

PROJECT TITLE:		Elm Road		STORM SEWER DESIGN SHEET 5 and 100 YEAR STORMS TOWN OF WHITCHURCH-STOUFFVILLE - REGION OF YORK															ENGINEER'S SEAL					PREPARED BY: <div>SKA SABOURIN KIMBLE &amp; ASSOCIATES LTD. CONSULTING ENGINEERS</div>									
PROJECT No.:		10-228																															
CLIENT:		Madrol Limited																															
ISSUED FOR:		2nd Submission - July 2025																															
NOTES, STANDARDS AND DESIGN INPUT PARAMETERS																																	
Captured Overland Flow = Q(100yr) - Q(5yr)										IDF Parameters:					Formula:					Note: PVC pipe is manufactured in metric dimensions, therefore, the pipe diameter stated is used to calculate capacity and velocity. However, since concrete pipe is manufactured in imperial dimensions, standard imperial equivalent sizes for the diameter stated have been used to calculate capacity and velocity.													
Inlet Time (mins): 10.00										Storm: A B C					$I_{yr} = \frac{A}{(t + B)^C}$																		
Run-off Coefficients: Park/Open Space 0.20										5 - Year 1015.96 5.255 0.826					where; t=																		
Single Family 0.65										25 - Year 1546.81 5.746 0.845																							
Townhouses 0.75										100 - Year 2051.71 6.230 0.860																							
Institutional 0.75																																	
Commercial/Asphalt 0.90																																	
Other (if applicable) 0.76																																	
Design Storm Return Period Run-off Coefficient Modification Factor																																	
5 1.00																																	
25 1.10																																	
100 1.25																																	
PROPERTY	STREET	Upstream	Downstream	A	A	A	A	A	A	A	Acc. AR	t	I (5yr)	Q (5yr)	I (25yr)	Q (25yr)	I (100yr)	Q (100yr)	Captured Overland Flow (l/s)	Acc. Captured Overland Flow (l/s)	Q(design) (l/s)	Q OTTSWMM for HGL (l/s)	Type	Pipe	Grade	Capacity	Length	Velocity	Down-stream Velocity (m/s)	Change in Velocity (m/s)	Time (min)	Total Time (min)	Capacity (%)
		Manhole	Manhole	Park/Open Space (ha)	Single Family Res. (ha)	Multi-Family Res. (ha)	Institutional (ha)	Commercial / Asphalt (ha)	A Other - Specified Above (ha)	This Section (ha)	(ha)	(min)	(mm/hr)	(l/s)	(mm/hr)	(l/s)	(mm/hr)	(l/s)			(l/s)			(mm)	(%)	(l/s)	(m)	(m/s)					
		1	2		0.07					0.053	0.053	10.00	107.00	15.60	150.60	21.96	186.74	27.23	0.00	15.60	PVC	300	1.00	96.70	15.0	1.37	0.97	0.40	0.18	10.18	16%		
		2	3		0.18					0.135	0.188	10.18	105.95	55.18	149.14	77.68	184.95	96.33	0.00	55.18	PVC	300	0.50	68.38	56.0	0.97	1.12	0.16	0.96	11.15	81%		
		3	4		0.02					0.015	0.203	11.15	100.78	56.69	141.91	79.82	176.09	99.05	0.00	56.69	PVC	375	0.50	123.98	10.8	1.12	1.12	0.00	0.16	11.31	46%		
		4	Ex		0.01					0.008	0.210	11.31	99.97	58.32	140.78	82.12	174.70	101.91	0.00	58.32	PVC	375	0.50	123.98	17.0	1.12	N/A		0.25	11.56	47%		
TOTAL TRIBUTARY AREA				0.00	0.00	0.28	0.00	0.00	0.00	0.210																							