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SITE SERVICING AND STORMWATER MANAGEMENT REPORT

FOR

WINDMILL DEVELOPMENT GROUP LTD.
1040 BANK STREET

CITY OF OTTAWA

PROJECT NO.: 17-940
CITY APPLICATION NO.: D07-12-XX-XXXX

MAY 2020 – REV 1

SITE SERVICING AND STORMWATER MANAGEMENT REPORT
FOR
1040 BANK STREET

WINDMILL DEVELOPMENT GROUP LTD.

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1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained by Windmill Development Group Ltd. to prepare a Site Servicing and Stormwater Management report in support of the application for Site Plan Control (SPC) at 1040 Bank Street.

The subject property is located within the City of Ottawa urban boundary, in the Capital ward. As illustrated in ***Figure 1***, the subject property is located at the intersection of Galt Street and Aylmer Avenue. Comprised of a single parcel of land the subject property measures approximately ***0.32 ha*** and is zoned Traditional Mainstreet (TM).

Figure 1: Site Location

The proposed SPC would allow for the development of a 6-storey condominium building fronting onto Galt Street and a townhome block fronting onto Aylmer Avenue. The proposed condominium would include ***18*** residential units, approximately ***108 m²*** of amenity space, and underground parking with access from Galt Street. The residential townhome component is comprised of approximately ***4 units***. A copy of the Site Plan is included in ***Drawings/Figures***. The rear hall portion of the existing church will be removed to accommodate the development. A portion of the existing church fronting Bank street is proposed to remain. The development is proposed within ***0.142 ha*** of the site.

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

1.1 Existing Conditions

The site contains the Southminster church and attached 2-storey Hall with associated parking and landscaped areas. Overhead hydro and telecommunication wires exist along the south side of Aylmer Avenue and the east side of Galt Street. The elevations range between 74.60 m and 71.90 m with grade change of approximately 2.7% from the Southwest to the Northeast corner of the property, sloped towards Echo Drive.

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:

Bank Street

- 305 mm diameter PVC watermain;
- 250 mm diameter PVC storm sewer tributary to the Rideau River; and
- 300 mm diameter PVC sanitary sewer tributary to the Rideau River Collector Sewer;

Aylmer Avenue

- 203 mm diameter UCI watermain;
- 300 mm diameter PVC storm sewer tributary to the Rideau River; and
- 300 mm diameter PVC sanitary sewer tributary to the Rideau River Collector;

Galt Street

- 152 mm diameter PVC watermain;
- 300 mm diameter PVC storm sewer tributary to the Rideau River; and
- 300 mm diameter PVC sanitary sewer tributary to the Rideau River Collector.

1.2 Required Permits / Approvals

The proposed 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 lots for the proposed town homes will be subdivided through the Part Lot Control process. Each unit is proposed to be serviced independent of each other and the condominium to avoid the servicing of multiple parcels of land. Therefore, an Environmental Compliance Application (ECA) is not anticipated to be required.

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)

- **Draft Geotechnical Investigation (161-17230-00)**
  WSP Canada Inc,
  March, 2017.
  (Geotech Report)

- **Assessment of Adequacy of Public Services (17-940)**
  David Schaeffer Engineering Ltd.
  May, 2017.
  (AES, 2017)

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***. A local 203 mm diameter watermain exists within the Aylmer Avenue right-of-way and a local 152 mm diameter watermain exists within the Galt Street right-of-way, shown by the water distribution mapping included in ***Appendix B***.

3.2 Water Supply Servicing Design

It is proposed to service the mid-rise portion of the development by connecting to the existing 152 mm diameter watermain within Galt Street via a 150 mm diameter service connection.

It is proposed to service the townhome portion of the development by connecting to the existing 203 mm diameter watermain within Aylmer Avenue via individual 25 mm diameter service connections.

Based on available City mapping, it appears that the is a fire hydrant fronting the property along Galt Street and one fire hydrant fronting the property along Aylmer Avenue.

Table 1, below, summarizes the ***Water Supply Guidelines*** employed in the preparation of the 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 3 Bedroom Apartment	3.1 P/unit
Residential Townhome	2.7 P/unit
Residential Average Daily Demand	280 L/d/P***
Residential Maximum Daily Demand (Mid-rise)	4.9 x Average Daily **
Residential Maximum Hourly (Mid-rise)	7.4 x Average Daily **
Residential Maximum Daily Demand (Townhome)	9.5 x Average Daily **
Residential Maximum Hourly (Townhome)	14.3 x Average Daily **
Amenity Space	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 480 kPa
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 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**.*

Table 2 and ***Table 3,*** below, summarizes the estimated water supply demand and boundary conditions for the proposed development based on the ***Water Supply Guidelines***.

Table 2
Water Demand and Boundary Conditions
Proposed Conditions – Galt St Building A (Mid-rise)

Design Parameter	Estimated Demand[1] (L/min)	Boundary Condition[2] (m H_2O / kPa)
Average Daily Demand	7.8	41.2 / 403.7
Max Day + Fire Flow	37.4 + 5000= 5037.4	29.7 / 290.9
Peak Hour	56.6	30.7 / 300.7

1) Water demand calculation per ***Water Supply Guidelines***. See ***Appendix B*** for detailed calculations.
2) Boundary conditions supplied by the City of Ottawa for the demands indicated in the correspondence; assumed ground elevation 73.35m. See ***Appendix B.***

Table 3
Water Demand and Boundary Conditions
Proposed Conditions – Aylmer Ave Building B (Townhome)

Design Parameter	Estimated Demand[1] (L/min)	Boundary Condition[2] (m H_2O / kPa)
Average Daily Demand	2.1	40.7 / 398.9
Max Day + Fire Flow	20.3 + 8000= 8020.3	27.2 / 266.4
Peak Hour	30.6	30.2 / 295.9

1) Water demand calculation per ***Water Supply Guidelines***. See ***Appendix B*** for detailed calculations.
2) Boundary conditions supplied by the City of Ottawa for the demands indicated in the correspondence; assumed ground elevation 73.84m. 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 parameters were coordinated with the architect:

- Type of construction - Ordinary Construction for the townhomes and Fire resistive construction for the mid-rise;
- Occupancy type – Limited Combustibility; and
- Sprinkler Protection – Non-sprinklered System for the townhomes and Fully supervised for the mid-rise.

The above assumptions result in an estimated fire flow of approximately ***8,000 L/min*** for the townhomes and ***5,000 L/s*** for the mid-rise. A certified fire protection system specialist would need to be employed to design the building fire suppression system of the mid-rise building.

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 estimated minimum and maximum water pressures, as well as the estimated water pressure during fire flow demand for the demands indicated by the correspondence in ***Appendix B***. As shown by ***Table 2*** and ***Table 3,*** above, the minimum and maximum pressures fall within the required range identified in ***Table 1***.

3.3 Water Supply Conclusion

The City provided both the estimated minimum and maximum water pressures, as well as, the estimated water pressure during fire flow. The minimum and maximum pressures fall within the required range identified in ***Table 1.***

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 River Interceptor catchment area, as shown by the City sewer mapping included in ***Appendix C***. An existing 300 mm diameter sanitary sewer within Galt street is available to service the proposed development as well as a 300 mm diameter sanitary sewer within Aylmer Avenue.

The existing site consists of an existing church and attached hall contributing wastewater to the local 300 mm diameter sewer system within Aylmer Avenue. The existing church is estimated to have a peak wet weather flow of ***0.39 L/s***. The Bank Street sanitary sewer is tributary to the 1200 mm diameter trunk sewer within Bank Street, located approximately 30 m downstream of the site.

4.2 Wastewater Design

It is proposed that the mid-rise development will be serviced via the existing 300 mm sanitary sewer within Galt street via a 200 mm diameter service lateral. It is proposed that the townhome development will be serviced via the existing 300 mm sanitary sewer within Aylmer Avenue via 135 mm diameter service laterals.

Table 4, below**,** summarizes the ***City Standards*** employed in the design of the proposed 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
Residential 3 Bedroom Apartment	3.1 P/unit
Residential Townhouse	2.7 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
Amenity Space	5 L/m^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	$Q = \frac{1}{n} AR^{2/3} S^{1/2}$
Minimum Sewer Size	200 mm diameter
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	2.5 m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6 m/s
Maximum Full Flowing Velocity	3.0 m/s
Extracted from Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines, October 2012.	

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

Table 5
Summary of Estimated Peak Wastewater Flow

Design Parameter	Total Flow (L/s) Galt Street (Building A Mid-rise)	Total Flow (L/s) Aylmer Avenue (Building B Townhome)
Estimated Average Dry Weather Flow	**0.15**	**0.04**
Estimated Peak Dry Weather Flow	**0.48**	**0.14**
Estimated Peak Wet Weather Flow	**0.52**	**0.18**

The estimated sanitary flow based on the ***Site Plan,*** included in ***Drawings/Figures,*** results in a peak wet weather flow of ***0.7 L/s***.

In order to assess the available capacity, a sanitary analysis was conducted for the local municipal sanitary sewers located across the frontage of the subject property. The catchment area serviced by the Bank Street trunk sewer was identified and evaluated by reviewing existing development and zoning within the area. The analysis was conducted from the site to the upstream extents of the drainage area located near the intersection of Grove Street and Bank Street, as shown by the sanitary drainage plan ***SAN-1,*** included along with this report.

The City of Ottawa's Technical Bulletin ***ISTB-2018-01*** was employed to generate a conservative estimate of the existing wastewater flow conditions within the local sewers.

Based on the sanitary analysis, the controlling section of the local sewer system is located at the intersection of within Bank Street between Aylmer Avenue and Euclid Avenue. This sewer was estimated to have an available capacity of ***64.1 L/s*** (section MH2-MH3) with an available residual capacity of ***55.4 L/s***; detailed calculations are included in ***Appendix C***.

The analysis above indicates that sufficient capacity is available in the local sewers to accommodate the proposed development.

It is proposed that the church will continue to be serviced through the existing sanitary connection to Aylmer Avenue.

4.3 Wastewater Servicing Conclusions

The site is tributary to the Rideau River Interceptor. It is proposed to discharge wastewater to the existing 300 mm diameter sanitary sewer within Galt street via a 200 mm diameter service lateral. It is proposed to discharge wastewater to the existing 300 mm diameter sanitary sewer within Aylmer Avenue via a 135 mm diameter service lateral.

Based on the above sanitary analysis, sufficient capacity is available to accommodate the estimated ***0.70 L/s*** peak wet weather flow from the proposed development.

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

5.0 STORMWATER MANAGEMENT

5.1 Existing Stormwater Services

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system located within the Ottawa Central sub-watershed. As such, approvals for proposed 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. Refer to ***SWM-1*** for further information. The estimated pre-development peak flows for the 2, 5, and 100-year events are summarized in ***Table 6,*** below:

Table 6
Summary of Existing Peak Storm Flow Rates

City of Ottawa Design Storm	Estimated Peak Flow Rate to NCC (L/s)	Estimated Peak Flow Rate to Galt Street (L/s)	Estimated Peak Flow Rate to Aylmer Avenue (L/s)
2-year	7.3	3.6	13.3
5-year	10.0	4.8	18.1
100-year	21.4	9.4	35.2

5.2 Post-development Stormwater Management Target

The approved Assessment of Adequacy of Public Services report (***AES 2017)***, prepared by DSEL and dated May 2017, indicates that the development is required to:

- Meet an allowable release rate based on a Rational Method Coefficient of 0.50, 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; and
- A pre-consultation email was sent to the RVCA, and no response was received at the time of this publication. It is anticipated that stormwater quality controls are not required since runoff from the development would be primarily from the rooftop and landscape areas.

Based on the above the allowable release rate for the proposed development is ***20.6 L/s***.

5.3 Proposed Stormwater Management System

It is proposed that the stormwater outlet from the development will be to the 300 mm diameter storm sewer within Galt Street via a 300 mm diameter service lateral.

To meet the stormwater objectives the proposed development will contain an internal cistern within the parking garage of the mid-rise condominium.

Stormwater runoff collected from the roof area will be directed to a ***34 m³*** internal stormwater cistern. Cistern flow will be pumped to a maximum release rate of ***7.5 L/s*** using the internal mechanical system and will outlet to the municipal storm sewer within Galt Street, as shown by drawing ***SSP-1***. Foundation drains are to be connected downstream of any cistern controls.

Table 7, below, summarizes post-development flow rates. These areas will be compensated for in areas with flow attenuation controls.

Table 7
Stormwater Flow Rate Summary

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 (NCC, ATL and GALT)	6.1	0.0	13.2	0.0
Attenuated Areas	4.0	17.5	7.5	33.1
Total	**10.1**	**17.5**	**20.6**	**33.1**

It is estimated that approximately ***33.1 m³*** of storage will be required on site to attenuate flow to the established release rate of ***20.6 L/s***; storage calculations are contained within ***Appendix D***.

Runoff from unattenuated areas outlined on figure ***SWM-2***, is proposed to flow overland: Area ID ***GALT*** is proposed to direct flow towards the Galt Street City of Ottawa Sewers, Area ID ***AYL*** is proposed to direct flow towards the Aylmer Street City of Ottawa Sewers, and Area ID ***NCC*** is proposed to direct flow towards the NCC lands and sewers within Echo Drive, North of the development. The unattenuated flow from the proposed development results in a net reduction of runoff to all receiving sewers improving pre-development conditions.

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 ***20.6 L/s*** based on based on ***AES 2017***. It is estimated that ***33.1 m³*** will be required to meet this release rate.

Stormwater quality controls are not anticipated to be required. A pre-consultation email was sent to the RVCA, and no response was received at the time of this publication.

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

6.0 UTILITIES

Gas and Hydro services currently exist within the Galt Street and Aylmer Avenue right-of-way. Utility servicing will be coordinated with the individual utility companies prior to site development.

7.0 EROSION AND SEDIMENT CONTROL

Soil erosion occurs naturally and is a function of soil type, climate and topography. During construction the extent of erosion losses is exaggerated due to the removal of vegetation and the top layer of soil becoming agitated.

Prior to topsoil stripping, earthworks or underground construction, erosion and sediment controls will be implemented and will be maintained throughout construction.

Silt fence will be installed around the perimeter of the site and will be cleaned and maintained throughout construction. Silt fence will remain in place until the working areas have been stabilized and re-vegetated.

Catch basins will have SILTSACKs or an approved equivalent installed under the grate during construction to protect from silt entering the storm sewer system.

A mud mat will be installed at the construction access in order to prevent mud tracking onto adjacent roads.

Erosion and sediment controls must be in place during construction. The following recommendations to the contractor will be included in contract documents:

- Limit extent of exposed soils at any given time;
- Re-vegetate exposed areas as soon as possible;
- Minimize the area to be cleared and grubbed;
- Protect exposed slopes with plastic or synthetic mulches;
- Install silt fence to prevent sediment from entering existing ditches;
- No refueling or cleaning of equipment near existing watercourses;
- Provide sediment traps and basins during dewatering;
- Install filter cloth between catch basins and frames;
- Plan construction at proper time to avoid flooding; and
- Establish material stockpiles away from watercourses, so that barriers and filters may be installed.

The contractor will, at every rainfall, complete inspections and guarantee proper performance. The inspection is to include:

- Verification that water is not flowing under silt barriers; and
- Clean and change filter cloth at catch basins.

8.0 CONCLUSION AND RECOMMENDATIONS

David Schaeffer Engineering Ltd. (DSEL) has been retained by Windmill Development Group to prepare a Site Servicing and Stormwater Management report in support of the Site Plan Control (SPC) at 1040 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 proposed development with water within the City's required pressure range;
- The FUS method for estimating fire flow indicated ***8,000 L/min*** is required for the proposed development,
- The proposed development is estimated to have a peak wet weather flow of ***0.70 L/s***; Based on the sanitary analysis conducted the existing municipal sewer infrastructure has sufficient capacity to support the development;
- Based on consultation with the ***City of Ottawa*** the proposed development will be required to attenuate post development flows to an equivalent release rate of ***20.6 L/s*** for all storms up to and including the 100-year storm event based on criteria provided in ***AES 2017***;
- It is proposed that stormwater objectives be met through stormwater retention via an internal cistern. It is estimated that ***33.1 m^3*** of onsite storage will be required to attenuate flow to the established release rate above;
- Stormwater quality controls are not anticipated to be required. Consultation with the RVCA is in progress.

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APPENDIX A

Pre-Consultation

DEVELOPMENT SERVICING STUDY CHECKLIST

17-940 15/05/2020

4.1 General Content		
☐	Executive Summary (for larger reports only).	N/A
☒	Date and revision number of the report.	Report Cover Sheet
☒	Location map and plan showing municipal address, boundary, and layout of proposed development.	Drawings/Figures, EX-1
☒	Plan showing the site and location of all existing services.	Figure 1, EX-1
☒	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, Section 5.0
☒	Summary of Pre-consultation Meetings with City and other approval agencies.	Section 1.3, Appendix A
☒	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 defendable design criteria.	Section 2.1
☒	Statement of objectives and servicing criteria.	Section 1.0
☒	Identification of existing and proposed infrastructure available in the immediate area.	Sections 3.1, 4.1, 5.1, EX-1
☐	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
☐	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.	GP-1
☐	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
☐	Proposed phasing of the development, if applicable.	N/A
☐	Reference to geotechnical studies and recommendations concerning servicing.	Section 2.1
☐	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	Drawings/Figures

4.2 Development Servicing Report: Water		
☐	Confirm consistency with Master Servicing Study, if available	N/A
☒	Availability of public infrastructure to service proposed development	Section 3.1
☒	Identification of system constraints	Section 3.1
☒	Identify boundary conditions	Section 3.1, 3.2, Appendix B
☒	Confirmation of adequate domestic supply and pressure	Section 3.2, 3.2.1, 3.3

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☒	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, Appendix B
☐	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
☐	Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
☐	Address reliability requirements such as appropriate location of shut-off valves	N/A
☐	Check on the necessity of a pressure zone boundary modification	N/A
☒	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, 3.2.1, 3.3
☐	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.	Section 3.2, SSP-1
☐	Description of off-site required feedermains, 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
☒	Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 3.2, Appendix B
☒	Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	Section 3.2.1, Appendix B

4.3 Development Servicing Report: Wastewater

☒	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
☐	Confirm consistency with Master Servicing Study and/or justifications for deviations.	Section 4.2
☐	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
☒	Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 4.1, EX-1
☒	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, Appendix C
☒	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
☒	Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 4.2, SSP-1
☐	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

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☐	Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
☐	Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
☐	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
☐	Special considerations such as contamination, corrosive environment etc.	N/A

4.4 Development Servicing Report: Stormwater Checklist

☒	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
☒	Analysis of available capacity in existing public infrastructure.	Section 5.1, Appendix D
☒	A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Drawings/Figures
☒	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
☒	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
☒	Description of the stormwater management concept with facility locations and descriptions with references and supporting information	Section 5.3
☐	Set-back from private sewage disposal systems.	N/A
☐	Watercourse and hazard lands setbacks.	N/A
☒	Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	Appendix A
☐	Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	Section 5.3
☒	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
☐	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
☒	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, Appendix D
☐	Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
☐	Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 5.3
☐	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
☐	Identification of potential impacts to receiving watercourses	N/A
☐	Identification of municipal drains and related approval requirements.	N/A

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

☒	Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 5.3
☐	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
☐	Inclusion of hydraulic analysis including hydraulic grade line elevations.	Section 5.4
☒	Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 7.0
☐	Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
☐	Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

4.5 Approval and Permit Requirements: Checklist

☒	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 ct. 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
☐	Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A
☐	Changes to Municipal Drains.	N/A
☐	Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A

4.6 Conclusion Checklist

☒	Clearly stated conclusions and recommendations	Section 8.0
☐	Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	
☐	All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	

*Extracted from the City of Ottawa-Servicing Study Guidelines for Development Applications

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Legend: **S** indicates that the study or plan is required with application submission.
A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

For information and guidance on preparing required studies and plans refer to:

http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans

S/A	Number of copies	ENGINEERING		S/A	Number of copies
S	**5**	**1. Site Servicing Plan**	**2. Site Servicing Study**	**S**	**3**
S	**5**	**3. Grade Control and Drainage Plan**	**4. Geotechnical Study**	**S**	**3**
	2	5. Composite Utility Plan	6. Groundwater Impact Study		6
	5	7. Servicing Options Report	8. Wellhead Protection Study		6
S	**9**	**9. Transportation Impact Study**	**10.Erosion and Sediment Control Plan**	**S**	**5**
S	**3**	**11.Storm water Management Report**	12.Hydro geological and Terrain Analysis		8
	3	13.Hydraulic Water main Analysis	**14.Noise Study**	**S**	**3**
	5	15.Roadway Modification Design Plan	16.Confederation Line Proximity Study		9

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
	50	17.Draft Plan of Subdivision	**18.Plan Showing Layout of Parking Garage**	**S**	**2**
	30	19.Draft Plan of Condominium	**20.Planning Rationale**	**S**	**3**
S	**5**	**21.Site Plan**	22.Minimum Distance Separation (MDS)		3
	5	23.Concept Plan Showing Proposed Land Uses and Landscaping	24.Agrology and Soil Capability Study		5
	3	25.Concept Plan Showing Ultimate Use of Land	26.Cultural Heritage Impact Statement		3
S	**5**	**27.Landscape Plan**	28.Archaeological Resource Assessment Requirements: S (site plan) A (subdivision, condo)		3
S	**2**	**29.Survey Plan**	30.Shadow Analysis		3
S	**3**	**31.Architectural Building Elevation Drawings (dimensioned)**	**32.Design Brief (includes the Design Review Panel Submission Requirements)**	**S**	**Available online**
S	3	33.Wind Analysis (addendum to previous study)	34. Public Consultation Strategy: S (zoning, official plan, subdivision) may be included as part of Planning Rationale		1

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
S	**5**	**35.Phase 1 Environmental Site Assessment**	36.Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		6
S	**5**	**37.Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)**	38.Assessment of Landform Features		7
A	**4**	**39.Record of Site Condition**	40.Mineral Resource Impact Assessment		4
S	**10**	**41.Tree Conservation Report (combine with landscape plan).**	42.Environmental Impact Statement / Impact Assessment of Endangered Species		11
	4	43.Mine Hazard Study / Abandoned Pit or Quarry Study	44.Integrated Environmental Review (Draft, as part of Planning Rationale)		3

Meeting Date: August 30, 2020

Application Type: *SPC (complex)*

File Lead (Assigned Planner): S. Deiaco

Infrastructure Approvals Project Manager: A. Mottalib

Site Address (Municipal Address): 1040 Bank

*Preliminary Assessment: 1☐ 2☐ 3☐ 4☐ 5

*One (1) indicates that considerable major revisions are required before a planning application is submitted, while five (5) suggests that proposal appears to meet the City's key land use policies and guidelines. **This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.**

It is important to note that the need for additional studies and plans may result during application review. If following the submission of your application, it is determined that material that is not identified in this checklist is required to achieve complete application status, in accordance with the Planning Act and Official Plan requirements, the* Planning, Infrastructure and Economic Development Department *will notify you of outstanding material required within the required 30 day period. Mandatory pre-application consultation will not shorten the City's standard processing timelines, or guarantee that an application will be approved. It is intended to help educate and inform the applicant about submission requirements as well as municipal processes, policies, and key issues in advance of submitting a formal development application. This list is valid for one year following the meeting date. If the application is not submitted within this timeframe the applicant must again pre-consult with the Planning, Infrastructure and Economic Development Department.

Pre-Application Consultation Meeting Notes

Property Address: 1040 Bank Street
PC2020-0082
March 30, 2020 conference call

Attendees:

Simon Deiaco, City of Ottawa (SD)
Abdul Mottalib, City of Ottawa (AM)
Wally Dubyk, City of Ottawa (WD)
Christopher Moise, City of Ottawa (CM)
Ross Farris, Windmill (RF)
Lloyd Phillips, Planning Consultant (LP)
Jennifer Murray, J Murray Consulting (JM)
Alison Gosling, DSEL (AG)
Andrew Sacret, NCC (AS)
Tom Green, Parks Canada (TG)
Laura Urrechaga, Community Association (LU)
Carol Brascoupe, Community Association (CB)

Subject: 1040 Bank Street, proposed application for site plan control

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Meeting notes:

Opening & attendee introduction

- Introduction of meeting attendees

- **Overview of proposal:**

  - JM, the recent LPAT hearing ended in March, waiting on a decision.
  - The intent is to keep existing church in operation while construction is located to the rear of the site. The existing addition at the rear of the church would be demolished, and the functions of that space would be reintegrated into the church. The church and new development would not be physically connected.
  - The project has remained largely unchanged from the rezoning concept. The proposal is for a new 6 storey residential condo with 17 dwelling units, underground parking would extend below the limits of the new condominium. Access to the parking if from Galt Street. Four townhomes fronting onto Aylmer are also proposed with parking hidden from view and access from Galt Street as well.
  - From a zoning perspective, if approved, the schedule produced will capture the building program such as height and the building steps back and setbacks from the respective lot lines.

- 27 parking and 3 visitor parking spaces are proposed with some stacked parking spaces.
- Mechanical and rooftop terrace spaces are planned on the roof level.
- The project team would submit applications for site plan control and draft plan of condominium at the same time.

Preliminary comments and questions from staff and agencies, including follow-up actions:

- **Planning, Simon Deiaco (SD)**

  - Bank Street is designation as a Tradition Mainstreet and is designated as a design priority area.
  - The balconies and projections proposed on the latest concept need to be reviewed against the permitted projections section of the by-law to ensure compliance.
  - The SPC application will be a “complex, application subject to public consultation”. The plan of condominium application will be standard application.
  - As all parties recognize, the implementation of the proposal is dependant on a decision from the LPAT. The basis of this preconsultation meeting is dependant on a favorable decision for the applicant and the recommended staff zoning details. This is to be determined in the decision which will hopefully be issued in a reasonable time frame.

- **Urban Design, Christopher Moise (CM)**

  - This property is in the City’s Design Priority Area and is subject to the UDRP as part of the Site Plan Approval process.
  - There is also a Heritage sensitivity that should be addressed in the presentation as it relates to scale and materiality.
  - Various views of the proposal should be presented that can illustrate the proposal from all sides (the three facing streets and from the Rideau Canal.
  - JM noted that a consultant was brought in to assess heritage concerns through the rezoning process.
  - SD - Concerns about the number of steps that bring residents into the first floor. This is needs to be examined further.
  - SD – the team should investigate if there are any issue with respect to overhead lines in the area along the street frontages.

- **Engineering, Abdul Mottalib (AM), Alison Gosling (AG)**

  - Connection to Galt Street for municipal services, infrastructure is available

- Water needs some more investigation, AG and AM to continue discussions off-line.
- AG - Sanitary capacity should be adequate, following criteria established through the zoning amendment application.
- More information on servicing requirements will be supplied in the meeting follow-up by AM. Please see attached document.

- **Transportation, Wally Dubyk (WD)**

  - WD - How much total parking is being proposed? – 27 spaces, 3 visitor spaces, and 4 spaces for the townhomes. Some of the garage spaces will be tandem spaces.
  - The City would recommend a sidewalk along the east side of Galt Street between Alymer Avenue and the NCC pathway. Please note that there are two hydro poles and a hydrant that may interfere with the new sidewalk. The option of providing an easement to accommodate the sidewalk width may be reviewed.
  - The concrete sidewalk is to meet City standards and be 2.0 metres in width and to be continuous along the Galt Street property frontage and depressed through the proposed access.
  - Permanent structures such as curbing, stairs, retaining walls, and underground parking foundation also bicycle parking racks are not to extend into the City's right-of-way and sight triangle limits.
  - The City of Ottawa Zoning By-Law Corner Sight Triangles (Sec. 57) states that no obstruction to the vision of motor vehicle operators higher than 0.75 metres above grade including but not limited to buildings, structures or vegetation is permitted within the 6.0 m x 6.0 m triangle formed by that part of the lot lines measured along each street from the intersection of those lines at the street corner.
  - The Tactile Walking Surface Indicator (TWSI) should be provided at pedestrian crossings. Under the Integrated Accessibility Standards of the Accessibility for Ontarians with Disabilities Act, 2005, and the City of Ottawa Accessibility Design Standards, TWSI's are required for new construction and the redevelopment of elements in public spaces, such as for exterior paths of travel (e.g. sidewalks and at the top of stairs).
  - The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb and boulevard to City standards.
  - The Owner shall be required to enter into maintenance and liability agreement for all pavers, plant and landscaping material placed in the City right-of-way and the Owner shall assume all maintenance and replacement responsibilities in perpetuity.
  - 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.

- On street parking is to be reviewed by Traffic Safety.
- 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: https://ottawa.ca/en/transportation-impact-assessment-guidelines

- **National Capital Commission (NCC), Andrew Sacret (AS)**

  - Concerns with the trees on the abutting NCC land along the embankment
  - Is there, or has the been an assessment of trees along this property edge?
  - LP, one tree was identified on NCC property to be removed.
  - A TCR and EIS was prepared through the rezoning. There was an early meeting on site to look at the trees on-site.
  - Would need a land access permit on NCC property and alteration would require a land use approval.
  - Concerned with the visual landscape impacts from the Rideau Canal. Needs to understand how this issue was resolved.
  - JM - Two viewshed views were prepared to assess the impact.

- NCC to review and provide additional comments on the proposed connection to the existing pathway.

- **Parks Canada. Tom Green (TG)**

  - Noted that there were initial concern with views and building height which was reduced.
  - Comments and concerns remain with the building design and materiality.
  - JM – is there specific comments on the materiality?

- **Parks / Parkland Dedication**

  - Cash-in-lieu of parkland will be taken as a payment through the site plan control process.

- **Questions and comments from the Community Association representatives**

  - The CA members noted some design changes in the building program, in particular the extent of the underground garage.
  - Question if this building is a mixed-use development as the church was connected to the new building.
  - AH – The proposed zoning for the site is a TM, and not a TM2 which requires a mixed-use building. There is no concern with the project being a stand-alone residential project.
  - The Community sees a real benefit in creating a pathway connection to the NCC pathway on the east side of Galt Street. The CA members noted that the survey prepared by Stantec, the property line, does not appear to be shown correctly on the site plan. There appears to be room within the public right of way for a sidewalk along the east side of Galt Street (a copy of the survey was circulated during the meeting).
  - Corner sight triangle is important to allow for a safe turning movement. The landscaping details should ensure for safe sightlines.

Submission requirements and fees

See attachment.

Next steps

- Meeting notes and submission requirements to follow.
- An approach to public consultation will need to be developed when the application is submitted. It was noted during that there is an expectation for a community meeting when the application is filed.

Pre-consultation follow up for 1040 Bank Street
PC2020-0082
March 30, 2020 conference call

Supplemental Engineering Comments / Information

Site: Residential Development (condominium and street townhomes)

It is the consultant /designer's responsibility to verify all the information related to the infrastructures by using as built drawings or field visit and inspection as required.

Sanitary: 250mm on Bank Street and 300mm on Galt and Aylmer
Storm: 300 mm storm sewer on Galt Street and Aylmer Avenue and Bank street probably 300mm but the consultant must verify it as it is not labelled on the MAP.
Water: 152 mm on Galt Street, 203mm on Aylmer Avenue and 203/300mm on Bank Street.

Capacity issues for sewers

Please find the Servicing Report Template & Study Guidelines" in the attachment and prepare the servicing study accordingly. For capacity issue, please see section 3.2.1 page 3-3 and follow this section. A completed checklist with corresponding references from the servicing study is mandatory for the completeness of the study. Please add a completed checklist in the report.


ServicingGuideli
nes_ final_Dec...


Servicing Report
Template Final Versi

The allowable sewer release rate should be based on the existing Zoning Designation using the City's Sewer Guidelines. If the proposal requires a greater flow than the allowable, then please do an analysis of the City's sewers system as per servicing guidelines to determine available capacity in the City's sewers system.

Please calculate the sewers demand for the proposed development and send it to us ASAP, if you want to verify whether or not there is enough capacity in the city system. Normally, it takes 10 business days to get response back from the internal circulation.

Required information for Water boundary conditions (not required if you're using existing service)

Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the city street in front of the development. Please use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons.

1. Location of Service
2. A sketch of the proposed water service to the city watermain
3. Street Number & Name
4. Type of development and units
5. Amount of fire flow required ___l/s (Calculation as per the FUS Method).
6. Average daily demand: -l/s
7. Maximum daily demand: -l/s
8. Maximum hourly daily demand: -l/s

Please note proposed development will require 2 separate service connections from the city watermains if the basic day demand is greater than 50m^3/day to avoid the creation of a vulnerable service area. Two water meters will be required for two service connections and the service connections will have to be looped.

Utility conflict with the proposed servicing

- It is the consultant's sole responsibility to investigate the existing utilities in the proposed servicing area while preparing the Servicing and Grading Plans to avoid any conflict with the proposed services and will require a note stating this on the servicing plan.

Underground and above ground building footprints

All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any of the permanent structures does not extend beyond the property line either above or below ground or does not encroach into sight triangles and future road widening protection limits.

Grade limitations for underground ramps (Please contact Wally to confirm if needed)

Underground ramps should be limited to a 12% grade and must contain a subsurface melting device when exceeds 6%. If the ramp's break over slope exceeds 8%, a vertical transition curve or a transition slope should be used in the midway of the ramp.

SWM Criteria for the Catchment Area of the site being redeveloped: (Quantity control criteria)

- Allowable release rate will be 2-year pre-development rate for Local Street.
- Allowable release rate will be 5-year pre-development rate for Collectors and Arterial roads.
- C Coefficient of runoff will need to be determined **as per existing conditions** but in no case more than 0.5
- TC =20 minutes or can be calculated,
- TC should not be less than 10 minutes, since the IDF curves become unrealistic less than 10min.
- Any storm events greater than2/5 year, up to 100 year, and including 100-year storm event must be detained on site.

TECHNICAL BULLETIN PIEDTB-2016-01

Section 5.4.9.2, Page 5.31,

While rear yard grading will create low points and storage at each catch basin, the storage will not be considered in the available storage requirements. It will be assumed that all backyard flows in excess of the 2-year will flow towards the roads. Effective available storage will only be considered on streets and open space/park storage. Furthermore, there must be at least 30 cm of vertical clearance between the rear yard spill elevation and the ground elevation at the adjacent building envelope.

Major system storage in backyards is not to be included/accounted for in design computations, however the effect of flow attenuation can now be accounted for by assuming a constant slope ditch/swale draining to the street with the following geometry: a minimum slope of 1.5% and a minimum depth of 150 mm. The maximum allowable depth of a swale/ditch shall be 600 mm. The maximum side slope of swales/ditches shall be 3 horizontals to 1 vertical.

Section 8.3.11.6, Page 8.20:

Rear Yard storage cannot be accounted for in the water storage calculation. It should be assumed that all water in excess of the 2-year event will flow to the street. The maximum depth of flow depth in rear yards is 300 mm. Furthermore, there must be at least 30 cm of vertical clearance between the rear yard spill elevation and the ground elevation at the adjacent building envelope. See Section 5.4.9 for further information. Major system storage in backyards is not to be included/accounted for in design computations, however the effect of flow attenuation can now be accounted for by assuming a constant slope ditch/swale draining to the street.

Stormwater management criteria (Quality Control Issues)

Please note there will a section in the SWM report that will discuss about the quality control requirements for this site. It is the consultant's responsibility to check with the Rideau Valley Conservation Authority (RVCA) for quality control issues and include this information in the SWM report under Quality Control Section. Please contact RVCA for further information.

Implementation considerations

- Accounting for external overland drainage
- Use of standard ICDs
- Requirement for ICD plans
- Requirement for plans showing 100-year and stress-test ponding limits
- Provide a foundation drain backwater valve installed as per Std Dwg S14.
- Provide a full port backwater valve, in the sanitary building drain, installed as per Std Dwg S14.1.
- Show proposed fire route and existing fire hydrant on the plan.

Monitoring MHs

Onsite Monitoring MHs are required for sewers (sanitary and storm) if there will be commercial component with the residential development.

Sight Triangle and Road widening requirement (By Transportation Project Manager Mr. Wally Dubyk)

Sidewalk Condition/Requirement: if there is no sidewalk, damaged one or asphalt sidewalk which needs to be changed to concrete.

City needs minimum 2.0 m monolithic concrete sidewalk for more information please contact with Wally Dubyk at 613-580-2424 ext. 13783

Studies required for Site Plan application

- Serviceability Study
- Erosion and sediment Control Plan, it can be combined with grading plan
- Stormwater Management Report
- Geotechnical Study
- Transportation screening report,
- Phase 2 Noise Control Detailed Study- Please add stationary noise concerns if the usages are considered as Industrial, car dealerships, motor vehicle maintenance and commercial activities and equipped with generator, fans or commercial air conditioners.
- ESA-Phase 1 Study, needs to be prepared as per current MOE regulation not as per CSA standards
- ESA-Phase 2, Depend on the Phase I recommendation if required needs to be prepared as per current MOE regulation not as per CSA standard
- RSC is needed for more sensitive land usage for this site.

Plans required;

a. Site Servicing Plan
b. Grade Control and Drainage Plan
c. Erosion and Sediment Control Plan
d. Plan and profile for MOE application under transfer of Review program

Relevant information

1. Servicing & site works shall be in accordance with the following documents:

   - ⇨ Ottawa Sewer Design Guidelines (2012)
   - ⇨ Ottawa Design Guidelines – Water Distribution (2010)
   - ⇨ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
   - ⇨ City of Ottawa Slope Stability Guidelines for Development Applications (2004)
   - ⇨ City of Ottawa Environmental Noise Control Guidelines (2006)
   - ⇨ City of Ottawa Park and Pathway Development Manual (2012)
   - ⇨ City of Ottawa Accessibility Design Standards (2012)
   - ⇨ Ottawa Standard Tender Documents (2015)
   - ⇨ Ontario Provincial Standards for Roads & Public Works (2015)

2. Record drawings and utility plans can be purchased from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-2424 x.44455).

Regards,

Mohammad

Mohammad Abdul Mottalib, M. Sc., M. Eng., P. Eng.
Sr. Engineer Infrastructure Applications
Development Review , Central Group
Planning, Infrastructure and Economic Development Department
Services de la planification, de l'infrastructure et du développement économique
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. West / 110, avenue Laurier Ouest, Ottawa K1P 1J1
Tel. 613-580-2424 ext. 27798 , Fax. 613-560-6006 ,E-mail: Abdul.Mottalib@ottawa.ca

Charlotte Kelly

From: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Sent: May 8, 2020 10:58 AM
To: Alison Gosling; Charlotte Kelly
Cc: Mottalib, Abdul
Subject: FW: Boundary Condition Request - 1040 Bank Street
Attachments: 1040 Bank May 2020.pdf

As requested, please see the email below.

Thanks
Abdul

From:
Sent: May 07, 2020 12:43 PM
To: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>
Subject: RE: Boundary Condition Request - 1040 Bank Street

The following are boundary conditions, HGL, for hydraulic analysis at 1040 Bank (zone 1W) assumed to be connected to the 152mm on Galt and 203mm on Aylmer (see attached PDF for location).

	152mm on Galt	203mm on Aylmer
Minimum HGL	104.0m	104.0m
Maximum HGL	114.5m	114.5m
Max Day + Fire Flow*	103.0m	101.0m

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.

From: Charlotte Kelly <CKelly@dsel.ca>
Sent: April 24, 2020 10:55 AM
To: Mottalib, Abdul <Abdul.Mottalib@ottawa.ca>

Cc: Alison Gosling <AGosling@dsel.ca>
Subject: Boundary Condition Request - 1040 Bank Street

Good Morning Abdul,

We would like to request water boundary conditions for 1040 Bank Street using the following development demands:

1. Location of Service: Galt Street / Aylmer Avenue

2. Type of development and the amount of fire flow required for the proposed development:

- The development will include one 6-storey condominium building with approximately ***208 m²*** of amenity space, and ***18 residential units***. As well as a townhome block containing ***4 units.*** The existing church fronting Bank Street is to remain.

- It is anticipated that the condominium development will have a connection from the existing 152 mm diameter watermain within Galt Street (Connection 1) and the townhomes will be serviced by the existing 203 mm diameter watermain within Aylmer Avenue (Connection 2), 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 ***5,000 L/min*** for the condominium and ***8,000 L/min*** for the townhome block. Refer to the attached for detailed calculations.

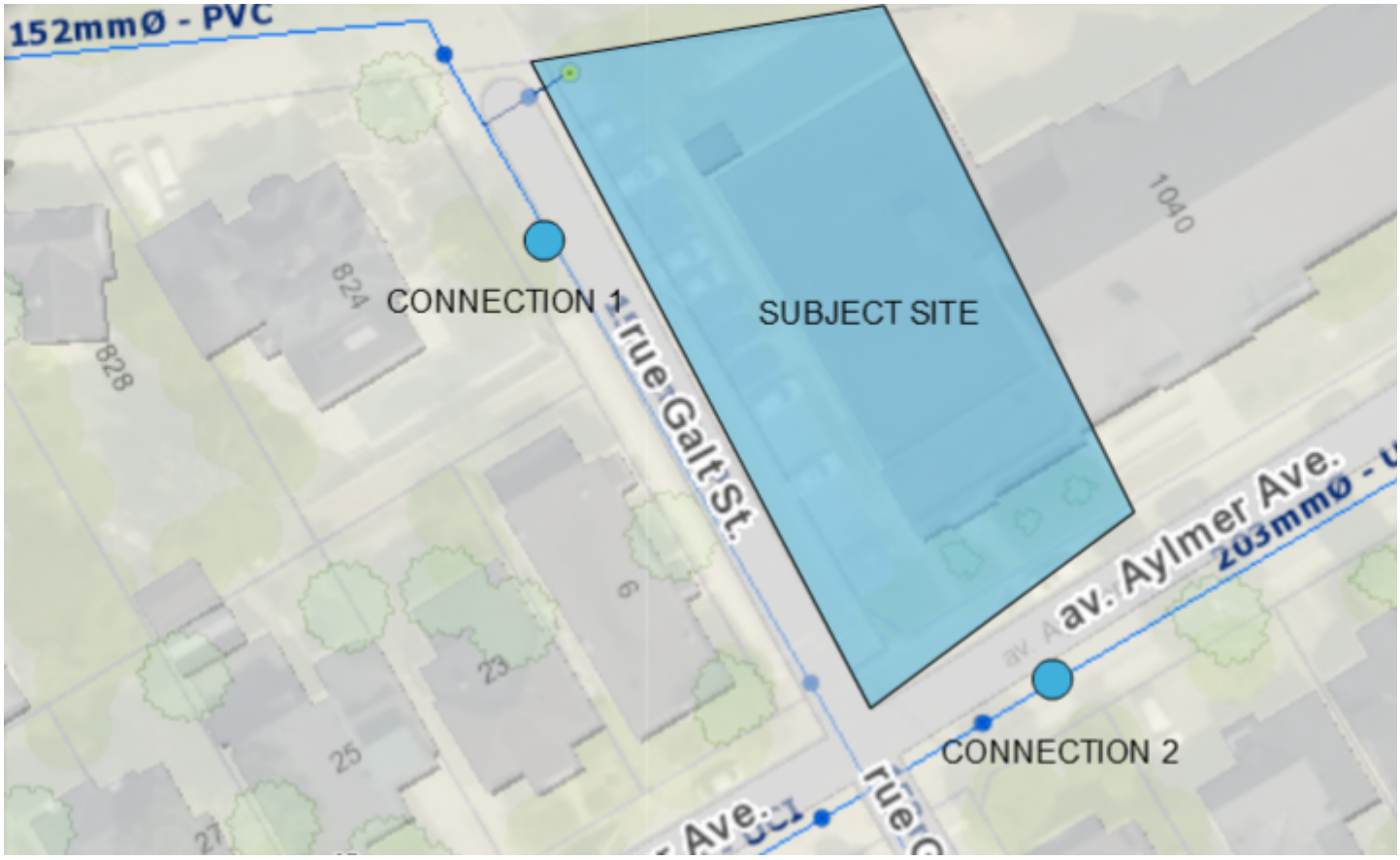
Connection 1: Galt Street Demand:

Condo	L/min	L/s
Avg. Daily	7.8	0.13
Max Day	37.4	0.62
Peak Hour	56.6	0.94

Connection 2: Aylmer Avenue Demand:

Condo	L/min	L/s
Avg. Daily	2.1	0.04
Max Day	20.3	0.34
Peak Hour	30.6	0.51

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



Thank-you,

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

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120 Iber Road, Unit 103
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phone: (613) 836-0856 ext.511
email: ckelly@dsel.ca


Boundary condition for 1040 Bank
connection 1
connection 2
COLONEL BY DR
prom. Colonel By Dr.
ECHO DR
prom. Echo Dr.
GALT ST
BARTON ST
AYLMER AVE
EUCLID AVE
BANK ST
1040
1050
1049
1060
1063
1065
1070
1071
1075
1080
774
988
838
824
828
834
1550
152
406
457
203
305
Legend
PRIVATE
PUBLIC
City of Ottawa

Charlotte Kelly

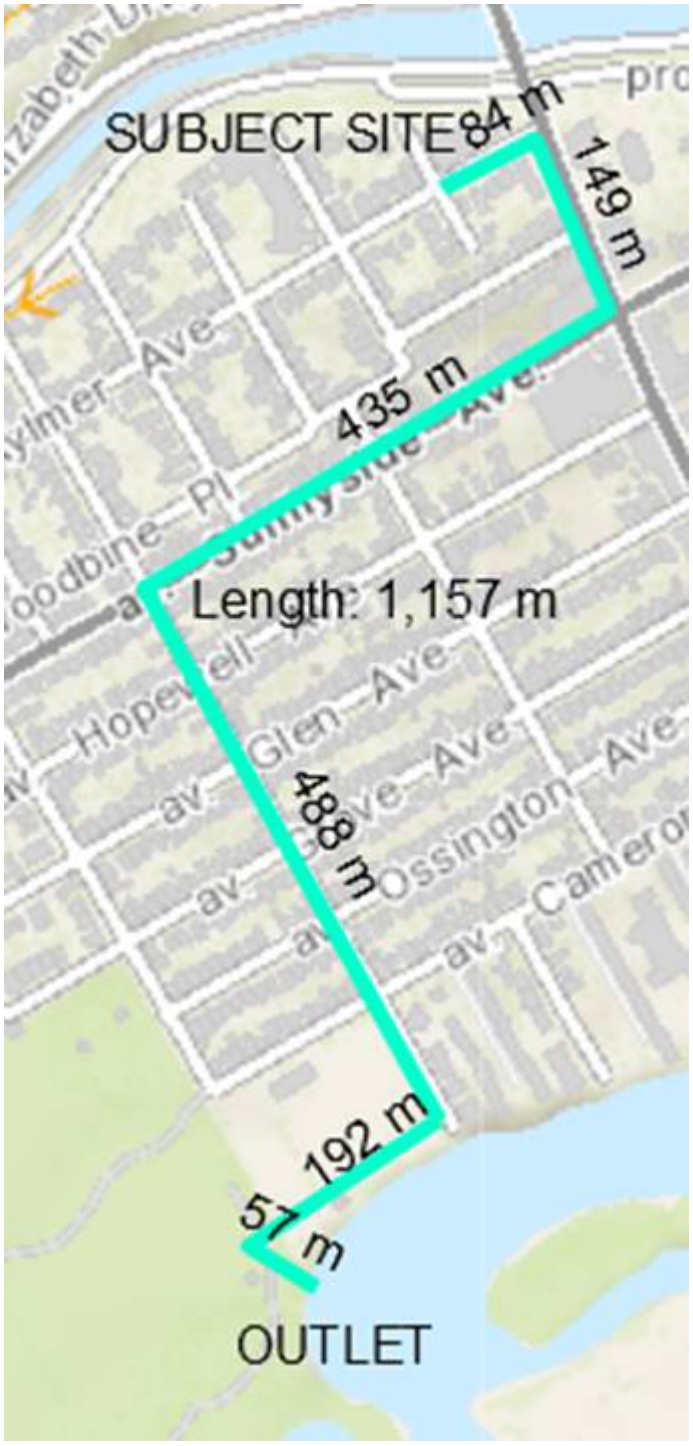
From: Charlotte Kelly
Sent: May 15, 2020 11:50 AM
To: jamie.batchelor (jamie.batchelor@rvca.ca)
Cc: Alison Gosling
Subject: 1040 Bank Street - Quality Control Requirement

Good Morning Jamie,

We wanted to touch base with you regarding a development at 1040 Bank Street. The development involves the construction of a 6-storey residence and 4 unit townhome with associated underground parking. The existing site consists of a paved surface parking lot and an existing banquet hall attached to the Southminster Church. The church is proposed to remain with the surface parking area and banquet hall being replaced by the proposed development.

The development proposes to outlet to the existing storm sewers within Galt Street / Aylmer Avenue. The existing sewer travels approximately ***1.2 km*** to an outlet into the Rideau River, 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 landscape areas, and there is no proposed surface parking.. Can you please confirm?



Please let me know if you have any questions.

Thank-you,

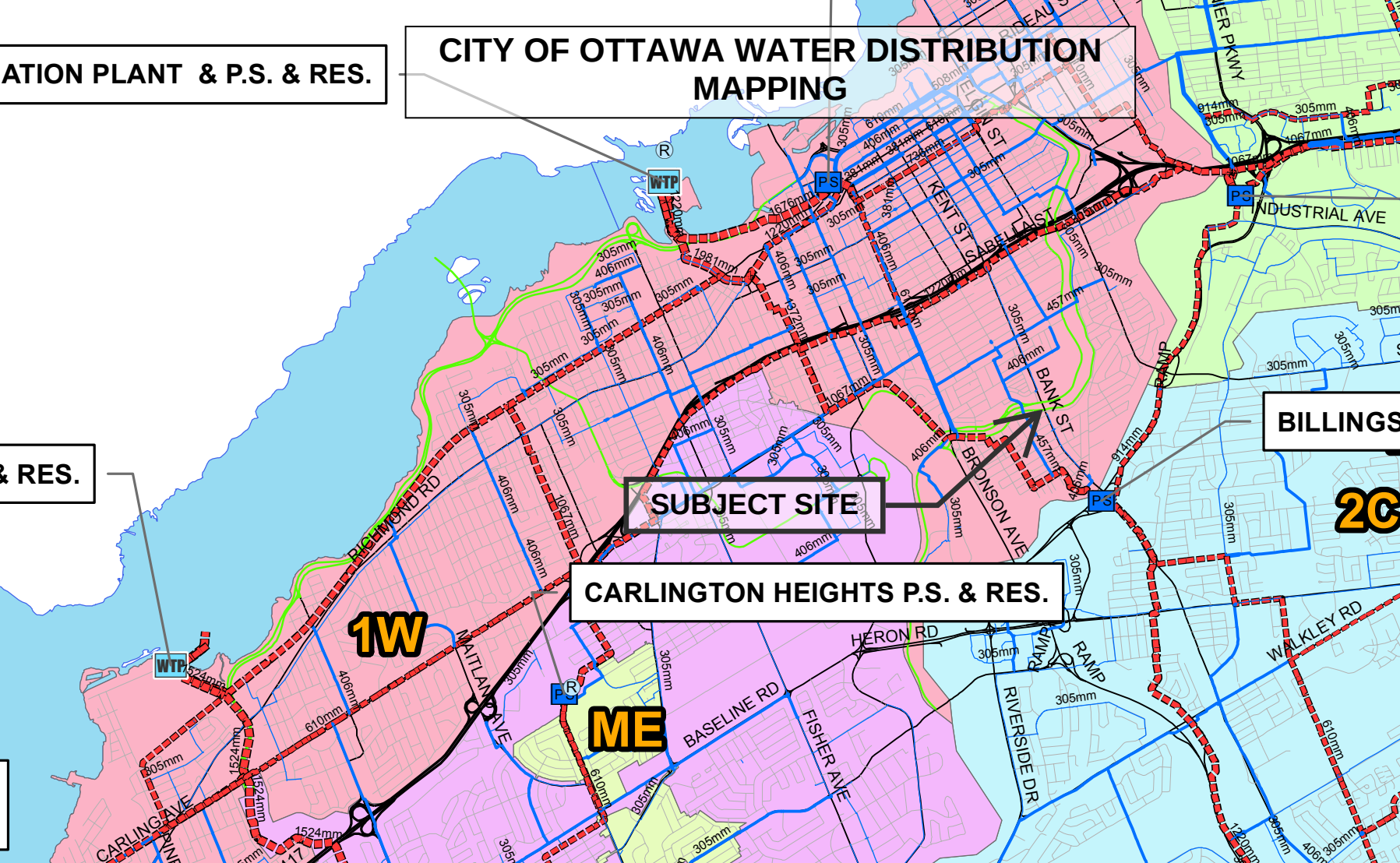
Charlotte Kelly, E.I.T.
Junior Engineering Designer

DSEL
david schaeffer engineering ltd.

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

APPENDIX B

Water Supply


ATION PLANT & P.S. & RES.
CITY OF OTTAWA WATER DISTRIBUTION MAPPING
& RES.
SUBJECT SITE
CARLINGTON HEIGHTS P.S. & RES.
BILLINGS
1W
ME
2C
WTP
PS
PR
RICHMOND RD
MAITLAND AVE
CARLING AVE
BASELINE RD
FISHER AVE
HERON RD
RIVERSIDE DR
WALKLEY RD
RAMP
BANK ST
BRONSON AVE
KENT ST
ISABELLA ST
INDUSTRIAL AVE
ER PKWY

Windmill Development Group LTD.
Southminster United Church Redevelopment
Proposed Site Conditions
Building A (Mid-rise)

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	2	3
2 Bedroom	2.1	15	32
3 Bedroom	3.1	1	4
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	39	10.9	7.6	53.5	37.2	80.8	56.1

Institutional / Commercial / Industrial Demand

			Avg. Daily		Max Day		Peak Hour	
Property Type	**Unit Rate**	**Units**	m^3/d	L/min	m^3/d	L/min	m^3/d	L/min
Amenity	2.5 $L/m^2/d$	108	0.27	0.2	0.4	0.3	0.7	0.5
Total I/CI Demand			0.3	0.2	0.4	0.3	0.7	0.5
Total Demand			**11.2**	**7.8**	**53.9**	**37.4**	**81.5**	**56.6**

* Estimated number of seats at 1 seat per $9.3m^2$

Windmill Development Group LTD.
Southminster United Church Redevelopment
Proposed Site Conditions
Building B (Townhome)

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	4	11
Apartment			0
Bachelor	1.4	-	0
1 Bedroom	1.4	-	0
2 Bedroom	2.1	-	0
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	11	3.1	2.1	29.3	20.3	44.0	30.6

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
Amenity	2.5 $L/m^2/d$		0.00	0.0	0.0	0.0	0.0	0.0
Total I/CI Demand			0.0	0.0	0.0	0.0	0.0	0.0
Total Demand			**3.1**	**2.1**	**29.3**	**20.3**	**44.0**	**30.6**

* Estimated number of seats at 1 seat per $9.3m^2$

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: Ordinary Construction

C	1		*Type of Construction Coefficient per FUS Part II, Section 1*
A	703.0	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	5833.1	L/min	
	6000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible	-15%
Fire Flow	**5100.0 L/min**

3. Reduction for Sprinkler Protection

Non-Sprinklered	0%
Reduction	**0 L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC
N	Wood Frame	3.1m-10m	0	0	0	17%
S	Wood Frame	30.1m-45m	0	0	0	5%
E	Wood Frame	0m-3m	0	0	0	22%
W	Wood Frame	30.1m-45m	0	0	0	5%
		% Increase				**49%** *value not to exceed 75%*

Increase	**2499.0 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	7599.0	L/min	*fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section 4*
	8000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Notes:
-Type of construction, Occupancy Type and Sprinkler Protection information provided by Hobin.
-Calculations based on Fire Underwriters Survey - Part II

Windmill Development Group LTD.
Southminster United Church Redevelopment
FUS-Fire Flow Demand
Building A (Mid-rise)

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: Fire-Resistive Construction

C	0.6		*Type of Construction Coefficient per FUS Part II, Section 1*
A	1813.8	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	5621.8	L/min
	6000.0	**L/min** *rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible	-15%
Fire Flow	**5100.0 L/min**

3. Reduction for Sprinkler Protection

Sprinklered - Supervised	-50%
Reduction	**-2550 L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N	Wood Frame	>45m	0	0	0	0%	
S	Wood Frame	0m-3m	20	2	40	23%	
E	Wood Frame	0m-3m	20	4	80	24%	
W	Wood Frame	30.1m-45m	20	2	40	5%	
		% Increase				**52%**	*value not to exceed 75%*

Increase	**2652.0 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	5202.0	L/min *fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section*
	5000.0	**L/min** *rounded to the nearest 1,000 L/min*

Notes:
-Type of construction, Occupancy Type and Sprinkler Protection information provided by _____.
-Calculations based on Fire Underwriters Survey - Part II

Boundary Conditions Unit Conversion

Galt Street
Grnd Elev 73.35

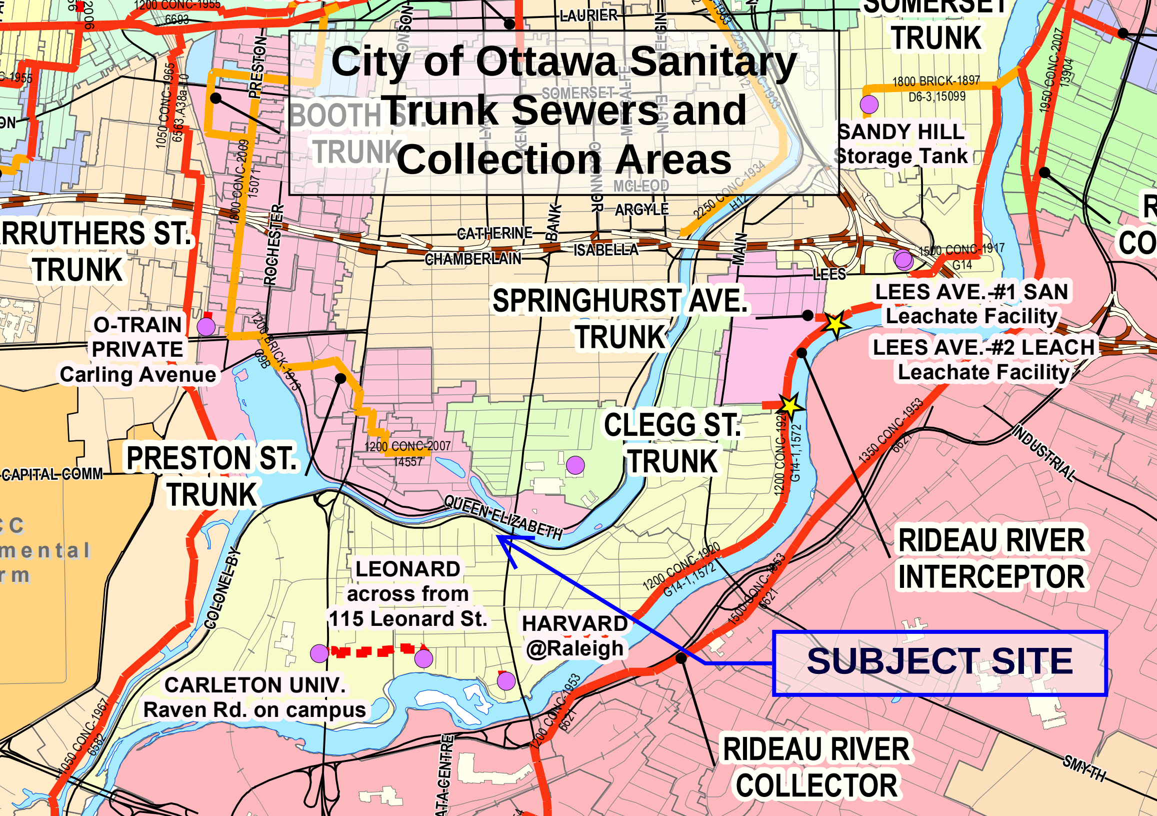
	Height (m)	m H_2O	PSI	kPa
Avg. Day	**114.5**	**41.2**	58.5	403.7
Peak Hour	**104**	**30.7**	43.6	300.7
Max Day + FF	**103**	**29.7**	42.2	290.9

Aylmer Avenue
Grnd Elev 73.84

	Height (m)	m H_2O	PSI	kPa
Avg. Day	**114.5**	**40.7**	57.9	398.9
Peak Hour	**104**	**30.2**	42.9	295.9
Max Day + FF	**101**	**27.2**	38.6	266.4

APPENDIX C

Wastewater Collection


City of Ottawa Sanitary Trunk Sewers and Collection Areas
SUBJECT SITE
SOMERSET TRUNK
BOOTH ST. TRUNK
CARRUTHERS ST. TRUNK
SPRINGHURST AVE. TRUNK
CLEGG ST. TRUNK
PRESTON ST. TRUNK
RIDEAU RIVER INTERCEPTOR
RIDEAU RIVER COLLECTOR
SANDY HILL Storage Tank
LEES AVE.-#1 SAN Leachate Facility
LEES AVE.-#2 LEACH Leachate Facility
O-TRAIN PRIVATE Carling Avenue
LEONARD across from 115 Leonard St.
HARVARD @Raleigh
CARLETON UNIV. Raven Rd. on campus
LAURIER
SOMERSET
PRESTON
ROCHESTER
CATHERINE
CHAMBERLAIN
ISABELLA
ARGYLE
MCLEOD
BANK
ELGIN
MAIN
LEES
QUEEN-ELIZABETH
COLONEL-BY
INDUSTRIAL
SMYTH
CAPITAL-COMM
1800 BRICK-1897 D6-3,15099
1500 CONC-1917 G14
1200 CONC-2007 14557
1800 CONC-2009 15071
1050 CONC-1965 6563,A38a-10
1200 BRICK-1913 C9B
1200 CONC-1920 G14-1,1572
1350 CONC-1953 6621
1500 CONC-1953 6621
1200 CONC-1953 6621
1050 CONC-1967 6582
2250 CONC-1934 H12
1950 CONC-2007 13904
1200 CONC-1955 6693

Windmill Development Group LTD.
Southminster United Church Redevelopment
Existing Site

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

Site Area 0.320 **ha**

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	**0.02 L/s**
Infiltration / Inflow (Wet)	**0.09 L/s**
Infiltration / Inflow (Total)	**0.11 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		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

Total Pop	**0**
Average Domestic Flow	**0.00 L/s**
Peaking Factor	**3.80**
Peak Domestic Flow	**0.00 L/s**

Institutional / Commercial / Industrial Contributions

Property Type	Unit Rate	No. of Units	Avg Wastewater (L/s)
Church w/ Kitchen Facility*,**	30.0 L/seat/day	550	0.19
		Average I/C/I Flow	**0.19**
		Peak Institutional / Commercial Flow	0.29
		Peak I/C/I Flow	**0.29**

** assuming a 12 hour commercial operation*
*** Church w/ Kitchen Facility Flow per City of Ottawa Sewer Design Guidelines Appendix 4A*

Total Estimated Average Dry Weather Flow Rate	**0.21 L/s**
Total Estimated Peak Dry Weather Flow Rate	**0.30 L/s**
Total Estimated Peak Wet Weather Flow Rate	**0.39 L/s**

Windmill Development Group LTD.
Southminster United Church Redevelopment
Proposed Site Conditions
Building A

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

Site Area 0.142 **ha**

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	**0.01 L/s**
Infiltration / Inflow (Wet)	**0.04 L/s**
Infiltration / Inflow (Total)	**0.05 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	2	3
2 Bedroom	2.1	15	32
3 Bedroom	3.1	1	4
Average	1.8		0

Total Pop	**39**
Average Domestic Flow	**0.13 L/s**
Peaking Factor	**3.67**
Peak Domestic Flow	**0.46 L/s**

Institutional / Commercial / Industrial Contributions

Property Type	**Unit Rate**	**No. of Units**	**Avg Wastewater (L/s)**
Amenity Space	5 $L/m^2/d$	108	0.01

Average I/C/I Flow	**0.01**
Peak Institutional / Commercial Flow	0.01
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.01**

Total Estimated Average Dry Weather Flow Rate	**0.15 L/s**
Total Estimated Peak Dry Weather Flow Rate	**0.48 L/s**
Total Estimated Peak Wet Weather Flow Rate	**0.52 L/s**

Windmill Development Group LTD.
Southminster United Church Redevelopment
Proposed Site Conditions
Building B

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

Site Area 0.142 **ha**

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	**0.01**	**L/s**
Infiltration / Inflow (Wet)	**0.04**	**L/s**
Infiltration / Inflow (Total)	**0.05**	**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	4	11
Stacked Townhouse	2.3		0
Apartment			
Bachelor	1.4		0
1 Bedroom	1.4		0
2 Bedroom	2.1		0
3 Bedroom	3.1		0
Average	1.8		0

Total Pop	**11**	
Average Domestic Flow	**0.04**	**L/s**
Peaking Factor	**3.73**	
Peak Domestic Flow	**0.13**	**L/s**

Total Estimated Average Dry Weather Flow Rate	**0.04**	**L/s**
Total Estimated Peak Dry Weather Flow Rate	**0.14**	**L/s**
Total Estimated Peak Wet Weather Flow Rate	**0.18**	**L/s**

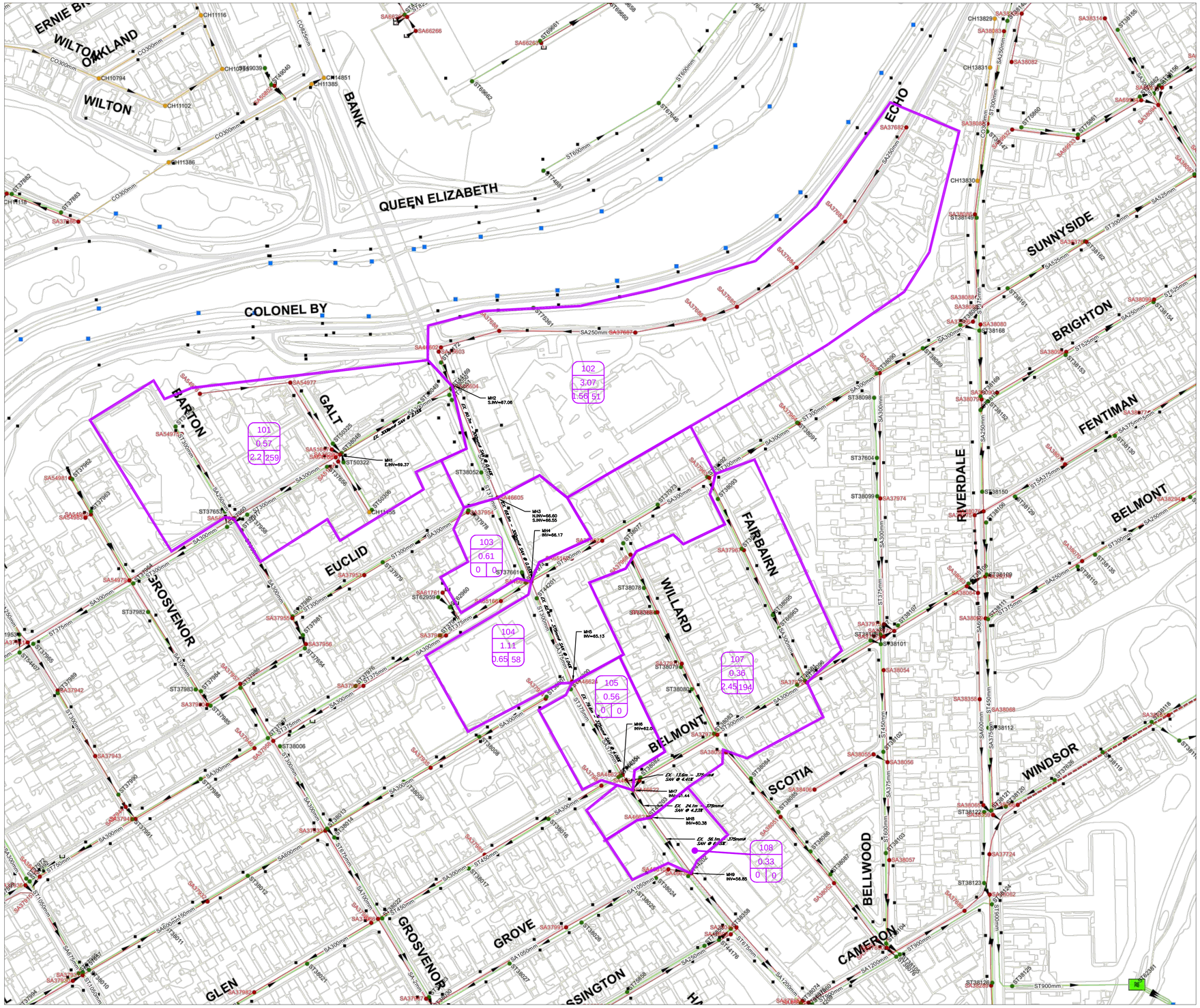
SANITARY SEWER CALCULATION SHEET

PROJECT: **Southminster Church Redevelopment**
LOCATION: **1040 Bank Street**
FILE REF:
DATE: **15-May-20**

DESIGN PARAMETERS

Avg. Daily Flow Res.	280	L/p/d	Peak Fact Res. Per Harmons: Min = 2.0, Max =4.0		Infiltration / Inflow	0.33	L/s/ha
Avg. Daily Flow Comm	28,000	L/ha/d	Peak Fact. Comm.	1.5	Min. Pipe Velocity	0.60	m/s full flowing
Avg. Daily Flow Instit.	28,000	L/ha/d	Peak Fact. Instit.	1.5	Max. Pipe Velocity	3.00	m/s full flowing
Avg. Daily Flow Indust	35,000	L/ha/d	Peak Fact. Indust. per MOE graph		Mannings N	0.013	

Location			Residential Area and Population									Commercial		Institutional		Industrial			Infiltration				Pipe Data							
Area ID	Up	Down	Area	Number of Units by type				Pop.	Cumulative Area	Cumulative Pop.	Peak. Fact.	Q_{res}	Area	Accu. Area	Area	Accu. Area	Area	Accu. Area	Q_{C+I+I}	Total Area	Accu. Area	Infiltration Flow	Total Flow	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Q_{cap}	Q / Q full
			(ha)	Singles	Semi's	Town's	Apt's		(ha)		(-)	(L/s)	(ha)	(ha)	(ha)	(ha)	(ha)	(ha)	(L/s)	(ha)	(ha)	(L/s)	(L/s)	(mm)	(%)	(m)	(m^2)	(m)	(m/s)	(L/s)	(-)
101	1	2	2.220	26		7	84	259.0	2.220	259.0	4.00	3.36	0.12	0.12	0.45	0.45		0.00	0.5	2.790	2.790	0.781	4.63	300	2.15		0.071	0.075	2.01	141.8	0.03
102	2	3	1.560	15				51.0	3.780	310.0	4.00	4.02	0.28	0.40	2.34	2.79		0.00	2.8	4.180	6.970	1.952	8.74	300	0.44	90.7	0.071	0.075	0.91	64.1	0.14
103	3	4	0.000					0.0	3.780	310.0	4.00	4.02	0.61	1.01		2.79		0.00	3.3	0.610	7.580	2.122	9.44	300	0.55	68.5	0.071	0.075	1.01	71.7	0.13
104	4	5	0.000	17				58.0	3.780	368.0	4.00	4.77	0.77	1.78	0.49	3.28		0.00	4.4	1.260	8.840	2.475	11.64	375	1.04	82.4	0.110	0.094	1.62	178.8	0.07
105	5	6	2.060					0.0	5.840	368.0	4.00	4.77	0.56	2.34		3.28		0.00	4.9	2.620	11.460	3.209	12.86	375	4.00	79.6	0.110	0.094	3.17	350.7	0.04
	6	7	0.000					0.0	5.840	368.0	4.00	4.77		2.34		3.28		0.00	4.9	0.000	11.460	3.209	12.86	375	4.41	13.6	0.110	0.094	3.33	368.2	0.03
107	7	8	2.450	57				194.0	8.290	562.0	3.95	7.19	0.22	2.56	0.14	3.42		0.00	5.2	2.810	14.270	3.996	16.38	375	4.23	24.1	0.110	0.094	3.26	360.6	0.05
108	8	9	0.000					0.0	8.290	562.0	3.95	7.19	0.33	2.89		3.42		0.00	5.5	0.330	14.600	4.088	16.76	375	4.23	24.1	0.110	0.094	3.26	360.6	0.05



LEGEND:

EXISTING DRAINAGE DIVIDE

207 — DRAINAGE AREA ID
0.260 — COMMERCIAL / INDUSTRIAL AREA IN Ha
10 | 36 — POPULATION | RESIDENTIAL AREA IN Ha

david schaeffer engineering ltd

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Fax. (613) 836-7183
www.DSEL.ca

EXISTING SANITARY DRAINAGE
1040 Bank Street
Windmill Developments

PROJECT No. :	17-940
SCALE:	NTS
DATE:	MAY 2020
DRAWING No.	SAN-1
SHEET NO.	1

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APPENDIX D

Stormwater Management

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

Existing Drainage Charateristics From Internal Site

Area	0.053	ha	
C	0.65	Rational Method runoff coefficient	
L	42.33	m	
Up Elev	74.14	m	
Dn Elev	72.39	m	
Slope	4.1	%	
Tc	10.0	min	*Miniumum Tc of 10 minutes per City of Ottawa Design Guidelines

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	76.8	104.2	178.6	mm/hr
Q	7.3	10.0	21.4	L/s

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

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

Existing Drainage Charateristics From Internal Site

Area	0.019	ha	
C	0.88	Rational Method runoff coefficient	
L	44.5	m	
Up Elev	72.97	m	
Dn Elev	72.27	m	
Slope	1.6	%	
Tc	10.0	min	*Miniumum Tc of 10 minutes per City of Ottawa Design Guidelines

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	76.8	104.2	178.6	mm/hr
Q	3.6	4.8	9.4	L/s

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

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

Existing Drainage Charateristics From Internal Site

Area	0.071	ha	
C	0.88	Rational Method runoff coefficient	
L	7.92	m	
Up Elev	74.51	m	
Dn Elev	73.53	m	
Slope	12.4	%	
Tc	10.0	min	*Miniumum Tc of 10 minutes per City of Ottawa Design Guidelines

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	76.8	104.2	178.6	mm/hr
Q	13.3	18.1	35.2	L/s

Note:
C value for the 100-year storm is increased by 25%, to a maximum of 1.0 per Ottawa Sewer Design Guidelines (5.4.5.2.1)

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

Target Flow Rate

Area	0.142	ha	
C	0.50	Rational Method runoff coefficient	
t_c	10.0	min	*Miniumum Tc of 10 minutes per City of Ottawa Design Guidelines

	5-year	
i	104.2	mm/hr
Q	20.6	L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Area ID **U1 (NCC + GALT + AYLMER)**
Total Area 0.042 ha
C 0.51 Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	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	6.1	6.1	0.0	0.0	178.6	13.2	13.2	0.0	0.0

Estimated Post Development Peak Flow from Attenuated Areas

Area ID **A1**
Total Area 0.101 ha
C 0.90 Rational Method runoff coefficient

	5-year					100-year				
t_c (min)	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	35.7	3.9	31.8	9.5	242.7	68.2	7.5	60.8	18.2
10	104.2	26.4	3.9	22.5	13.5	178.6	50.2	7.5	42.8	25.7
15	83.6	21.1	3.9	17.2	15.5	142.9	40.2	7.5	32.7	29.5
20	70.3	17.8	3.9	13.8	16.6	120.0	33.7	7.5	26.3	31.5
25	60.9	15.4	3.9	11.5	17.2	103.8	29.2	7.5	21.7	32.6
30	53.9	13.6	3.9	9.7	17.5	91.9	25.8	7.5	18.4	33.1
35	48.5	12.3	3.9	8.3	17.5	82.6	23.2	7.5	15.8	33.1
40	44.2	11.2	3.9	7.2	17.4	75.1	21.1	7.5	13.7	32.8
45	40.6	10.3	3.9	6.3	17.1	69.1	19.4	7.5	12.0	32.3
50	37.7	9.5	4.0	5.6	16.7	64.0	18.0	7.5	10.5	31.6
55	35.1	8.9	4.0	4.9	16.3	59.6	16.8	7.5	9.3	30.7
60	32.9	8.3	4.0	4.4	15.8	55.9	15.7	7.5	8.3	29.7
65	31.0	7.9	4.0	3.9	15.2	52.6	14.8	7.5	7.3	28.7
70	29.4	7.4	4.0	3.5	14.6	49.8	14.0	7.5	6.5	27.5
75	27.9	7.1	4.0	3.1	13.9	47.3	13.3	7.5	5.8	26.2
80	26.6	6.7	4.0	2.8	13.2	45.0	12.7	7.5	5.2	24.9
85	25.4	6.4	4.0	2.5	12.5	43.0	12.1	7.5	4.6	23.6
90	24.3	6.1	4.0	2.2	11.8	41.1	11.6	7.5	4.1	22.2
95	23.3	5.9	4.0	1.9	11.0	39.4	11.1	7.5	3.6	20.7
100	22.4	5.7	4.0	1.7	10.2	37.9	10.7	7.5	3.2	19.2
105	21.6	5.5	4.0	1.5	9.4	36.5	10.3	7.5	2.8	17.7

5-year $Q_{attenuated}$ **3.97 L/s** **100-year $Q_{attenuated}$** **7.46 L/s**
5-year Max. Storage Required **17.5 m^3** **100-year Max. Storage Required** **33.1 m^3**

Summary of Release Rates and Storage Volumes

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	6.1	0.0	13.2	0.0
Attenutated Areas	4.0	17.5	7.5	33.1
Total	**10.1**	**17.5**	**20.6**	**33.1**

DRAWINGS / FIGURES

EXISTING
3 STOREY
SINGLE-FAMILY
DWELLING

EXISTING
2 STOREY
SINGLE-FAMILY
DWELLING

EXISTING
2 STOREY
MULTI-UNIT
RESIDENTIAL
BUILDING

RUE GALT ST

**PROPOSED
6 FLOOR
RESIDENTIAL
CONDO**
GROSS FLOOR AREA:
32,883 SQ. FT
FFE: 73.3

1 - 3 FLOOR
4TH FLOOR
5TH FLOOR
6TH FLOOR

ROOF TOP TERRACE
1318 SQ FT

ROOF
CANOPY

MECHANICAL
PENTHOUSE

TOWNHOUSE
A

TOWNHOUSE
B

TOWNHOUSE
C

TOWNHOUSE
D

10 RISERS

10 RISERS

ELEC.

EXISTING CHURCH TO REMAIN
1040 Bank Street
FFE: 74.4

PROPOSED MINOR
SEVERANCE LINE

EXISTING RAMP

N 31°34'30" E

N 58°42'10" E

N 31°00'20" W

N 23°22'10" W

N33°50'50"E

82.37

98.09

14.59

4.71

ECHO DRIVE

COLONEL BY DRIVE

AYLMER AVE

BANK STREET

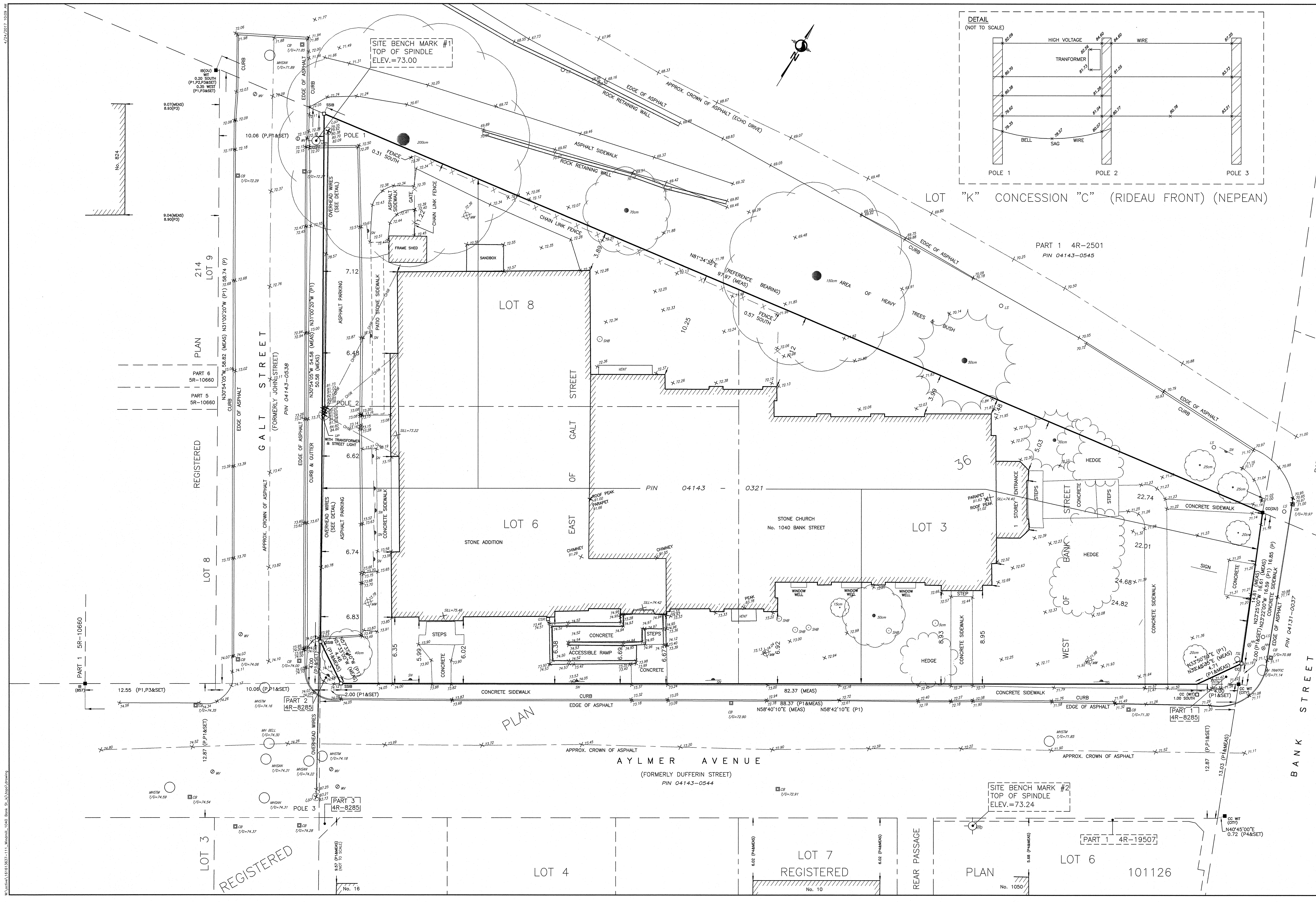
HOBIN

Southminster United Church

CONDO

CONDO
SITE PLAN
scale = 1:300

MAY 07, 2020



ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2001115

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR
In accordance with Regulation 1026, Section 29(3)

TOPOGRAPHIC PLAN OF SURVEY OF

LOT 8 AND PART OF LOT 6
EAST OF GALT STREET
AND PART OF LOT 3
WEST OF BANK STREET
REGISTERED PLAN 36
CITY OF OTTAWA

Scale 1:150

2 0 2 4 6 8 10 METRES

METRIC CONVERSION

DISTANCES AND COORDINATES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048.

BEARING NOTE

BEARINGS ARE ASTRONOMIC AND ARE REFERRED TO THE SOUTHERLY LIMIT OF PART 1, AS SHOWN ON PLAN 4R-2501, HAVING A BEARING OF N 81°34' 30" E.

ELEVATION NOTE

ELEVATIONS SHOWN HEREON ARE GEODETIC (CGVD-1928:1978) AND ARE DERIVED FROM THE CAN-NET VRS NETWORK MONUMENT: OTTAWA ELEVATION=95.230.

LEGEND

■		DENOTES	FOUND MONUMENTS
□		"	SET MONUMENTS
IB		"	IRON BAR
IBø		"	ROUND IRON BAR
SIB		"	STANDARD IRON BAR
SSIB		"	SHORT STANDARD IRON BAR
CC		"	CUT CROSS
CP		"	CONCRETE PIN
WIT		"	WITNESS
PIN		"	PROPERTY IDENTIFICATION NUMBER
MEAS		"	MEASURED
PROP		"	PROPORTIONED
OU		"	ORIGIN UNKNOWN
SG		"	STANTEC GEOMATICS LTD.
ORP		"	OBSERVED REFERENCE POINT
P		"	REGISTERED PLAN 36
P1		"	PLAN 4R-8285
P2		"	PLAN 4R-2501
P3		"	PLAN BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD DATED AUGUST 15, 1991
P4		"	PLAN 4R-19507
◄	AN	"	ANCHOR
	BH	"	BOREHOLE
•	BOL	"	BOLLARD
	CB	"	CATCH BASIN
	DCB	"	DOUBLE CB
	CBMH	"	CB MANHOLE
	DCBMH	"	DOUBLE CB MANHOLE
	CBSI	"	SIDE INLET CB
	CHM	"	CHIMNEY
○	CSV	"	VALVE CURB STOP
	DRN	"	DRAIN
□	GSR	"	GAS SERVICE REGULATOR
	GV	"	GAS VALVE
○	HLS	"	LIGHT STANDARD HYDRO
	HM	"	HYDRO METER
□	HTN	"	HYDRO TRANSFORMER
○	HW	"	HAND WELL
	HYD	"	FIRE HYDRANT
	JBX	"	JUNCTION BOX
	MB	"	MAILBOX
○	MP	"	MONITORING PIN
○	MH	"	MAINTENANCE HOLE UNIDENTIFIED
○	MHB	"	MAINTENANCE HOLE BELL
○	MHF	"	MAINTENANCE HOLE FIBRE OPTIC
○	MHH	"	MAINTENANCE HOLE HYDRO
○	MHI	"	MAINTENANCE HOLE INVERT
○	MHSA	"	MAINTENANCE HOLE SANITARY
○	MHST	"	MAINTENANCE HOLE STORM
○	MHT	"	MAINTENANCE HOLE TRAFFIC
	MW	"	MONITORING WELL
	SCP	"	SUMP/CATCH PIT
	SCV	"	SPRINKLER CONTROL VALVE
	SH	"	SPRINKLER HEAD
	SIA	"	SIAMESE CONNECTION
	SN	"	SIGN
□	TB BELL	"	TERMINAL BOX - BELL
□	TB CATV	"	TERMINAL BOX - CABLE
□	TCB	"	TRAFFIC CONTROL BOX
	TPIT	"	TEST PIT
○	TSL	"	TRAFFIC SIGNAL LIGHT
	UMB	"	MARKER BELL UNDERGROUND
	UMC	"	MARKER CABLE UNDERGROUND
	UMG	"	MARKER GAS UNDERGROUND
	UMO	"	MARKER OIL UNDERGROUND
○	UP	"	UTILITY POLE
	VB	"	VALVE BOX
	VC	"	VALVE CHAMBER
	WV	"	WATER VALVE
		"	TREE STUMP
		"	TREE CONIFEROUS
		"	TREE DECIDUOUS
	SHB	"	SHRUB

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 5th DAY OF APRIL, 2017 .

April 24/17
DATE

T. HARTWICK
ONTARIO LAND SURVEYOR

SRO MAP COORDS: X= 368613 Y= 5028720

Stantec Geomatics Ltd.
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OTTAWA, ONTARIO, K2C 3G4
TEL. 613.722.4420 FAX. 613.722.2799
stantec.com

DRAWN: ME	CHECKED: KJ	PM: TH	FIELD: ES	PROJECT No.: 161613637-111