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Commercial &  
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Restoration

## Residential Development 1040 Somerset Street West Servicing Design Brief



Prepared for: Claridge Homes

**RESIDENTIAL DEVELOPMENT  
1040 SOMERSET STREET WEST  
OTTAWA, ONTARIO**

**SERVICING DESIGN BRIEF**

**Prepared by:**

**NOVATECH ENGINEERING CONSULTANTS LTD.  
240 Michael Cowpland Dr. - Suite 200  
Ottawa, Ontario  
K2M 1P6**

**File No.: 112191  
Report Reference No.: R-2013-003  
April 02, 2013  
Revised: April 14, 2022**

April 14, 2022

City of Ottawa  
Development Review Central  
Planning, Infrastructure and Economic Development  
110 Laurier Avenue West  
Ottawa, ON  
K1P1J1

**Attention: Mr. Jean-Charles Renaud**

**Reference: Residential Development  
1040 Somerset Street West  
Servicing Design Brief  
Our File No.: 112191**

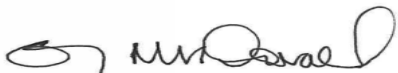
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Enclosed herein is the Servicing Design Brief for the proposed Residential development at 1040 Somerset Street West, located in the southeast quadrant of the Breezehill Avenue North / Somerset Street West intersection. This brief is submitted in support of the site plan application for the site and outlines how the site will be serviced with sanitary, and watermain.

Trusting this report is adequate for your purposes. Should you have any questions, or require additional information, please contact us.

Yours truly,

**NOVATECH ENGINEERING CONSULTANTS LTD.**



Greg MacDonald, P.Eng  
Director, Land Development and Public Sector Infrastructure

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## 1.0 INTRODUCTION

Novatech has been retained to prepare a Servicing Design Brief for the proposed residential development located at 1040 Somerset Street West within the City of Ottawa. The purpose of this report is to support the site plan application for the subject development. This servicing design brief will outline how the site will be serviced with sanitary, storm and watermain; and will demonstrate that adequate municipal capacity is available within the existing infrastructure to service the development. The property is located in the southeast quadrant of the Breezehill Avenue North / Somerset Street West intersection in the City of Ottawa, as shown in **Figure 1a – Aerial Photo** and **Figure 1b – Key Plan**.

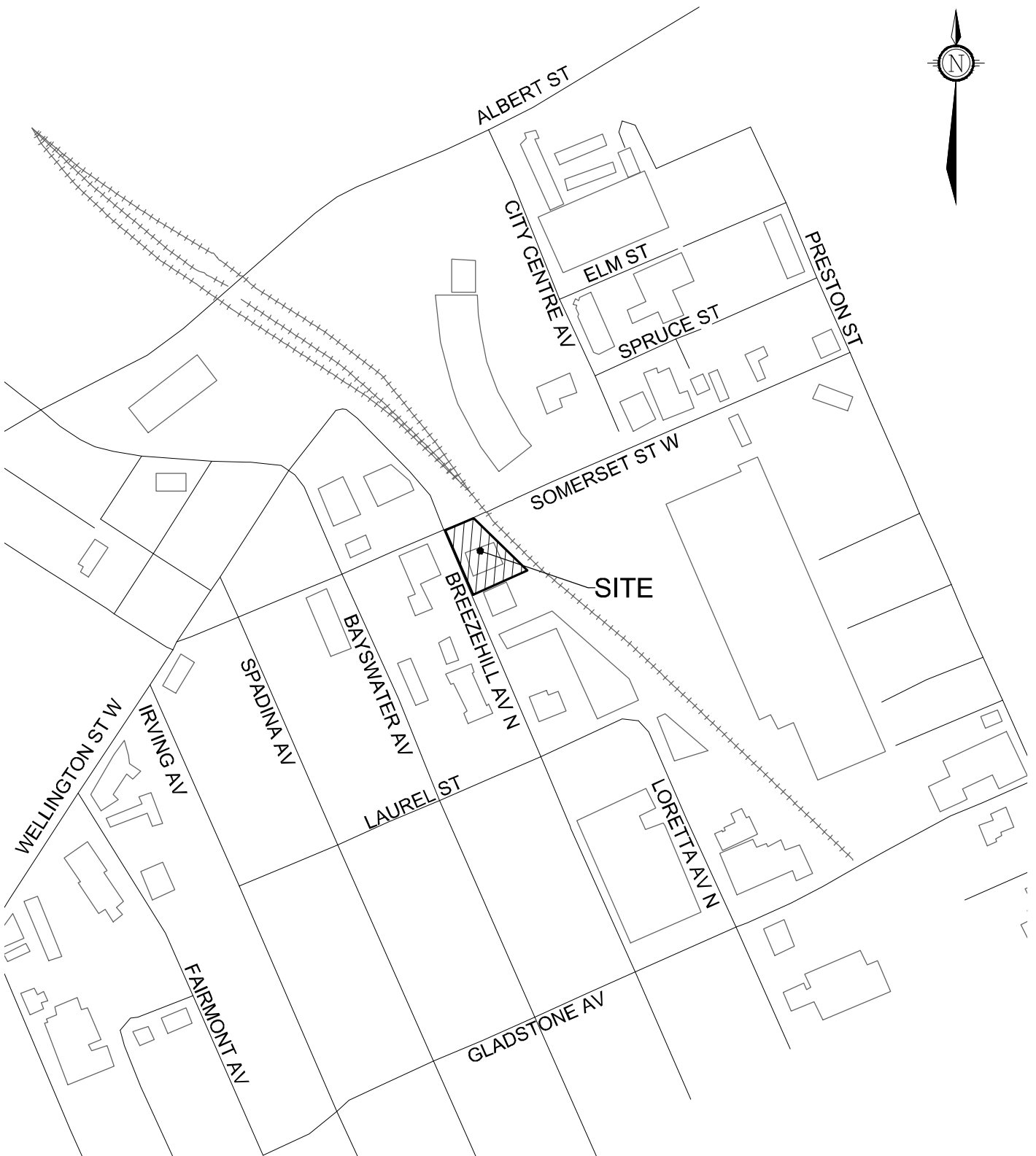
**Figure 1a: Aerial Photo of Subject Site**



Photo courtesy of [www.bing.com/maps](http://www.bing.com/maps)

The subject site is approximately 0.135 ha in area and is bound by Somerset Street West to the north, the O-Train transit corridor to the east; a meditation center and an auto repair shop (53 Breezehill Avenue North) to the south; and Breezehill Avenue N. to the west. The existing property is currently occupied by a one storey building with commercial uses.

The proposed re-development will consist of a 30-storey tower with 262 condominium units to be constructed in one phase. The building will include 105m<sup>2</sup> of commercial floor space, located on the ground floor, and a total of 145 underground parking spaces will be provided on 7 levels of underground parking. **Refer to Figure 2 – Site Plan for details.** Access to the proposed site will a single two-way vehicular ramp access to the underground parking garage which will connect to Breezehill Avenue N. A copy of the topographical survey which shows the property outline is included in the back of this report. **Refer to Figure 3 – Existing Conditions.**



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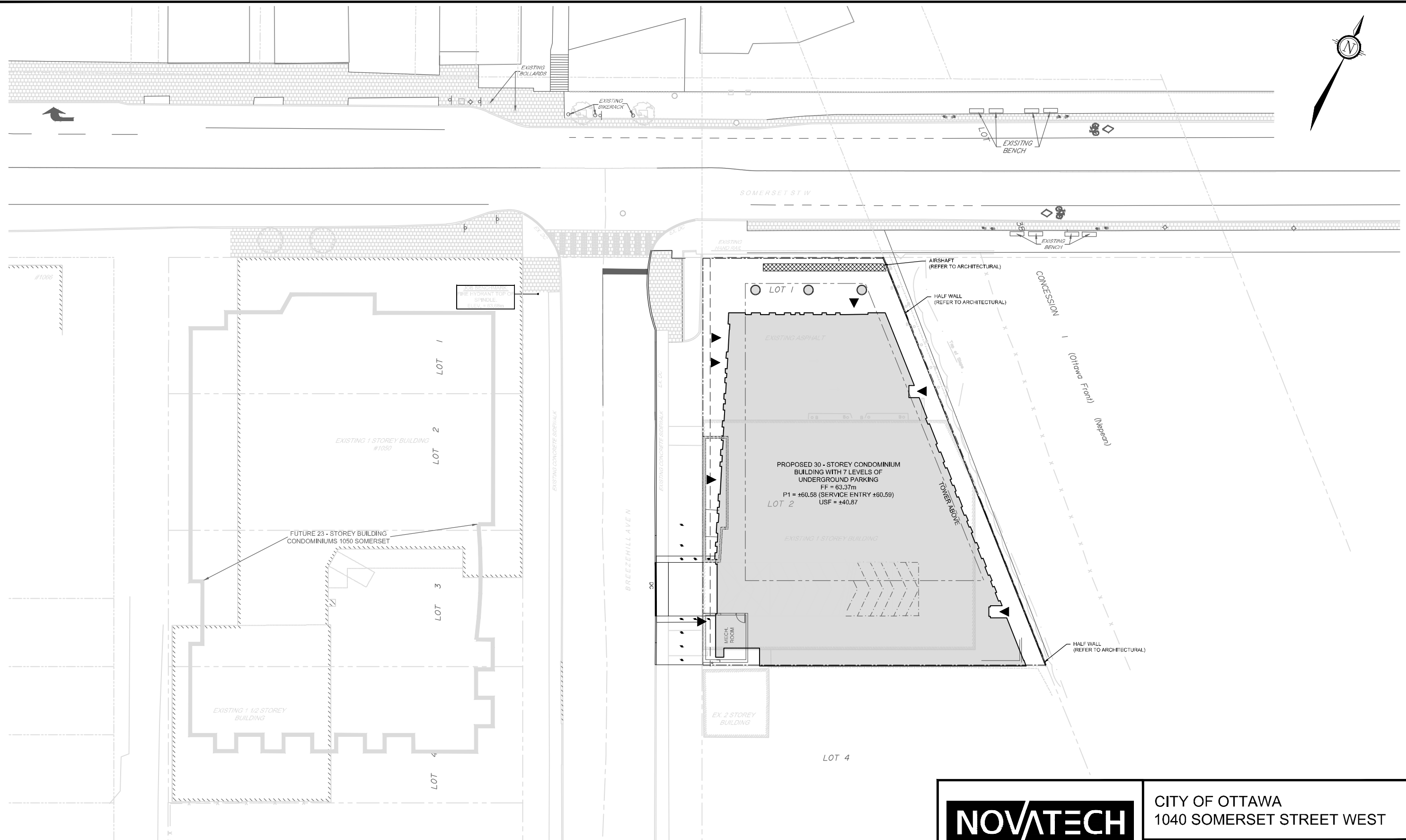
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Website [www.novatech-eng.com](http://www.novatech-eng.com)

CITY OF OTTAWA  
1040 SOMERSET STREET WEST

KEY PLAN

SCALE		N.T.S	
DATE	MAR 2022	JOB	112191
FIGURE	FIGURE 1b		



- LEGEND**
- SITE PLAN AREA
  - - - - - LIMIT OF UNDERGROUND PARKING
  - - - - - LIMIT OF BUILDING OVERHANG

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CITY OF OTTAWA  
 1040 SOMERSET STREET WEST

**SITE PLAN**

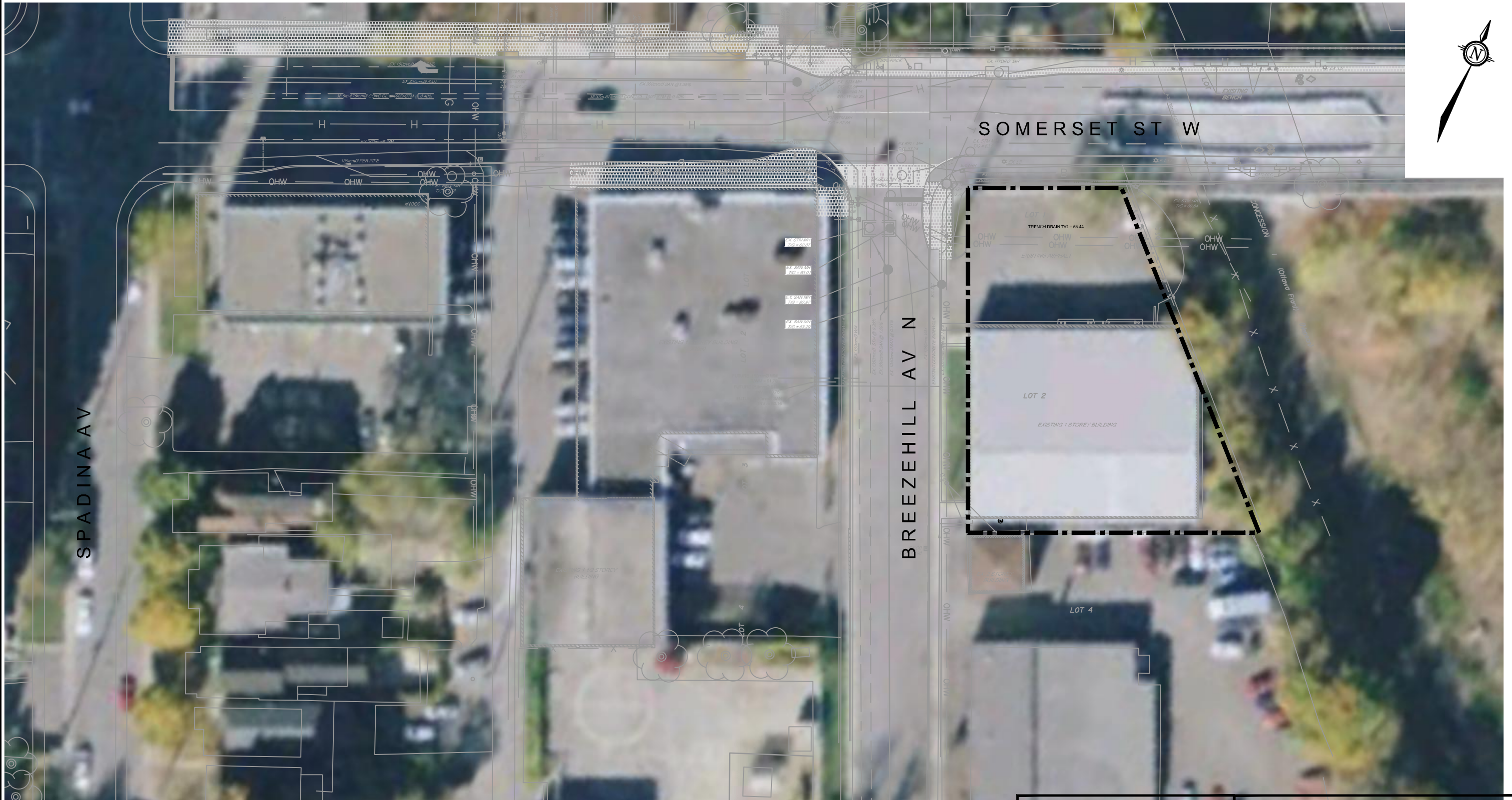
SCALE 1 : 400

DATE	JOB	FIGURE
MAR 2022	112191	FIGURE 2

M:\2012\112191\CAD\Design\Figures\Design Brief\112191-SITE PLAN.dwg, FIGURE 2, Mar 23, 2022 - 2:26pm, cferguson



M:\2012\112191\CAD\Design\Figures\Design Brief\112191-EXISTING CONDITIONS.dwg, FIGURE 3, Feb 17, 2022 - 1:00pm, amestwarp



**LEGEND**  
 - - - - - SITE PLAN AREA

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CITY OF OTTAWA  
 1040 SOMERSET STREET WEST

EXISTING CONDITIONS PLAN

SCALE 1 : 500

DATE	JOB	FIGURE
MAR 2022	112191	FIGURE 3



## 2.0 SITE CONSTRAINTS

A geotechnical investigation was completed by Paterson Group Inc. and a report prepared entitled 'Geotechnical Investigation, Proposed Multi-Storey Building, 1040 Somerset Street West, Ottawa, Ontario' dated October 04, 2021 (PG2674-2 Revision 4). The report included the following recommendations:

- Bedrock encountered on average 13.7-14.7m BGS, and a maximum of 27.1m BGS. Based on the RQDs of the recovered rock core, the bedrock can be classified as good to excellent in quality, generally increasing in quality with depth.
- The underside of footing of the west abutment of the Somerset Street overpass was observed at an approximate depth of 3.6m at the west end of the test pit, stepping down to an approximate depth of 4.4m at the east end of the test pit. Further, the footing was observed to extend outward approximately 0.3 m from the overlying abutment, with a height of 0.45 m.
- Groundwater was observed at depths of 3.15m to 10.01 BGS. The long-term groundwater level can also be estimated based on the observed color, moisture levels and consistency of the recovered soil samples. Based on these observations, the groundwater is expected between 5 to 6 m depth. However, groundwater levels are subject to seasonal fluctuations and therefore could vary at the time of construction.
- A temporary Ministry of Environment, Conservation and Parks (MECP) permit to take water (PTTW) may be required if more than 400,000 L/day of ground and/or surface water are to be pumped during the construction phase. At least 4 to 5 months should be allowed for completion of the application and issuance of the permit by the MECP.
- For typical ground or surface water volumes being pumped during the construction phase, typically between 50,000 to 400,000 L/day, it is required to register on the Environmental Activity and Sector Registry (EASR). A minimum of two to four weeks should be allotted for completion of the EASR registration and the Water Taking and Discharge Plan to be prepared by a Qualified Person as stipulated under O.Reg. 63/16. If a project qualifies for a PTTW based upon anticipated conditions, an EASR will not be allowed as a temporary dewatering measure while awaiting the MECP review of the PTTW application.
- As an extra measure, a monitoring program is required to ensure the lateral support zone of the watermain has not been impacted. The monitoring program will consist of installation of 2 utility monitoring points installed directly on top of the 1,372 mm diameter watermain. Further, it is recommended that two (2) inclinometers be installed adjacent to the watermain and the west shoring face for monitoring lateral deflection. In addition, the temporary shoring system should be monitored by on a daily basis until tie backs are stressed and weekly until the foundation extends above exterior finished grade. An alert level for settlement of the watermain greater than 3 mm should be assessed immediately. An action level for movement of 6 mm will require immediate investigation and possible mitigation measures. Weekly reporting including inspection findings and recommendations should be provided to the owner and the City by the geotechnical consultant.

### 3.0 SANITARY SEWER

There are two (2) existing 300mm diameter sanitary sewer within Breezehill Avenue N, along with the 1050mm dia. Mooney's Bay Collector. It is proposed to service the condominium development with a proposed 300 mm dia. sanitary service that will connect to the existing 300 mm dia. sanitary sewer closest to the proposed property within Breezehill Avenue North which ultimately outlets to the 1050 mm dia. Mooney's Bay Collector. Refer to the General Plan of Services drawing (112191-GP) for servicing details.

Sanitary flows for the proposed development were calculated using criteria from Section 4 of the City of Ottawa Sewer Design Guidelines and the Ontario Building Code as follows:

- Residential Average Flow = 280 L/capita/day
- 1 Bed apartment = 1.4 Person/unit
- 2 Bed apartment = 2.1 Person/unit
- Cafe Flow = 125 L/day/seat
- Residential Peaking Factor = Harmon Equation (max peaking factor = 4.0)
- Commercial Peaking Factor = 1.0
- Peak Extraneous Flows (Infiltration) = 0.33L/s/ha

The peak sanitary flow including infiltration for the proposed development was calculated to be 5.06 L/s. Since flows are directly connected to the City's Mooney's Bay Collector, we do not anticipate capacity issues within the receiving sewer system. Detailed sanitary flow calculations are provided in **Appendix A** for reference.

### 4.0 STORMWATER

Stormwater flows from the site are currently conveyed to the existing storm sewer system within Breezehill Avenue N., and the neighboring railway block via overland flows. As part of this development, all stormwater will be controlled on site and discharged via a 250 mm dia. storm service from the proposed condominium development that will connect to the existing 1350 mm dia. storm sewer on Breezehill Avenue North. The proposed storm service connection to the building will be equipped with a backwater valve.

The City requires that on-site stormwater management be implemented to control post-development stormwater discharge for both the 5 & 100 year storm events based on an allowable runoff coefficient (C) of 0.50, a time of concentration ( $t_c$ ) of 20 minutes, and a 5-year storm event. Stormwater management will be achieved with an internal cistern within the P1 mezzanine parking level.

The site will be graded such that flows in excess of the 100-year storm event will be conveyed overland to Breezehill Avenue North, and the existing railway block as per existing conditions. Erosion and sediment control measures will be implemented during all phases of construction and inspected regularly.

A detailed stormwater management report addressing these requirements is also submitted under separate cover as part of the site plan application.

## 5.0 WATERMAIN

The subject property is within the City of Ottawa 1W pressure zone. There is an existing 150mm diameter local watermain, and a 1350mm diameter trunk watermain within the Breezehill Avenue North right-of-way. The proposed development includes a three (3) 150mm watermain connections. One connection is for the commercial feed, and the remaining two (2) are for the residential development. As per the City of Ottawa Technical Bulletin ISDTB-2014-02, the water services will be separated by an isolation valve in the right-of-way. The proposed building is sprinklered and equipped with a Siamese connection located near the parking entrance and is within 45m of a fire hydrant. Refer to the General Plan of Services drawing (112191-GP) for servicing details.

Water demand calculations have been calculated using criteria from Section 4 of the City of Ottawa Water Distribution Guidelines and the Ontario Building Code. The required fire demand was calculated using the Fire Underwriters Survey (FUS) Guidelines. The water demand and fire flow calculations are provided in **Appendix B** for reference. A summary of the water demand and fire flows are provided in **Table 4.1**.

**Table 4.1: Domestic Water Demand Summary**

Population	Commercial Area (m <sup>2</sup> )	Ave. Daily Demand (L/s)	Max. Daily Demand (L/s)	Peak Hour Demand (L/s)	Fire Flow (L/s)
452	105	1.50	3.72	8.15	100

This water demand information was submitted to the City for boundary conditions from the City's water model. The proposed boundary conditions from the City assumes that the site will connect to the 150mm dia. watermain in Breezehill Ave. which is in the 1W pressure zone of the City of Ottawa water distribution network. Refer to **Table 4.2** for a summary of the proposed boundary conditions and hydraulic analysis.

**Table 4.2 Water Boundary Conditions and Hydraulic Analysis Summary**

Criteria	Head (m)	Pressure <sup>1</sup> (psi)	Pressure Requirements (psi)
<b>Connection 1 (150mm dia. Breezehill Avenue)</b>			
Max HGL	115.1	73.57	< 80psi
Min HGL	107.3	62.48	> 40psi
Max Day + Fire Flow	86.6	33.04	> 20psi

<sup>1</sup>Pressures based on proposed finished floor elevation of 63.37m

These boundary conditions were used for analyzing the performance of the proposed and existing watermain systems for three theoretical conditions:

- 1) High Pressure check under Average Day conditions
- 2) Peak Hour demand
- 3) Maximum Day + Fire Flow demand.

The hydraulic analysis indicates that the system can provide adequate pressures and flow to meet the domestic and fire flow requirements for the site. Refer to **Appendix B** for detailed water demand calculations, and City of Ottawa boundary conditions.

## 6.0 CONCLUSIONS

Based on the foregoing, adequate sanitary, and water services are available to support this development.

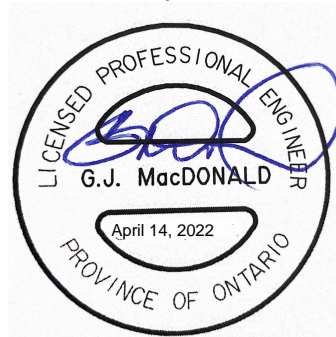
### NOVATECH ENGINEERING CONSULTANTS LTD.

Prepared by:



Anthony Mestwarp, P.Eng.  
Project Engineer

Reviewed by:

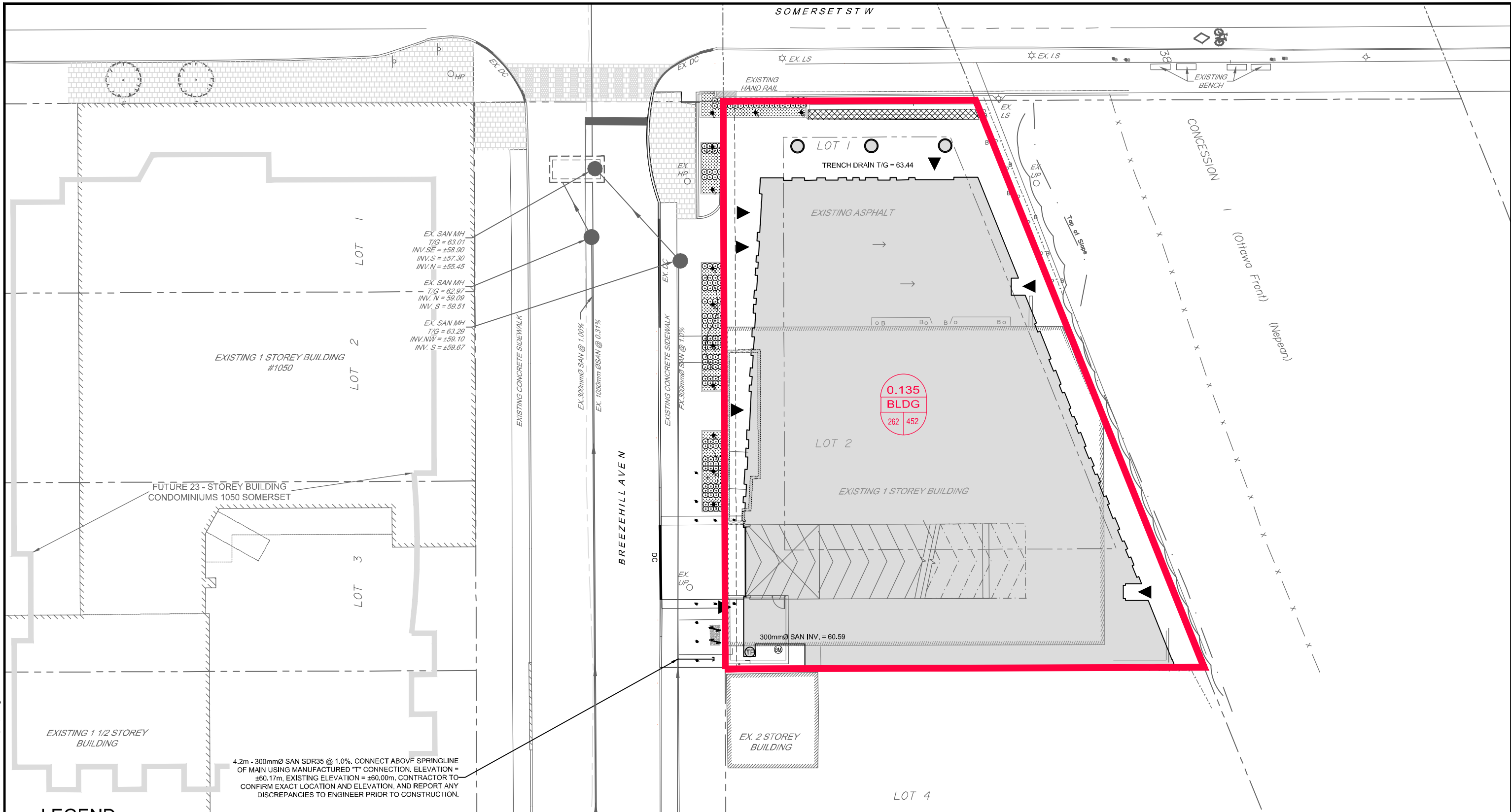


Greg MacDonald, P.Eng.  
Director, Land Development  
and Public Sector Infrastructure

## **APPENDIX A Sanitary**

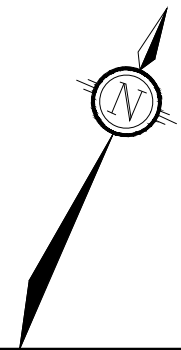


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**LEGEND**

- PROPERTY LINE
- PROPOSED SANITARY SEWER AND MANHOLE
- EXISTING SANITARY MANHOLE & SEWER
- SANITARY SEWER DRAINAGE AREA BOUNDARY
- DRAINAGE AREA (ha)  
SAN SEWER PIPE RUN  
POPULATION / NO. UNITS



<p>Engineers, Planners &amp; Landscape Architects Suite 200, 240 Michael Cowpland Drive Ottawa, Ontario, Canada K2M 1P6</p> <p>Telephone (613) 254-9643 Facsimile (613) 254-5867 Website www.novatech-eng.com</p>	<p>CITY OF OTTAWA 1040 SOMERSET STREET WEST</p>	
	<p><b>SANITARY DRAINAGE AREA PLAN</b></p>	
<p>SCALE 1 : 300</p>	<p>DATE MAR 2022</p>	<p>JOB 112191</p>
		<p>FIGURE SAN</p>

SANITARY SEWER DESIGN SHEET

Novatech Project #: 112191  
 Project Name: 1040 Somerset Street West  
 Date Prepared: 2/10/2022  
 Date Revised:  
 Input By: Anthony Mestwarp  
 Reviewed By: Greg MacDonald  
 Drawing Reference: 112191- SAN

Legend: PROJECT SPECIFIC INFO  
 USER DESIGN INPUT  
 CUMULATIVE CELL  
 CALCULATED DESIGN CELL OUTPUT



LOCATION			DEMAND													DESIGN CAPACITY										
AREA	FROM MH	TO MH	RESIDENTIAL FLOW					COMMERCIAL FLOW			EXTRANEIOUS FLOW			TOTAL DESIGN FLOW (L/s)	PROPOSED SEWER PIPE SIZING / DESIGN											
			1 Bed Apartment	2 Bed Apartment	POPULATION (in 1000's)	PEAK FACTOR M	AVG POPULATION FLOW (L/s)	PEAKED DESIGN POP FLOW (L/s)	SEATS	DESIGN COMMERCIAL FLOW (L/s)	COMMERICAL PEAK FACTOR	PEAKED COMMERCIAL FLOW	Total Area (ha.)		Accum. Area (ha.)	DESIGN EXTRAN. FLOW (L/s)	PIPE LENGTH (m)	PIPE SIZE (mm) AND MATERIAL	PIPE ID ACTUAL (m)	ROUGH. (n)	DESIGN GRADE (%)	CAPACITY (L/s)	FULL FLOW VELOCITY (m/s)	Qpeak Design / Qcap		
BREEZEHILL AVENUE																										
BLDG	BLDG	MAIN	140	122	0.452	3.40	1.47	4.98	25.000	0.04	1.00	0.04	0.14	0.14	0.04	5.06	4.2	300 PVC	0.305	0.013	1.00	100.9	1.38	5.0%		
<b>Design Parameters:</b> 1. Residential Flows -1 Bed Apartment      1.4 Person/ Unit -2 Bed Apartment      2.1 Person/ Unit 2. Commercial Flow -Cafe                    125 L/day/seat 3. q Avg capita flow      280 L/per/day 4. M = Harmon Formula (maximum of 4.0) 5. K =                        0.8 6. Commercial Peak Factor -area > 20% of development    1.5 -area < 20% of development    1.0 7. Extraneous Flows =      0.33 L/sec/ha																	<b>CAPACITY EQUATION</b> $Q_{full} = (1/n) A R^{(2/3)} S_o^{(1/2)}$  Where : Q full = Capacity (L/s)  n = Manning coefficient of roughness (0.013) A = Flow area (m <sup>2</sup> ) R = Wetter perimenter (m) S <sub>o</sub> = Pipe Slope/gradient									

**APPENDIX B**  
**Water**

Table 1 Water Demand								
Use	Unit Type				Total Population	Total Demand (L/s)		
	Retail Area (Seats)	1 Bed Apartment	2 Bed Apartment	Total Units		Avg Day	Max. Daily	Peak Hour
Residential		140	122	262	452	1.46	3.66	8.06
Commercial	25					0.04	0.05	0.10
<b>Total</b>	25	140	122			1.50	3.72	8.15

**Design Parameters:**

- 1 Bed Apartment **1.4 persons/unit**
- 2 Bed Apartment **2.1 persons/unit**

City of Ottawa Water Distribution Guidelines

- Average Domestic Flow 280 L/c/day L/person/day
- Café 125 L/day/seat (assume 1 seat/4m<sup>2</sup>)

Residential Peaking Factors City of Ottawa Water Distribution Guidelines:

Conditions	Peaking Factor		Units
Maximum Day	2.5	x avg day	L/c/day
Peak Hour	2.2	x max day	L/c/day

# FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines



Engineers, Planners & Landscape Architects

**Novatech Project #:** 112191  
**Project Name:** 1040 Somerset Street West  
**Date:** 1/20/2022  
**Input By:** Curtis Ferguson  
**Reviewed By:** Greg MacDonald

**Legend**  
 Input by User  
 No Information or Input Required

**Building Description:** 32 Storey Mixed-Use Building  
 Fire Resistive Construction

Step		Choose		Value Used	Total Fire Flow (L/min)
<b>Base Fire Flow</b>					
1	<b>Construction Material</b>		<b>Multiplier</b>		0.6
	<b>Coefficient related to type of construction C</b>	Wood frame		1.5	
		Ordinary construction		1	
		Non-combustible construction		0.8	
		Modified Fire resistive construction (2 hrs)		0.6	
Fire resistive construction (> 3 hrs)		Yes	0.6		
2	<b>Floor Area</b>				6,000
	<b>A</b>	Building Footprint (m <sup>2</sup> )	1250.7	FLOOR #4=1250.7x0.25	
		Number of Floors/Storeys	32	FLOOR #3 = 1250.7	
		Protected Openings (1 hr)	Yes	FLOOR #2=1250.7x0.25	
		Area of structure considered (m <sup>2</sup> )		1,876	
<b>F</b>	<b>Base fire flow without reductions</b>				
<b>Reductions or Surcharges</b>					
3	<b>Occupancy hazard reduction or surcharge</b>		<b>Reduction/Surcharge</b>		5,100
	<b>(1)</b>	Non-combustible		-25%	
		Limited combustible	Yes	-15%	
		Combustible		0%	
		Free burning		15%	
Rapid burning			25%		
4	<b>Sprinkler Reduction</b>		<b>Reduction</b>		-2,550
	<b>(2)</b>	Adequately Designed System (NFPA 13)	Yes	-30%	
		Standard Water Supply	Yes	-10%	
		Fully Supervised System	Yes	-10%	
<b>Cumulative Total</b>			<b>-50%</b>		
5	<b>Exposure Surcharge (cumulative %)</b>		<b>Surcharge</b>		3,060
	<b>(3)</b>	North Side	20.1 - 30 m	10%	
		East Side	10.1 - 20 m	15%	
		South Side	0 - 3 m	25%	
		West Side	20.1 - 30 m	10%	
<b>Cumulative Total</b>			<b>60%</b>		
<b>Results</b>					
6	<b>(1) + (2) + (3)</b>	<b>Total Required Fire Flow, rounded to nearest 1000L/min</b>		<b>L/min</b>	<b>6,000</b>
		(2,000 L/min < Fire Flow < 45,000 L/min)		L/s	100
				USGPM	1,585
7	<b>Storage Volume</b>	Required Duration of Fire Flow (hours)		Hours	2
		Required Volume of Fire Flow (m <sup>3</sup> )		m <sup>3</sup>	720



**From:** Wu, John <John.Wu@ottawa.ca>  
**Sent:** Tuesday, February 15, 2022 9:01 AM  
**To:** Anthony Mestwarp <a.mestwarp@novatech-eng.com>  
**Subject:** RE: 112191 - Boundary Conditions Request - 1040 Somerset Street

Here is the updated one on 150mm water main:

The following are boundary conditions, HGL, for hydraulic analysis at 1040 Somerset Street (zone 1W) assumed to be connected to the 152 mm watermain on Breezehill Avenue (see attached PDF for location).

Minimum HGL: 107.3 m

Maximum HGL: 115.1 m

Max Day + Fire Flow (100 L/s): 86.6 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.*

Thanks.

John

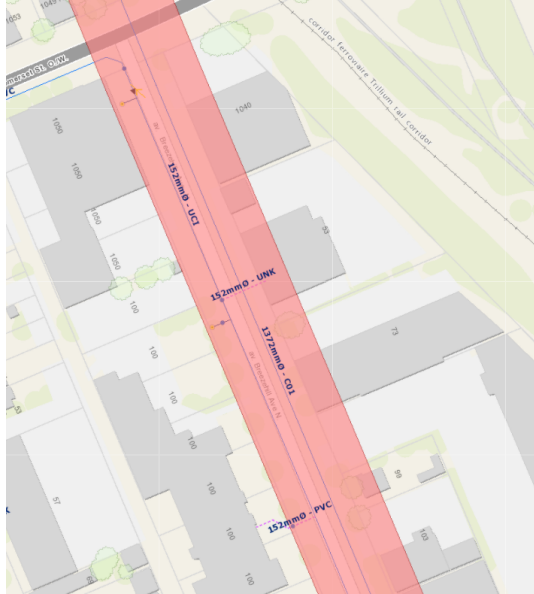
**From:** Anthony Mestwarp <a.mestwarp@novatech-eng.com>  
**Sent:** February 14, 2022 1:51 PM  
**To:** Wu, John <John.Wu@ottawa.ca>  
**Cc:** Curtis Ferguson <c.ferguson@novatech-eng.com>  
**Subject:** RE: 112191 - Boundary Conditions Request - 1040 Somerset Street

**CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.**

**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.**

Hi John,

It is my understanding that the existing watermain in Breezehill Ave. fronting our development is a 152mm, and not a 200 (as depicted below).



Can you please confirm, and let us know if the below analysis is accurate.

Thanks,

**Anthony Mestwarp, P.Eng.**, Project Engineer | Land Development Engineering

**NOVATECH** Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext. 216 | Fax: 613.254.5867

The information contained in this email message is confidential and is for exclusive use of the addressee.

**From:** Wu, John <[John.Wu@ottawa.ca](mailto:John.Wu@ottawa.ca)>

**Sent:** Monday, February 14, 2022 8:26 AM

**To:** Curtis Ferguson <[c.ferguson@novatech-eng.com](mailto:c.ferguson@novatech-eng.com)>

**Subject:** RE: 112191 - Boundary Conditions Request - 1040 Somerset Street

Here is the result:

**\*\*\*The following information may be passed on to the consultant, but do NOT forward this e-mail directly.\*\*\***

The following are boundary conditions, HGL, for hydraulic analysis at 1040 Somerset Street (zone 1W) assumed to be connected to the 203 mm watermain on Breezehill Avenue (see attached PDF for location).

Minimum HGL: 107.3 m

Maximum HGL: 115.1 m

Max Day + Fire Flow (100 L/s): 103.4 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.*

Thanks.

John

**From:** Curtis Ferguson

**Sent:** Friday, January 21, 2022 1:01 PM

**To:** [john.wu@ottawa.ca](mailto:john.wu@ottawa.ca)

**Cc:** Greg MacDonald <[g.Macdonald@novatech-eng.com](mailto:g.Macdonald@novatech-eng.com)>; Anthony Mestwarp <[a.mestwarp@novatech-eng.com](mailto:a.mestwarp@novatech-eng.com)>

**Subject:** 112191 - Boundary Conditions Request - 1040 Somerset Street

Good Afternoon John,

Requesting boundary conditions for 1040 Somerset Street. Total demands and fire flows are listed below;

- Average Daily Demand: 1.50 L/s
- Max Daily Demand: 3.72 L/s
- Peak Hour Demand: 8.15 L/s
- Fire Flow (FUS): 100 L/s

I've also attached a PDF with proposed connection locations. Please advise if you require anything else.

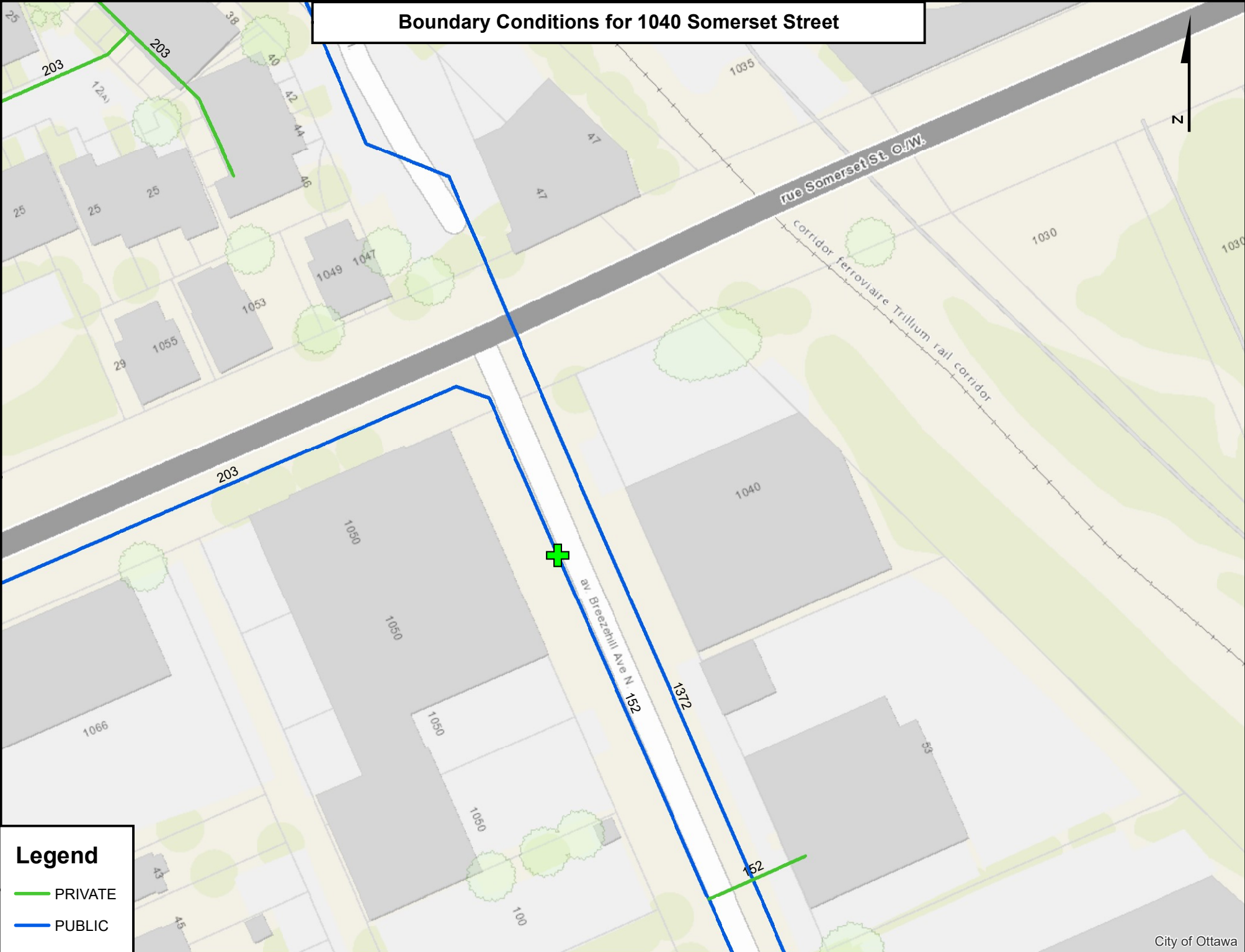
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# Boundary Conditions for 1040 Somerset Street



**Legend**

- PRIVATE
- PUBLIC

**APPENDIX C**  
**Servicing Study Guidelines Checklist**



4.1 General Content	Addressed (Y/N/NA)	Section	Comments
Executive Summary (for larger reports only).	NA		
Date and revision number of the report.	Y	Cover	
Location map and plan showing municipal address, boundary, and layout of proposed development.	Y		Figures 1, 2 and 3
Plan showing the site and location of all existing	Y		Figures 2 and 3
Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Y	1.0	
Summary of Pre-consultation Meetings with City and other approval agencies.	N		
Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defensible design criteria.	Y	2.0 - 5.0	
Statement of objectives and servicing criteria.	Y		Addressed in Section 3.0, 4.0. 4.0.
Identification of existing and proposed infrastructure available in the immediate area.	Y		Figures 2 and 3
Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	NA		
Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighboring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Y		112191-GR

4.1 General Content	Addressed (Y/N/NA)	Section	Comments
Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	NA		
Proposed phasing of the development, if applicable.	NA		
Reference to geotechnical studies and recommendations concerning servicing.	Y	2.0	
All preliminary and formal site plan submissions should have the following information:			
Metric scale	Y	ALL	
North arrow (including construction North)	Y	ALL	
Key plan	Y	ALL	
Name and contact information of applicant and property owner	Y	ALL	
Property limits including bearings and	Y	ALL	
Existing and proposed structures and parking	Y	ALL	
Easements, road widening and rights-of-way	Y	ALL	
Adjacent street names	Y	ALL	

4.2 Water	Addressed (Y/N/NA)	Section	Comments
Confirm consistency with Master Servicing Study, if available.	Y	5.0	Also refer to Appendix B for Hydrant Flow data.
Availability of public infrastructure to service proposed development.	Y		Figures 2 and 3
Identification of system constraints.	Y	5.0	
Identify boundary conditions.	Y	5.0	
Confirmation of adequate domestic supply and pressure.	Y	5.0	
Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Y	5.0	
Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	Y	5.0	
Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design.	NA		
Address reliability requirements such as appropriate location of shut-off valves.	Y	5.0	
Check on the necessity of a pressure zone boundary modification.	NA		
Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range.	Y	5.0	
Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Y	5.0	
Description of off-site required feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	NA		
Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Y	5.0	
Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N		Figure 3 shows main.

4.3 Wastewater	Addressed (Y/N/NA)	Section	Comments
Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed	Y	3.0	
Confirm consistency with Master Servicing Study and/or justifications for deviations.	Y	3.0	
Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	Y	3.0	
Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Y	3.0	
Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Y	3.0	
Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Y	3.0	
Description of proposed sewer network including sewers, pumping stations, and forcemains.	Y	3.0	Figures 2 and 3
Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	NA		
Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	NA		
Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	NA		
Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	NA		
Special considerations such as contamination, corrosive environment etc.	NA		

4.4 Stormwater	Addressed (Y/N/NA)	Section	Comments
Description of drainage outlets and downstream constraints including legality of outlet (i.e. municipal drain, right-of-way, watercourse, or private property).	Y	4.0	
Analysis of the available capacity in existing public infrastructure.	Y	4.0	
A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns and proposed drainage patterns.	Y		Figures 2 and 3
Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Y	4.0	
Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	NA		
Description of stormwater management concept with facility locations and descriptions with references and supporting information.	Y	4.0	
Set-back from private sewage disposal systems.	NA		
Watercourse and hazard lands setbacks.	NA		
Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	NA		
Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	Y	4.0	
Storage requirements (complete with calcs) and conveyance capacity for 5 yr and 100 yr events.	Y	4.0	
Identification of watercourse within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	NA		
Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Y	4.0	
Any proposed diversion of drainage catchment areas from one outlet to another.	NA		
Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and SWM	Y	4.0	
If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	NA		

4.4 Stormwater	Addressed (Y/N/NA)	Section	Comments
Identification of municipal drains and related approval requirements.	NA		
Description of how the conveyance and storage capacity will be achieved for the development.	Y	4.0	
100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Y	4.0	
Inclusion of hydraulic analysis including HGL elevations.	N		
Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Y	4.0	
Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	NA		
Identification of fill constrains related to floodplain and geotechnical investigation.	NA		

4.5 Approval and Permit Requirements	Addressed (Y/N/NA)	Section	Comments
Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	NA		
Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N		
Changes to Municipal Drains.	N		
Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	NA		

4.6 Conclusion	Addressed (Y/N/NA)	Section	Comments
Clearly stated conclusions and recommendations.	Y	6.0	
Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	NA		
All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario.	Y	6.0	