Memorandum

Date:	**November 21, 2022**		
Project Name:	**2140 Baseline Road**	Project #:	**OTT-00245012-A0**
Subject:	**Stormwater Management Roof Drain Updates**		
Location:	**Ottawa, ON**	Prepared By:	**A. Cushing** **J. Fitzpatrick, P.Eng**
Distribution:	**Lisa Stern, Planner, City of Ottawa**		

Dear Ms. Stern,

This memo was prepared in support for the Zoning by-law amendment application for the 2140 Baseline Road development (Site Plan D07-12-18-0084), which is currently under construction. This memo will briefly provide an overview of the previously approved stormwater servicing scheme and the requested changes. The purpose of this memo is to receive approval for the updated stormwater management system for the building roof, as discussed during the Pre-Consultation Meeting, dated September 27, 2022.

Summary of Approved Stormwater Management

The previous approved site servicing design for 2140 Baseline Road was based on the "Site Servicing and Stormwater Management Report" by EXP Services Inc. dated Dec 2019. Within the stormwater management report, the roof drainage system was established using flow-controlled roof drains.

The allowable discharge rate to the storm system (entire site) was established as 10.1 L/sec in the 100-year event. This was based on a total release rate of 6.6 L/sec from the roof and internal surface areas, with an additional 3.4 L/sec from uncontrolled areas around the permitter of the building which flows directly to the right-of-way.

Based on the total site area of 0.81 hectares the 100-year volume required to control to 6.6 L/sec was 151.8 m3, based on the Modified Rational Method as per City guidelines. To detain this runoff StormTech chamber were proposed under the main entrance, which consisted of twenty-two (22) M-3500 chambers. The total available storge volume provided within the chambers was 162.7 m3.

Along with storage in the underground chambers, storage was proposed on the roof. Four of the five roof levels permitted detention of stormwater using flow-controlled roof drains. Only Level 14 roof did not allow for roof ponding as this was proposed as amenity space.

The previously approved SWM report specified 24 flow-controlled roof drains, resulting in a roof discharge rate of 27.3 L/sec in the 100-year event. Controlling to 27.3 L/sec required 35.3 m3 of roof ponding necessary, with ±72 m3 available at 150mm depth. Original Tables D5, D6, D8 and D9 are included with this memo.

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Summary of approved SWM:

- 100-yr storage and discharge (entire site) = 149.5m3 @ 6.6 L/sec
- 100yr storage provided (entire site) = 162.7 m3 (chambers) + 35.3m3 (roof) = 198 m3
- 100-yr storage and Release rate (roof) = 35.3 m3 @ 27.3 L/sec

Updates to stormwater management system, November 2022

As a result of changes to the roof area and the addition of amenity space on the roof, it was necessary to re-evaluate the roof discharge rate and 100-yr ponding volumes and depths. The updated roof design reduced the number of roof drain down to 17 drains and resulted in a reduction of areas available for storage of stormwater on the roof. Previous areas that were designated for storage of runoff will now be designated as amenity spaces.

The updated roof plan details 16 drainage areas and 10 ponding areas. Updates to Table D9 are included with this Memo. Additionally, Table D6 was also updated to clarify the 100-year discharge rate and storage requirements total site. From Table D9 the total area available for storge is now 727 m^2, with the discharge rate from all roofs during the 5-year and 100-year storms at 25.5 L/sec and 40.0 L/sec respectively. The required roof storage for the 5-year storm and the 100-year storm is 10.95 m^3 and 23.21 m^3, respectively. Table 1 below provides a summary of the November 2022 roof drain storm management system.

Table 1: Summary of Previously Approved (Dec 2019) and Updated (Nov 2022) Roof Drain Stormwater System Design Values

Report Date	Roof Drainage Area (m^2)	Available Area for Storage (m^2)	Roof Drain Capacity (L/s)		Roof Storage Required (m^3)		Roof Storage Provided (m^3)
			5-year	100-year	5-year	100-year	
Dec 2019	1,588	1437	18.6	27.3	15.2	35.3	71.9
UPDATE November 2022	1,598	727	25.5	40.0	11.0	23.2	31.2

The number of roof drains in the updated roof plan were reduced from 24 roof drains to 16 roof drains. Furthermore, the roof ponding area available was reduced from 959 m^2 to 727 m^2. However, adequate stormwater storage on the roof is still provided with the given updated roof plan; The roof storage required for a 100-year storm event is 23.21 m^3, whereas the storage volume available on all roofs is 31.20 m^3 at 150mm depth. The total roof storage provided exceeds the total roof storage required.

Based on the revisions to the roof design, the following summarizes the updated design:

Summary of Updated Nov 2011 Design:

- 100-yr storage and discharge (entire site) = 149.5m3 @ 6.6 L/sec (NO CHANGE)
- 100yr storage provided (entire site) = 162.7 m3 (chambers) + 23.2m3 (roof) = 185.9 m3
- 100-yr storage and Release rate (roof) = 23.2 m3 @ 40.0 L/sec

Although there is an increase in the discharge rate from the roof and a decrease in the ponding provided on the roof in the 100-yr event, the total combined volume provided on roof plus the underground chambers (185.9 m3), exceed the required 100-yr volume based on the entire site area and release rate of 6.6. L/sec.

Submitted by:

Jason Fitzpatrick, P.Eng.

Project Engineer

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Attachments A
from “Site Servicing and Stormwater Management Report” by EXP Services Inc. dated Dec 13, 2019.

Appendix D – Table D5
Appendix D – Table D6
Appendix D – Table D7
Appendix D – Table D8
Appendix D – Table D9

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TABLE D5: SUMMARY OF POST DEVELOPMENT RUNOFF (Uncontrolled and Controlled)

Area No	Area (ha)	Time of Conc, Tc (min)	Storm = 2 yr				Storm = 5 yr				Storm = 100 yr				Comments
			C_{AVG}	I_2 (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	C_{AVG}	I_5 (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	C_{AVG}	I_{100} (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	
PST-1A	0.0208	10	0.20	76.81	0.9		0.20	104.19	1.2		0.25	178.56	2.6		to CB1
PST-1B	0.0629	10	0.68	76.81	9.1		0.68	104.19	12.4		0.85	178.56	26.5		to CB1
PST-1C	0.0342	10	0.84	76.81	6.1		0.84	104.19	8.3		1.00	178.56	17.0		to CB2
PST-1D	0.0112	10	0.90	76.81	2.2		0.90	104.19	2.9		1.00	178.56	5.6		to trench drain
PST-1E (R1)	0.0298	10	0.90	76.81	5.7		0.90	104.19	7.8		1.00	178.56	14.8		flow controlled drains
PST-1E (R2)	0.0609	10	0.90	76.81	11.7	**(2.5)**	0.90	104.19	15.9	**(3.1)**	1.00	178.56	30.2	**(6.6)**	flow controlled drains
PST-1E (R3)	0.0178	10	0.90	76.81	3.4		0.90	104.19	4.6		1.00	178.56	8.8		flow controlled drains
PST-1E (R4)	0.0382	10	0.90	76.81	7.3		0.90	104.19	10.0		1.00	178.56	19.0		flow controlled drains
PST-1E (R5)	0.0093	10	0.90	76.81	1.8		0.90	104.19	2.4		1.00	178.56	4.6		flow controlled drains
PST-1E (R6)	0.0066	10	0.90	76.81	1.3		0.90	104.19	1.7		1.00	178.56	3.3		flow controlled drains
PST-3C	0.0228	4.67	0.64	106.11	4.3		0.64	144.71	5.9		0.80	248.83	12.6		to CB3
PST-1G	0.0690	10	0.68	76.81	10.0	**10.0**	0.68	104.19	13.6	**13.6**	0.85	178.56	29.1	**29.1**	uncontrolled offsite
PST-2A	0.1400	5.22	0.82	101.95	32.5	**32.5**	0.82	138.93	44.3	**44.3**	1.00	238.80	92.9	**92.9**	uncontrolled offsite
PST-2B	0.0051	10	0.67	76.81	0.7	**0.7**	0.67	104.19	1.0	**1.0**	0.84	178.56	2.1	**2.1**	uncontrolled offsite
PST-3A	0.0669	10	0.20	76.81	2.9	**2.9**	0.20	104.19	3.9	**3.9**	0.25	178.56	8.3	**8.3**	uncontrolled offsite
PST-3B	0.0061	10	0.35	76.81	0.5	**0.5**	0.35	104.19	0.6	**0.6**	0.44	178.56	1.3	**1.3**	uncontrolled offsite
PST-3D	0.1036	9.62	0.71	78.30	16.0	**16.0**	0.71	106.24	21.7	**21.7**	0.89	182.11	46.5	**46.5**	external areas to Storm
Totals	0.7052				116.5	**65.1**			158.2	**88.2**			325.3	**187.0**	
Total pre-development for comparison										*130.1*				*279.5*	

Notes

2-yr Storm Intensity, I = 732.951/(Tc+6.199)^0.810 (City of Ottawa)

5-yr Storm Intensity, I = 998.071/(Tc+6.035)^0.814 (City of Ottawa)

100-yr Storm Intensity, I = 1735.688/(Tc+6.014)&^0.820 (City of Ottawa)

Time of Concentration (min), Tc = ***10***

For Flows under column Qcap which are shown in brackets ***(0.0)*** *, denotes flows that are controlled*

	POST-DEV	PRE-DEV
Total 100-yr flow to Storm Sewer on Gemini / Constellation =	**130.8**	191.2
Total 100-yr flow to Storm Sewer on Baseline Rd =	**56.2**	88.2
Total 100-yr flows from site =	**10.0**	

TABLE D6: SUMMARY OF TOTAL STORAGE REQUIRED & PROVIDED

Area No.	Area (ha)	Release Rate (L/s)			Storage Required (m^3)			Storage Provided (m^3)					Control Method
		2-yr	5-yr	100-yr	2-yr	5-yr	100-yr	Roof	Surface Ponding	UG Chambers	UG CB/MHs	Total	
PST-1A	0.0208												Flow Controlled at STMH 101
PST-1B	0.0629												Flow Controlled at STMH 101
PST-1C	0.0342												Flow Controlled at STMH 101
PST-1D	0.0112												Flow Controlled at STMH 101
PST-1E (R1)	0.0298	2.5	3.1	6.6	52.1	71.2	149.5	35.3		162.7		198.0	Flow Controlled Roof Drains
PST-1E (R2)	0.0609												Flow Controlled Roof Drains
PST-1E (R3)	0.0178												Flow Controlled Roof Drains
PST-1E (R4)	0.0382												Flow Controlled Roof Drains
PST-1E (R5)	0.0093												Flow Controlled Roof Drains
PST-1E (R6)	0.0066												Flow Controlled Roof Drains
PST-3C	0.0228												Flow Controlled at STMH 101
PST-1G	0.0690	10.02	13.6	29.1									None
PST-2A	0.1400	32.54	44.3	92.9									None
PST-2B	0.0051	0.73	1.0	2.1									None
PST-3A	0.0669	2.86	3.9	8.3									None
PST-3B	0.0061	0.46	0.6	1.3									None
PST-3D	0.1036	16.01	21.7	46.5									None
Totals (all)=	**0.705**	**65.1**	**88.2**	**187.0**	**52.1**	**71.2**	**149.5**	**35.3**		**162.7**		**198.0**	
Totals (site) =	**0.305**	**3.6**	**4.7**	**10.0**	**52.1**	**71.2**	**149.5**	**35.3**		**162.7**		**198.0**	

Table D7 - Storage Volumes for 2-year, 5-Year and 100-Year Storms

Area No: **Entire Site**

C_{AVG} = 0.81 (2-yr)

C_{AVG} = 0.81 (5-yr)

C_{AVG} = 1.02 (100-yr, Max 1.0)

Time Interval = 10 (mins)

Drainage Area = 0.3049 (hectares)

Duration (min)	Release Rate = 2.5 (L/sec); Return Period = 2 (years); IDF Parameters, A = 732.951, B = 0.810, C = 6.199 (I = A/(T_c+C)					Release Rate = 3.1 (L/sec); Return Period = 5 (years); IDF Parameters, A = 998.071, B = 0.814, C = 6.053 (I = A/(T_c+C)					Release Rate = 6.6 (L/sec); Return Period = 100 (years); IDF Parameters, A = 1735.688, B = 0.820, C = 6.014 (I = A/(T_c+C)				
	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)
0	167.2	115.3	2.45	112.9	0.00	230.5	158.9	3.060	155.9	0.00	398.6	343.6	6.600	337.0	0.00
10	76.8	53.0	2.45	50.5	30.31	104.2	71.9	3.060	68.8	41.28	178.6	153.9	6.600	147.3	88.39
20	52.0	35.9	2.45	33.4	40.12	70.3	48.4	3.060	45.4	54.46	120.0	103.4	6.600	96.8	116.16
30	40.0	27.6	2.45	25.2	45.29	53.9	37.2	3.060	34.1	61.43	91.9	79.2	6.600	72.6	130.67
40	32.9	22.7	2.45	20.2	48.51	44.2	30.5	3.060	27.4	65.78	75.1	64.8	6.600	58.2	139.62
50	28.0	19.3	2.45	16.9	50.66	37.7	26.0	3.060	22.9	68.72	64.0	55.1	6.600	48.5	145.59
60	24.6	16.9	2.45	14.5	52.14	32.9	22.7	3.060	19.7	70.77	55.9	48.2	6.600	41.6	149.70
70	21.9	15.1	2.45	12.7	53.17	29.4	20.3	3.060	17.2	72.22	49.8	42.9	6.600	36.3	152.54
80	19.8	13.7	2.45	11.2	53.87	26.6	18.3	3.060	15.3	73.24	45.0	38.8	6.600	32.2	154.48
90	18.1	12.5	2.45	10.1	54.32	24.3	16.7	3.060	13.7	73.92	41.1	35.4	6.600	28.8	155.73
100	16.7	11.5	2.45	9.1	54.58	22.4	15.5	3.060	12.4	74.35	37.9	32.7	6.600	26.1	156.44
110	15.6	10.7	2.45	8.3	54.68	20.8	14.4	3.060	11.3	74.58	35.2	30.3	6.600	23.7	156.72
120	14.6	10.0	2.45	7.6	54.65	19.5	13.4	3.060	10.4	74.63	32.9	28.4	6.600	21.8	156.64
130	13.7	9.4	2.45	7.0	54.51	18.3	12.6	3.060	9.6	74.54	30.9	26.6	6.600	20.0	156.27
140	12.9	8.9	2.45	6.5	54.28	17.3	11.9	3.060	8.8	74.33	29.2	25.1	6.600	18.5	155.65
150	12.3	8.4	2.45	6.0	53.98	16.4	11.3	3.060	8.2	74.01	27.6	23.8	6.600	17.2	154.81
160	11.7	8.0	2.45	5.6	53.60	15.6	10.7	3.060	7.7	73.61	26.2	22.6	6.600	16.0	153.78
170	11.1	7.7	2.45	5.2	53.16	14.8	10.2	3.060	7.2	73.12	25.0	21.6	6.600	15.0	152.59
180	10.6	7.3	2.45	4.9	52.67	14.2	9.8	3.060	6.7	72.56	23.9	20.6	6.600	14.0	151.25
190	10.2	7.0	2.45	4.6	52.13	13.6	9.4	3.060	6.3	71.94	22.9	19.7	6.600	13.1	149.78
200	9.8	6.7	2.45	4.3	51.54	13.0	9.0	3.060	5.9	71.27	22.0	18.9	6.600	12.3	148.19
Max =					**54.68**					**74.63**					**156.72**

Notes

1) Peak flow is equal to the product of 2.78 x C x I x A

2) Rainfall Intensity, $I = A/(Tc+C)^B$

3) Release Rate = Min (Release Rate, Peak Flow)

4) Storage Rate = Peak Flow - Release Rate

5) Storage = Duration x Storage Rate

6) Maximium Storage = Max Storage Over Duration

7) Parameters a,b,c are for City of Ottawa

Table D8 - Storage Volumes for 2-year, 5-Year and 100-Year Storms

Area No: **Roof**
C_{AVG} = 0.90 (2-yr)
C_{AVG} = 0.90 (5-yr)
C_{AVG} = 1.00 (100-yr, Max 1.0)
Time Interval = 2 (mins)
Drainage Area = 0.1525 (hectares)

Duration (min)	Release Rate = 13.9 (L/sec); Return Period = 2 (years); IDF Parameters, A = 732.951, B = 0.810, C = 6.199 (I = A/(T_c+C)					Release Rate = 18.6 (L/sec); Return Period = 5 (years); IDF Parameters, A = 998.071, B = 0.814, C = 6.053 (I = A/(T_c+C)					Release Rate = 27.3 (L/sec); Return Period = 100 (years); IDF Parameters, A = 1735.688, B = 0.820, C = 6.014 (I = A/(T_c+C)				
	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)
0	167.2	63.8	13.92	49.9	0.00	230.5	87.9	18.566	69.4	0.00	398.6	169.0	27.254	141.7	0.00
2	133.3	50.9	13.92	36.9	4.43	182.7	69.7	18.566	51.1	6.14	315.0	133.5	27.254	106.3	12.76
4	111.7	42.6	13.92	28.7	6.89	152.5	58.2	18.566	39.6	9.51	262.4	111.2	27.254	84.0	20.16
6	96.6	36.9	13.92	22.9	8.26	131.6	50.2	18.566	31.6	11.39	226.0	95.8	27.254	68.6	24.68
8	85.5	32.6	13.92	18.7	8.97	116.1	44.3	18.566	25.7	12.35	199.2	84.5	27.254	57.2	27.45
10	76.8	29.3	13.92	15.4	9.23	104.2	39.8	18.566	21.2	12.71	178.6	75.7	27.254	48.4	29.07
12	69.9	26.7	13.92	12.7	9.18	94.7	36.1	18.566	17.6	12.65	162.1	68.7	27.254	41.5	29.87
14	64.2	24.5	13.92	10.6	8.89	86.9	33.2	18.566	14.6	12.27	148.7	63.1	27.254	35.8	30.07
16	59.5	22.7	13.92	8.8	8.43	80.5	30.7	18.566	12.1	11.65		0.0	27.254	-27.3	-26.16
18	55.5	21.2	13.92	7.2	7.83	75.0	28.6	18.566	10.0	10.84	128.1	54.3	27.254	27.0	29.21
20	52.0	19.9	13.92	5.9	7.11	70.3	26.8	18.566	8.2	9.89	120.0	50.9	27.254	23.6	28.32
22	49.0	18.7	13.92	4.8	6.31	66.1	25.2	18.566	6.7	8.81	112.9	47.9	27.254	20.6	27.20
24	46.4	17.7	13.92	3.8	5.43	62.5	23.9	18.566	5.3	7.63	106.7	45.2	27.254	18.0	25.88
26	44.0	16.8	13.92	2.9	4.48	59.3	22.6	18.566	4.1	6.36	101.2	42.9	27.254	15.6	24.40
28	41.9	16.0	13.92	2.1	3.48	56.5	21.6	18.566	3.0	5.02	96.3	40.8	27.254	13.6	22.78
30	40.0	15.3	13.92	1.4	2.44	53.9	20.6	18.566	2.0	3.62	91.9	38.9	27.254	11.7	21.05
32	38.3	14.6	13.92	0.7	1.35	51.6	19.7	18.566	1.1	2.16	87.9	37.3	27.254	10.0	19.21
34	36.8	14.0	13.92	0.1	0.23	49.5	18.9	18.566	0.3	0.66	84.3	35.7	27.254	8.5	17.28
36	35.4	13.5	13.92	-0.4	-0.93	47.6	18.2	18.566	-0.4	-0.89	81.0	34.3	27.254	7.1	15.27
38	34.1	13.0	13.92	-0.9	-2.11	45.8	17.5	18.566	-1.1	-2.48	77.9	33.0	27.254	5.8	13.19
40	32.9	12.5	13.92	-1.4	-3.32	44.2	16.9	18.566	-1.7	-4.10	75.1	31.9	27.254	4.6	11.05
Max =					**9.23**					**12.71**					**30.07**

Notes
1) Peak flow is equal to the product of 2.78 x C x I x A
2) Rainfall Intensity, $I = A/(Tc+C)^B$
3) Release Rate = Min (Release Rate, Peak Flow)
4) Storage Rate = Peak Flow - Release Rate
5) Storage = Duration x Storage Rate
6) Maximium Storage = Max Storage Over Duration
7) Parameters a,b,c are for City of Ottawa

Table D9: 5-year & 100-year Roof Design Sheet - For Roof Drains using Flow Controlled Roof Drains

Project: 2140 Baseline Rd
Location: City of Ottawa
Date:Dec 2019

Area #	Drain Type	Roof Drain Type	No Drains per Area	No of Weirs per Drain	Weir Position	Runoff Coeff (Cavg)		Drainage Area		5-year Event						100-year Event						Storage Required *(MRM)*		Maximium Storage Provided at Spill Elevation			
						5-year	100-year	m^2	ha	Runoff Rate (L/sec)	5yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	Runoff Rate (L/sec)	100yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	5-year (m^3)	100-year (m^3)	Area Available for Storage (m^2)	Max Prism Depth (mm)	Max Prisim Volume (m^3)	Total Volume (m3)
R1-1	RD	RD2	1	no weir	1-None	0.90	0.90	73	0.0073	1.906	0	30.2	30.2	1.906	1.906	3.267	0	51.8	51.8	3.267	3.267			67	150	3.4	3.35
R1-2	RD	RD2	1	no weir	1-None	0.90	0.90	73	0.0073	1.905	0	30.2	30.2	1.905	1.905	3.264	0	51.7	51.7	3.264	3.264			68	150	3.4	3.40
R1-3	RD	RD2	1	no weir	1-None	0.90	0.90	83	0.0083	2.165	0	34.3	34.3	2.165	2.165	3.710	0	58.8	58.8	3.710	3.710			77	150	3.9	3.85
R1-4	RD	RD2	1	no weir	1-None	0.90	0.90	68	0.0068	1.770	0	28.1	28.1	1.770	1.770	3.034	0	48.1	48.1	3.034	3.034			61	150	3.1	3.05
R2-1	RD	RD2	1	no weir	1-None	0.90	0.90	62	0.0062	1.616	0	25.6	25.6	1.616	1.616	2.770	0	43.9	43.9	2.770	2.770			55	150	2.8	2.75
R2-2	RD	RD2	1	no weir	1-None	0.90	0.90	49	0.0049	1.277	0	20.2	20.2	1.277	1.277	2.189	0	34.7	34.7	2.189	2.189			38	150	1.9	1.90
R2-3	RD	RD1	1	1	2-Closed	0.90	0.90	21	0.0021	0.547	85	5.0	5.0	0.315	0.315	0.938	121	5.0	5.0	0.315	0.315	0.14	0.39	15	150	0.8	0.75
R2-4	RD	RD1	1	1	2-Closed	0.90	0.90	22	0.0022	0.574	86	5.0	5.0	0.315	0.315	0.983	121	5.0	5.0	0.315	0.315	0.15	0.42	16	150	0.8	0.80
R2-5	RD	RD1	1	1	6-Full	0.90	0.90	163	0.0163	4.249	95	19.1	19.1	1.202	1.202	7.282	120	24.1	24.1	1.520	1.520	2.00	4.07	156	150	7.8	7.80
R2-6	RD	RD1	1	1	6-Full	0.90	0.90	266	0.0266	6.934	106	21.3	21.3	1.343	1.343	11.884	133	26.7	26.7	1.683	1.683	4.07	8.00	228	150	11.4	11.40
R2-7	RD	RD1	1	1	2-Closed	0.90	0.90	25	0.0025	0.652	86	5.0	5.0	0.315	0.315	1.117	119	5.0	5.0	0.315	0.315	0.20	0.52	21	150	1.1	1.05
R3-1	RD	RD1	1	1	2-Closed	0.90	0.90	59	0.0059	1.538	68	5.0	5.0	0.315	0.315	2.636	135	5.0	5.0	0.315	0.315	0.24	1.91	52	150	2.6	2.60
R3-2	RD	RD1	1	1	2-Closed	0.90	0.90	52	0.0052	1.356	101	5.0	5.0	0.315	0.315	2.323	132	5.0	5.0	0.315	0.315	0.72	1.59	47	150	2.4	2.35
R3-3	RD	RD1	1	1	2-Closed	0.90	0.90	29	0.0029	0.756	91	5.0	5.0	0.315	0.315	1.296	123	5.0	5.0	0.315	0.315	0.27	0.67	24	150	1.2	1.20
R3-4	RD	RD1	1	1	2-Closed	0.90	0.90	39	0.0039	1.017	92	5.0	5.0	0.315	0.315	1.742	122	5.0	5.0	0.315	0.315	0.45	1.05	39	150	2.0	1.95
R4-1	RD	RD1	1	1	2-Closed	0.90	0.90	93	0.0093	2.424	111	5.0	5.0	0.315	0.315	4.155	141	5.0	5.0	0.315	0.315	1.71	3.55	85	150	4.3	4.25
R4-2	RD	RD1	1	1	4-1/2 open	0.90	0.90	87	0.0087	2.268	53	10.3	10.3	0.649	0.649	3.887	122	17.2	17.2	1.085	1.085	0.15	1.83	68	150	3.4	3.40
R4-3	RD	RD1	1	1	2-Closed	0.90	0.90	77	0.0077	2.007	109	5.0	5.0	0.315	0.315	3.440	140	5.0	5.0	0.315	0.315	1.30	2.75	67	150	3.4	3.35
R4-4	RD	RD1	1	1	2-Closed	0.90	0.90	62	0.0062	1.616	105	5.0	5.0	0.315	0.315	2.770	136	5.0	5.0	0.315	0.315	0.94	2.04	55	150	2.8	2.75
R4-5	RD	RD1	1	1	2-Closed	0.90	0.90	61	0.0061	1.590	105	5.0	5.0	0.315	0.315	2.725	136	5.0	5.0	0.315	0.315	0.92	2.00	54	150	2.7	2.70
R5-1	RD	RD1	1	1	2-Closed	0.90	0.90	40	0.0040	1.043	99	5.0	5.0	0.315	0.315	1.787	131	5.0	5.0	0.315	0.315	0.47	1.09	33	150	1.7	1.65
R5-2	RD	RD1	1	1	2-Closed	0.90	0.90	30	0.0030	0.782	90	5.0	5.0	0.315	0.315	1.340	122	5.0	5.0	0.315	0.315	0.28	0.70	26	150	1.3	1.30
R5-3	RD	RD1	1	1	2-Closed	0.90	0.90	24	0.0024	0.626	87	5.0	5.0	0.315	0.315	1.072	120	5.0	5.0	0.315	0.315	0.18	0.49	19	150	1.0	0.95
R6-1	RD	RD1	1	1	2-Closed	0.90	0.90	66	0.0066	1.728	102	5.0	5.0	0.315	0.315	2.961	132	5.0	5.0	0.315	0.315	1.04	2.24	66	150	3.3	3.32
Totals								**1,624**	**0.1624**	0.000		**294.28**		**18.57**	**18.57**	**72.57**		**431.98**		**27.25**	**27.25**	**15.24**	**35.31**	**1437**		**71.9**	**71.9**
Min											**0**						**0**										
Max											**111**						**141**										

Runoff Based on the Following:

Storm Frequency (years) =	5	100
Time of Conc (mins) =	10	10
Storm Intensity (mm/hr) =	104.2	178.6

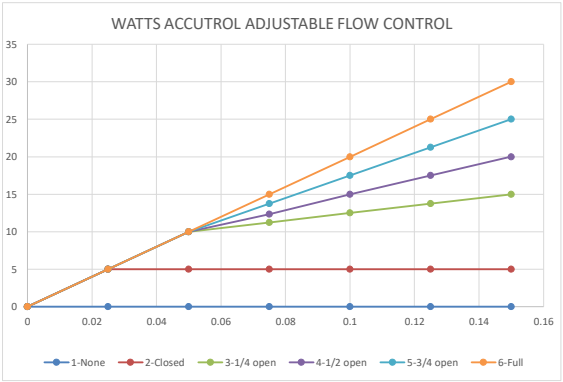
Qyr(cont) = 13.9
V2yr = 11.4

Roof Drains have Following Flow Rates: WATTS Flow Conttolled Drain

Weir Position		Flow (gpm) per depth							Max Flow Rate per Weir
		0	25	50	75	100	125	150	
		0	0.025	0.05	0.075	0.1	0.125	0.15	
1-None		0	0	0	0	0	0	0	0.000
2-Closed		0	5	5	5	5	5	5	0.315
3-1/4 open		0	5	10	11	13	14	15	0.946
4-1/2 open		0	5	10	12	15	18	20	1.262
5-3/4 open		0	5	10	14	18	21	25	1.577
6-Full		0	5	10	15	20	25	30	1.893

Roof Drain Types

Drain Type =	RD1	RD2
Max Overflow Depth (mm	150 mm	150 mm
Flow Controlled (Yes/No)	Yes	No
Ponding	Yes	No
Weir Desc	Accutrol	n/a
No. Weirs	1	n/a



Attachments B

Appendix D – Table D5 – (Dec 13, 2019)
Appendix D – Table D6 – UPDATED Nov 2022
Appendix D – Table D8 – UPDATED Nov 2022
Appendix D – Table D9 – UPDATED Nov 2022

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TABLE D5: SUMMARY OF POST DEVELOPMENT RUNOFF (Uncontrolled and Controlled)

Area No	Area (ha)	Time of Conc, Tc (min)	Storm = 2 yr				Storm = 5 yr				Storm = 100 yr				Comments
			C_{AVG}	I_2 (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	C_{AVG}	I_5 (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	C_{AVG}	I_{100} (mm/hr)	Q (L/sec)	Q_{CAP} (L/sec)	
PST-1A	0.0208	10	0.20	76.81	0.9		0.20	104.19	1.2		0.25	178.56	2.6		to CB1
PST-1B	0.0629	10	0.68	76.81	9.1		0.68	104.19	12.4		0.85	178.56	26.5		to CB1
PST-1C	0.0358	10	0.84	76.81	6.4		0.84	104.19	8.7		1.00	178.56	17.8		to CB2
PST-1D	0.0112	10	0.90	76.81	2.2		0.90	104.19	2.9		1.00	178.56	5.6		to trench drain
PST-1E (R1)	0.0094	10	0.90	76.81	1.8		0.90	104.19	2.5		1.00	178.56	4.7		flow controlled drains
PST-1E (R2)	0.0305	10	0.90	76.81	5.9	**(2.4)**	0.90	104.19	8.0	**(3.1)**	1.00	178.56	15.1	**(6.6)**	flow controlled drains
PST-1E (R3)	0.0398	10	0.90	76.81	7.6		0.90	104.19	10.4		1.00	178.56	19.8		flow controlled drains
PST-1E (R4)	0.0739	10	0.90	76.81	14.2		0.90	104.19	19.3		1.00	178.56	36.7		flow controlled drains
PST-1E (R5)	0.0049	10	0.90	76.81	0.9		0.90	104.19	1.3		1.00	178.56	2.4		flow controlled drains
PST-3C	0.0228	4.67	0.64	106.11	4.3		0.64	144.71	5.9		0.80	248.83	12.6		to CB3
PST-1G	0.0690	10	0.68	76.81	10.0	**10.0**	0.68	104.19	13.6	**13.6**	0.85	178.56	29.1	**29.1**	uncontrolled offsite
PST-2A	0.1400	5.22	0.82	101.95	32.5	**32.5**	0.82	138.93	44.3	**44.3**	1.00	238.80	92.9	**92.9**	uncontrolled offsite
PST-2B	0.0051	10	0.67	76.81	0.7	**0.7**	0.67	104.19	1.0	**1.0**	0.84	178.56	2.1	**2.1**	uncontrolled offsite
PST-3A	0.0669	10	0.20	76.81	2.9	**2.9**	0.20	104.19	3.9	**3.9**	0.25	178.56	8.3	**8.3**	uncontrolled offsite
PST-3B	0.0061	10	0.35	76.81	0.5	**0.5**	0.35	104.19	0.6	**0.6**	0.44	178.56	1.3	**1.3**	uncontrolled offsite
PST-3D	0.1036	9.62	0.71	78.30	16.0	**16.0**	0.71	106.24	21.7	**21.7**	0.89	182.11	46.5	**46.5**	external areas to Storm
Totals	0.7027				116.0	**65.1**			157.6	**88.2**			324.1	**187.0**	
Total pre-development for comparison										*130.1*				*279.5*	

Notes

2-yr Storm Intensity, I = 732.951/(Tc+6.199)^0.810 (City of Ottawa)

5-yr Storm Intensity, I = 998.071/(Tc+6.035)^0.814 (City of Ottawa)

100-yr Storm Intensity, I = 1735.688/(Tc+6.014)&^0.820 (City of Ottawa)

Time of Concentration (min), Tc = ***10***

For Flows under column Qcap which are shown in brackets ***(0.0)*** *, denotes flows that are controlled*

	POST-DEV	PRE-DEV
Total 100-yr flow to Storm Sewer on Gemini / Constellation =	**130.8**	191.2
Total 100-yr flow to Storm Sewer on Baseline Rd =	**56.2**	88.2
Total 100-yr flows from site =	**10.0**	

TABLE D6: SUMMARY OF TOTAL STORAGE REQUIRED & PROVIDED - UPDATED NOVEMBER 2022

Area No.	Area (ha)	Release Rate (L/s)			Storage Required (m^3)			Storage Provided (m^3)					Control Method
		2-yr	5-yr	100-yr	2-yr	5-yr	100-yr	Roof	Surface Ponding	UG Chambers	UG CB/MHs	Total	
PST-1A	0.0208												Flow Controlled at STMH 101
PST-1B	0.0629												Flow Controlled at STMH 101
PST-1C	0.0358												Flow Controlled at STMH 101
PST-1D	0.0112												Flow Controlled at STMH 101
PST-1E (R1)	0.0094	2.4	3.1	6.6	51.5	70.3	147.6	43.7		162.7		206.4	Flow Controlled Roof Drains
PST-1E (R2)	0.0305												Flow Controlled Roof Drains
PST-1E (R3)	0.0398												Flow Controlled Roof Drains
PST-1E (R4)	0.0739												Flow Controlled Roof Drains
PST-1E (R5)	0.0049												Flow Controlled Roof Drains
PST-3C	0.0228												Flow Controlled at STMH 101
PST-1G	0.0690	10.02	13.6	29.1									None
PST-2A	0.1400	32.54	44.3	92.9									None
PST-2B	0.0051	0.73	1.0	2.1									None
PST-3A	0.0669	2.86	3.9	8.3									None
PST-3B	0.0061	0.46	0.6	1.3									None
PST-3D	0.1036	16.01	21.7	46.5									None
Totals (all)=	**0.703**	**65.1**	**88.2**	**187.0**	**51.5**	**70.3**	**147.6**	**43.7**		**162.7**		**206.4**	
Totals (site) =	**0.302**	**3.6**	**4.7**	**10.0**	**51.5**	**70.3**	**147.6**	**43.7**		**162.7**		**206.4**	

Table D8 - Storage Volumes for 2-year, 5-Year and 100-Year Storms - UPDATED NOVEMBER 2022

Area No: **Roof**
C_{AVG} = 0.90 (2-yr)
C_{AVG} = 0.90 (5-yr)
C_{AVG} = 1.00 (100-yr, Max 1.0)
Time Interval = 1 (mins)
Drainage Area = 0.1585 (hectares)

Duration (min)	Release Rate = 19.2 (L/sec); Return Period = 2 (years); IDF Parameters, A = 732.951, B = 0.810, C = 6.199 (I = A/(T_c+C)					Release Rate = 25.5 (L/sec); Return Period = 5 (years); IDF Parameters, A = 998.071, B = 0.814, C = 6.053 (I = A/(T_c+C)					Release Rate = 40.0 (L/sec); Return Period = 100 (years); IDF Parameters, A = 1735.688, B = 0.820, C = 6.014 (I = A/(T_c+C)				
	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m^3)
0	167.2	66.3	19.15	47.2	0.00	230.5	91.4	25.537	65.9	0.00	398.6	175.6	40.024	135.6	0.00
1	148.1	58.7	19.15	39.6	2.38	203.5	80.7	25.537	55.2	3.31	351.4	154.8	40.024	114.8	6.89
2	133.3	52.9	19.15	33.7	4.05	182.7	72.4	25.537	46.9	5.63	315.0	138.8	40.024	98.8	11.85
3	121.5	48.2	19.15	29.0	5.22	166.1	65.9	25.537	40.3	7.26	286.0	126.0	40.024	86.0	15.48
4	111.7	44.3	19.15	25.2	6.04	152.5	60.5	25.537	34.9	8.39	262.4	115.6	40.024	75.6	18.14
5	103.6	41.1	19.15	21.9	6.58	141.2	56.0	25.537	30.4	9.13	242.7	106.9	40.024	66.9	20.08
6	96.6	38.3	19.15	19.2	6.90	131.6	52.2	25.537	26.6	9.59	226.0	99.6	40.024	59.6	21.44
7	90.7	36.0	19.15	16.8	7.06	123.3	48.9	25.537	23.4	9.81	211.7	93.3	40.024	53.2	22.36
8	85.5	33.9	19.15	14.7	7.07	116.1	46.0	25.537	20.5	9.84	199.2	87.8	40.024	47.7	22.92
9	80.9	32.1	19.15	12.9	6.98	109.8	43.5	25.537	18.0	9.72	188.3	83.0	40.024	42.9	23.18
10	76.8	30.5	19.15	11.3	6.78	104.2	41.3	25.537	15.8	9.47	178.6	78.7	40.024	38.7	23.19
11	73.2	29.0	19.15	9.9	6.51	99.2	39.3	25.537	13.8	9.11	169.9	74.9	40.024	34.8	23.00
12	69.9	27.7	19.15	8.6	6.17	94.7	37.6	25.537	12.0	8.65	162.1	71.4	40.024	31.4	22.62
13	66.9	26.5	19.15	7.4	5.76	90.6	35.9	25.537	10.4	8.12	155.1	68.3	40.024	28.3	22.09
14	64.2	25.5	19.15	6.3	5.31	86.9	34.5	25.537	8.9	7.51	148.7	65.5	40.024	25.5	21.43
15	61.8	24.5	19.15	5.3	4.81	83.6	33.1	25.537	7.6	6.84	142.9	63.0	40.024	22.9	20.65
16	59.5	23.6	19.15	4.4	4.27	80.5	31.9	25.537	6.4	6.12	137.5	60.6	40.024	20.6	19.76
17	57.4	22.8	19.15	3.6	3.69	77.6	30.8	25.537	5.2	5.34	132.6	58.4	40.024	18.4	18.78
18	55.5	22.0	19.15	2.9	3.08	75.0	29.7	25.537	4.2	4.53	128.1	56.4	40.024	16.4	17.73
19	53.7	21.3	19.15	2.1	2.44	72.5	28.8	25.537	3.2	3.68	123.9	54.6	40.024	14.6	16.59
20	52.0	20.6	19.15	1.5	1.78	70.3	27.9	25.537	2.3	2.79	120.0	52.9	40.024	12.8	15.40
Max =					**7.07**					**9.84**					**23.19**

Notes
1) Peak flow is equal to the product of 2.78 x C x I x A
2) Rainfall Intensity, I = $A/(Tc+C)^B$
3) Release Rate = Min (Release Rate, Peak Flow)
4) Storage Rate = Peak Flow - Release Rate
5) Storage = Duration x Storage Rate
6) Maximium Storage = Max Storage Over Duration
7) Parameters a,b,c are for City of Ottawa

Table D9: 5-year & 100-year Roof Design Sheet - For Roof Drains using Flow Controlled Roof Drains - UPDATED NOVEMBER 2022

Project: 2140 Baseline Rd
Location: City of Ottawa
Date:Dec 2019

Area #	Drain Type	Roof Drain Type	No Drains per Area	No of Weirs per Drain	Weir Position	Runoff Coeff (Cavg)		Drainage Area		5-year Event						100-year Event						Storage Required *(MRM)*		Maximium Storage Provided at Spill Elevation			
						5-year	100-year	m^2	ha	Runoff Rate (L/sec)	5yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	Runoff Rate (L/sec)	100yr Ponding Depth (mm)	Roof Drain Capacity Per Weir (gpm)	Roof Drain Capacity Per Drain per weir (gpm)	Roof Drain Capacity Per Drain (L/sec)	Total Flow From Roof Drains (L/sec)	5-year (m^3)	100-year (m^3)	Area Available for Storage (m^2)	Max Prism Depth (mm)	Max Prisim Volume (m^3)	Total Volume (m3)
L1-1	RD	RD1	1	1	2-Closed	0.90	0.90	31.4	0.0031	0.819	85	5.0	5.0	0.315	0.315	1.403	115	5.0	5.0	0.315	0.315	0.31	0.75	23.2	125	1.0	0.97
L1-2	RD	RD1	1	1	2-Closed	0.90	0.90	30.4	0.0030	0.793	83	5.0	5.0	0.315	0.315	1.358	112	5.0	5.0	0.315	0.315	0.29	0.72	23.7	125	1.0	0.99
L1-3	RD	RD1	1	1	2-Closed	0.90	0.90	32.9	0.0033	0.858	87	5.0	5.0	0.315	0.315	1.470	117	5.0	5.0	0.315	0.315	0.34	0.81	24.0	125	1.0	1.00
L7-1	RD	RD2	1	no weir	1-None	0.90	0.90	84.8	0.0085	2.210	0	35.0	35.0	2.210	2.210	3.787	0	60.0	60.0	3.787	3.787			0.0	0	0.0	0.00
L7-2	RD	RD2	1	no weir	1-None	0.90	0.90	70.7	0.0071	1.843	0	29.2	29.2	1.843	1.843	3.159	0	50.1	50.1	3.159	3.159			0.0	0	0.0	0.00
L7-3	RD	RD2	1	no weir	1-None	0.90	0.90	87.9	0.0088	2.291	0	36.3	36.3	2.291	2.291	3.927	0	62.2	62.2	3.927	3.927			0.0	0	0.0	0.00
L7-4	RD	RD2	1	no weir	1-None	0.90	0.90	75.7	0.0076	1.973	0	31.3	31.3	1.973	1.973	3.382	0	53.6	53.6	3.382	3.382			0.0	0	0.0	0.00
L14-1	RD	RD2	1	no weir	1-None	0.90	0.90	208.6	0.0209	5.438	0	86.2	86.2	5.438	5.438	9.319	0	147.7	147.7	9.319	9.319			0.0	0	0.0	0.00
L14-2	RD	RD2	1	no weir	1-None	0.90	0.90	190.8	0.0191	4.974	0	78.8	78.8	4.974	4.974	8.524	0	135.1	135.1	8.524	8.524			0.0	0	0.0	0.00
L15-1	RD	RD1	1	1	4-1/2 open	0.90	0.90	126.0	0.0126	3.285	100	15.0	15.0	0.947	0.947	5.629	128	17.8	17.8	1.125	1.125	1.53	3.22	102.9	150	5.1	5.15
L15-2	RD	RD1	1	1	4-1/2 open	0.90	0.90	78.7	0.0079	2.052	87	13.6	13.6	0.858	0.858	3.516	113	16.3	16.3	1.031	1.031	0.72	1.61	74.6	75	1.9	1.86
L15-3	RD	RD1	1	1	4-1/2 open	0.90	0.90	122.0	0.0122	3.180	65	11.4	11.4	0.718	0.718	5.450	82	13.1	13.1	0.829	0.829	1.72	3.56	107.0	75	2.7	2.68
L15-4	RD	RD1	1	1	4-1/2 open	0.90	0.90	111.2	0.0111	2.899	94	14.4	14.4	0.909	0.909	4.968	121	17.1	17.1	1.081	1.081	1.28	2.71	102.5	150	5.1	5.13
L15-5	RD	RD1	1	1	4-1/2 open	0.90	0.90	152.3	0.0152	3.970	72	12.0	12.0	0.759	0.759	6.804	91	14.0	14.0	0.883	0.883	2.34	4.76	107.9	150	5.4	5.40
L15-6	RD	RD1	1	1	4-1/2 open	0.90	0.90	166.8	0.0167	4.348	105	15.5	15.5	0.977	0.977	7.452	133	18.3	18.3	1.156	1.156	2.35	4.82	137.6	150	6.9	6.88
L15-7	RD	RD1	1	1	4-1/2 open	0.90	0.90	27.5	0.0028	0.717	61	11.0	11.0	0.694	0.694	1.229	89	13.8	13.8	0.874	0.874	0.08	0.25	23.4	150	1.2	1.17
Totals						0.9	0.9	**1,598**	**0.1598**	41.650		**404.77**		**25.54**	**25.54**	**71.38**		**634.40**		**40.02**	**40.02**	**10.95**	**23.21**	**727**		**31.2**	**31.2**
Min											**0**						**0**										
Max											**105**						**133**										

Runoff Based on the Following:

Storm Frequency (years) =	5	100
Time of Conc (mins) =	10	10
Storm Intensity (mm/hr) =	104.2	178.6

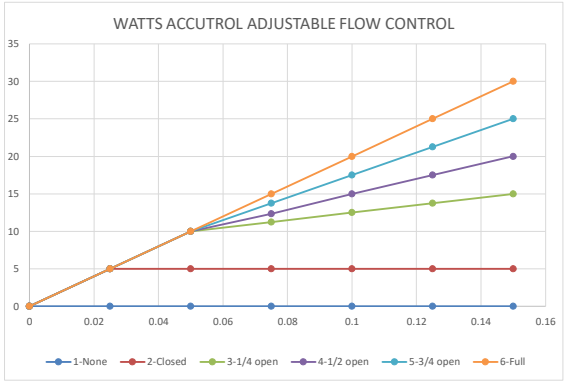
Qyr(cont) = 19.2
V2yr = 8.2

Roof Drain Types

Drain Type =	RD1	RD2
Max Overflow Depth (mm	150 mm	150 mm
Flow Controlled (Yes/No)	Yes	No
Ponding	Yes	No
Weir Desc	Accutrol	n/a
No. Weirs	1	n/a

Roof Drains have Following Flow Rates: WATTS Flow Conttolled Drain

Weir Position		Flow (gpm) per depth							Max Flow Rate per Weir
		0	25	50	75	100	125	150	
		0	0.025	0.05	0.075	0.1	0.125	0.15	
1-None		0	0	0	0	0	0	0	0.000
2-Closed		0	5	5	5	5	5	5	0.315
3-1/4 open		0	5	10	11	13	14	15	0.946
4-1/2 open		0	5	10	12	15	18	20	1.262
5-3/4 open		0	5	10	14	18	21	25	1.577
6-Full		0	5	10	15	20	25	30	1.893



Attachments C

Copy of September 2022 Pre-Consultation Meeting Minutes

100-2650 Queensview Drive, Ottawa, ON K2B 8H6, Canada
T: 613 688-1899 • www.exp.com

File No.: PC2022-0243
Date: October 19, 2022

2140 Baseline Road
Pre-Consultation Meeting Minutes
Meeting Date: September 27, 2022

Attendee	Role	Organization
Lisa Stern	Planner	City of Ottawa
Randolph Wang	Urban Designer	
Matt McElligott	Planner	Fotenn
Joey Theberge	Property Owner	Theberge Homes
Jeremy Silbert	Property owner	Theberge Homes

Comments provided from Santhosh Kuruvilla, Infrastructure Project Manager by email after the meeting.

Comments from the Applicant:

1. A site plan and rezoning was approved for the development of 14 storey student residence (Site Plan D07-12-18-0084). The building is currently under construction.
2. Whereas the approved 15th level was only the mechanical penthouse, the proposed plans show the mechanical penthouse and amenity area on this level. We are seeking the increase in height because the mechanical penthouse would've otherwise been excluded from the overall height of the building, whereas an amenity area would not.
3. There are small changes in the floor-to-ceiling heights as summarized by the following table:

	Proposed (left)	Approved (right)
Ground floor	4.8m	4.9m
Level 2 to 13	3.0m	2.85m
Level 14	3.4m	3.1m
Level 15 (amenity)	4.6m	5.2m
TOTAL Building Height (level roof)	49m	46.8m

4. Building cladding will also be changed to brick veneer.
5. There is no change to the proposal at grade.

Planning Comments:

1. The proposal will require a minor rezoning and standard site plan revision applications. The application form, timeline and fees can be found here.
2. Please be cognizant of upcoming procedure changes as a result of Bill 109.
3. The subject site is designated "Hub" in the Outer Urban Transect.
4. The site is zoned MC[2588] F(4.4) H(45). A rezoning will be required to facilitate an increase in building height and an increased FSI.
5. A Planning rationale is required to discuss conformity with Official Plan policy and zoning. The planning rationale should discuss the changes in design and programming of the building. The impact of the additional height, overlook and light spill onto adjacent properties should be evaluated.
6. Please consult with the Ward Councillor prior to submission.

Urban Design:

1. A Design Brief is required as part of the submission. The Terms of Reference of the Design Brief is attached for convenience.
2. The updated Design Brief should include images of the approved design and images of the proposed revised design. It will also be useful to provide a brief summary of the proposed changes. With respect to the contextual information of the Design Brief, the applicant should review their original submission to determine if an update is required. If no update to the contextual information is required, the Design Brief update can be provided as an addendum of the original one.
3. Please provide an addendum to the wind study.

Engineering

1. Please provide a signed, sealed and dated letter stating that there is no net change of stormwater storage on the roof top of this building.

Please refer to the links to "Guide to preparing studies and plans" and fees for general information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.
Please contact me at Lisa.Stern@ottawa.ca or at 613-580-2424 extension 21108 if you have any questions.