

**OTTAWA PARAMEDIC SERVICE HEADQUARTERS PARKING LOT MODIFICATIONS –
STORMWATER MANAGEMENT BRIEF**

Appendix A Stormwater Management

APPENDICES

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A.1 STORM SEWER DESIGN SHEET



163601309 - Ottawa Paramedic Services Headquarters (2465 Don Reid Drive)

Calculation of Overall Site Runoff Coefficient (C) after Parking Lot Expansion

Last updated on 2020-02-20

Area ID	Area (ha)	C	AxC
CB-2	0.13	0.47	0.061
CB-3	0.15	0.58	0.087
CB-4	0.35	0.58	0.203
CB-5	0.30	0.66	0.198
CB-6	0.19	0.53	0.101
CB-7	0.19	0.53	0.101
CB-8	0.11	0.83	0.091
CB-9	0.20	0.79	0.158
CB-10	0.18	0.72	0.130
CB-11	0.13	0.65	0.085
CB-12	0.11	0.77	0.085
ROOF	0.69	0.90	0.621
Weighted C:		0.70	

	Ottawa Paramedic Services Headquarters (2465 Don Reid Drive) Parking Lot Expansion		STORM SEWER DESIGN SHEET (City of Ottawa)										DESIGN PARAMETERS I = a / (t+b) ^c (As per City of Ottawa Guidelines, 2012)																											
	DATE:	2020-02-20											FILE NUMBER:	163601309	a =	1:2 yr	1:5 yr	1:10 yr	1:100 yr	MANNING'S n = 0.013	BEDDING CLASS = B																			
	REVISION:	1													b =	732.951	998.071	1174.184	1735.688			MINIMUM COVER: 2.00 m																		
	DESIGNED BY:	DJC													c =	0.810	0.814	0.816	0.820				TIME OF ENTRY 10 min																	
CHECKED BY:	DCT																																							
LOCATION			DRAINAGE AREA																				PIPE SELECTION																	
AREA ID NUMBER	FROM C.B./M.H.	TO C.B./M.H.	AREA (2-YEAR) (ha)	AREA (5-YEAR) (ha)	AREA (10-YEAR) (ha)	AREA (100-YEAR) (ha)	AREA (ROOF) (ha)	C (2-YEAR) (-)	C (5-YEAR) (-)	C (10-YEAR) (-)	C (100-YEAR) (-)	A x C (2-YEAR) (ha)	ACCUM. AxC (2YR) (ha)	A x C (5-YEAR) (ha)	ACCUM. AxC (5YR) (ha)	A x C (10-YEAR) (ha)	ACCUM. AxC (10YR) (ha)	A x C (100-YEAR) (ha)	ACCUM. AxC (100YR) (ha)	T of C (min)	I ₂ -YEAR (mm/h)	I ₅ -YEAR (mm/h)	I ₁₀ -YEAR (mm/h)	I ₁₀₀ -YEAR (mm/h)	Q _{CONTROL} (L/s)	ACCUM. Q _{CONTROL} (L/s)	Q _{ACT} (CIA/360) (L/s)	LENGTH (m)	PIPE WIDTH OR DIAMETER (mm)	PIPE HEIGHT (mm)	PIPE SHAPE (-)	MATERIAL (-)	CLASS (-)	SLOPE (%)	Q _{CAP} (FULL) (L/s)	% FULL (-)	VEL. (FULL) (m/s)	VEL. (ACT) (m/s)	TIME OF FLOW (min)	
CB-5 (A per NCE Plans)	CB 5	CBMH 6	0.00	0.30	0.00	0.00	0.00	0.00	0.66	0.00	0.00	0.000	0.000	0.198	0.198	0.000	0.000	0.000	0.000	0.000	10.00 10.99	76.81	104.19	122.14	178.56	0.0	0.0	57.3	63.0	250	250	CIRCULAR	CONCRETE	-	0.76	52.7	108.84%	1.06	1.06	0.99
CB-6 (B per NCE Plans)	CBMH 6	CBMH 7	0.00	0.19	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.000	0.000	0.101	0.299	0.000	0.000	0.000	0.000	0.000	10.99 11.89	73.20	99.24	116.31	169.99	0.0	0.0	82.3	58.0	375	375	CIRCULAR	CONCRETE	-	0.54	121.6	67.73%	1.15	1.08	0.90
ROOF, i.e. 'C' per NCE Plans (each roof drain controlled to 1.26 L/s, 13 roof drains identified on satellite imaging)	ROOF	CBMH 7	0.00	0.00	0.00	0.00	0.69	0.00	0.90	0.00	0.00	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	10.00 11.89 12.58	76.81	104.19	122.14	178.56	16.4	16.4	16.4	20.0	200	200	CIRCULAR	PVC	-	3.60	63.2	25.92%	1.99	1.39	0.24
CB-7 (D per NCE Plans)	CBMH 7	CBMH 8	0.00	0.19	0.00	0.00	0.00	0.00	0.53	0.00	0.00	0.000	0.000	0.101	0.399	0.000	0.000	0.000	0.000	0.000	10.24 11.89 12.58	70.25	95.19	111.53	162.98	0.0	16.4	122.0	50.0	450	450	CIRCULAR	CONCRETE	65-D	0.57	223.8	54.51%	1.36	1.20	0.70
CB-8 (E per NCE Plans)	CBMH 8	CBMH 9	0.00	0.11	0.00	0.00	0.00	0.00	0.83	0.00	0.00	0.000	0.000	0.091	0.491	0.000	0.000	0.000	0.000	0.000	12.58 13.11	68.13	92.28	108.12	157.96	0.0	16.4	142.2	39.0	450	450	CIRCULAR	CONCRETE	65-D	0.55	220.2	64.57%	1.34	1.24	0.53
CB-11 (F per NCE Plans)	CB 11	CBMH 10	0.00	0.13	0.00	0.00	0.00	0.00	0.65	0.00	0.00	0.000	0.000	0.085	0.085	0.000	0.000	0.000	0.000	0.000	10.00 10.27	76.81	104.19	122.14	178.56	0.0	0.0	24.5	17.0	200	200	CIRCULAR	CONCRETE	65-D	1.16	35.9	68.17%	1.13	1.06	0.27
CB-10 (G per NCE Plans)	CBMH 10	CBMH 9	0.00	0.18	0.00	0.00	0.00	0.00	0.72	0.00	0.00	0.000	0.000	0.130	0.214	0.000	0.000	0.000	0.000	0.000	10.27 10.58	75.79	102.80	120.50	176.14	0.0	0.0	61.1	35.0	250	250	CIRCULAR	CONCRETE	65-D	2.78	100.7	60.71%	2.03	1.84	0.32
CB-12 (for proposed CB 1)	CB 1	CBMH 2	0.00	0.11	0.00	0.00	0.00	0.00	0.77	0.00	0.00	0.000	0.000	0.085	0.085	0.000	0.000	0.000	0.000	0.000	10.00	76.81	104.19	122.14	178.56	0.0	0.0	24.5	28.9	200	200	CIRCULAR	PVC	-	1.00	33.3	73.60%	1.05	1.01	0.48
CB-9 (H per NCE Plans)	CBMH 9	CBMH 2	0.00	0.20	0.00	0.00	0.00	0.00	0.79	0.00	0.00	0.000	0.000	0.158	0.948	0.000	0.000	0.000	0.000	0.000	13.11 13.35	66.63	90.22	105.69	154.39	0.0	16.4	253.8	30.0	450	450	CIRCULAR	CONCRETE	65-D	1.36	346.9	73.18%	2.11	2.03	0.25
CB-4 (I per NCE Plans)	CB 4	CBMH 3	0.00	0.35	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.000	0.000	0.203	0.203	0.000	0.000	0.000	0.000	0.000	10.00 10.53	76.81	104.19	122.14	178.56	0.0	0.0	58.8	45.0	250	250	CIRCULAR	CONCRETE	65-D	1.38	71.0	82.81%	1.43	1.42	0.53
CB-3 (J per NCE Plans)	CBMH 3	CBMH 2	0.00	0.15	0.00	0.00	0.00	0.00	0.58	0.00	0.00	0.000	0.000	0.087	0.290	0.000	0.000	0.000	0.000	0.000	10.53 11.03	74.84	101.49	118.96	173.88	0.0	0.0	81.8	52.0	250	250	CIRCULAR	CONCRETE	65-D	1.86	82.4	99.25%	1.66	1.74	0.50
CB-2 (K per NCE Plans)	CBMH 2	CBMH 1	0.00	0.13	0.00	0.00	0.00	0.00	0.47	0.00	0.00	0.000	0.000	0.061	1.299	0.000	0.000	0.000	0.000	0.000	13.35 13.98	65.95	89.28	104.59	152.78	0.0	16.4	338.4	58.0	525	525	CIRCULAR	CONCRETE	65-D	0.54	328.5	103.04%	1.47	1.55	0.62
CB-2 (K per NCE Plans)	CBMH 1	OUTLET	0.00	0.00	0.00	0.00	0.00	0.00	0.61	0.00	0.00	0.000	0.000	0.000	1.299	0.000	0.000	0.000	0.000	0.000	13.98 14.18	64.29	87.02	101.92	148.87	0.0	16.4	330.3	20.0	525	525	CIRCULAR	CONCRETE	65-D	0.60	347.5	95.03%	1.56	1.61	0.21