

**ASSESSMENT OF ADEQUACY OF
PUBLIC SERVICES**

FOR

**URBAN CAPITAL PROPERTY GROUP
390 BANK STREET**

CITY OF OTTAWA

PROJECT NO.: 19-1112
CITY APPLICATION NO.: D07-12-XX-XXXX

AUGUST 2019 – REV 1
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**ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES
FOR
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URBAN CAPITAL PROPERTY GROUP**

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1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained by Urban Capital Property Group to prepare an Assessment of Adequacy of Public Services report in support of the application for a Zoning By-law Amendment (ZBLA) at 390 Bank Street.

The subject property is located within the City of Ottawa urban boundary, in the Somerset Ward. As illustrated in **Figure 1**, below, the subject property is located southwest of the intersection of Bank Street and James Street. Comprised of one parcel the subject property measures approximately **0.11 ha** and is zoned Traditional Main Street (TM[1619]).



Figure 1: Site Location

The contemplated ZBLA would allow for the development of a 10-storey residential /commercial building fronting onto both Bank Street and James Street. The contemplated development would include approximately **651 m²** of ground level retail and underground parking, with access from James Street. The residential component is comprised of approximately **128 units** and **187 m³** of amenity space. A copy of the conceptual site plan is included in **Drawings/Figures**.

The objective of this report is to provide sufficient detail to demonstrate that the proposed re-zoning and contemplated development is supported by existing municipal services.

1.1 Existing Conditions

The existing site includes a commercial restaurant with an outdoor patio and an asphalt parking lot. Existing elevations onsite range between 71.85 m and 72.15 m with a minimal grade change of approximate 0.57% from the Northeast to the Southwest corner of the property.

The subject property is within the City of Ottawa combined sewer system. Sewer and watermain mapping, along with as built drawings, collected from the City of Ottawa indicate that the following services exist across the property frontages within the adjacent municipal right-of-ways:

Bank Street:

- 305 mm diameter PVC watermain; and
- 900 mm concrete combined sewer tributary to Rideau Canal Interceptor and ultimately tributary to ROPEC.

James Street:

- 203 mm ductile iron / PVC diameter watermain; and
- 225 mm clay/PVC combined sewer tributary to Rideau Canal Interceptor and ultimately tributary to ROPEC.

1.2 Required Permits / Approvals

The contemplated development is subject to the site plan control approval process. The City of Ottawa must approve the engineering design drawings and reports prior to the issuance of site plan control.

The development is contemplated to outlet to a partially combined sewer sewershed.

Section 53 of the Ontario Water Resources Act Ontario Regulation 525/98, 2.(1) Subsection 53 (1) and (3) indicate that an Environmental Compliance Approval (ECA) is not required for a property which meets the following requirements:

-
1. The use operation, establishment, alteration, extension or replacement of or a change in a service connection.

Due to the subject property meeting the above noted preapproval requirements, it is anticipated that the development will not require the completion of an ECA through the Ministry of Environment, Conservation and Parks (MECP). Consultation between the City of Ottawa and the local MECP representative may be required to confirm.

1.3 Pre-consultation

Pre-consultation correspondence, along with the servicing guidelines checklist, is located in **Appendix A**.

2.0 GUIDELINES, PREVIOUS STUDIES, AND REPORTS

2.1 Existing Studies, Guidelines, and Reports

The following studies were utilized in the preparation of this report.

- **Ottawa Sewer Design Guidelines,**
City of Ottawa, *SDG002*, October 2012.
(City Standards)
 - **Technical Bulletin ISTB-2018-01**
City of Ottawa, March 21, 2018.
(ISTB-2018-01)
 - **Technical Bulletin ISTB-2018-03**
City of Ottawa, March 21, 2018.
(ISTB-2018-03)
- **Ottawa Design Guidelines – Water Distribution**
City of Ottawa, July 2010.
(Water Supply Guidelines)
 - **Technical Bulletin ISD-2010-2**
City of Ottawa, December 15, 2010.
(ISD-2010-2)
 - **Technical Bulletin ISDTB-2014-02**
City of Ottawa, May 27, 2014.
(ISDTB-2014-02)
 - **Technical Bulletin ISDTB-2018-02**
City of Ottawa, March 21, 2018.
(ISDTB-2018-02)
- **Design Guidelines for Sewage Works,**
Ministry of the Environment, 2008.
(MOE Design Guidelines)
- **Stormwater Planning and Design Manual,**
Ministry of the Environment, March 2003.
(SWMP Design Manual)
- **Ontario Building Code Compendium**
Ministry of Municipal Affairs and Housing Building Development Branch,
January 1, 2010 Update.
(OBC)

3.0 WATER SUPPLY SERVICING

3.1 Existing Water Supply Services

The subject property lies within the City of Ottawa 1W pressure zone, as shown by the Pressure Zone map in **Appendix B**. As indicated by City of Ottawa watermain mapping and as built drawings, a local 305 mm diameter watermain exists within the Bank Street right-of-way and a local 203 mm diameter watermain exists within the James Street right-of-way.

3.2 Water Supply Servicing Design

Table 1, below, summarizes the **Water Supply Guidelines** employed in the preparation of the preliminary water demand estimate.

Table 1
Water Supply Design Criteria

Design Parameter	Value
Residential 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Residential Average Daily Demand	280 L/d/P***
Residential Maximum Daily Demand	3.6 x Average Daily *
Residential Maximum Hourly	5.4 x Average Daily *
Commercial Retail	2.5 L/m ² /d
Commercial Maximum Daily Demand	1.5 x avg. day
Commercial Maximum Hour Demand	1.8 x max. day
Minimum Watermain Size	150 mm diameter
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
During normal operating conditions desired operating pressure is within	350 kPa and 480kPa
During normal operating conditions pressure must not drop below	275 kPa
During normal operating conditions pressure must not exceed	552 kPa
During fire flow operating pressure must not drop below	140 kPa
*Daily average based on Appendix 4-A from Water Supply Guidelines ** Residential Max. Daily and Max. Hourly peaking factors per MOE Guidelines for Drinking-Water Systems Table 3-3 for 0 to 500 persons. -Table updated to reflect ISD-2010-2 ***Daily consumption rate to align with the revised wastewater rates identified by City of Ottawa Technical Bulletin ISTB-2018-03. As a result, DSEL is submitting for a deviation from the Water Supply Guidelines	

Table 2, below, summarizes the anticipated water supply demand and boundary conditions for the contemplated development based on the **Water Supply Guidelines**.

Table 2
Water Demand and Boundary Conditions
Contemplated Conditions

Design Parameter	Anticipated Demand ¹ (L/min)	Boundary Condition ² (m H ₂ O / kPa) Bank Street	Boundary Condition ² (m H ₂ O / kPa) James Street
Average Daily Demand	46.4	115.7 / 428.7	115.7 / 430.9
Max Day + Fire Flow	163.9 + 16,000 = 16,163.9	106.0 / 333.5	102.0 / 296.5
Peak Hour	246.5	106.8 / 341.4	106.8 / 343.5
1) Water demand calculation per Water Supply Guidelines . See Appendix B for detailed calculations. Boundary conditions supplied by the City of Ottawa for the demands indicated in the correspondence; assumed ground elevation 72.00m (Bank Street) and 71.78m (James Street). See Appendix B .			

Fire flow requirements are to be determined in accordance with City of Ottawa **Water Supply Guidelines** and the Ontario Building Code.

Fire flow requirements were estimated per City of Ottawa Technical Bulletin ISTB-2018-02. The following assumptions were assumed:

- Type of construction – Non-Combustible Construction;
- Occupancy type – Non-Combustible; and
- Sprinkler Protection – Supervised Sprinkler System.

The above assumptions result in an estimated fire flow of approximately **16,000 L/min**. A certified fire protection system specialist would need to be employed to design the building fire suppression system and confirm the actual fire flow demand.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand as indicated in the boundary request correspondence included in **Appendix B**.

The City provided both the anticipated minimum and maximum water pressures, as well as the estimated water pressure during fire flow demand for the demands as indicated by the correspondence in **Appendix B**. The minimum and maximum pressures fall within the required range identified in **Table 1**. The available pressure for the fire flow demand exceeds the minimum pressure identified by the **Water Supply Guidelines**.

Initial boundary conditions obtained indicate residual pressures fall within the required pressure range as specified in **Table 1**.

Based on the latest conceptual site plan, water demands decreased by approx. 1% from demands indicated in the previous boundary conditions. As this is a minimal change it is not anticipated to significantly affect the previously received boundary condition result. As such, it is anticipated updated boundary conditions are not required.

3.3 Water Supply Conclusion

The anticipated water demand under contemplated conditions was submitted to the City of Ottawa for establishing boundary conditions. As demonstrated by **Table 2**, based on the City's model, the municipal system is capable of delivering water within the **Water Supply Guidelines** pressure range.

DSEL employed a daily consumption rate of 280 L/person/day to align with the revised wastewater rates identified by City of Ottawa Technical Bulletin ISTB-2018-03. As a result, DSEL is submitting for a deviation from the **Water Supply Guidelines**.

4.0 WASTEWATER SERVICING

4.1 Existing Wastewater Services

The subject site lies within the Rideau Canal Interceptor Collector Sewer catchment area, as shown by the City sewer mapping included in **Appendix C**. Based on City of Ottawa sewer mapping and as built drawings, an existing 900 mm diameter combined sewer within Bank Street and an existing 225 mm diameter combined sewer within James Street are available to service the contemplated development.

The existing site consists of a restaurant contributing wastewater to the Bank Street sewer system. **Table 3**, below, demonstrates the estimated peak wastewater flow from the existing site. See **Appendix C** for associated calculations.

Table 3
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	0.16
Estimated Peak Dry Weather Flow	0.24
Estimated Peak Wet Weather Flow	0.28

The estimated sanitary flow of the existing restaurant estimates a peak wet weather flow of **0.28 L/s**.

4.2 Wastewater Design

It is anticipated that the contemplated development will be serviced via the exiting 225 mm clay/PVC combined sewer within James Street, which is tributary to Rideau Canal Interceptor.

Table 4, below, summarizes the **City Standards** employed in the design of the contemplated wastewater sewer system.

Table 4
Wastewater Design Criteria

Design Parameter	Value
Residential 1 Bedroom Apartment	1.4 P/unit
Residential 2 Bedroom Apartment	2.1 P/unit
Average Daily Demand	280 L/d/per
Peaking Factor	Harmon's Peaking Factor. Max 4.0, Min 2.0 Harmon's Corrector Factor 0.8
Commercial Floor Space	5 L/ m ² /d
Restaurant	125 L/9.3m ² /d
Infiltration and Inflow Allowance	0.05 L/s/ha (Dry Weather) 0.28 L/s/ha (Wet Weather) 0.33 L/s/ha (Total)
Sanitary sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} AR^{\frac{2}{3}} S^{\frac{1}{2}}$
Minimum Sewer Size	200mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6m/s
Maximum Full Flowing Velocity	3.0m/s
<i>Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, October 2012.</i>	

Table 5, below, demonstrates the estimated peak wastewater flow from the contemplated development. See **Appendix C** for associated calculations.

Table 5
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s)
Estimated Average Dry Weather Flow	0.85
Estimated Peak Dry Weather Flow	2.72
Estimated Peak Wet Weather Flow	2.75

The estimated sanitary flow based on the concept plan provided in **Drawings/Figures** anticipates a peak wet weather flow of **2.75 L/s**.

Due to the distance to the Bank Street collector and the complexity of the drainage area, the impacts from the anticipated flow from the site will need to be further reviewed by the City in order to confirm the resulting HGL within the existing James Street and Bank Street combined sewers.

As discussed in **Section 6.0**, it is anticipated that sufficient capacity is available within the existing combined sewers to support the contemplated development, due to a reduction in combined sewer flow through stormwater retention.

4.3 Wastewater Servicing Conclusions

The site is tributary to Rideau Canal Interceptor. Due to the distance to the Bank Street collector and the complexity of the drainage area, the impacts from the anticipated flow from the site will need to be further reviewed by the City in order to confirm the resulting HGL within the existing James Street and Bank Street combined sewers.

It is anticipated that sufficient capacity is available within the existing combined sewers to support the contemplated development as a result of stormwater management.

The contemplated wastewater design conforms to all relevant **City Standards**.

5.0 STORMWATER MANAGEMENT

5.1 Existing Stormwater Services

The subject site lies within the Rideau Canal Interceptor Collector Sewer catchment area, as shown by the City sewer mapping included in **Appendix D**. Based on City of Ottawa sewer mapping and as built drawings, an existing 900 mm diameter combined sewer within Bank Street and an existing 225 mm diameter combined sewer within James Street are available to service the contemplated development.

Stormwater runoff from the subject property is tributary to the City of Ottawa combined sewer system located within the Ottawa Central sub-watershed. As such, approvals for contemplated development within this area are under the approval authority of the City of Ottawa.

Flows that influence the watershed in which the subject property is located are further reviewed by the principal authority. The subject property is located within the Ottawa River watershed, and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). Consultation with the RVCA is located in **Appendix A**.

It was assumed that the existing development contained no stormwater management controls for flow attenuation. The estimated pre-development peak flows for the 2, 5, and 100-year are summarized in **Table 6**, below:

Table 6
Summary of Existing Peak Storm Flow Rates

City of Ottawa Design Storm	Estimated Peak Flow Rate (L/s)
2-year	30.0
5-year	41.0
100-year	78.3

5.2 Post-development Stormwater Management Target

Stormwater management requirements for the contemplated development were reviewed with the City of Ottawa, where the contemplated development is required to:

- Meet an allowable release rate based on a Rational Method Coefficient of 0.40, employing the City of Ottawa IDF parameters for a 5-year storm with a time of concentration equal to or greater than 10 minutes.
- Attenuate all storms up to and including the City of Ottawa 100-year design event on site.
- Quality controls are not required for the contemplated development due to the outlet to the combined sewer; correspondence with the RVCA is included in **Appendix A**.

Based on the above the allowable release rate for the contemplated development is **12.7 L/s**.

5.3 Contemplated Stormwater Management System

It is contemplated that the stormwater outlet from the contemplated development will be to the 225 mm diameter combined sewer within James Street.

To meet the stormwater objectives the contemplated development may contain a combination of roof top flow attenuation along with surface and subsurface storage.

Table 7 below, summarizes post-development flow rates. The following storage requirement estimate assumes that approximately 10% of the development area will be directed to the outlet without flow attenuation. These areas will be compensated for in areas with flow attenuation controls.

Table 7
Stormwater Flow Rate Summary

Control Area	5-Year Release Rate (L/s)	5-Year Storage (m ³)	100-Year Release Rate (L/s)	100-Year Storage (m ³)
Unattenuated Areas	2.9	0.0	5.5	0.0
Attenuated Areas	3.9	17.1	7.3	32.4
Total	6.7	17.1	12.7	32.4

It is anticipated that approximately **32.4 m³** of storage will be required on site to attenuate flow to the established release rate of **12.7 L/s**; storage calculations are contained within **Appendix D**.

As discussed in *Section 6.0*, it is anticipated that sufficient capacity is available within the existing combined sewers to support the contemplated development due to a reduction in combined sewer flow through stormwater retention.

Actual storage volumes will need to be confirmed at the detailed design stage based on a number of factors including grading constraints.

5.4 Stormwater Servicing Conclusions

Post development stormwater runoff will be required to be restricted to the allowable target release rate for storm events up to and including the 100-year storm in accordance with City of Ottawa **City Standards**. The post-development allowable release rate was calculated as **12.7 L/s** based on consultation with the City of Ottawa. It is estimated that **32.4 m³** of storage will be required to meet this release rate.

Based on consultation with the RVCA, stormwater quality controls are not required.

The contemplated stormwater design conforms to all relevant **City Standards** and Policies for approval.

6.0 COMBINED SEWER SYSTEM FLOW

Under existing conditions, it was assumed that the site contains no stormwater management system for flow attenuation. Therefore, the pre-development “design” combined flow was estimated to be approximately **41.3 L/s**. The assessment of the pre-development combined flow condition assumes peak wastewater rates during a 5-year storm event.

The post-development combined flow for all storms up to and including a 100-year event will be limited to **15.6 L/s**. This value includes both controlled and uncontrolled flows directed from the subject property.

Table 8, below, summarizes the allowable and contemplated release rates from the development.

Table 8
Summary of Existing and Contemplated Release Rates

City of Ottawa Design Storm	Existing Peak Flow Rate (L/s)	Contemplated Peak Flow Rate (L/s)
Wastewater	0.3	2.9
Stormwater	41.0	12.7
Combined	41.3	15.6

Based on the contemplated stormwater target, the post-development combined flow will be lower than existing conditions by approximately **25.7 L/s**, or a 62% net reduction in flow to the combined sewer.

7.0 UTILITIES

Gas and Hydro services currently exist within the Bank Street and James Street right-of-ways. Utility servicing will be coordinated with the individual utility companies prior to site development.

8.0 CONCLUSION AND RECOMMENDATIONS

David Schaeffer Engineering Ltd. (DSEL) has been retained by Urban Capital Property Group to prepare an Assessment of Adequacy of Public Services report in support of the application for a Zoning By-law Amendment (ZBLA) at 390 Bank Street. The preceding report outlines the following:

- Based on boundary conditions provided by the City the existing municipal water infrastructure is capable of providing the contemplated development with water within the City's required pressure range;
- The FUS method for estimating fire flow indicated **16,000 L/min** is required for the contemplated development;
- The contemplated development is anticipated to have a peak wet weather flow of **2.75 L/s**;
- Based on consultation with the City the contemplated development will be required to attenuate post development flows to an equivalent release rate of **12.7 L/s** for all storms up to and including the 100-year storm event;
- It is contemplated that stormwater objectives may be met through storm water retention via roof top, surface and subsurface storage, it is anticipated that **32.4 m³** of onsite storage will be required to attenuate flow to the established release rate above;
- Quality controls are not required for the contemplated development due to the combined sewer outlet, correspondence with the RVCA is included in **Appendix A**;
- Based on the contemplated stormwater target, the post-development combined flow will be lower than existing conditions by approximately 62% to the combined sewer. As a result, it is anticipated that sufficient capacity is available within the existing combined sewers to accommodate the contemplated development.

Prepared by,

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APPENDIX A

Pre-Consultation

DEVELOPMENT SERVICING STUDY CHECKLIST

19-1112

09/07/2019

4.1 General Content

<input type="checkbox"/>	Executive Summary (for larger reports only).	N/A
<input checked="" type="checkbox"/>	Date and revision number of the report.	Report Cover Sheet
<input checked="" type="checkbox"/>	Location map and plan showing municipal address, boundary, and layout of proposed development.	Drawings/Figures
<input checked="" type="checkbox"/>	Plan showing the site and location of all existing services.	Figure 1
<input checked="" 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 applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	Section 1.0
<input checked="" type="checkbox"/>	Summary of Pre-consultation Meetings with City and other approval agencies.	Section 1.3
<input checked="" 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.	Section 2.1
<input checked="" type="checkbox"/>	Statement of objectives and servicing criteria.	Section 1.0
<input checked="" type="checkbox"/>	Identification of existing and proposed infrastructure available in the immediate area.	Sections 3.1, 4.1, 5.1
<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).	N/A
<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.	N/A
<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 checked="" type="checkbox"/>	Reference to geotechnical studies and recommendations concerning servicing.	Section 1.4
<input type="checkbox"/>	All preliminary and formal site plan submissions should have the following information: -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	N/A

4.2 Development Servicing Report: Water

<input type="checkbox"/>	Confirm consistency with Master Servicing Study, if available	N/A
<input checked="" type="checkbox"/>	Availability of public infrastructure to service proposed development	Section 3.1
<input checked="" type="checkbox"/>	Identification of system constraints	Section 3.1
<input checked="" type="checkbox"/>	Identify boundary conditions	Section 3.1, 3.2
<input checked="" type="checkbox"/>	Confirmation of adequate domestic supply and pressure	Section 3.3

<input checked="" 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.	Section 3.2
<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 checked="" 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	Section 3.2, 3.3
<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 checked="" type="checkbox"/>	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 3.2
<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

<input checked="" 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).	Section 4.2
<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 checked="" type="checkbox"/>	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 4.1
<input checked="" 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)	Section 4.2
<input checked="" 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.	Section 4.2, Appendix C
<input checked="" type="checkbox"/>	Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 4.2
<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

<input checked="" 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 5.1
<input checked="" type="checkbox"/>	Analysis of available capacity in existing public infrastructure.	Section 5.1, Appendix D
<input checked="" type="checkbox"/>	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Drawings/Figures
<input checked="" 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 5.2
<input checked="" 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 5.2
<input checked="" type="checkbox"/>	Description of the stormwater management concept with facility locations and descriptions with references and supporting information	Section 5.3
<input type="checkbox"/>	Set-back from private sewage disposal systems.	N/A
<input type="checkbox"/>	Watercourse and hazard lands setbacks.	N/A
<input checked="" type="checkbox"/>	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Appendix A
<input type="checkbox"/>	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
<input checked="" 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).	Section 5.3
<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.	N/A
<input checked="" 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 5.1, 5.3, 6.0
<input type="checkbox"/>	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
<input type="checkbox"/>	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	N/A
<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.	N/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 checked="" type="checkbox"/>	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 5.3
<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.	N/A
<input type="checkbox"/>	Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A
<input checked="" type="checkbox"/>	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 7.0
<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

<input checked="" 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.	Section 1.2
<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

<input checked="" type="checkbox"/>	Clearly stated conclusions and recommendations	Section 8.0
<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.	
<input type="checkbox"/>	All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	

From: Kluge, Jenny
To: Jaime Posen
Cc: Wu, John; Moise, Christopher; Dubyk, Wally; Kimm, MacKenzie; "Jack Hanna"
Subject: Pre-consult follow up - 390 Bank Street
Date: Monday, December 10, 2018 3:00:32 PM
Attachments: [image002.png](#)
[390 Bank Heritage Pre-consult Comments.docx](#)
[390 Bank list of plans and studies ZBA.pdf](#)
[390 Bank list of plans and studies SPC.pdf](#)

Hi Jaime,

Further to our meeting on November 26, 2018 regarding the proposal to construct a nine-storey, 140-unit mixed use building at 390 Bank Street, please find below a summary of what was discussed.

Planning Considerations (Jenny Kluge)

- The property is designated as a Traditional Mainstreet in the Official Plan.
- The property is zoned TM [2214], which permits a low-rise apartment dwelling.
- The property is within the Centretown Secondary Plan area, within the Commercial District/Central Character Area. The Secondary Plan contemplates building heights up to 9 stories within this area.
- The property is within the Centretown Community Design Plan area.
- Parkland fees will be required.
- Schedule 236 deals only with maximum building heights, and not setbacks.
- The required rear yard setback is 4.5 metres abutting a public lane.
- The required corner side yard setback is 3 metres and any part of a building above 15 metres requires an additional 2 metre setback.
- A rooftop access with a washroom is not considered to be a permitted projection above a height limit. If there is a washroom in the rooftop access, it will be considered an additional storey and will be required to comply with the maximum building height.
- Section 37 may apply to this development.
- Parking for the non-residential use applies as follows:
 - (d) where a non-residential use is located partly or entirely on the ground floor or in the basement: (By-law 2017-148)
 - (i) in the case of a retail food store with a gross floor area of 1500 square metres or less, no off-street motor vehicle parking is required to be provided.
 - (ii) in the case of a restaurant with a gross floor area of 350 square metres or less, no off-street motor vehicle parking is required to be provided.
 - (iii) in the case of any other non-residential use with a gross floor area of 500 square metres or less, no off-street motor vehicle parking is required to be provided. (By-law 2016-249)
- 77 parking spaces are required for the residential component (64 residential spaces, 13 visitor spaces)
- A Minor Zoning By-law Amendment will be required to deal with the height increase and any non-compliant setbacks.
- This development is subject to review by the Urban Design Review Panel

Urban Design Comments (Christopher Moise)

- It is recommended that you make arrangements with the Urban Design Review Panel coordinator as soon as possible to be scheduled for an informal review by the Panel.

Heritage Comments (MacKenzie Kimm)

- See attached document.

Engineering Comments (John Wu)

- Site servicing is connected to a combined sewer system.
- All stormwater management is required to retain the runoff to this site to a c 0.4 at 5 year storm up to 100 year storm event.
- MOECP ECA approval is required for the stormwater management component outletting into a combined sewer.
- The following reports and studies are required: Servicing Study, Stormwater Management Report, Geotechnical Study, Noise Study, Phase 1 ESA, and a Wind Study.

Transportation Considerations (Wally Dubyk)

- Bank Street is designated as an Arterial road within the City's Official Plan with a ROW protection. The maximum land requirement from property abutting existing ROW is 0.90 metres. Subject to widening/easement policy.
- All underground and above ground building footprints need to be shown on the plan to confirm the structure does not extend over existing property lines, sight triangles and/or future road widening requirements.
- Ensure that the driveway grade does not exceed 2-6% within the private property for a distance of 9.0 metres from the highway line; see Section 25 (t) of the Private Approach By-Law #2003-447. Any grade exceeding 6% will require a subsurface melting device.
- The consultant should review the sight distance to the access and any obstructions that may hinder the view of the driver.
- The turning movement of the garbage truck as depicted on the sketch appears to be within close proximity of the proposed building corners. The garbage truck is to be provided with a safe access and the corners of the building to be protected.
- Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be located in safe, secure places near main entrances and preferably protected from the weather.
- The TIA (Transportation Impact Assessment) Guidelines (2017) were approved by Transportation Committee and City Council on June 14, 2017. The new version of the TIA Guidelines (2017) that are posted on the web are now to be used for the TIA Submission for development applications.
- The following list highlights the significant changes to the 2006 TIA Guidelines
 1. A Screening Test (Step 1) quickly determines if a transportation study is required. Consultants should fill in the form in Appendix B.
 2. Should the development generate 60 peak hour person trips, the TIA guidelines Step 2 – Scoping report would be required.
 3. Study Scope (Step 2) is site specifically tailored; there are no longer three defined types of TIA reports. Scoping report is required and needs to be signed off by TPM before the consultant moves on to Forecasting volumes.
 4. Sign off from City Transportation Project Manager is required at key points in the review process prior to TIA Submission (Step 5). See Figure 1 on page 9 for a good flow chart of the process.
 5. Multi Modal Level of Service (MMLoS) and Complete Street analysis is required to assess the impact of all modes of travel rather than just vehicle traffic.
 6. There is no longer a requirement for consultant pre-approval. Consultants must now sign and submit the Credentials Form included in the Appendix A with each TIA report.
 7. The TIA Submission (report, drawings and/or monitoring plan) is required **with** the development application.
- Click on the website:

http://documents.ottawa.ca/sites/documents.ottawa.ca/files/tia_guidelines_en.pdf

Centretown Citizens Community Association Representative (Jack Hanna)

- Ensure there is adequate space between the edge of the building and the street for pedestrian movement.
- There are concerns about lack of landscaping along the front of the building.
- Are there going to be affordable housing units within the building?

Development Applications Required

To move forward with this proposal, a [Site Plan Control, Manager Approval, Public Consultation Application](#) and [Minor Zoning By-law Amendment application](#) will be required. Please review the fees associated with this [here](#).

Attached is the *Applicant's Study and Plan Identification List*, which identifies the required studies and plans to support your application. For additional information on preparing studies and plans, please click on the following hyperlink: [Guide to Preparing Studies and Plans](#).

As you may know, the property is in Ward 14-Somerset, with Councillor Catherine McKenney. It is in your best interest to initiate contact with close neighbours as well as the Councillor and Registered Community Groups. In addition, it may be beneficial to contact key technical agencies that may be involved in this file to discuss the proposal before submitting an application.

The above pre-consultation comments are valid for one year. If you submit a development application after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change.

Please do not hesitate to contact me if you have questions or require clarification on any of the above points.

Regards,
Jenny

Jenny Kluge MCIP, RPP
Planner
Development Review – Central Branch
Planning, Infrastructure and Economic Development Department
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West, Ottawa, ON K1P 1J1
☎ 613.580.2424 ext./poste 27184
E-mail: jenny.kluge@ottawa.ca
ottawa.ca/planning / ottawa.ca/urbanisme

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,

Charlotte Kelly

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: July 10, 2019 9:53 AM
To: Charlotte Kelly
Subject: Re: 390 Bank Street - Quality Control Requirement

Good Morning Charlotte,

Given that the stormwater will discharge to the combined storm sewer, no additional onsite water quality measures will be required save and except best management practices.

From: Charlotte Kelly <CKelly@dsel.ca>
Sent: July 9, 2019 4:59 PM
To: Jamie Batchelor
Subject: 390 Bank Street - Quality Control Requirement

Good afternoon Jamie,

Just wanted to touch base with you regarding a development at 390 Bank Street. The development involves the construction of a 10-storey residential and commercial building occupying the entirety of the 390 Bank parcel. The existing site fronting Bank consists of a paved surface parking lot and a restaurant. Please refer to the figure below for the existing property conditions.

The development anticipates to outlet to the existing combined sewer within James Street or Bank Street.

It is anticipated that stormwater quality controls are not required as the development proposes to outlet to the combined sewer which will ultimately be treated at ROPEC. Can you please confirm?



Thank-you,

Charlotte Kelly, E.I.T.
Project Coordinator / Junior Designer

DSEL

david schaeffer engineering ltd.

120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

phone: (613) 836-0856 ext.511

email: ckelly@dsel.ca

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APPENDIX B

Water Supply

Water Demand Design Flows per Unit Count
City of Ottawa - Water Distribution Guidelines, July 2010



Domestic Demand

Type of Housing	Per / Unit	Units	Pop
Single Family	3.4	-	0
Semi-detached	2.7	-	0
Townhouse	2.7	-	0
Apartment			0
Bachelor	1.4	-	0
1 Bedroom	1.4	55	77
2 Bedroom	2.1	73	154
3 Bedroom	3.1	-	0
Average	1.8	-	0

	Pop	Avg. Daily		Max Day		Peak Hour	
		m ³ /d	L/min	m ³ /d	L/min	m ³ /d	L/min
Total Domestic Demand	231	64.7	44.9	232.8	161.7	349.3	242.6

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate	Units	Avg. Daily		Max Day		Peak Hour	
			m ³ /d	L/min	m ³ /d	L/min	m ³ /d	L/min
Commercial + Amenity	2.5 L/m ² /d	838	2.10	1.5	3.1	2.2	5.7	3.9
Industrial - Light	35,000 L/gross ha/d	-	0.00	0.0	0.0	0.0	0.0	0.0
Industrial - Heavy	55,000 L/gross ha/d	-	0.00	0.0	0.0	0.0	0.0	0.0
Total I/CI Demand			2.1	1.5	3.1	2.2	5.7	3.9
Total Demand			66.8	46.4	236.0	163.9	354.9	246.5

Fire Flow Estimation per Fire Underwriters Survey

Water Supply For Public Fire Protection - 1999



Fire Flow Required

1. Base Requirement

$$F = 220C\sqrt{A}$$

L/min

Where *F* is the fire flow, *C* is the Type of construction and *A* is the Total floor area

Type of Construction:

Non-Combustible Construction

C 0.8

Type of Construction Coefficient per FUS Part II, Section 1

A 10626.0

m² Total floor area based on FUS Part II section 1

Fire Flow

18142.5 L/min

18000.0 L/min rounded to the nearest 1,000 L/min

Adjustments

2. Reduction for Occupancy Type

Non-Combustible

-25%

Fire Flow

13500.0 L/min

3. Reduction for Sprinkler Protection

Sprinklered - Supervised

-50%

Reduction

-6750 L/min

4. Increase for Separation Distance

Cons. of Exposed Wall

S.D

Lw

Ha

LH

EC

N Wood Frame

10.1m-20m

22

3

66

14%

S Wood Frame

0m-3m

20

2

40

23%

E Wood Frame

10.1m-20m

19

3

57

13%

W Wood Frame

3.1m-10m

14

3

42

18%

% Increase

68% value not to exceed 75%

Increase

9180.0 L/min

Lw = Length of the Exposed Wall

Ha = number of storeys of the adjacent structure. Max 5 stories

LH = Length-height factor of exposed wall. Value rounded up.

EC = Exposure Charge

Total Fire Flow

Fire Flow

15930.0 L/min

fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4

16000.0 L/min

rounded to the nearest 1,000 L/min

Notes:

-Type of construction, Occupancy Type and Sprinkler Protection information provided by RAW Design.

-Calculations based on Fire Underwriters Survey - Part II

Boundary Conditions Unit Conversion

Bank Street

Grnd Elev 72.00

	m H ₂ O	PSI	kPa
Avg. Day	115.7	62.2	428.7
Peak Hour	106.8	49.5	341.4
Max Day + FF	106.0	48.4	333.5

James Street

Grnd Elev 71.78

	m H ₂ O	PSI	kPa
Avg. Day	115.7	62.5	430.9
Peak Hour	106.8	49.8	343.5
Max Day + FF	102.0	43.0	296.5

Charlotte Kelly

Subject: FW: 19-1112 390 Bank Street - Boundary Condition Request
Attachments: 390 Bank St June 2019.pdf

From: Wu, John [<mailto:John.Wu@ottawa.ca>]
Sent: Thursday, June 27, 2019 11:31 AM
To: Alison Gosling <AGosling@dsel.ca>
Subject: RE: 19-1112 390 Bank Street - Boundary Condition Request

Here it is:

******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 390 Bank (zone 1W) assumed to be connected to the 203mm on James and the 305mm on Banks St (see attached PDF for location).

Minimum HGL = 106.8m, same at both connections

Maximum HGL = 115.7m, same at both connections

Max Day + Fire Flow (267 L/s) = 102.0m, James St connection

Max Day + Fire Flow (267 L/s) = 106.0m, Bank St connection

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.

John

From: Alison Gosling <AGosling@dsel.ca>
Sent: June 25, 2019 10:42 AM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Charlotte Kelly <CKelly@dsel.ca>
Subject: 19-1112 390 Bank Street - Boundary Condition Request

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

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

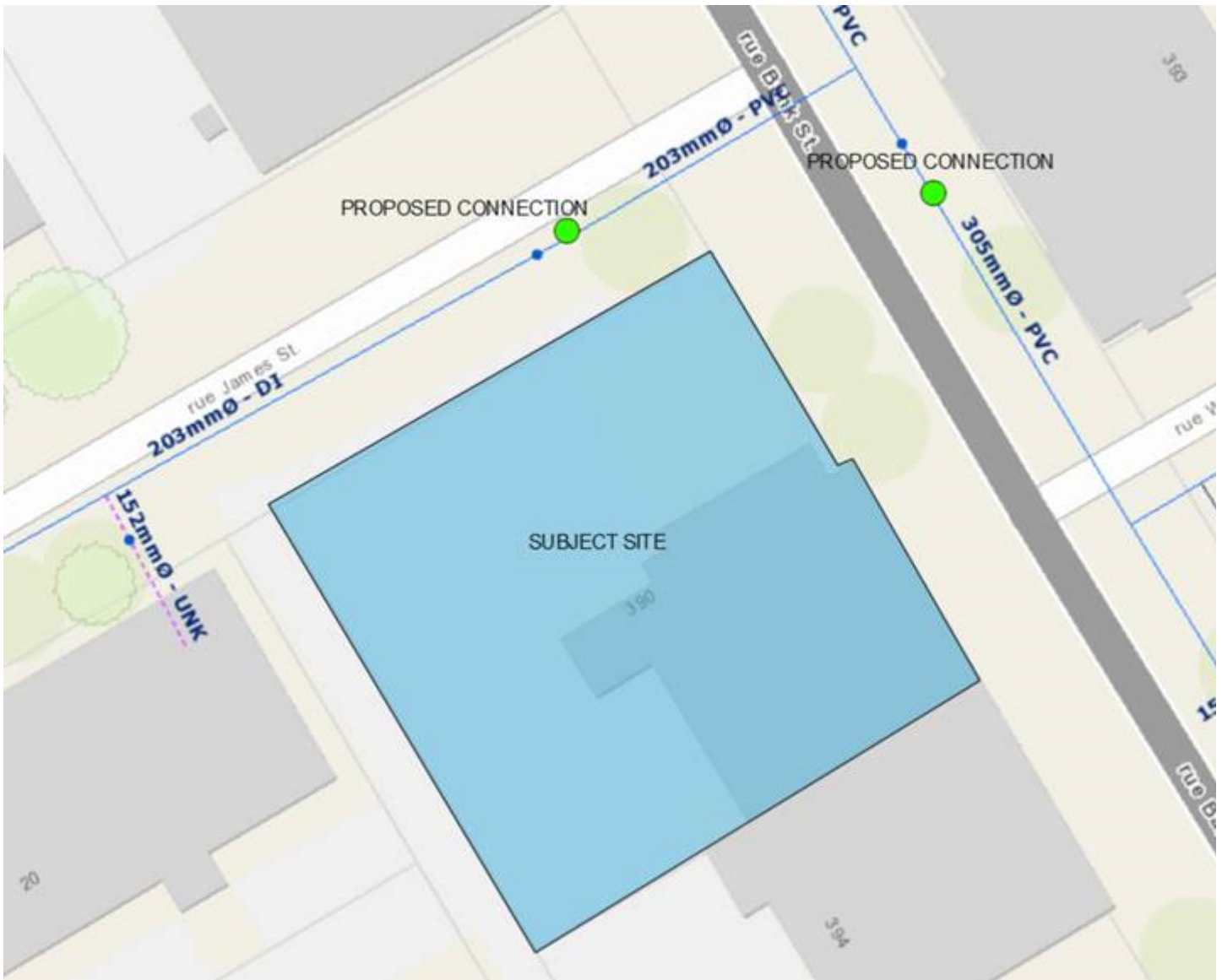
Good morning John,

We would like to request water boundary conditions for James Street and Bank Street using the following proposed development demands:

1. Location of Service / Street Number: 390 Bank Street
2. Type of development and the amount of fire flow required for the proposed development:
 - The development would include approximately **1122 m²** of commercial/amenity space (**709 m²** commercial and **413 m²** amenity) and a **128 unit 10-storey condominium with underground parking**.
 - It is anticipated that the development will have a dual connection to be serviced from the existing 203mm diameter watermain within the James St. right-of-way, and/or the existing 305mm diameter watermain within the Bank Street right-of-way 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 **16,000 L/min**. Refer to the attached for detailed calculations.

	L/min	L/s
Avg. Daily	48.0	0.80
Max Day	168.8	2.81
Peak Hour	254.1	4.24

If you have any questions, please feel free to contact me.



Thank you,

Alison Gosling, E.I.T.
Junior Project Manager

DSEL

david schaeffer engineering ltd.

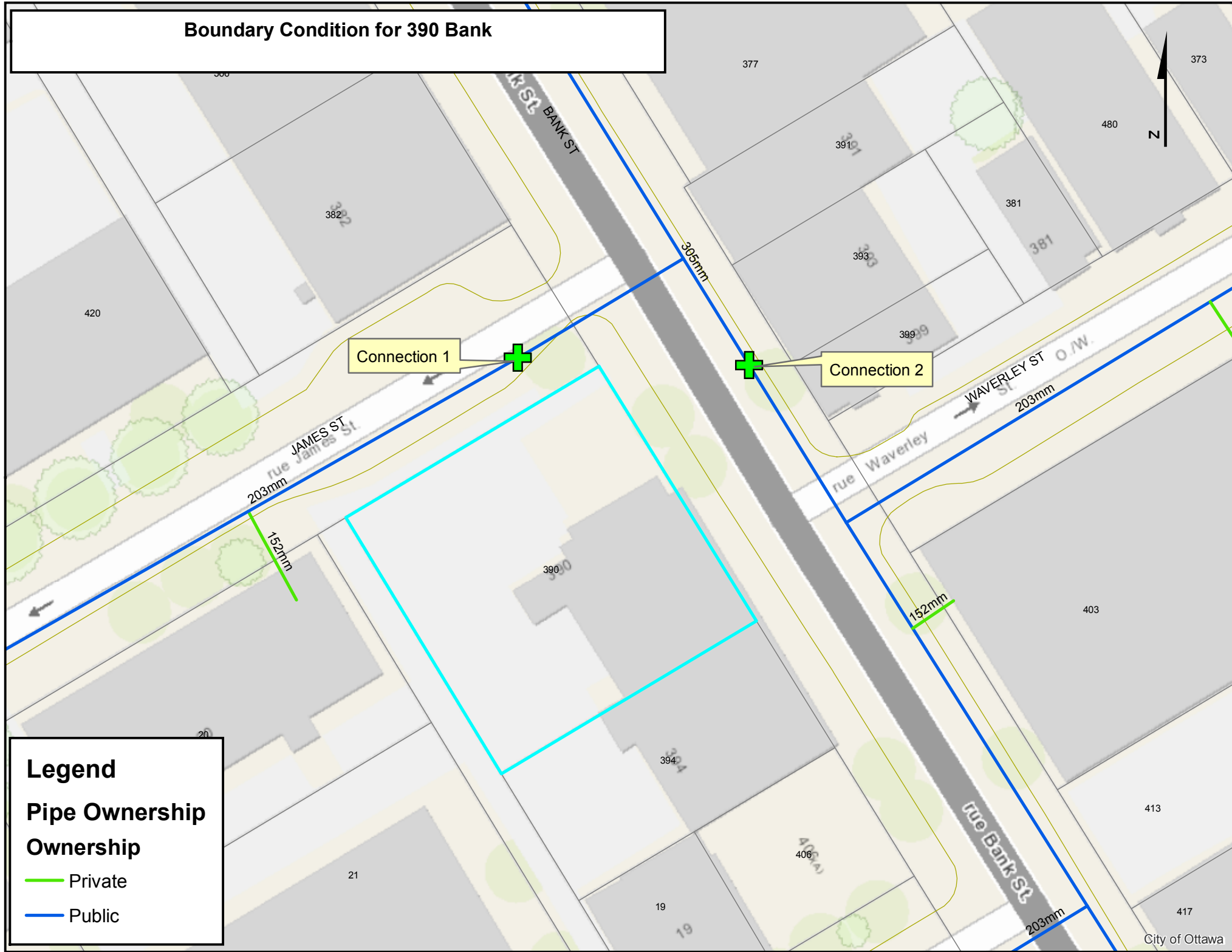
120 Iber Road, Unit 103
Stittsville, ON K2S 1E9

phone: (613) 836-0856 ext.542
cell: (343) 542-9218
fax: (613) 836-7183
email: agosling@dsel.ca

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*Please note that I will be out of the office between June 28th and July 2nd.

Boundary Condition for 390 Bank



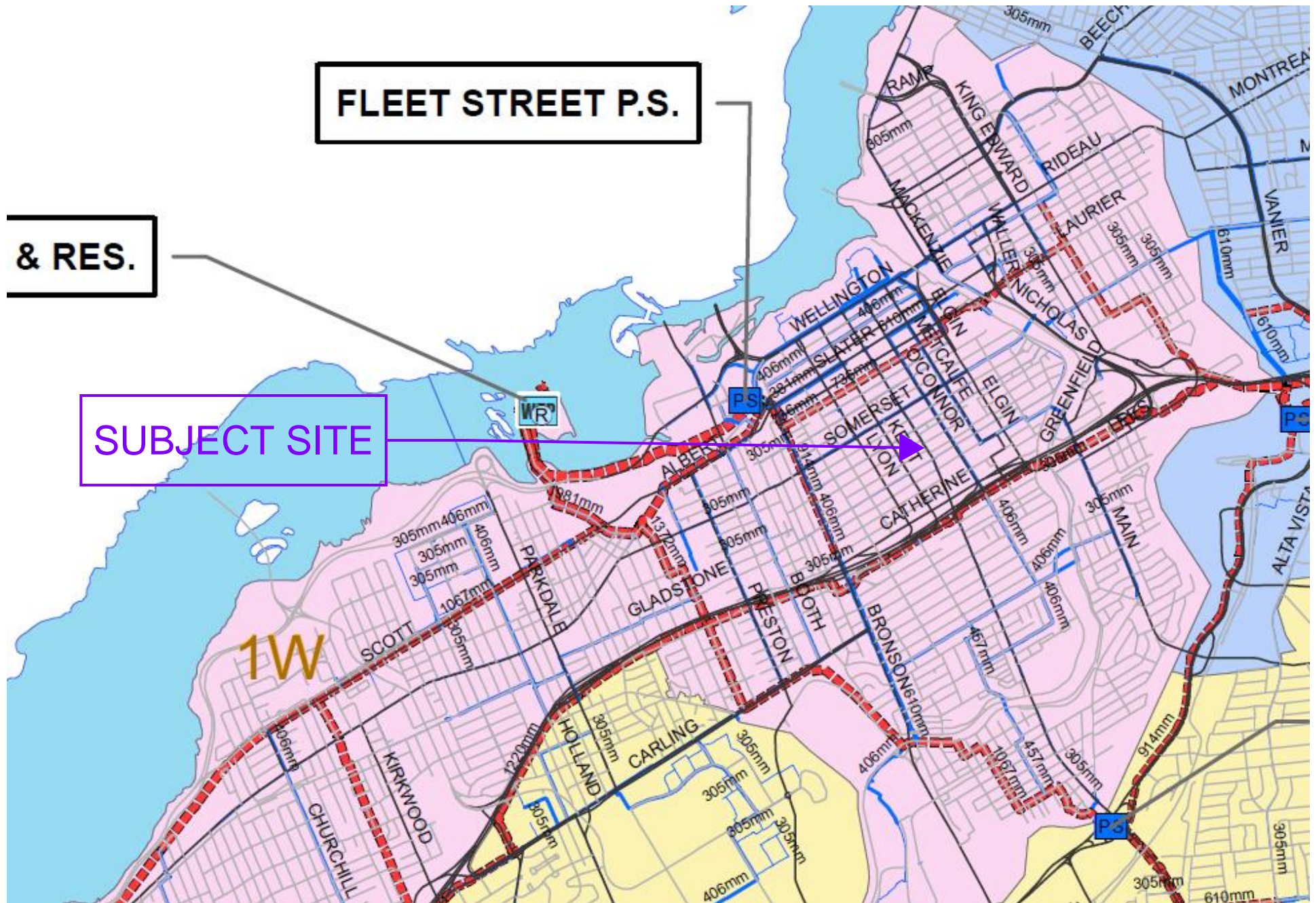
Legend

Pipe Ownership

Ownership

— Private

— Public



City of Ottawa - Water Distribution System Facilities and Feeder mains

APPENDIX C

Wastewater Collection

A detailed map of the Ottawa River Parkway area, showing the Rideau Canal Interceptor and various streets. The map includes labels for King Edward Ave. Trunk, Rideau Canal Interceptor, NCC2 Private Middle St., NCC1 Private, Ottawa River Pkwy., Lebreton Fleet St., Booth St. Trunk, Springhurst Ave. Trunk, and various streets including Preston, Bronson, Lyon, Kent, Somerset, Slater, Laurier, Elgin, Metcalfe, O'Connor, McLeod, Argyle, Main, Lees, and Murray. The map also shows the Ottawa River and the Rideau Canal.

SUBJECT SITE

Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004



Site Area 0.110 ha

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	0.01 L/s
Infiltration / Inflow (Wet)	0.03 L/s
Infiltration / Inflow (Total)	0.04 L/s

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate	No. of Units	Avg Wastewater (L/s)
Commercial floor space*	125 L/9.3m ² /d	55	0.16
Average I/C/I Flow			<u>0.16</u>
Peak Institutional / Commercial Flow			0.24
Peak Industrial Flow**			<u>0.00</u>
Peak I/C/I Flow			<u>0.24</u>

* assuming a 12 hour commercial operation

** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B

Total Estimated Average Dry Weather Flow Rate	0.16 L/s
Total Estimated Peak Dry Weather Flow Rate	0.24 L/s
Total Estimated Peak Wet Weather Flow Rate	0.28 L/s

Wastewater Design Flows per Unit Count
City of Ottawa Sewer Design Guidelines, 2004



Site Area 0.110 ha

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	0.01 L/s
Infiltration / Inflow (Wet)	0.03 L/s
Infiltration / Inflow (Total)	0.04 L/s

Domestic Contributions

Unit Type	Unit Rate	Units	Pop
Single Family	3.4		0
Semi-detached and duplex	2.7		0
Townhouse	2.7		0
Stacked Townhouse	2.3		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4	55	77
2 Bedroom	2.1	73	154
3 Bedroom	3.1		0
Average	1.8		0

Total Pop 231

Average Domestic Flow 0.75 L/s

Peaking Factor 3.50

Peak Domestic Flow 2.62 L/s

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate	No. of Units	Avg Wastewater (L/s)
Commercial floor space*	5 L/m ² /d	838	0.10
Average I/C/I Flow			0.10
Peak Institutional / Commercial Flow			0.10
Peak Industrial Flow**			0.00
Peak I/C/I Flow			0.10

* assuming a 12 hour commercial operation

** peak industrial flow per City of Ottawa Sewer Design Guidelines Appendix 4B

Total Estimated Average Dry Weather Flow Rate	0.85 L/s
Total Estimated Peak Dry Weather Flow Rate	2.72 L/s
Total Estimated Peak Wet Weather Flow Rate	2.75 L/s

APPENDIX D

Stormwater Management

[illegible]

SUBJECT SITE

Estimated Peak Stormwater Flow Rate
City of Ottawa Sewer Design Guidelines, 2012



Existing Drainage Characteristics From Internal Site

Area	0.1100 ha
C	0.90 Rational Method runoff coefficient
L	38.4 m
Up Elev	72.17 m
Dn Elev	71.85 m
Slope	0.8 %
Tc	4.3 min

1) Time of Concentration per Federal Aviation Administration

$$t_c = \frac{1.8(1.1 - C)L^{0.5}}{S^{0.333}}$$

tc, in minutes

C, rational method coefficient, (-)

L, length in ft

S, average watershed slope in %

Estimated Peak Flow

	2-year	5-year	100-year
i	109.2	149.0	256.3 mm/hr
Q	30.0	41.0	78.3 L/s

Stormwater - Proposed Development
City of Ottawa Sewer Design Guidelines, 2012



Target Flow Rate

Area 0.11 ha
C 0.40 Rational Method runoff coefficient
t_c 10.0 min

5-year
i 104.2 mm/hr
Q 12.7 L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Total Area 0.011 ha
C 0.90 Rational Method runoff coefficient

t _c (min)	5-year					100-year				
	i (mm/hr)	Q _{actual} (L/s)	Q _{release} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)	i (mm/hr)	Q _{actual} (L/s)	Q _{release} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)
10.0	104.2	2.9	2.9	0.0	0.0	178.6	5.5	5.5	0.0	0.0

Estimated Post Development Peak Flow from Attenuated Areas

Total Area 0.099 ha
C 0.90 Rational Method runoff coefficient

t _c (min)	5-year					100-year				
	i (mm/hr)	Q _{actual} (L/s)	Q _{release} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)	i (mm/hr)	Q _{actual} (L/s)	Q _{release} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)
5	141.2	34.9	3.8	31.1	9.3	242.7	66.7	7.3	59.5	17.8
10	104.2	25.8	3.8	22.0	13.2	178.6	49.1	7.3	41.8	25.1
15	83.6	20.7	3.8	16.8	15.2	142.9	39.3	7.3	32.0	28.8
20	70.3	17.4	3.8	13.6	16.3	120.0	33.0	7.3	25.7	30.8
25	60.9	15.1	3.8	11.2	16.8	103.8	28.6	7.3	21.3	31.9
30	53.9	13.3	3.8	9.5	17.1	91.9	25.3	7.3	18.0	32.4
35	48.5	12.0	3.8	8.2	17.1	82.6	22.7	7.3	15.4	32.4
40	44.2	10.9	3.9	7.1	17.0	75.1	20.7	7.3	13.4	32.1
45	40.6	10.1	3.9	6.2	16.7	69.1	19.0	7.3	11.7	31.6
50	37.7	9.3	3.9	5.5	16.4	64.0	17.6	7.3	10.3	30.9
55	35.1	8.7	3.9	4.8	16.0	59.6	16.4	7.3	9.1	30.1
60	32.9	8.2	3.9	4.3	15.5	55.9	15.4	7.3	8.1	29.1
65	31.0	7.7	3.9	3.8	14.9	52.6	14.5	7.3	7.2	28.1
70	29.4	7.3	3.9	3.4	14.3	49.8	13.7	7.3	6.4	26.9
75	27.9	6.9	3.9	3.0	13.7	47.3	13.0	7.3	5.7	25.7
80	26.6	6.6	3.9	2.7	13.0	45.0	12.4	7.3	5.1	24.5
85	25.4	6.3	3.9	2.4	12.3	43.0	11.8	7.3	4.5	23.1
90	24.3	6.0	3.9	2.1	11.6	41.1	11.3	7.3	4.0	21.7
95	23.3	5.8	3.9	1.9	10.8	39.4	10.8	7.3	3.6	20.3
100	22.4	5.5	3.9	1.7	10.0	37.9	10.4	7.3	3.1	18.9
105	21.6	5.3	3.9	1.5	9.2	36.5	10.0	7.3	2.8	17.4

5-year Q_{attenuated} 3.87 L/s
5-year Max. Storage Required 17.1 m³

100-year Q_{attenuated} 7.28 L/s
100-year Max. Storage Required 32.4 m³

Summary of Release Rates and Storage Volumes

Control Area	5-Year Release Rate	5-Year Storage	100-Year Release Rate	100-Year Storage
	(L/s)	(m ³)	(L/s)	(m ³)
Unattenuated Areas	2.9	0.0	5.5	0.0
Attenuated Areas	3.9	17.1	7.3	32.4
Total	6.7	17.1	12.7	32.4

DRAWINGS / FIGURES

390 Bank Street, Ottawa, Ontario
Preliminary Site Stats
17 August 2019

Official Plan
Current Zoning

Site Area Gross 1,625 sq.m. 17,491 sq.ft.

Units					Retail GFA		Residential		Amenity*		Common		Total GFA	
Studio	1B	2B	3B	Total	m2	sf	m2	sf	m2	sf	m2	sf	m2	sf
				0	651	7,003	540	5,808	187	2,011			1003	10,801
	6	11		17			1240	13,352			136	1,459	1240	13,352
	7	11		18			1304	14,041			138	1,487	1304	14,041
	7	11		18			1298	13,973			138	1,487	1298	13,973
	8	10		18			1291	13,900			138	1,487	1291	13,900
	9	9		18			1266	13,625			138	1,487	1266	13,625
	9	9		18			1253	13,489			138	1,487	1253	13,489
	4	6		10			939	10,107			124	1,332	939	10,107
	5	6		11			939	10,107			124	1,332	939	10,107
							92	987			58		92	987
0	55	73	0	128	650.6	7,003	10,163	109,389	187	2011	1132	12181	10,626	114,382

FSI 0% 43% 57% 6.54

Avg unit size 66.3 m2

Required Parking					0
Residential					13
Visitors (0.1 per unit)					
Total					13

Proposed Parking		P1	P2		
	Residential	17	34		51
	Visitors	13			13
	Total				64

Required Bike Parking					
Residential (0.5 per unit)					64
Retail (1 per 250m2)					3
Total					67

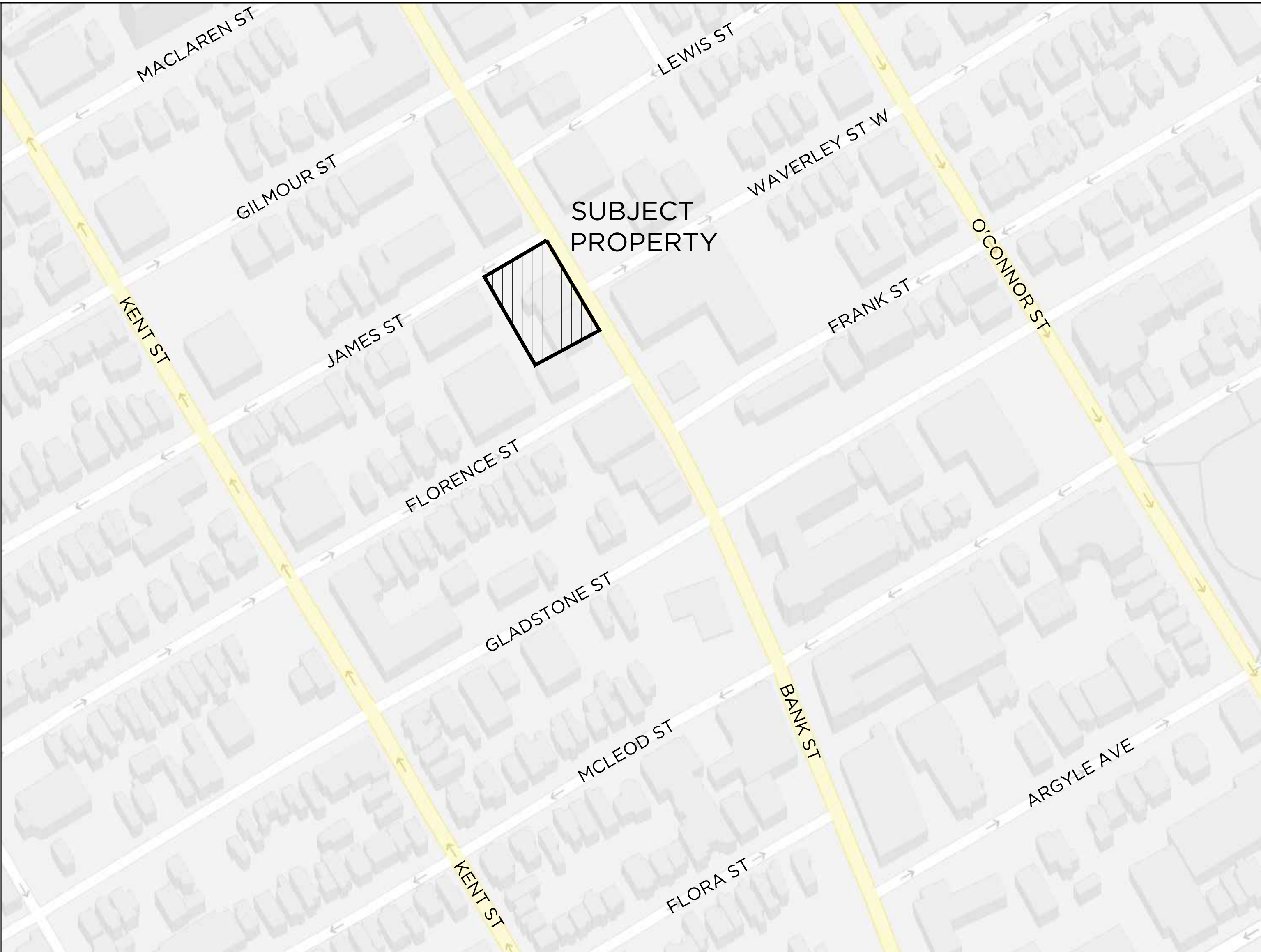
Proposed Bike Parking	Residential at grade				
	Retail at grade				3
	Residential at P1				56
	Residential at P2				16
	Total				72

Lockers	P1				5
	P2				37
	Total				42

2

SITE STATS

SCALE NTS



1

CONTEXT PLAN

SCALE NTS

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ISSUED RECORD

2019.xx.xx - ISSUED FOR

REVISION RECORD



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+1 416 599 9729
WWW.RAWDESIGN.CA

12017

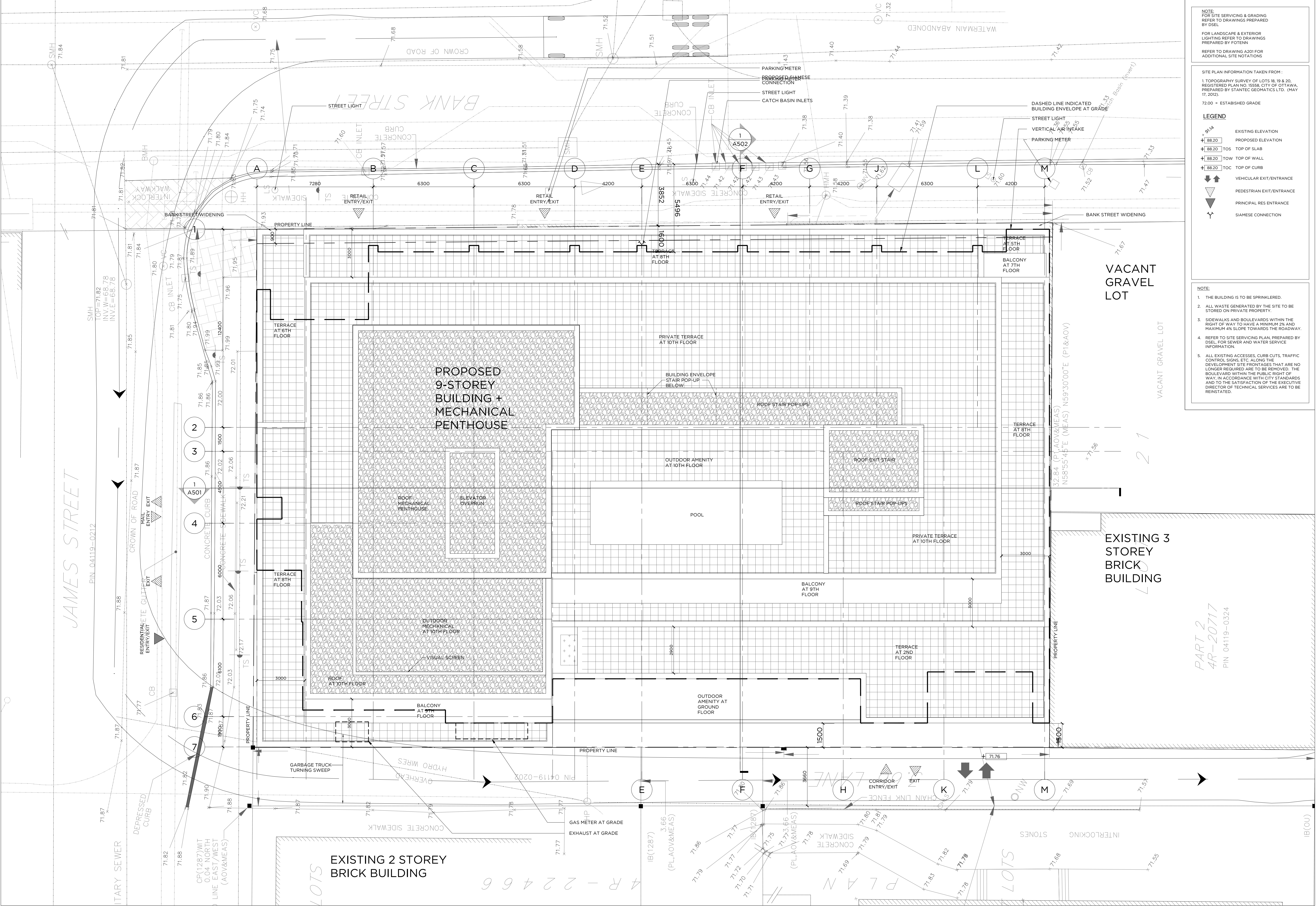
JAMES HOUSE
390 BANK STREET
OTTAWA, ON
URBAN CAPITAL

17 Nelson Street | Toronto |
Ontario | M5V OG2
T. 416.304.0431

CONTEXT PLAN,
SITE STATS

NTS

A001



NOTE:
FOR SITE SERVING & GRADING
REFER TO DRAWINGS PREPARED
BY DSEL

FOR LANDSCAPE & EXTERIOR
LIGHTING REFER TO DRAWINGS
PREPARED BY FOTENN

REFER TO DRAWING A201 FOR
ADDITIONAL SITE NOTATIONS

SITE PLAN INFORMATION TAKEN FROM:
1. TOPOGRAPHY SURVEY OF LOTS 18, 19 & 20,
REGISTERED PLAN NO. 15558, CITY OF OTTAWA,
PREPARED BY STANTEC GEOMATICS LTD. (MAY
17, 2021)

72.00 = ESTABLISHED GRADE

- LEGEND**
- 91.4 EXISTING ELEVATION
 - +88.20 PROPOSED ELEVATION
 - +88.20 10S TOP OF SLAB
 - +88.20 10W TOP OF WALL
 - +88.20 10C TOP OF CURB
 - VEHICULAR EXIT/ENTRANCE
 - PEDESTRIAN EXIT/ENTRANCE
 - PRINCIPAL RES ENTRANCE
 - SIAMESE CONNECTION

- NOTE:**
- THE BUILDING IS TO BE SPRINKLERED.
 - ALL WASTE GENERATED BY THE SITE TO BE
STORED ON PRIVATE PROPERTY.
 - SIDEWALKS AND BOULEVARDS WITHIN THE
RIGHT OF WAY TO HAVE A MINIMUM 2% AND
MAXIMUM 4% SLOPE TOWARDS THE ROADWAY.
 - REFER TO SITE SERVING PLAN, PREPARED BY
DSEL, FOR SEWER AND WATER SERVICE
INFORMATION.
 - ALL EXISTING ACCESSES, CURB CUTS, TRAFFIC
CONTROL SIGNS, ETC. ALONG THE
DEVELOPMENT SITE FRONTAGES THAT ARE NO
LONGER REQUIRED ARE TO BE REMOVED. THE
BOULEVARD WITHIN THE PUBLIC RIGHT OF
WAY, IN ACCORDANCE WITH CITY STANDARDS
AND TO THE SATISFACTION OF THE EXECUTIVE
DIRECTOR OF TECHNICAL SERVICES ARE TO BE
REINSTATED.

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**SITE
PLAN**

1:100
A100