david schaeffer engineering ltd

120 Iber Road, Suite 103
Ottawa, Ontario K2S 1E9
Tel. (613) 836-0856
Fax (613) 836-7183
www.DSEL.ca

SITE SERVICING AND STORMWATER MANAGEMENT REPORT

FOR

HUNTINGTON PROPERTIES
1531 STITTSVILLE MAIN STREET

CITY OF OTTAWA

PROJECT NO.: 18-1033

JANUARY 2019 – REV.1

SITE SERVICING AND STORMWATER MANAGEMENT REPORT
FOR
1531 STITTSVILLE MAIN STREET
HUNTINGTON PROPERTIES

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1.0 INTRODUCTION

David Schaeffer Engineering Limited (DSEL) has been retained by Huntington Properties to prepare a Site Servicing and Stormwater Management report in support of the application for Site Plan Control (SPC) for the redevelopment of 1531 Stittsville Main Street.

The subject property is located within the City of Ottawa urban boundary, in the Stittsville Ward. As illustrated in ***Figure 1,*** below, the subject property is bounded by Orville Street to the northwest, and Stittsville Main Street to the south. The subject property measures approximately ***0.35 ha*** and falls under two zones; Traditional Mainstreet Use (TM9[1736]H(15)) and Residential Fourth Density (R4Z[1210]).

Figure 1: Site Location

The proposed SPC would allow for the development of a 4-storey residential/commercial building and ***7 townhomes***. The proposed mixed-use development would include approximately ***1,159 m²*** of ground level retail with associated aboveground and underground parking. The residential component is comprised of approximately ***44 units***. A copy of the proposed Site Plan, prepared by Project1 Studio Incorporated, is included in ***Drawings/Figures***.

The objective of this report is to demonstrate that sufficient existing and proposed municipal servicing infrastructure is in place to support the application for Site Plan Control. Additionally, this report will demonstrate that the site design conforms to current City of Ottawa design standards.

1.1 Existing Conditions

The existing site includes four commercial buildings with associated parking. Existing parking is accessed via both Stittsville Main Street and Orville Street. The elevations range for the site are between 121.80 m and 124.36 m, with a minimal grade change of approximately 0.62 m from the northeast to the southwest corner of the property.

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

Stittsville Main Street:

- 406 mm diameter ductile iron watermain;
- 250 mm diameter asbestos cement sanitary sewer, tributary to the Stittsville Trunk Collector; and
- 675 mm concrete storm sewer tributary to Poole Creek.

Orville Street:

- 203 mm diameter ductile iron watermain;
- 250 mm diameter asbestos cement sanitary sewer, tributary to the Stittsville Trunk Collector; and
- 375 mm diameter PVC storm sewer tributary to Poole Creek.

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 proposed development involves the servicing of more than one lot of land. As such, it is anticipated that the proposed development and accompanying stormwater management system will require an Environment Compliance Approval (ECA) from the Ministry of the Environment, Conservation and Parks (MOECP).

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-2018-04**
    City of Ottawa, June 27, 2018.
    (*ISTB-2018-04)*

- **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)

- **Geotechnical Investigation Proposed Mixed-Use Development 1531-1541 Stittsville Main Street, Ottawa, Ontario,**
  Paterson Group, November 2018.
  (Geotechnical Report)

3.0 WATER SUPPLY SERVICING

3.1 Existing Water Supply Services

The subject property lies within the City of Ottawa 3W pressure zone, as shown by the Pressure Zone map located in ***Appendix B***. A 406 mm diameter watermain exists within the Stittsville Main Street right-of-way and a 203 mm diameter watermain exists within the Orville Street right-of-way.

3.2 Water Supply Servicing Design

The subject property is proposed to be serviced through one connection to the existing 203 mm diameter watermain within Orville Street. The townhomes will be serviced through an internal 152 mm diameter watermain connected to the existing 203 mm diameter watermain. Townhomes will have independent connections to the internal watermain network via 19 mm diameter service laterals. Refer to drawing ***SSP-1,*** accompanying this report, for a detailed servicing layout.

The existing 150 mm diameter watermain stub is proposed to service the mixed-use commercial/residential apartment building via a 150 mm diameter water service.

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 Average Apartment	1.8 P/unit
Residential Townhome	2.7 P/unit
Residential Demand	280 L/p/d
Residential Maximum Daily Demand	6.9 x Average Daily *
Residential Maximum Hourly	10.3 x Average Daily *
Commercial Retail	2.5 L/m^2/d
Commercial Maximum Daily Demand	1.5 x avg. day
Commercial Maximum Hour Demand	1.6 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 shall not exceed	552 kPa
During fire flow operating pressure must not drop below	140 kPa
** 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-2018-2*	

Table 2, below, summarizes the estimated water demand and boundary conditions for the proposed development, and was calculated using the ***Water Supply Guidelines.***

Table 2
Proposed Water Demand

Design Parameter	Estimated Demand[1] (L/min)	Boundary Conditions[2] Orville Street (m H_2O / kPa)	
Average Daily Demand	20.4	160.6	371.8
Max Day + Fire Flow (Townhomes)	133.7+ 17,000 = 17,133.7	148.4	252.1
Max Day + Fire Flow (Apartments)	133.7 + 19,000 = 19,133.7	148.4	252.1
Peak Hour	202.0	155.2	318.8

1) Water demand calculation per ***Water Supply Guidelines***. See ***Appendix B*** for detailed calculations.
2) Boundary conditions supplied for the connection to Orville Street by the City of Ottawa for the demands indicated in the correspondence; assumed ground elevation 122.7 m at the connection to the municipal watermain. See ***Appendix B.***

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***.

A ***0.1 kPa*** pressure loss along the service was estimated using the Darcy-Weisbach equation; corresponding calculation are included in ***Appendix B***. Using the pressures from the boundary conditions provided in ***Table 2*** and the pressure loss calculated, the resulting pressures are within the range outlined in ***Table 1***.

The required fire flow (RFF) was estimated in accordance with City of Ottawa Technical Bulletin ***ISTB-2018-02***; the resulting highest flows for each building type were sent to the City of Ottawa for boundary conditions. The following parameters were assumed:

- Type of construction – Wood frame for townhouse style homes and for the apartment building;
- Occupancy type – Limited combustible; and
- Sprinkler Protection – Sprinklered system for the apartment building and Non-Sprinklered for the townhomes.

Table 3, below, summarizes the fire flow for each building, per the above assumptions***.*** Calculation sheets per the ***ISTB-2018-02*** can be found in ***Appendix B.***

Table 3
Estimated Fire Flow Demand

Building Type	Estimated Fire Demand (L/min)	Available Fire Flow per Table 18.5.4.3 of ISTB-2018-02 (L/min)
Townhomes	17,000	18,926
Mixed-Use Commercial/ Apartment Building (4-Storey)	19,000	20,593

The property has five (5) adjacent hydrants listed below:

1. Located at the north west corner of the intersection of Stittsville Main Street and Orville Street;
2. Located on Stittsville Main Street, south of the subject property, on the north side of the road;
3. Located at the intersection of Stittsville Main Street and Brae Crescent;
4. Located on Pretty Street, south of Orville Street; and
5. Located on Abbott Street East, east of Stittsville Main Street.

According to ***Table 18.5.4.3*** of **ISTB-2018-02** and the resulting pressure during the fire flow scenario provided by the City of Ottawa, the existing hydrants are able to meet the required fire flow demands of the proposed development at or above the required minimum pressure.

3.3 Water Supply Conclusion

A 150 mm diameter connection will service the mixed-use commercial/residential apartment building by connecting to the existing 150 mm diameter stub. The existing 150 mm diameter stub is serviced by the existing 203 mm diameter watermain within the Orville Street right-of-way. The townhomes will be serviced by the internal 150 mm diameter watermain via the existing 203 mm diameter watermain within the Orville Street right-of-way.

The estimated water demand was submitted to the City of Ottawa for establishing boundary conditions. The City provided both the anticipated 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***.

It is proposed that the development will be serviced by five existing fire hydrants on the adjacent streets. Based on ***Table 18.5.4.3*** of **ISTB-2018-02,** the fire flow demands of the proposed buildings fall within a range that can be supplied through the existing hydrants.

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 property lies within the Stittsville Trunk sewer catchment area, as shown by the ***Trunk Sanitary Sewers and Collection Areas Map,*** included in ***Appendix C***. Existing 250 mm diameter sanitary sewers within the Stittsville Main Street and Orville Street right-of-ways are available to service the proposed development.

4.2 Wastewater Design

It is proposed that the development will be serviced through a 200 mm diameter internal sanitary sewer. It is proposed to connect the 200 mm diameter internal sewer to the existing monitoring maintenances structure within Orville Street, which is tributary to the existing 250 mm diameter sanitary sewer within Orville Street.

Townhomes will have independent connections to the internal 200 mm diameter sanitary sewer network via 135 mm diameter service laterals. Refer to the drawing ***SSP-1,*** accompanying this report, for sanitary servicing layout.

Table 4, below, summarizes the ***City Standards*** employed in the calculation of wastewater flow rates for the proposed development.

Table 4
Wastewater Design Criteria

Design Parameter	Value
Residential Average	1.8 P/unit
Residential Townhome	2.7 P/unit
Residential Demand	280 L/p/d
Commercial Floor Space	2.5 L/m^2/d
Peaking Factor	Harmon's Peaking Factor. Max 3.8, Min 2.0 Harmon's Corrector Factor 0.8
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 Sanitary Sewer Lateral	135 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 peak sanitary flow from the proposed development to the sanitary sewer within Orville Street based on the site statistics provided by Project1 Studio Incorporated. See ***Appendix C*** for associated calculations.

Table 5
Summary of Proposed Wastewater Flows

Design Parameter	Anticipated Sanitary Flow[1] (L/s)
Average Dry Weather Flow Rate	0.38
Peak Dry Weather Flow Rate	1.32
Peak Wet Weather Flow Rate	1.34

The estimated sanitary flow based on the ***Site Plan,*** included in ***Drawings/Figures,*** results in a peak wet weather flow of ***1.34 L/s***.

The peak wastewater flow generated from the proposed development to the local Orville Street sanitary sewer and ultimately the Stittsville Trunk sewer has been estimated to be ***1.34 L/s***; detailed calculations are included in ***Appendix C***.

Due to the complexity of the drainage area, the impacts from the estimated flow from the site require further review by the City in order to confirm capacity and resulting HGL within the existing sanitary sewer.

4.3 Wastewater Servicing Conclusions

The site is tributary to the Stittsville Trunk sewer. It is proposed to discharge wastewater to the existing 250 mm diameter sanitary sewer via a connection to the existing sanitary monitoring manhole within the Orville Street right-of-way.

Due to the complexity of the drainage area, the existing capacity will need to be confirmed with City of Ottawa staff.

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. 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 Carp River watershed and is therefore, subject to review by the Mississippi Valley Conservation Authority (MVCA). Consultation with the MVCA is located in ***Appendix A***.

It is anticipated that no stormwater management controls for flow attenuation exist on-site. 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 (L/s)
2-year	36.3
5-year	49.2
100-year	105.2

5.2 Post-development Stormwater Management Targets

Stormwater management quantity control requirements for the proposed development were reviewed with the City of Ottawa. Correspondence is included in ***Appendix A*** and summarized below:

- Control post-development to estimated pre-development stormwater flows for the 5-year and 100-year storm events;
- Attenuate storms up to and including the City of Ottawa 100-year design event on site; and
- Provide quality controls to an enhanced level of treatment due to the site's distance from the outlet and the current Site Plan; correspondence with the MVCA is included in ***Appendix A***.

Based on the parameters above, the allowable 5-year and 100-year release rates for the proposed development are ***49.2 L/s*** and ***105.2 L/s*** respectively.

5.3 Proposed Stormwater Management System

It is proposed that the stormwater for the development be serviced through an internal storm sewer network that discharges to the existing 375 mm diameter storm sewer within Orville Street.

The proposed stormwater management system will include private catch basins, an internal storm sewer network, and an underground storage unit to achieve the target pre-development release rates. Townhomes will have independent connections to the internal storm sewer network via 100 mm diameter service laterals. The mixed-use residential/commercial building will be serviced by the internal storm sewer network via a 250 mm diameter storm service. Refer to drawing ***SSP-1,*** accompanying this report, for detailed servicing layout.

Area ***A1 & A2***, as shown by drawing ***SWM-1,*** accompanying this report, is proposed to be serviced via the internal storm sewer network, tributary to the Orville street storm sewer. Brentwood ST-36 storage systems or an approved equivalent will provide ***42.8 m^3*** of underground storage which will be attenuated by a ***129 mm Plug Style ICD*** at the outlet side of storm maintenance structure ***STM104***.

Table 7, below***,*** estimates post-development flow rates and storage requirements.

Table 7
Stormwater Flow Rate Summary

Control Area	5-Year Release Rate	5-Year Storage	100-Year Release Rate	100-Year Storage	100-Year Available Storage
	(L/s)	(m^3)	(L/s)	(m^3)	(m^3)
Unattenuated Areas (U1)	8.8	0.0	18.9	0.0	0.0
Unattenuated Areas (U2)	11.0	0.0	23.6	0.0	0.0
Attenuated Areas	33.1	20.3	62.1	46.1	46.4
Total	**52.9**	**20.3**	**104.6**	**46.1**	**46.4**

It is estimated that a total of ***46.1 m^3*** of storage is required to attenuate flow to a release rate of ***49.2 L/s*** for the 5-year event and ***105.2 L/s*** for the100-year event. Based on the information provided in ***Table 7, 46.4 m^3*** of storage is provided via surface ponding and an underground storage system. Supporting storage calculations are contained within ***Appendix D***.

5.3.1 Stormwater Quality Controls

To meet stormwater quality criteria specified by the MVCA, an oil/grit separator will be installed downstream of all catch basins and controls, as shown by drawing ***SSP-1,*** accompanying this report. Quality control is proposed through an Aqua-Swirl AS-2 Oil/Grit Separator (OGS) unit located on-site, treating stormwater directed to the outlet sewer within Orville Street to 80% TSS Removal. Please refer to ***Appendix D*** for full report on the OGS units proposed.

5.3.2 Stormwater Thermal Mitigation

As per correspondence with the MVCA, thermal mitigation should be implemented on-site due to the proposed outlet of Poole Creek, a cool water collection area. Thermal mitigation is provided by the use of high albedo roof tops indicated on drawing ***SSP-1***. High Albedo roof tops are used to provide thermal mitigation prior to discharge to the existing sewer within Orville Street.

5.4 Proposed Major System Flow

During storms in excess of the 100-year event or if catchbasins/manholes become blocked, stormwater runoff will spill towards the private right-of-ways. Stormwater from private right-of-ways will flow overland towards the municipal infrastructure within the Orville Road right-of-way and ultimately to Poole Creek, approximately 0.7 km downstream.

5.5 Stormwater Servicing Conclusions

Post-development stormwater runoff will be required to be restricted to the estimated pre-development 5-year and 100-year storm events, based on coordination with City of Ottawa. The post-development stormwater allowable 5-year and 100-year release rates to the storm sewer within Orville Street was calculated to be ***49.2 L/s*** and ***105.2 L/s***. It is estimated that ***46.1 m^3*** of storage will be required to meet this release rate.

Quantity controls will be provided through the use of a Brentwood ST-36 subsurface storage chamber and an ICD. Stormwater quality objectives are proposed to be achieved through the use of an OGS as well as high albedo rooftops on the mix-used residential/commercial building.

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

6.0 UTILITIES

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 Huntington Properties to prepare a Functional Servicing and Stormwater Management Report in support of the Site Plan Control (SPC) application for the development at 1531 Stittsville Main Street. The preceding report outlines the following:

- Based on boundary conditions provided by the City, residual pressures are within the required range identified by the Water Supply Guidelines;
- The FUS method for estimating fire flow indicated ***17,000 L/min*** is required for the townhomes and ***19,000 L/min*** for mixed-use commercial/residential apartment building. As indicated by the boundary conditions provided by the City, the municipal system is capable of providing the required flow;
- The proposed development is estimated to have a peak wet weather flow of ***1.34 L/s***; The City of Ottawa is to confirm that capacity is available in the local sewers to support the development;
- Based on the ***City Standards***, the proposed development will attenuate flow to the pre-development 5-year and 100-year release rates of ***49.2 L/s*** and ***105.2 L/s***;
- Stormwater objectives will be met through retention via surface and subsurface storage, and an ICD, it is calculated that ***46.1 m^3*** of onsite storage will be required to attenuate flow to the established release rate above; ***46.4 m^3*** of storage is provided via surface ponding and a Brentwood ST-36 underground storage system or an approved equivalent; and
- Based on consultation with the MVCA, Poole Creek is a cool water system and stormwater quality controls are required for the development. An “Enhanced Level” of quality control (80% TSS removal) is required for the development. Quality control requirements are proposed to be met through the use of and OGS and albedo rooftops.

Prepared by,
David Schaeffer Engineering Ltd.

Per: Charlotte M. Kelly, E.I.T.

Reviewed by,
David Schaeffer Engineering Ltd.

Per: Alison J. Gosling, E.I.T.

Reviewed by,
David Schaeffer Engineering Ltd.

Per: Robert D. Freel, P. Eng.

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APPENDIX A

Pre-Consultation

DEVELOPMENT SERVICING STUDY CHECKLIST

18-1033 17/01/2019

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

1531 Stittsville Main Street
Pre-Consultation Meeting Minutes

Location: Room 4102E, City Hall
Date: May 24, 3pm to 4:15pm

Attendee	Role	Organization
Stream Shen	Planner	City of Ottawa
Mark Young	Planner (Urban Design)	
Eric Surprenant	Project Manager (Engineer)	
Rosanna Baggs	Project Manager (Transportation)	
Melanie Vivian	Planning Assistant	
Alan Whitten	Developer	Huntington Properties
Derek Noble	Developer	
Brian Casagrande	Planner	FOTENN Consultants Inc.
Emilie Coyle	Planner	
Tim Streek	Development Partner	TSH Development Group
Ryan Koolwine	Architect	Project 1 Studio
Adam Fobert	Engineer	DSEL

Comments from Applicant

1. The applicant is proposing to develop a 4-storey mixed-use building at 1531 Stittsville Main Street and seven townhome units along Midnight Private, adjacent to the existing Orville Station development.

2. The proposed mixed-use building contains two commercial units at the intersection of Stittsville Main Street and Orville Street and a total of 47 residential dwelling units. The building will contain one level of underground parking as well as surface parking at the rear of the property. The ground floor of the building will be equipped with exterior terraces and the fourth floor of the building will be setback from the street via a terrace. The exterior elevation will be finished with traditional building material (e.g. red tone brick) with a wood element banner wrapping around the edge of the building. Along the required right-of-way widening, the applicant is proposing to include a row of parallel on-street parking spaces along Stittsville Main Street. The rooftop will include outdoor amenity spaces and a permitted projection access structure.

3. The seven townhome units will front onto the Orville Station development, sitting approximately where the previous approved west block apartment building was to be located. Each townhome unit will have an individual driveway at the back of the building access from the existing Midnight Private. The applicant is also

proposing to finish the approved landscape centre courtyard from the previous site plan application.

4. The applicants' intention is for all of the units to be purpose built rental units and owned by the same owner. The applicant will either amend the condominium agreement to include the townhome units or prepare a new joint-use and maintenance agreement to participate in the common elements (e.g. courtyard) with the condominium corporation.
5. Site services are proposed from Midnight Private to service all of the new units. The applicant is proposing to merge the two parcels such that a MOECC ECA is not triggered.
6. The applicant indicated that there is significant grade change from the west to the east such that the townhome unit ground area is roughly a storey higher than the Stittsville Main ground elevation level.
7. The applicant is hoping to begin construction in the spring of 2019.

Planning Comments

1. This is a formal pre-consultation for a Site Plan Control application, Manager Approval, subject to Public Consultation and associated Minor Variance or Minor Zoning By-law Amendment applications. Application form, timeline and fees can be found here.
2. Cash-in-lieu of parkland and associated appraisal fee will be required as a condition of approval as per the Parkland Dedication Bylaw.
3. The area is subject to Stittsville Main Street Community Design Plan and Secondary Plan. Please consultant the documents for relevant policies.
4. In terms of zoning, the subject properties currently sit on two zones. The proposed townhomes are located within R4Z [1210] and the proposed mixed-use building is located within TM9 [1736] H(15).
5. The proposed mixed-use building generally complies with the TM zoning, with the exception of having residential uses within 10 metres of the front lot line. Staff recommend that the building be modified such that the residential units along Stittsville Main Street are converted to commercial units. Both the Stittsville Main Street Community Design Plan and Secondary Plan encourages of having a mix of non-residential uses on the ground floor of a mixed-use building address the mainstreet.
6. The townhome units are subject to the provisions of R3Z [996], which is a legacy zoning not suitable for the current proposal. Staff is recommending a rezoning

application to modify the performance standards associated with townhome development.

7. FOTENN Consultants Inc. indicated that they would prepare a zoning compliance table and reach out to staff to discuss required variance or rezoning through a separate meeting. Further comments related to zoning compliance will be provided after the meeting.
8. If the applicant decides to proceed with a rezoning application, a single application can be used to modify both the performance standards associated with the mixed-use building and townhome development, which may be filed concurrent with the site plan application. If the applicant decide to proceed with minor variance applications, the hearing date should be scheduled such that the site plan has proceeded sufficiently so that no major changes are anticipated. This way, the applicant is not risking the need to return to Committee of Adjustment to seek further changes if the design is modified as part of the site plan application.
9. A 5mx5m corner sight triangle is required at the corner of Stittsville Main Street and Orville Street.
10. The proposed development is subject to the Urban Design Review Panel. The formal meeting is generally scheduled within the first month of site plan submission.
11. In terms of the urban design components, staff will be looking for materials and colours that are reflective of the area and good articulation of the building façade.
12. Please provide a 2m concrete sidewalk and tree plantings along Stittsville Main Street.
13. Depending on the ownership setup and proposed lot line for the townhome units, an amendment to the approved Plan of Condominium application may be required.
14. There are potential upgrades to the Stittsville Main street furniture in the City's future work plan.
15. Please consult with the Ward Councillor prior to submission.
16. The pre-consultation meeting minutes and list of required plans and studies will lapse on May 24, 2019.

Engineering Comments

1. Please control the stormwater release pre to post development.

2. Depending on the ownership setup, please confirm with the Ministry whether an ECA application is required.
3. Water frontage fee is not applicable.
4. Please provide all of the required plans and studies for review.

Transportation Comments

1. Please complete the Transportation Impact Assessment process prior to Site Plan submission.
2. Follow Traffic Impact Assessment Guidelines – Screening form to start, full Traffic Impact Assessment if any of the triggers on the screening form are satisfied. Start this process as soon as possible as the application cannot be deemed complete until at least Steps 1-4 plus the draft RMA and/or Monitoring Report, if applicable, are submitted.
    a. A development within a Design Priority Area is a trigger for a TIA; therefore, one is needed for this location regardless of what other triggers are satisfied. The other triggers will determine what content is required.
    b. An RMA will be required for the street parking on Stittsville Main; application cannot be deemed complete until Step 1-4 and the functional RMA package has been received.
3. ROW protection on Stittsville Main between Carp and Etta is 23m.
4. Road Noise Impact Assessment required due to proximity to Stittsville Main.
5. On site plan, show all road detail of Stittsville (up to the opposite side of the street), including existing pavement markings and sidewalks.
6. Truck turning templates for largest vehicle required; internal and at access, including into the garage.
7. Hamer-head of min 1m recommended at southern end of drive aisle (next to parking spot 27.
8. Show all curb radii measurements
    a. Private access radii to be as small as possible, usually fire truck route dictates but if not the 5m.
9. Sidewalk is to be continuous alone frontage of property and be continuous across access as per City Specification 7.1 if not stop controlled; road versus driveway.
10. Internal pedestrian connection to exterior sidewalks highly recommended.
11. Parking:
    a. 90 degree parking requires 6.7m aisles as per Part 4 – Parking, Queuing and Loading Provisions, Table 107 of the Zoning By-law.

12. Street parking comments:
    a. There is a bus stop that needs to be accommodated or relocated; no stopping 34m before and 18m after. OC Transpo is to be consulted early on and must approve of relocation.
    b. It is recommended that a technical report be provide as soon as possible for all stakeholders (OC, Utilities, etc) to detail what is existing vs being proposed, what needs to be constructed/relocated, what is affected and proposed solutions for conflicts, what supports this proposal (ie CDP), and any other relevant information. Example attached.
    c. Street lighting on both sides of the street close to the curb; would need to be relocated/accommodated.
    d. Does not count toward parking calculations when within City ROW.
    e. RMA will be require for the lay-by/parking.

Forestry Comments

1. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City; an approved TCR is a requirement of Site Plan or Plan of Subdivision approval
2. Any removal of privately-owned trees 10cm or larger in diameter require a tree permit issued under the Urban Tree Conservation Bylaw; the permit is based on the approved TCR
3. In this case, the TCR may be combined with the LP
4. The TCR must list all trees on site by species, diameter and health condition.
5. The TCR must address all trees with a critical root zone that extends into the developable area.
6. If trees are to be removed, the TCR must clearly show where they are and document the reason they can not be retained
7. All retained trees must also be shown and all retained trees within the area impacted by the development process must be protected as per the City guidelines listed on Ottawa.ca
8. Trees with a trunk that crosses/touches a property line are considered co-owned by both property owners; permission from the adjoining property owner must be obtained prior to the removal of co-owned trees
9. The City does encourage the retention of healthy trees wherever possible; please ask your design/planning team to find opportunities for retention wherever possible if the trees are healthy and will contribute to the design/function of the

site. For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca

10. The removal of City-owned trees will require the permission of Forestry Services who will also review the submitted TCR; note that Forestry Services may ask for compensation for any City-owned tree that has to be removed.

Please contact me at stream.shen@ottawa.ca or at 613-580-2424 extension 24488 if you have any questions.

Sincerely,

Stream Shen MCIP RPP
Planner II
Development Review - West

Alison Gosling

From: Nader Nakhaei <NNakhaei@mvc.on.ca>
Sent: Monday, November 26, 2018 3:31 PM
To: Alison Gosling; Matt Craig
Cc: Charlotte Kelly
Subject: RE: 18-1033 1539 Stittsville Main Street - Quality Requirement

Follow Up Flag: Follow up
Flag Status: Completed

Hello Alison,

As Matt mentioned below, Poole Creek is a cool water system and since there is no end of pipe SW facility for this area we require on-site 'enhanced' (80% TSS removal) quality control.
Please let me know if you have any further concern or question.

Sincerely,

Nader Nakhaei, Ph.D. | Water Resources Specialist / Research Fellow | Mississippi Valley Conservation Authority
www.mvc.on.ca | t. 613 253 0006 ext. 259 | f. 613 253 0122 | NNakhaei@mvc.on.ca

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From: Alison Gosling [mailto:AGosling@dsel.ca]
Sent: Thursday, November 22, 2018 4:06 PM
To: Matt Craig <MCraig@mvc.on.ca>; Nader Nakhaei <NNakhaei@mvc.on.ca>
Cc: Charlotte Kelly <CKelly@dsel.ca>
Subject: RE: 18-1033 1539 Stittsville Main Street - Quality Requirement

Hi Matt,

That is correct.

Regards,

Alison Gosling, 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.542
fax: (613) 836-7183
email: agosling@dsel.ca

From: Matt Craig [mailto:MCraig@mvc.on.ca]
Sent: Thursday, November 22, 2018 4:01 PM
To: Alison Gosling <AGosling@dsel.ca>; Nader Nakhaei <NNakhaei@mvc.on.ca>
Cc: Charlotte Kelly <CKelly@dsel.ca>
Subject: RE: 18-1033 1539 Stittsville Main Street - Quality Requirement

Hi Alison,

Just to confirm, It discharges north along Main St. to Poole Creek? Poole Creek is a cool water system. Nader is away till Monday.

Regards

Matt

From: Alison Gosling [mailto:AGosling@dsel.ca]
Sent: November 22, 2018 11:18 AM
To: Nader Nakhaei <NNakhaei@mvc.on.ca>
Cc: Matt Craig <MCraig@mvc.on.ca>; Charlotte Kelly <CKelly@dsel.ca>
Subject: 18-1033 1539 Stittsville Main Street - Quality Requirement

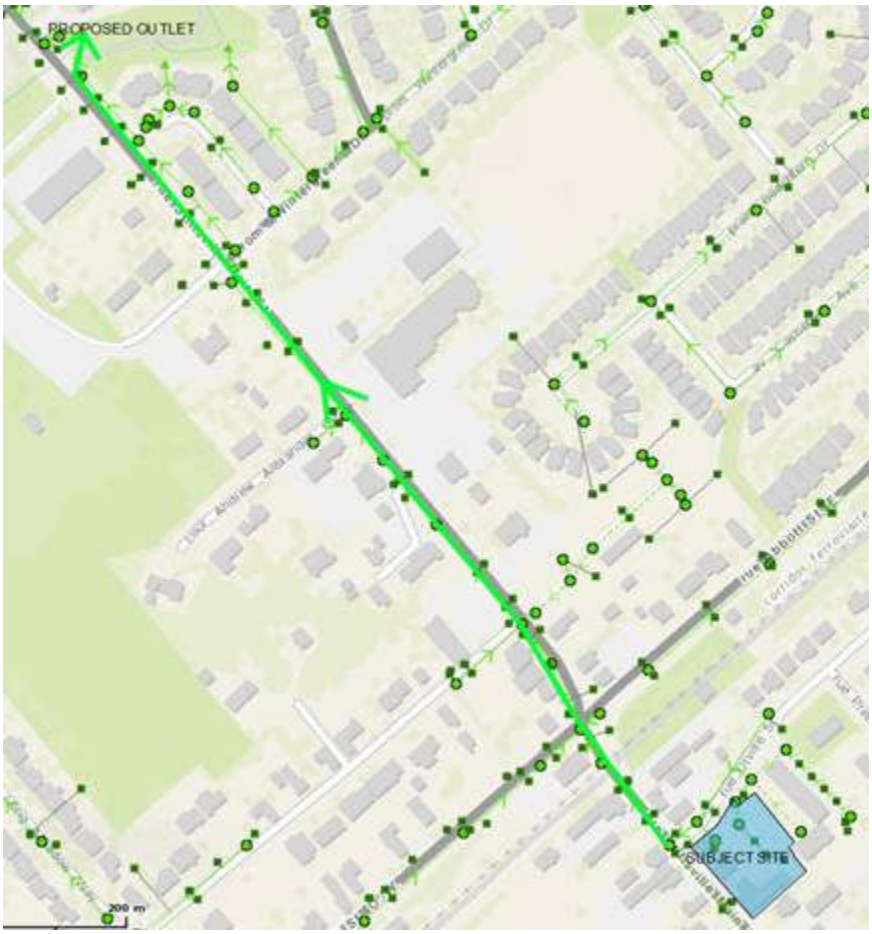
Good afternoon,

We wanted to touch base with you regarding a development we are working on located at 1539 Stittsville Main Street.

Stormwater collected from the site travels approximately 700m to the Stittsville Wetland Complex .

The development proposes to construct a 4-storey residential building with associated underground and above grade parking as well as a 7 units townhome. The development will discharge stormwater to the existing 375 mm diameter storm sewer within Orville Street.

Can you provide a comment regarding quality controls that maybe required for the site?



Please feel free to call if you have any questions or you would like to discuss.

Thank you,

Alison Gosling, 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.542
fax: (613) 836-7183
email: agosling@dsel.ca

APPENDIX B

Water Supply

1539 Stittsville Main Street
Proposed Site Conditions

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	7	19
Apartment			0
Bachelor	1.4	-	0
1 Bedroom	1.4	-	0
2 Bedroom	2.1	-	0
3 Bedroom	3.1	-	0
Average	1.8	44	80

	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	99	27.7	19.3	190.0	132.0	286.4	198.9

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
Commercial/Amenity floor space	2.5 $L/m^2/d$	651	1.63	1.1	2.4	1.7	4.4	3.1
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			1.6	1.1	2.4	1.7	4.4	3.1
Total Demand			**29.3**	**20.4**	**192.5**	**133.7**	**290.8**	**202.0**

*A daily consumption rate of 280 L/person/day was used to align with the revised wastewater rates identified by City of Ottawa Technical Bulletin ISTB-2018-01.

Max Day Peaking Factor (Residential) † = 6.9
Max Day Peaking Factor (Commercial) † = 1.5
Peak Hour Peaking Factor (Residential)†† = 10.3
Peak Hour Peaking Factor (Commercial)†† 1.8

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: Wood Frame

C	1.5		*Type of Construction Coefficient per FUS Part II, Section 1*
A	1473.0	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	12665.5	L/min
	13000.0	**L/min** *rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible	-15%
Fire Flow	**11050.0 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	10.1m-20m	40	3	120	15%
S	Wood Frame	3.1m-10m	5	3	15	17%
E	Non-Combustible	20.1m-30m	40	4	160	10%
W	Wood Frame	20.1m-30m	20	1	20	8%
		% Increase				**50%** *value not to exceed 75%*

Increase	**5525.0 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	16575.0	L/min *fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section*
	17000.0	**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

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: Wood Frame

C	1.5		*Type of Construction Coefficient per FUS Part II, Section 1*
A	4465.0	m^2	*Total floor area based on FUS Part II section 1*

Fire Flow	22050.8	L/min
	22000.0	**L/min** *rounded to the nearest 1,000 L/min*

Adjustments

2. Reduction for Occupancy Type

Limited Combustible -15%

Fire Flow	**18700.0**	**L/min**

3. Reduction for Sprinkler Protection

Sprinklered - Supervised -50%

Reduction	**-9350**	**L/min**

4. Increase for Separation Distance

	Cons. of Exposed Wall	S.D	Lw	Ha	LH	EC	
N	Wood Frame	20.1m-30m	42	3	126	10%	
S	Wood Frame	10.1m-20m	10	2	20	12%	
E	Wood Frame	3.1m-10m	5	1	5	17%	
W	Wood Frame	10.1m-20m	15	2	30	12%	
		% Increase				**51%**	*value not to exceed 75%*

Increase	**9537.0**	**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	18887.0	L/min	*fire flow not to exceed 45,000 L/min nor be less than 2,000 L/min per FUS Section*
	19000.0	**L/min**	*rounded to the nearest 1,000 L/min*

Notes:
-Type of construction, Occupancy Type and Sprinkler Protection information provided by Project1 Studio .
-Calculations based on Fire Underwriters Survey - Part II

Huntington
1539 Stittsville Main Street
Boundary Condition Results

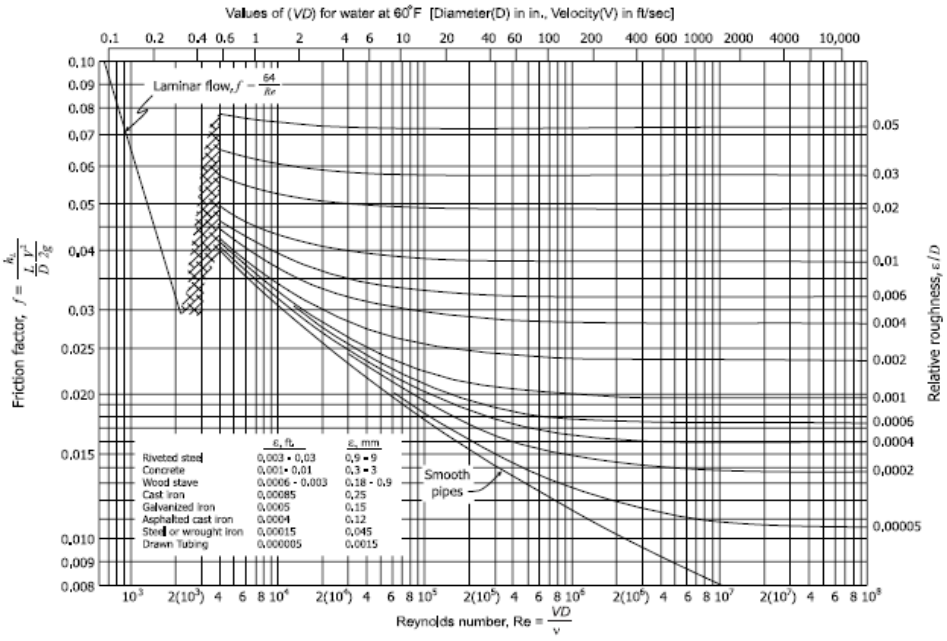
Boundary Conditions Unit Conversion

Grnd Elev 122.7

	m H_2O	PSI	kPa
Avg. Day	**160.6**	53.9	371.8
Peak Hour	**155.2**	46.2	318.8
Max Day + FF	**148.4**	36.6	252.1

Estimated Head Loss per Darcy-Weisbach

Service Size	152	mm
Service Length	47.9	m
Peak Demand	3.37	L/s
Relative Roughness	0.00006	
Kinematic Viscosity @ 4^{O}C, v	0.00000151	m^2/s
Velocity, V	0.19	m/s
Re	18,672	



Friction Factor, f 0.021 (From Moody Diagram)

Head Loss

$$h_f = \frac{fL}{D}\frac{V^2}{2g}$$

h_f	0.01	m H_2O
h_f	0.1	kPa

BOUNDARY CONDITIONS

Boundary Conditions For: 1539 Stittsville Main

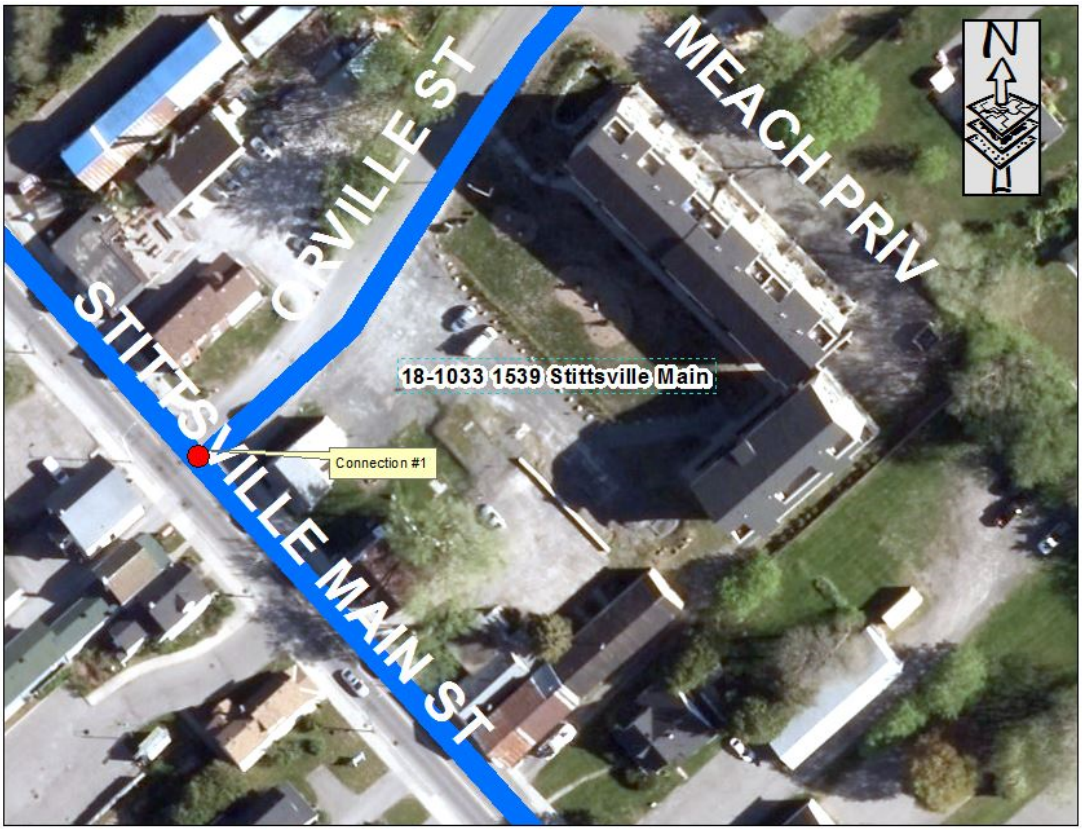
Date of Boundary Conditions: 2018-Dec-17

Provided Information:

Scenario	Demand	
	L/min	L/s
Average Daily Demand	20.4	0.3
Maximum Daily Demand	133.8	2.2
Peak Hour	202.2	3.4
Fire Flow #1 Demand	19,000	316.7

Number Of Connections: 1

Location:



BOUNDARY CONDITIONS

Results:

Connection #: 1

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	160.6	54.9
Peak Hour	155.2	47.2
Max Day Plus Fire (19,000) L/min	148.4	37.5

[1]Elevation: **122.700 m**

Notes:

1) As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:

a) If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
b) Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

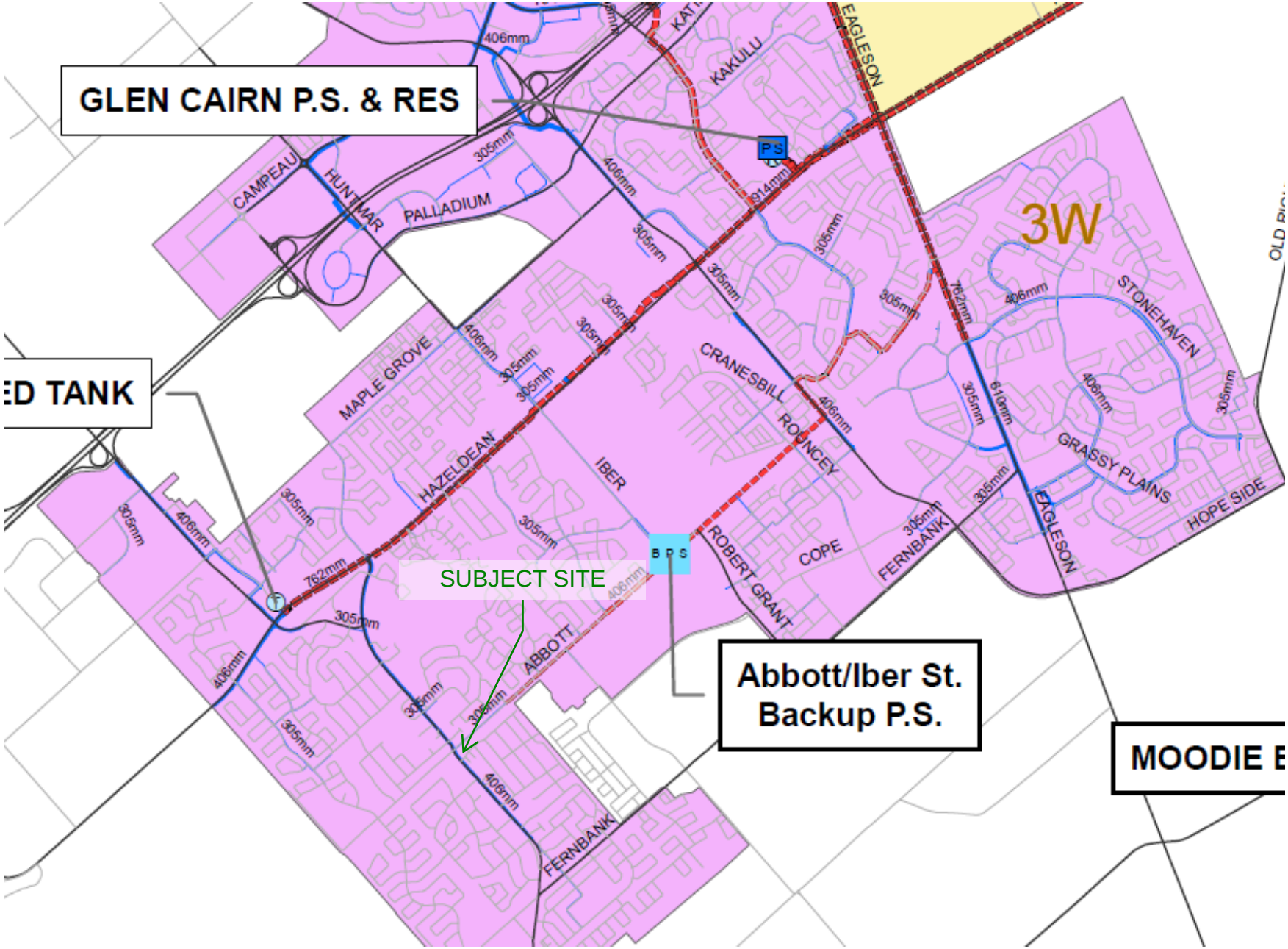
2) Due to the exceedance of 50 units of this development, the City of Ottawa recommends having two watermain connections to two separate mains to avoid water interruption in the event one of the main is shut down for any reason.

3) Click or tap here to enter text.

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. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

Pressure Zone Map



APPENDIX C

Wastewater Collection

Huntington Properties
1531 Stittsville Main Street
Proposed Site Conditions

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

Site Area	0.393	**ha**

Extraneous Flow Allowances

Infiltration / Inflow (Dry)	**0.02**	**L/s**
Infiltration / Inflow (Wet)	**0.11**	**L/s**
Infiltration / Inflow (Total)	**0.13**	**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	7	19
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	44	80

Total Pop	**99**	
Average Domestic Flow	**0.32**	**L/s**
Peaking Factor	**3.60**	
Peak Domestic Flow	**1.15**	**L/s**

Institutional / Commercial / Industrial Contributions

Property Type	**Unit Rate**	**No. of Units**	**Avg Wastewater (L/s)**
Commercial floor space*	2.5 $L/m^2/d$	651	0.04
Industrial - Light**	35,000 L/gross ha/d		0.00
Industrial - Heavy**	55,000 L/gross ha/d		0.00

Average I/C/I Flow	**0.04**
Peak Institutional / Commercial Flow	0.06
Peak Industrial Flow**	0.00
Peak I/C/I Flow	**0.06**

** 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	**0.38 L/s**
Total Estimated Peak Dry Weather Flow Rate	**1.32 L/s**
Total Estimated Peak Wet Weather Flow Rate	**1.34 L/s**

Residential demands, Harmon's Correction Factor, Extraneous Flow Rates and Commercial Peaking Factor established by the City of Ottawa Technical Bulletin ISTB-2018-01. Commercial demands established by City of Ottawa Sewer Design Guidelines Appendix 4A.

Huntington Properties
1531 Stittsville Main Street
Onsite Sanitary Sewer Sizing

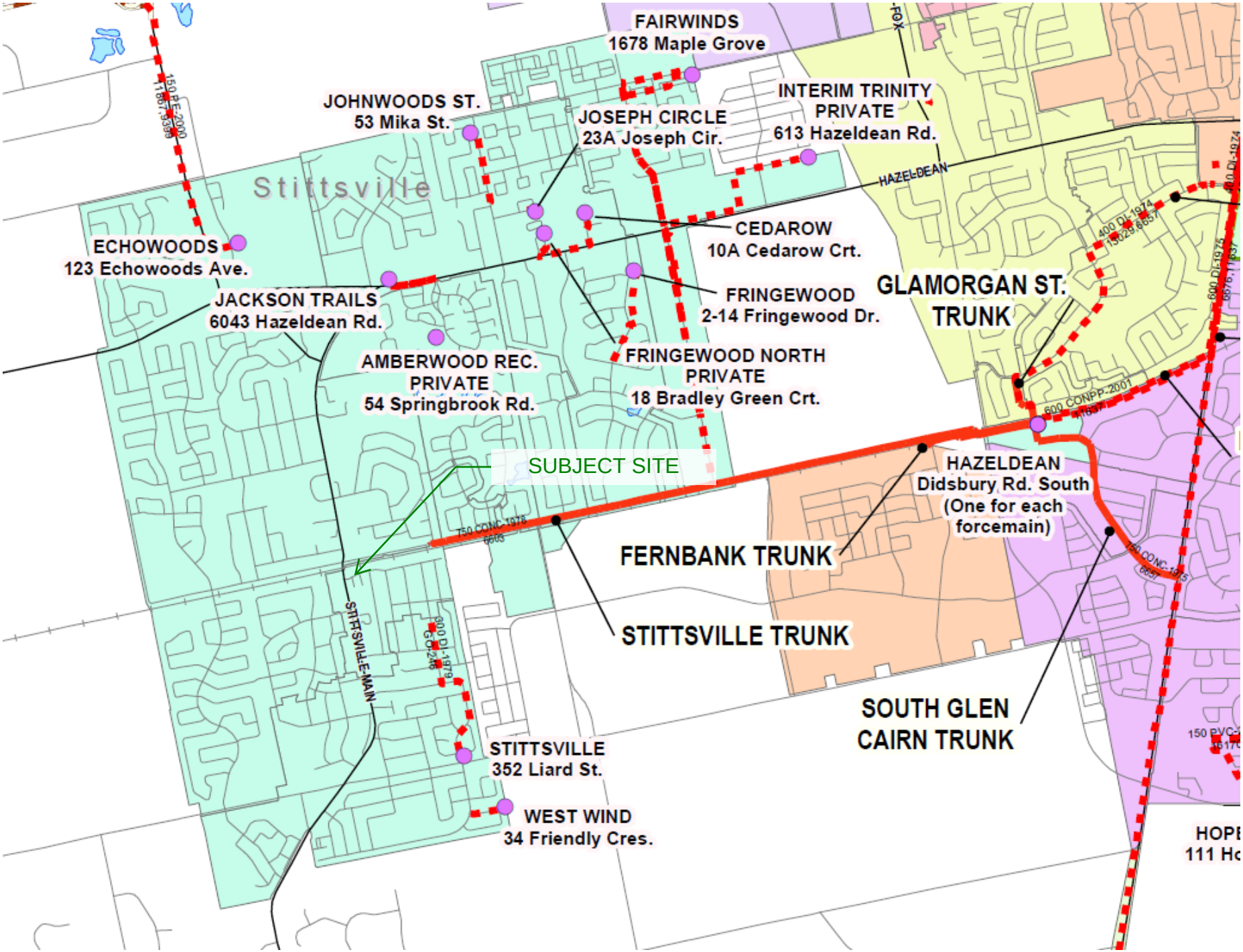
CLIENT: **HUNTINGTON**
LOCATION: **STITTSVILLE MAIN**
FILE REF: **18-1033**
DATE: **9-Jan-19**

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	50,000	L/ha/d	Peak Fact. Comm.	1.5	Min. Pipe Velocity	0.60	m/s full flowing
Avg. Daily Flow Instit.	50,000	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				Pop.	Cumulative		Peak.	Q_{res}	Area	Accu.	Area	Accu.	Area	Accu.	Q_{C+I+I}	Total	Accu.	Infiltration	Total	DIA	Slope	Length	$A_{hydraulic}$	R	Velocity	Q_{cap}	Q / Q full
				by type					Area	Pop.	Fact.			Area		Area		Area		Area	Area	Flow	Flow								
			(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)	(-)
	SAN1	EX.MH	0.361				51	92.0	0.361	92.0	4.00	1.19	0.07	0.07		0.00		0.00	0.1	0.393	0.393	0.110	1.36	200	0.50	40.1	0.031	0.050	0.74	23.2	0.06

Trunk Sanitary Sewers and Collection Areas Map



APPENDIX D

Stormwater Management

Huntington Properties
1531 Stittsville Main Street
Existing Site Conditions

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

Existing Drainage Charateristics From Internal Site

Area	0.393	ha
C	0.51	Rational Method runoff coefficient
L	66.8	m
Up Elev	122.7	m
Dn Elev	121.7	m
Slope	1.5	%
Tc	13.7	min

	Imp.	GRAV	Perv.	Total
Area	0.059	0.163	0.172	0.393
C	0.9	0.7	0.2	0.51

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	65.0	88.0	150.5	mm/hr
Q	36.3	49.2	105.2	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	0.393	ha
C	0.51	Rational Method runoff coefficient
t_c	13.7	min

	5-year		**100-year**	
i	88.0	mm/hr	153.0	mm/hr
Q	49.2	L/s	105.2	L/s

Estimated Post Development Peak Flow from Unattenuated Areas

Area ID	**U1**	
Total Area	0.046	ha
C	0.69	Rational Method runoff coefficient

U1	**Imp.**	**Perv.**	**Total**
Area	0.032	0.014	0.046
C	0.9	0.2	0.69

	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)**
10.9	99.6	8.8	8.8	0.0	0.0	170.6	18.9	18.9	0.0	0.0

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)

Area ID	**U2**	
Total Area	0.067	ha
C	0.59	Rational Method runoff coefficient

U2	**Imp.**	**Perv.**	**Total**
Area	0.038	0.029	0.067
C	0.9	0.2	0.59

	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)**
10.9	99.6	11.0	11.0	0.0	0.0	170.6	23.6	23.6	0.0	0.0

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 Post Development Peak Flow from Attenuated Areas

Area ID **A1 & A2**

A1	**Imp.**	**Perv.**	**Total**
Area	0.197	0.015	0.212
C	0.9	0.2	0.85

A2	**Imp.**	**Perv.**	**Total**
Area	0.053	0.016	0.068
C	0.9	0.2	0.74

Total	**Imp.**	**Perv.**	**Total**
Area	0.250	0.031	0.280
C	0.9	0.2	0.83

Total Subsurface Storage (m^3) 42.8

Stage Attenuated Areas Storage Summary

		Surface Storage			Surface and Subsurface Storage			
	Stage	**Ponding**	**h_o**	**delta d**	**V***	**V_{acc}****	**$Q_{release}$†**	**$V_{drawdown}$**
	(m)	**(m^2)**	**(m)**	**(m)**	**(m^3)**	**(m^3)**	**(L/s)**	**(hr)**
Orifice INV	118.70		0.00			0.0	0.0	0.00
U/G STORAGE INV	118.74		0.04	0.04		0.0	7.1	0.00
U/G STORAGE S/L	119.65		0.95	0.91	21.4	21.4	34.5	0.17
U/G STORAGE OBV	120.57		1.87	0.91	21.4	42.8	48.3	0.25
T/L 1	121.70	0.4	3.00	1.13	0.2	43.0	61.2	0.20
T/L 2	121.75	40.2	3.05	0.05	0.7	43.7	61.7	0.20
0.1 Ponding	121.80	69.9	3.10	0.05	2.7	46.4	62.2	0.21

* V=Incremental storage volume

**V_{acc}=Total surface and sub-surface

† $Q_{release}$ = Release rate calculated from orifice equation

Orifice Location **BLDG** **Dia** 129

Total Area 0.280 ha

C 0.83 Rational Method runoff coefficient *Note: Rational Method Coefficient "C" increased by 25% for 100-year calculations*

	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	104.2	66.9	33.1	33.8	20.3	178.6	138.9	62.1	76.8	46.1
15	83.6	53.7	33.1	20.6	18.5	142.9	111.1	62.1	49.0	44.1
20	70.3	45.1	33.1	12.0	14.4	120.0	93.3	62.1	31.2	37.4
25	60.9	39.1	33.1	6.0	9.0	103.8	80.8	62.1	18.7	28.0
30	53.9	34.6	33.1	1.5	2.8	91.9	71.5	62.1	9.3	16.8
35	48.5	31.2	31.2	0.0	0.0	82.6	64.2	62.1	2.1	4.4
40	44.2	28.4	28.4	0.0	0.0	75.1	58.4	62.1	0.0	0.0
45	40.6	26.1	26.1	0.0	0.0	69.1	53.7	62.1	0.0	0.0
50	37.7	24.2	24.2	0.0	0.0	64.0	49.7	62.1	0.0	0.0
55	35.1	22.6	22.6	0.0	0.0	59.6	46.4	62.1	0.0	0.0
60	32.9	21.2	21.2	0.0	0.0	55.9	43.5	62.1	0.0	0.0
65	31.0	19.9	19.9	0.0	0.0	52.6	40.9	62.1	0.0	0.0
70	29.4	18.9	18.9	0.0	0.0	49.8	38.7	62.1	0.0	0.0
75	27.9	17.9	17.9	0.0	0.0	47.3	36.8	62.1	0.0	0.0
80	26.6	17.1	17.1	0.0	0.0	45.0	35.0	62.1	0.0	0.0
85	25.4	16.3	16.3	0.0	0.0	43.0	33.4	62.1	0.0	0.0
90	24.3	15.6	15.6	0.0	0.0	41.1	32.0	62.1	0.0	0.0
95	23.3	15.0	15.0	0.0	0.0	39.4	30.7	62.1	0.0	0.0
100	22.4	14.4	14.4	0.0	0.0	37.9	29.5	62.1	0.0	0.0
105	21.6	13.9	13.9	0.0	0.0	36.5	28.4	62.1	0.0	0.0
110	20.8	13.4	13.4	0.0	0.0	35.2	27.4	62.1	0.0	0.0

5-year $Q_{attenuated}$ **33.09 L/s** **100-year $Q_{attenuated}$** **62.11 L/s**

5-year Max. Storage Required **20.3 m^3** **100-year Max. Storage Required** **46.1 m^3**

Est. 5-year Storage Elevation **119.61 m** **Est. 100-year Storage Elevation** **121.79 m**

Summary of Release Rates and Storage Volumes

Control Area	**5-Year Release Rate (L/s)**	**5-Year Required Storage (m^3)**	**100-Year Release Rate (L/s)**	**100-Year Required Storage (m^3)**	**100-Year Available Storage (m^3)**
Unattenuated Areas (U1)	8.8	0.0	18.9	0.0	0.0
Unattenuated Areas (U2)	11.0	0.0	23.6	0.0	0.0
Attenutated Areas	33.1	20.3	62.1	46.1	46.4
Total	**52.9**	**20.3**	**104.6**	**46.1**	**46.4**

Huntington Properties
1531 Stittsville Main Street
Storm Sewer Calculation Sheet

										Sewer Data								
Area ID	**Up**	**Down**	**Area**	**C**	**Indiv AxC**	**Acc AxC**	**T_C**	**I**	**Q**	**DIA**	**Slope**	**Length**	**$A_{hydraulic}$**	**R**	**Velocity**	**Qcap**	**Time Flow**	**Q / Q full**
			(ha)	**(-)**			**(min)**	**(mm/hr)**	**(L/s)**	**(mm)**	**(%)**	**(m)**	**(m^2)**	**(m)**	**(m/s)**	**(L/s)**	**(min)**	**(-)**
A2	CB3	CB2	0.068	0.74	0.05	0.05	10.0	104.2	14.6	200	1.00	29.9	0.031	0.050	1.04	32.8	0.5	0.45
A1	CB2	STM104	0.212	0.85	0.18	0.23	10.5	101.7	65.3	250	1.50	6.0	0.049	0.063	1.48	72.8	0.1	0.90
	STM104*	STM102			0.00	0.23	10.5	101.4	62.1	300	0.50	0.5	0.071	0.075	0.97	68.4	0.0	0.91
	STM102	STM101			0.00	0.23	10.6	101.4	62.1	300	0.50	6.8	0.071	0.075	0.97	68.4	0.1	0.91
	STM101	EX. STM			0.00	0.23	10.7	100.8	62.1	300	0.50	14.3	0.071	0.075	0.97	68.4	0.2	0.91
							10.9											

*Controlled Stormwater Flow Based on Rational Method Calculation

STORMTANK® Module Volume Calculator

Inputs

Project Name:	1539 Stittsville Main - UG1		
Engineer:		Date:	
Units:	SI	Shape:	Square/Rectangle
Liner:	No	Location:	N/A
Stacking:	Double	Height:	1828.8
Stone Storage:	All	Porosity:	40%

Dimensions

Module		
Length:	5.49	m
Width:	3.206	m
Excavation		
Length:	6.09	m
Width:	3.806	m
Stone		
Leveling Bed:	0.5	m
Top Backfill:	0.3	m
Compacted Fill:	0.3	m

Results

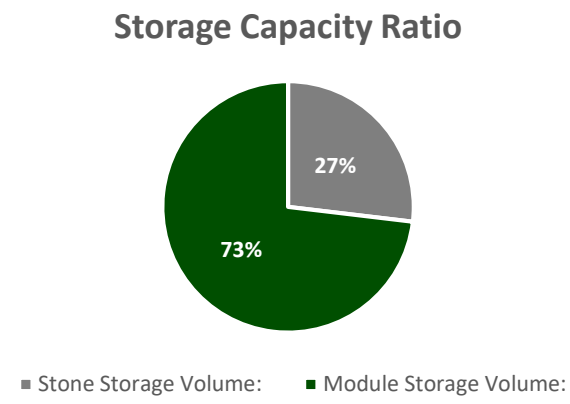
Capacity:

Stone Storage Volume:	11.50	m^3
Module Storage Volume:	31.27	m^3
Total Storage Volume:	42.77	m^3

Quantities:

Required Excavation:	67.89	m^3
Required Stone Volume:	28.74	m^3
Estimated Geotextile:	183.77	m^2
Estimated Liner:	0.00	m^2

(Estimations include 10% for scrap and overlap)

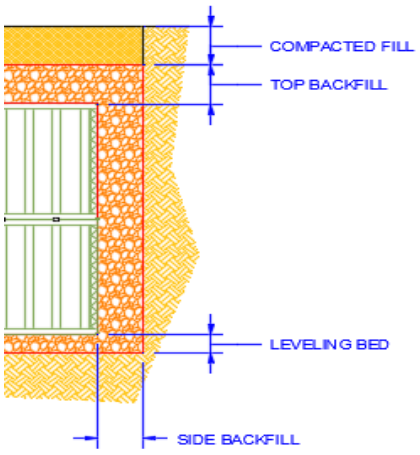


Basin Detail

Component Quantities:

	Bottom Layer	Top Layer	Total
Height	914.4	914.4	1,828.8
# of Modules	42	42	84
# of Platens	84	84	168
# of Side Panels	38	38	76
# of Columns	337	337	674
# of Stacking Pins	84	N/A	84

Cross-Section:



AquaShield™ STORMWATER TREATMENT SOLUTIONS

Sizing Report

2733 Kanasita Drive • Suite 111 • Chattanooga, TN 37343 • Phone: (423) 870-8888 • Fax: (423) 826-2112 • www.aquashieldinc.com

Site Information

Project Name: **New Development**

Site Area (hectacres): **0.282**

Unit Label: **AS**

Runoff Coeff. : **.82**

Unit Location: **Sttittsville, ON**

Target Removal Efficiency(%): **80% based on NJDEP**

Product Recommendation

Aqua-Swirl™ Model	Net Annual TSS Removal Efficiency	Chamber Diameter	Maximum Inside Diameter (mm)		Oil/Debris Storage Capacity	Sediment Storage Capacity
			Offline	BYP[5]		
AS-2	**88.18 %**	763 mm.	205 mm.	381 mm.	140 L	0.28 m^3

Rainfall Information

NCDC Station[1]: **OTTAWA MACDONALD-CARTIER INT'L A**

Data Range[4]: **261,759 readings taken hourly between 1967 to 2007 (~40 years)**

Rainfall Event Range (mm/hre)	Rainfall Interval Point (mm/hre)	Operating Rate (Lps/m^2)	Total Rainfall (%)	Removal Efficiency (%)[2]	Relative Efficiency(%)
02.00 - 03.00	02.50	03.52	44.18	94.34	41.68
03.00 - 04.00	03.50	04.93	21.52	92.21	19.84
04.00 - 05.00	04.50	06.34	11.68	89.76	10.48
05.00 - 06.00	05.50	07.75	06.68	86.96	05.81
06.00 - 07.00	06.50	09.16	04.03	83.83	03.38
07.00 - 08.00	07.50	10.57	01.99	80.36	01.60
08.00 - 09.00	08.50	11.98	01.84	76.56	01.41
09.00 - 10.00	09.50	13.39	01.81	72.42	01.31
10.00 - 15.00	12.50	17.62	04.12	57.98	02.39
15.00 - 20.00	17.50	24.66	01.02	27.19	00.28
		Total Cumulative Rainfall %:	**98.87[3]**	**Net Annual %:**	**88.18**

Sales Agent Information

Agent Name: **Kevin Dutrisac**

Phone: **613-323-0364**

Company Name: **Soleno**

Fax:

Address:

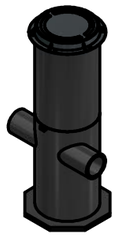
E-mail: **kdutrisac@soleno.com**

City, State Zip: **, QC**

Footnotes

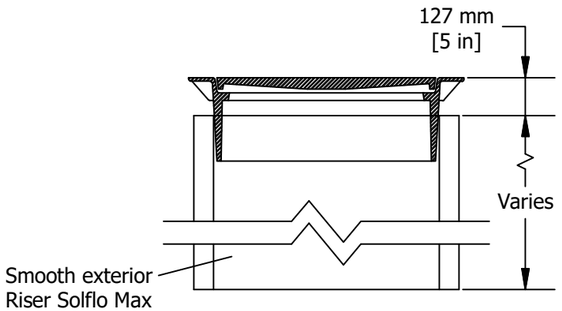
1. Recorded as hourly precipitation rainfall data (inches), National Climatic Data Center (NCDC)
2. Based on Tennessee Tech University laboratory testing of the AquaSwirl™ Model AS-3 for OK-110 silica particles 50-125 microns(Neary, 2002)
3. 90% Rainfall Event, calculated as a cumulative percentile of individual events, www.stormwatercenter.net, sizing criteria (Center for Watershed Protection)
4. NCDC data may not be consecutive, skipping days, months and/or years in the range of dates.
5. The Aqua-Swirl™ Internal Bypass (BYP) provides full treatment of the "first flush," while the peak design storm is diverted and channeled through the main conveyance pipe. Please refer to your local representative for more information.
6. When applicable, the performance curve was adjusted via Peclet Scaling to provide estimated sizing per NJDEP PSD (d50 = 67 microns).

Aqua-Swirl High Density Polyethylene (HDPE)
Stormwater Treatment System



Projected View
SCALE 1:80

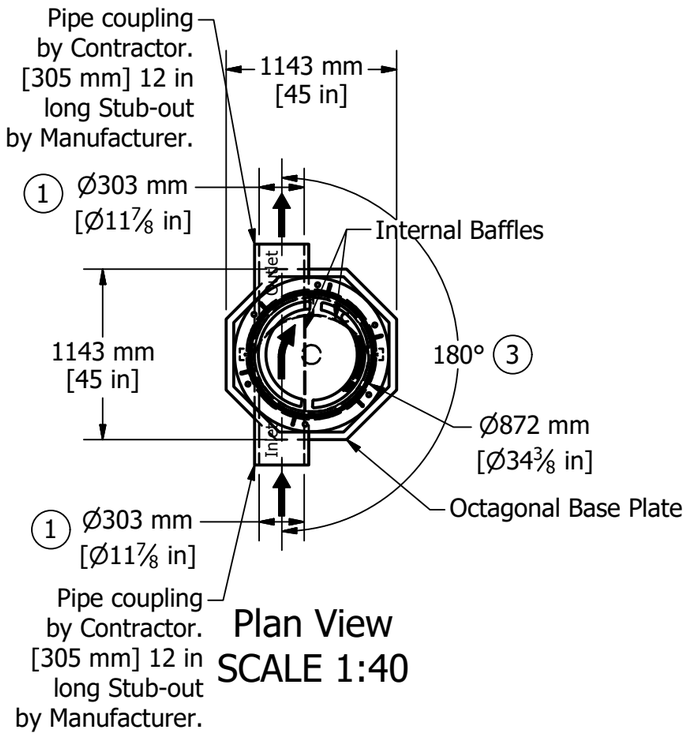
Please see accompanied Aqua-Swirl specification notes. See Site Plan for actual system orientation.
Approximate dry (pick) weight: 400 kg [800 lbs].



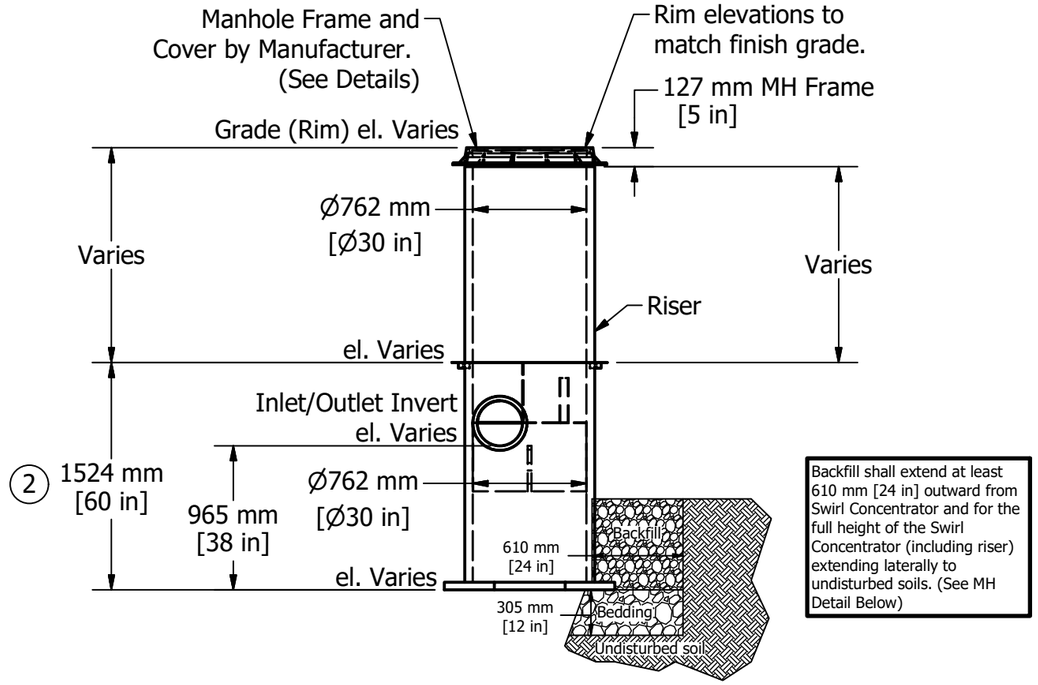
Adjustable Frame and Cover

System shall be designed for the following capacities:
Swirl Treatment Flow: 31 L/s [1.1 cfs]
Swirl Sediment Storage: 0.28 m³ [10 ft³]
Swirl Oil/Debris Storage: 140 L [37 gal]

1. AS-2 BYP inlet/outlet pipe size ranges from 203 mm [8 in] to 381 mm [15 in].
2. AS-2 chamber height may vary from 1321 mm [52 in] to 1524 mm [60 in], depending on inlet/outlet pipe size.
3. Orientation may vary from a minimum of 90° to a maximum of 180°.



Plan View
SCALE 1:40



Elevation View
SCALE 1:40

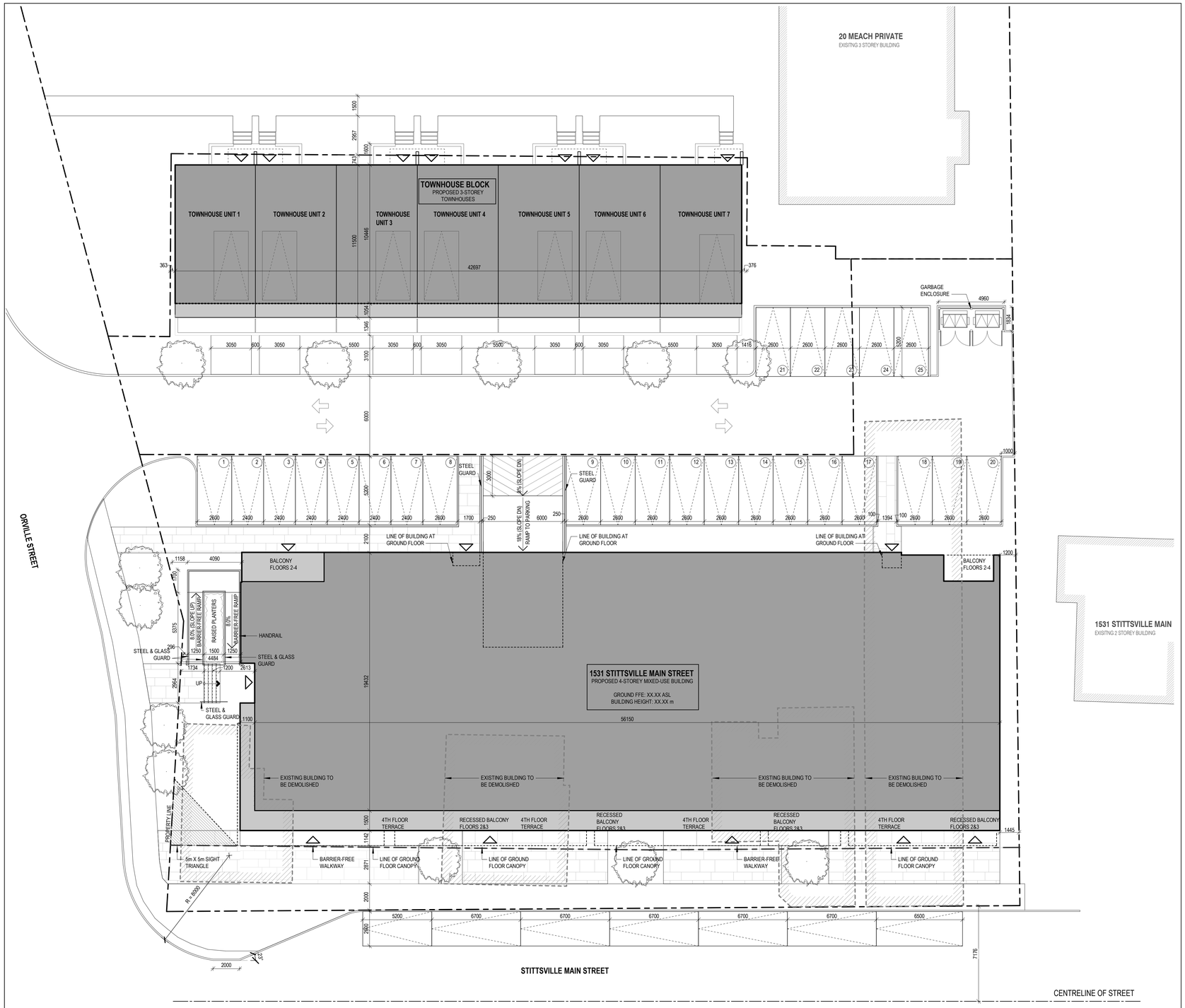
AquaShield
WATER TREATMENT SOLUTIONS
2733 Kanasita Drive, Suite 111, Chattanooga, TN 37343
Phone (888) 344-9044 Fax (423) 826-2112
www.aquashieldinc.com

Aqua-Swirl Concentrator
AS-2 BYP CW STD

Standard Detail

Structure #:	AS-2 STD	Rvwed	Rvw. Date
Drawn By:	OFlores		
Scale:	As Shown		
Date:	3/7/2018		

DRAWINGS / FIGURES



1 SP-01 SCALE: 1 : 150

2 SP-01 LOCATION PLAN
SCALE: 1 : 3

TOPOGRAPHIC PLAN OF SURVEY OF
PART 1 PLAN OF
PART OF LOTS 15 & 16
REGISTERED PLAN 222
CITY OF OTTAWA

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. 2017

3 SP-01 SURVEY INFO
SCALE: 1 : 1

SITE PLAN SYMBOLS LEGEND

BUILDING ENTRANCE

BUILDING EXIT

4 SP-01 SYMBOLS LEGEND
SCALE: 1 : 1

STATISTICS AND ZONING INFORMATION

ZONING DESIGNATION: TM9 [1736] H15

BICYCLE PARKING CALCULATION
As per Table 111A

Dwelling Units: 44
Required Parking: 22 spaces
0.5sp/dwelling unit [111A(b)(i)]

Total Parking Provided: 24 spaces

PARKING CALCULATION
As per Section 101 & Section 102

Parking Space Rate Area: Area C

Mixed-Use Building: 44 units
Required Parking: 44 spaces
1 space/unit
Parking Provided: 44 spaces

Visitor Parking:
Required Parking: 9 spaces
0.2 spaces/unit
Parking Provided: 9 spaces

Retail Parking:
Required Parking: 9 spaces
No parking for first 150m2
2.5 spaces/100m2 (375m²)
Parking Provided: 9 spaces

Total Required Parking: 62 spaces
Total Parking Provided: 62 spaces

AMENITY AREA CALCULATION
As per Table 137

Total Amenity Area Req'd: 282 m²
6m2/ unit

Communal Amenity Req'd: 141 m²
50% of Amenity Area

Communal Amenity Provided: 145 m²
Roof Top Amenity Space: *145 m²*

Private Amenity Provided: 352 m²

Total Amenity Area Provided: 469 m²

GROSS BUILDING AREA CALCULATION

GROUND LEVEL: 12,475 sqft
SECOND LEVEL: 12,175 sqft
THIRD LEVEL: 12,175 sqft
FOURTH LEVEL: 11,200 sqft

TOTAL AREA: 48,025 sqft

5 SP-01 ZONING
SCALE: 1 : 1

GENERAL ARCHITECTURAL NOTES:
1. This drawing is the property of the Architect and may not be reproduced or used without the expressed consent of the Architect.
2. Drawings are not to be scaled. The Contractor is responsible for checking and verifying all levels and dimensions and shall report all discrepancies to the Architect and obtain clarification prior to commencing work.
3. Upon notice in writing, the Architect will provide written/graphic clarification or supplementary information regarding the intent of the Contract Documents.
4. The Architectural drawings are to be read in conjuction with all other Contract Documents including Project Manuals and the Structural, Mechanical and Electrical Drawings.
5. Positions of exposed or finished Mechanical or Electrical devices, fittings and fixtures are indicated on the Architectural Drawings. Locations shown on the Architectural Drawings shall govern over Mechanical and Electrical Drawings. Mechanical and Electrical items not clearly located will be located as directed by the Architect.
6. These documents are not to be used for construction unless specifically noted for such purpose.

ISSUED FOR COORDINATION	2019-01-04
ISSUED FOR COORDINATION	2019-01-03
ISSUED FOR COORDINATION	2018-12-21
ISSUED FOR COORDINATION	2018-12-12
ISSUED FOR COORDINATION	2018-09-19

ISSUE RECORD

project1 studio
Project1 Studio Incorporated
| 613.884.3939 | mail@project1studio.ca

STITTSVILLE

1531 Stittsville Main

PROJ	SCALE	DRAWN	REVIEWED
1811	NOTED	SP	RK

SITE PLAN

SP-01

TOPOGRAPHICAL PLAN OF SURVEY OF

PART OF LOT 24
CONCESSION 10
Geographical Township of Goulbourn
CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 150

6 4.5 3.0 1.5 0 3 6 Metres

Metric

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

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 Land Titles Act and the regulations made under them.
2. The survey was completed on the 18th day of October, 2018.

Oct. 23, 2018
Date

E. H. Herweyer
Ontario Land Surveyor

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2068068

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

Notes & Legend

	Denotes	
○—	"	Survey Monument Planted
—■	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
(WIT)	"	Witness
Meas.	"	Measured
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	"	Plan 4R-10461
(P2)	"	Plan 4R-24697
(P3)	"	Plan 4R-27005
Acc.	"	Accepted
○ MH–ST	"	Maintenance Hole (Storm Sewer)
○ MH-S	"	Maintenance Hole (Sanitary)
○ MH	"	Maintenance Hole (Unidentified)
⊖ VC	"	Valve Chamber (Watermain)
⊖ WV	"	Water Valve
□ CB	"	Catch Basin
—— G ——	"	Underground Gas
○ UP	"	Utility Pole
○FH	"	Fire Hydrant
T/G	"	Top of Grate
	"	Deciduous Tree
	"	Coniferous Tree
△ S	"	Sign
PVC	"	Plastic Fence
WRW	"	Wood Retaining Wall
CRW	"	Concrete Retaining Wall
TOS	"	Top of Slope
BOS	"	Bottom of Slope
HR	"	Hand Rail
□AC	"	Air Conditioner
Ø	"	Diameter
x 65.00	"	Location of Elevations
x 65.00Z	"	Location of Top of Retaining Wall Elevations
x 65.00	"	Top of Concrete Curb Elevation
C/L	"	Centreline
○ LS	"	Light Standard

Bearings are grid bearings, derived from Can-Net 2016 GPS Observations and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

SITE AREA = 2373 m²

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. I7476-I8 Huntington Pt1,I24 C10 G0 T F AA