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Proposed Residential Development 10 Empress Avenue North

Assessment of Adequacy of Public Services Report

**PROPOSED RESIDENTIAL DEVELOPMENT
10 EMPRESS AVENUE NORTH**

**ASSESSMENT OF ADEQUACY OF
PUBLIC SERVICES REPORT**

Prepared by:

NOVATECH

Suite 200, 240 Michael Cowpland Drive
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November 29, 2023
Revised April 9, 2024

Ref: R-2023-150
Novatech File No. 121234

April 9, 2023

City of Ottawa
Planning, Real Estate and Economic Development Department
110 Laurier Avenue West
Ottawa, ON
K1P 1J1

Attention: Mr. Vincent Duquette, E.I.T

Dear Sir:

**Re: Assessment of Adequacy of Public Services Report
Proposed Residential Development
10 Empress Avenue North, Ottawa, ON
Novatech File No: 121234**

Enclosed is a copy of the revised 'Assessment of Adequacy of Public Services Report' for the proposed residential development located at 10 Empress Avenue North, in the City of Ottawa. The purpose of this report is to demonstrate that the proposed development can be serviced by the existing municipal infrastructure fronting the subject site. This report is being submitted in support of Zoning By-law Amendment applications.

Please contact the undersigned, should you have any questions or require additional information.

Yours truly,

NOVATECH



Miroslav Savic, P. Eng.
Senior Project Manager

cc: Dean Michaud (Henry Investments)

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1.0 INTRODUCTION

Novatech has been retained by Dalhousie Non-profit Housing Cooperative to assess adequacy of the existing public services related to the proposed development at 10 Empress Avenue North in the City of Ottawa. The purpose of this report is to demonstrate that the proposed development can be serviced by the existing municipal infrastructure surrounding the subject site. This report is being submitted in support of Zoning By-law Amendment applications.

1.1 Location and Site Description

The subject site is approximately 0.12 hectares in size occupied by two residential duplexes with gravel parking on Perkins Street and pedestrian entrances on Empress Avenue North. The site is located between Empress Avenue North and Perkins Street and is bordered by residential dwellings to the north and south.

Figure 1 – Aerial View of the Subject Site



1.2 Pre-Consultation Information

A pre-consultation meeting was held with the City of Ottawa, at which time the client was advised of the general submission requirements. Refer to **Appendix A** for a summary of pre-consultation meeting notes related to the site servicing.

1.3 Proposed Development

The proposed development will consist of a new 4-storey residential building with an underground parking garage. A driveway access to the parking garage will be provided off Parkins Street. Refer to **Appendix B** for the proposed Site Plan.

2.0 SITE SERVICING

The objective of this report is to demonstrate that proper sewage outlets (sanitary and storm) as well as adequate domestic and fire protection water supply are available for the proposed development. The servicing criteria, the expected sewage flows, and water demands are to conform to the requirements of the City of Ottawa municipal design guidelines for sewer and water distribution systems. On-site stormwater management will be implemented to meet the requirements of the City of Ottawa.

2.1 Sanitary Sewage

There is a 250 mm diameter sanitary sewer within Empress Avenue North and a 250mm diameter sanitary sewer within Perking Street. As per the City record drawings, the existing residential duplexes are currently connected to the 250mm dia. sanitary sewer in Empress Avenue North.

Based on a review of the existing sanitary sewer depth and pipe crossing constraints with the existing municipal infrastructure, the new building is proposed is to be connected to the existing 250mm dia. PVC sewer in Perkins Street. A 200mm service lateral will be provided. Refer to Conceptual Servicing Plan enclosed in **Appendix C** showing the existing municipal infrastructure and conceptual servicing layout.

The City of Ottawa design criteria were used to calculate the theoretical sanitary flows for the proposed development. The following design criteria were taken from Section 4 – ‘Sanitary Sewer Systems’ and Appendix 4-A - ‘Daily Sewage Flow for Various Types of Establishments’ of the City of Ottawa Sewer Design Guidelines:

- Residential Units (1-Bedroom): 1.4 people per unit
- Residential Units (2-Bedroom): 2.1 people per unit
- Residential Units (3-Bedroom): 3.1 people per unit
- Average Daily Residential Sewage Flow: 280 L/person/day (ISTB-2018-01)
- Residential Peaking Factor calculated by the Harmon Equation
- Infiltration Allowance: 0.33 L/s/ha x 0.122 ha site = 0.04 L/s (ISTB-2018-01)

Table 1 identifies the theoretical sanitary flows for the proposed development based on the above design criteria and the building information provided by the architect.

Table 1: Theoretical Sanitary Flows

Proposed Development	Unit Count	Design Population	Peak Residential Flow (L/s)	Infiltration Allowance (L/s)	Peak Sewage Flow (L/s)
4-Storey Appt Building	41	82	0.85	0.04	0.89

The total calculated peak sanitary flow from the proposed building, including infiltration, is approximately 0.89 L/s. Refer to **Appendix D** for detailed calculations. The above sanitary flow calculations have been provided to the City of Ottawa for the purpose of downstream analysis of the existing municipal sanitary sewer system. The City asset management has advised that there are no capacity concerns with the proposed sanitary discharge to the existing municipal sanitary sewer system. Refer to **Appendix D** for e-mail correspondence with the City of Ottawa.

2.2 Water

There is a 150 mm diameter PVC watermain within Empress Avenue North and a 200mm diameter PVC watermain within Perking Street. As per the City record drawings, the existing residential duplexes are currently connected to the 150mm diameter Empress Avenue North watermain.

As per the watermain boundary conditions provided by the City, the 150mm diameter watermain in Empress Avenue North cannot provide the required FUS fire flow to the proposed development. Therefore, the proposed development is proposed to be serviced by connecting to the existing 203mm dia. municipal watermain in Perkins Street. Refer to Conceptual Servicing Plan enclosed in **Appendix C** showing the existing municipal infrastructure and conceptual servicing layout. The water service will be sized to provide the required domestic water demand and fire flow.

2.2.1 Water Demands and Watermain Analysis

The City of Ottawa design criteria were used to calculate the theoretical water demands for the proposed development. The following design criteria were taken from Section 4 – ‘Water Distribution Systems’ of the Ottawa Design Guidelines – Water Distribution:

- Residential Units (1-Bedroom or Studio): 1.4 people per unit
- Residential Units (2-Bedroom): 2.1 people per unit
- Residential Units (3-Bedroom): 3.1 people per unit
- Average Daily Residential Water Demand: 280 L/person/day (ISTB-2021-03)
- Maximum Day Demand Peaking Factor = 7.5 x Avg. Day Demand (MOE Table 3-3)
- Peak Hour Demand Peaking Factor = 11.3 x Avg. Day Demand (MOE Table 3-3)

The fire flow is calculated using the Fire Underwriters Survey (FUS) method, based on the building information provided by the architect.

Refer to **Table 2.1** below for a summary of the domestic water demands and fire flows and to **Appendix E** for detailed calculations.

Table 2.1: Theoretical Domestic Water and Fire Flow Demands

Proposed Development	Unit Count	Design Population	Avg. Day Demand (L/s)	Max. Day Demand (L/s)	Peak Hour Demand (L/s)	FUS Fire Flow Demand (L/s)
4-Storey Appt Building	41	82	0.27	1.99	3.00	267

The above water demands have been submitted to the City for the purpose of obtaining the watermain boundary conditions. The boundary conditions provided the City are enclosed in **Appendix E**.

The following design criteria were taken from Section 4.2.2 – ‘Watermain Pressure and Demand Objectives’ of the City of Ottawa Design Guidelines for Water Distribution:

- Maximum system pressure is not to exceed 552 kPa (80 psi).
- Minimum system pressures are to be >276 kPa (40 psi) under Peak Hour demand.
- Minimum system pressures are to be >140 kPa (20 psi) under Max Day + Fire Flow demands.

The following table summarizes preliminary hydraulic analysis results based on municipal watermain boundary conditions.

Table 2.2: Hydraulic Analysis Summary

Municipal Watermain Boundary Condition	Boundary Condition	Water Demand (L/s)	Min/Max Operating Pressure (psi)	Design Pressure (psi)*
Minimum HGL (Peak Hour Demand)	107.7 m	3.0	40 psi (min.)	64.0
Maximum HGL (Avg Day Demand)	115.6 m	0.27	80 psi (max.)	75.2
Max Day + Fire Flow HGL	79.6 m	267 + 1.99	20 psi (min.)	24.0

As indicated above, the existing municipal watermain should provide adequate system pressures to the proposed development. A booster pump may be required to increase pressure to the upper floors of the building.

2.2.2 Water Supply for Fire Fighting

The proposed building will be fully sprinklered and supplied with a fire department siamese connection. A private hydrant or a new municipal hydrant in Perkins Street will be provided within 45m from the building siamese connection location.

A multi-hydrant approach to firefighting will be required to supply adequate FUS fire flow to the proposed development. There are currently four (4) Class AA (blue bonnet) hydrants within 150m of the proposed site. Based on the City of Ottawa Technical Bulletin ISTB-2018-02, Class AA (blue bonnet) hydrants within 75m have a maximum capacity of 95 L/s while hydrants between 75m and 150m have a maximum capacity of 63 L/s (at a pressure of 20 PSI). Refer to the hydrant sketch in **Appendix D** showing the approximate distances from the existing hydrant to the proposed building.

Table 2.2 summarizes the theoretical combined fire flow available from the nearby municipal fire hydrants and compares it to the fire flow demands based on the FUS calculations.

Table 2.2: Theoretical Fire Protection Summary Table

Proposed Development	FUS Fire Flow Demand (L/s)	Fire Hydrant(s) within 75m (~ 95 L/s each)	Fire Hydrant(s) within 150m (~ 63 L/s each)	Theoretical Combined Available Fire Flow (L/s)
4-Storey Appt Building	267	3	1	~348

The theoretical combined maximum flow from these hydrants exceeds the FUS fire flow requirements for the proposed development.

The City has performed a multi-hydrant analysis with four existing hydrants within 150 m of the property. Refer to the watermain boundary conditions enclosed in **Appendix E**. The total aggregate flow assuming the four existing hydrants running simultaneously provides the required fire flow for the site.

2.3 Storm Drainage and Stormwater Management

There is a 525 mm diameter storm sewer within Empress Avenue North and a 375mm diameter storm sewer within Perking Street. As per the City record drawings, the existing residential duplexes are currently connected to the 525mm diameter storm sewer in Empress Avenue North.

The proposed building will be serviced by a new 250mm dia. storm service lateral connected to the existing 525mm dia. storm sewer in Empress Avenue North. Refer to Conceptual Servicing Plan enclosed ed in **Appendix C** showing the existing municipal infrastructure and conceptual servicing layout.

On-site stormwater management (SWM) quantity control measures will be implemented. The SWM criteria have been provided during pre-consultation meetings with the City of Ottawa. Based on the SWM criteria, the allowable release rate from the site is to be calculated using the Rational Method, with a maximum allowable runoff coefficient equivalent to existing conditions, but in no case greater than $C=0.5$, a time of concentration no less than 10 minutes and a 5-year rainfall intensity from City of Ottawa IDF curves. Based on a 5-year maximum runoff coefficient ($C_w=0.50$) and a time of concentration of 10 minutes., the allowable release rate for the site was calculated to be approximately 17.6 L/s.

The portion of the total allowable release rate will have to be allotted to the various catchment areas on site, depending on the relative size and imperviousness as well as the potential storage available within the sub-catchment areas. For the purpose of this report, the total site area (0.122 ha) was divided into the following sub-catchment areas with an estimated allotted allowable release rate:

- A-1: Uncontrolled direct runoff (~0.023 ha) – allotted 100-year release rate = 7.6 L/s
- A-2: Controlled Flow from Building A (~0.099 h) – allotted 100-year release rate = 10.0 L/s

Refer to Conceptual Stormwater Management Plan enclosed in **Appendix F**.

The following table compares the post-development flows from the proposed development to both the uncontrolled pre-development flows and to the allowable release rate specified by the City of Ottawa, for the 5-year, and the 100-year design events.

Table 3.1: Preliminary Stormwater Flow Comparison Table

	Pre-Development Conditions		Post-Development Conditions		
	Uncontrolled Flow (L/s)	Allowable Release Rate (L/s)	A-1 Flow (L/s)	A-2 Flow (L/s)	Total Flow (L/s)
5-Yr	20.3	17.6	3.2	10.0	13.2
100-Yr	40.3		7.6		17.6

It is anticipated that the use of control flow roof drains and/or an internal SWM storage tank with pumps will be required to control flows from the site. The following table summarizes the approximate storage volume requirements, based on the controlled release rates.

Table 3.2: Preliminary Stormwater Storage Table

5-year Storage Volume (m ³)	100-Year Storage Volume (m ³)
~5.6	~27.9

The required storage volume will be provided on the building roof and/or in an internal SWM management tank. Refer to **Appendix F** for preliminary SWM calculations.

A complete stormwater management analysis will be included as part of the Site Plan Control submission to the City of Ottawa.

3.0 CONCLUSION

The conclusions are as follows:

Sanitary servicing will be provided by connecting to the existing sanitary sewer in Perkins St. There are no downstream capacity concerns with the proposed sanitary discharge to the Perkins Street sewer.

The water servicing will be provided by connecting to the existing watermain in Perkins Street. The existing municipal watermain network can provide adequate water supply for the subject site.

Storm servicing will be provided by connecting to the existing municipal storm sewer in Empress Avenue North. On-site stormwater management will be implemented to meet the requirements of the City of Ottawa.

A complete servicing, grading and stormwater management design will be included as part of the Site Plan Control submission to the City of Ottawa.

NOVATECH

Prepared by:



Miroslav Savic, P. Eng.
Senior Project Manager

Reviewed by:

A handwritten signature in blue ink, appearing to read 'J. Lee Sheets'.

J. Lee Sheets, C. E. T.
Director

APPENDIX A
Pre-Consultation Meeting Notes

Good afternoon Kersten,

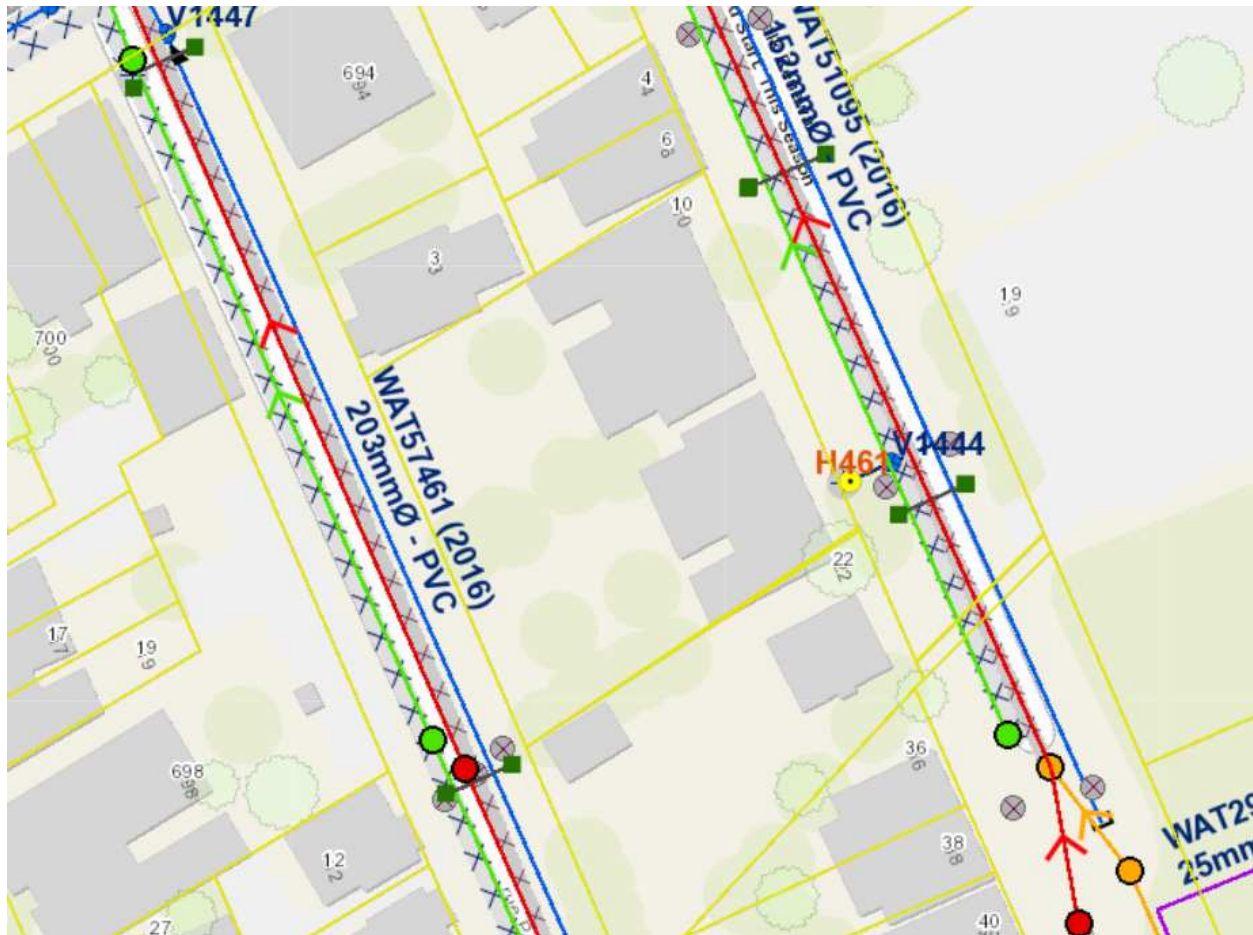
Please forward the below information to the applicant regarding a development proposal at **10 Empress Avenue North, Ottawa for a four storey Residential apartment building with 41 units and an underground parking level**. Note that the information is considered **preliminary** and the assigned Development Review Project Manager may modify and/or add additional requirements and conditions upon review of an application if deemed necessary.

General:

- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided, and all easements shall be shown on the engineering plans.
- **Concern** about Sanitary sewer capacity, please provide the new Sanitary sewer discharge and we confirm if sanitary sewer main has the capacity. Also provide the size proposed sanitary service.
- Existing buildings require a CCTV inspection and report to ensure existing services to be re-used are in good working order and meet current minimum size requirements. Located services to be placed on site servicing plans.

- Reference documents for information purposes :
 - Ottawa Sewer Design Guidelines (October 2012)
 - Technical Bulletin PIEDTB-2016-01
 - Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
 - 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 (revised 2012)
 - City of Ottawa Environmental Noise Control Guidelines (January 2016)
 - City of Ottawa Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
 - Ottawa Standard Tender Documents (latest version)
 - Ontario Provincial Standards for Roads & Public Works (2013)
 - Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-424 x.44455).

Please note that this is the applicant responsibility to refer to the latest applicable guidelines while preparing reports and studies.



Disclaimer:

The City of Ottawa does not guarantee the accuracy or completeness of the data and information contained on the above image(s) and does not assume any responsibility or liability with respect to any damage or loss arising from the use or interpretation of the image(s) provided. This image is for schematic purposes only.

Stormwater Management Criteria and Information:

- **Water Quantity Control:** In the absence of area specific SWM criteria please control post-development runoff from the subject site, up to and including the **100-year storm event**, to a **5-year pre-development level**. The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.5. [If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.5]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *T_c should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations.*
- Any storm events greater than the established **5-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on-site. The SWM measures required to avoid impact on downstream sewer system will be subject to review.
- Please note that foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. **It is recommended that the foundation drainage system be drained**

by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.

- **Water Quality Control:** Please consult with the local conservation authority (RVCA) regarding water quality criteria prior to submission of a Site Plan Control Proposal application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.
- Please note that as per *Technical Bulletin PIEDTB-2016-01 section 8.3.11.1 (p.12 of 14)* **there shall be no surface ponding on private parking areas during the 5-year storm rainfall event.**
- **Underground Storage:** Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. **We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume. Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate.**

In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modellers in the Water Resources Group.

Please provide information on UG storage pipe. Provide required cover over pipe and details, chart of storage values, capacity etc. How will this pipe be cleaned of sediment and debris?

Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc.

Provide a cross section of underground chamber system showing invert and obvert/top, major and minor HWLs, top of ground, system volume provided during major and minor events. UG storage to provide actual 2- and 100-year event storage requirements.

In regard to all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

Modeling can be provided to ensure capacity for both storm and sanitary sewers for the proposed development by City's Water Distribution Dept. – Modeling Group, through PM and upon request.

- Please note that the minimum orifice dia. for a plug style ICD is **83mm and the minimum flow rate from a vortex ICD is 6 L/s** in order to reduce the likelihood of plugging.

- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.
- Please provide a **Pre-Development Drainage Area Plan** to define the pre-development drainage areas/patterns. **Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution.**
- **If rooftop control** and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.
- If **Window wells** are proposed, they are to be indirectly connected to the footing drains. A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.
- There must be at least **15cm of vertical clearance** between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.
- Empress Ave North was formerly a combined sewer area and as such, this is an old partially separated area, which means that basements weeping tiles are not connected to the storm system and that ICDs are not used to control the flow into the storm system. We do not have this part of the storm system modelled, but due to the uncontrolled nature of the storm sewers it is safe to assume that the HGL becomes elevated during extreme condition. Assuming that you are building a slab on grade addition to the garage, this should not be of any concern. However, please keep this situation in mind should you use underground storage for SWM. Modeling is required! City Dept. to provide capacity information to applicant.

Storm Sewer:

- A 525mm dia. CONC storm sewer (2015) is available within Empress Ave N.
- A 375mm dia. PVC storm sewer (2015) is available within Perkins St.

Sanitary Sewer:

- A 250 mm dia. PVC sanitary sewer (2015) is available within Empress Ave N.
- A 250 mm dia. PVC sanitary sewer (2015) is available within Perkins St.
- Please provide the new Sanitary sewer discharge and we confirm if sanitary sewer main has the capacity. An analysis and demonstration that there is sufficient/adequate residual capacity to accommodate any increase in wastewater flows in the receiving and downstream wastewater system is required to be provided. Needs to be demonstrated that there is adequate capacity to support any increase in wastewater flow.
- Please apply the wastewater design flow parameters *in Technical Bulletin PIEDTB-2018-01*.
- Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.
- A backwater valve is required on the sanitary service for protection.

Water :

- A 152 mm dia. PVC watermain (2016) is available within Empress Ave N.

- A 203mm dia. PVC watermain (2016) is available within Perkins St.
- Existing residential service to be blanked at the main.
- **Water Supply Redundancy:** Residential buildings with a basic day demand greater than 50m³/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the *Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration*. The basic day demand for this site not expected to exceed 50m³/day.
- Please **review Technical Bulletin ISTB-2018-0**, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A **hydrant coverage figure** shall be provided and **demonstrate there is adequate fire protection for the proposal**. Two or more public hydrants are anticipated to be required to handle fire flow.
- 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. 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. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.
 - Type of Development and Units
 - Site Address
 - A plan showing the proposed water service connection location.
 - **Average Daily Demand** (L/s)
 - **Maximum Daily Demand** (L/s)
 - **Peak Hour Demand** (L/s)
 - **Fire Flow** (L/min)

*[Fire flow demand requirements shall be based on **Fire Underwriters Survey (FUS) Water Supply for Public Fire Protection 1999**]*

[Fire flow demand requirements shall be based on ISTB-2021-03]

Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).

- **Hydrant capacity shall be assessed to demonstrate the RFF can be achieved.** Please identify which hydrants are being considered to meet the RFF on a fire hydrant coverage plan as part of the boundary conditions request.

Other Construction project-

Sidewalk Renewal	On Empress Ave N to Albert St	2022
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Snow Storage:

- Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy

driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site please indicate this on the plan(s).

Gas pressure regulating station

A gas pressure regulating station may be required depending on HVAC needs (typically for 12+ units). Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans. This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product.



Gas Pressure
Regulating Station.pdf

Proximity Study

Due to proximity of site to Transit Way and/or Pimisi Station, applicant to contact City LRT Group regarding required building offset from transitway. Noise study to review vibration conditions within 75m of Transitway. See Rail Guidelines and CPCS Report as well as OP Annex 17, Zones of Influence and Guidelines for Proximity Study.



2013_05_29_Guidelines
s_NewDevelopment_E



CPCS Report
Appendix_F.pdf



annex_17_en.pdf



Trillium ZOI.pdf



Confederation East
ZOI.pdf



Confederation West
ZOI.pdf



Confed Railway Line
Prox. Guidelines.pdf

Regarding Quantity Estimates:

Please note that external Garbage and/or bicycle storage structures are to be added to QE under Landscaping as it is subject to securities. In addition, sump pumps for Sanitary and Storm laterals and/or cisterns are to be added to QE under Hard items as it is subject to securities, even though it is internal and is spoken to under SWM and Site Servicing Report and Plan.

Required Engineering Plans and Studies:

PLANS:

- Existing Conditions and Removals Plan
- Site Servicing Plan
- Grade Control and Drainage Plan
- Erosion and Sediment Control Plan
- Roof Drainage Plan (if applicable)
- Foundation Drainage System Detail (if applicable)
- Topographical survey

REPORTS:

- Site Servicing and Stormwater Management Report
- Geotechnical Study/Investigation
- Noise Control Study
- Phase I ESA

- Phase II ESA (Depending on recommendations of Phase I ESA)
- RSC (Record of the site Conditions)

Please refer to the **City of Ottawa Guide to Preparing Studies and Plans [Engineering]:**

Specific information has been incorporated into both the [Guide to Preparing Studies and Plans](#) for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.

Added to the general information for servicing and grading plans is a note that an O.L.S. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an O.L.S. for development projects is emphasized.

Phase One Environmental Site Assessment:

- A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.
- The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.
- Official Plan Section 4.8.4:

<https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan/volume-1-official-plan/section-4-review-development-applications#4-8-protection-health-and-safety>

RSC (Record of the site Conditions)

- A RSC is required when changing the land use (zoning) of a property to a more sensitive land use.

[Submitting a record of site condition | Ontario.ca](#)

Geotechnical Investigation:

- A Geotechnical Study/Investigation shall be prepared in support of this development proposal.
- Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long term damages associated with lowering the groundwater in this area.
- Geotechnical Study shall be consistent with the **Geotechnical Investigation and Reporting Guidelines for Development Applications.**

https://documents.ottawa.ca/sites/documents/files/geotech_report_en.pdf

Noise Study:

- A **Transportation Noise Assessment** is required as the subject development is located within 100m proximity of an Arterial Road.
- A **Stationary Noise Assessment** is required to assess the noise impact of the proposed sources of stationary noise (mechanical HVAC system/equipment) of the development onto the surrounding residential area to ensure the noise levels do not exceed allowable limits specified in the City Environmental Noise Control Guidelines.

https://documents.ottawa.ca/sites/default/files/documents/enviro_noise_guide_en.pdf

Exterior Site Lighting:

- Any proposed light fixtures (both pole-mounted and wall mounted) must be part of the approved Site Plan. All external light fixtures must meet the criteria for Full Cut-off Classification as recognized by the Illuminating Engineering Society of North America (IESNA or IES), and must result in minimal light spillage onto adjacent properties (as a guideline, 0.5 fc is normally the maximum allowable spillage). In order to satisfy these criteria, the please provide the City with a **Certification (Statement) Letter** from an acceptable professional engineer stating that the design is compliant.

Fourth (4th) Review Charge:

Please be advised that additional charges for each review, after the 3rd review, will be applicable to each file. There will be no exceptions.

Construction approach – Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the Site Plan process to determine the ability to construct site and copy File Lead on this request.

Please note that these comments are considered preliminary based on the information available to date and therefore maybe amended as additional details become available and presented to the City. It is the responsibility of the applicant to verify the above information. The applicant may contact me for follow-up questions related to engineering/infrastructure prior to submission of an application if necessary.

If you have any questions or require any clarification, please let me know.

Regards,

Amy Whelan, E.I.T

Engineering Intern

Planning, Real Estate and Economic Development Department– Direction générale de la planification, des biens immobiliers et du développement Development Review – Central Branch

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 26642, amy.whelan@ottawa.ca

APPENDIX B

Site Plan

UNIT LIST		
UNIT TYPE	AREA	COUNT
LEVEL 0		
1-BED	56.6 m ²	1
1-BED + DEN	64.1 m ²	1
2-BED	77.8 m ²	1
LEVEL 1		
1-BED	49.6 m ²	1
1-BED	53.4 m ²	1
1-BED + DEN	64.1 m ²	1
2-BED	100.2 m ²	1
2-BED	84.9 m ²	1
2-BED	79.9 m ²	1
2-BED	79.1 m ²	1
3-BED	82.6 m ²	1
LEVEL 2		
1-BED	49.6 m ²	1
1-BED	56.0 m ²	1
1-BED + DEN	58.2 m ²	1
1-BED + DEN	64.0 m ²	1
2-BED	100.2 m ²	1
2-BED	70.6 m ²	1
2-BED	80.2 m ²	1
2-BED	79.4 m ²	1
3-BED	82.6 m ²	1
3-BED	100.7 m ²	1

UNIT LIST		
UNIT TYPE	AREA	COUNT
LEVEL 3		
1-BED	49.6 m ²	1
1-BED	56.0 m ²	1
1-BED + DEN	58.2 m ²	1
1-BED + DEN	64.0 m ²	1
2-BED	100.2 m ²	1
2-BED	70.6 m ²	1
2-BED	80.2 m ²	1
2-BED	79.4 m ²	1
3-BED	82.6 m ²	1
3-BED	100.7 m ²	1
LEVEL 4		
1-BED	49.6 m ²	1
1-BED	54.3 m ²	1
1-BED + DEN	57.3 m ²	1
1-BED + DEN	63.1 m ²	1
2-BED	99.1 m ²	1
2-BED	70.6 m ²	1
2-BED	79.3 m ²	1
2-BED	76.9 m ²	1
3-BED	81.7 m ²	1
3-BED	98.4 m ²	1
TOTAL	3006.6 m ²	41

OWNER
DALHOUSIE NON-PROFIT HOUSING CO-OPERATIVE INC.
224-211 BRONSON AVENUE
OTTAWA, ON, K1R 6H5

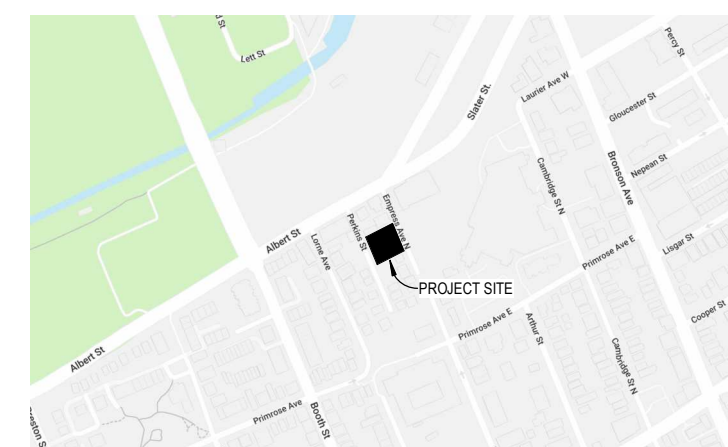
ARCHITECT
PROJECT1 STUDIO
260 ST. PATRICK ST. SUITE 300
OTTAWA, ON, K1N 5K5

PLANNER
NOVATECH
240 MICHAEL COWPLAND DRIVE, SUITE 200
OTTAWA, ON, K2M 1P6

LANDSCAPE ARCHITECT
NOVATECH
240 MICHAEL COWPLAND DRIVE, SUITE 200
OTTAWA, ON, K2M 1P6

CIVIL ENGINEER
STANTEC
300 - 1331 CLYDE AVENUE
OTTAWA, ON, K2C 3G4

SURVEYOR
FARLEY, SMITH & DENIS SURVEYING LTD.
30 COLONNADE ROAD, UNIT 275
OTTAWA, ON, K2E 7J6



3 LOCATION PLAN
SP-01 SCALE: N.T.S.

TOPOGRAPHIC PLAN OF SURVEY OF
LOT 5 AND PART OF LOT 6
REGISTERED PLAN 7
CITY OF OTTAWA
FARLEY, SMITH & DENIS SURVEYING LTD. 2021

GFA (OBC)		
LEVEL	AREA	AREA (SF)
LEVEL 0	944.3 m ²	10164 SF
LEVEL 1	801.9 m ²	8632 SF
LEVEL 2	805.3 m ²	8668 SF
LEVEL 3	805.3 m ²	8668 SF
LEVEL 4	793.4 m ²	8540 SF
ROOFTOP TERRACE	76.3 m ²	822 SF
TOTAL	4226.4 m ²	45493 SF

AREA SCH. (COMMUNAL AMENITY)			
LEVEL	NAME	AREA	AREA (SF)
LEVEL 1	AMENITY ROOM	70.6 m ²	760 SF
LEVEL 1	AMENITY - SOFT LANDSCAPING	68.6 m ²	741 SF
LEVEL 1	AMENITY - PATIO	28.5 m ²	306 SF
ROOFTOP TERRACE	AMENITY - ROOFTOP TERRACE	165.6 m ²	1782 SF
ROOFTOP TERRACE	AMENITY - COMMUNITY GARDEN	150.7 m ²	1622 SF
TOTAL		484.2 m ²	5211 SF

GFA (CITY OF OTTAWA)		
LEVEL	AREA	AREA (SF)
LEVEL 0	187.0 m ²	2013 SF
LEVEL 1	591.9 m ²	6349 SF
LEVEL 2	701.7 m ²	7554 SF
LEVEL 3	701.7 m ²	7554 SF
LEVEL 4	698.5 m ²	7518 SF
ROOFTOP TERRACE	76.3 m ²	8267 SF
TOTAL	2859.9 m ²	30687 SF

UNIT COUNT						
NAME	COUNT	LVL 00	LVL 01	LVL 02	LVL 03	LVL 04
1-BED	9	1	2	2	2	2
1-BED + DEN	8	1	1	2	2	2
2-BED	17	1	4	4	4	4
3-BED	7	0	1	2	2	2
GRAND TOTAL	41	3	8	10	10	10

GROSS LEASABLE F.A.		
LEVEL	AREA	AREA (SF)
LEVEL 0	196.6 m ²	2136 SF
LEVEL 1	633.3 m ²	6830 SF
LEVEL 2	741.6 m ²	7983 SF
LEVEL 3	741.6 m ²	7983 SF
LEVEL 4	730.3 m ²	7861 SF
TOTAL	3006.0 m ²	32356 SF

PARKING SCHEDULE	
LEVEL	COUNT
ENTRY LEVEL	1
LEVEL 0	16
TOTAL	17

G.L.F.A. (CITY OF OTTAWA)		
LEVEL	AREA	AREA (SF)
Not Provided	0.0 m ²	0 SF
LEVEL 0	178.4 m ²	1921 SF
LEVEL 1	538.6 m ²	5797 SF
LEVEL 2	673.7 m ²	7252 SF
LEVEL 3	305.3 m ²	3286 SF
LEVEL 4	670.6 m ²	7216 SF
TOTAL	2366.6 m ²	25474 SF

BICYCLE PARKING SCHEDULE	
LEVEL	COUNT
ENTRY LEVEL	2
LEVEL 0	42
TOTAL	44

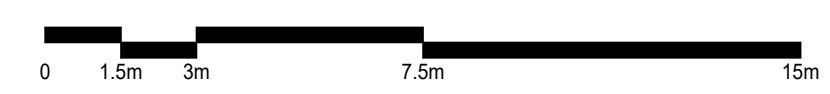
Site Statistics		
Current Zoning Designation:	R4LD	
Lot Width:	35.1m	
Total Lot Area:	1215.1m ²	
Gross Floor Area:	4226.4m ²	
Building Area:	855.2m ²	
Floor Space Index:	3.47	
Proposed Development - 4 Storey Low-Rise Apartment Building		
No. of Units:	41	
Zoning Mechanism		
Minimum Lot Width	Required: 15m	Provided: 35.1m
Table 162A (V)	450m ²	1215.1m ²
Minimum Lot Area	Table 162A (V)	
Maximum Building Height	Table 162A (V)	14.5m
Table 162A (V)	14.5m	14.5m
Minimum Front Yard Setback	Table 162A (VII)	4.5m
Table 162A (VII)	4.5m	2.5m
Corner Side Yard Setback	Table 162A (VIII)	4.5m
Table 162A (VIII)	n/a	n/a
Rear Yard Setback	Table 162B (4)	n/a
Table 162B (4)	n/a	n/a
Min. Interior Side Yard Setback	Table 162B (4)	1.5m
Table 162B (4)	1.5m	1.5m
Minimum Landscaped Area	Section 161 (B)	364.5m ²
Table 161 (B)	30% of lot area	376m ²
Total Amenity Area	Table 137	n/a
Table 137	n/a	484m ²
Communal Amenity Area	Table 137	n/a
Table 137	n/a	484m ²
Parking Requirements		
Minimum Parking Spaces	Table 101 (Sch. 1A - Area X)	13 Spaces
Table 101 (Sch. 1A - Area X)	0 spaces for the first 12 units - Section 101(3)(a)	17 Spaces
	0.5 spaces / unit for 29 units - Table 101(R1)(ii)	(16 underground, and 1 at-grade)
	+ 0.5% Section 101(6)	
Minimum Visitor Parking Spaces	Table 102 (Sch. 1A - Area X)	3 Spaces
Table 102 (Sch. 1A - Area X)	0 spaces for first 12 units - Section 102(2)	0 Spaces
	0.1 spaces / unit for 29 units - Table 102 (ii)	
Bicycle Parking Rates		
Minimum Bicycle Parking Spaces	Table 111A (Sch. 1 - Area B)	21 Spaces
Table 111A (Sch. 1 - Area B)	0.5 spaces / unit for 41 units(111A)(ii)	44 Spaces
		(42 interior spaces & 2 outdoor visitor spaces)

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 clarification or supplementary information regarding the intent of the Contract Documents.
4. The Architectural drawings are to be read in conjunction with all other Contract Documents including Project Manuals and the Structural, Mechanical and Electrical Drawings.
5. Positions of proposed 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.

KEY PLAN



1 SITE PLAN
SP-01 SCALE: 1 : 150



SITE PLAN SYMBOLS LEGEND

- BUILDING ENTRANCE
- BUILDING EXIT
- BICYCLE PARKING
- PROPERTY LINE
- SETBACK LINE
- OVERHEAD WIRES
- INTERLOCKING STONE PAVERS
- TSP - EXISTING TRAFFIC SIGNAL POST
- FDC - FIRE DEPARTMENT CONNECTION
- FH - FIRE HYDRANT
- NEW STREET LIGHT
- STREET LIGHT TO BE REMOVED
- EXISTING STREET LIGHT TO REMAIN
- EXISTING UTILITY POLE TO REMAIN
- UTILITY POLE TO BE REMOVED/RELOCATED

SITE PLAN NOTES

- ASPHALT
- EXISTING STRUCTURE TO BE DEMOLISHED
- CONCRETE SIDEWALK
- SOFT LANDSCAPING
- DEPRESSED CURB
- LINE OF CANOPY ABOVE
- INTERLOCKING PAVERS
- 2 VISITOR BIKE PARKING SPACES
- RAMP TRAFFIC SIGNAL



2 SITE SETBACK PLAN
SP-01 SCALE: 1 : 200



2 REISSUED FOR ZBLA 2023-12-21
1 ISSUED FOR ZBLA 2023-11-13



project1 studio
Project1 Studio Incorporated
[613] 884-9339 | mail@project1studio.ca

10 EMPRESS AVE
10 Empress Avenue
Ottawa, ON K1R 7E8

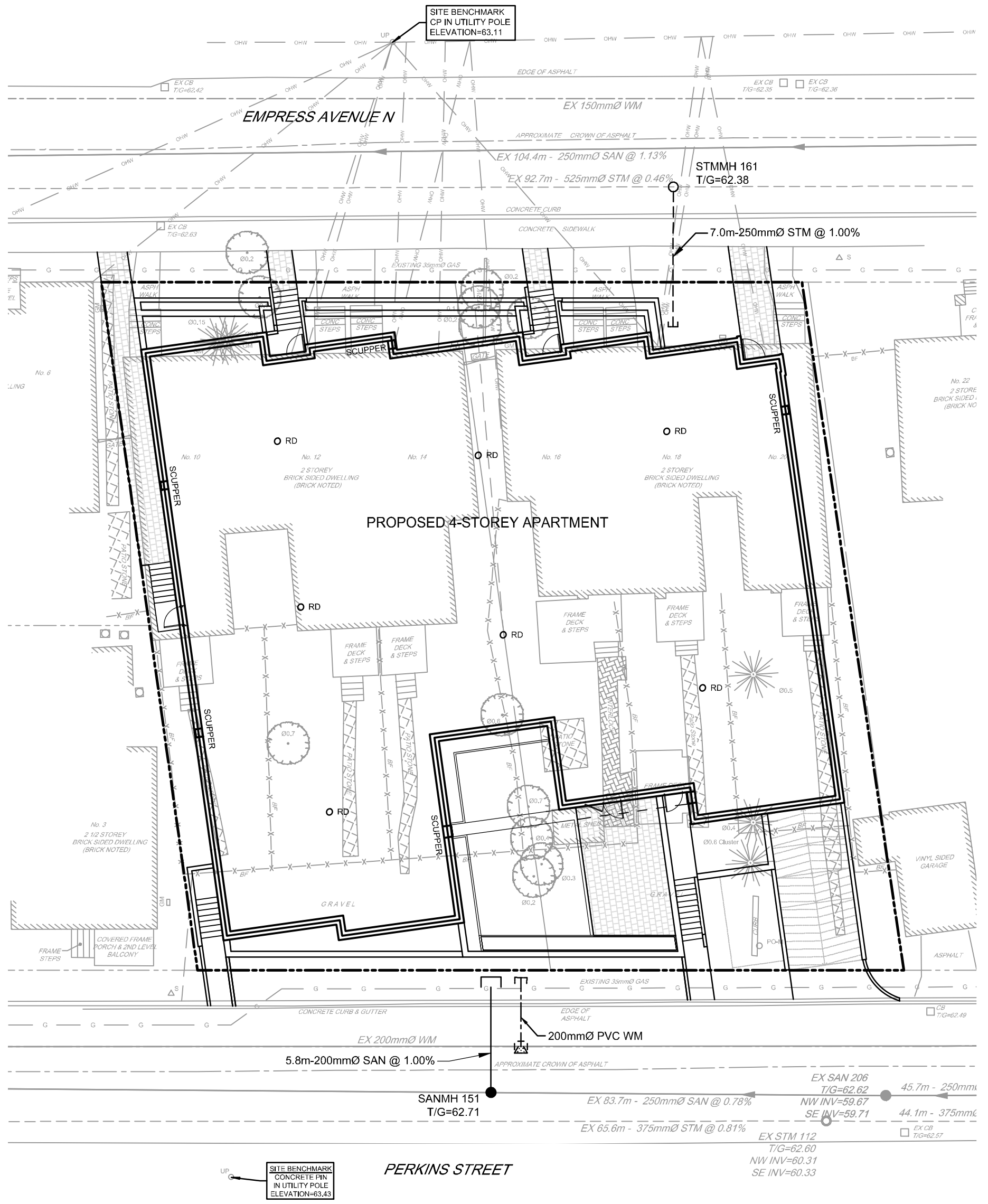
PROJ. SCALE DRAWN REVIEWED
2214 NOTED JH / BH RMK

SITE PLAN & PROJECT INFORMATION

SP-01

APPENDIX C
Conceptual Servicing Plan

M:\2021\121234\CAD\Design\121234-GP.dwg, FIG 2, Nov 27, 2023 - 2:48pm, lcolbran



<p>NOVATECH Engineers, Planners & Landscape Architects Suite 200, 240 Michael Cowpland Drive Ottawa, Ontario, Canada K2M 1P6</p> <p>Telephone (613) 254-9643 Facsimile (613) 254-5867 Website www.novatech-eng.com</p>	<p>CITY OF OTTAWA 10 EMPRESS AVENUE NORTH</p>
	<p>CONCEPTUAL SERVICING PLAN</p>
	<p>NOV 2023 121234 FIG 2</p>

APPENDIX D

Sanitary Sewer Calculations, E-Mail from the City of Ottawa

10 EMPRESS AVENUE NORTH SANITARY FLOW

4-STOREY APARTMENT BUILDING

Number of 1 Bedroom/Studio Units	17
Persons per 1-bdr Unit	1.4
Number of 2 Bedroom Units	17
Persons per 2-bdr Unit	2.1
Number of 3 Bedroom Units	7
Persons per 3-bdr Unit	3.1
Total Population	82
Average Daily Flow	280 L/c/day
Average Daily Volume	22,960 L/day
Peak Factor (Harmon Formula)	3.20
Peak Sanitary Flow	0.85 L/s
Site Area	0.12 ha
Infiltration Allowance	0.33 L/s/ha
Peak Extraneous Flows	0.04 L/s
Total Peak Sanitary Flow	0.89 L/s

Miro Savic

From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Monday, October 30, 2023 8:46 AM
To: Miro Savic
Cc: Lee Sheets; Wu, John; Matthew Hrehoriak; Murray Chown
Subject: RE: 10 Empress - Sanitary Sewer Downstream Analysis

Hi Miro,

Asset Management confirmed there is no capacity concerns with the proposed sanitary discharge on both Empress Ave. N and Perkins St.

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals
Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique
Development Review – Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Miro Savic <m.savic@novatech-eng.com>
Sent: October 27, 2023 9:58 AM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>; Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>; Murray Chown <m.chown@novatech-eng.com>
Subject: RE: 10 Empress - Sanitary Sewer Downstream Analysis

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

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

Hi Vincent,

Please copy Matt Hrehoriak (cc'd on this email) on the response from the Asset Management as I will be away from the office next two weeks.

Thanks you,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265

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

From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Wednesday, October 25, 2023 12:12 PM
To: Miro Savic <m.savic@novatech-eng.com>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>
Subject: RE: 10 Empress - Sanitary Sewer Downstream Analysis

Hi Miro,

I am confirming that you have provided the information required and that the request to confirm sanitary capacity for this project has been sent to our Asset Management group.

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals
Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique
Development Review – Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Miro Savic <m.savic@novatech-eng.com>
Sent: October 25, 2023 10:49 AM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Duquette, Vincent <Vincent.Duquette@ottawa.ca>; Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.chown@novatech-eng.com>
Subject: RE: 10 Empress - Sanitary Sewer Downstream Analysis

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

Hi John,

Just following up on this. Can you please confirm whether you have the information required for the sanitary downstream analysis.

Thank you,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH

Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265
The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Miro Savic
Sent: Tuesday, October 24, 2023 9:21 AM
To: 'Wu, John' <John.Wu@ottawa.ca>

Cc: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Subject: RE: 10 Empress - Sanitary Sewer Downstream Analysis

Hi John,

The daily volume is 22,960 L/day (82persons x 280 L/person/day). The peak sanitary flow is 3.41 L/s. See the attached spreadsheet.

Can you please clarify what do you mean by the peak sanitary volume? This is the first time I was asked to provide this.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265

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

From: Wu, John <John.Wu@ottawa.ca>
Sent: Tuesday, October 24, 2023 8:22 AM
To: Miro Savic <m.savic@novatech-eng.com>
Cc: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Subject: RE: 10 Empress - Sanitary Sewer Downstream Analysis

Hi, Miro:
You need provide the peak sanitary volume, and daily volume for that.

Thanks.

John

From: Miro Savic <m.savic@novatech-eng.com>
Sent: October 23, 2023 4:05 PM
To: Wu, John <John.Wu@ottawa.ca>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.chown@novatech-eng.com>
Subject: 10 Empress - Sanitary Sewer Downstream Analysis

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

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

Hello John,

I'm writing to request downstream analysis of the municipal sanitary sewer system for the proposed development at 10 Empress Ave N. I have attached the sanitary flow calculations for the City use in the analysis.

Two connections to the municipal sanitary sewer system are being considered (see snipped from the pre-consultation meeting with the City below):

- Connection to 250mm diameter sanitary Sewer in 10 Empress Ave N
- Connection to 250mm diameter sanitary sewer in Perkins St

Sanitary Sewer:

- A 250 mm dia. PVC sanitary sewer (2015) is available within Empress Ave N.
- A 250 mm dia. PVC sanitary sewer (2015) is available within Perkins St.
- Please provide the new Sanitary sewer discharge and we confirm if sanitary sewer main has the capacity. An analysis and demonstration that there is sufficient/adequate residual capacity to accommodate any increase in wastewater flows in the receiving and downstream wastewater system is required to be provided. Needs to be demonstrated that there is adequate capacity to support any increase in wastewater flow.
- Please apply the wastewater design flow parameters in *Technical Bulletin PIEDTB-2018-01*.
- Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.
- A backwater valve is required on the sanitary service for protection.

Please confirm whether the City has any concerns with the downstream capacity of the sanitary sewer system for the proposed development.

Please give me a call should you have any questions or require additional information.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265

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

APPENDIX E

Water Analysis, FUS Calculations, Watermain Boundary Conditions

10 EMPRESS AVENUE NORTH

WATER ANALYSIS

WATER DEMAND

Number of 1 Bedroom Units	17
Persons per 1 Bedroom Unit	1.4
Number of 2 Bedroom Units	17
Persons per 2 Bedroom Unit	2.1
Number of 3 Bedroom Units	7
Persons per 3 Bedroom Unit	3.1
Total Population	82
Average Day Demand	280 L/c/day
Average Day Demand	0.27 L/s
Maximum Day Demand (7.5 x avg. day per MOE Table 3-3)	1.99 L/s
Peak Hour Demand (11.3 x avg. day per MOE Table 3-3)	3.00 L/s

BOUNDARY CONDITIONS

Maximum HGL =	115.6 m
Minimum HGL =	107.7 m
Max Day + Fire Flow (267 L/s) HGL =	79.6 m

PRESSURE TESTS

AVERAGE GROUND ELEVATION (PERKINS STREET)	62.7 m
HIGH PRESSURE TEST = MAX HGL - AVG GROUND ELEV x 1.42197 PSI/m < 80 PSI	
HIGH PRESSURE =	75.2 PSI
LOW PRESSURE TEST = MIN HGL - AVG GROUND ELEV x 1.42197 PSI/m > 40 PSI	
LOW PRESSURE =	64.0 PSI
MAX DAY + FIRE FLOW TEST = MAX DAY + FIRE - AVG GROUND ELEV x 1.42197 PSI/m > 20 PSI	
MAX DAY + FIRE PRESSURE =	24.0 PSI

FUS - Fire Flow Calculations

As per 2020 Fire Underwriter's Survey Guidelines



Engineers, Planners & Landscape Architects

Novatech Project #: 121234
 Project Name: 10 Empress Ave N
 Date: October 23, 2023
 Input By: C. Visser
 Reviewed By: M. Savic

Legend
 Input by User
 No Information or Input Required

Building Description: 4-Storey Residential Building
 Type V - Wood frame

Step			Input		Value Used	Total Fire Flow (L/min)	
Base Fire Flow							
1	Construction Material			Multiplier		1.5	
	Coefficient related to type of construction D	Type V - Wood frame	Yes	1.5	1.5		
		Type IV - Mass Timber		Varies			
		Type III - Ordinary construction		1			
		Type II - Non-combustible construction		0.8			
Type I - Fire resistive construction (2 hrs)			0.6				
2	Floor Area						
	A	Building Footprint (m ²)	805				
		Number of Floors/Storeys	4				
		Area of structure considered (m ²)			3,220		
F	Base fire flow without reductions					19,000	
	F = 220 C (A)^{0.5}						
Reductions or Surcharges							
3	Occupancy hazard reduction or surcharge		FUS Table 3	Reduction/Surcharge		16,150	
	(1)	Non-combustible		-25%	-15%		
		Limited combustible	Yes	-15%			
		Combustible		0%			
		Free burning		15%			
Rapid burning			25%				
4	Sprinkler Reduction		FUS Table 4	Reduction		-6,460	
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%		
		Standard Water Supply	Yes	-10%	-10%		
		Fully Supervised System	No	-10%			
		Cumulative Sub-Total			-40%		
		Area of Sprinklered Coverage (m²)	3,220	100%			
Cumulative Total			-40%				
5	Exposure Surcharge		FUS Table 6	Surcharge		6,299	
	(3)	North Side	0 - 3 m		22%		
		East Side	>30m		0%		
		South Side	3.1 - 10 m		15%		
		West Side	20.1 - 30 m		2%		
Cumulative Total			39%				
Results							
6	(1) + (2) + (3)	Total Required Fire Flow, rounded to nearest 1000L/min			L/min	16,000	
		(2,000 L/min < Fire Flow < 45,000 L/min)			or	L/s	267
					or	USGPM	4,227

Miro Savic

From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Wednesday, December 6, 2023 1:26 PM
To: Miro Savic
Cc: Wu, John; Lee Sheets; Murray Chown
Subject: RE: 10 Empress - Boundary Conditions Request
Attachments: 10 Empress Avenue North Multi Hydrant November 2023.pdf

Hi Miro,

We requested a multi-hydrant analysis from our water resource group for this site. The available fire flow to site did not change, however it was confirmed that the four hydrants operating simultaneously provides sufficient fire flow. See below updated results.

The following are boundary conditions, HGL, for hydraulic analysis at 10 Empress Avenue North (zone 1W) assumed to be connected to the 152mm watermain on Empress Avenue North (Option1) OR the 203mm watermain on Perkins Street (Option2) (see attached PDF for location).

Both Options:

Minimum HGL= 107.7 m

Maximum HGL= 115.6 m

Fire Flow:

Option 1: Empress Connection

Available Fire Flow at 20 psi: 146.2 L/s, assuming ground elevation of 62.5 m.

Option 2: Perkins Connection

Max Day + Fire flow (267 L/s): 79.6 m

A multi-hydrant analysis was performed with four existing hydrants within 150 m of the property. **The total aggregate flow assuming the four identified hydrants running simultaneously provides the required fire flow for the site.**

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.

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

Development Review – Central Branch

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

Multi-Hydrant Analysis for 10 Empress Avenue North



Legend

- Public
- Private

From: Duquette, Vincent
Sent: November 24, 2023 1:33 PM
To: Miro Savic <m.savic@novatech-eng.com>
Cc: Wu, John <John.Wu@ottawa.ca>; Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.chown@novatech-eng.com>
Subject: RE: 10 Empress - Boundary Conditions Request

Hi Miro,

Thank you for your patience. See below results for the boundary condition requests.

The following are boundary conditions, HGL, for hydraulic analysis at 10 Empress Avenue North (zone 1W) assumed to be connected to the 152mm watermain on Empress Avenue North (Option1) OR the 203mm watermain on Perkins Street (Option2) (see attached PDF for location).

Both Options:

Minimum HGL= 107.7 m

Maximum HGL= 115.6 m

Fire Flow:

Option 1: Empress Connection

Available Fire Flow at 20 psi: 146.2 L/s, assuming ground elevation of 62.5 m. The proposed connection on Empress Avenue North does not meet 267 L/s Fire demand.

Option 2: Perkins Connection

Max Day + Fire flow (267 L/s): 79.6 m

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation.

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

Development Review – Central Branch

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110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Miro Savic <m.savic@novatech-eng.com>
Sent: November 24, 2023 10:22 AM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Wu, John <John.Wu@ottawa.ca>; Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.chown@novatech-eng.com>
Subject: RE: 10 Empress - Boundary Conditions Request

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Hi Vincent,

Any update from the water resources?

Thanks,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265

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From: Miro Savic

Sent: Tuesday, November 21, 2023 3:17 PM

To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Cc: Wu, John <John.Wu@ottawa.ca>; Lee Sheets <l.sheets@novatech-eng.com>

Subject: RE: 10 Empress - Boundary Conditions Request

Hi Vincent,

Thank you for the email. The FUS calcs provided are accurate for the proposed 4-storey wood frame construction and fully sprinkler building.

There are 4 municipal hydrants within the range of the site and 2 of them are connected to the 406mm watermain in Albert Street. Based on Table 1 in Technical Bulletin ISTB-2010-02, there should be sufficient fire flow available to service the site.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265

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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Sent: Tuesday, November 21, 2023 2:25 PM

To: Miro Savic <m.savic@novatech-eng.com>

Cc: Wu, John <John.Wu@ottawa.ca>; Lee Sheets <l.sheets@novatech-eng.com>

Subject: RE: 10 Empress - Boundary Conditions Request

Hi Miro,

Our water resource group has concerns regarding the high fireflow requested for this applications. Can you confirm the 267L/s requested is accurate for the proposed building?

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

Development Review – Central Branch

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Duquette, Vincent

Sent: November 17, 2023 9:50 AM

To: 'Miro Savic' <m.savic@novatech-eng.com>; Lee Sheets <l.sheets@novatech-eng.com>

Cc: Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

Hi Miro,

Unfortunately we haven't received the boundary conditions.

When I receive them I will ensure to forward them to you as soon as I get them.

Best,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

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110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Miro Savic <m.savic@novatech-eng.com>

Sent: November 17, 2023 9:43 AM

To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>; Lee Sheets <l.sheets@novatech-eng.com>

Cc: Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

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Hi Vincent,

Have you heard back from the water resources?

Thanks,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Sent: Wednesday, November 8, 2023 9:45 AM

To: Lee Sheets <l.sheets@novatech-eng.com>; Miro Savic <m.savic@novatech-eng.com>

Cc: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

Hi Lee,

I haven't heard back from our water resource group. Please note that typical turn around time for boundary conditions requests is 3-4 weeks. I will keep you posted on their response.

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

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110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Lee Sheets <l.sheets@novatech-eng.com>

Sent: November 08, 2023 9:08 AM

To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>; Miro Savic <m.savic@novatech-eng.com>

Cc: Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

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Hi Vincent, any update on the request?

Lee

J. Lee Sheets, C.E.T., Director | Land Development & Public Sector Infrastructure

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 209 | Cell: 613.262.3121 | Fax: 613.254.5867

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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Sent: Monday, October 30, 2023 8:56 AM

To: Miro Savic <m.savic@novatech-eng.com>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

Hi Miro,

Boundary conditions have been requested. Should you wish to meet and discuss about the peaking factors, we can do so upon your return in two weeks.

Enjoy the time off.

Best,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

Development Review – Central Branch

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110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Miro Savic <m.savic@novatech-eng.com>

Sent: October 27, 2023 10:29 AM

To: Wu, John <John.Wu@ottawa.ca>; Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Matthew Hrehoriak <m.hrehoriak@novatech-eng.com>

Subject: RE: 10 Empress - Boundary Conditions Request

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Hello Vincent,

Please copy Matt Hrehoriak (cc'd on this email) on the boundary conditions as I will be away from the office next two weeks.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265

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From: Miro Savic

Sent: Wednesday, October 25, 2023 3:21 PM

To: Wu, John <John.Wu@ottawa.ca>; Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>

Subject: FW: 10 Empress - Boundary Conditions Request

Vicent, John,

Can we please meet to discuss this. This is the first time in my 18+ years working in Ottawa that I have been asked to use MOE Table 3-3 for a small infill development like this.

Thanks,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

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From: Miro Savic

Sent: Wednesday, October 25, 2023 3:16 PM

To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

Hi Vincent,

See the attached revised spreadsheet.. I used dwelling unit column instead of population column in my interpolations earlier.

Please order the boundary conditions.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Sent: Wednesday, October 25, 2023 12:21 PM

To: Miro Savic <m.savic@novatech-eng.com>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

Hi Miro,

Can you clarify how the Max Day factor (4.1) and Peak Hour factor (6.1) were obtained from Table 3-3?

Based on the proposed units (41) or population (82), it seems the factors should be interpolated higher from Table 3-3.

Table 3-3: Peaking Factors for Drinking-Water Systems Serving Fewer than 500 People

DWELLING UNITS SERVICED	EQUIVALENT POPULATION	NIGHT MINIMUM HOUR FACTOR	MAXIMUM DAY FACTOR	PEAK HOUR FACTOR
10	30	0.1	9.5	14.3
50	150	0.1	4.9	7.4
100	300	0.2	3.6	5.4
150	450	0.3	3.0	4.5
167	500	0.4	2.9	4.3

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

Development Review – Central Branch

City of Ottawa | Ville d’Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Miro Savic <m.savic@novatech-eng.com>

Sent: October 25, 2023 10:52 AM

To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.chown@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

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Hi Vincent,

Just following up on this. Can you please confirm that you have the information you need to order the water boundary conditions.

Thank you,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265

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From: Miro Savic
Sent: Tuesday, October 24, 2023 4:34 PM
To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>
Subject: RE: 10 Empress - Boundary Conditions Request

Hi Vincent,

Your quick response is much appreciated.

I respectfully disagree with your understanding of the water design guidelines - we are not building a subdivision or a water system - we are building a single water service that is connected to a large water system.

However, I do not want to hold the boundary conditions request for the project. Please use the attached water demand calculations based on the MOE Table 3-3 to order the boundary conditions.

Thank you,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

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Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 x 265

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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>
Sent: Tuesday, October 24, 2023 4:03 PM
To: Miro Savic <m.savic@novatech-eng.com>
Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>
Subject: RE: 10 Empress - Boundary Conditions Request

Hi Miroslav,

The peaking factors from Table 4.2 are intended for subdivisions or water systems where the anticipated population is ranging from 500 to 3000. Our WDG indicate below that Table 3-3 should be used for small systems with a population of 0 to 500. In this case the water service connection you are requesting boundary conditions for is considered "small" because the water service itself will only serve an anticipated population of 82.

Demand Type	Amount	Units
Commercial and Institutional		
- Shopping Centres	2500	L/(1000m ² /d)
- Hospitals	900	L/(bed/day)
- Schools	70	L/(Student/d)
- Trailer Parks no Hook-Ups	340	L/(space/d)
- Trailer Parks with Hook-Ups	800	L/(space/d)
- Campgrounds	225	L/(campsite/d)
- Mobile Home Parks	1000	L/(Space/d)
- Motels	150	L/(bed-space/d)
- Hotels	225	L/(bed-space/d)
- Tourist Commercial	28,000	L/gross ha/d
- Other Commercial	28,000	L/gross ha/d
Maximum Daily Demand		
Residential	2.5 x avg. day	L/c/d
Industrial	1.5 x avg. day	L/gross ha/d
Commercial	1.5 x avg. day	L/gross ha/d
Institutional	1.5 x avg. day	L/gross ha/d
Maximum Hour Demand		
Residential	2.2 x max. day	L/c/d
Industrial	1.8 x max.day	L/gross ha/d
Commercial	1.8 x max.day	L/gross ha/d
Institutional	1.8 x max. day	L/gross ha/d

10-02

Table Notes:

- Use Table 3-3 of the MOE Design Guidelines for Drinking-Water Systems to determine Maximum day and Maximum hour peaking factors for 0 to 500 persons
- For applications not covered by Table 4.2 consult the MOE Guidelines for direction.

Different consumption rates may be warranted for modeling of existing areas. Consult with the Water Resources Unit, Asset Management Branch for demand estimates for specific projects in existing areas.

4.2.9 Areas Zoned Residential

Undeveloped residential areas within the development area shall consider average daily consumption rates of 35 m³/ha/day for hydraulic design purposes.

I hope this clears things up.

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

Development Review – Central Branch

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110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 14048, vincent.duquette@ottawa.ca

From: Miro Savic <m.savic@novatech-eng.com>

Sent: October 24, 2023 10:50 AM

To: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.chown@novatech-eng.com>; Wu, John <John.Wu@ottawa.ca>

Subject: RE: 10 Empress - Boundary Conditions Request

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Hi Vincent,

Thank you for getting back to me quickly.

I don't agree that we should be using MOE Table 3-3 to calculate peaking factors for a single site development. The MOE Table 3-3 is meant to be used for small drinking water **systems** serving less than 500 people, while the proposed site service is connected to a "large" municipal water system serving more than 500 people.

I'm free on Teams if you would like to schedule a meeting to discuss.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

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From: Duquette, Vincent <Vincent.Duquette@ottawa.ca>

Sent: Monday, October 23, 2023 4:07 PM

To: Miro Savic <m.savic@novatech-eng.com>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.Chown@novatech-eng.com>

Subject: RE: 10 Empress - Boundary Conditions Request

Hi Miroslav,

For smaller populations such as this one, the peaking factors interpolated from the Table 3-3 from the MOE guidelines should be used instead. Please revise the demand calculations accordingly so that I can request boundary conditions from our water modelling group.

Best Regards,

Vincent Duquette, E.I.T

Project Manager, Infrastructure Approvals

Planning, Real Estate and Economic Development Department – Direction général de la planification, des biens immobilier et du développement économique

Development Review – Central Branch

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

From: Miro Savic <m.savic@novatech-eng.com>

Sent: October 23, 2023 2:13 PM

To: Wu, John <John.Wu@ottawa.ca>

Cc: Lee Sheets <l.sheets@novatech-eng.com>; Murray Chown <m.chown@novatech-eng.com>

Subject: 10 Empress - Boundary Conditions Request

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Hello John,

I'm writing to request water boundary conditions for the proposed residential development located at 10 Empress Avenue N. Please provide the boundary conditions for two potential water service connections:

- Connection 1 to 150mm diameter watermain in Empress Ave N
- Connection 2 to 200mm diameter watermain in Perkins Street

Refer the attached sketch showing approximate water service connection locations.

The FUS fire flow and domestic water demands for the proposed building are calculated as follows:

- FUS Fire Flow = 267 L/s (16,000 L/min)
- Average Day Demand: 0.27 L/s
- Maximum Day Demand: 0.66 L/s
- Peak Hour Demand: 1.46 L.s

There are four existing blue bonnet municipal hydrants within the 150m range from the site. The attached sketch shows Hydrant ID numbers as well as the approximate distances to the proposed building. As per Table 1 in Technical Bulletin ISTB-2010-02, the existing hydrants should provide sufficient fire flow for the proposed building:

- Fire flow from three hydrants located less than 75m from the building: 3 x 5,700 L/min = 17,100 L/min
- Fire flow from one hydrant located between 75 and 150m from the building: 1 x 3,800 L/min
- Total fire flow from the four hydrants: 20,900 L/min

Please let me know if you have any questions or require more information to provide the boundary conditions for the project.

Regards,

Miroslav Savic, P.Eng., Senior Project Manager | Land Development Engineering

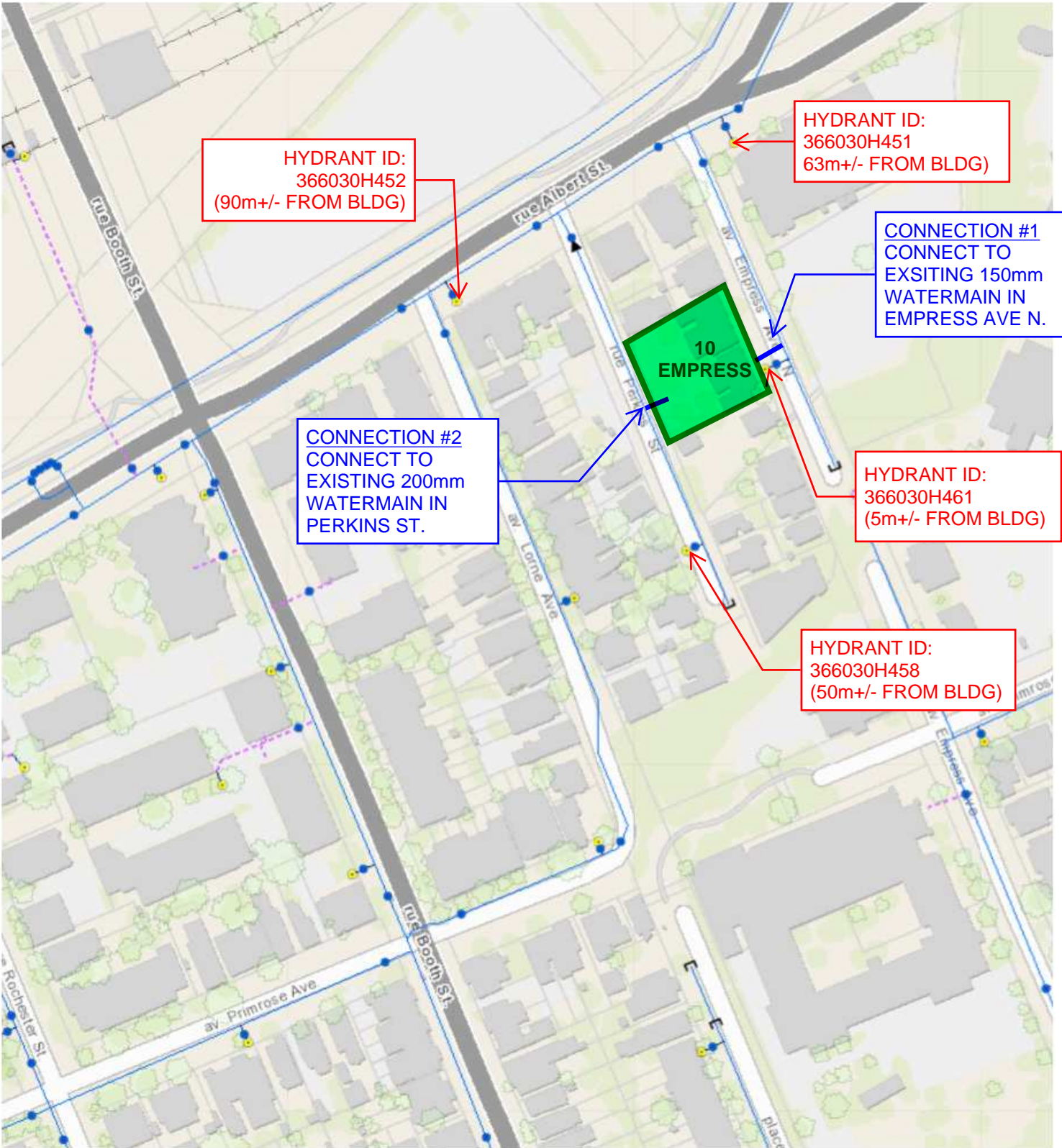
NOVATECH Engineers, Planners & Landscape Architects

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FIRE HYDRANTS SKETCH



APPENDIX F

Preliminary SWM Calculations, Conceptual Post-Development Storm Drainage Area Plan

Proposed 4-Storey Residential Development 10 Empress Avenue North

Pre - Development Site Flows										
Description	Area (ha)	$A_{impervious} (ha)$ C=0.9	$A_{gravel} (ha)$ C=0.6	$A_{pervious} (ha)$ C=0.2	Weighted C_{w5}	Weighted C_{w100}	5-Year Flow (L/s)	100-Year Flow (L/s)	Allowable C_{value}	Allowable Flow
										5-year (L/s)
Subject Site	0.122	0.053	0.021	0.048	0.58	0.67	20.3	40.3	0.5	17.6

$T_c = 10mins$

Post - Development : Sub-Catchment Areas and Weighted Runoff Coefficients						
Area	Description	Area (ha)	$A_{imp} (ha)$ C=0.9	$A_{perv} (ha)$ C=0.2	C_5	C_{100}
A-1	Direct Runoff from Site	0.023	0.009	0.014	0.47	0.54
A-2	Controlled Flow	0.099	0.099	0.000	0.90	1.00

Summed Area Check: 0.122

Post - Development : Flows						
Area	Description	Peak Design Flow (L/s)		Storage Required (m ³)		Provided (m ³)
		5-year	100-year	5-year	100-year	
A-1	Direct Runoff from Site	3.2	7.6	-	-	-
A-2	Controlled Flow	10.0	10.0	9.6	27.9	> 30
Totals :		13.2	17.6	9.6	27.9	> 30

Over Controlled: 4.4 0.0

Proposed 4-Storey Residential Development				
Novatech Project No. 121234				
REQUIRED STORAGE - 1:5 YEAR EVENT				
A-2 Controlled Flow				
OTTAWA IDF CURVE				
Area =	0.099	ha	Qallow =	10.00 L/s
C =	0.90		Vol(max) =	9.6 m3
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	34.97	24.97	7.49
10	104.19	25.81	15.81	9.49
15	83.56	20.70	10.70	9.63
20	70.25	17.40	7.40	8.88
25	60.90	15.08	5.08	7.63
30	53.93	13.36	3.36	6.04
35	48.52	12.02	2.02	4.24
40	44.18	10.94	0.94	2.27
45	40.63	10.06	0.06	0.17
50	37.65	9.33	-0.67	-2.02
55	35.12	8.70	-1.30	-4.29
60	32.94	8.16	-1.84	-6.62
65	31.04	7.69	-2.31	-9.01
75	27.89	6.91	-3.09	-13.91
90	24.29	6.02	-3.98	-21.51
120	19.47	4.82	-5.18	-37.28
150	16.36	4.05	-5.95	-53.52
180	14.18	3.51	-6.49	-70.07
210	12.56	3.11	-6.89	-86.81
240	11.29	2.80	-7.20	-103.71

Proposed 4-Storey Residential Development				
Novatech Project No. 121234				
REQUIRED STORAGE - 1:100 YEAR EVENT				
A-2 Controlled Flow				
OTTAWA IDF CURVE				
Area =	0.099	ha	Qallow =	10.00 L/s
C =	1.00		Vol(max) =	27.9 m3
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	66.80	56.80	17.04
10	178.56	49.14	39.14	23.49
15	142.89	39.33	29.33	26.39
20	119.95	33.01	23.01	27.62
25	103.85	28.58	18.58	27.87
30	91.87	25.28	15.28	27.51
35	82.58	22.73	12.73	26.73
40	75.15	20.68	10.68	25.64
45	69.05	19.00	9.00	24.31
50	63.95	17.60	7.60	22.80
55	59.62	16.41	6.41	21.15
60	55.89	15.38	5.38	19.38
65	52.65	14.49	4.49	17.51
75	47.26	13.01	3.01	13.53
90	41.11	11.31	1.31	7.10
120	32.89	9.05	-0.95	-6.82
150	27.61	7.60	-2.40	-21.61
180	23.90	6.58	-3.42	-36.95
210	21.14	5.82	-4.18	-52.68
240	19.01	5.23	-4.77	-68.68

SITE BENCHMARK
CP IN UTILITY POLE
ELEVATION=63.11

EX CB
T/G=62.42

EX CB
T/G=62.35

EX CB
T/G=62.36

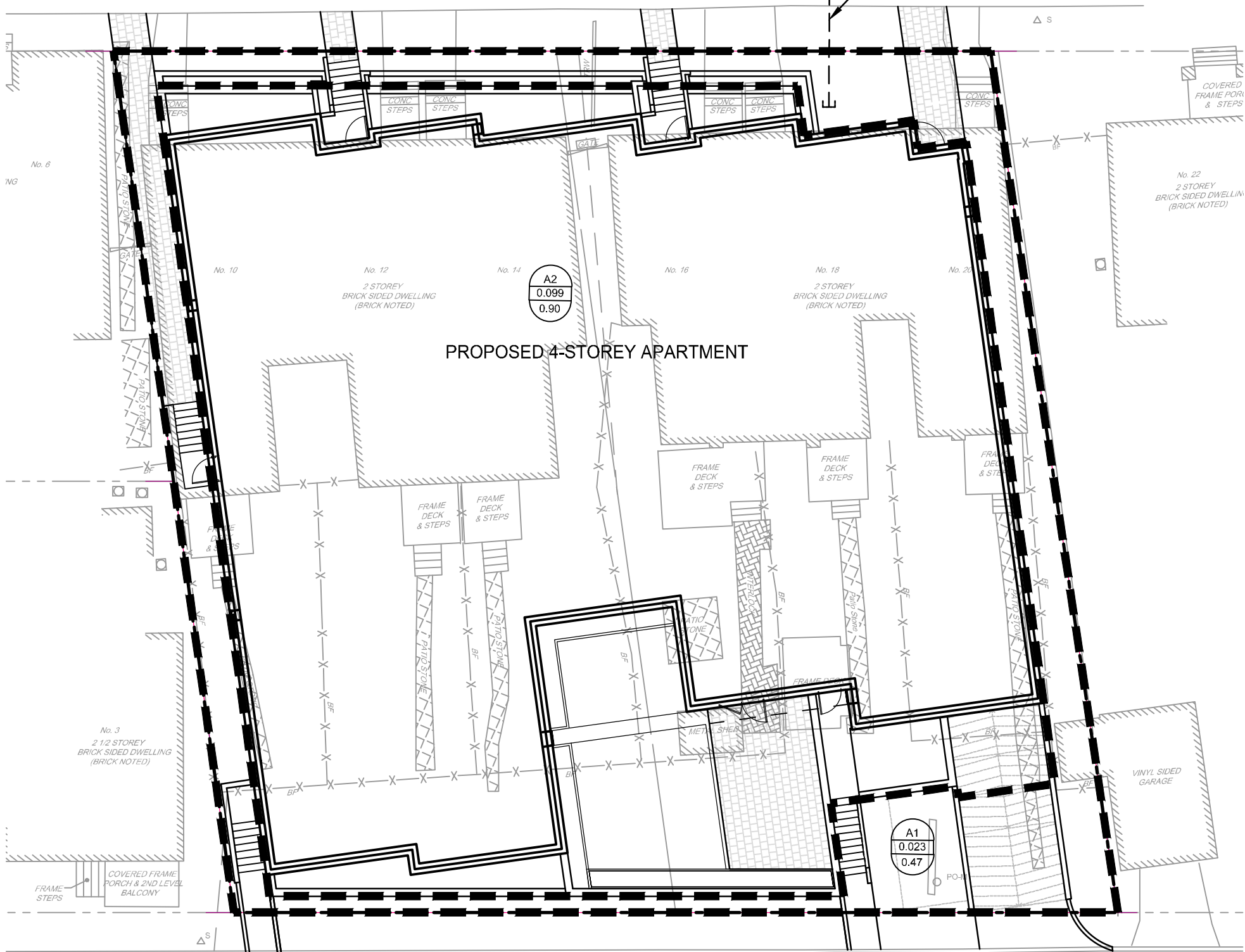
EMPRESS AVENUE N

EX 92.7m - 525mmØ STM @ 0.46%

STMMH 161
T/G=62.38

EX CB
T/G=62.63

7.0m-250mmØ STM @ 1.00%



PROPOSED 4-STOREY APARTMENT

A2
0.099
0.90

A1
0.023
0.47

CB
T/G=62.49

EX 65.6m - 375mmØ STM @ 0.81%

EX STM 112
T/G=62.60
NW INV=60.31
SE INV=60.33

44.1m - 375mmØ STM

EX CB
T/G=62.57

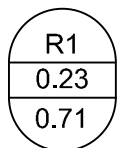
SITE BENCHMARK
CONCRETE PIN
IN UTILITY POLE
ELEVATION=63.43

PERKINS STREET

LEGEND



DRAINAGE AREA LIMITS



POST-DEVELOPMENT AREA ID
POST-DEVELOPMENT DRAINAGE AREA (ha)
RUNOFF COEFFICIENT

NOVATECH

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CITY OF OTTAWA
10 EMPRESS AVENUE NORTH
CONCEPTUAL
POST-DEVELOPMENT
STORM DRAINAGE
AREA PLAN
NOV 2023 121234

FIG 3