00
SU1	STORAGE	0.04	1.60	1.60	0 01:14	1.60

Node Inflow Summary

Total Inflow	Flow Balance	Maximum Lateral	Maximum Total Inflow	Maximum Time of Occurrence	Maximum Lateral Inflow	
Volume	Error	Inflow	Inflow	Occurrence	Volume	
Node	Type	CMS	CMS	days hr:min	10^6 ltr	
ltr	Percent				10^6 ltr	
MH66	0.000	OUTFALL	0.000	0.473	0 01:02	0
1.36						
OF1	0.000	OUTFALL	17.298	17.298	0 01:10	25.6
25.6						
SU1	0.014	STORAGE	0.941	0.941	0 01:10	1.36
1.36						

Node Surcharging Summary

No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Max Occurrence	Maximum Volume	Average Volume	Avg Pcnt	Evap Pcnt	Exfil Pcnt	Maximum Volume	Max Pcnt	Time of Full
hr:min	Storage Unit	1000 m^3	Full	Loss	Loss	1000 m^3	Full	days
	CMS							

**PCSWMM Status Report Chicago_3h_100y
(Private Blocks) - Total Area excluding 15 m
frontage**

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.4)

Updated by: AL
DBEL
Subc Added: S2, S4, S3

Element Count

Number of rain gages 3
Number of subcatchments ... 16
Number of nodes 3
Number of links 1
Number of pollutants 0
Number of land uses 0

Raingage Summary

Name	Data Source	Data Type	Recording Interval
Chicago_3h_100y	Chicago_3h_100y	INTENSITY	10 min.
Chicago_3h_2y	Chicago_3h	INTENSITY	10 min.
Chicago_3h_5y	Chicago_3h_5y	INTENSITY	10 min.

Subcatchment Summary

Name	Area	Width	%Imperv	%Slope	Rain Gage
Outlet					
S1	2.34	200.00	71.40	1.5000	Chicago_3h_100y
SUI					
S16_Lot4	6.11	424.96	100.00	1.5000	Chicago_3h_100y
OF1					
S2_Block373	1.05	84.00	71.40	1.5000	Chicago_3h_100y
OF1					
S2_Block411	3.87	238.89	28.60	1.5000	Chicago_3h_100y
OF1					
S26_Block414B	5.09	244.88	85.70	1.5000	Chicago_3h_100y
OF1					
S3_Block301	1.47	77.37	71.40	1.5000	Chicago_3h_100y
OF1					
S31_Block300	0.40	190.17	28.60	1.5000	Chicago_3h_100y
OF1					
S33_Block418	1.20	160.00	28.60	1.5000	Chicago_3h_100y
OF1					
S4_Block294	1.98	146.67	71.40	1.5000	Chicago_3h_100y
OF1					
S41.1_Block413	1.89	99.47	85.70	1.5000	Chicago_3h_100y
OF1					
S41.2_BlockExternal413	1.62	108.00	85.70	1.5000	Chicago_3h_100y
OF1					

	0.6401	0.6753	0.7117	0.7493	0.7881
	0.8281	0.8693	0.9116	0.9552	1.0000
Hrad:					
	0.0194	0.0388	0.0582	0.0776	0.0724
	0.0792	0.0933	0.1102	0.1284	0.1472
	0.1666	0.1862	0.2061	0.2261	0.2462
	0.2663	0.2996	0.3401	0.3805	0.4208
	0.4610	0.5011	0.5410	0.5808	0.6206
	0.6598	0.6947	0.7259	0.7537	0.7785
	0.8007	0.8207	0.8386	0.8547	0.8693
	0.8826	0.8948	0.9060	0.9163	0.9260
	0.9350	0.9435	0.9516	0.9592	0.9666
	0.9737	0.9805	0.9872	0.9936	1.0000
Width:					
	0.0062	0.0124	0.0185	0.0247	0.0452
	0.0716	0.0980	0.1244	0.1508	0.1772
	0.2036	0.2300	0.2564	0.2828	0.3092
	0.3356	0.3451	0.3452	0.3452	0.3452
	0.3453	0.3453	0.3454	0.3454	0.3454
	0.3673	0.3936	0.4200	0.4464	0.4727
	0.4991	0.5255	0.5518	0.5782	0.6045
	0.6309	0.6573	0.6836	0.7100	0.7364
	0.7627	0.7891	0.8155	0.8418	0.8682
	0.8945	0.9209	0.9473	0.9736	1.0000

Analysis Options

Flow Units CMS
Process Models:
Rainfall/Runoff YES
RDII NO
Snowmelt NO
Groundwater NO
Flow Routing YES
Ponding Allowed NO
Water Quality NO
Infiltration Method HORTON
Flow Routing Method DYNWAVE
Surcharge Method SLOT
Starting Date 04/22/2025 00:00:00
Ending Date 04/23/2025 00:00:00
Antecedent Dry Days 0.0
Report Time Step 00:01:00
Wet Time Step 00:05:00
Dry Time Step 00:05:00
Routing Time Step 1.00 sec
Variable Time Step YES
Maximum Trials 16
Number of Threads 1
Head Tolerance 0.000150 m

Runoff Quantity Continuity	Volume hectare-m	Depth mm
*****	-----	-----

S44_Block412A	2.29	150.89	85.70	1.5000	Chicago_3h_100y
OF1					
S81_Block410	2.22	155.40	85.70	1.5000	Chicago_3h_100y
OF1					
S84_Block414A	4.18	251.16	85.70	1.5000	Chicago_3h_100y
OF1					
S89_Block409	2.52	152.73	85.70	1.5000	Chicago_3h_100y
OF1					
S9_Block412B	0.91	138.81	85.70	1.5000	Chicago_3h_100y
OF1					

Node Summary

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
MH66	OUTFALL	0.00	0.00	0.0	
OF1	OUTFALL	0.00	0.00	0.0	
SUI	STORAGE	0.00	1.71	0.0	

Link Summary

Name	From Node	To Node	Type	Length	%
Slope Roughness					
Out1	SUI	MH66	OUTLET		

Cross Section Summary

Full Conduit Flow	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels
-----	-----	-----	-----	-----	-----	-----

Transect Summary

Transect test Area:	0.0001	0.0006	0.0013	0.0022	0.0037
	0.0064	0.0102	0.0153	0.0215	0.0290
	0.0376	0.0474	0.0585	0.0707	0.0841
	0.0988	0.1143	0.1300	0.1457	0.1613
	0.1770	0.1927	0.2083	0.2240	0.2397
	0.2555	0.2727	0.2912	0.3109	0.3317
	0.3538	0.3770	0.4015	0.4271	0.4539
	0.4820	0.5112	0.5416	0.5732	0.6060

Total Precipitation	2.807	71.708
Evaporation Loss	0.000	0.000
Infiltration Loss	0.425	10.848
Surface Runoff	2.369	60.518
Final Storage	0.036	0.916
Continuity Error (%)	-0.801	

Flow Routing Continuity	Volume hectare-m	Volume 10^6 ltr
-----	-----	-----
Dry Weather Inflow	0.000	0.000
Wet Weather Inflow	2.369	23.687
Groundwater Inflow	0.000	0.000
RDII Inflow	0.000	0.000
External Inflow	0.000	0.000
External Outflow	2.369	23.687
Flooding Loss	0.000	0.000
Evaporation Loss	0.000	0.000
Exfiltration Loss	0.000	0.000
Initial Stored Volume	0.000	0.000
Final Stored Volume	0.000	0.000
Continuity Error (%)	0.001	

Time-Step Critical Elements

None

Highest Flow Instability Indexes

All links are stable.

Most Frequent Nonconverging Nodes

Convergence obtained at all time steps.

Routing Time Step Summary	Minimum Time Step	Average Time Step	Maximum Time Step	% of Time in Steady State	Average Iterations per Step	% of Steps Not Converging
-----	-----	-----	-----	-----	-----	-----
	1.000 - 0.871 sec	: 0.50 sec		: 100.00 %		
	0.871 - 0.758 sec	: 0.00 %				
	0.758 - 0.660 sec	: 0.00 %				
	0.660 - 0.574 sec	: 0.00 %				

0.574 - 0.500 sec : 0.00 %

Subcatchment Runoff Summary

Perv	Total	Total	Total	Total	Total	Total	Imperv
Runoff	Runoff	Precip	Peak	Runoff	Evap	Infil	Runoff
Subcatchment	mm	10^6 ltr	mm	Coeff	mm	mm	mm
mm	mm	10^6 ltr	CMS	mm	mm	mm	mm
S1			71.71	0.00	0.00	13.32	50.79
7.35	58.14	1.36	0.94	0.811			
S16_Lot4			71.71	0.00	0.00	0.00	71.13
0.00	71.13	4.35	2.94	0.992			
S2_Block373			71.71	0.00	0.00	13.38	50.79
7.29	58.08	0.61	0.42	0.810			
S2_Block411			71.71	0.00	0.00	36.94	20.31
14.40	34.71	1.34	0.72	0.484			
S26_Block414B			71.71	0.00	0.00	6.61	60.94
3.73	64.67	3.29	2.20	0.902			
S3_Block301			71.71	0.00	0.00	13.79	50.79
6.83	57.62	0.85	0.56	0.804			
S31_Block300			71.71	0.00	0.00	32.01	20.21
19.97	40.18	0.16	0.14	0.560			
S33_Block418			71.71	0.00	0.00	34.38	20.25
17.09	37.34	0.45	0.28	0.521			
S4_Block294			71.71	0.00	0.00	13.44	50.80
7.21	58.00	1.15	0.78	0.809			
S41.1_Block413			71.71	0.00	0.00	6.58	60.95
3.77	64.72	1.22	0.83	0.903			
S41.2_BlockExternal413			71.71	0.00	0.00	6.50	60.97
3.87	64.84	1.05	0.73	0.904			
S44_Block412A			71.71	0.00	0.00	6.51	60.97
3.86	64.83	1.48	1.03	0.904			
S81_Block410			71.71	0.00	0.00	6.49	60.97
3.89	64.86	1.44	1.00	0.904			
S84_Block414A			71.71	0.00	0.00	6.54	60.96
3.83	64.79	2.71	1.86	0.903			
S89_Block409			71.71	0.00	0.00	6.53	60.96
3.83	64.79	1.63	1.12	0.904			
S9_Block412B			71.71	0.00	0.00	6.32	60.91
4.15	65.06	0.59	0.43	0.907			

Node Depth Summary

Node	Type	Average Depth	Maximum Depth	Maximum HGL	Time of Max Occurrence	Reported Max Depth
		Meters	Meters	Meters	days hr:min	Meters

SU1		0.002	0.5	0.0	0.0	0.203	43.7	0
01:14	0.473							

Outfall Loading Summary

Outfall Node	Flow Freq	Avg Flow	Max Flow	Total Volume
	Pcnt	CMS	CMS	10^6 ltr
MH66	31.95	0.049	0.473	1.360
OF1	97.33	0.266	15.027	22.326
System	64.64	0.315	15.500	23.687

Link Flow Summary

Link	Type	Maximum Flow	Time of Max Occurrence	Maximum Veloc	Max/ Full Flow	Max/ Full Depth
		CMS	days hr:min	m/sec		
Out1	DUMMY	0.473	0 01:02			

Flow Classification Summary

Inlet Conduit Ctrl	Adjusted /Actual Length	Fraction of Time in Flow Class						
		Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd

Conduit Surcharging Summary

No conduits were surcharged.

Analysis begun on: Tue Jan 27 17:49:53 2026
Analysis ended on: Tue Jan 27 17:49:54 2026
Total elapsed time: 00:00:01

Node	Type	Flow	Evap	Exfil	Maximum Volume	Max Time
		CMS	CMS	Pcnt	1000 m^3	days
MH66	OUTFALL	0.00	0.00	0.00	0	00:00
OF1	OUTFALL	0.00	0.00	0.00	0	00:00
SU1	STORAGE	0.04	1.60	1.60	0	01:14

Node Inflow Summary

Total Inflow	Flow Balance	Maximum Lateral	Maximum Total Inflow	Time of Max Occurrence	Lateral Inflow Volume
	Node Error	Type	CMS	CMS days hr:min	10^6 ltr
MH66	0.000	OUTFALL	0.000	0.473 0 01:02	0
OF1	0.000	OUTFALL	15.027	15.027 0 01:10	22.3
SU1	0.014	STORAGE	0.941	0.941 0 01:10	1.36

Node Surcharging Summary

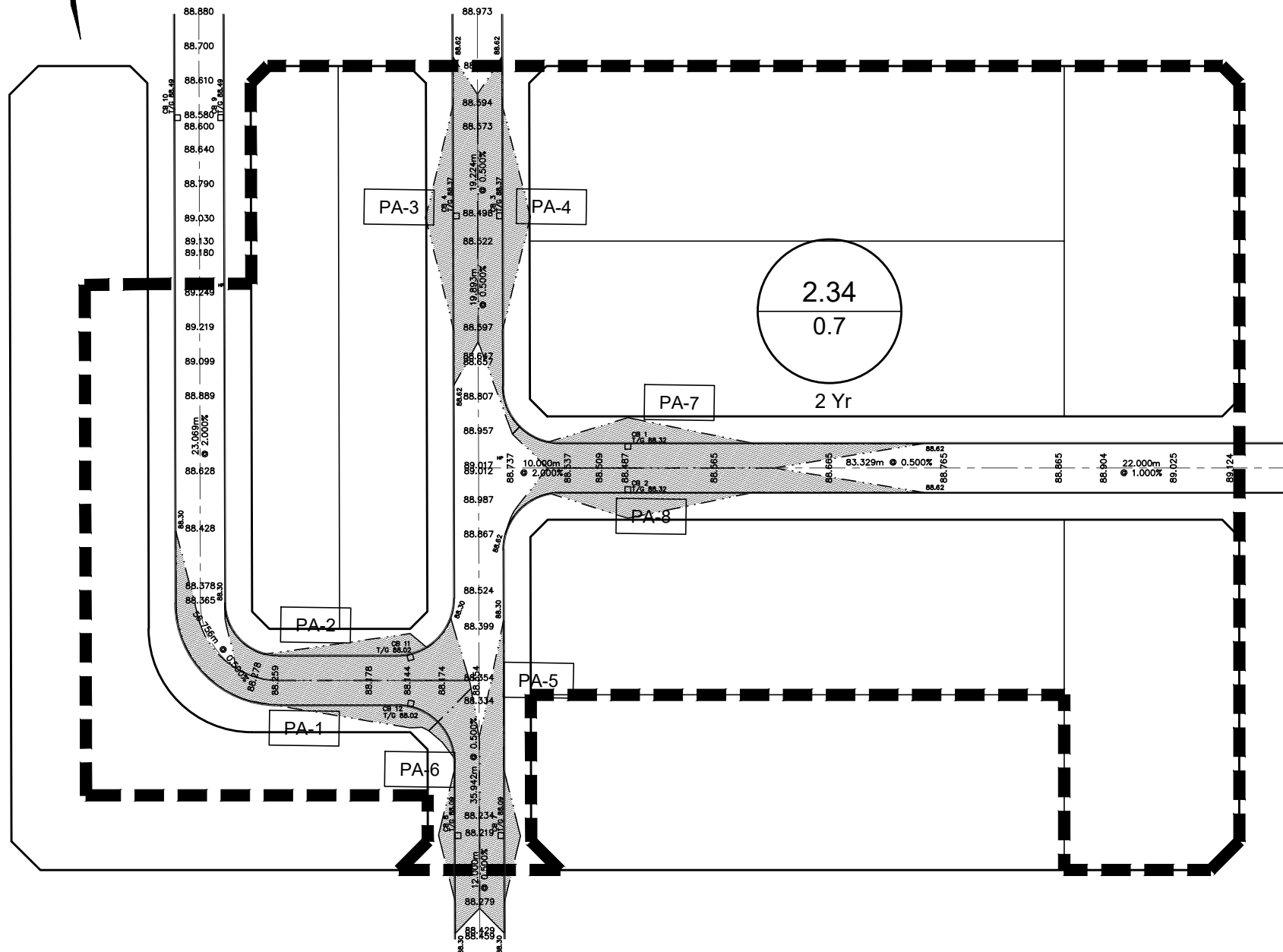
No nodes were surcharged.

Node Flooding Summary

No nodes were flooded.

Storage Volume Summary

Max Occurrence	Maximum Volume	Average Volume	Avg Pcnt	Evap Pcnt	Exfil Pcnt	Maximum Volume	Max Pcnt	Time of Max
hr:min	Storage Unit	1000 m^3	Full	Loss	Loss	1000 m^3	Full	days



PONDING VOLUME TABLE

AREA NUMBER	SPILL ELEVATION (m)	GUTTER ELEVATION (m)	MAXIMUM STATIC PONDING DEPTH (m)	MAXIMUM STATIC PONDING AREA (m ²)	MAXIMUM STATIC PONDING VOLUME (m ³)	Volume (round down to 1 decimal) (m ³)	
PA-1	88.30	88.02	0.28	328.98	30.70	30.7	
PA-2	88.30	88.02	0.28	260.60	24.32	24.3	
PA-3	88.62	88.33	0.29	309.08	29.88	29.8	
PA-4	88.62	88.33	0.29	323.10	31.23	31.2	
PA-5	88.30	88.09	0.21	212.24	14.86	14.8	
PA-6	88.30	88.09	0.21	215.43	15.08	15.0	
PA-7	88.62	88.32	0.30	322.80	32.28	32.2	
PA-8	88.62	88.32	0.30	317.87	31.79	31.7	
					Sum of Vol=	210.14	m ³
					Total Area =	2.34	Ha
					Vol/Area=	89.80	m ³ /Ha





CALCULATIONS:

DRAINAGE AREA = 2.34 Ha

TOTAL PONDING VOLUME = 210.14 m³

PONDING VOL/Ha = 89.80 m³/Ha

LEGEND:

-  STORM TRIB DRAINAGE AREA
-  PONDING AREA
-  PONDING AREA ID
-  PROPOSED ELEVATION



120 Iber Road, Unit 103
Stittsville, ON K2S 1E9
TEL: (613) 836-0856
FAX: (613) 836-7183
www.DSEL.ca

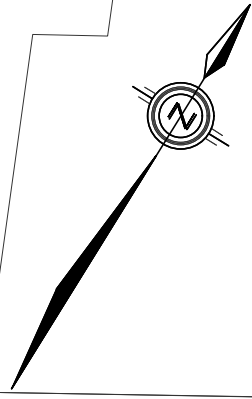
**TRAILSEDGE PHASE 5
PONDING VOLUME PER Ha**

PROJECT No.:	20-1195
SCALE:	1:1000
DATE:	JANUARY 2026
FIGURE:	4

NOTE:

TOTAL PONDING VOLUMES AND SITE AREA
INFORMATION FROM PROJECT 16-881 DRAWING
72-100 YEAR STATIC PONDING AREA AND ICD
PLAN.

INNES ROAD



TOTAL PONDING VOLUME: 3620 m³
SITE AREA: 20.93 Ha
VOLUME PER Ha: 172.96 m³/Ha

PAGE ROAD

JARGEAU ROAD

REFLECTION STREET

STREET 3


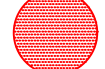
BEAUGENCY STREET

STREET 3

STREET 2

Low Density
Multi-Block
1.38 Ha
(3.40 Ac)

LEGEND

-  AREA OF DETAILED PONDING PER Ha ANALYSIS
-  DETAILED PONDING AREA

120 Iber Road, Unit 103
Stittsville, Ontario, K2S 1E9
Tel. (613) 836-0856
Fax. (613) 836-7183
www.DSEL.ca

EAST URBAN COMMUNITY PHASE 3 AREA
SURFACE STORAGE AREA

PROJECT No.: 20-1195

DATE: JANUARY 2026

SCALE: NTS

FIGURE: 5



STORM SEWER CALCULATION SHEET (RATIONAL METHOD)

Local Roads Return Frequency = 2 years
 Collector Roads Return Frequency = 5 years
 Arterial Roads Return Frequency = 10 years



Manning 0.013

Location	LOCATION		AREA (Ha)																FLOW					SEWER DATA											
			2 YEAR				5 YEAR				10 YEAR				100 YEAR				Time of Conc.	Intensity 2 Year	Intensity 5 Year	Intensity 10 Year	Intensity 100 Year	Peak Flow Q (l/s)	DIA (mm) (actual)	DIA (mm) (nominal)	TYPE	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME OF LOW (min)	RATIO Q/Q full		
			From Node	To Node	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	(min)	(mm/h)	(mm/h)	(mm/h)	(mm/h)										
North West TRUNK 1																																			
	2065	2066	0.21	0.70	0.41	0.41	0.21	0.90	0.53	0.53			0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	86	450	450	PVC	0.20	96.5	128	0.80	2.01	0.68		
	2066	2072	0.32	0.70	0.62	1.03	0.28	0.90	0.70	1.23			0.00	0.00			0.00	0.00	12.01	69.87	94.67	110.93	162.09	188	600	600	PVC	0.14	96.0	230	0.81	1.97	0.82		
	2072	2075	3.15	0.70	6.13	7.16	0.20	0.90	0.50	1.73			0.00	0.00			0.00	0.00	13.98	64.30	87.02	101.93	148.87	611	825	825	CONC	0.25	79.0	718	1.34	0.98	0.85		
	2075	2083	1.30	0.70	2.53	9.69	0.19	0.90	0.48	2.20			0.00	0.00			0.00	0.00	14.96	61.87	83.70	98.02	143.14	784	975	975	CONC	0.17	85.0	924	1.24	1.14	0.85		
	2083	2084	4.30	0.70	8.37	18.06	0.18	0.90	0.45	2.65			0.00	0.00			0.00	0.00	16.10	59.29	80.16	93.86	137.04	1283	1050	1050	CONC	0.28	81.5	1445	1.67	0.81	0.89		
			0.18	0.70	0.35	18.41			0.00	2.65			0.00	0.00			0.00	0.00																	
			0.20	0.70	0.39	18.80			0.00	2.65			0.00	0.00			0.00	0.00																	
			0.90	0.70	1.75	20.55			0.00	2.65			0.00	0.00			0.00	0.00																	
			0.95	0.70	1.85	22.40			0.00	2.65			0.00	0.00			0.00	0.00																	
			0.00	0.70	22.40	1.27	0.40	1.41	4.06				0.00	0.00			0.00	0.00																	
	2084	2085	1.90	0.70	3.70	26.10	1.71	0.90	4.28	8.34			0.00	0.00			0.00	0.00	16.91	57.59	77.84	91.13	133.03	2152	1350	1350	CONC	0.18	118.0	2264	1.58	1.24	0.95		
	2085	2116	0.71	0.70	1.38	27.48			0.00	8.34			0.00	0.00			0.00	0.00	18.16	55.20	74.57	87.29	127.40	2139	1650	1650	CONC	0.10	119.5	2882	1.35	1.48	0.74		
			0.00	0.70	27.48	0.56	0.40	0.62	8.97				0.00	0.00			0.00	0.00																	
			0.00	0.70	27.48	3.12	0.90	7.81	16.77				0.00	0.00			0.00	0.00																	
			0.00	0.70	27.48	0.72	0.90	1.80	18.57				0.00	0.00			0.00	0.00																	
			9.47	0.90	0.00	27.48	1.14	0.80	2.54	21.11			0.00	0.00	2.18	0.40	0.00	2.42						85L/s/ha	805										
			0.00	0.70	27.48	0.89	0.90	2.23	23.34				0.00	0.00			0.00	2.42																	
			1.16	0.70	2.26	29.73	2.94	0.80	6.54	29.87			0.00	0.00			0.00	2.42																	
			0.24	0.80	0.53	30.27	2.77	0.90	6.93	36.80			0.00	0.00			0.00	2.42																	
			2.62	0.70	5.10	35.37	0.23	0.80	0.51	37.32			0.00	0.00			0.00	2.42																	
	2116	2117	7.72	0.70	15.02	50.39			0.00	37.32			0.00	0.00			0.00	2.42	19.64	52.63	71.06	83.16	121.35	5598	2250	2250	CONC	0.15	75.0	8072	2.03	0.62	0.69		
	2117	2122	0.52	0.70	1.01	51.40			0.00	37.32			0.00	0.00			0.00	2.42	20.25	51.63	69.70	81.57	119.01	5544	2400	2400	CONC	0.11	84.0	8210	1.81	0.77	0.68		
	2122	2136	0.65	0.70	1.26	52.67			0.00	37.32			0.00	0.00			0.00	2.42	20.25	51.63	69.70	81.57	119.01	5609	2550	2550	CONC	0.10	84.0	9202	1.80	0.78	0.61		
	TO TRUNK 2					52.67				37.32			0.00				0.00	2.42	21.02																
TRUNK 2																																			
	2041	2042	1.39	0.80	3.09	3.09			0.00	0.00			0.00	0.00			0.00	0.00	10.00	76.81	104.19	122.14	178.56	237	525	525	PVC	0.65	29.5	347	1.60	0.31	0.68		
	2042	2043	1.20	0.80	2.67	5.76			0.00	0.00			0.00	0.00			0.00	0.00	10.31	75.65	102.60	120.26	175.80	436	750	750	CONC	0.25	95.5	557	1.26	1.26	0.78		
	2043	2044	1.29	0.80	2.87	8.63			0.00	0.00			0.00	0.00			0.00	0.00	11.57	71.26	96.57	113.17	165.38	615	825	825	CONC	0.32	110.0	812	1.52	1.21	0.76		
	2044	2046	0.00	0.80	0.00	8.63	0.22	0.90	0.55	0.55	2.14	0.90	0.00	0.00			0.00	0.00	12.78	67.57	91.50	107.20	156.61	1207	900	900	CONC	0.62	33.5	1425	2.24	0.25	0.85		
	2046	2047	2.39	0.80	5.32	13.94	0.23	0.90	0.58	1.13			0.00	0.00			0.00	0.00	13.03	66.86	90.53	106.05	154.93	1602	1200	1200	CONC	0.24	103.5	1910	1.69	1.02	0.84		
			0.47	0.80	1.05	14.99	0.26	0.90	0.65	1.78			0.00	0.00			0.00	0.00																	
			1.15	0.80	2.56	17.55			0.00	1.78			0.00	0.00			0.00	0.00	14.05	64.11	86.77	101.63	148.43	1823	1500	1500	CONC	0.10	117.0	2235	1.26	1.54	0.82		
			0.80	0.80	1.78	19.33	0.25	0.90	0.63	2.40			0.00	0.00			0.00	0.00																	
	2047	2048	1.14	0.80	2.54	21.86			0.00	2.40			0.00	0.00			0.00	0.00	15.59	60.41	81.70	95.67	139.69	2029	1500	1500	CONC	0.12	112.5	2449	1.39	1.35	0.83		
			0.49	0.80	1.09	22.95			0.00	2.40			0.00	0.00			0.00	0.00																	
	2048	2049	0.76	0.80	1.69	24.64	0.25	0.90	0.63	3.03			0.00	0.00			0.00	0.00	16.94	57.53	77.77	91.04	132.90	2141	1500	1500	CONC	0.13	85.5	2549	1.44	0.99	0.84		
			0.44	0.80	0.98	25.62			0.00	3.03			0.00	0.00			0.00	0.00																	
	2049	2057	6.36	0.80	14.14	39.77	0.24	0.90	0.60	3.63			0.00	0.00	1.78	0.40	0.00	0.00	17.93	55.62	75.15	87.96	128.39	2955	1800	1800	CONC	0.13	90.5	4144	1.63	0.93	0.71		
			0.00	0.80	39.77	0.42	0.90	1.05	4.68				0.00	0.00	1.98	0.40	0.00	0.00																	
	2060	2061	0.17	0.70	0.33	40.10	0.48	0.90	1.20	5.88			0.00	0.00	9.40	0.40	10.45	12.43	18.86	53.95	72.87	85.28	124.45	4595	1800	1800	CONC	0.23	81.5	5513	2.17	0.63	0.83		
	2061	2062	0.00	0.70	0.00	40.10	0.20	0.90	0.50	6.38			0.00	0.00			0.00	12.43	19.48	52.88	71.41	83.57	121.94	4539	1800	1800	CONC	0.22	79.0	5392	2.12	0.62	0.84		
	2062	2063	0.00	0.70	0.00	40.10	0.13	0.90	0.33	6.71			0																						

STORM SEWER CALCULATION SHEET (RATIONAL METHOD)

Local Roads Return Frequency = 2 years
 Collector Roads Return Frequency = 5 years
 Arterial Roads Return Frequency = 10 years



Manning 0.013

LOCATION			AREA (Ha)																FLOW					SEWER DATA										
Location	From Node	To Node	2 YEAR				5 YEAR				10 YEAR				100 YEAR				Time of Conc. (min)	Intensity 2 Year (mm/h)	Intensity 5 Year (mm/h)	Intensity 10 Year (mm/h)	Intensity 100 Year (mm/h)	Peak Flow Q (l/s)	DIA. (mm) (actual)	DIA. (mm) (nominal)	TYPE	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME OF LOW (min)	RATIO Q/Q full	
			AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC	AREA (Ha)	R	Indiv. 2.78 AC	Accum. 2.78 AC																
	2136	2138	0.37	0.70	0.72	93.83			0.00	69.94			0.00	5.35			0.00	14.86	27.52	42.41	57.14	66.82	97.40	9781	2700	2700	CONC	0.15	90.5	13126	2.29	0.66	0.75	
			1.29	0.70	2.51	96.34			0.00	69.94			0.00	5.35			0.00	14.86																
			1.30	0.70	2.53	98.87			0.00	69.94			0.00	5.35			0.00	14.86																
			0.50	0.70	0.97	99.85			0.00	69.94			0.00	5.35			0.00	14.86																
	2138	2139	0.38	0.70	0.74	100.59			0.00	69.94			0.00	5.35			0.00	14.86	21.02	50.44	68.08	79.66	116.22	11988	2700	2700	CONC	0.16	77.0	13556	2.37	0.54	0.88	
	2139	2140	0.38	0.70	0.74	101.33			0.00	69.94			0.00	5.35			0.00	14.86	21.56	49.64	66.99	78.38	114.34	11834	2700	2700	CONC	0.15	73.5	13126	2.29	0.53	0.90	
	2140	HW	0.11	0.70	0.21	101.54			0.00	69.94			0.00	5.35			0.00	14.86	21.56	49.64	66.99	78.38	114.34	11844	2700	2700	CONC	0.15	47.0	13126	2.29	0.34	0.90	
TO POND 1																																		
TRUNK 3																																		
					0.00	0.00	0.98	0.80	2.18	2.18			0.00	0.00			0.00	0.00	21.15															
			2.86	0.70	5.57	5.57	5.61	0.90	14.04	16.22			0.00	0.00			0.00	0.00																
					0.00	5.57	0.95	0.80	2.11	18.33			0.00	0.00			0.00	0.00																
	2025	2026	7.33	0.70	14.26	19.83	0.49	0.90	1.23	19.55			0.00	0.00			0.00	0.00	21.15	50.25	67.82	79.36	115.77	148	1650	1650	CONC	0.14	32.0	3410	1.59	0.33	0.04	
	2026	2119	0.39	0.70	0.76	20.59	1.16	0.40	1.29	20.84			0.00	0.00			0.00	0.00	21.48	49.76	67.15	78.57	114.61	1366	1650	1650	CONC	0.16	92.5	3646	1.71	0.90	0.37	
	2119	2120	0.66	0.70	1.28	21.87			0.00	20.84			0.00	0.00			0.00	0.00	22.39	48.48	65.41	76.52	111.61	1469	1650	1650	CONC	0.10	47.0	2882	1.35	0.58	0.51	
	2120	2121	0.43	0.70	0.84	22.71			0.00	20.84			0.00	0.00			0.00	0.00	22.97	47.70	64.34	75.27	109.78	2204	1650	1650	CONC	0.10	84.5	2882	1.35	1.04	0.76	
	2121	2142	1.13	0.70	2.20	24.91			0.00	20.84			0.00	0.00			0.00	0.00	24.01	46.36	62.52	73.13	106.63	2258	1650	1650	CONC	0.10	76.0	2882	1.35	0.94	0.78	
	2142	2143	0.37	0.70	0.72	25.63			0.00	20.84			0.00	0.00			0.00	0.00	22.97	47.70	64.34	75.27	109.78	2204	1650	1650	CONC	0.10	43.0	2882	1.35	0.53	0.76	
	2143	2144			0.00	25.63			0.00	20.84			0.00	0.00			0.00	0.00	24.01	46.36	62.52	73.13	106.63	2258	1800	1800	CONC	0.10	51.1	3635	1.43	0.60	0.62	
	2144	HW			0.00	25.63			0.00	20.84			0.00	0.00			0.00	0.00	24.95	45.22	60.97	71.31	103.97	2260	1800	1800	CONC	0.10	22.5	3635	1.43	0.26	0.62	
TO POND 1																																		

Definitions:
 Q = 2.78 AIR, where
 Q = Peak Flow in Litres per second (L/s)
 A = Areas in hectares (ha)
 I = Rainfall Intensity (mm/h)
 R = Runoff Coefficient

Notes:
 1) Ottawa Rainfall-Intensity Curve
 2) Min. Velocity = 0.80 m/s



Designed: R.B.	PROJECT: Orleans EUC MUC
Checked: K.M.	LOCATION: City of Ottawa
Dwg Reference:	File Ref: 14-733
	Date: October 2019
	Sheet No: 2

Table 3: Summary of Minor and Major System Flows (Ultimate Conditions)

Outlet ID	Outlet	Area (ha)	Imperviousness (%)	Peak Flow (m ³ /s)								
				2-Yr SCS	5-Yr SCS	10-Yr SCS	25-Yr SCS	50-Yr SCS	100-Yr SCS	1979	1988	1996
South of Hydro Corridor - Minor Flows												
N/A	Split Flows Between MH 22 and MH 27 to South Channel	15.810	67	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
N/A	Split Flows Between MH 22, MH 27 and MH 57 (Node "N57") to South Channel	73.603	72	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
1	MH 22 to South Channel (Including Split Flows)	2.177	40	1.461	2.769	3.543	4.167	4.469	4.671	4.508	4.415	3.809
2	MH 27 to South Channel (Including Split Flows)	8.615	51	0.533	0.929	1.204	1.358	1.491	1.628	1.677	1.584	1.256
3	MH 57 (Node "N57") to South Channel (Including Split Flows)	5.730	67	8.771	12.305	13.904	15.382	15.923	16.483	15.758	15.872	14.796
4	MH 111 (Node "EX111") to South Channel	6.544	53	0.518	0.560	0.572	0.578	0.586	0.587	0.585	0.587	0.573
5	MH 407 (Node "N407") to South Channel	14.495	64	0.996	1.475	1.766	2.028	2.373	2.612	2.627	2.470	1.879
6	Brian Coburn Boulevard / Transitway Storm Sewer Outfall to South Main Cell	18.120	86	1.808	2.578	3.100	3.407	3.407	3.407	3.407	3.407	3.407
South of Hydro Corridor - Major Flows												
N/A	Major Only to South Channel (Minor to Pond 3)	1.360	51	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
7	Excess Major System Flows from Melodie Street / Tulip Tree Way to South Channel ⁽¹⁾	N/A	N/A	0.000	0.000	0.359	0.698	0.901	1.113	0.807	0.887	0.549
8	Excess Major System Flows from Compass Street to South Channel	N/A	N/A	0.000	0.000	0.000	0.009	0.018	0.030	0.007	0.016	0.000
9	Excess Major System Flows from Belcourt Extension to South Channel	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
10	Excess Major System Flows from Shinleaf Crescent to South Channel	N/A	N/A	0.000	0.000	0.012	0.078	0.168	0.273	0.222	0.193	0.011
11	Runoff from South Channel Block East of Compass Street, and Adjacent Rearyards	2.714	72	0.326	0.451	0.537	0.641	0.720	0.804	0.634	0.722	0.600
12	Runoff from Woodlot and South Channel Block West of Compass Street ⁽¹⁾	9.519	20	0.383	0.727	1.008	1.371	1.656	1.967	1.634	1.739	1.011
13	Runoff from South Forebay / Main Cell Blocks and Adjacent Existing Residential Lands	4.973	36	0.313	0.492	0.631	0.815	0.956	1.105	0.887	1.000	0.287
North of Hydro Corridor - Minor Flows												
14	MH 2140 to North Forebay C	107.530	74	10.662	14.638	16.021	17.574	18.597	19.245	18.625	17.925	16.763
15	MH 2143 to North Forebay B	21.520	78	2.193	3.055	3.330	3.515	3.542	3.662	3.559	3.435	3.664
16	MH 2144 to North Forebay A	30.377	63	2.597	3.800	4.235	4.644	4.863	5.022	4.862	4.703	4.293
17	Forcemain from Snow Dump to North Main Cell	6.780	99	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022	0.022
North of Hydro Corridor - Major Flows												
18	(Node "C13b") Via Headwaters Feature to North Main Cell	4.786	21	0.044	0.078	0.103	0.144	0.192	0.262	0.321	0.268	0.104
19	Ditch on Hydro One Easement to North Main Cell	18.260	14	0.367	0.520	0.639	0.805	0.940	1.090	1.206	1.183	0.013
20	Existing Residential Lands from Nature Trail Crescent Area to North Main Cell ⁽²⁾	6.500	41	0.449	0.661	0.821	1.029	1.190	1.362	1.103	1.218	0.021
21	Excess Major System Flow to North Forebay from Future Park Block	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
22	Excess Major System Flow to North Forebay from Future Residential Development	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
23	Excess Major System Flow to North Forebay from Ditch in Hydro One Easement	N/A	N/A	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
24	Runoff from North Forebay / Main Cell Blocks	8.930	47	0.625	0.923	1.129	1.453	1.673	1.908	1.682	5.838	0.015
Total	Total Inflow to Pond 1 (with South Channel and Pond Block Inflows Summed in Model)	368.343	65	27.003	39.351	45.463	51.987	56.076	59.696	59.691	58.124	47.872

⁽¹⁾ Including some major only flow contributions (minor flows to Pond 3).

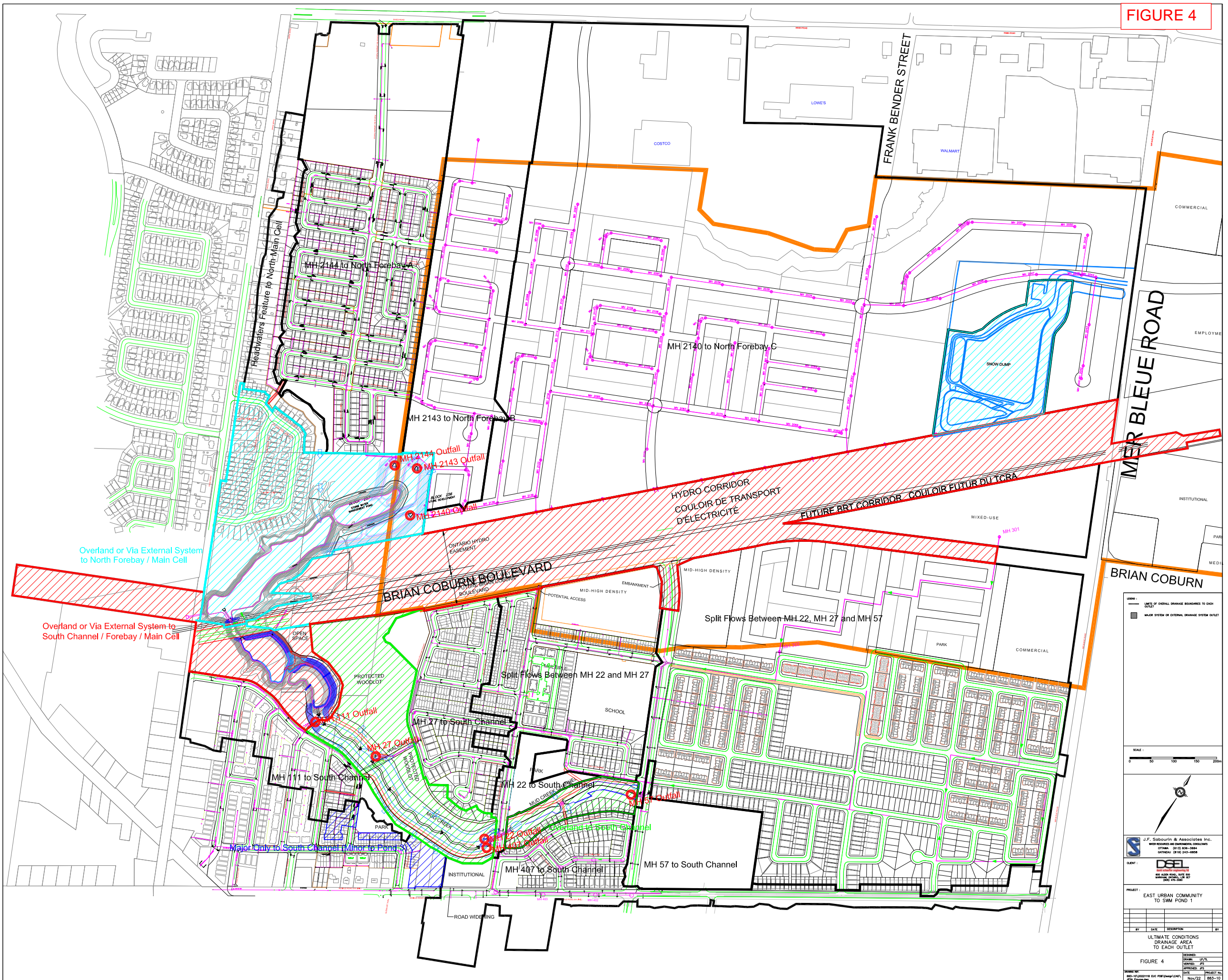
⁽²⁾ Major / minor flow split is unknown.

FIGURE 4

Outlet	Area (ha)	Imperviousness (%)	Peak Flow (m ³ /s)						
			2-Yr SCS	5-Yr SCS	10-Yr SCS	25-Yr SCS	50-Yr SCS	100-Yr SCS	
Split Flows Between MH 22 and MH 27 to South Channel	15.810	67	N/A	N/A	N/A	N/A	N/A	N/A	1996
Split Flows Between MH 22, MH 27 and MH 57 (Node "N57") to South Channel	79.603	72	N/A	N/A	N/A	N/A	N/A	N/A	1988
MH 22 to South Channel (Including Split Flows)	2.177	40	1.464	2.765	3.546	4.169	4.471	4.670	1979
MH 27 to South Channel (Including Split Flows)	8.615	51	0.534	0.929	1.205	1.359	1.486	1.623	N/A
MH 57 (Node "N57") to South Channel (Including Split Flows)	5.730	67	8.771	12.296	13.906	15.385	15.916	16.486	N/A
MH 111 (Node "EX111") to South Channel	6.544	53	0.519	0.560	0.572	0.578	0.586	0.587	N/A
MH 407 (Node "N407") to South Channel	14.495	64	0.957	1.477	1.770	2.031	2.374	2.615	N/A
Major Only to South Channel (Minor to Pond 3)	1.360	51	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Overland to South Channel (Including Major Only Flow Contributions) ⁽¹⁾	12.233	32	0.464	1.074	1.783	2.629	3.269	3.966	2.029
Overland or Via External System to South Channel / Forebay / Main Cell	41.353	48	2.406	3.470	4.223	4.719	4.881	5.108	3.406
MH 2140 to North Forebay C	107.530	74	10.662	14.638	16.021	17.575	18.597	19.245	16.763
MH 2143 to North Forebay B	21.520	78	2.193	3.056	3.331	3.519	3.545	3.665	3.664
MH 2144 to North Forebay A	30.377	63	2.597	3.800	4.235	4.644	4.863	5.023	4.293
(Node "C13b") Via Headwaters Feature to North Main Cell	4.786	21	0.044	0.078	0.103	0.144	0.191	0.261	0.104
Overland or Via External System to North Forebay / Main Cell ⁽²⁾	22.210	61	1.075	1.584	1.950	2.482	2.862	3.270	2.236
Total Inflow to Pond 1 (with South Channel Inflows Added in Model)	368.343	65	27.071	39.450	45.589	52.038	55.920	59.534	46.746

⁽¹⁾ including excess major system flows from areas serviced by storm sewer outfalls to the south channel

⁽²⁾ including excess major system flows from areas serviced by storm sewer outfalls to the north forebay



LIMITS OF OVERALL DRAINAGE SERVICES TO EACH OUTLET
 MAJOR SYSTEM OR EXTERNAL DRAINAGE SYSTEM OUTLET

SCALE: 0 50 100 150 200m

J.F. Sabourin & Associates Inc.
 100 BAYVIEW AVE. SUITE 101
 SCARBOROUGH, ONTARIO M1S 5B7
 (416) 291-2200

CLIENT: DSEL
 100 BAYVIEW AVE. SUITE 101
 SCARBOROUGH, ONTARIO M1S 5B7
 (416) 291-2200

PROJECT: EAST URBAN COMMUNITY TO SIM POND 1

BY	DATE	DESCRIPTION	BY

ULTIMATE CONDITIONS DRAINAGE AREA TO EACH OUTLET

FIGURE 4

ISSUED	DATE	BY
DESIGNED	11/21/18	JFS
CHECKED	11/21/18	JFS
APPROVED	11/21/18	JFS
DATE	11/21/18	PROJECT NO.
183-10-0100118 EUC FOR DSWP/CAN	Nov/22	183-10



Trinity Development Group

**TRINITY DEVELOPMENT - INNES / BELCOURT
STORMWATER MANAGEMENT SYSTEM
OTTAWA, ONTARIO**

MUNICIPAL SERVICING
REVIEWED
CITY OF OTTAWA
DEPT OF PLANNING, TRANSIT AND THE ENVIRONMENT
INFRASTRUCTURE APPROVALS DIVISION
FOR MOE SUBMISSION

SIGNED: *Chie Sugrue*

DATE: 05/02/2009

D07-12-08-0001

14252
REVISED

JANUARY 2009



Table 1. Post-Development Flow into the Existing Sewer at Innes Road

Storm Event	Post-Development Peak Flow (cms)
25 mm 4hr Chicago	0.467
2 Yr 3 hr Chicago	0.471
5 Yr 3 hr Chicago	0.476
100 Yr 3hr Chicago	0.493

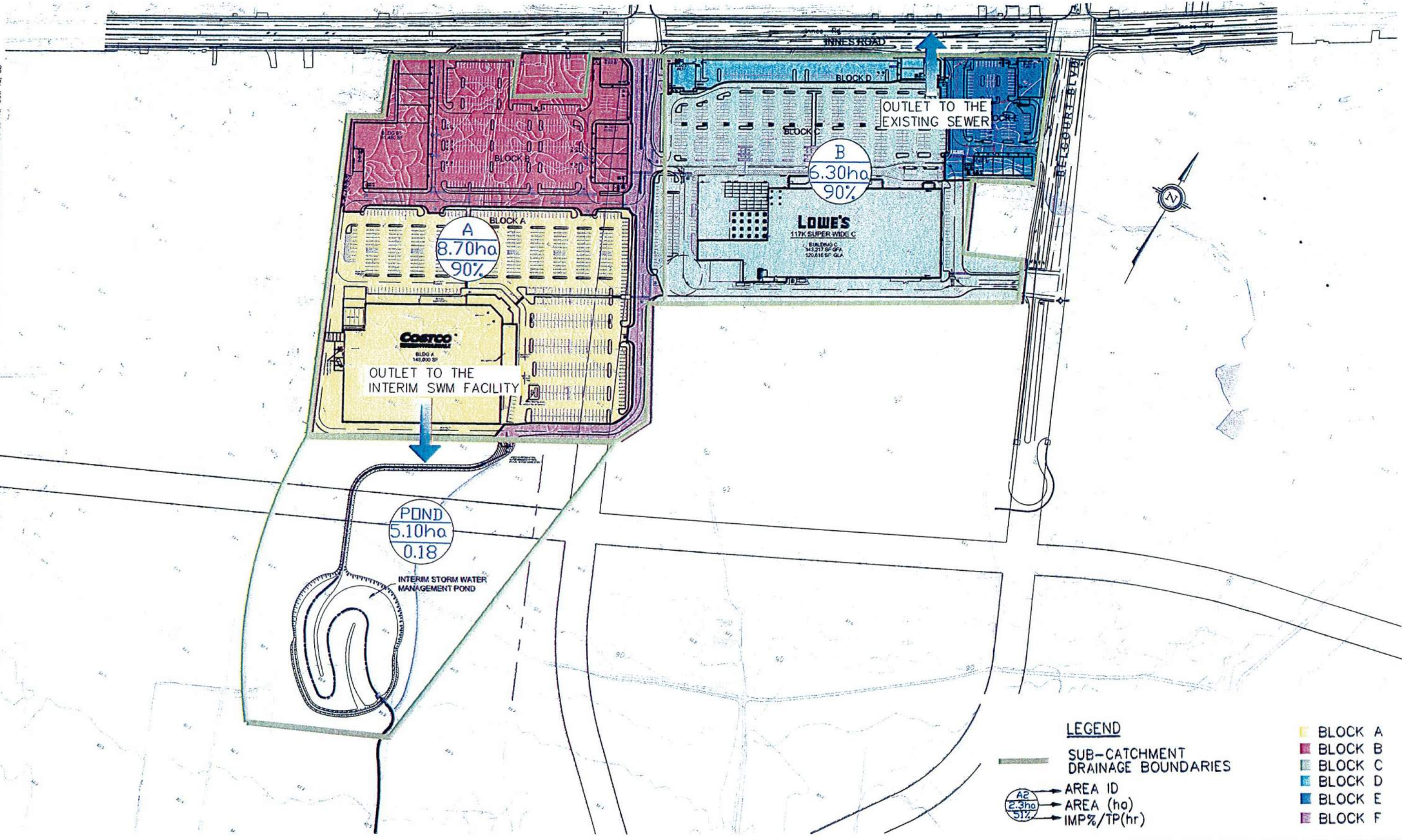
The above table indicates that the post-development peak flows from Area B outlet to the existing sewer at Innes Road does not exceeded the maximum allowable flow rate of 493 l/s.

From a development perspective, Area B is divided into 3 Blocks (Blocks C, D and E). The minimum required on-site storage is 1830 m³. Blocks D and E will provide on-site-storage of approximately 400 m³. Block C will be designed by others and the required on site-storage is approximately 1430 m³ to ensure zero overflow. For the detail regarding the on-site storage volume and site grading for Blocks D and E, refer to the "Site Servicing Brief", (IBI Group, October 2008).

Drainage Area A

The total drainage area into the interim SWM Facility includes 8.7 ha of Area A and 5.1 ha of rural area located in the vicinity of the facility. The required level of service (85 l/s/ha) and the total inflow into the minor system will be maintained by the capacity restriction and density of the inlets directly connected into the minor system. The required on-site storage volume for Area A corresponds to a level of service of 85 l/s/ha and was determined using the route reservoir routine in SWMHYMO under the 100 year 3 hour Chicago storm. The on-site storage requirements for Area A is approximately 2700 m³ in order to completely attenuate the runoff from the 100 year 3 hour Chicago storm event. As with the existing conditions, the 25 mm 4 hour Chicago and 2, 5 and 100 year 3 hour Chicago storms were used to evaluate peak flows. The results from the existing conditions model are presented in **Table 2** along with the post-development flows. The SWMHYMO model output and related calculations for the post-development conditions can be found in **Appendices A and C**.

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LEGEND

- SUB-CATCHMENT DRAINAGE BOUNDARIES
- AREA ID
- AREA (ha)
- IMP%/TP(hr)

	BLOCK A
	BLOCK B
	BLOCK C
	BLOCK D
	BLOCK E
	BLOCK F



Scale
1:3000

Project Title
EMPARRADO LANDS

Drawing Title
POST - DEVELOPMENT DRAINAGE BOUNDARIES

Sheet No.
FIGURE 2_{E146}

