



## Site Servicing and Stormwater Management Report 1568 Meadowbrook Road, Ottawa, ON

**Client:**

Nemorin Group Limited  
Suite 100, 135 Laurier Avenue W  
Ottawa, ON K1P 5J2

**Submitted for:**

Zoning By-law Amendment (ZBL)

**Project Name:**

1568 Meadowbrook Road

**Project Number:**

OTT-21020547-A0

**Prepared By:**

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**Date Submitted:**

December 20, 2021  
Revised: April 06, 2022  
*Revised: January 20, 2023*

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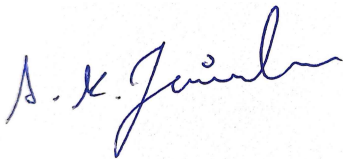
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**Date Submitted:**

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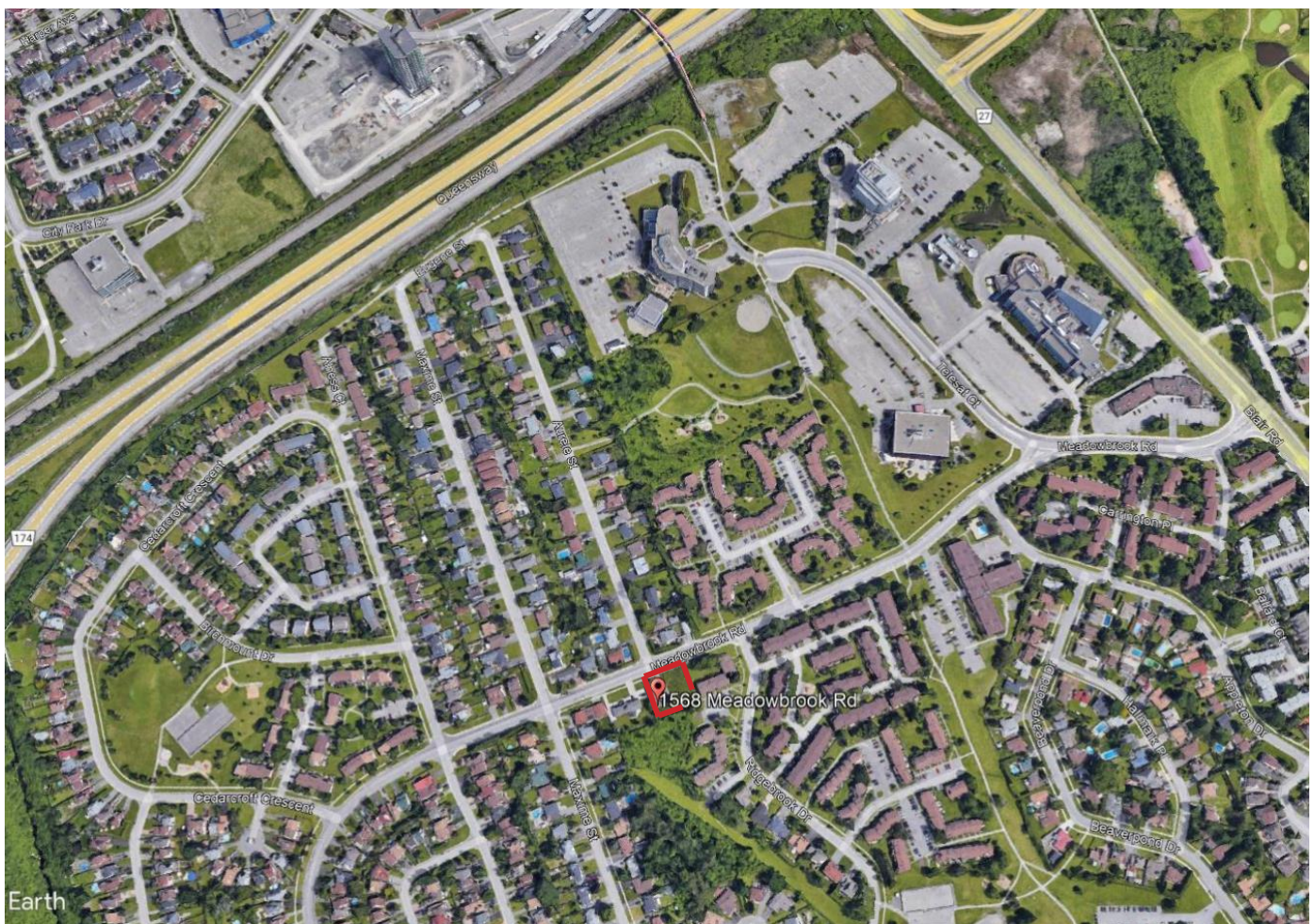
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## 1 Introduction

### 1.1 Overview

EXP Services Inc. (EXP) was retained by Nemorin Group Limited to prepare a Site Servicing and Stormwater Management Report for the proposed development of 1568 Meadowbrook Road in support of Zoning By-Law Amendment (ZBL).

The site is situated on Meadowbrook Road, south of Highway 174 and west of Blair Road. The site is surrounded by Ridgebrook Drive on the east, Aurele Street on the north and Maxim Street on the west as illustrated in [Figure 1-1](#) below. The site is within the City of Ottawa urban boundary and situated in Beacon Hill-Cyrville Ward (Ward 11).



**Figure 1-1 - Site Location**

The proposed development will consist of four (4) residential blocks with two (2) semi detached dwelling units each. All eight (8) units will have  $\pm 88 \text{ m}^2$  footprint including one parking spot each. All units will be two storeys high.

This report will discuss the adequacy of the adjacent municipal watermain, sanitary sewers and storm sewers to provide the required water supply, convey the sewage and stormwater flows that will result from the proposed development.



## 2 Existing Conditions

### 2.1 Site Topography

The site is currently occupied by a single-family residential unit. The site is bounded to the west by a single family residential unit, to the south by Maxime Park, to the east by two storeys residential condominiums, and to the north by Meadowbrook Road. The topography of the site generally slopes towards the Meadowbrook Road with minimal slope with grades sloping away from the residential unit. Within the site the topography ranges from  $\pm 71.40$  m down to  $\pm 70.90$  m.

## 3 Existing Infrastructure

From review of the sewer and watermain mapping, as-built drawings and the City's GeoOttawa mapping, the following summarizes the onsite and adjacent offsite infrastructure:

#### Within property

- Sanitary, water and storm service laterals. Location to be confirmed by contractor before construction.
- A storm catchbasin near north-east property line with lead connected to 525mm storm main on Meadowbrook Rd.
- Overhead hydro line extended to the existing residential unit.

#### Within Meadowbrook Road Right-of-way

- 305 mm watermain and fire hydrants
- 300 mm sanitary sewer
- 525 mm storm sewer
- 35 mm gas main
- Overhead hydro lines and communication cables

Refer to the survey plan prepared by Stantec, included in **Appendix F**.

## 4 Pre-Consultation / Permits / Approvals

A pre-consultation meeting was held with the City prior to design commencement. This meeting, held May 6, 2021, outlined the submission requirements and provided information to assist with the development proposal.

The proposed site is located within the Rideau Valley Conservation Authority (RVCA) jurisdiction, therefore signoff from the RVCA will be required. The RVCA was contacted to confirm the stormwater management quality control requirements for the proposed development. RVCA had noted in the email that no quality control are required for the proposed development. Please refer to the email correspondence included in **Appendix E**.

Stormwater management quantity control will be required as noted in the Servicing Memo provided by the city. Additional information on this will be provided in proceeding sections.

## 4.1 Design Guidelines

Various design guidelines were referred to in preparing the current report including:

- Bulletin ISDTB-2012-4 (20 June 2012)
  - Technical Bulletin ISDTB-2014-01 (05 February 2014)
  - Technical Bulletin PIEDTB-2016-01 (September 6, 2016)
  - Technical Bulletin ISDTB-2018-01 (21 March 2018)
  - Technical Bulletin ISDTB-2018-04 (27 June 2018)
- Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including:
  - Technical Bulletin ISDTB-2014-02 (May 27, 2014)
  - Technical Bulletin ISTB-2018-02 (21 March 2018)
- Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM).
- Design Guidelines for Drinking-Water Systems, Ontario Ministry of the Environment and Climate Change, 2008 (GDWS).
- Fire Underwriters Survey, Water Supply for Public Fire Protection (FUS), 2020.
- Ontario Building Code 2012, Ministry of Municipal Affairs and Housing.

## 5 Water Servicing

### 5.1 Water Servicing Design Criteria

**Table 5-1** below summarizes the Design Criteria that was used to establish the water demands and the required fire flows, based on the proposed building uses. The design parameters that apply to this project and used for calculations are identified below.

*Table 5-1: Summary of Water Supply Design Criteria*

Design Parameter	Value	Applies
Population Density – Single-family Home	3.4 persons/unit	
Population Density – Semi-detached/Townhomes	2.7 persons/unit	✓
Population Density – Terrace Flat	1.8 persons/unit	
Population Density – Bachelor Apartment	1.4 persons/unit	
Population Density – Bachelor + Den Apartment	1.4 persons/unit	
Population Density – One Bedroom Apartment	1.4 persons/unit	
Population Density – One Bedroom plus Den Apartment	1.4 persons/unit	
Population Density – Two Bedroom Apartment	2.1 persons/unit	
Population Density – Two Bedroom plus Den Apartment	2.1 persons/unit	
Population Density – Three Bedroom Apartment	3.1 persons/unit	
Average Day Demands – Residential	280 L/person/day	✓

Average Day Demands – Commercial / Institutional	5 L/m <sup>2</sup> floor area/day	
Average Day Demands – Light Industrial / Heavy Industrial	35,000 or 55,000 L/gross ha/day	
Maximum Day Demands – Residential	2.5 x Average Day Demands	✓
Maximum Day Demands – Commercial / Institutional	1.5 x Average Day Demands	
Peak Hour Demands – Residential	5.5 x Average Day Demands	✓
Peak Hour Demands – Commercial / Institutional	2.7 x Average Day Demands	
Fire Flow Requirements Calculation	FUS	✓
Depth of Cover Required	2.4m	✓
Maximum Allowable Pressure	551.6 kPa (80 psi)	✓
Minimum Allowable Pressure	275.8 kPa (40 psi)	✓
Minimum Allowable Pressure during fire flow conditions	137.9 kPa (20 psi)	✓

## 5.2 Estimated Water Demands

**Table 5-2** below summarizes the anticipated water demands for the proposed development based on following:

- 8 semi-detached dwelling units. Estimated total residential population of 22 persons.

*Table 5-2: Residential Water Demand Summary*

Water Demand Conditions	8 townhome units water demands (L/sec)
Average Day	0.07
Max Day	0.67
Peak Hour	1.00

Refer to **Table B1** in **Appendix B** for detailed calculations.

## 5.3 Boundary Conditions

Hydraulic Grade Line (HGL) boundary conditions were obtained from the City for design purposes. A copy of the correspondence received from the City is provided in **Appendix E**.

The following hydraulic grade line (HGL) boundary conditions were provided:

- Maximum HGL = 117.4 m
- Minimum HGL = 110.2 m
- Max Day Plus Fire Flow 1 (183 L/sec)= 109.1 m

## 5.4 Fire Flow Requirements

The following equation from the Fire Underwriters document “Water Supply for Public Fire Protection”, 2020, was used for calculation of the on-site supply rates required to be supplied by the hydrants:

$$F = 200 * C * \sqrt{A}$$



where:

F	=	Required Fire flow in Litres per minute
C	=	Coefficient related to type of Construction
A	=	Total Floor Area in square metres

Fire flow calculations were completed for blocks 2 & 3 which is considered as the largest proposed building on the site due to less than 3m spacing between them. The required fire flow was estimated at 167L/s.

As per the City of Ottawa water distribution guidelines, minimum pressure requirement during max day plus fire flow condition is 140 kPa (20 psi). The City provided an HGL of 109.1m under the previously estimated max day plus fire flow of 183L/s for the site. This equates to an available system pressure of 54 psi which is well above the minimum required pressure of 20 psi. The updated Required Fire Flow as per the FUS 2020 edition is 167 L/s. Therefore, the available pressure in the city's watermain should be more than 54 psi. Hence, the fire flow of 167 L/s can be provided by the 305 mm municipal water main under maximum day plus fire flow conditions. Refer to **Table B2** in **Appendix B** for detailed calculations

## 6 Sanitary Sewage Servicing

### 6.1 Sanitary Sewage Design Criteria

The sanitary sewer system is designed based on a population flow and an area-based infiltration allowance. The flows were calculated using City sewer design guidelines (SDG002). **Table 6-1** below summarizes the design parameters used.

Table 6-1: Summary of Wastewater Design Criteria / Parameters

Design Parameter	Value	Applies
Population Density – Single-family Home	3.4 persons/unit	
Population Density – Semi-detached Home	2.7 persons/unit	✓
Population Density – Duplex	2.3 persons/unit	
Population Density – Townhome (row)	2.7 persons/unit	
Population Density – Bachelor Apartment	1.4 persons/unit	
Population Density – Bachelor + Den Apartment	1.4 persons/unit	
Population Density – One Bedroom Apartment	1.4 persons/unit	
Population Density – One Bedroom plus Den Apartment	1.4 persons/unit	
Population Density – Two Bedroom Apartment	2.1 persons/unit	
Population Density – Two Bedroom plus Den Apartment	2.1 persons/unit	
Population Density – Three Bedroom Apartment	3.1 persons/unit	
Average Daily Residential Sewage Flow	280 L/person/day	✓
Average Daily Commercial / Institutional Flow	28,000 L/gross ha/day	
Average Light / Heavy Industrial Daily Flow	35,000 / 55,000 L/gross ha/day	
Residential Peaking Factor – Harmon Formula (Min = 2.0, Max =4.0, with K=0.8)	$M = 1 + \frac{14}{4 + P^{0.5}} * k$	✓

Commercial Peaking Factor	1.5	
Institutional Peaking Factor	1.5	
Industrial Peaking Factor	As per Table 4-B (SDG002)	
Unit of Peak Extraneous Flow (Dry Weather / Wet Weather)	0.05 or 0.28 L/s/gross ha	
Unit of Peak Extraneous Flow (Total I/I)	0.33 L/s/gross ha	✓

## 6.2 Proposed Sewage Conditions

The estimated peak sanitary flow rate from the proposed property is **±0.33 L/sec** based on City Design Guidelines. Sewage rates include a total infiltration allowance of 0.33 L/ha/sec based on the total gross site area. **Table 6-2** below summarizes the sewage anticipated peak sewage flows for the proposed site.

**Table C1** in **Appendix C** summarizes the anticipated peak sewage flows from the proposed development up to the existing 300 mm diameter municipal sanitary sewer on Meadowbrook Road.

Table 6-2: Summary of Anticipated Sewage Rates

Sewage Condition	Sanitary Sewage Flow (L/sec)
Peak Residential Flow (for 22 persons)	0.28
Infiltration Flow (for 0.145 ha)	0.05
Peak Design Flow	0.33

## 6.3 Sanitary Servicing Review

There is a 300mm diameter municipal sanitary sewer on Meadowbrook Road. No capacity issue was identified during the pre-consultation meeting for the existing city sewer. The municipal sanitary sewer should therefore have sufficient residual capacity to convey the peak sanitary flow of 0.33 L/sec from the proposed development.

# 7 Storm Servicing & Stormwater Management

## 7.1 Design Criteria

The proposed stormwater management system is designed in conformance with the latest version of the City of Ottawa Design Guidelines (October 2012). Section 5 “Storm and Combined Sewer Design” and Section 8 “Stormwater Management”. A summary of the design criteria that relates to this design report is the proceeding sections below.

### 7.1.1 Minor System Design Criteria

- The storm sewer sizing will be based on the Rational Method and Manning’s Equation under free flow conditions for the 5-year storm using a 10-minute inlet time.
- Minimum sewer slopes to be based on minimum velocities for storm sewers of 0.80 m/sec.
- Allowable release rate will be calculated based 5-year pre-development storm. A pre-development runoff coefficient calculated based on existing land cover or a maximum equivalent ‘C’ of 0.5, whichever is less.
- Flows to the storm sewer in excess of the 5-year pre-development storm release rate, up to and including the 100-year storm event, must be detained on site.

### 7.1.2 Major System Design Criteria

- On-site storage is calculated based on the 100-year design storm.
- The vertical distance from the spill elevation and the ground elevation at the buildings is at least 150mm.
- The emergency overflow spill elevation is at least 30 cm below the lowest building opening.

## 7.2 Runoff Coefficients

Runoff coefficients used were based on actual areas taken from CAD. Runoff coefficients for impervious surfaces (roofs, asphalt, and concrete) were taken as 0.90, whereas those for pervious surfaces (grass/landscaping) were taken as 0.20. Runoff coefficient for the permeable pavers was considered as 0.40. The average runoff coefficients were calculated for the catchments (or drainage areas) using the area-weighting method in excel. The summary of runoff coefficients for pre-development and post-development catchments are provided in **Table 7-1** below. The detailed calculations are included in **Table D1** and **Table D4** in **Appendix D**. **Figure A2** and **Figure A3** in **Appendix A** shows the pre-development and post-development land use of the drainage areas under consideration and associated runoff coefficients.

Table 7-1: Average runoff coefficients

Development	Pre-Dev Condition		Post-Dev Condition	
	Area (m <sup>2</sup> )	C <sub>AVG</sub>	Area (m <sup>2</sup> )	C <sub>AVG</sub>
1568 Meadowbrook Road portion of the property draining towards Meadowbrook Road	1022.04	0.46	1174.00	0.76
1568 Meadowbrook Road portion of the property draining towards the property on the south	428.80	0.26	277.00	0.27
Portion of Carleton Condo draining towards 1568 Meadowbrook	919.60	0.41	886.31	0.42

## 7.3 Pre-Development Conditions and Allowable Release Rate

In the pre-development conditions, the majority portion of the property drains towards the Meadowbrook Road by sheet drain or by draining towards the existing catchbasin right at the north property line. This portion of the property is referred to as area “E1” in this report. In addition, a portion of the Carleton Condo property to the east (referred to as area “E3”) also drains towards this catchbasin in the existing conditions. The stormwater from area E3 flows through area E1 as per the existing grading. The southern portion of the subject property (referred to as area “E2”) drains towards the property on the south. In the post development conditions, the stormwater runoff from area E1 will be controlled to the 5-year pre-dev flows for up to and including 100-year storm with the average runoff coefficient of 0.5 max., as noted in the stormwater management criteria above. The runoff from area E2 and E3 will be maintained at the pre-development levels for all storm events.

The total pre-development storm runoff from area E1, E2 and E3 during 2-yr, 5-yr and 100-yr storm events were estimated at 20.39 L/sec, 27.65 L/sec and 59.2 L/sec, respectively. **Table 7-2** below summarizes the breakdown of the pre-development runoff from each area. **Table D3** in **Appendix D** provides detailed calculations on the total pre-development peak flows.

Therefore, the post-development flows from 1568 Meadowbrook property draining towards Meadowbrook Road will be controlled to a maximum of 13.57 L/sec during the storm events up to and including 100-year storm.

Table 7-2: The total pre-development storm runoff

Area No.	Area (ha)	Storm=2 Yr		Storm=5 Yr		Storm=100 Yr	
		C <sub>AVG</sub>	Q (L/sec)	C <sub>AVG</sub>	Q (L/sec)	C <sub>AVG</sub>	Q (L/sec)
E1	0.102	0.46	10.00	0.46	13.57	0.57	29.1
E2	0.043	0.26	2.38	0.26	3.22	0.32	6.9
E3	0.092	0.41	8.00	0.41	10.86	0.51	23.3
<b>Totals</b>	<b>0.237</b>		<b>20.39</b>		<b>27.65</b>		<b>59.2</b>

## 7.4 Post Development Runoff

The 2-year, 5-year and 100-year post-development uncontrolled peak flows were calculated using Rational Method and were estimated to be 28.40 L/sec, 38.528 L/sec and 78.547 L/sec respectively, also summarized in **Table 7-3** below. Area number S01 to S08 will discharge to Meadowbrook Road and will be controlled to 5-year pre-development levels as noted in section 7.3 above. Drainage area S09 represents the southern portion of the subject property draining towards the neighboring property on the south. Drainage area S10 represents Carleton Condo property to the east that was discharging towards the subject property in the pre-development conditions. In the post-development conditions, drainage separation will be achieved by a concrete toe wall between the two properties at the east property line of the subject property. Refer to the Civil drawings included in **Appendix F** for further details. Post-development discharge rates from areas S09 and S10 will be uncontrolled. Detailed calculations are provided in **Table D5** of **Appendix D**.

Table 7-3: Summary of Post-Development Controlled and Uncontrolled flowrates

Area No.	Area (ha)	Storm=2 Yr			Storm=5 Yr			Storm=100 Yr		
		C <sub>AVG</sub>	Q (L/sec)	Q <sub>CAP</sub> (L/sec)	C <sub>AVG</sub>	Q (L/sec)	Q <sub>CAP</sub> (L/sec)	C <sub>AVG</sub>	Q (L/sec)	Q <sub>CAP</sub> (L/sec)
S01	0.0133	0.58	1.66	(0.50)	0.58	2.25	(0.68)	0.73	4.81	(1.45)
S02	0.0161	0.90	3.09	(1.50)	0.90	4.19	(1.60)	1.00	7.97	(1.85)
S03	0.0133	0.58	1.64	(0.50)	0.58	2.23	(0.68)	0.72	4.77	(1.45)
S04	0.0161	0.90	3.09	(1.50)	0.90	4.19	(1.60)	1.00	7.97	(1.85)
S05	0.0133	0.58	1.64	(0.50)	0.58	2.23	(0.68)	0.72	4.77	(1.45)
S06	0.0161	0.90	3.09	(1.50)	0.90	4.19	(1.60)	1.00	7.97	(1.85)
S07	0.0133	0.58	1.66	(0.50)	0.58	2.25	(0.68)	0.73	4.81	(1.45)
S08	0.0161	0.90	3.09	(1.50)	0.90	4.19	(1.60)	1.00	7.97	(1.85)
S09	0.0277	0.27	1.59	1.59	0.27	2.16	2.16	0.34	4.63	4.63
S10	0.0886	0.42	7.86	7.86	0.42	10.67	10.67	0.52	22.85	22.85
<b>Totals</b>	<b>0.2337</b>		<b>28.401</b>	<b>17.462</b>		<b>38.528</b>	<b>21.950</b>		<b>78.547</b>	<b>40.684</b>

The controlled peak flow from drainage areas S01 to S08 is 13.21 L/sec during a 100-year storm event. Which is well below the allowable discharge rate of 13.57 L/sec. To add, the uncontrolled discharge rates from the southern portion of the subject property (drainage area #S09) are 1.59 L/sec, 2.16 L/sec and 4.63 L/sec in the post-

development conditions, compared to 2.38 L/sec, 3.22 L/sec and 6.9 L/sec in the pre-development conditions during 2-year, 5-year and 100-year storm events, respectively.

## 7.5 Flow Attenuation & Storage

Using the allowable release rates estimated in the previous section, the maximum storage volume required to attenuate the flows from drainage areas S01 to S08 to the allowable release rate is 25.5 m<sup>3</sup>. This equates to 6.4 m<sup>3</sup> of storage required per block. The required storage will be provided in the catchbasins proposed in the front yard of each of the blocks, surface ponding and roof ponding. The flow controls will be achieved by Inlet Control Device (ICDs) in the proposed catchbasins and flow-controlled roof drains. **Table 7-4** below provides a summary of the maximum release rates and required storage for drainage areas S01 to S08.

Table 7-4: Summary of Post-Development Storage and Release Rates

Area No.	Area (ha)	Max. Release Rate (L/sec)			Storage Required (m <sup>3</sup> )		
		2-Yr	5-Yr	100-Yr	2-Yr	5-Yr	100-Yr
S01	0.0133	0.50	0.68	1.45	0.7	1.0	2.2
S02	0.0161	1.50	1.60	1.85	1.0	1.6	4.2
S03	0.0133	0.50	0.68	1.45	0.7	1.0	2.2
S04	0.0161	1.50	1.60	1.85	1.0	1.6	4.2
S05	0.0133	0.50	0.68	1.45	0.7	1.0	2.2
S06	0.0161	1.50	1.60	1.85	1.0	1.6	4.2
S07	0.0133	0.50	0.68	1.45	0.7	1.0	2.2
S08	0.0161	1.50	1.60	1.85	1.0	1.6	4.2
<b>Totals</b>	<b>0.2337</b>	<b>8.01</b>	<b>9.12</b>	<b>13.21</b>	<b>6.8</b>	<b>10.4</b>	<b>25.5</b>

The controlled storm water flow from areas S01 to S08 will be conveyed to the existing 525 mm diameter municipal storm sewer on Meadowbrook Road via storm services and catchbasin leads. Further details regarding the storage and control methods will be provided at the later stage.

**Table D6** in **Appendix D** provides details of the controlled release rates and required storage volumes for each storm events. **Table D7** and **Table D8** in **Appendix D** provides the storage volumes necessary to attenuate the release rates to allowable rates.

## 8 Conclusions and Recommendations

- The 525 mm storm sewer and 300 mm sanitary sewer on Meadowbrook Road should have sufficient capacity to service the proposed development at 1568 Meadowbrook Road.
- The 305 mm diameter municipal watermain on Meadowbrook Road should have sufficient capacity and pressure to meet the domestic and fire flow demands of the proposed development.



## 9 Legal Notification

This report was prepared by EXP Services Inc. for the account of Nemorin Group Ltd.

Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. EXP Services Inc. accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this project.

## Appendix A – Figures

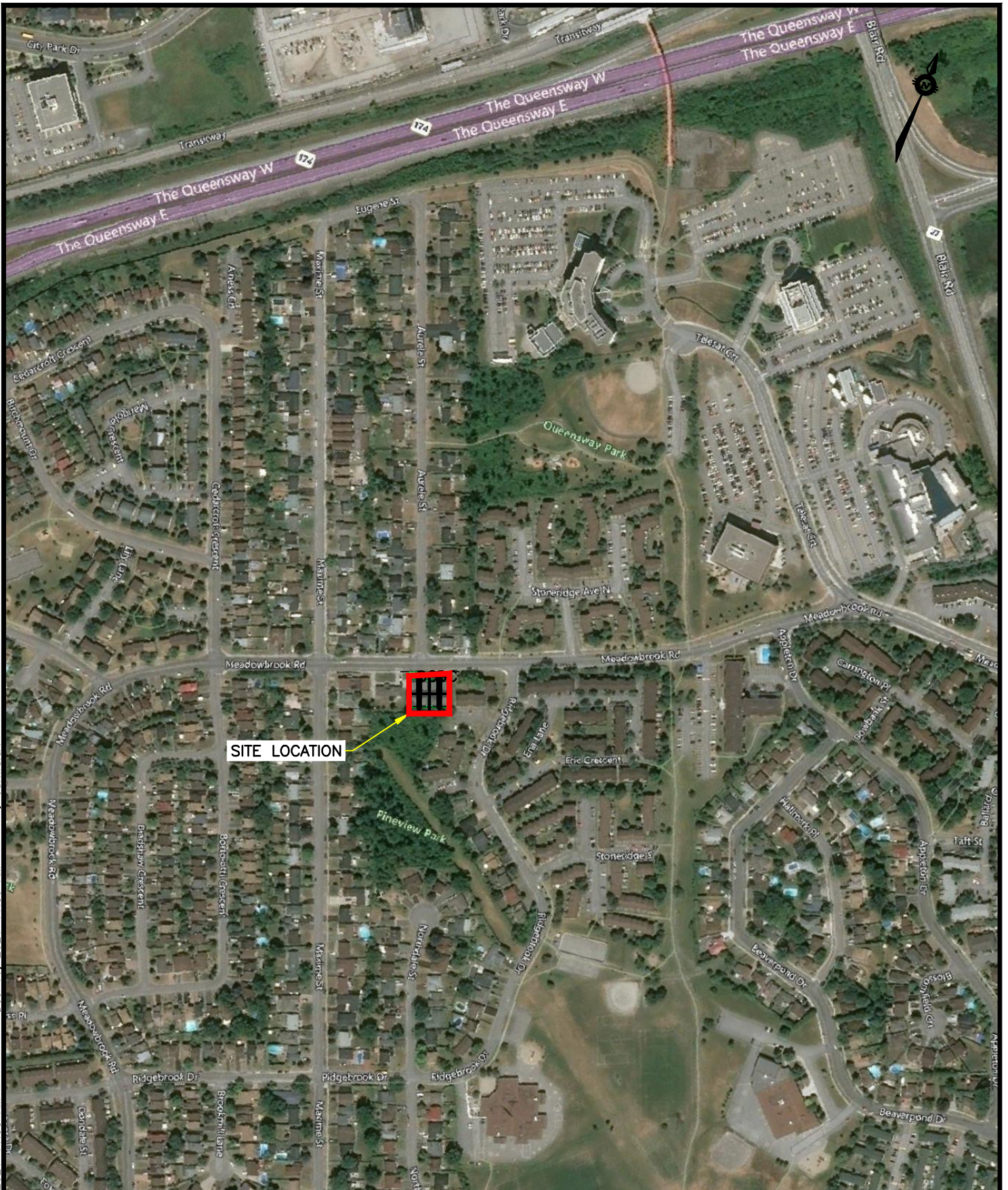
**Figure A1 – Site Locaiton Plan**

**Figure A2 – Pre-Development Storm Drainage Plan**

**Figure A3 – Post-Development Storm Drainage Plan**



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FILE NO	OTT-21020547-A0

1568 MEADOWBROOK RD

SITE LOCATION PLAN

SCALE
1:5000
SKETCH NO

FIG A1

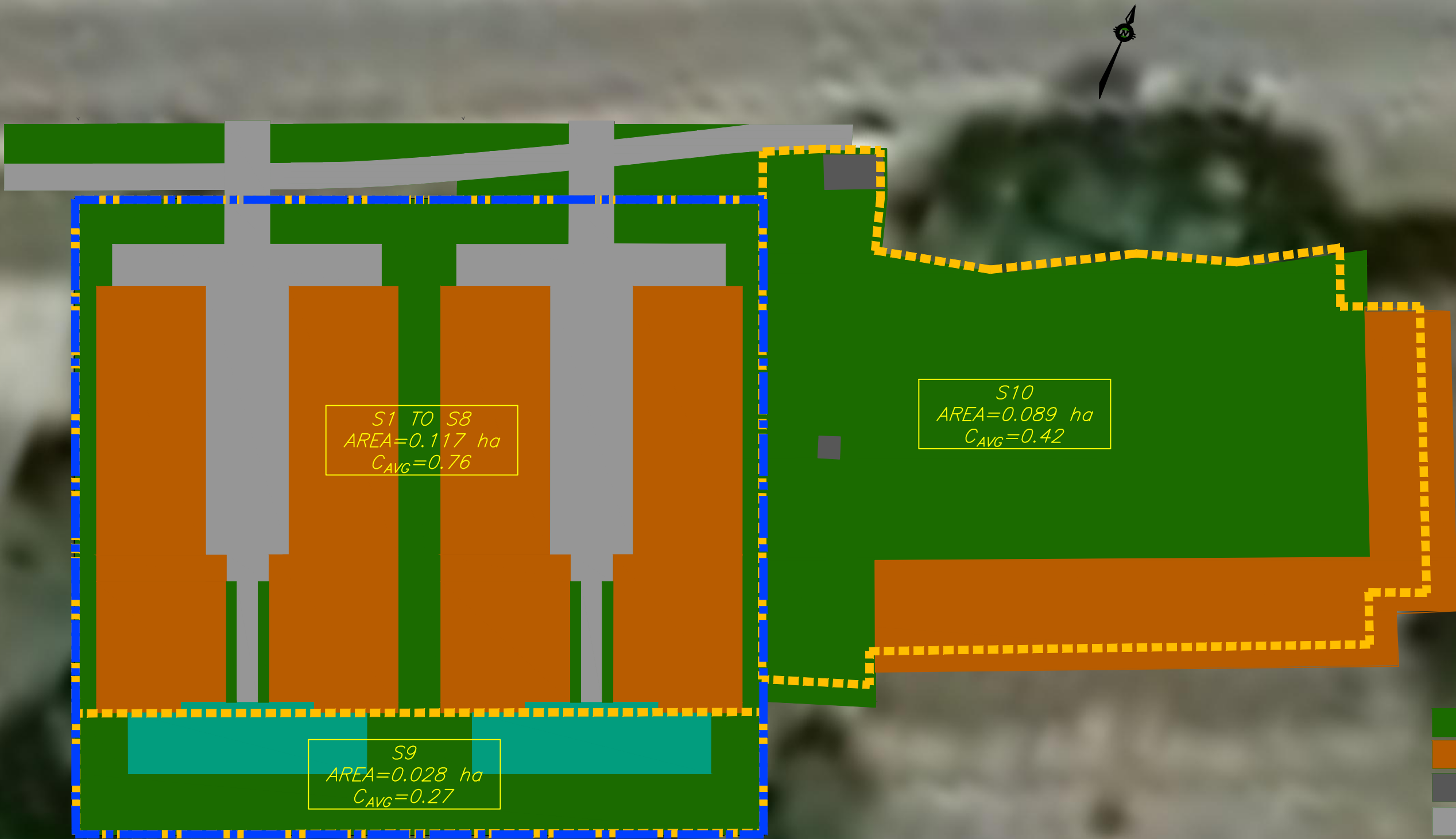


Filename: \\exp\data\OTT\OTT-21020547-A0\60 Execution\65 Drawings\21020547 - FIG.dwg  
Last Saved: Jan 20, 2023 5:24 PM Last Plotted: Jan 20, 2023 5:25 PM Plotted by: Jariwala



<b>exp</b> Services Inc. 100-2650 Queensview Drive Ottawa, ON K2B 8H6 <a href="http://www.exp.com">www.exp.com</a>	DESIGN	AJ	1568 MEADOWBROOK RD	SCALE	1:250
	DRAWN	AJ		SKETCH NO	
	DATE	20/01/2023	PRE-DEVELOPMENT STORM	FIG A2	
	FILE NO	OTT-21020547-A0			

Filename: \\exp\data\OTT\OTT-21020547-A0\60 Execution\65 Drawings\21020547 - FIG.dwg  
Last Saved: Jan 20, 2023 5:49 PM Last Plotted: Jan 20, 2023 5:50 PM Plotted by: JariwdaA



LEGENDS	
	GRASS
	ROOF
	ASPHALT
	CONCRETE
	PERM PAVERS
	PROPERTY LINE
	DRAINAGE AREA

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DESIGN	AJ
DRAWN	AJ
DATE	20/01/2023
FILE NO	OTT-21020547-A0

1568 MEADOWBROOK RD  
POST-DEVELOPMENT STORM

SCALE	1:250
SKETCH NO	
FIG A3	

## Appendix B – Water Servicing

**Table B1: Water Demand Chart**

**Table B2: Fire Flow Requirements Based on Fire Underwriters Survey (FUS) – Blocks 2&3**



**TABLE B1**  
**Water Demand Chart**

Junction Number (Building)	No. of Units										Total Pop	Residential Demands					Commercial					Total Demands in (L/sec)				
	Singles/Semis/Towns				Apartments							Avg Day Demand (L/day)	Max Day Peaking Factor	Max Hour Peaking Factor	Max Day Demand (L/day)	Peak Hourly Demand (L/day)	Area (m <sup>2</sup> )	Avg Demand (L/day)	Peaking Factors (x Avg Day)		Max Day Demand (L/day)	Peak Hour Demand (L/day)	Avg Day (L/s)	Max Day (L/s)	Peak Hour (L/s)	
	Single Family	Semi	Duple x	Townh ome	Bach elor	1- Bed Apt	2-Bed Apt	3-Bed Apt	4- Bed Apt	Avg Apt.									Max Day	Peak Hour						
8 Units Townhomes				8							21.6	6,048	9.50	14.30	57,456	86,486								0.07	0.67	1.00
Totals =				8							21.6	6,048			57,456	86,486								0.07	0.67	1.00

Unit Densities

Persons/Unit

Singles	3.4
Semi-Detached	2.7
Duplex	2.3
Townhome	2.7
Bachelor Apt Unit	1.4
1-Bed Apt Unit	1.4
2-Bed Apt Unit	2.1
3-Bed Apt Unit	3.1
4-Bed Apt Unit	4.1
Avg. Apt Unit	1.8

Residential

Residential Consumption (L/pers/day) =

280

Max Day Peaking Factor (\* avg day) =

2.5

9.50

Peak Hour Factor (\* avg day) =

5.5

14.30

Based on MECF Table 3-3. Less than 500 persons

Industrial/Commercial/Institutional Water Consumption

Light Industrial (L/gross ha/day) =

35,000

Heavy Industrial (L/gross ha/day) =

55,000

Commer/Instit (L/m<sup>2</sup> floor/day) =

5

Max Day Peaking Factor (\* avg day) =

1.5

Peak Hour Factor (\* avg day) =

2.7

Project:

1568 Meadowbrook

Designed:

Aaditya Jariwala

Checked:

Alam Ansari, P.Eng.

File Reference:

21020547 Water - Demand Chart.xlsx

Location:

1568 Meadowbrook Road, Ottawa, Ontario

Page No:

1 of 1

**TABLE B2: FIRE FLOW REQUIREMENTS BASED ON FIRE UNDERWRITERS SURVEY(FUS) 2020**

**PROJECT: 1568 Meadowbrook Road**

**Building No: Block 2&3**



An estimate of the Fire Flow required for a given fire area may be estimated by:

$$F = 220 * C * \text{SQRT}(A)$$

where: F = required fire flow in litres per minute  
A = total floor area in m<sup>2</sup> (including all storeys, but excluding basements at least 50% below grade)  
C = coefficient related to the type of construction

Task	Options	Multiplier	Input			Value Used	Fire Flow Total (L/min)
Choose Building Frame (C)	Wood Frame	1.5	Wood Frame			1.5	
	Ordinary Construction	1					
	Non-combustible Construction	0.8					
	Fire Resistive Construction	0.6					
Input Building Floor Areas (A)			Area	% Used	Area Used	650.3 m²	
	Floor 2		325.2	100%	325.2		
	Floor 1 (Main Level)		325.2	100%	325.2		
	Basement (At least 50% below grade, not included)		325.2	0%	0.0		
Fire Flow (F)	F = 220 * C * SQRT(A)						8,415
Fire Flow (F)	Rounded to nearest 1,000						8,000

**Reductions/Increases Due to Factors Effecting Burning**

Task	Options	Multiplier			Input					Value Used	Fire Flow Change (L/min)	Fire Flow Total (L/min)	
Choose Combustibility of Building Contents	Non-combustible	-25%			Limited Combustible					-15%	-1,200	6,800	
	Limited Combustible	-15%											
	Combustible	0%											
	Free Burning	15%											
	Rapid Burning	25%											
Choose Reduction Due to Sprinkler System	Adequate Sprinkler Conforms to NFPA13	-30%			No Sprinkler					0%	0	6,800	
	No Sprinkler	0%											
	Standard Water Supply for Fire Department Hose Line and for Sprinkler System	-10%			Not Standard Water Supply or Unavailable					0%	0	6,800	
	Not Standard Water Supply or Unavailable	0%											
	Fully Supervised Sprinkler System	-10%			Not Fully Supervised or N/A					0%	0	6,800	
	Not Fully Supervised or N/A	0%											
Choose Structure Exposure Distance	Exposures	Separation Dist (m)	Cond	Separation Conditon	Exposed Wall type	Exposed Wall Length							
						Length (m)	No of Storeys	Length-Height Factor	Sub-Condition	Charge (%)	Total Charge (%)	Total Exposure Charge (L/min)	
	Side 1 (west)	3	1	0 to 3	Type V	24.06	2	48.12	1C	22%	44%	2,992	9,792
	Side 2 (east)	3	1	0 to 3	Type V	24.06	2	48.12	1C	22%			
	Front (north)	37	5	30.1 to 45	Type V	13.67	1	13.67	6	0%			
	Back (south)	37.3	5	30.1 to 45	Type V	17.17	2	34.34	6	0%			
Obtain Required Fire Flow	Total Required Fire Flow, Rounded to the Nearest 1,000 L/min =											10,000	
	Total Required Fire Flow, L/s =											167	

**Exposure Charges for Exposing Walls of Wood Frame Construcion (from Table G5)**

Type V	Wood Frame
Type IV-III (U)	Mass Timber or Ordinary with Unprotected Openings
Type IV-III (P)	Mass Timber or Ordinary with Protected Openings
Type II-I (U)	Noncombustible or Fire Resistive with Unprotected Openings
Type II-I (P)	Noncombustible or Fire Resistive with Protected Openings

**Conditons for Separation**

Separation Dist	Condition
0m to 3m	1
3.1m to 10m	2
10.1m to 20m	3
20.1m to 30m	4
> 30.1m	5

## Appendix C – Sanitary Demand Chart

**Table C1: Sanitary Demand Chart**

### TABLE C1 : SANITARY DEMAND CHART

[illegible]

## Appendix D – SWM Design Sheets

**Table D1: Calculation of Average Runoff Coefficients for Pre-Development Conditions**

**Table D2: Calculation of Catchment Time of Concentration for Pre-Development Conditions**

**Table D3: Calculation of Peak Flows for Pre-Development Conditions**

**Table D4: Average Runoff Coefficients for Post-Development Conditions**

**Table D5: Summary of Post Development Peak Flows (Uncontrolled and Controlled)**

**Table D6: Summary of Post Development Storage and Release Rates**

**Table D7: Storage Volumes for 2-year, 5-year, and 100-year Storms (MRM) for Subcatchments S01, S03, S05, S07**

**Table D8: Storage Volumes for 2-year, 5-year, and 100-year Storms (MRM) for Subcatchments S02, S04, S06, S08**

TABLE D1

## CALCULATION OF AVERAGE RUNOFF COEFFICIENTS FOR PRE-DEVELOPMENT CONDIONS

Area No.	Roof Areas		Asphalt Areas		Concrete / Pavers		Gravel		Grassed Areas		Sum AC	Total Area (m <sup>2</sup> )	C <sub>AVG</sub>
	C=0.90		C=0.90		C=0.90		C=0.75		C=0.20				
	Area (m <sup>2</sup> )	A * C	Area (m <sup>2</sup> )	A * C	Area (m <sup>2</sup> )	A * C	Area (m <sup>2</sup> )	A * C	Area (m <sup>2</sup> )	A * C			
E1	139.77	125.8	183.43	165.1	54.14	48.7			644.70	128.94	468.5	1022.04	0.46
E2	36.45	32.8							392.35	78.47	111.3	428.80	0.26
E3	253.33	228.0			19.50	17.6			646.77	129.35	374.9	919.60	0.41
Totals											954.7	2370.44	0.40

TABLE D2

## CALCULATION OF CATCHMENT TIME OF CONCENTRATION FOR PRE-DEVELOPMENT CONDITIONS

Catchment No.	Area (ha)	High Elev (m)	Low Elev (m)	Flow Path Length (m)	Indiv Slope	Avg. C	Time of Conc. Tc (mins)	Description
site	0.0429	71.4	70.9	37.1	1.4	0.26	2.69	See Note 2
<b>Notes</b> 1) For Catchments with Runoff Coefficient less than C=0.40, Time of Concentration Based on Federal Aviation Formula (Airport Method), from MTO 2) For Catchments with Runoff Coefficient greater than C=0.40, Time of Concentration Based on Bransby Williams Equation, from MTO Drainage Manual								

TABLE D3

## CALCULATION OF PEAK RUNOFF FOR PRE-DEVELOPMENT CONDIONS

Area No	Outlet Location	Area (ha)	Time of Conc, Tc (min)	Storm = 2 yr			Storm = 5 yr			Storm = 100 yr			Comment
				I <sub>2</sub> (mm/hr)	Cavg	Q <sub>2</sub> (L/sec)	I <sub>5</sub> (mm/hr)	Cavg	Q <sub>5</sub> (L/sec)	I <sub>100</sub> (mm/hr)	Cavg	Q <sub>100</sub> (L/sec)	
E1	Meadowbrook	0.102	10	76.81	0.46	10.00	104.19	0.46	13.57	178.56	0.57	29.1	1568 Meadowbrook
E2	South Property	0.043	10	76.81	0.26	2.38	104.19	0.26	3.22	178.56	0.32	6.9	1568 Meadowbrook
E3	Meadowbrook	0.092	10	76.81	0.41	8.00	104.19	0.41	10.86	178.56	0.51	23.3	Carleton Condo
<b>Totals</b>		<b>0.237</b>				<b>20.39</b>			<b>27.65</b>			<b>59.2</b>	

## Notes

1) Intensity,  $I = 732.951 / (Tc + 6.199)^{0.810}$  (2-year, City of Ottawa)2) Intensity,  $I = 998.071 / (Tc + 6.053)^{0.814}$  (5-year, City of Ottawa)3) Intensity,  $I = 1735.688 / (Tc + 6.014)^{0.820}$  (100-year, City of Ottawa)

4) Cavg for 100-year is increased by 25% to a maximum of 1.0

5) The standard minimum Time of Concentration of 10 minutes was used, rather than the calculated time, since calculated time was less than 10 minutes.

Allowable Discharge  
(based on 5-yr storm)



$C_{ASPH/CONC} = 0.90$ $C_{ROOF} = 0.90$ $C_{GRASS} = 0.20$ $C_{PERM-STONES} = 0.40$												
Area No.	Asphalt & Conc (m <sup>2</sup> )	A * C <sub>ASPH</sub>	Roof Areas (m <sup>2</sup> )	A * C <sub>ROOF</sub>	Grassed Areas (m <sup>2</sup> )	A * C <sub>GRASS</sub>	Permeable Pavers Area (m <sup>2</sup> )	A * C <sub>PERM-STONES</sub>	Sum AC	Total Area (m <sup>2</sup> )	C <sub>AVG</sub> (see note)	Comment
S01	73	65.5			60	12			77.5	133	0.58	Block 1
S02			160.7	144.6					144.6	161	0.90	Block 1 Roof
S03	72	64.8			61	12			76.9	133	0.58	Block 2
S04			160.7	144.6					144.6	161	0.90	Block 2 Roof
S05	72	64.8			61	12			76.9	133	0.58	Block 3
S06			160.7	144.6					144.6	161	0.90	Block 3 Roof
S07	73	65.5			60	12			77.5	133	0.58	Block 4
S08			160.7	144.6					144.6	161	0.90	Block 4 Roof
S09					181	36	96	38	74.6	277	0.27	South Property
S10	20	17.6	253.3	228.0	613	123			368.2	886.31	0.42	Carleton Condo
<b>Totals</b>									<b>1,330.1</b>	<b>2,337.2</b>	<b>0.57</b>	
<b>Notes</b>												
1) Cavg derived with area from CAD.												

Area No	Area (ha)	Time of Conc, T <sub>c</sub> (min)	Storm = 2 yr				Storm = 5 yr				Storm = 100 yr				Totals <sub>100-yr</sub> (L/sec)	Comment
			C <sub>AVG</sub>	I <sub>2</sub> (mm/hr)	Q (L/sec)	Q <sub>CAP</sub> (L/sec)	C <sub>AVG</sub>	I <sub>5</sub> (mm/hr)	Q (L/sec)	Q <sub>CAP</sub> (L/sec)	C <sub>AVG</sub>	I <sub>100</sub> (mm/hr)	Q (L/sec)	Q <sub>CAP</sub> (L/sec)		
S01	0.0133	10	0.58	76.81	1.66	(0.50)	0.58	104.19	2.25	(0.68)	0.73	178.56	4.81	(1.45)	(13.21)	Block 1 side and front yards
S02	0.0161	10	0.90	76.81	3.09	(1.50)	0.90	104.19	4.19	(1.60)	1.00	178.56	7.97	(1.85)		Block 1 roof
S03	0.0133	10	0.58	76.81	1.64	(0.50)	0.58	104.19	2.23	(0.68)	0.72	178.56	4.77	(1.45)		Block 2 side and front yards
S04	0.0161	10	0.90	76.81	3.09	(1.50)	0.90	104.19	4.19	(1.60)	1.00	178.56	7.97	(1.85)		Block 2 roof
S05	0.0133	10	0.58	76.81	1.64	(0.50)	0.58	104.19	2.23	(0.68)	0.72	178.56	4.77	(1.45)		Block 3 side and front yards
S06	0.0161	10	0.90	76.81	3.09	(1.50)	0.90	104.19	4.19	(1.60)	1.00	178.56	7.97	(1.85)		Block 3 roof
S07	0.0133	10	0.58	76.81	1.66	(0.50)	0.58	104.19	2.25	(0.68)	0.73	178.56	4.81	(1.45)		Block 4 side and front yards
S08	0.0161	10	0.90	76.81	3.09	(1.50)	0.90	104.19	4.19	(1.60)	1.00	178.56	7.97	(1.85)		Block 4 roof
S09	0.0277	10	0.27	76.81	1.59	1.59	0.27	104.19	2.16	2.16	0.34	178.56	4.63	4.63	4.63	All blocks back yards
S10	0.0886	10	0.42	76.81	7.86	7.86	0.42	104.19	10.67	10.67	0.52	178.56	22.85	22.85	22.85	Carleton Condo
Totals	0.2337				28.401	17.462			38.528	21.950			78.547	40.684		
<u>Notes</u>																
1) Intensity, I = 732.951/(Tc+6.199) <sup>0.810</sup> (2-year, City of Ottawa)																
2) Intensity, I = 998.071/(Tc+6.053) <sup>0.814</sup> (5-year, City of Ottawa)																
3) Intensity, I = 1735.688/(Tc+6.014) <sup>0.820</sup> (100-year, City of Ottawa)																
4) Cavg for 100-year is increased by 25% to a maximum of 1.0																
5) Time of Concentration, Tc = <b>10 mins</b>																
6) For Flows under column Qcap which are shown in brackets ( <b>0.0</b> ), denotes flows that are controlled																

TABLE D6

## SUMMARY OF POST DEVELOPMENT STORAGE &amp; RELEASE RATES

Area No.	Area (ha)	Max Release Rate (L/s)			<sup>1</sup> Storage Required (m <sup>3</sup> )			Storage Provided (m <sup>3</sup> )			<sup>2</sup> Storage Method	<sup>2</sup> Control Method
		2-yr (MRM)	5-yr (MRM)	100-yr (MRM)	2-yr (MRM)	5-yr (MRM)	100-yr (MRM)	2-yr (MRM)	5-yr (MRM)	100-yr (MRM)		
S01	0.0133	0.50	0.68	1.45	0.7	1.0	2.2	2.2	2.2	2.2	CB and Surface Ponding	ICD
S02	0.0161	1.50	1.60	1.85	1.0	1.6	4.2	4.8	4.8	4.8	Roof Ponding	Flow Control Roof Drains
S03	0.0133	0.50	0.68	1.45	0.7	1.0	2.2	2.2	2.2	2.2	CB and Surface Ponding	ICD
S04	0.0161	1.50	1.60	1.85	1.0	1.6	4.2	4.8	4.8	4.8	Roof Ponding	Flow Control Roof Drains
S05	0.0133	0.50	0.68	1.45	0.7	1.0	2.2	2.2	2.2	2.2	CB and Surface Ponding	ICD
S06	0.0161	1.50	1.60	1.85	1.0	1.6	4.2	4.8	4.8	4.8	Roof Ponding	Flow Control Roof Drains
S07	0.0133	0.50	0.68	1.45	0.7	1.0	2.2	2.2	2.2	2.2	CB and Surface Ponding	ICD
S08	0.0161	1.50	1.60	1.85	1.0	1.6	4.2	4.8	4.8	4.8	Roof Ponding	Flow Control Roof Drains
S09	0.0277	1.59	2.16	4.63							NA	NA
S10	0.0886	7.86	10.67	22.85							NA	NA
<b>Totals</b>	<b>0.1451</b>	<b>17.46</b>	<b>21.95</b>	<b>40.68</b>	<b>6.8</b>	<b>10.4</b>	<b>25.5</b>	<b>27.9</b>	<b>27.9</b>	<b>27.9</b>		

**Notes**

1) The storage required is based on the Modified Rational Method (MRM) for the release rates noted.

2) The storage and control methods to be confirmed in detailed design.



**Table D8 Storage Volumes for 2-year, 5-Year and 100-Year Storms (MRM) for Subcatchments S02, S04, S06, S08**

Area No: **S02,S04,S06,S08**

$C_{AVG} = \frac{0.90}{(2\text{-yr})}$

$C_{AVG} = \frac{0.90}{(5\text{-yr})}$

$C_{AVG} = \frac{1.00}{(100\text{-yr, Max 1.0})}$

Time Interval = 5.00 (mins)

Drainage Area = 0.0161 (hectares)

Release Rate = 1.50 (L/sec)

Return Period = 2 (years)

IDF Parameters, A = 733.0, B = 0.810

(I = A/(T<sub>c</sub>+C), C = 6.199)

Release Rate = 1.60 (L/sec)

Return Period = 5 (years)

IDF Parameters, A = 998.1, B = 0.814

(I = A/(T<sub>c</sub>+C), C = 6.053)

Release Rate = 1.85 (L/sec)

Return Period = 100 (years)

IDF Parameters, A = 1735.7, B = 0.820

(I = A/(T<sub>c</sub>+C), C = 6.014)

Duration (mins)	Release Rate = <u>1.50</u> (L/sec) Return Period = <u>2</u> (years) IDF Parameters, A = <u>733.0</u> , B = <u>0.810</u> (I = A/(T <sub>c</sub> +C), C = <u>6.199</u> )					Release Rate = <u>1.60</u> (L/sec) Return Period = <u>5</u> (years) IDF Parameters, A = <u>998.1</u> , B = <u>0.814</u> (I = A/(T <sub>c</sub> +C), C = <u>6.053</u> )					Release Rate = <u>1.85</u> (L/sec) Return Period = <u>100</u> (years) IDF Parameters, A = <u>1735.7</u> , B = <u>0.820</u> (I = A/(T <sub>c</sub> +C), C = <u>6.014</u> )				
	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m <sup>3</sup> )	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m <sup>3</sup> )	Rainfall Intensity, I (mm/hr)	Peak Flow (L/sec)	Release Rate (L/sec)	Storage Rate (L/sec)	Storage (m <sup>3</sup> )
0	167.2	6.7	1.5	5.2	0.0	230.5	9.3	1.6	7.7	0.0	398.6	17.8	1.8	16.0	0.0
5	103.6	4.2	1.5	2.7	0.8	141.2	5.7	1.6	4.1	1.2	242.7	10.8	1.8	9.0	2.7
10	76.8	3.1	1.5	1.6	1.0	104.2	4.2	1.6	2.6	1.6	178.6	8.0	1.8	6.1	3.7
15	61.8	2.5	1.5	1.0	0.9	83.6	3.4	1.6	1.8	1.6	142.9	6.4	1.8	4.5	4.1
20	52.0	2.1	1.5	0.6	0.7	70.3	2.8	1.6	1.2	1.5	120.0	5.4	1.8	3.5	4.2
25	45.2	1.8	1.5	0.3	0.5	60.9	2.4	1.6	0.8	1.3	103.8	4.6	1.8	2.8	4.2
30	40.0	1.6	1.5	0.1	0.2	53.9	2.2	1.6	0.6	1.0	91.9	4.1	1.8	2.3	4.1
35	36.1	1.4	1.5	-0.1	-0.1	48.5	2.0	1.6	0.3	0.7	82.6	3.7	1.8	1.8	3.9
40	32.9	1.3	1.5	-0.2	-0.4	44.2	1.8	1.6	0.2	0.4	75.1	3.4	1.8	1.5	3.6
45	30.2	1.2	1.5	-0.3	-0.8	40.6	1.6	1.6	0.0	0.1	69.1	3.1	1.8	1.2	3.3
50	28.0	1.1	1.5	-0.4	-1.1	37.7	1.5	1.6	-0.1	-0.3	64.0	2.9	1.8	1.0	3.0
55	26.2	1.1	1.5	-0.4	-1.5	35.1	1.4	1.6	-0.2	-0.6	59.6	2.7	1.8	0.8	2.7
60	24.6	1.0	1.5	-0.5	-1.9	32.9	1.3	1.6	-0.3	-1.0	55.9	2.5	1.8	0.6	2.3
65	23.2	0.9	1.5	-0.6	-2.2	31.0	1.2	1.6	-0.4	-1.4	52.6	2.4	1.8	0.5	2.0
70	21.9	0.9	1.5	-0.6	-2.6	29.4	1.2	1.6	-0.4	-1.8	49.8	2.2	1.8	0.4	1.6
75	20.8	0.8	1.5	-0.7	-3.0	27.9	1.1	1.6	-0.5	-2.2	47.3	2.1	1.8	0.3	1.2
80	19.8	0.8	1.5	-0.7	-3.4	26.6	1.1	1.6	-0.5	-2.6	45.0	2.0	1.8	0.2	0.8
85	18.9	0.8	1.5	-0.7	-3.8	25.4	1.0	1.6	-0.6	-3.0	43.0	1.9	1.8	0.1	0.4
90	18.1	0.7	1.5	-0.8	-4.2	24.3	1.0	1.6	-0.6	-3.4	41.1	1.8	1.8	0.0	-0.1
95	17.4	0.7	1.5	-0.8	-4.6	23.3	0.9	1.6	-0.7	-3.8	39.4	1.8	1.8	-0.1	-0.5
100	16.7	0.7	1.5	-0.8	-5.0	22.4	0.9	1.6	-0.7	-4.2	37.9	1.7	1.8	-0.2	-0.9
Max =					1.0					1.6					4.2

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)<sup>B</sup>

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

4) Storage Rate = Peak Flow - Release Rate

5) Storage = Duration x Storage Rate

6) Maximum Storage = Max Storage Over Duration

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

City of Ottawa IDF Data (from SDG002)

IDF curve equations (Intensity in mm/hr)

100 year Intensity = 1735.688 / (Time in min + 6.014)<sup>0.820</sup>

50 year Intensity = 1569.580 / (Time in min + 6.014)<sup>0.820</sup>

25 year Intensity = 1402.884 / (Time in min + 6.018)<sup>0.819</sup>

10 year Intensity = 1174.184 / (Time in min + 6.014)<sup>0.816</sup>

5 year Intensity = 998.071 / (Time in min + 6.053)<sup>0.814</sup>

2 year Intensity = 732.951 / (Time in min + 6.199)<sup>0.810</sup>

## Appendix E – Correspondence

**Email Correspondence from City of Ottawa on Water System Boundary Condition.**

**Pre-Application Consultation Meeting Minutes**

**Servicing Memo from City of Ottawa**

**Email Correspondence from RVCA stating the development requirements for 1568 Meadowbrook**

**From:** Mashaie, Sara <sara.mashaie@ottawa.ca>  
**Sent:** Wednesday, December 8, 2021 8:50 AM  
**To:** Aaditya Jariwala  
**Cc:** Alam Ansari  
**Subject:** RE: 1568 Meadowbrook Water boundary Condition  
**Attachments:** 1568 Meadowbrook Road November 2021.pdf



**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Aaditya,

Please find the boundary conditions.

The following are boundary conditions, HGL, for hydraulic analysis at 1568 Meadowbrook Drive (zone 1E) assumed to be connected to the 305 mm watermain on Meadowbrook Road (see attached PDF for location).

Minimum HGL: 110.2 m

Maximum HGL: 117.4 m

Max Day + FF (183 L/s): 109.1 m

These are for current conditions and are based on computer model simulation.

*Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.*

Regards,

**Sara Mashaie, P.Eng., ing.**

Project Manager | Gestionnaire de Projet

Development Review, East Branch | Examen des projets d'aménagement, Secteur est

Planning, Infrastructure and Economic Development Department | Services de la planification, de l'infrastructure et du développement économique

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West. Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 27885, [sara.mashaie@ottawa.ca](mailto:sara.mashaie@ottawa.ca)



---

**From:** Aaditya Jariwala <[Aaditya.Jariwala@exp.com](mailto:Aaditya.Jariwala@exp.com)>  
**Sent:** November 30, 2021 10:55 AM  
**To:** Mashaie, Sara <[sara.mashaie@ottawa.ca](mailto:sara.mashaie@ottawa.ca)>  
**Cc:** Alam Ansari <[alam.ansari@exp.com](mailto:alam.ansari@exp.com)>  
**Subject:** 1568 Meadowbrook Water boundary Condition

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**ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.**

Good Morning Sara,

I am writing this email to request the water boundary conditions for development at 1568 Meadowbrook Road (File # PC2021-0139). I have attached a sketch with the connection point to the watermain on Meadowbrook Road marked on it. Additional information are as follow:

1. Type of Development: Residential townhouses
2. Average Daily Demand: 0.09 L/s
3. Maximum Daily Demand: 0.83 L/s
4. Peak Hour Demand: 1.25 L/s
5. Fire flow requirement: 183 L/s Max.

Let me know if you further need any information.

Regards,



**Aaditya Jariwala, M.Eng**

EXP | Engineering Designer

t : +1.613.688.1899, 63240 | m : +1.613.816.5961 | e : [aaditya.jariwala@exp.com](mailto:aaditya.jariwala@exp.com)

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Ottawa, ON K2B 8H6

CANADA

[exp.com](http://exp.com) | [legal disclaimer](#)

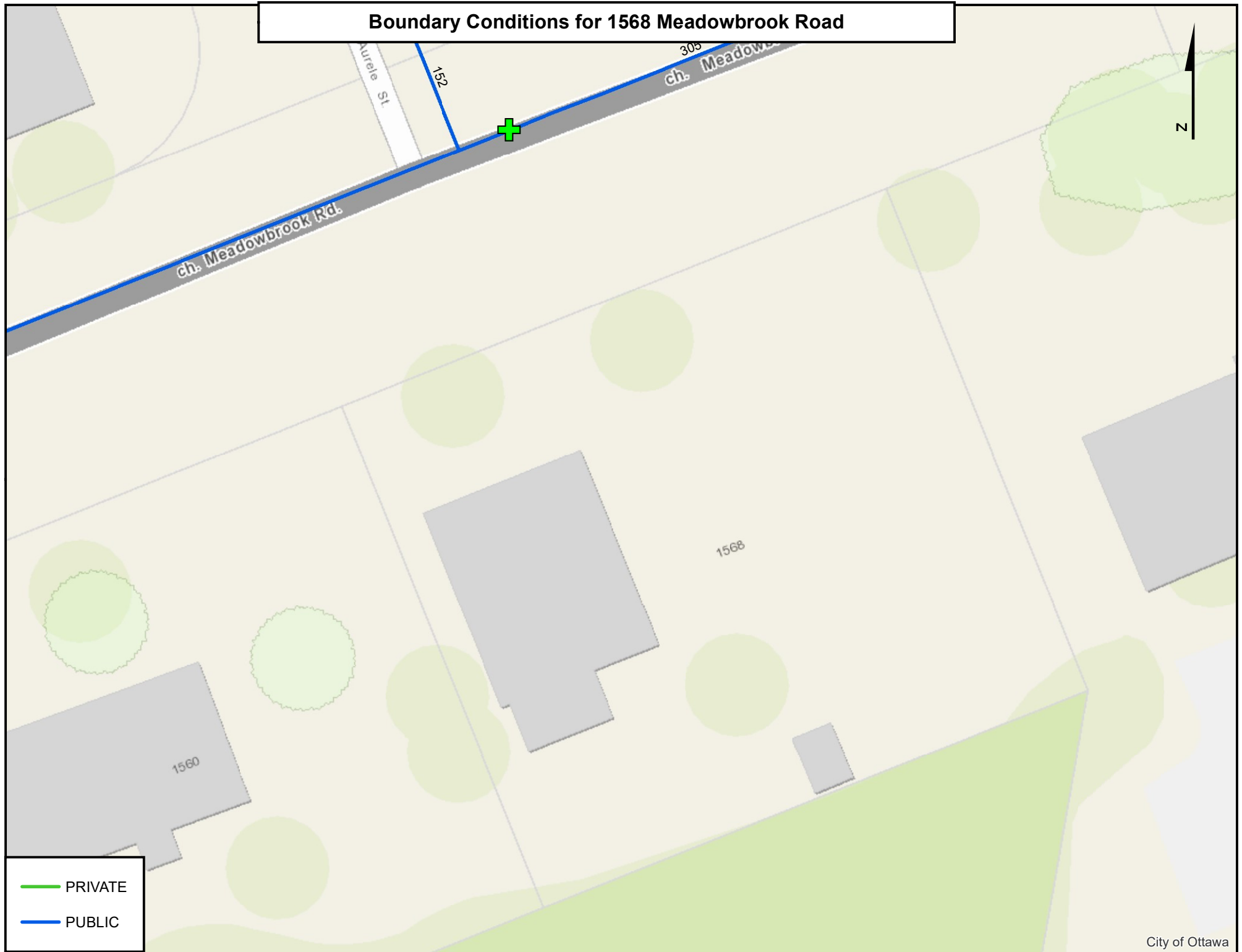
*keep it green, read from the screen*

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,

# Boundary Conditions for 1568 Meadowbrook Road



PRIVATE  
PUBLIC

## 1568 Meadowbrook Road (Ward 11) - Pre-application Consultation Notes

Meeting Date: Thursday, May 6, 2021  
Follow up Notes sent on June 2, 2021

- Attendees:**
- Lucy Ramirez, Planner (Development Review), City of Ottawa
  - Sara Mashaie, Project Manager (Infrastructure), City of Ottawa
  - Mark Young, Planner (Urban Design), City of Ottawa
  - Peter Hume
  - Saël Nemorin
- Regrets**
- Mark Richardson, Forester (Planning), City of Ottawa
  - Mike Giampa, Project Manager (Transportation), City of Ottawa
  - Mary Ellen Wood, Planner (Parks), City of Ottawa

## Contents

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## Proposal Summary

The subject property is in the Pineview Neighbourhood and the lot area is approximately 1,442 square metres (0.1442 hectares). Currently, there is a detached dwelling and detached garage onsite, which will be demolished. The Owners wants to rezone 1568 Meadowbrook Road from Residential First Density Zone, Subzone WW (R1WW) to a Residential Second Density Zone, Subzone N (R2N) so they can sever the parcel in four and construct four long semi-detached dwellings.



Figure 1: Capture of 1568 Meadowbrook road from [geoOttawa](#).

The subject lot has 39 metres of frontage along Meadowbrook Road, a major collector road. Major collector roads serve neighbourhood travel between collector and arterial roads. The western lot line abuts a detached dwelling and the rear lot line abuts a municipal owned park, Maxime Park. Fencing between the park and the property will be reviewed in the future.

To build two principal unit buildings, the Owner needs to rezone the property via a **Major Zoning By-law Amendment**, then the Owners will need to proceed to the Committee of Adjustment with **Consent Application(s)**.

#### Planning Comments

1. **Official Plan** – The City's *Official Plan* (OP) designates the subject site "General Urban Area". The General Urban Area designation permits the development of a full range and choice of housing types to meet the needs of all ages, incomes and life circumstances, in combination with conveniently located employment, retail, service, cultural, leisure, entertainment and institutional uses. Subject to the policies in Section 3.6 of the Official Plan, the City supports infill development and other intensification within the General Urban Area provided it enhances and complements the desirable characteristics and ensures the long-term vitality of the existing communities that make up the city. Building height in the General Urban Area will continue to be predominantly Low-Rise. Within this range, changes in building form, height and density will be evaluated based upon compatibility with the existing context and the planned function of the area.

The evaluation of development applications in the General Urban Area will be accordance with Section 2.5.1 and Section 4.11. Section 2.5.1 *Designing Ottawa* provides the overall direction for assessing neighbourhood compatibility. Section 4.11 - *Urban Design and Compatibility* identifies general criteria for the evaluation of a specific development relative to policies of Section 2.5.1.

Staff note that the subject property is just outside of the Blair Transit Oriented Development (TOD) Area, specifically the south sector, which includes properties within an 800 metre walk from the station platform.

## 2. **Zoning –From R1WW to R2N**

The property is inside the Greenbelt and the zoning provisions applicable to Schedule 342 and 343 apply here. City Council adopted Zoning Changes on October 14, 2020. Changes are found in Document 1 of the report entitled [Zoning Changes to Regulate Residential Development in the Urban Area Inside the Greenbelt](#) (By-law 2020-288 and 2020-289) The reason these provisions have not been incorporated into the By-law online is because they were under appeal. The most restrictive provisions apply in an appeal.

Council adopted the Technical Anomalies: Infill and R4 Phase II recommendations and passed an implementation By-law (2021-111) on April 14, 2021. These provisions are now in effect.

*A long semi-detached dwelling is a residential use building that contains two dwelling units, where the dwelling units are attached and arranged one behind the other. In Area A on Schedule 343, where a long semi-detached dwelling is severed, the lands on which a long semi-detached dwelling is located are considered one lot for zoning purposes (Section 161 (14) (a)(ii)).*

*Where a long semi-detached dwelling is severed in a flag lot configuration, the minimum width of the pole portion must be 3 metres measured from the original lot's interior side lot line (Section 161 (14)(a)(iii)).* On April 14 City Council reduced the required lot width from 3 m to 2.2 metres, and 1.7 m when two flagpoles abut each other (By-law 2021-111).

Staff note that because the rear lot line does not abut an R1, R2, R3 or R4 zone, the alternative rear yard setback of Table 144 B does not apply.

Table 156 A - R1 Subzones

I Sub-Zone	II Minimum Lot Width (m)	III Minimum Lot Area (m <sup>2</sup> )	IV Maximum Building Height (m)	V Minimum Front Yard Setback (m)	VI Mini- mum Corner Side Yard Setback (m)	VII Minimum Rear Yard Setback (m)	VIII Minimum Interior Side Yard Setback (m)	IX Maximum Lot Coverage (And Other Provisions )	X End Notes (see Table 156B)
WW <sup>5</sup>	9	450	Schedule 342, is 8.5; in other cases 11 m	5	5	7 <sup>6</sup>	1	n/a	5, 6

Table 156 B – Additional Zoning Provisions

I Endnote Number	II Additional Zoning Provisions
5	<p>(i) Despite the minimum front yard setback provision in column V of Table 156A, on an interior lot with a lot width greater than 36 metres in Area A on Schedule 343: any part of a detached dwelling that is wider than 60 per cent of the permitted width of the building envelope must be setback a further 2 metres from the front lot line than the rest of the front building façade; and,</p> <p>(ii) no part of an attached or detached garage or carport may be located closer to the front lot line than the front wall of the principal building.</p> <p>(iii) See Part V – Section 144 for yard setbacks and corner lot regulations, and Section 139 and 140 for garage regulations.</p>
6	Where a lot is located within S. 342, see Part V, Section 144 – Alternative Yard Setbacks for Low-rise Dwellings in the Greenbelt.

Figure 2: R1WW Zoning – Existing – Table 157 A (By-law 2020-288)



3. Table 158 A of the said by-law No. 2008-250 is replaced with the following:

158 A – R2 Subzone Provisions

I Sub-zone	II Prohibited Uses	III Principal Dwelling Type	IV Minimum Lot Width (m)	V Minimum Lot Area (m)	VI Maximum Building Height (m)	VII Minimum Front Yard Setback (m)	VIII Minimum Corner Side Yard Setback (m)	IX Minimum Rear Yard Setback (m)	X Minimum Interior Side Yard Setback (m)	XI End notes see Table 158B
N	None	Detached, Duplex, Linked-detached	9	270	Schedule 342, Area A is 8.5; all other cases 11	5	5	7	1	
		Long Semi	10	300	Schedule 342, Area A is 8.5; all other cases 11	5	5	7	1	
		Semi-detached	9	270	Schedule 342, Area A is 8.5; all other cases 11	5	5	7	1	
		Detached, Linked-detached	9	270	11	4.5	4.5	7.5 <sup>a</sup>	1	6

Figure 3: R2N Zoning – Table 162 A (By-law 2020-288)



Zoning Table	Existing R1WW Detached Dwelling	Proposed R2N Long Semi-detached	Actual Proposed
Lot Width	9 m	10 m	9.868 m
Lot Area	450 sq.m	300 sq.m	360.87 sq.m
Maximum Building Height	Schedule 342 is 8.5 m, in other cases 11 metres	Schedule 342 is 8.5 m, in other cases 11 metres	
Front Yard Setback	5 m	5 m	5 m
Rear Yard Setback	7 m	7 m	7.5 m
Side Yard Setback	1 m	1 m	1.2

Figure 4: Table comparing existing and proposed zoning.

As proposed, the lots are slightly deficient on the lot width requirement.

### 3. Comments

It is not unreasonable to rezone the property as there is a mix of low density type dwellings in the community; however, Staff want to stress that a suitable transition between the Planned Unit Development to the east and the detached building to the west is necessary.

#### Requested Zoning By-law Amendment submission documents:

- Site Plan
- Concept Plan
- Survey Plan
- Elevations
- Planning Rationale
- Phase 1 ESA

- Easement/right-of-way** – If a shared private road or shared driveway is proposed for access to the parcels, then an easement/right of way is required over the private road/shared driveway in favour of the Owners of the individual properties. A Joint Use and Maintenance Agreement (JUMA) setting out the obligations between the Owner(s) and the proposed future owners would also be required.
- Affordable Housing Programs** – Canada Mortgage and Housing Corporation has a [Rental Construction Financing Program](#) and you are encouraged to participate if you are eligible.
- This is the **Formal Pre-Application Consultation** meeting for a [Major Zoning Amendment Application](#). Application forms, timeline and fees can be found online, through the hyperlinks provided.

#### Major Zoning By-law Amendment Planning Applications Fees

The following outlines the application fees for each type of application, fees effective January 1, 2021. Please note fees increase each year:

##### Zoning By-law Amendment

Major Zoning Amendment - **\$21,722.94**

Conservation Fee - **\$390\***

Total – **\$22,112.94**

\* Conservation Authority will invoice for any additional fees and technical report review as required.

#### Consents (Severances)

The legal address is CON 2 OF S PT LOT 22, I understand that you cannot apply for part lot control unless the property is in a registered plan of subdivision. A Consent application to the Committee of Adjustment would be necessary to create the lots for the proposed dwellings. The Consent Application should include proposed easements/Right-of-way over the property.

Please note that Consent (Severance) applications are handled by the Committee of Adjustment. The Planning Department provides comments on Committee of Adjustment applications; however, the Committee of Adjustment makes the decision. For more information on the Committee of Adjustment, including application forms and fees, please visit: <https://ottawa.ca/en/planning-development-and-construction/committee-adjustment>. For questions pertaining to forms and fees, please contact the Committee of Adjustment directly at [cofa@ottawa.ca](mailto:cofa@ottawa.ca) or at (613)-580-2436.

#### Conditions of a Provisional Consent

The *Planning Act* (SubSection 53 (12)) allows the Committee of Adjustment the ability to impose any condition to a provisional consent, if it believes the condition is reasonable and has regard to the nature of the development proposed. All conditions of approval must be fulfilled within one year of the decision before the consent is given. Below are typical conditions which are imposed.

#### Infrastructure-related conditions (NOTE: this is not an exhaustive list)

- Removal of dwelling and/or structures and capping and blanking of existing services, if applicable.
- Separate services from street required (demonstrated through a servicing plan created by an engineer)
- Demonstration of appropriate grading and drainage (demonstrated through a grading plan created by an engineer)
- Noise condition
- Asphalt overlay condition, if applicable
- Joint-Use and Maintenance Agreement

#### Parkland Dedication

- Cash-in-lieu of parkland will be required as a condition of the severance approval, as per the [Parkland Dedication By-law](#).

#### Engineering Comments

Further to the pre-application consultation meeting held on May 6, 2021 for the above-noted site, please see high-level engineering-related notes below (#1 to #5), and the attached Servicing Memo. The Servicing Memo reflects the engineering design and submission requirements for the Zoning By-law Amendment application, among other relevant information applicable to the said application. **The Applicant is to consult both the Servicing Memo (Attachment 1) and the notes listed below.** Note that the requested submission documents have been listed below as well.

## **Engineering-related notes:**

### **1. Joint-Use Maintenance Agreement (JUMA):**

With severance, the Owner(s) agrees that it shall ensure that the future Owner of the units shall enter into a Private Agreement which shall be binding upon the owners and all subsequent purchasers to deal with the joint use, maintenance and liability of the common elements, including but not limited to the private roadway, private sewers, private water service, easements, and any other elements located on the common property for the mutual benefit and joint use of the Owners.

### **2. Servicing and Stormwater Management:**

- a. On Meadowbrook Rd., there is a 300mm dia. watermain, 300mm dia. sanitary sewer (also note the Maxime Trunk Sanitary Sewer on Maxime St.), and the 525mm dia. storm sewer. The depths of the sewers on Meadowbrook Rd. vary from approximately 2.5m to 4m. We will request that the Applicant provide flow calculations based on the type of development/units, location of services. The City will then carry out an analysis to verify that our sewer system has sufficient capacity to accommodate the proposed development. As part of the work involved in the Site Servicing and Stormwater Management Report, the Applicant can request as-built information, including hydrologic and hydraulic information on the drainage system in the Pineview area, where the property is located. Please refer to the Servicing Memo for further information. In addition, the Applicant is recommended to consult the City's geoOttawa website: (<http://maps.ottawa.ca/geoOttawa/>) for basic information regarding the municipal services on Meadowbrook Rd. (pipe diameter, material, location of CBs, MHs, hydrants, valves, etc.).
- b. Note the existing catchbasin on the (private) property and the lead to storm manhole MHST 21335. A sewer extension agreement may be required to extend the storm sewer on Meadowbrook Rd. such that the storm laterals for the proposed dwellings be dropped to the storm sewer in the right-of-way, the existing lead be abandoned, and a catchbasin (may be relocated or proposed – to be discussed in the submission) and lead be installed in the right-of-way with the lead to the storm sewer.
- c. Note that the Pineview area's stormwater runoff is conveyed through an underground system to Green's Creek. The Rideau Valley Conservation Authority (RVCA) shall be circulated, and their requirements are to be met, accordingly.

### **3. Geotechnical Considerations:**

The area is relatively flat, generally sloping towards Green's Creek. The subsoil is heterogeneous fill consisting of sand, gravel and/or cobble. Below this is silty sand with some clay and gravel intermixed, bearing on bedrock, which is also present in the area. The Geotechnical Report is to take into

account these subsoil conditions and the suitability of these soils for the proposed development and the foundation proposed.

4. MECP ECA:

With severance, please note that this site will be subject to a Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) under a separate application. Please consult the Servicing Memo for further information.

5. Utilities:

Note the presence of above-ground utilities, among and other utilities in the area. Coordination will be required with the applicable agencies at the time of development.

**Requested Zoning By-law Amendment submission documents:**

- Site Servicing and Stormwater Management Report
- Geotechnical Report

Should you have any questions or require clarification on the above engineering-related matters, please contact Sara Mashaie at [sara.mashaie@ottawa.ca](mailto:sara.mashaie@ottawa.ca).

Transportation Comments

1. The proposed development does not trigger a Traffic Impact Assessment (TIA).
2. Noise Impact Studies required for the following:
  - a) Road (development is within 100 metres of Meadowbrook Road - a major collector road)

This would be required as a condition of the provisional consent application.

Should you have any questions or require clarification on the above engineering-related matters, please contact Mike Giampa at [Mike.Giampa@ottawa.ca](mailto:Mike.Giampa@ottawa.ca)

Forestry Comments

1. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
2. For more help with tree retention options, contact Mark Richardson [mark.richardson@ottawa.ca](mailto:mark.richardson@ottawa.ca)
3. The [Tree By-law](#) (By-law No. 2020-340) applies to this property as it is in the [Urban Area, which consists of both the Inner Urban Area and Suburban Area](#).

The new Tree Protection By-law came into effect as of January 1, 2021. A Tree Information Report is required for Committee of Adjustment applications if the critical root zones of protected trees on or adjacent to the property are going to be affected. Tree Information Reports should have the required tree information shown on the grading plan and the plan for the site, as prescribed in [Schedule "C"](#), See Infill Development TIR - Full.

## Tree planting requirements:

### 1. Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

### 2. Tree specifications

- Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- Plant native trees whenever possible
- No root barriers, dead-man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

### 3. Hard surface planting

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade

### 4. Soil Volume

- Please ensure adequate soil volumes are met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

### 5. Sensitive Marine Clay

- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

### 6. For additional information on the tree planting requirements please contact

[Tracy.Smith@Ottawa.ca](mailto:Tracy.Smith@Ottawa.ca)

## Urban Design

1. Please include a design brief as part of the planning rationale. A terms of reference is provided (Attachment 2).
2. Please review and explain how the proposal meets all *Official Plan* policies related to intensification and compatibility for this form of intensification within the subject context.
3. The applicant should explore alternative approaches to massing for the four proposed semi-detached buildings to avoid a repetitive streetscape.
4. Efforts should be made to decrease the mass or consider alternative built form for the proposed buildings on the west side of the site abutting the existing detached dwelling. Alternative approaches such as the one taken at 191 Norice Street were discussed.
5. Zoning provisions should be tailored to ensure a compatible built form is provided on-site.
6. Consideration should be given to varied setbacks for both the front and rear yards.
7. Locating the parking in the middle of the block is appreciated, as it is screened from the public realm on both sides of the site.
8. Efforts should be made to break the depth of the semi-detached units, through the use of built form and architectural relief on the upper floors.
9. The driveways should be treated in a pedestrian friendly manner. The use of pavers vs. asphalt is encouraged, to delineate a space that is pedestrian first.
10. Consideration should be given to the amenity areas abutting the parkland to the south. These should be accessible spaces, with enhanced landscaping. Perhaps consider the use of these facades as front facades for the rear semi-detached units, with porches similar to those proposed on the front of the building.
11. Given the lack of garages, considerations need to be made for garbage and bicycle storage.
12. As discussed, the secondary dwelling units will rely on active transportation, and should be provided with suitable bike storage.
13. Functionality of the driveways and parking stalls needs to be confirmed.
14. The architectural treatment of the units should be varied in addition to the built form to create a more interesting streetscape.

## Other Comments

You are encouraged to contact the Ward Councillor, Councillor Tim Tierny, about the proposal.

## Required Plans and Report Submissions

I've attached a list of reports and submission materials focus on the above and other matters necessary for staff and circulated agencies to provide informed review and comment on the proposed zoning by-law amendment.

I have included a few points of clarification below:

- a. Planning Rationale – The planning rationale should contain well reasoned arguments in support of the zoning amendment application to address the requested change in land use and zone provisions. Also, include among the usual supporting arguments a statement of the proposed site. In addition, the planning rationale must provide a proposed strategy for public consultation, in accordance with Bill 73.
- b. Coloured Building Elevations – In addition to the two sets of typical building elevations (including flanking facades for end units), I would like one set of coloured elevations or a set of coloured building perspectives.
- c. Phase 1 Environmental Site Assessment – Prepared in accordance with Ontario Regulation 153/04.
- d. CD in .pdf format of all plans and reports – 1 copy.

## Attachments

1. Servicing Memo
2. Design Brief
3. Required Plans and Reports for Zoning By-law Amendment Application

Regards,

Lucy Ramirez

Planner  
Development Review East Unit  
Development Review Branch  
Planning Services  
City of Ottawa

Urbaniste  
Unité Examen des projets d'aménagement - Est  
Direction de l'examen des projets d'aménagement  
Services de la planification  
Ville d'Ottawa

Tel Tél. 613-580-2424 Extension. poste 23808

[lucy.ramirez@ottawa.ca](mailto:lucy.ramirez@ottawa.ca) Mail Code Code de courrier 01-14

## SERVICING MEMO

Date: May 10, 2021

To /  
Destinataire Lucy Ramirez  
Planner, Development Review East

From /  
Expéditeur Sara Mashaie, P.Eng.  
Project Manager, Infrastructure Approvals, Development Review East

Subject /  
Objet **Pre-Application Consultation**  
**1568 Meadowbrook Rd., Ward 11 – Beacon-** File No. PC2021-0139  
**Hill/Cyrville**  
*Proposed rezoning to accommodate the*  
*construction of 4 long semi-detached dwellings*

Please note the following information regarding the engineering design submission for the above noted site:

**\*\*Note:** Some items may not be required as part of your submission and are for informational purposes.

1. The Servicing Study Guidelines for Development Applications are available at the following address: <https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#servicing-study-guidelines-development-applications>
2. The following Engineering reports are requested for the **Zoning By-law Amendment** submission:
  - a. Site Servicing and Stormwater Management Report
  - b. Geotechnical Report
3. Plans are to be submitted on standard **A1 size** (594mm x 841mm) sheets, utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400, or 1:500). With all submitted plans and reports, please provide an individual PDF format of the files.
4. Servicing and site works shall be in accordance with the following documents:
  - ⇒ Ottawa Sewer Design Guidelines (October 2012)



- ⇒ Ottawa Design Guidelines – Water Distribution (2010)
  - ⇒ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
  - ⇒ City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
  - ⇒ City of Ottawa Environmental Noise Control Guidelines (January, 2016)
  - ⇒ City of Ottawa Park and Pathway Development Manual (2012)
  - ⇒ City of Ottawa Accessibility Design Standards (2012)
  - ⇒ Ottawa Standard Tender Documents (latest version)
  - ⇒ Ontario Provincial Standards for Roads & Public Works (2013)
5. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at [InformationCentre@ottawa.ca](mailto:InformationCentre@ottawa.ca) or by phone at (613) 580-2424 x.44455).
6. The Stormwater Management Criteria, for the subject site, is to be based on the following:
- i. The 5-yr storm event using the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
  - ii. For separated sewer system built pre-1970 the design of the storm sewers are based on a 2 year storm.
  - iii. The pre-development runoff coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).
  - iv. A calculated time of concentration (Cannot be less than 10 minutes).
  - v. Flows to the storm sewer in excess of the 5-year storm release rate, up to and including the 100-year storm event, must be detained on site.
  - vi. For a combined sewer system the maximum C= 0.4 or the pre-development C value, whichever is less. In the absence of other information the allowable release rate shall be based on a 2 year storm event.

Note: There may be area specific SWM Criteria that may apply. Check for any related SWM &/or Sub-watershed studies that may have been completed.

7. Deep Services (Storm, Sanitary & Water Supply)

- i. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.*
- ii. Connections to trunk sewers and easement sewers are typically not permitted.*
- iii. Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).*
- iv. Review provision of a high-level sewer.*
- v. Provide information on the type of connection permitted*

Sewer connections to be made above the springline of the sewermain as per:

- a. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.*
- b. Std Dwg S11 (For rigid main sewers) – lateral must be less than 50% the diameter of the sewermain,*
- c. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain,*
- d. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.*
- e. No submerged outlet connections.*

8. Water Boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide the following information:
  - i. Location of service
  - ii. Type of development and the amount of fire flow required (as per FUS, 1999).
  - iii. Average daily demand: \_\_\_\_ l/s.
  - iv. Maximum daily demand: \_\_\_\_ l/s.
  - v. Maximum hourly daily demand: \_\_\_\_ l/s.
9. All development application should be considered for an ECA by the MOECC.
  - a. Consultant determines if an approval for sewage works under Section 53 of OWRA is required. Consultant determines what type of application is required and the City's project manager confirms. (If the consultant is not clear if an ECA is required, they will work with the City to determine what is required. If the consultant is still unclear or there is a difference of opinion only then will they approach the MOECC).
  - b. The project will be either transfer of review (standard), transfer of review (additional), direct submission, or exempt as per O. Reg. 525/98.
  - c. Pre-consultation is not required if applying for standard works (schedule A of the Agreement) under Transfer Review.
  - d. Mandatory pre-consultation is required if applying for additional works (schedule A of the Agreement) under Transfer Review.
  - e. Pre-consultation with local District office of MOECC is recommended for direct submission.
  - f. Consultant completes an MOECC request form for a pre-consultation. Send request to [moeccottawasewage@ontario.ca](mailto:moeccottawasewage@ontario.ca).
10. Phase 1 ESAs and Phase 2 ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.

Should you have any questions or require additional information, please contact me directly at (613) 580-2424, ext. 27885 or by email at [sara.mashaie@ottawa.ca](mailto:sara.mashaie@ottawa.ca).

## Aaditya Jariwala

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**From:** Eric Lalande <eric.lalande@rvca.ca>  
**Sent:** Friday, January 20, 2023 5:01 PM  
**To:** Aaditya Jariwala  
**Subject:** RE: 1568 Meadowbrook Road Development Requirements



**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Aaditya,

The RVCA does not have any water quality control requirements, based on the site plan provided.

Thank you,

**Eric Lalande, MCIP, RPP**  
Planner, RVCA  
613-692-3571 x1137

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**From:** Aaditya Jariwala <Aaditya.Jariwala@exp.com>  
**Sent:** Friday, January 20, 2023 4:47 PM  
**To:** Eric Lalande <eric.lalande@rvca.ca>  
**Subject:** RE: 1568 Meadowbrook Road Development Requirements

Hi Eric,

Please find attached the architectural site plan and site servicing plan. Please note that the application is for ZBL, so the site servicing plan is not nailed down. It's just a preliminary idea as of now. The proposed development includes adding small residential units (semi detached) with 1 parking space per unit. The stormwater would be discharged to the 525mm dia. Storm sewer on Meadowbrook Road.

Let me know if you need further information.

Regards,

**Aaditya Jariwala, M.Eng**

EXP | Engineering Designer

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[exp.com](http://exp.com) | [legal disclaimer](#)

*keep it green, read from the screen*

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**From:** Eric Lalande <[eric.lalande@rvca.ca](mailto:eric.lalande@rvca.ca)>  
**Sent:** Friday, January 20, 2023 4:43 PM  
**To:** Aaditya Jariwala <[Aaditya.Jariwala@exp.com](mailto:Aaditya.Jariwala@exp.com)>  
**Subject:** RE: 1568 Meadowbrook Road Development Requirements



**CAUTION:** This email originated from outside of the organization. Do not click links or open attachments unless you recognize the sender and know the content is safe.

Hi Aaditya

Do you have a site plan for the proposal? Typically, enhanced water protection (80% TSS removal) is the target prior to outletting to a watercourse, but between site design (i.e. no surface parking) and distance to received can result in the requirement being waived.

Please provide more information on the project.

Thank you,

**Eric Lalande, MCIP, RPP**

Planner, RVCA

613-692-3571 x1137

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**From:** Aaditya Jariwala <[Aaditya.Jariwala@exp.com](mailto:Aaditya.Jariwala@exp.com)>

**Sent:** Friday, January 20, 2023 4:27 PM

**To:** Eric Lalande <[eric.lalande@rvca.ca](mailto:eric.lalande@rvca.ca)>

**Cc:** Alam Ansari <[alam.ansari@exp.com](mailto:alam.ansari@exp.com)>

**Subject:** 1568 Meadowbrook Road Development Requirements

**Importance:** High

Hello Eric,

We have applied for zoning by-law amendment to the city on behalf of our client for residential development at 1568 Meadowbrook Road. I have attached the site location plan for your reference. Can you please provide the quality control criteria or any applicable development requirements from RVCA within this area?

A prompt response will be greatly appreciated.

Thanks,



**Aaditya Jariwala, M.Eng**

EXP | Engineering Designer

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CANADA

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## Appendix F – Drawings

**Existing Site Survey Plan by Stantec (Included Separately)**

**Civil Drawings:**

**C000 – Existing Conditions Plan (Included Separately)**

**C100 – Site Servicing Plan (Included Separately)**

**C200 – Site Grading Plan (Included Separately)**

**C400 – Pre-Development Storm Drainage Areas (Included Separately)**

**C500 – Post-Development Storm Drainage Areas (Included Separately)**