

SERVICING & STORMWATER MANAGEMENT REPORT 18-STOREY MIXED USE BUILDING – 311 SOMERSET STREET WEST



Project No.: CCO-21-2341

City File No.: D01-01-21-0004 & D02-02-21-0024

Prepared for:

Gemstone Corporation
252 Argyle Avenue
Ottawa, ON K2P 1B9

Prepared by:

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2022-08-12

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1.0 PROJECT OVERVIEW

1.1 Purpose

McIntosh Perry (MP) has been retained by Gemstone Corporation to prepare this Servicing and Stormwater Management Report in support of the Site Plan Control application for the proposed 18-storey mixed use building, located at 311 Somerset Street West within the City of Ottawa.

The main purpose of this report is to present a servicing and stormwater management design for the development in accordance with the recommendations and guidelines provided by the City of Ottawa (City), the Rideau Valley Conservation Authority (RVCA), and the Ministry of the Environment, Conservation and Parks (MECP). This report will address the water, sanitary and storm sewer servicing for the development, ensuring that existing and available services will adequately service the proposed development.

This report should be read in conjunction with the following drawing:

- CCO-21-2341, C101 – Site Grading, Drainage, Servicing, Sediment, and Erosion Control Plan.

1.2 Site Description

The subject property, herein referred to as the site, is located at 311 Somerset Street West within the Somerset Ward. The legal description of the site is Registered Plan 12281, Lot 5 (West O'Connor Street) & Lot 41 (North Somerset Street), City of Ottawa. The site covers approximately 0.14 ha and is located between Somerset Street West and O'Connor Street as shown by **Figure 1** below. The site is zoned for Traditional Main Street Use (TM [2185]).



Figure 1: Site Map

Additional details are included on the Site Location Plan included in Appendix 'A'.

1.3 Proposed Development and Statistics

The proposed development consists of an 18-storey mixed use commercial/residential building. The *Site Plan* proposes 156 residential units, 1205 m² amenity space, and 197 m² of commercial space located on the ground floor. Underground parking and an access ramp will be provided throughout the site along with landscaping. Vehicle access for the development will be provided from O'Connor Street.

1.4 Existing Conditions and Infrastructure

The existing site is located within the Ottawa River West Sub-Watershed. The existing site is currently developed as a partially paved parking area. The site is sloped at approximately 1.5% towards O'Connor Street as shown by drawing *PRE* located within *Appendix E*. The existing site is assumed to have no sanitary, storm or water services.

Sewer and watermain mapping collected from the City of Ottawa indicate that the following services exist across the property frontages within the adjacent municipal right-of-ways:

◆ O'Connor Street

- 406 mm dia. cast iron Watermain,
- 525 mm dia. concrete Sanitary Sewer tributary to the Queen Elizabeth Combined Trunk and ultimately the Interceptor Sewer, and
- 450 mm dia. concrete Storm Sewer, which outlets to the Rideau Canal via the Cooper Street Trunk Sewer.

◆ Somerset Street West

- 406 mm dia. PVC Watermain,
- 450 mm dia. concrete Sanitary Sewer tributary to the Queen Elizabeth Combined Trunk and ultimately the Interceptor Sewer, and
- 600 mm dia. concrete Storm Sewer, which outlets to the Rideau Canal via the Cooper Street Trunk Sewer.

1.5 Approvals

The proposed development is subject to the City of Ottawa site plan control process. Site plan control requires the City to review, provided concurrence and approve the engineering design package. Permits to construct can be requested once the City has issued a site plan agreement.

An Environmental Compliance Approval (*ECA*) through the Ministry of Environment, Conservation and Parks (*MECP*) is not required for the development since the development is located on one parcel of land, does not propose industrial usage, and is not located within a combined sewershed. As a result, the stormwater management system meets the exemption requirements under O.Reg 525/90.

2.0 BACKGROUND STUDIES, STANDARDS AND REFERENCES

2.1 Background Reports / Reference Information

As-built drawings of existing services, provided by the City of Ottawa Information centre, within the vicinity of the proposed site were reviewed in order to identify infrastructure available to service the proposed development.

A topographic survey (2139123) of the site was completed by Farley, Smith & Denis Surveying Ltd and is dated November 12, 2020.

The Site Plan (A010) was prepared by Figurr Architects Collective and is dated April 20, 2022 (*Site Plan*).

2.2 Applicable Guidelines and Standards

City of Ottawa:

- ◆ Ottawa Sewer Design Guidelines, City of Ottawa, SDG002, October 2012. (***Ottawa Sewer Guidelines***)
 - Technical Bulletin ISTB-2014-01 City of Ottawa, February 2014. (***ISTB-2014-01***)
 - Technical Bulletin ISTB-2018-01 City of Ottawa, January 2018. (***ISTB-2018-01***)
 - Technical Bulletin ISTB-2018-03 City of Ottawa, March 2018. (***ISTB-2018-03***)
 - Technical Bulletin ISTB-2019-01 City of Ottawa, January 2019. (***ISTB-2019-01***)
 - Technical Bulletin ISTB-2019-02 City of Ottawa, February 2019. (***ISTB-2019-02***)
- ◆ Ottawa Design Guidelines – Water Distribution City of Ottawa, July 2010. (***Ottawa Water Guidelines***)
 - Technical Bulletin ISD-2010-2 City of Ottawa, December 15, 2010. (***ISD-2010-2***)
 - Technical Bulletin ISDTB-2014-02 City of Ottawa, May, 2014. (***ISDTB-2014-02***)
 - Technical Bulletin ISTB-2018-02 City of Ottawa, March 2018. (***ISTB-2018-02***)

Ministry of Environment, Conservation and Parks:

- ◆ Stormwater Planning and Design Manual, Ministry of the Environment, March 2003. (***MECP Stormwater Design Manual***)
- ◆ Design Guidelines for Sewage Works, Ministry of the Environment, 2008. (***MECP Sewer Design Guidelines***)

Other:

- ◆ Water Supply for Public Fire Protection, Fire Underwriters Survey, 2020. (***FUS Guidelines***)

3.0 PRE-CONSULTATION SUMMARY

A pre-consultation meeting was conducted on May 29th, 2019, regarding the proposed site. Based on a follow up email to the City sent on December 3rd, 2020, the following site specific design parameters are to be incorporated within the design.

- ◆ Pre-development and post-development flows shall be calculated using a time of concentration (T_c) no less than 10 minutes.
- ◆ Control 5 through 100-year post-development flows to the 5-year pre-development flows with a maximum combined of 0.50.
- ◆ Quality controls are not required based on coordination with the RVCA.

4.0 WATERMAIN

4.1 Existing Watermain

There is an existing 406 mm diameter PVC watermain located within Somerset Street West and a 406 mm diameter cast iron watermain located within O’Connor Street. The site is located within the 1W Pressure zone, as seen by the water distribution figure included in **Appendix C**.

4.2 Proposed Watermain

Dual 150 mm diameter PVC water connections are proposed to service the development, as the demand will exceed 50 m³/day. The service laterals are proposed to be connected to the existing 406 mm diameter watermain within O’Connor Street. The water services are designed to have a minimum of 2.4m cover.

The Fire Underwriters Survey 2020 (FUS) method was utilized to estimate the required fire flow for the site. The following parameters were coordinated with the architect:

- ◆ Type of construction – Non-Combustible Construction
- ◆ Occupancy type – Limited Combustibility
- ◆ Sprinkler type – Fully Supervised Sprinkler System

The demands and required fire flow submitted for boundary conditions have been revised in accordance with the 2020 **FUS Guideline** and Site Plan dated April 20, 2022, which resulted in a reduction in required fire flow from 18,000 L/min to 9,000 L/min. The revised fire flow is not anticipated to have a significant impact on the previously provided pressures. Detailed calculations can be found in **Appendix C**.

Water demands for the proposed building have been calculated to adhere to **Ottawa Water Guidelines** and can be found in **Appendix C**. The updated results have been summarized below:

Table 1: Water Supply Design Criteria and Water Demands

Site Area	0.14 ha
Residential	280 L/day/person
Commercial	28,000 L/gross ha/day
Average Day Demand (L/s)	0.79
Maximum Daily Demand (L/s)	2.35
Peak Hourly Demand (L/s)	3.53
FUS Fire Flow Requirement (L/s)	150.00

The City provided the estimated water pressures at both connections for the average day scenario, peak hour scenario, and the peak hour fire flow scenario for the demands indicated by the correspondence in **Appendix C**. As shown by **Table 2**, below, the minimum and maximum pressures fall within the required range identified in the **Ottawa Water Guidelines**.

Table 2: Boundary Conditions Results

Scenario	HGL (m H ₂ O)*	Pressure (kPa)
Average Day Demand (0.73L/s)	46.4	454.7
Peak Hour Demand (3.86 L/s)	37.9	371.3
Somerset Connection - Maximum Daily + Fire Flow Demand (300 L/s)	39.5	387.0
O'Connor Connection - Maximum Daily + Fire Flow Demand (300 L/s)	39.3	385.0
*Adjusted for an estimated ground elevation of 71.70 above the connection point		

The normal operating pressure range is anticipated to be 371.3 kPa to 454.7 kPa and will not be less than 275 kPa (40 psi) or exceed 689 kPa (100 psi). The proposed watermain will meet the minimum required 20 psi (140 kPa) at the ground level under maximum day demand and fire flow conditions.

To confirm the adequacy of fire flow to protect the proposed development, public and private fire hydrants within 150 m of the proposed building were accounted for per **ISTB 2018-02** Appendix I. As seen in **Table 3**, below, municipal fire hydrants can provide sufficient fire flow.

Table 3: Fire Protection Confirmation

Building	Fire Flow Demand (L/min.)	Fire Hydrant(s) within 75m	Fire Hydrant(s) within 150m	Combined Fire Flow (L/min.)
311 Somerset Street West	9,000	2 Public	4 Public	26,600

5.0 SANITARY DESIGN

5.1 Existing Sanitary Sewer

There is an existing 450 mm diameter concrete sanitary collection sewer tributary to the combined Interceptor Collector sewer fronting the development within Somerset Street West.

5.2 Proposed Sanitary Sewer

A new 200 mm diameter gravity sanitary service is proposed to be connected to the existing 450 mm diameter sanitary sewer within Somerset Street West.

Table 4: Sanitary Design Criteria

Design Parameter	Value
Residential 1 Bedroom / Studio Apartment	1.4 persons/unit
Residential 2 Bedroom Apartment	2.1 persons/unit
Average Daily Demand	280 L/day/person
Commercial / Amenity Space	2500 L/(1000m ² /day)

Table 5, below, summarizes the estimated sanitary flows.

Table 5: Summary of Estimated Sanitary Flow

Design Parameter	Total Flow (L/S)
Total Estimated Average Dry Weather Flow	0.83
Total Estimated Peak Dry Weather Flow	2.78
Total Estimated Peak Wet Weather Flow	2.82

The estimated sanitary flow based on the **Site Plan** results in a peak wet weather flow of **2.82 L/s**. The proposed 200 mm diameter gravity sanitary service will be installed with a minimum full flow target velocity (cleansing velocity) of 0.6 m/s and a full flow velocity of not more than 3.0 m/s. Design parameters for the site include an infiltration rate of 0.33 l/s/ha. The proposed service for the site will be connected to existing 450 mm diameter sanitary sewer within Somerset Street West.

6.0 STORM SEWER DESIGN

6.1 Existing Storm Sewers

It has been assumed that the site contains no stormwater management controls for flow attenuation. Runoff from the existing development is tributary to the existing storm sewer within O'Connor Street.

6.2 Proposed Storm Sewers

A new 250 mm diameter storm service is proposed to be extended from the existing 600 mm diameter storm sewer within Somerset Street West to the proposed building.

Runoff from the roof will be collected and directed towards an internal cistern within the underground parking garage. Surface runoff will be directed unrestricted towards the City right-of-way and will be compensated for in other areas. Storm flows will be controlled by a mechanical pump to limit flows to the specified allowable release rate.

See CCO-21-2341 - *POST* in **Appendix F** of this report for more details. The Stormwater Management design for the subject property will be outlined in Section 7.0.

7.0 PROPOSED STORMWATER MANAGEMENT

7.1 Design Criteria and Methodology

Stormwater management for the proposed site will be maintained through positive drainage away from the proposed building. The storm system will capture the roof runoff and direct the flow to an internal 40 m³ cistern. The restricted flow will then be directed to a proposed storm service connected to the existing 600 mm storm sewer located within Somerset Street West. The emergency overflow for the proposed cistern is located at the southeast of site, directing stormwater east towards O'Connor Street. The quantitative properties of the storm runoff for both the pre & post development flows are further detailed below.

In summary, the following design criteria have been employed in developing the stormwater management design for the site as directed by the RVCA and City:

Quality Control

- The site does not require quality controls based on correspondence with the RVCA.

Quantity Control

- Post-development 5/100-year flow to be restricted to match the 5-year pre-development flow with a maximum C value of 0.50.

7.2 Runoff Calculations

Runoff calculations presented in this report are derived using the Rational Method, given as:

$$Q = 2.78CIA \text{ (L/s)}$$

Where	C	= Runoff coefficient
	I	= Rainfall intensity in mm/hr (City of Ottawa IDF curves)
	A	= Drainage area in hectares

It is recognized that the Rational Method tends to overestimate runoff rates. As a result, the conservative calculation of runoff ensures that any SWM facility sized using this method is expected to function as intended.

The following coefficients were used to develop an average C for each area:

Roofs/Concrete/Asphalt	0.90
Gravel	0.60
Undeveloped and Grass	0.20

As per the *Ottawa Sewer Guidelines*, the 5-year balanced ‘C’ value must be increased by 25% for a 100-year storm event to a maximum of 1.0.

7.3 Pre-Development Drainage

The estimated pre-development peak flows for the 5 and 100-year events are summarized below in *Table 6*. See CCO-21-2341 - *PRE* in *Appendix E* and *Appendix G* for calculations.

Table 6: Pre-Development Runoff Summary

Drainage Area	Area (ha)	Runoff Coefficient (2/5-Year)	Runoff Coefficient (100-Year)	5-year Peak Flow (L/s)	100-year Peak Flow (L/s)
A1	0.14	0.61	0.73	24.12	49.54
Total	0.14			24.12	49.54

7.4 Post-Development Drainage

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CCO-21-2341 - *POST* in *Appendix F* of this report for the Post-Development Drainage Area Plan, and *Appendix G* for detailed calculations. A summary of the post-development runoff calculations can be found below.

Table 7: Post-Development Runoff Summary

Drainage Area	Area (ha)	Runoff Coefficient (2/5-Year)	Runoff Coefficient (100-Year)	5-year Peak Flow (L/s)	100-year Peak Flow (L/s)
B1	0.03	0.75	0.84	6.93	13.90
B2	0.11	0.90	1.00	27.50	52.37
Total	0.14			34.44	65.67

Runoff for area B2 will be restricted before discharging to the existing storm system within Somerset Street West. The flow will be controlled by a mechanical pump located within the internal cistern for area B2. Roof flow will not be restricted prior to being conveyed to the internal cistern. Runoff for area B1 will be uncontrolled and directed towards the City right-of-way. Flow attenuation within area B2 will compensate for the unrestricted flow (Area B1) leaving the site. Quantity control will be further detailed in Sections 7.5.

7.5 Quantity Control

Based on correspondence with City Staff, the total post-development runoff for this site has been restricted to match the 5-year pre-development flow rate with a combined C value of

0.50. The site is required to restrict flow to **19.87 L/s** in the 100-year event. See **Appendix B** for correspondence with City staff.

Reducing site flows will be achieved using flow restrictions and will create the need for onsite storage. Runoff from areas B2 will be restricted as shown in **Table 8**, below.

Table 8: Post-Development Restricted Runoff Summary

Drainage Area	Post Development Unrestricted Flow (L/s)		Post Development Restricted Flow (L/s)		Storage Required		Storage Provided	
	5-Year	100-Year	5-Year	100-Year	5-Year	100-year	5-Year	100-Year
B1	6.93	13.30	6.93	13.30				
B2	27.50	52.37	6.57	6.57	14.38	37.10	40.00	40.00
Total	34.44	65.67	13.50	19.87	14.38	37.10	40.00	40.00

Runoff collected within the 40 m³ internal cistern (Area B2) will be restricted to the required flow rate using a mechanical pump. Area B2 will be restricted to **6.57 L/s** for both the 5 and 100-year storm events. Detailed design of the cistern to be provided by the mechanical engineer. See **Appendix G** for calculations.

An emergency overland flow route has been provided in the event that there is a rainfall above the 100-year storm event, or a blockage within the storm sewer system. As noted by drawing C101, storm water runoff will be directed towards O'Connor Street via an emergency overflow structure located at the southeast corner of the site.

8.0 EROSION AND SEDIMENT CONTROL

8.1 Temporary Measures

Before construction begins, temporary silt fence, straw bale or rock flow check dams will be installed at all natural runoff outlets from the property. It is crucial that these controls be maintained throughout construction and inspection of sediment and erosion control will be facilitated by the Contractor or Contract Administration staff throughout the construction period.

Silt fences will be installed where shown on the final engineering plans, specifically along the downstream property limits. The Contractor, at their discretion or at the instruction of the City, Conservation Authority or the Contract Administrator shall increase the quantity of sediment and erosion controls on-site to ensure that the site is operating as intended and no additional sediment finds its way off site. The rock flow, straw bale & silt fence check dams and barriers shall be inspected weekly and after rainfall events. Care shall be taken to properly remove sediment from the fences and check dams as required. Fibre roll barriers are to be installed at all existing curb inlet catchbasins and filter fabric is to be placed under the grates of all existing catchbasins and manholes along the frontage of the site and any new structures immediately upon installation. The measures for the existing/proposed structures is to be removed only after all areas have been paved. Care shall be taken at the removal stage to ensure that any silt that has accumulated is properly handled and disposed of. Removal of silt fences without prior removal of the sediments shall not be permitted.

Although not anticipated, work through winter months shall be closely monitored for erosion along sloped areas. Should erosion be noted, the Contractor shall be alerted and shall take all necessary steps to rectify the situation. Should the Contractor's efforts fail at remediating the eroded areas, the Contractor shall contact the City and/or Conservation Authority to review the site conditions and determine the appropriate course of action. As the ground begins to thaw, the Contractor shall place silt fencing at all required locations as soon as ground conditions warrant. Please see the *Site Grading, Drainage and Sediment & Erosion Control Plan* for additional details regarding the temporary measures to be installed and their appropriate OPSD references.

8.2 Permanent Measures

It is expected that the Contractor will promptly ensure that all disturbed areas receive topsoil and seed/sod and that grass be established as soon as possible. Any areas of excess fill shall be removed or levelled as soon as possible and must be located a sufficient distance from any watercourse to ensure that no sediment is washed out into the watercourse. As the vegetation growth within the site provides a key component to the control of sediment for the site, it must be properly maintained once established. Once the construction is complete, it will be up to

the landowner to maintain the vegetation and ensure that the vegetation is not overgrown or impeded by foreign objects.

9.0 SUMMARY

- A new 18-storey mixed use building is proposed to be constructed at 311 Somerset Street West.
- 150 mm diameter dual water services are proposed to service the site, connecting to the watermain within O'Connor Street.
- A 200 mm sanitary service is proposed to service the site, connecting to the sanitary sewer within Somerset Street West.
- A 250mm diameter storm service lateral is proposed to connect to the existing storm sewer within Somerset Street West.
- Storage for the 5 through 100-year storm events will be provided via an internal 40m³ cistern located within the underground parking garage.

10.0 RECOMMENDATION

Based on the information presented in this report, we recommend that City of Ottawa approve this Servicing and Stormwater Management Report in support of the proposed 311 Somerset Street West Development.

This report is respectfully being submitted for approval.

Regards,

McIntosh Perry Consulting Engineers Ltd.



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11.0 STATEMENT OF LIMITATIONS

This report was produced for the exclusive use of Gemstone Corporation. The purpose of the report is to assess the existing stormwater management system and provide recommendations and designs for the post-construction scenario that are in compliance with the guidelines and standards from the Ministry of the Environment, Conservation and Parks, City of Ottawa and local approval agencies. McIntosh Perry reviewed the site information and background documents listed in Section 2.0 of this report. While the previous data was reviewed by McIntosh Perry and site visits were performed, no field verification/measures of any information were conducted.

Any use of this review by a third party, or any reliance on decisions made based on it, without a reliance report is the responsibility of such third parties. McIntosh Perry accepts no responsibility for damages, if any, suffered by any third party as a result of decisions or actions made based on this review.

The findings, conclusions and/or recommendations of this report are only valid as of the date of this report. No assurance is made regarding any changes in conditions subsequent to this date. If additional information is discovered or becomes available at a future date, McIntosh Perry should be requested to re-evaluate the conclusions presented in this report, and provide amendments, if required.

APPENDIX A
KEY PLAN



LEGEND

- Site Location
- Watercourse
- Local Road
- Waterbody
- Major Road
- Wooded Area

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2020.



CLIENT:		GEMSTONE CORPORATION	
PROJECT:		SIXTEEN STOREY APARTMENT BUILDING	
TITLE:		SITE LOCATION	
PROJECT NO: CCO-21-2341		FIGURE:	
Date	Dec., 15, 2020	1	
GIS	EU		
Checked By	CK		

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APPENDIX B
BACKGROUND DOCUMENTS

Pre-application Consultation Meeting Minutes

Address: 234-236 O'Connor & 311 Somerset St W

Formal Pre-consultation File No.: PC2019-0115

Date: Wednesday May 29, 2019, 10:00am – 11:00am

Location: Room 4103, City Hall, 110 Laurier Ave W

City Contact: Ann O'Connor

City of Ottawa Staff Present:

Ann O'Connor – File Lead, Planner, Central Development Review

Anne Fitzpatrick – Heritage Planner

Christopher Moise – Urban Designer

Shawn Wessel – Infrastructure Project Manager

Wally Dubyk – Transportation Project Manager

Mark Gordon – Planning Student

Will Fleury – Heritage Student

Invitees Present:

Jack Hanna – Centretown Citizens Community Association (CCCA) Representative

Miguel Tremblay – Planner, Fotenn Consultants

Jaime Posen – Planner, Fotenn Consultants

Josh Zaret – Gemstone Developments

Neil Zaret – Gemstone Developments

Roberto Campos – Architect, Figurr Architects Collective

Introductions and Acknowledgements

- Round table introductions
- Acknowledgement that an NDA has been signed by the CCCA Representative

Overview of Proposal (Miguel Tremblay and Roberto Campos)

- A surface parking lot (on lots municipally known as 236 O'Connor and 311 Somerset Street W) and a Privately-Owned Public Space (on 234 O'Connor) currently occupy the site.
- The POPS on 234 O'Connor was established through a Demolition Control application that also involved demolishing a heritage building that had been damaged by a fire.
- There are multiple planning designations associated with the three properties in the subject area (including two zones, two OP designations, and designations through the Centretown Secondary Plan). Miguel provided an overview of the municipal policy context for the three properties.
- There is a belief that the abutting property to the north will not likely redevelop to be a high-rise building because the area is too small.
- The proposal is for a 16-storey mixed-use building. There is ground floor commercial with residential above. The massing transitioning from 9-storeys facing Somerset to 16-storeys moving north. Two levels of underground parking are proposed to be accessed from an egress off O'Connor.

- There is currently setbacks in the massing from Somerset to accommodate hydro wires. A survey of the hydro poles and wires has not yet been completed, and therefore, the setbacks are estimated.
- There is a desire to provide a lot of glass at-grade and provide a contemporary backdrop for the heritage buildings that surround the site.
- The parking garage will extend under the drive aisle.

Preliminary Comments from the City

Planning Comments (Ann O'Connor)

- Based on the current proposal, the proposal would require:
 - Official Plan Amendment
 - Major Zoning By-law Amendment
 - Site Plan Control, Complex, Non-Rural application
 - Heritage application
 - Subject to the Urban Design Review Panel (UDRP) during the other Planning Act applications.
- Planning Services supports the intensification of a surface parking lot in Centretown, provided the redevelopment is compatible with the existing and planned context and adheres to Planning policy. There are concerns with how the current proposal relates to its broader Centretown context. There are also concerns with how it relates to its immediate context, including the existing abutting low-rise heritage-designated developments, planned abutting high-rise context to the north, and the streetscapes.
- The properties have two Official Plan designations on Schedule B.
 - 311 Somerset is designated Traditional Mainstreet
 - 234 and 236 O'Connor is designated General Urban Area (unless amalgamated with 311 Somerset)
- The properties are subject to the Centretown Secondary Plan and Community Design Plan.
 - *Schedule H – Centretown Land Use* designates all three properties “Residential Area – High Profile”
 - *Schedule H1 – Land Use* designates the properties 311 Somerset and 236 O'Connor “Mixed-Use Areas – Traditional Mainstreet” and designates 234 O'Connor “Residential Areas - Apartment Neighbourhood”.
 - *Schedule H2 – Maximum Building Heights* designates the properties 311 Somerset and 236 O'Connor “Mid-rise – 9 storeys” and designates 234 O'Connor “High-rise – 16 storeys”.

- *Schedule H3 – Greening Centretown* designates the frontage along both Somerset and O’Connor as a “Smaller Moments - Priority Streetscape Improvement”
 - *Annex 1 – Character Areas* designates the properties as being located within the “Central” area and within the “North” and “Central” character area.
- Two zones apply to the subject area:
 - 236 O’Connor and 311 Somerset are zoned TM[2185] – Traditional Mainstreet, Exception 2185 and subject to Heritage Overlay (Section 60)
 - 234 O’Connor is zoned R5B[482] F(3.0) - Residential Fifth Density, Subzone B, Exception 482, FSI of 3.0 and subject to Heritage Overlay (Section 60)
- The properties are located within a “Design Priority Area” as there is frontage along the Somerset Traditional Mainstreet.
 - Given the nature of the proposal, a formal review by the Urban Design Review Panel (UDRP) is required. This formal review takes place during the application process.
 - An informal pre-consultation, prior to submitting an application, is requested and considered a good opportunity for the applicant to address design concerns/building changes earlier in the process, prior to the further investment and time.
- Other site development considerations:
 - Hydro poles along Somerset Street West may require additional setbacks.
 - Section 37 calculations should be submitted with the rezoning application.
 - There is an access easement over 234 O’Connor granted to the City of Ottawa for a Privately-Owned Public Space (POPS). Please review the Demolition Control Agreement (Inst. No. OC1941454). As per the Agreement, the City agrees to release the easement, at the request and expense of the Owner, once the Owner has received site plan approval and the applicable SPA has been registered.
 - As per the Heritage Comments, the property is located in the Centretown Heritage District Plan and all the subject properties are designated heritage. Therefore, redevelopment of these lands requires a heritage application that will go to Build Heritage Sub-Committee > Planning Committee > Council. Planning staff can work with your team to arrange for the heritage and planning act applications be reviewed at PC at the same time.
 - Through the Site Plan Agreement, the City will take a corner site triangle and two ROWs along both frontages (see Transportation Comments). If the ZBLA comes in before the SPC application, the building envelope and

extent of the underground parking garage should still reflect the new property lines that will ultimately be established through redevelopment.

- It is recommended you consult with following:
 - Councillor Catherine McKenney (Ward 14 – Somerset)
 - Centretown Citizens Community Association (CCCA)
 - Abutting property owners

- Comments on the current proposal and approach:
 - An OPA is required to amend multiple schedules and increase the number of storeys and uses outlined in the Centretown Secondary Plan. In order for Planning to consider additional height at this location, the proposal needs to demonstrate:
 - Compliance with provincial planning policy (PPS and Planning Act) and heritage act
 - Compatibility with the Centretown heritage context (specifically addressing form, materiality, massing)
 - Sensitively address the existing and future context of abutting/adjacent properties through transitions, setbacks, stepbacks, and design.

 - It would be valuable for the applicant's team to model the surrounding context based on Sch.H2 of the Centretown Secondary Plan.
 - The proposal can then be put into the model, and the massing addressed to respond to this context.
 - The model should reflect the potential high-rise (16-storey) context to the north, along Cooper.
 - The model should also respect/assume the retention of the heritage designations of the low-rise development in the middle of the Somerset St block (despite the fact up to 4 storeys is permitted in the SP).

 - Refer to the *Urban Design Guidelines for High-Rise Buildings*. Particular attention should be paid to the policies relating to “Context - Transition in Scale” (p.9), “Built Form – Height and Transition” (p. 21), and “Separation between Towers” (p.24).

 - The proposal should respond to the Traditional Mainstreet context. Please refer to the *Urban Design Guidelines for Traditional Mainstreets*. Adjust the floor plans and building facades to ensure Somerset has an active entrance and reflects the rhythm of the rest of the street.

- Address the pedestrian and cycling connections. Easily accessible and secure bicycle parking is a priority. Planning supports the proposal's ground floor bicycle parking area.
- Address how the streetscapes can be greened as per *Schedule H3 – Greening Centretown*, which designates the abutting streetscapes as priorities for greening/streetscape improvement.

Heritage Comments (Anne Fitzpatrick)

- Process
 - The property is located within the Centretown Heritage Conservation District, which is designated under Part V of the Ontario Heritage Act.
 - An application for new construction under the Ontario Heritage Act would be required for this proposal in addition to any Planning applications. The application would require Council approval after consultation with Built Heritage Sub-Committee and Planning Committee. The application form and requirements can be found on the City's website:
 - <https://ottawa.ca/en/city-hall/planning-and-development/heritage-conservation/changes-heritage-properties>
 - A Cultural Heritage Impact Statement (CHIS) is also required for this project. The CHIS must examine the potential impacts of the proposed development on the cultural heritage value and attributes of the Centretown Heritage Conservation District. It should also propose mitigation strategies or options related to any identified negative impacts. A guide for completing these documents can be found here : <https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#guide-preparing-cultural-heritage-impact-statements>
 - The properties are also subject to the Heritage Overlay
- Comments on the Proposal
 - Heritage staff have significant concerns with the proposal and its potential impact on the heritage character of the Centretown HCD.
 - The proposal must consider the guidelines regarding new developments in Section 6.5 of the Centretown CDP and Section VII 5.5 of the Centretown Heritage Conservation District Guidelines.
 - The Centretown HCD Plan recommends that:

- All infill should be contemporary design, distinguishable as being of its time. However, it must be sympathetic to the heritage character of the area, and designed to enhance these existing properties rather than calling attention to itself.
 - Infill should be sympathetic to the heritage character of the area
 - The form of new infill should reflect the character of existing buildings on adjoining and facing properties. The buildings should normally be 3-4 storeys in height, with massing and setbacks matching earlier, rather than later patterns in the area
 - Brick veneer should be the primary finish material
- The Centretown CDP provides the following direction regarding new buildings in the HCD:
 - Where heritage buildings are low scaled, the podium of a new building will respect and reflect the urban grain and scale, visual relationships, and materials of the surrounding historic building(s).
 - Use compatible materials
 - Use setbacks, front and side, to appropriately transition with adjacent building heights
 - Minimize the use and height of blank walls
 - Inform new development with adjacent building ground floor heights and heritage character to enhance the public realm
 - Modulate façades through the use of vertical breaks and setbacks in a manner that is compatible with the surrounding heritage structures
- The transition to the properties to the west along Somerset needs to be more carefully considered. This stretch of Somerset is a significant streetscape in the Centretown HCD and the proposal needs to reflect that. The building should be designed to maintain the texture and variety of the streetscape.
- Heritage Staff encourage you to look more closely to the historic buildings along the street and in the nearby area, to maintain the character of the area; take visual clues from those buildings in terms of height, details, massing, setback etc.

Urban Design Comments (Christopher Moise)

- We recommend that the applicant do some massing analysis to better understand how this parcel fits within the broader picture of the whole block as it is envisioned in the Centretown CDP.
- We have the following concerns related to:
 - Tower separation;
 - Transition from high-rise to mid-rise to low-rise; and
 - Setbacks from adjoining sites and potential for blockage to light and sky.
- We believe that the analysis will also help inform the way the design relates to its surrounding context ie step-back locations and materiality. The proposal would also benefit from an analysis of the different natures of the two abutting streets; Somerset, which is much more pedestrian oriented with low scale massing, wider sidewalk and street trees, while O'Connor being more of a transit corridor.
- A visit to the UDRP is required and can be organized through David Maloney (David.Maloney@ottawa.ca).


Infrastructure Comments (Shawn Wessel)

- Somerset Ave.
 - A 406 mm dia. PVC Watermain (c. 2006) is available
 - A 450 mm dia. PVC Sanitary Sewer (c. 2006) which drains to the Queen Elizabeth Combined Trunk Sewer and then to Interceptor Sewer.
 - A 600 dia. mm Conc. Storm Sewer (c. 2006) on Somerset Ave., which drains to the Cooper Storm Trunk Sewer and Outlets to the Rideau River at Queen Elizabeth Drive.
- O'Connor Ave.
 - A 406 mm dia. UCI Watermain (c. 1912) is available
 - A 525 mm dia. Conc. Sanitary Sewer (c. 1934) which drains to the Queen Elizabeth Combined Trunk Sewer and then to Interceptor Sewer.
 - A 450 dia. mm Conc. Storm Sewer (c. 1992) on O'Connor Ave., which drains to the Cooper Storm Trunk Sewer and Outlets to the Rideau River at Queen Elizabeth Drive.
- The following apply to this site and any development within a combined sewer area:
 - Total (San & Stm) allowable release rate will be 2 year pre-development rate.
 - Coefficient (C) of runoff will need to be determined as per existing conditions but in no case more than 0.4
 - TC = 20 minutes or can be calculated
 - TC should be not be less than 10 minutes, since IDF curves become unrealistic at less than 10 min.

- Any storm events greater than 2 year, up to 100 year, and including 100 year storm event must be detained on site.
- Two separate sewer laterals (one for sanitary and other for storm) will be required.
- Due to a downstream combined sewer connection, an MECP Environmental Compliance Approval (ECA) is required, Direct Submission.
- An MECP ECA will be required. Please have the applicant provide one copy of the following for our initial review:
 - MECP ECA Application Form - TOR or Direct Submission tied to SPC
 - Fees - Certified Cheque made out to "City of Ottawa" or for DS "Ministry of Finance"
 - Proof of Applicant's Identification (if no Certificate of Incorporation)
 - Certificate of Incorporation (if Applicable)
 - NAICS Code (If Applicable)
 - Plan & Profile
 - Grading and Servicing Plans
 - Survey Plan
 - Pipe Data Form
 - Draft ECA (City of Ottawa Expanded Works Form)
 - Source Protection Policy Screening & Significant Threat Report
 - Sewer Drainage Area Plan
 - SWM Report
 - Services Report
 - Geotechnical Report & any other supportive documentation
 - Correspondence: City of Ottawa including ROW, Water Resources Dept., ISD etc., MNR, Conservation Authority & MECP.
- Please note that once the review has been completed and the Sr. Engineer is satisfied and ready to sign off on the application, after the PM recommendations 4 final bound copies including 4 CD Rom disks will be required to accompany the applications with MECP and for City of Ottawa records.
- Please also note:
 - Foundation drains are to be independently connected to storm sewermain (or combined sewer as applicable) unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.
 - Roof drains are to be connected downstream of any incorporated ICD within the SWM system.
 - Re RVCA: Applicant to contact Rideau Valley Conservation Authority (RVCA) for possible restrictions due to quality control. Provide correspondence in Report.
- Environmental Source Information:
 - City of Ottawa - Historical Land Use Inventory (HLUI)

The HLUI database is currently undergoing an update. The updated HLUI will include additional sources beyond those included in the current database, making the inclusion of this record search even more important.

Although a municipal historic land use database is not specifically listed as required environmental record in O. Reg 153/04, Schedule D, Part II states the following:

- Records review, specific objectives:
The following are the specific objectives of a records review:
 1. To obtain and review records that relate to the phase one property and to the current and past uses of and activities at or affecting the phase one property in order to determine if an area of potential environmental concern exists and to interpret any area of potential environmental concern.
 2. To obtain and review records that relate to properties in the phase one study area, other than the phase one property, in order to determine if an area of potential environmental concern exists and to interpret any area of potential environmental concern.
 - Further to above, It is therefore reasonable to request that the HLUI search be included in the Phase One ESA to meet the above objectives.
 - Under site plan application, there is a need for Delegated Authority Report for SPCA not for sewer extension. In addition, there will be an agreement for site plan control application that will cover all planning and infrastructure aspects. You do need to ask for any Delegated Authority Report for sewer extension.
 - Under Severance application: There is a need for sewer extension agreement that will be taken care of by the legal after getting related approved documents from the concerned reviewer.
 - Existing buildings require a CCTV inspection and report to ensure existing services to be re-used are in good working order and meet current minimum size requirements. Located services to be placed on site servicing plans.
- 
CCTV Scan
Guideline.pdf
- Boundary Conditions will be provided at request of consultant after providing Average Daily Demands, Peak Hour Demands & Max Day + Fire Flow Demands

- Other:
 - Due to a more sensitive use, a Record of Site Condition (RSC) is required. Please ensure Phase I, and if applicable, Phase II ESA's speak to this requirement.
 - Environmental Noise Study (ENS) is required due to within 100m proximity of Somerset and O'Connor Streets. Ensure consultant speaks to Stationary Noise as per City NCG and NPC 300 Guidelines.
 - Stationary Noise Study – provide if necessary and speak in ENS as per City NCG and NPC 300 Guidelines.
 - Shadow Study required for this proposal.
 - Wind Study is required for this proposal.
 - No Capital Projects listed in the area on GeoOttawa or Envista.
 - There is a SPC application currently for 296 and 332 Somerset Ave.
 - Water Supply Redundancy – Fire Flow:
 - Applicant to ensure that a second service with an inline valve chamber be provided where the average daily demand exceeds 50 m³ / day (0.5787 l/s per day)
 - Where underground storage (UG) and surface ponding are being considered:
 1. Show all ponding for 5 and 100 year events
 2. Note - There must be at least 15cm of vertical clearance between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.
 3. Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc.

4. Provide a cross section of underground chamber system showing invert and obvert/top, major and minor HWLs, top of ground, system volume provided during major and minor events. UG storage to provide actual 2 and 100 year event storage requirements.
 5. In regards to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.
 - Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, through PM and upon request.
- City Provided Info:
 - Please be advised that it is the responsibility of the applicant and their representatives/consultants to verify information provided by the City of Ottawa.
 - Please contact City View and Release Info Centre at Ext. 44455
 - Summary of the Source Protection policy screening for 311 Somerset Ave:
 - The address lies within the Mississippi-Rideau Source Protection Region and is subject to the policies of the Mississippi-Rideau Source Protection Plan. The area is not located within a Surface Water Intake Protection Zone (IPZ) where significant threat policies apply.
 - The area is not located within a Wellhead Protection Area (WHPA).
 - The area is not within a Significant Groundwater Recharge Area.
 - The property is partially located within a Highly Vulnerable Aquifer. There are no legally-binding source protection policies under the Mississippi-Rideau Source Protection Plan for activities within Highly Vulnerable Aquifers.
 - In terms of the Planning Application, please note that the address is not located in an area where legally-binding source protection policies apply.

Transportation Comments (Wally Dubyk)

- Somerset Street is designated as an Arterial road within the City's Official Plan with a ROW protection limit, maximum land requirement from property abutting existing ROW 0.9 metres. The ROW protection limit is to be depicted on the drawings.

- O'Connor Street is designated as an Arterial road within the City's Official Plan with a ROW protection limit of 20.0 metres. The ROW protection limit and the offset distance (10.0 metres) are to be dimensioned from the existing centerline of pavement and shown on the drawings.
- Land for a road widening will be taken equally from both sides of a road, measured from the centreline in existence at the time of the widening if required by the City. The centreline is a line running down the middle of a road surface, equidistant from both edges of the pavement. In determining the centreline, paved shoulders, bus lay-bys, auxiliary lanes, turning lanes and other special circumstances are not included in the road surface.
- A 5.0 metres x 5.0 metres sight triangle would be required at the intersection of Booth Street and Lett Street and is to be shown on all drawings. The sight triangle dimensions are to be measured from the protected ROW limits.
- All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any permanent structure does not extend either above or below into the existing property lines, sight triangles and/or future road widening protection limits.
- The TIA Step 2 – Scoping report is to be submitted for review.
- A construction Traffic Management Plan is to be provided for approval by the Senior Engineer, Traffic Management, Transportation Services Dept.
- Further comments related to a Site Plan will be provided.

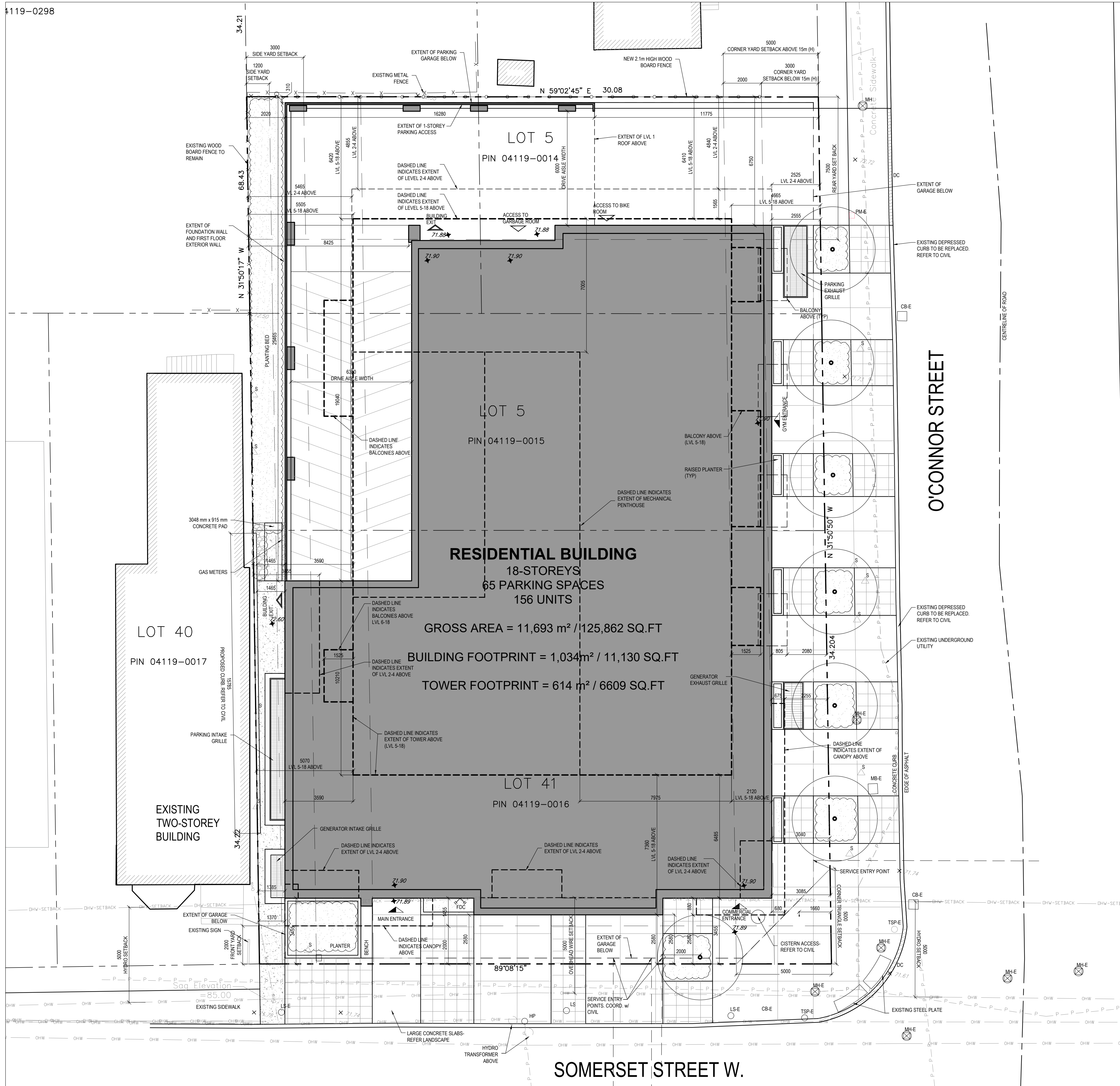
Preliminary Comments from Centretown Citizens Community Association (CCCA) Representative (Jack Hanna)

- Explore affordable housing opportunities
- Describe the experience walking along the street
- Encourage the applicant to sit down with the CCCA Planning Committee to discuss the proposal further
- This is a high profile site, on a corner lot and in close proximity to Dominion Chalmers (which is notable for its good architecture).
- Appreciate the varying sides of the building and setbacks
- Concern with the balconies and with the cantilevered portion of the building

- Need a well-designed building that has good architecture and contributes to Centretown. The current design is not appealing and does not fit in the area.

Next Steps

- Refine the proposal to address issues raised through the pre-consultation.
- Encouraged to submit and attend an informal meeting with the Urban Design Review Panel.
- It is recommended that the applicant team seek input from the Ward Councillor, CCCA, and neighbouring property owners.



KEY PLAN

LEGAL DESCRIPTION:
 LOTS 5 AND 41, REGISTERED PLAN 12281
 CITY OF OTTAWA PIN NUMBER 04119-0013, -0014, -0015, -0016
 MUNICIPAL ADDRESS 234-236 O'Connor Street + 311 Somerset Street West, Ottawa

SITE INFORMATION
 LOT AREA: 1372.3 m² (14771.8 sq ft)
 LOT FRONTAGE: 30.09 m (98.7 ft)
 LOT DEPTH: 45 m (147.6 ft)

OFFICIAL PLAN DESIGNATION: GENERAL URBAN AREA, TRADITIONAL MAINSTREET

SCHEDULE 1A: AREA Y
ZONING: TRADITIONAL MAINSTREET ZONE TM(2185)
ABUTTING ZONES: NORTH (COOPER ST): R5B (482) F(3.0)
 SOUTH (SOMERSET STREET): TM(2185) H(19)
 WEST: TM(2185) H(18)
 EAST: TM(2185) H(14.5)

BUILDING INFORMATION
 FLOOR AREA: 1034 m² (11,130 sq ft)
 GROSS AREA: 11,693 m² (125,862 sq ft)
 PROPOSED USE: MIXED-USE APARTMENT DWELLING, HIGH RISE

UNIT BREAKDOWN:
 LEVEL 2: 10 UNITS
 LEVELS 3-4: 12 UNITS EA. (24)
 LEVELS 5: 5 UNITS
 LEVELS 6-18: 9 UNITS EA. (117)
TOTAL: 156 UNITS

ZONING TABLE

	TM(2185) REQUIRED	PROPOSED
MINIMUM LOT AREA	NO MINIMUM (ZONING)	N/A
MINIMUM LOT WIDTH	NO MINIMUM	N/A
FRONT YARD SETBACK	MINIMUM: 0m MAXIMUM: 2m MAX AT GRADE ADDITIONAL: 2m ABOVE: 15m+4-STOREYS	2.58 m (GROUND FLOOR) 9.94 m (LEVEL 5-18)
SETBACK FROM HYDRO UTILITIES	POLE: 6m	5.0m FROM SURVEYED HYDRO LINE RESULTING IN 3.455m SETBACK FROM PROPERTY LINE (LEVEL 2-4)
INTERIOR SIDE YARD SETBACK	3m MAX. [RSB = WITHIN 5m : 1.5m BEYOND 21m : 6m]	WEST: 1.4 m (LEVEL 1-4) 5 m (LEVEL 5-18)
REAR YARD SETBACK	7.5m MIN.	6.7 m (GROUND FLOOR) 4.8 m (LEVEL 2-4) 6.4 m (LEVEL 5-18)
BUILDING HEIGHT	MINIMUM PERMITTED HEIGHT IS 6.7M FOR 20M BACK FROM THE FRONT LOT LINE. MAXIMUM: 20m (6 STOREYS) [RSB = 4 (37m)] (CENTRETOWN SECONDARY PLAN = 9 to 16 STOREYS)	GF: 5.5m BUILDING HEIGHT: 58.2 m
GROUND FLOOR HEIGHT/GLAZING	MINIMUM OF 50% OF THE SURFACE AREA OF THE GROUND FLOOR FACADE, MEASURED FROM AVERAGE GRADE TO A HEIGHT OF 4.5m	ALONG SOMERSET ST. W: 53% ALONG O'CONNOR ST.: 56%
LANDSCAPED AREA	3m ABUTTING RESIDENTIAL ZONE REDUCED TO 1m WITH 1.4m HIGH FENCE	NORTH PROPERTY: 0m WITH 2.133m HIGH FENCE WEST PROPERTY: 1.6m TO 2m WITH 2.133m HIGH FENCE
MAX. FLOOR SPACE INDEX	NO MAX.	N/A
VEHICLE PARKING REQUIREMENTS (AREA Y: INNER URBAN, SCHEDULE 1A)	RESIDENTIAL: 0.5/UNIT AFTER FIRST 12 UNITS RES. VISITOR: 0.1/UNIT AFTER FIRST 12 UNITS NON-RESIDENTIAL 0 WITH GFA 200 m ² OR LESS RESIDENTIAL: [72 SPACES] RES. VISITOR: [14 SPACES] TOTAL PARKING REQUIRED: [86 SPACES]	RESIDENTIAL PROVIDED: [51 SPACES] VISITOR PROVIDED: [14 SPACES] TOTAL PARKING PROVIDED: [65 SPACES]
AMENITY AREA REQUIREMENTS	6 m ² PER DWELLING UNIT. MIN 50% OF THE REQUIRED TOTAL AMENITY AREA TO BE COMMUNAL AND AT LEAST ONE AREA OF MIN. 54 m ² TOTAL AMENITY REQUIRED: [936 m ²] 50% COMMUNAL REQUIRED: [468 m ²]	TOTAL AMENITY PROVIDED: [1,205 m ²] TOTAL COMMUNAL PROVIDED: [723 m ²] BALCONIES [Total 481.5 m ²] LVL 2: 31 m ² LVL 3: 45 m ² LVL 4: 9 m ² LVL 5: 9.5 m ² LVL 6-18: 387 m ² COMMUNAL [Total 723 m ²] LVL 1: 213 m ² LVL 2: 118 m ² LVL 5: 174 m ² ROOF TERRACE: 218 m ²
BICYCLE PARKING SPACES	0.5 PER DWELLING UNIT (78 SPACES)	TOTAL PROVIDED: [110 SPACES]

LEGEND

	SOFT LANDSCAPING		EXISTING TREE TO REMAIN (REFER TO LANDSCAPE DRAWINGS)
	UNIT PAVERS REFER TO LANDSCAPE		NEW TREE (REFER TO LANDSCAPE DRAWINGS)
	ASPHALT PAVING		NEW SHRUBS (REFER TO LANDSCAPE DRAWINGS)
	CONCRETE		NEW EVERGREEN SHRUB (REFER TO LANDSCAPE DRAWINGS)
	RIVERSTONE REFER TO LANDSCAPE		EXISTING GROUND ELEVATION (TO DETERMINE EXISTING AVERAGE GRADE)
	EXISTING BUILDING ELEMENT TO BE REMOVED		NEW GROUND ELEVATION REFER TO CIVIL
	EXISTING FENCE		
	NEW BOARD FENCE REFER TO LANDSCAPE		
	LOT LINE		
	SETBACK LINE		
	DESIGNATED BUILDING ENTRANCE / EXIT		
	FIRE HYDRANT. REFER TO CIVIL		
	CATCH BASIN		TRAFFIC SIGNAL POST
	MANHOLE		SIGN
	MAILBOX		PARKING METER
	UTILITY POLE		
	OVERHEAD UTILITY WIRES		
	LIGHT STANDARD		
	DEPRESSED CURB		

NOTE: 'X'-E INDICATES EXISTING TO REMAIN

No. Date Description / Object

- 2020-10-02 FOR CLIENT REVIEW
- 2020-11-05 FOR COORD
- 2020-12-11 FOR COORD
- 2021-01-18 FOR COORD
- 2021-02-16 FOR COORD
- 2021-02-16 FOR COORD
- 2021-02-16 FOR COORD
- 2021-02-16 FOR COORD
- 2021-02-16 FOR COORD
- 2021-02-16 FOR COORD
- 2022-02-28 FOR COORD
- 2022-03-29 FOR COORD
- 2022-04-20 FOR COORD

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Architect / Architect (Landscape)
Smith + Andersen
 200-340 TERRY (2ND FL.)
 613.931.1233

Architect / Architect (Landscape)
CLELAND JARDINE ENGINEERING LTD.
 200-340 TERRY (2ND FL.)
 613.931.1233

Architect / Architect (Landscape)
Gino J. Aiello landscape architect www.GJALA.com
 GJINO@GJALA.COM (613) 852-1315
 110 Ditchburn Road Unit #9 | Ottawa Ontario | K2C7G2

Architect / Architect (Civil / Civil)
McINTOSH PERRY

Client / Client
GEMSTONE
 Collectif d'architectes / Architects Collective
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 3500, Saint-Antoine O.
 Montréal QC H4C 1A0
 T. 514 881-0122
 fig. 2
 190 Somerset St W #206
 Ottawa ON K2P 0A4
 T. 613 954-1122
 www.figur.ca

Project / Project
EIGHTEEN STOREY APARTMENT BUILDING
 234-236 O'CONNOR STREET
 OTTAWA, ON

Drawn / Drawn by
 RD, MD
Site Plan

Scale / Scale
 AS SHOWN

Date de création du dessin / Drawing creation date
 2020/09/XX

AS SHOWN

Charlotte Kelly

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: December 3, 2020 1:00 PM
To: Charlotte Kelly
Cc: Robert Freel
Subject: RE: 311 Somerset Avenue West - Stormwater Quantity Criteria

Good afternoon Ms. Kelly.

Please find comments from Water Distribution Dept., below:

From the HGL analysis, the storm system in question can handle the 5-year flow and it does not discharge directly into a combined sewer.
A 5-year release rate with $C=0.5$ is acceptable.

Please note, from recent correspondence with the MECP, no ECA will be required.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l'infrastructure et du développement économique
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

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From: Charlotte Kelly <c.kelly@McIntoshPerry.com>
Sent: November 27, 2020 11:42 AM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Robert Freel <r.freel@mcintoshperry.com>
Subject: 311 Somerset Avenue West - Stormwater Quantity Criteria

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Good Morning Shawn,

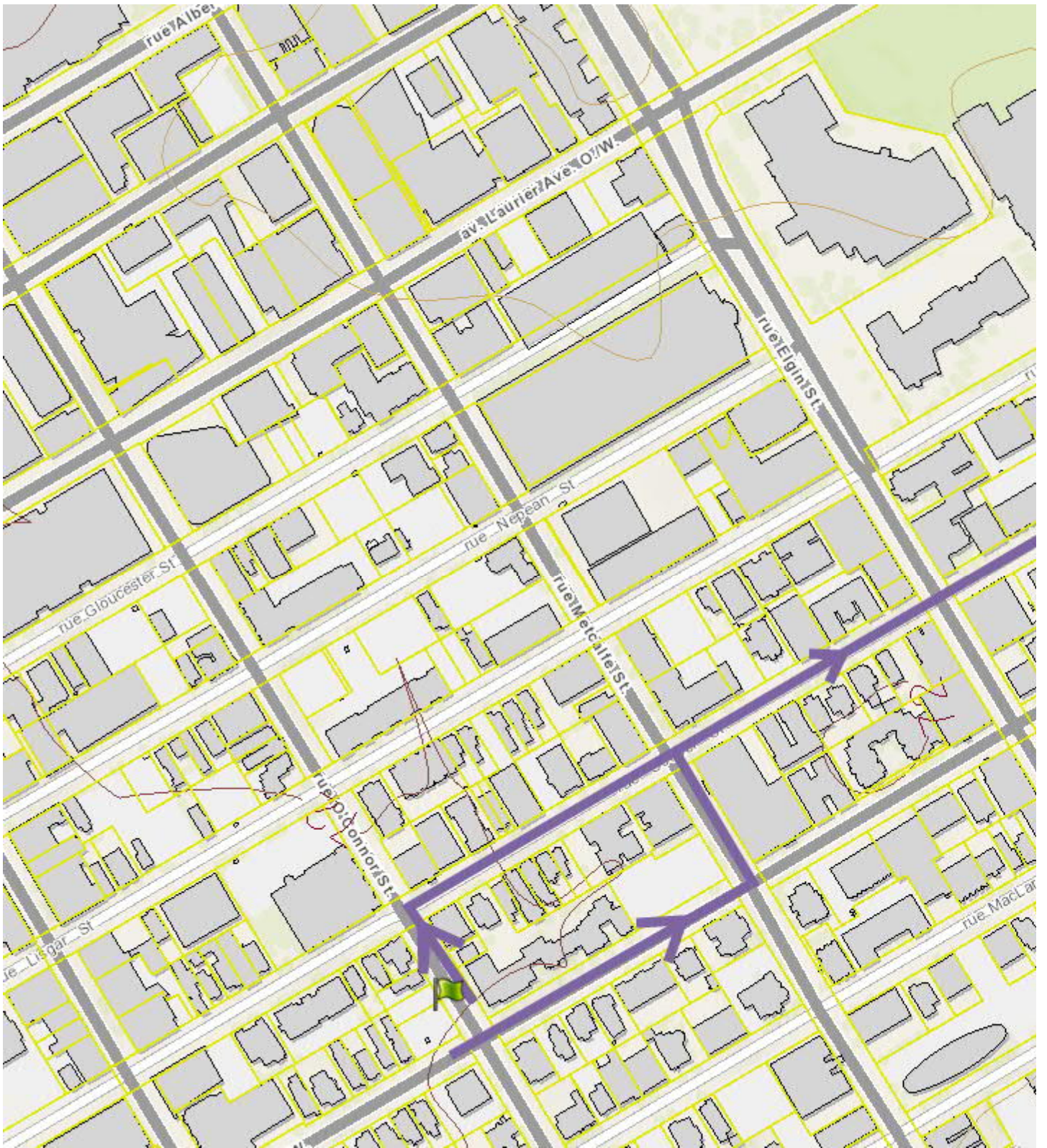
We would also like to confirm the stormwater criteria to which we are controlling the site.

- The pre-consultation indicates that the site is tributary to a combined sewer and as such stormwater is to be controlled to the 2-year release rate and a c-value of 0.4. The pre-consultation also indicated that sanitary flow should be deducted from the sites allowable release rate.

Per the figure below taken from GeoOttawa, stormwater from the site will be tributary to either the 450mm diam. storm sewer within O'Connor or the 600mm diam. storm sewer within Somerset. Stormwater from either sewer travels about 1km before outletting into the Rideau Canal and are fully separated.

- As these are not combined sewers and both sewers were constructed post 1970, it is proposed that the site be controlled to the 5-year storm event with a C-value of 0.5, as is standard for fully separated storm sewers. As the sanitary flow from the site is tributary to a separate sanitary sewer with a different outlet, it is not anticipated that the sanitary release rate will be required to be deducted from the overall sites stormwater release rate.

Finally, an ECA is not anticipated to be required as stormwater from the site is not tributary to a combined sewer network. Can you please confirm?



Please let us know if you have any questions or require additional information.

Thank-you,

Charlotte Kelly, EIT

Engineering Intern - Land Development

115 Walgreen Road, Carp, ON K0A 1L0

T. 613.714.6209

c.kelly@McIntoshPerry.com | www.mcintoshperry.com

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Francis Valenti

Subject: FW: 311 Somerset Street West - Quality Control Requirements

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: Monday, November 23, 2020 1:57:58 PM
To: Charlotte Kelly <c.kelly@McIntoshPerry.com>
Cc: Robert Freel <r.freel@mcintoshperry.com>; Eric Lalande <eric.lalande@rvca.ca>
Subject: RE: 311 Somerset Street West - Quality Control Requirements

Good Afternoon Charlotte,

Based on the rainwater from this site being primarily from rooftop and landscaped areas, no additional on-site water quality measures will be required save and except best management practices. Any opportunities for LID's should be explored given the scale of impervious surfaces.

Jamie Batchelor, MCIP, RPP
Planner, ext. 1191
Jamie.batchelor@rvca.ca



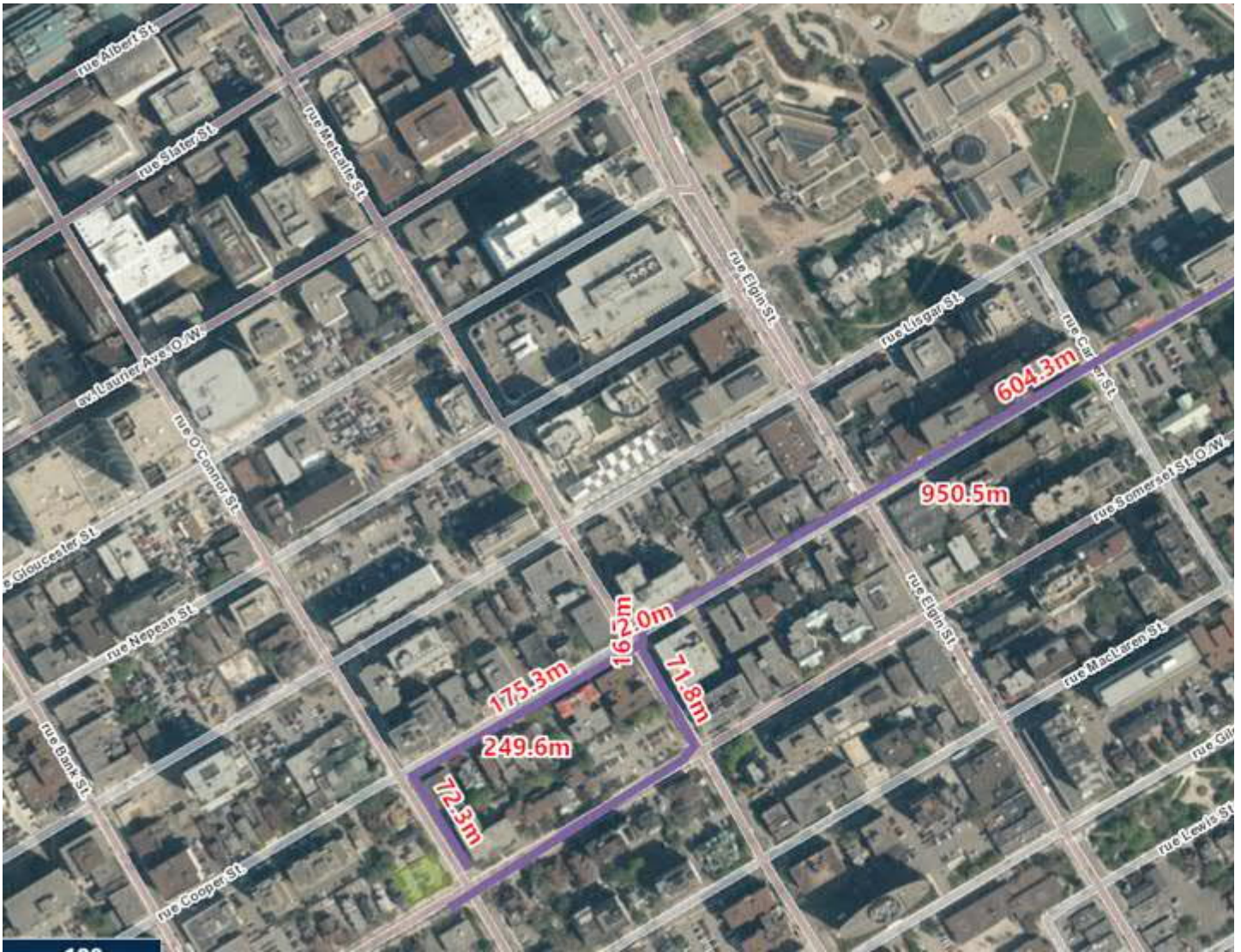
3889 Rideau Valley Drive
PO Box 599, Manotick ON K4M 1A5
T 613-692-3571 | 1-800-267-3504 F 613-692-0831 | www.rvca.ca

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From: Charlotte Kelly <c.kelly@McIntoshPerry.com>
Sent: Monday, November 23, 2020 9:31 AM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Cc: Robert Freel <r.freel@mcintoshperry.com>
Subject: 311 Somerset Street West - Quality Control Requirements

Good Morning Jamie,

We wanted to touch base with you regarding a development at 311 Somerset Street West. The development involves the construction of a 9-storey residential apartment building with associated underground parking. The existing site consists of a paved surface parking lot. The development proposes to outlet to the existing storm sewers within Somerset Avenue or O'Connor Street. The existing sewers travel approximately 1.0 km to an outlet into the Rideau Canal, as shown below. It is anticipated that stormwater quality controls are not required since runoff from the development would be primarily from the rooftop and there is no proposed surface parking. Can you please confirm?



Please let me know if you have any questions or require any additional information.

Thank-you,

Charlotte Kelly, EIT

Engineering Intern - Land Development

115 Walgreen Road, Carp, ON K0A 1L0

T. 613.714.6209

c.kelly@McIntoshPerry.com | www.mcintoshperry.com

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APPENDIX C
WATERMAIN CALCULATIONS

BRITTANY DRIVE P.S.

311 Somerset Street West Pressure Zone Figure

FLEET STREET P.S.

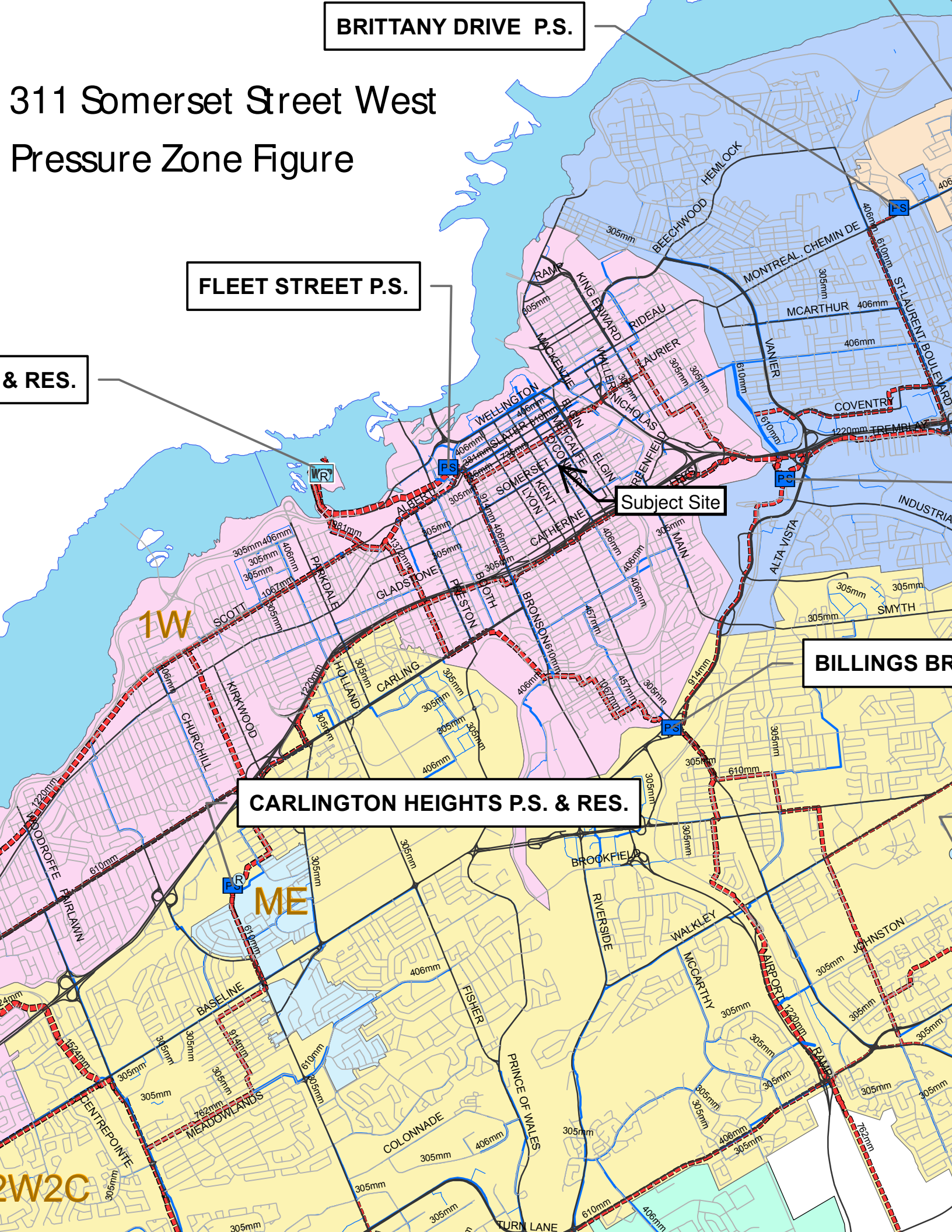
& RES.

Subject Site

BILLINGS BR

CARLINGTON HEIGHTS P.S. & RES.

2W2C



McINTOSH PERRY

CCO-21-2341 - 311 Somerset Street West - Water Demands

Project:	311 Somerset Street West	
Project No.:	CCO-21-2341	
Designed By:	C.M.K.	
Checked By:	R.D.F.	
Date:	December 9, 2020	
Site Area:	0.14 gross ha	
1 Bed / Bachelor Units	109	1.4 Persons per unit
2 Bedroom Units	31	2.1 Persons per unit
Total Population	218	Persons
Commercial Area	252.00 m ²	
Amenity Space	581.00 m ²	

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
<i>Residential</i>	280	L/c/d
<i>Commercial</i>	2,500	L/(1000m ² /d)
<i>Amenity Space</i>	2,500	L/(1000m ² /d)
RESIDENCIAL	0.71	L/s
	42.33	L/min
COMMERCIAL	0.02	L/s
	1.45	L/min

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
<i>Residential</i>	3.6 x avg. day	L/c/d
<i>Commercial</i>	1.5 x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	2.58	L/s
	154.56	L/min

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT	UNITS
<i>Residential</i>	5.4 x avg. day	L/c/d
<i>Commercial</i>	1.8 x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	3.87	L/s
	232.49	L/min

WATER DEMAND DESIGN FLOWS PER UNIT COUNT

CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

FOR POPULATIONS BELOW 501, MOE DESIGN GUIDELINES FOR DRINKING WATER SYSTEMS USED

McINTOSH PERRY

CCO-21-2341 - 311 Somerset Street West - Fire Underwriters Survey (FUS) Fire Calculations

Project: 311 Somerset Street West
 Project No.: CCO-21-2341
 Designed By: CMK
 Checked By: RDF
 Date: December 9, 2020

From the Fire Underwriters Survey (1999)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
 Updated per City of Ottawa Technical Bulletin ISTB-2018-02

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where:

F = Required fire flow in liters per minute

C = Coefficient related to the type of construction.

A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Non-Combustible Construction

C 0.8

A 11,636.0 m²

Calculated Fire Flow

18985.2 L/min
 19000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From note 2, Page 18 of the Fire Underwriter Survey:

Limited Combustible -15%

Fire Flow

16150.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Fully Supervised Sprinklered -50%

Reduction

-8075 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length- Height Factor	
Exposure 1	3.1 to 10	Wood frame	20	3	60	18%
Exposure 2	3.1 to 10	Wood frame	25	2	50	18%
Exposure 3	20.1 to 30	Non-Combustible	25	9	225	10%
Exposure 4	20.1 to 30	Non-Combustible	30	3	90	14%
					% Increase*	60%

Increase*

9690.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow

17765.0 L/min

Fire Flow Required**

18000.0 L/min

*In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%

**In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

McINTOSH PERRY

CCO-21-2341 - 311 Somerset Street West - CITY OF OTTAWA BOUNDARY CONDITION RESULTS

Project: 311 Somerset Street West

Project No.: CCO-21-2341

Designed By: CMK

Checked By: RDF

Date: December 9, 2020

Boundary Conditions Unit Conversion

Scenario	Height (m)	Elevation (m)	m H ₂ O	PSI	kPa
Avg. DD	115.5	71.55	44.0	62.5	431.1
Fire Flow (200 L/s)	108.6	71.55	37.1	52.7	363.5
Peak Hour	107.0	71.55	35.5	50.4	347.8

Charlotte Kelly

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: December 4, 2020 9:52 AM
To: Charlotte Kelly
Cc: Robert Freel
Subject: RE: 311 Somerset Avenue West - Boundary Condition Request and Stormwater Quantity Criteria
Attachments: 311 Somerset Avenue West December 2020.pdf

Good morning Ms. Kelly

Please find requested boundary conditions attached and below:

****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 311 Somerset (zone 1W) assumed to be connected to the 406mm on Somerset Street West and 406mm on O'Connor Street (see attached PDF for location).

Both Connections:

Minimum HGL = 107.0m

Maximum HGL = 115.5m

Connection 1: MaxDay + Fire Flow (300 L/s) = 108.6m

Connection 2: MaxDay + Fire Flow (300 L/s) = 108.4m

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.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Infrastructure and Economic Development Department | Direction générale de la planification
de l'infrastructure et du développement économique
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

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From: Charlotte Kelly <c.kelly@McIntoshPerry.com>
Sent: November 27, 2020 10:50 AM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Robert Freel <r.freel@mcintoshperry.com>
Subject: 311 Somerset Avenue West - Boundary Condition Request and Stormwater Quantity Criteria

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Good Morning Shawn,

We would like to request water boundary conditions for 311 Somerset street West using the following development demands:

- Location of Service: Somerset Avenue West / O'Connor Street
- Type of development and the amount of fire flow required for the proposed development:
 - The development will include one 16-storey condominium building with approximately 619 m2 of amenity and commercial space, and 140 residential units. It is anticipated that the development will have a connection from either the existing 406 mm diameter watermain

within Somerset Street West or the existing 406 mm diameter watermain within O'Connor Street, as shown by the attached map.

- Fire demand based on Technical Bulletin ISTB-2018-02 has been used to calculate an estimate the max fire demand of 18,000 L/min. Refer to the attached for detailed calculations.
- Estimated Demand:

Average Day	0.73 L/s	43.41 L/min
Maximum Day	2.57 L/s	154.00 L/min
Maximum Hour	3.86 L/s	231.49 L/min



Please let us know if you require further information or have any questions.

Thank-you,

Charlotte Kelly, EIT
Engineering Intern - Land Development

115 Walgreen Road, Carp, ON K0A 1L0
T. 613.714.6209
c.kelly@McIntoshPerry.com | www.mcintoshperry.com

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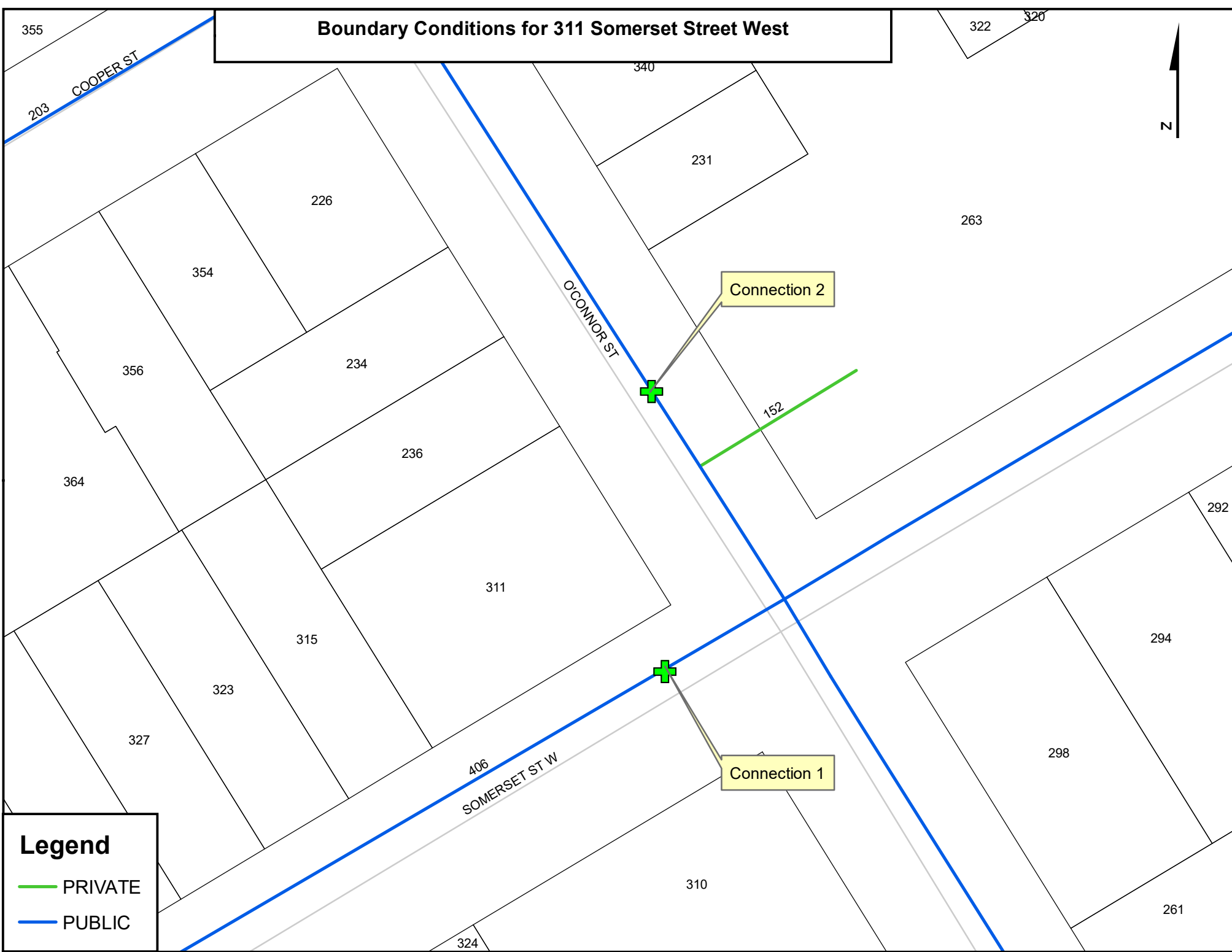
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Boundary Conditions for 311 Somerset Street West



Legend

-  PRIVATE
-  PUBLIC

McINTOSH PERRY

000-22-2341 - 311 Somerset - Revised Water Demands

Project:	311 Somerset
Project No.:	000-22-2341
Designed By:	FV
Checked By:	AG
Date:	June 3, 2022
Ste Area:	0.14 gross ha

<u>Residential</u>	NUMBER OF UNITS		UNIT RATE	
1 Bedroom Apartment	125 units		1.4	persons/unit
2 Bedroom Apartment	31 units		2.1	persons/unit
Total Population	241 persons			
<u>Commercial</u>	197 m2			

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	280	L/c/d	
Industrial - Light	35,000	L/gross ha/d	
Industrial - Heavy	55,000	L/gross ha/d	
Shopping Centres	2,500	L/(1000m ² /d)	
Hospital	900	L/(bed/day)	
Schools	70	L/(Student/d)	
Trailer Park with no Hook-Ups	340	L/(space/d)	
Trailer Park with Hook-Ups	800	L/(space/d)	
Campgrounds	225	L/(campsite/d)	
Mobile Home Parks	1,000	L/(Space/d)	
Motels	150	L/(bed-space/d)	
Hotels	225	L/(bed-space/d)	
Tourist Commercial	28,000	L/gross ha/d	
Other Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	Residential	0.78	L/s
	Commercial/ Industrial / Institutional	0.01	L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	3.0	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	2.34	L/s
	Commercial/ Industrial / Institutional	0.01	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	4.5	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	3.51	L/s
	Commercial/ Industrial / Institutional	0.02	L/s

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.79	L/s
MAXIMUM DAILY DEMAND	2.35	L/s
MAXIMUM HOUR DEMAND	3.53	L/s

McINTOSH PERRY

000-21-2341 - 311 Somerset - Fire Underwriters Survey (2020)

Project: 311 Somerset
 Project No.: 000-21-2341
 Designed By: FV
 Checked By: AG
 Date: June 3, 2022

From the Fire Underwriters Survey (2020)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
 City of Ottawa Technical Bulletin ISTB-2018-02 Applied Where Applicable

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where: F = Required fire flow in liters per minute
 C = Coefficient related to the type of construction.
 A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type **Non-Combustible Construction**

C 0.8 A 11,693.0 m²
 Total Floor Area (per the 2020 FUS Page 20 - Total Effective Area) 4,465.0 m² *Unprotected Vertical Openings

Calculated Fire Flow 11,760.4 L/min
 12,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From Page 24 of the Fire Underwriters Survey:
 Limited Combustible -15%

Fire Flow 10,200.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Fully Supervised Sprinklered -50%

Reduction -5,100.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons. of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	3.1 to 10	Wood frame	5.5	1	5.5	15%
Exposure 2	20.1 to 30	Ordinary - Mass Timber (Unprotected)	27.8	7	194.6	5%
Exposure 3	20.1 to 30	Ordinary - Mass Timber (Unprotected)	20.7	3	62.1	3%
Exposure 4	3.1 to 10	Wood frame	26.9	3	67.3	18%
% Increase*						41%

Increase* 4,182.0 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow 9,282.0 L/min
 Fire Flow Required** 9,000.0 L/min

* In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%

** In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

McINTOSH PERRY

000-21-2341 - 311 Somerset Street West - Boundary Condition Unit Conversion

Project: 311 Somerset Street West
Project No.: 000-21-2341
Designed By: FV
Checked By: AG
Date: June 3, 2022

Boundary Conditions Unit Conversion

Scenario	Height (m)	Elevation (m)	m H ₂ O	PSI	kPa
Avg. DD	115.5	69.2	46.4	65.9	454.7
Max Day + FF Somerset (300 L/s or 18,000 L/min)	108.6	69.2	39.5	56.1	387.0
Max Day + FF O'Connor (300 L/s or 18,000 L/min)	108.4	69.2	39.3	55.8	385.0
Peak Hour	107.0	69.2	37.9	53.9	371.3

APPENDIX D
SANITARY CALCULATIONS

McINTOSH PERRY

CCO-21-2341 - 311 Somerset - Sanitary Demands

Project:	311 Somerset		
Project No.:	CCO-21-2341		
Designed By:	FV		
Checked By:	AG		
Date:	May-22		
Site Area	0.14	Gross ha	
1 Bedroom	125	1.40	Persons per unit
2 Bedroom	31	2.10	Persons per unit
Total Population	241	Persons	
Commercial Area	197.00	m ²	
Amenity Space	1205.00	m ²	

DESIGN PARAMETERS

Institutional/Commercial Peaking Factor	1	
Residential Peaking Factor	3.49	* Using Harmon Formula = $1 + (14 / (4 + P^{0.5})) * 0.8$ where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.01
Wet	0.04
Total	0.05

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	241	0.78
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m ² / d)	1402.00	0.05
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m ² /d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

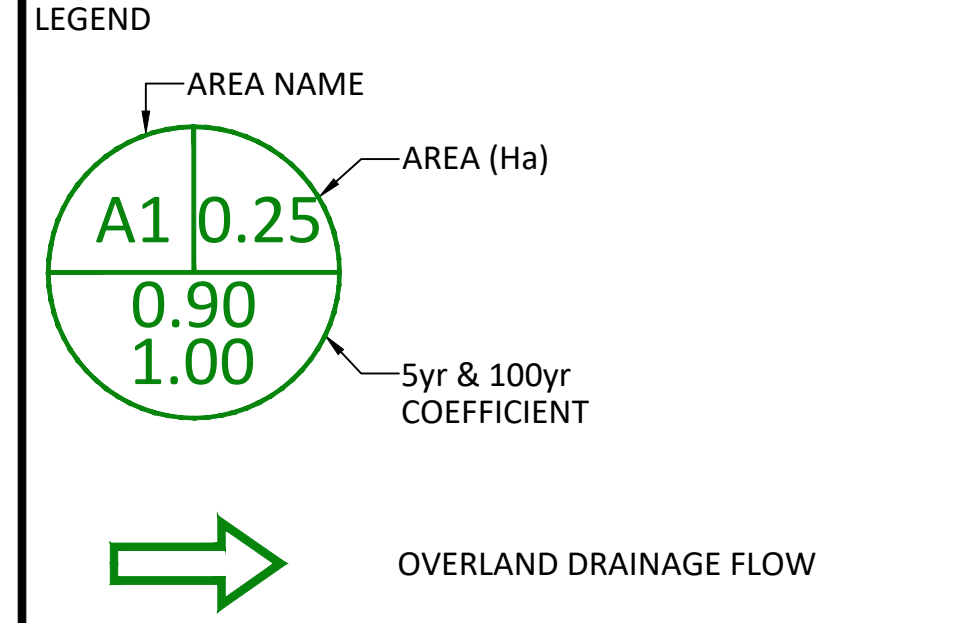
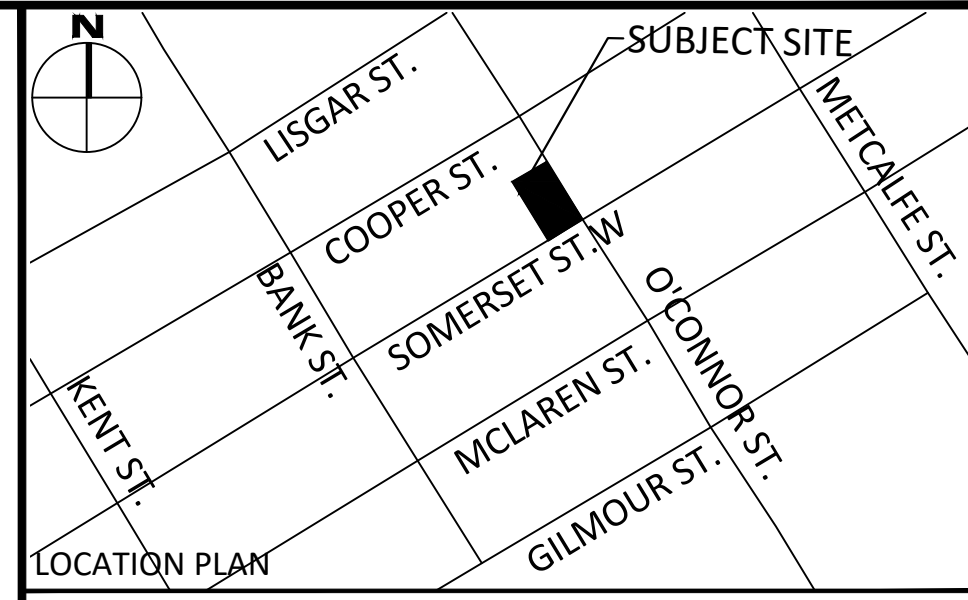
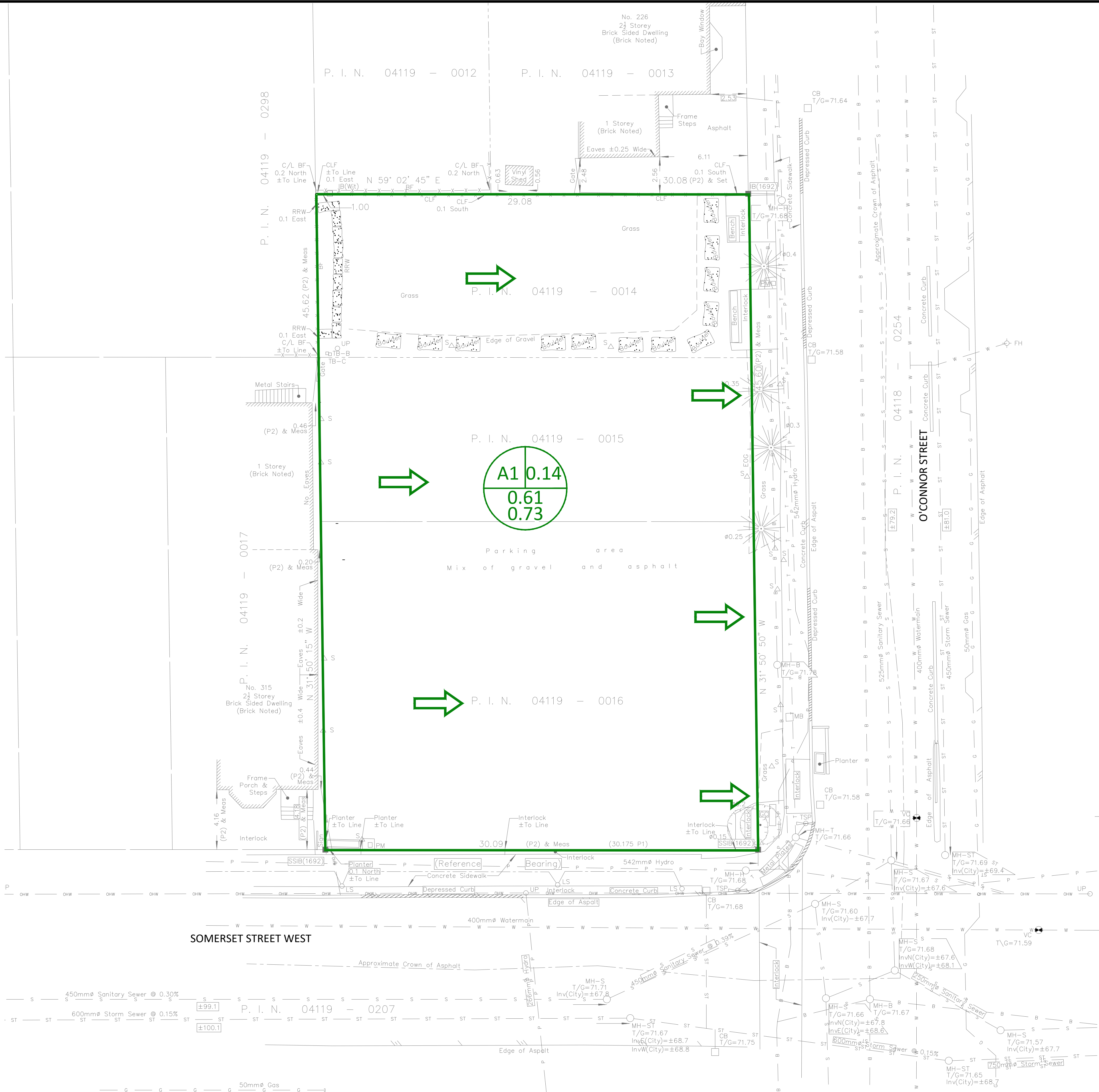
AVERAGE RESIDENTIAL FLOW	0.78	L/s
PEAK RESIDENTIAL FLOW	2.73	L/s
AVERAGE ICI FLOW	0.05	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.05	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.05	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.83	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	2.78	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	2.82	L/s

APPENDIX E
PRE-DEVELOPMENT DRAINAGE PLAN

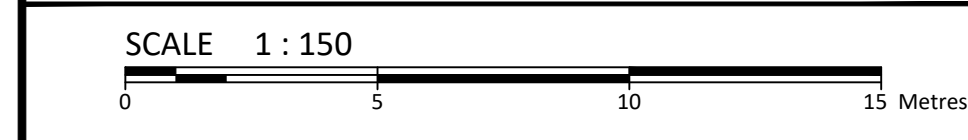
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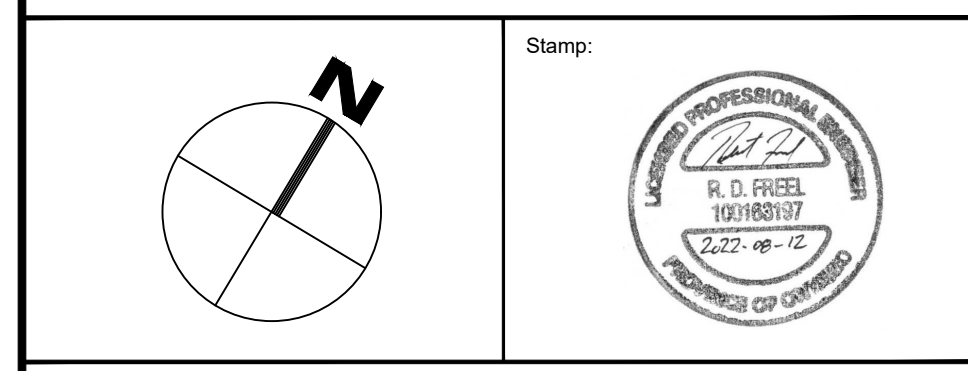
SUBJECT TO APPROVAL

No.	Revisions	Date
3	ISSUED FOR MUNICIPAL REVIEW	AUG 12, 2022
2	ISSUED FOR COORDINATION	FEB. 18, 2021
1	ISSUED FOR COORDINATION	NOV. 27, 2020

Check and verify all dimensions before proceeding with the work Do not scale drawings



McINTOSH PERRY
 115 Walgreen Road, RR3, Carp, ON K0A 1L0
 Tel: 613-836-2184 Fax: 613-836-3742
 www.mcintoshperry.com



Client:
GEMSTONE CORPORATION
 252 ARGYLE AVENUE
 OTTAWA ON, K2P 1B9

Project:
18 STOREY APARTMENT BUILDING
 311 SOMERSET STREET WEST

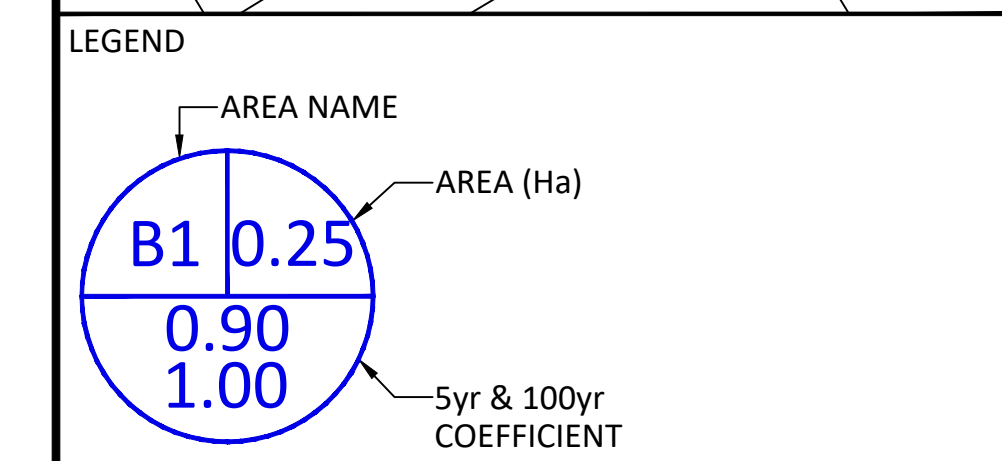
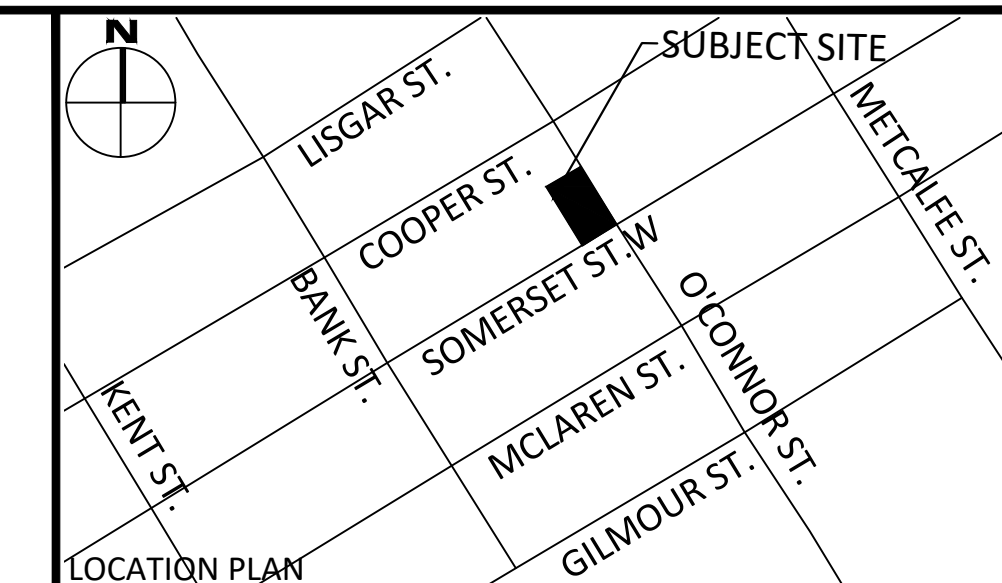
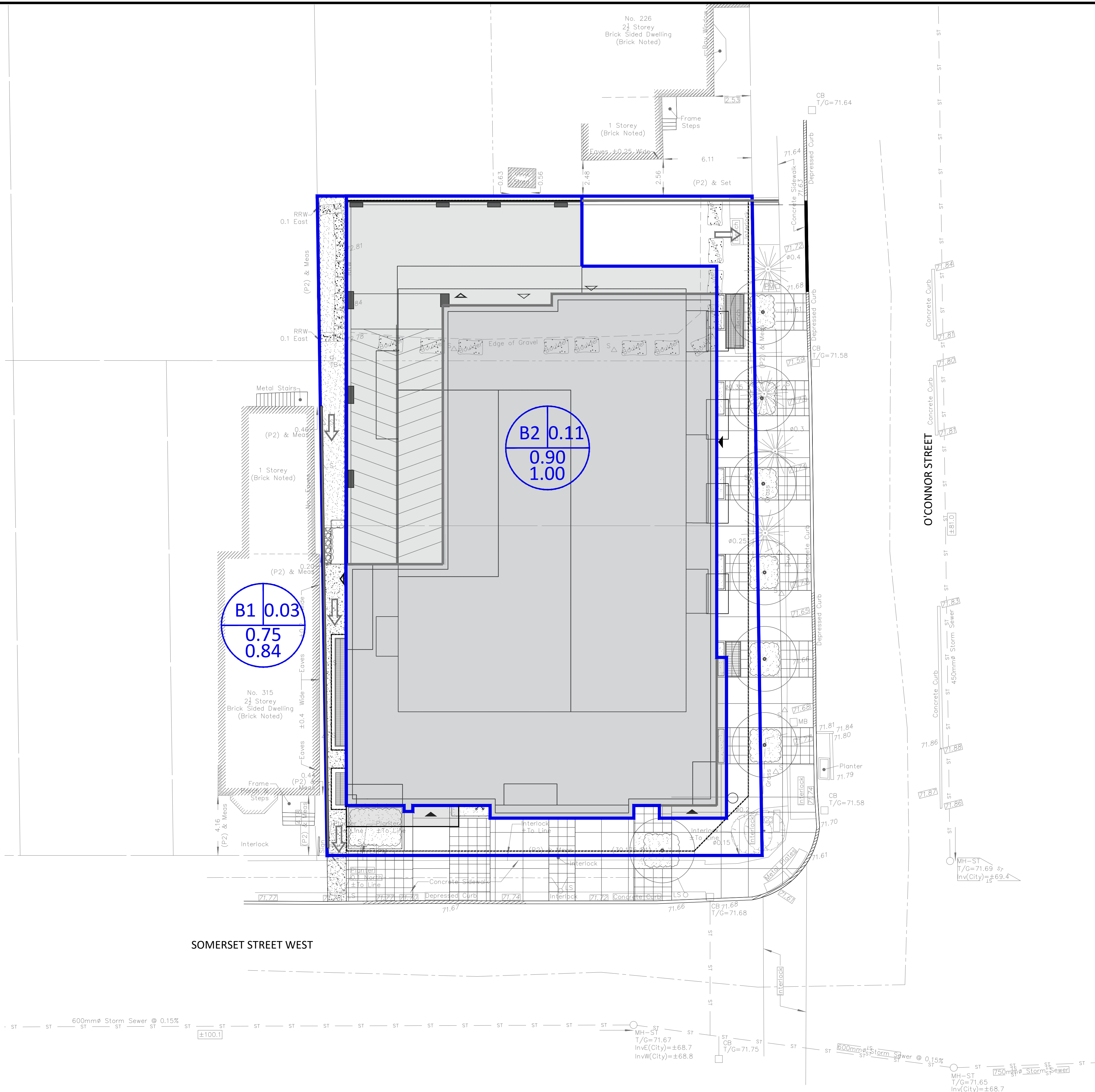
Drawing Title:
PRE-DEVELOPMENT AREA DRAINAGE PLAN

Scale:	1:150	Project Number:	CCO-21-2341
Drawn By:	C.M.K.	Checked By:	R.D.F.
Designed By:	C.M.K.	Drawing Number:	PRE

D01-01-21-0004 & D02-02-21-0024

APPENDIX F
POST-DEVELOPMENT DRAINAGE PLAN

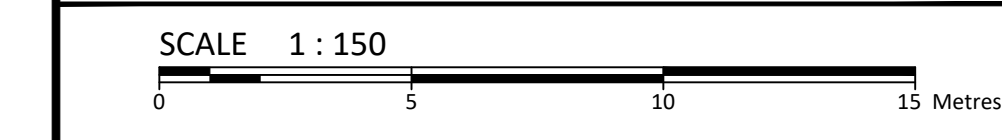
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 LAST SAVED BY: r.perry
 LAST PLOTTED: Friday, August 12, 2022 1:51:56 PM



SUBJECT TO APPROVAL

No.	Revisions	Date
3	ISSUED FOR MUNICIPAL REVIEW	AUG 12, 2022
2	ISSUED FOR COORDINATION	FEB. 18, 2021
1	ISSUED FOR COORDINATION	NOV. 27, 2020

Check and verify all dimensions before proceeding with the work. Do not scale drawings.



McINTOSH PERRY
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Client: **GEMSTONE CORPORATION**
 252 ARGYLE AVENUE
 OTTAWA ON, K2P 1B9

Project: **18 STOREY APARTMENT BUILDING**
 311 SOMERSET STREET WEST

Drawing Title: **POST-DEVELOPMENT AREA DRAINAGE PLAN**

Scale: 1:150	Project Number: CCO-21-2341
Drawn By: C.M.K.	
Checked By: R.D.F.	Drawing Number: POST
Designed By: C.M.K.	

D01-01-21-0004 & D02-02-21-0024

APPENDIX G
STORMWATER MANAGEMENT CALCULATIONS

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CCO-21-2341 - 311 Somerset

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Tc (min)	Intensity (mm/hr)	
	5-Year	100-Year
20	70.3	120.0
10	104.2	178.6

C-Values	
Impervious	0.90
Gravel	0.60
Pervious	0.20

Pre-Development Runoff Coefficient

Drainage Area	Impervious Area (m ²)	Gravel (m ²)	Pervious Area (m ²)	Average C (5-year)	Average C (100-year)
A1	343	795	234	0.61	0.73

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)	
					5-Year	100-Year
A1	0.14	0.61	0.73	10	24.12	49.54
Total	0.14				24.12	49.54

Post-Development Runoff Coefficient

Drainage Area	Impervious Area (m ²)	Gravel (m ²)	Pervious Area (m ²)	Average C (5-year)	Average C (100-year)	
B1	250	2	65	0.75	0.84	Uncontrolled
B2	1,055	0	0	0.90	1.00	Controlled

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)	
					5-Year	100-Year
B1	0.03	0.75	0.84	10	6.93	13.30
B2	0.11	0.90	1.00	10	27.50	52.37
Total	0.14				34.44	65.67

Required Restricted Flow

Drainage Area	Area (ha)	C 5-Year	Tc (min)	Q (L/s)
				5-Year
A1	0.14	0.50	10	19.87

Post-Development Restricted Runoff Calculations

Drainage Area	Unrestricted Flow (L/S)		Restricted Flow (L/S)		Storage Required (m ³)		Storage Provided (m ³)	
	5-year	100-Year	5-Year	100-Year	5-Year	100-Year	5-Year	100-Year
B1	6.93	13.30	6.93	13.30				
B2	27.50	52.37	6.57	6.57	14.4	37.1	40.0	40.0
Total	34.44	65.67	13.50	19.87	14.38	37.10	40.00	40.00

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CCO-21-2341 - 311 Somerset

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Storage Requirements for Area B2

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B2	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m ³)
10	104.2	27.51	6.57	20.94	12.56
20	70.3	18.56	6.57	11.99	14.38
30	53.9	14.23	6.57	7.66	13.78
60	32.9	8.68	6.57	2.11	7.61
70	29.4	7.76	6.57	1.19	5.00

Maximum Storage Required 5-year = 14 m³

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B2	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m ³)
10	178.6	52.38	6.57	45.81	27.49
20	120.0	35.20	6.57	28.63	34.35
30	91.9	26.95	6.57	20.38	36.69
40	75.1	22.03	6.57	15.46	37.10
50	64.0	18.77	6.57	12.20	36.60
60	55.9	16.40	6.57	9.83	35.37

Maximum Storage Required 100-year = 37 m³

5-Year Storm Event Storage Summary

Storage Available (m³) = 40.0 *
Storage Required (m³) = 14.4

100-Year Storm Event Storage Summary

Storage Available (m³) = 40.0 *
Storage Required (m³) = 37.1

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Time of Concentration Pre-Development

Drainage Area ID	Sheet Flow Distance (m)	Slope of Land (%)	Tc (min) (5-Year)	Tc (min) (100-Year)
A1	55	1.89	10	7

Therefore, a Tc of 10 can be used

$$T_c = (3.26(1.1-c)L^{0.5}/S^{0.33})$$

c = Balanced Runoff Coefficient

L = Length of drainage area

S = Average slope of watershed

APPENDIX H
CITY OF OTTAWA DESIGN CHECKLIST

City of Ottawa

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

Criteria	Location (if applicable)
<input type="checkbox"/> Executive Summary (for larger reports only).	N/A
<input type="checkbox"/> Date and revision number of the report.	On Cover
<input type="checkbox"/> Location map and plan showing municipal address, boundary, and layout of proposed development.	Appendix E
<input type="checkbox"/> Plan showing the site and location of all existing services.	Site Servicing Plan (C102)
<input type="checkbox"/> 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.	1.1 Purpose 1.2 Site Description 6.0 Stormwater Management
<input type="checkbox"/> Summary of pre-consultation meetings with City and other approval agencies.	Appendix A
<input type="checkbox"/> 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.	1.1 Purpose 1.2 Site Description 6.0 Stormwater Management
<input type="checkbox"/> Statement of objectives and servicing criteria.	3.0 Pre-Consultation Summary

<input type="checkbox"/> Identification of existing and proposed infrastructure available in the immediate area.	N/A
<input type="checkbox"/> 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).	Site Grading, Drainage, Sediment & Erosion Control Plan (C101)
<input type="checkbox"/> 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 neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Site Grading, Drainage, Sediment & Erosion Control Plan (C101)
<input type="checkbox"/> 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.	N/A
<input type="checkbox"/> Proposed phasing of the development, if applicable.	N/A
<input type="checkbox"/> Reference to geotechnical studies and recommendations concerning servicing.	Section 2.0 Background Studies
<input type="checkbox"/> All preliminary and formal site plan submissions should have the following information: <ul style="list-style-type: none"> ○ Metric scale ○ North arrow (including construction North) ○ Key plan ○ Name and contact information of applicant and property owner ○ Property limits including bearings and dimensions ○ Existing and proposed structures and parking areas ○ Easements, road widening and rights-of-way ○ Adjacent street names 	Site Grading, Drainage, Sediment & Erosion Control Plan (C101)

4.2 Development Servicing Report: Water

Criteria	Location (if applicable)
<input type="checkbox"/> Confirm consistency with Master Servicing Study, if available	N/A
<input type="checkbox"/> Availability of public infrastructure to service proposed development	N/A
<input type="checkbox"/> Identification of system constraints	N/A
<input type="checkbox"/> Identify boundary conditions	N/A
<input type="checkbox"/> Confirmation of adequate domestic supply and pressure	N/A
<input type="checkbox"/> 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.	Appendix B
<input type="checkbox"/> 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.	N/A
<input type="checkbox"/> Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
<input type="checkbox"/> Address reliability requirements such as appropriate location of shut-off valves	N/A
<input type="checkbox"/> Check on the necessity of a pressure zone boundary modification.	N/A
<input type="checkbox"/> 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	N/A

<input type="checkbox"/> 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.	N/A
<input type="checkbox"/> 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.	N/A
<input type="checkbox"/> Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Appendix B
<input type="checkbox"/> Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A

4.3 Development Servicing Report: Wastewater

Criteria	Location (if applicable)
<input type="checkbox"/> 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 infrastructure).	N/A
<input type="checkbox"/> Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
<input type="checkbox"/> 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.	N/A
<input type="checkbox"/> Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 5.2 Sanitary Sewer

<input type="checkbox"/> 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)	N/A
<input type="checkbox"/> Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	N/A
<input type="checkbox"/> Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 5.2 Sanitary Sewer
<input type="checkbox"/> 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).	N/A
<input type="checkbox"/> Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
<input type="checkbox"/> Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
<input type="checkbox"/> Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
<input type="checkbox"/> Special considerations such as contamination, corrosive environment etc.	N/A

4.4 Development Servicing Report: Stormwater Checklist

Criteria	Location (if applicable)
<input type="checkbox"/> Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 6.0 Stormwater Management
<input type="checkbox"/> Analysis of available capacity in existing public infrastructure.	N/A
<input type="checkbox"/> A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Pre & Post-Development Plans
<input type="checkbox"/> 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.	Section 6.0 Stormwater Management
<input type="checkbox"/> Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 6.0 Stormwater Management
<input type="checkbox"/> Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Section 6.0 Stormwater Management
<input type="checkbox"/> Set-back from private sewage disposal systems.	N/A
<input type="checkbox"/> Watercourse and hazard lands setbacks.	N/A
<input type="checkbox"/> Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A
<input type="checkbox"/> Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
<input type="checkbox"/> Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5-year return period) and major events (1:100-year return period).	Appendix F

<input type="checkbox"/> Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	Site Grading, Drainage, Sediment & Erosion Control Plan
<input type="checkbox"/> 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.	Section 6.0 Stormwater Management Appendix F
<input type="checkbox"/> Any proposed diversion of drainage catchment areas from one outlet to another.	Section 6.0 Stormwater Management
<input type="checkbox"/> Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 6.0 Stormwater Management
<input type="checkbox"/> 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.	Appendix A
<input type="checkbox"/> Identification of potential impacts to receiving watercourses	N/A
<input type="checkbox"/> Identification of municipal drains and related approval requirements.	N/A
<input type="checkbox"/> Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 6.0 Stormwater Management
<input type="checkbox"/> 100-year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Site Grading, Drainage, Sediment & Erosion Control Plan (C101)
<input type="checkbox"/> Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A

<input type="checkbox"/> Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 7.0 Sediment & Erosion Control
<input type="checkbox"/> 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.	N/A
<input type="checkbox"/> Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

4.5 Approval and Permit Requirements: Checklist

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

Criteria	Location (if applicable)
<input type="checkbox"/> 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.	N/A
<input type="checkbox"/> Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A
<input type="checkbox"/> Changes to Municipal Drains.	N/A
<input type="checkbox"/> Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A

4.6 Conclusion Checklist

Criteria	Location (if applicable)
<input type="checkbox"/> Clearly stated conclusions and recommendations	Section 8.0 Summary Section 9.0 Recommendations
<input type="checkbox"/> 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.	All are stamped
<input type="checkbox"/> All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	All are stamped