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Serviceability Brief
Proposed Residential Development
42 Northside Road
OTTAWA, ONTARIO

Prepared For:
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PROJECT #: 211099

DISTRIBUTION
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Rev 0 – Issued for Site Plan Approval	January 19, 2022
Rev 1 – Response to 1st Engineering Review Comments	April 18, 2022
Rev 2 – Response to 3rd Engineering Review Comments	September 2, 2022

TABLE OF CONTENTS

APPENDIX

1 INTRODUCTION

This brief has been prepared in support of a site plan control application to the City of Ottawa to construct a five storey 51 unit apartment building on the property at 42 Northside Road, City of Ottawa. The property is located on the south side of Northside Road immediately east of the west intersection of Thorncliff Place with Northside Road.

The existing site is currently occupied by a 1 storey 197 square metre commercial building. The majority of the remainder of the site area is surfaced with asphaltic concrete pavement. The existing building is provided with water and sanitary services from Northside Road which enter the site about 8 metres west of the east property line.

It is understood that the owner of the subject property intends to demolish the existing building and construct the proposed apartment building fronting onto Thorncliff Place. The proposed building will be serviced from the existing water main and sanitary sewer along Thorncliff Place west of the site. The existing services of the building to be demolished will be abandoned in accordance with City of Ottawa standards.

This brief presents a description of the proposed servicing and an analysis of the adequacy of the existing sanitary sewers and water main to accommodate the sewer and water demands associated with the proposed development.

2 STORMWATER MANAGEMENT DESIGN

The stormwater management design for the site has been completed under a separate report Stormwater Management Report, Proposed Residential Development, 42 Northside Road, Ottawa, Ontario prepared by Kollaard Associates Inc, File No. 211099 dated January 19, 2022.

The stormwater management for the site consists of controlling the post-development release rate from the stormwater originating on the roof such that the total post-development runoff rate from the site during a 100 year design storm is less than the runoff rate from a 5 year storm assuming pre-development site conditions equal to a runoff coefficient of C = 0.5. Stormwater will be temporarily stored on the roof of the building and will be released at a controlled rate during and following a rainstorm event to the existing 375 mm diameter concrete storm sewer along Thorncliff Place.

3 SANITARY DESIGN

Sewage discharges will be domestic in type and in compliance with the City of Ottawa Sewer Use By-law. The anticipated peak sanitary flow will be a total of approximately 1.02 L/s.
The sanitary sewage flow for the building was calculated based on the City of Ottawa Sewer Design Guidelines (as modified by the Technical Bulletins) and the Ontario Building Code (O.B.C Table 8.2.1.3A).

The sanitary service laterals from the proposed development will be connected to the existing 200 mm diameter concrete sanitary sewer along Thorncliff Place. The existing sanitary service lateral to Northside Road will be blanked at the property line.

3.1 Design Flows

The residential design flows were calculated using the Ottawa Sewer Guidelines – Technical Bulletin ISTB-2018-01.

Residential

Total domestic pop:		
Bachelor units	*(0) x 1.4 ppu:*	*0*
One Bedroom units	*(34) x 1.4 ppu:*	*47.6*
Two Bedroom units	*(17) x 2.1 ppu:*	*35.7*
Three Bedroom units	*(0) x 3.1 ppu:*	*0*
Total:		83.3 (84)

$Q_{Domestic}$ = 84x 280 L/person/day x (1/86,400 sec/day) = 0.27 L/sec

Peaking Factor = $1 + \left(\frac{14}{4+\left(\frac{77}{1000}\right)^{1/2}}\right) * 0.8$ = 3.61(4 maximum)

$Q_{Peak\ Domestic}$ = 0.27 L/sec x 3.61 = 0.98 L/sec

Infiltration

$Q_{Infiltration}$ = 0.33 L/ha/sec x 0.12ha = 0.04 L/sec

Total Peak Sanitary Flow = 0.98 + 0.04 = 1.02 L/sec

3.2 Sanitary Service Lateral

The maximum peak sanitary flow for the building is 0.98 L/sec. The Ontario Building Code specifies minimum pipe size and maximum hydraulic loading for sanitary sewer pipe. OBC 7.4.10.8 (2) states "Horizontal sanitary drainage pipe shall be designed to carry no more than 65% of its full capacity." The capacity of the proposed 200 mm diameter PVC sanitary sewer lateral at a minimum slope of 1% is 32.8 L/sec. Since 0.65 x 32.8 = 21.32 L/s is much greater than 0.98 L/sec, a single sanitary sewer service lateral of 200 mm diameter at a minimum 1% slope will be sufficient.

A 1200 mm diameter sanitary inspection and sampling maintenance hole will be installed in line with the sanitary service. This maintenance hole will be located within the Thorncliff Place right of way with a maintenance and liability agreement clause added to the site plan agreement.

The new lateral is to be installed at the location indicated on the Site Servicing drawing 211099– SER. It is noted that the material that the existing sanitary sewer along Thorncliff Place is unknown. The proposed sanitary service is to connect to the existing sanitary sewer with a T connection assuming the existing 200 mm sewer is constructed from PVC. However, if the existing sanitary sewer is of rigid construction the connection will require a maintenance hole.

3.3 Sufficiency of Existing Municipal Sanitary Sewer

The existing sanitary sewer along Thorncliff Place consists of 200 mm diameter sanitary sewer with a slope of 0.45 percent. The material the pipe is constructed from is unknown at this time. From the attached sanitary sewer calculation sheet, the capacity of the existing sewer is about 24.32 L/s. The existing sanitary demand is about 1.6 L/s within this sewer. The peak sanitary flow from the proposed development is equal to about 4.2 percent of the capacity of the existing sanitary. Combining the flow from the site with the existing flow results in a total demand of about 2.6 L/s which is about 10.7 percent of the capacity of the existing sewer. As such the proposed increase in sanitary flow as a result of the construction of the apartment building is negligible and there is sufficient available capacity within the existing sewer for the proposed development.

The existing 200 mm diameter sanitary sewer along Thorncliff Place outlets to the existing 375 mm diameter sanitary sewer along Northside Drive. This sanitary sewer increases in diameter eastward along Northside Drive and outlets to the Nepean Trunk Collector about 650 metres northeast of the site.

4 WATERMAIN DESIGN AND WATER DEMAND

The existing water lateral is to be blanked at the watermain on Northside Road to the satisfaction of the City of Ottawa Services. The building will be provided with two 150 mm diameter water services. The first proposed water service lateral will be connected to the municipal Watermain on Northside. The second proposed water service lateral will be connected to the municipal watermain along Thorncliff Place. Both services will be connected by means of "T" connections as indicated on the Site Servicing drawing 211099- SER. The water demand for the site consists of three parts which include: domestic water consumption, sprinkler flow allowance, and fire flow requirement.

4.1 Fire Flow Requirement

4.1.1 Calculation Procedure

The fire flow requirement was calculated for the proposed building to ensure that there is adequate flow available to put out a fire within the proposed building should it occur. The fire flow calculation determines the minimum water flow or volume required to be available for firefighting purposes to be used by firefighters. In accordance to City of Ottawa Technical Bulletin ISTB-2021-03, the fire flow requirement calculation for private property is to first consider the Ontario Building Code (OBC). If the fire protection requirement from the OBC yields a fire flow greater than 9,000 L/min then the Fire Underwriters Survey (FUS) shall be used to determine the Fire Flow Demand.

Technical Bulletin ISTB-2021-03 provides the following direction with respect to the calculation of the fire flow requirement.

> "The requirements for levels of fire protection on private property in urban areas are covered in Section 7.2.11 of the Ontario Building code. If this approach yields a fire flow greater than 9,000 L/min then the Fire Underwriters Survey method shall be used to determine these requirements instead."

Using the formula $Q = KVS_{Tot}$ provided in the OBC results in a fire flow requirement much greater than 9,000 L/min. As such the FUS method shall be used.

4.1.2 Building Construction and Construction Type Consideration

The proposed building is a 5 storey wood frame building with a foot print per floor which varies from 800 m^2 to 883 m^2 resulting in a total building area of 4103 m^2. The building will be equipped with a fully automatic and monitored sprinkler system. Elements of the wood framing will be sprayed with a flame retardant treatment which reduces effective flame spread between floors or dwelling units or neighboring properties. The exterior wall will be covered with non combustible gladding, have non combustible insulation and will be covered on the

interior with 16 mm Type X drywall. This results in an exterior wall assembly having a minimum fire rating of at least 1 hour. The interior walls between units will have a minimum rating of 1 hours. Each floor within the building will also be constructed with a minimum fire rating of 1 hours.

The fire flow demand using the FUS calculations were completed using the protocol established in City of Ottawa Technical Bulletin ISTB-2018-02 and in consideration of the following:

a) NRC Page G-94 5 A (second point) - Two factors should be considered when selecting coefficient C: the fuel load (total amount of potential fuel) contained within the structure of the building, and the ability of the structure to contain fires. Buildings with structural systems that include combustible materials (such as wood framing) require higher fire flows than buildings with noncombustible structures, because combustible structural materials contribute to the fuel load inside a building. In buildings with non-combustible structures, fire flow requirements depend on the ability of the structure to contain fires, as appraised by the fire-resistance rating of structural components (duration for which structural components can withstand exposure to a standardized fire).
b) NRC Page G-95 5 A (fourth point, fourth subpoint) The definition of wood frame construction in FUS corresponds precisely to that of ISO construction class 1 (frame). Buildings with a combustible structural system fall within this category when they do not qualify as ordinary construction, because their exterior walls are: (a) combustible, (b) slow-burning or (c) non-combustible with a fire-resistance rating of less than 1 hour.
c) NRC Page G-96 5 A (sixth point, third subpoint) Any building not qualifying under the fire-resistive construction or non-combustible construction types and having % (67%) or more of its exterior walls constructed from : (a) masonry or (b) non-combustible assemblies with a fire-resistance rating of 1 hour or longer can be considered to be of ordinary construction type (C = 1.0).

It is considered that a typical wood frame building would normally be considered to be classified as an ISO class 1 (frame) building or a FUS Wood frame construction with a coefficient C of 1.5. It is however considered that the construction of the proposed building will meet the fire resistive requirements of an ISO class 2 building or FUS Ordinary construction with a coefficient C of 1.0. This is supported by the proposed construction in consideration of points a, b, and c above. With respect to point a and b, even though the wood frame is combustible, the cladding, insulation and interior sheeting are non combustible reducing the available fuel within the assembly and making flame transfer and fire spread from assembly to assembly unlikely. With respect to point c, the proposed building will be constructed with more than 67 percent of its exterior assemblies having a fire resistive rating of greater than 1 hours.

4.1.3 Fire Flow Demand

The fire flow demand calculation has been included in Appendix B. Based on the FUS calculation, the fire flow requirement is 12,000 L/min or 200 L/sec.

4.2 Domestic Water Demand

The water demand for the proposed development was calculated based on the City of Ottawa Water Distribution Design Guidelines (as amended) as follows:

Residential

84 persons x 280 L/person/day x (1/86,400 sec/day)

- Average daily demand 0.27 L/s
- Maximum daily demand (factor of 2.5) is 0.27 L/s x 2.5 = 0.68 L/s
- Peak hourly demand (factor of 2.2) = 0.68 L/s x 2.2= 1.50 L/s

It is noted that the proposed unit count in the building increased from 46 to 51 units between the date of the request for boundary conditions and the date of preparation of this brief. It is also noted that the water demand per capita was originally calculated using 350 L/cap/day. As a result, the actual demand is less than that previously submitted for boundary conditions.

4.3 Boundary Conditions

The water demand due to occupancy together with the fire flow requirements were provided to the City of Ottawa in 2021 as follows:

- Amount of fire flow 316.7 L/s
- Average daily water demand 0.31 L/s
- Maximum daily water demand 0.78 L/s
- Peak hourly water demand 1.72 L/s

It is assumed that the water service will be connected to the 203 mm PVC water main along Thorncliff Place.

The following are the boundary conditions, HGL, for hydraulic analysis that were provided by the city of Ottawa in 2021 for the above indicated peak hourly demand and fire flow demand.
Minimum HGL = 126.8 m
Maximum HGL = 132.7 m
Available fire flow at 20 psi = 240 L/s, assuming a ground elevation of 87.6 m

Correspondence with the City of Ottawa is included in Appendix A

Assuming a ground elevation of 87.6 m, a residual pressure of 20 psi (174 kPa) is equal to a HGL of 105.35 m.

4.4 Sprinkler Flow Allowance

The sprinkler flow allowance is ultimately determined by the Mechanical Engineer during design for building permit purposes. However, at this time no mechanical engineer has been retained. For the purposes of verifying the adequacy of the available water supply and the required building service size, the sprinkler flow allowance has been determined in keeping with NFPS 13 Chapter 19.2.3. Excerpts of the NFPA 13 are included in Appendix B.

From Annex A of NFPA 13, the proposed residential building occupancy classification is Light hazard. From table 19.2.3.1.1 the minimum sprinkler water supply is 0.1 gpm /ft^2 using a minimum area of 1500 ft^2 or 4.1mm/min using a minimum area of 140 m^2. As previously indicated, the building footprint per floor ranges from 800 to 883 square metres. Assuming that the sprinkler system will be designed to limit the sprinkler discharge to the area affected by a fire, the water demand area will be limited. For the purposes of estimating the sprinkler flow allowance, it was assumed that the sprinkler discharge would be limited to 25% of a single floor plus the corresponding floor areas above and below the affected area.

The water demand area would be limited to 883 m^2 x 0.25 x 3 = 221 m^2 x 3 = 663 m^2
A sprinkler demand of 4.1mm/min x 663 m^2 = 2718.3 L/min or 45.3 L/s.

4.5 Water Service Requirements and Pressure Loss Calculations

The maximum and minimum pressures were determined for both the mechanical room (water entry point) and the fifth floor using two water demands. The first water demand consisted of the peak hourly demand of 1.72 L/s. The second water demand consisted of 47 L/s which is equal to the estimated sprinkler flow demand of 45.3 L/s plus the peak hourly demand of 1.7 L/s. The pressure losses were calculated using two different service diameters to determine the minimum required water service size. Using linear interpolation and the provided boundary conditions, a flow rate of 47 L/s was determined to result in an HGL of 122.02 m.

The pressure loss to the mechanical room and to the fifth floor of the proposed building was calculated using Bernoulli's Equation in Combination with the Darcy – Weisbach Equation and the Colebrook Equation. The equations are shown below.

$$H_P + Z_1 - Z_2 + \frac{P_1 - P_2}{S} + \frac{V_1^2 - V_2^2}{2g} = h_f + h_m \quad \text{where:}$$

$$h_m = K_m \frac{V^2}{2g} \qquad \text{Re} = \frac{VD}{\nu} \qquad Q = VA \qquad A = \frac{\pi}{4} D^2$$

Darcy – Weisbach Equation: $h_f = f \frac{L}{D} \frac{V^2}{2g}$ where:

If laminar flow $\left(\text{Re} < 4000 \text{ and any } \frac{e}{D}\right)$, $f = \frac{64}{\text{Re}}$

If turbulent flow $\left(4000 \le \text{Re} \le 10^8 \text{ and } 0 \le \frac{e}{D} < 0.05\right)$, then

Colebrook Equation: $\frac{1}{\sqrt{f}} = -2.0 \log\left(\frac{e/D}{3.7} + \frac{2.51}{\text{Re}\sqrt{f}}\right)$

100 mm Diameter Service			Grade Elevation		Hydraulic Grade line		Pressure	
Pipe Sections	Along	End	Start m	End m	Start m	End m	P_{start} KPa	P_{end} KPa
Parking Garage Level 1 – Flow Rate of 1.72 L/sec								
Thorncliff (min HGL)	Service	Mechanical Room	85.5	86.5	126.80	126.78	405	395
Thorncliff (max HGL)	Service	Mechanical Room	85.5	86.5	132.70	132.68	463	453
Floor 5 – Flow Rate of 1.72 L/sec								
Thorncliff (min HGL)	Service	5th storey	85.5	102.9	126.80	126.75	405	234
Thorncliff (max HGL)	Service	5th storey	85.5	102.9	132.70	132.65	463	292
Parking Garage Level 1 – Flow Rate of 47 L/sec								
Thorncliff (min HGL)	Service	Mechanical Room	85.5	86.5	122.02	109.61	358	227
Thorncliff (max HGL)	Service	Mechanical Room	85.5	86.5	132.70	120.29	463	331
Floor 5 – Flow Rate of 47 L/sec								
Thorncliff (min HGL)	Service	5th storey	85.5	102.9	122.02	99.54	358	-33
Thorncliff (max HGL)	Service	5th storey	85.5	102.9	132.70	110.22	463	72

150 mm Diameter Service			Grade Elevation		Hydraulic Grade line		Pressure	
Pipe Sections	Along	End	Start m	End m	Start m	End m	P_{start} KPa	P_{end} KPa
Parking Garage Level 1 – Flow Rate of 1.72 L/sec								
Thorncliff (min HGL)	Service	Mechanical Room	85.5	86.5	126.80	126.78	405	395
Thorncliff (max HGL)	Service	Mechanical Room	85.5	86.5	132.70	132.68	463	453

Floor 5 – Flow Rate of 1.72 L/sec								
Thorncliff (min HGL)	Service	5th storey	85.5	102.9	126.80	126.75	405	234
Thorncliff (max HGL)	Service	5th storey	85.5	102.9	132.70	132.65	463	292
Parking Garage Level 1 – Flow Rate of 47 L/sec								
Thorncliff (min HGL)	Service	Mechanical Room	85.5	86.5	122.02	119.77	358	325
Thorncliff (max HGL)	Service	Mechanical Room	85.5	86.5	132.70	130.45	463	431
Floor 5 – Flow Rate of 47 L/sec								
Thorncliff (min HGL)	Service	5th storey	85.5	102.9	122.02	118.53	358	153
Thorncliff (max HGL)	Service	5th storey	85.5	102.9	132.70	129.21	463	258

In general conformance with the MOE Guidelines, and City of Ottawa Technical Bulletin ISD-2010-2, the desired range in pressure should be approximately 350KPa (50psi) to 480KPa (70psi) during normal operating conditions. Additionally the distribution system shall be sized so that under maximum hourly demand conditions the pressures are not less than 276 kPa (40 psi.). As per the Ontario Building Code, the maximum pressure should not exceed 552KPa (80psi).

Based on the results of the analysis as presented in the above table, when using the 100mm diameter service, the residual pressure on the fifth floor of the building is a function of the initial HGL and losses due to elevation change during domestic water consumption only. There are no significant minor losses. The above minimum HGL provides a minimum water pressure of 234 KPa at the fifth floor. During a higher flow situation when there is a sprinkler demand, the minor losses would increase and the residual pressure at the mechanical room could be reduced to below the minimum allowable pressure of 276 kPa. In order to ensure the residual pressure does not get reduced below 276 kPa in the mechanical room, the service diameter was increased to 150 mm.

When using 150 mm diameter service, the above minimum and maximum HGL provide a water pressure of between 395 KPa and 453 KPa at the proposed building. The minimum residual pressure when there is sprinkler demand, the residual pressure at the mechanical room would be 326 kPa or well above the minimum of 276 kPa. The City Boundary Conditions are provided based on computer modeling of the water network. During construction, a pressure check is to be completed to determine that the pressure in the system at the building does not exceed 552 KPa. If the pressure does exceed 552 Kpa a pressure reducing valve would have to be installed downstream of the isolation valve and water meter in the building. Because the residual pressure at the fifth floor is below the minimum pressure of 276 kPa (40 psi.), it is recommended that a pump be installed.

Based on the above calculations and in consideration of the proposed building sprinkler demand a 150mm diameter service is proposed.

4.6 Existing Fire Hydrants

City of Ottawa Technical Bulletin ISTB-2018-02 Appendix I Table 1 provides guidance with respect to the contribution of nearby fire hydrants to the required fire flow. From this table, a Class AA hydrant can contribute a maximum flow of 5,700 L/min when located less than 75 metres from the building and 3,800 L/min when located between 75 and 150 metres from the building.

Four Class AA fire hydrants have been located in the vicinity of the development and are considered for fire flow requirements. Two of the hydrants are located on the 203mm CI watermain beneath Northside Road. One of the hydrants along the Northside Road is approximately 39 metres east of the east side of the site (59 metres from the main entrance) and the other is less than 150m but greater than 75m.

Two class AA hydrants are located on the 203mm PVC watermain along Thorncliff Place. One of the hydrants along Thorncliff Place is across the street from the south west corner of the site (26 metres from the Thorncliff Place entrance) and the other is less than 150m but greater than 75m.

Building	Fire Flow Demand (L/min)	Fire Hydrant(s) within 75m x Hydrant Contribution	Fire Hydrant(s) within 150 m x Hydrant Contribution	Combined Available Fire Flow (L/min)
5 Storey Sprinklered Apartment	5750 L/min	2 x 5,700 L/min	2 x 3,800 L/min	19,000 L/min

Notwithstanding the above: Correspondence from the City of Ottawa (Comment 3, 3rd Engineering Review Comment) indicates the following:

> *The flows provided in City of Ottawa Technical Bulletin ISTB-2018-02 Appendix I Table 1 are the fire hydrant capacities based on hydrant class and distances to proposed buildings. Those flows are not available flows but the maximum flows that can be obtained from a hydrant.*
> *The available fire flow at the watermain at 20psi is 14,400 L/min. This was provided by the City at the time of boundary conditions. As indicated in the previous comment, FUS governs the design for this development, and the calculated fire flow was 19,000 L/min based on the initial boundary condition request. There are enough fire hydrants to*

accommodate a required fire flow of 19,000 L/min but the current available flow is too low. Measures must be provided to meet the available fire flow of 14,400 L/min.

As such the above hydrant calculation demonstrates the sufficiency of the hydrants to deliver the available flow of 14,400 L/min but not the theoretical maximum flows which can be obtained from the hydrants of 19,000 L/min.

Due to the proposed construction of the building, the factor used for the Construction Type of the building in the FUS calculation could be reduced from C = 1.5 to C = 1.0. This resulted in a reduction of the fire flow demand calculated from 19,000 L/min to 12,000 L/min. Since the revised calculated flow demand of 12,000 L/min is less than the maximum theoretical flow from the hydrants and is less than the available flow, the existing nearby hydrants will adequately service fire flow requirements. Since the existing hydrants are within 90 metres of the building entrances, there is no requirement for an additional onsite hydrant to service the proposed building.

5 CONCLUSIONS

This report addresses the adequacy of the existing municipal sanitary sewer system and watermain to service the proposed development of the residential use building on Northside Road. The report also provides a summary of the stormwater management design presented under separate cover. Based on the analysis and summary provided in this report, the conclusions are as follows:

Stormwater management for the site has been designed to ensure that post-development runoff rate from the site during a 100 year storm event does not exceed the pre-development runoff rate during a 5-year storm assuming an average runoff coefficient of C = 0.5 for pre-development runoff conditions. Stormwater storage will be provided on the roof of the building and discharge will be directed to the existing sewer along Thorncliff Place.

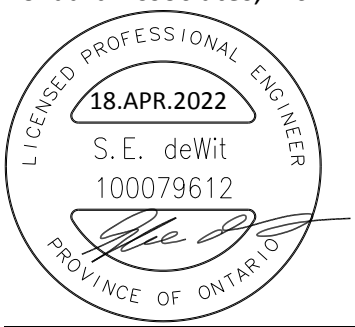
The proposed building will be serviced by a 200 mm diameter PVC sanitary service. The proposed sanitary service will be connected to the existing 200 mm diameter sanitary sewer on Thorncliff Place. The peak sewage flow rate from the proposed development will be 1.02 L/sec. The existing municipal sanitary sewer should have adequate capacity to accommodate the increase in peak flow. The City has not identified any capacity issues in the existing sanitary sewer system.

The proposed building will be serviced by two 150 mm diameter PVC water services. The proposed services will be connected to the existing 203 mm diameter PVC watermain along Thorncliff Place and to the existing 203 mm diameter Cast Iron watermain along Northside

Road. There is sufficient capacity and pressure within the municipal water system adjacent the site to meet the domestic and fire flow requirements.

We trust that this report provides sufficient information for your present purposes. If you have any questions concerning this report or if we can be of any further assistance to you on this project, please do not hesitate to contact our office.

Sincerely,
Kollaard Associates, Inc.



Steven deWit, P.Eng.

Appendix A –Correspondence With City of Ottawa

- Boundary Conditions

File Number: PC2021-0295
September 9, 2021

Pre-Consultation Meeting Notes

Site Address: 42 Northside Road
Location: Virtual - Microsoft Teams
Meeting Date: August 23, 2021

Attendees: Colette Gorni – Planner, City of Ottawa
Molly Smith – Planner, City of Ottawa
Abi Dieme – Project Manager (Infrastructure), City of Ottawa
Mike Giampa – Project Manager (Transportation), City of Ottawa
Christopher Moise – Planner (Urban Design), City of Ottawa
Louise Cerveny – Planner (Parks), City of Ottawa
Jeffrey Ren – Co-op Student, City of Ottawa
Eric Lalande – RVCA
Akash Sinha – Rohit Group
Adil Kodian – Rohit Group
Mario Shaker – Rohit Group
Gagan Prince – Rohit Group
Robert Martin – Robert Martin Architects
Luke Boonstra – Robert Martin Architects

Regrets: Sami Rehman – Planner (Environmental), City of Ottawa
Mark Richardson – Planning Forester, City of Ottawa

Applicants Comments:

1. There is an existing zero lot line condition with the church
2. High water table – only 2 levels of underground parking.
3. 1:1 parking ratio (units plus visitor spaces = 1:1)
4. Bicycle parking in the underground parking garage.
5. Main entrance off northside road – double loaded corridor

Planning

1. Official Plan (OP) Designation – General Urban Area
2. Zoning – GM9 H(18.5) – General Mixed Use, Subzone 9, maximum height of 18.5 metres
3. Parking is to be provided at the rates specified for Area C per Schedule 1A:
    a. 1.2 per dwelling unit – apartment dwelling, low rise
    b. 0.2 visitor parking spaces per dwelling unit
    c. 0.5 bicycle parking spaces per dwelling unit

4. As per Section 101(6)(c)(i) of the Zoning By-law, where all parking spaces provided or required for a permitted land use are located below grade in the same building as that land use, the parking required by Table 101 for that land use may be reduced by the lesser of (i) 10 per cent of the required parking spaces, or (ii) 20 parking spaces.
5. Please note that Thorncliff Place is considered the front lot line.
6. The proposed development is subject to Site Plan Control and will require a Complex (Manager Approval, Public Consultation) application. Fees and forms for the above mentioned application can be found here.
7. Through a preliminary review of the provided concept plan, relief from the Zoning By-law is required for the following provisions:

    a. The minimum required rear yard setback for a residential use building on the site is 7.5 metres, as per Table 187(e)(iii) in the Zoning By-law.

    b. The minimum width of landscaped area abutting an institutional zone is 3 metres, as per Table 187(h)(ii) in the Zoning By-law)

    c. 9 visitor parking spaces are required (3 provided at grade).

    If the proposed building is unable to meet the requirements, relief from minimum rear yard setback provision in the Zoning By-law will be required prior to Site Plan Approval. This can be attained through either a minor variance or minor rezoning. Based on the scale of the relief required, staff are of the opinion that a minor rezoning application would most appropriate. Fees and forms for the Zoning By-law Amendment application can be found here. Refer to the Committee of Adjustment comments for more information on the minor variance process.
8. Staff have concerns with the proposed 0 metre rear yard setback, please consider increasing the setback. The Planning Rationale will need demonstrate that the 0 metre will not have an undue adverse impact on the abutting institutional use if they were to redevelop in the future.
9. For more information on electrical servicing, the following link outlines Hydro Ottawa's services for Commercial, Overhead and Underground, and Residential projects, together with contact information for Hydro Ottawa representatives: https://hydroottawa.com/en/accounts-services/accounts/contractors-developers/distribution-system-design
10. Please note that each planning application fee will be reduced by 10 per cent if two or more applications are submitted at the same time and for the same lands.
11. You are encouraged to reach out to Councillor Rick Chiarelli to discuss the proposal prior to submitting a formal application.
12. Please ensure that the submission takes into account appropriate Official Plan policies that are applicable at the time of the submission of the application

    a. If a complete application is received by no later than the day before the new Official Plan is adopted (October 2021), it will be processed on the basis of

existing Official Plan policy provided it is consistent with the 2020 Provincial Policy Statement

b. Applications received after the day before the new Official Plan is adopted (October 2021), will be reviewed and evaluated on the basis of the policies of the new Official Plan, which is consistent with the 2020 Provincial Policy Statement

Please contact Planner Colette Gorni at Colette.Gorni@ottawa.ca if you have any questions or require additional information relating to the comments above.

Committee of Adjustment

1. The Committee of Adjustment is authorized to grant a minor variance if all of the following criteria identified in Section 45(1) of the Planning Act, commonly referred to as the 'four tests', are met:

    1. The variance is minor;
    2. The variance is desirable for the appropriate development or use of the property;
    3. The general intent and purpose of the Zoning By-law is maintained;
    4. The general intent and purpose of the Official Plan is maintained.

    A requirement of a minor variance application is a detailed cover letter and/or report explaining the nature of the application and addressing the four tests of the Planning Act. In your rationale, in addition to the first two tests you should also explain how you are meeting the general intent and purpose of the Zoning by-law as well as Section 2.5.1 and 4.11 of the Official Plan. Section 2.5.1 Designing Ottawa provides the overall direction for assessing neighbourhood compatibility. Section 4.11 - Urban Design and Compatibility identifies general criteria for the evaluation of a specific development relative to policies of Section 2.5.1

2. Please note that Minor Variance applications are handled by the Committee of Adjustment. The Planning Department provides comments on Committee of Adjustment applications; however, the Committee of Adjustment makes the decision. For more information on the Committee of Adjustment, including application forms and fees, please visit: https://ottawa.ca/en/city-hall/planning-and-development/committee-adjustment. For questions pertaining to forms and fees, please contact the Committee of Adjustment directly at CofA@ottawa.ca or at (613)-580-2436.

3. Please note that the Committee of Adjustment process typically takes approximately 12 to 14 weeks from application submission to the end of the appeal period. My understanding is that once your application has been deemed complete it takes four to six weeks before the application is heard at a Committee meeting. The Committee meeting is the official public meeting; however, the Committee strongly recommends applicants consult with the public beforehand. As of June 3, 2020, meetings have been taking place via Zoom.

4. You are encouraged to consult with a Committee of Adjustment Planner before submitting an application to the Committee of Adjustment. Please refer to below contact information.

Please contact Committee of Adjustment Planner Lucy Ramirez at Lucy.Ramirez@ottawa.ca if you have any questions or require additional information relating to a Minor Variance application.

Urban Design

This proposal does not run along one of the City's Design Priority Areas and need not attend the City's UDRP. We appreciate the material provided for the pre-consult and have the following comments/questions regarding the design:

1. Main entrance that faces the public right of way, should employ architectural features that clearly indicate this to the public which is distinguishable from the private entrances.

2. We are supportive of the grade related units with access from the street.

3. **GM zone**: What is the planned context and future of the surrounding properties?

    a. Is the decision not to provide a reduced mass in the SW corner of the lot warranted and supportable?

4. **Rear yard separation**: Is 0m provided a reasonable decision for two storeys? We may have concerns if this results in a large blank wall condition.

    a. Is the location of exterior amenity on the 0m lot line set-back appropriate and sufficiently protected?

5. What is the nature of surrounding commercial? Would more bike parking be appropriate?

6. Is the Corner side yard set-back properly calculated?

    a. Would additional set-back fit better with surrounding development today and future? An illustration of the building alignment with neighbouring properties along Northside Road would help support these decisions;

7. **Facade**: We recommend that the street facing elevations employ quality materials and designed to improve the streetscape;

8. A scoped Design Brief is a required submittal for all Site Plan/Re-zoning applications and can be combined with the Planning Rationale. Please see the Design Brief Terms of Reference provided.

Please contact Urban Design Planner Christopher Moise at Christopher.Moise@ottawa.ca if you have any questions or require additional information relating to the comments above.

Engineering

Water:

1. District Plan No. 2W2C
2. Frontage charges are not applicable to the proposed development.
3. Connection point: 203mm PVC watermain on Thorncliff Place or 203mm CI watermain on Northside Road.
4. Connection to the watermain on Northside Road would be challenging in terms of road cut and traffic management as Northside is a collector Road.

5. Submission documents must include:
    a. Boundary conditions (civil consultant to request boundary conditions from the City's assigned Project Manager, Development Review). Water boundary conditions request must include the location of the service and the expected loads required by the proposed development. Please provide all the following information:
        i. Location of service (show on a plan or map)
        ii. Type of development and the amount of fire flow required (as per FUS, 1999).
        iii. Average daily demand: ___ l/s.
        iv. Maximum daily demand: ___l/s.
        v. Maximum hourly daily demand: ___ l/s.
        vi. Supporting Calculations of the required fire flow and all domestic demands listed above

b. Watermain system analysis demonstrating adequate pressure per section 4.2.2 of the Water Distribution Guidelines.

c. Fire protection (Fire demand, Hydrant Locations)

d. Proposed emergency route (to be satisfactory to Fire Services) to be on municipal street

6. A water meter sizing questionnaire [water card] will have to be completed prior to receiving a water permit (water card will be provided post approval)

Sanitary:

7. Connection Point: 200mm sanitary main on Thorncliffe Place or 375mm concrete main on Northside Road

8. Connection to the sanitary main on Northside Road would be challenging in terms of road cut and traffic management as Northside is a collector Road.

9. A monitoring manhole will be required on private property.

Storm:

10. Connection Point: 375mm storm sewer on Thorncliffe Place or 900mm concrete sewer on Northside Road.

11. Connection to the sanitary main on Northside Road would be challenging in terms of road cut and traffic management as Northside is a collector Road

Stormwater Management:

12. Quality Control: Rideau Valley Conservation Authority to provide criteria.
13. Quantity Control:
    a. Design storm for receiving sewer: 5-year design storm
    b. Runoff coefficient (C): C=0.5 or C=pre-development, whichever is less
    c. Time of concentration (Tc): To be calculated, min Tc=10mins
    d. Allowable flow rate: Control the 100-year event to the 5-year event

Additional Notes

14. Please ensure that all existing and proposed utilities (municipal pipes) must be shown on the servicing plans.
15. No Capital Works Projects that would impact the application has been identified.
16. No moratorium that would impact the application has been identified.

17. Any easement identified should be shown on all plans.
18. For any proposed exterior light fixtures, please provide certification from a licensed professional engineer confirming lighting has been designed only using fixtures that meet the criteria for full cut-off classification as recognized by the Illuminating Engineering Society of North America and result in minimal light spillage onto adjacent properties (maximum allowable spillage is 0.5 fc). Additionally, include in the submission the location of the fixtures, fixture type (make, model, part number and mounting height).
19. For information on preparing required studies and plans refer to: http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans
20. Servicing and site works shall be in accordance with the following documents:
    a. Ottawa Sewer Design Guidelines (October 2012)
    b. Ottawa Design Guidelines – Water Distribution (2010)
    c. Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
    d. City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
    e. City of Ottawa Environmental Noise Control Guidelines (January, 2016)
    f. City of Ottawa Park and Pathway Development Manual (2012)
    g. City of Ottawa Accessibility Design Standards (2012)
    h. Ottawa Standard Tender Documents (latest version)
21. 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) 580-2424 x.44455).

Please contact Infrastructure Project Manager Abi Dieme at Abibatou.Dieme@ottawa.ca if you have any questions or require additional information relating to the comments above.

RVCA

1. The RVCA has no concerns. Based on the overall design and site plan, the RVCA will not have any water quality requirements, however encourage best management practices where possible

Please contact the RVCA's Planner, Eric Lalande, at Eric.Lalande@rvca.ca if you have any questions or require additional information relating to the comments above.

Environmental Planning

1. No comments.

Please contact Environmental Planner Sami Rehman at Sami.Rehman@ottawa.ca if you have any questions or require additional information relating to the comments above.

Transportation

1. A TIA is warranted, please proceed to scoping.
    a. The application will not be deemed complete until the submission of the draft step 2-4. Although a full review of the TIA Strategy report (Step 4) is not required prior to an application, it is strongly recommended.
    b. Synchro files are required at Step 4. **Due to the low number of units, steps 3 and 4 may be combined.**
2. No ROW protection.
3. A Road Noise Impact Study is required
4. Access should be as far away from the intersection as possible/feasible. Clear throat requirements as per TAC guidelines for a collector road.

Please contact Transportation Project Manager Mike Giampa at Mike.Giampa@ottawa.ca if you have any questions or require additional information relating to the comments above.

Forestry

1. A Tree Conservation Report (TCR) is required if there any trees greater than 10cm in diameter located on the site. There appears to possibly be a tree in the southeast corner of the site – please confirm. If so, please refer the below requirements.

TCR Requirements

1. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    a. An approved TCR is a requirement of Site Plan approval.
    b. The TCR may be combined with eh LP provided all information is supplied
2. As of January 1 2021, any removal of privately-owned trees 10cm or larger in diameter, or publicly (City) owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
3. The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
    a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester

   b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit

4. The TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition

5. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)

6. The TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site

7. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained

8. All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca

   a. The location of tree protection fencing must be shown on a plan

   b. Show the critical root zone of the retained trees

   c. If excavation will occur within the critical root zone, please show the limits of excavation

9. The City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that 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 or on City of Ottawa.

Next Steps

Please refer to the links to Guide to preparing studies and plans and fees for further information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Please do not hesitate to Colette Gorni, at Colette.Gorni@ottawa.ca, if you have any questions.

Subject: RE: Request for Boundary Conditions - 42 Northside Road - PC2021-0295
From: "Dieme, Abi" <Abibatou.Dieme@ottawa.ca>
Date: 30/11/2021, 9:19 a.m.
To: Steve deWit <steve@kollaard.ca>
CC: Akash Sinha <Akash.Sinha@rohitgroup.com>

Hi Steve,

The following are boundary conditions, HGL, for hydraulic analysis at 42 Northside Road (zone 2W2C) assumed to be connected to the 203 mm watermain on Thorncliff Place (see attached PDF for location).

Minimum HGL: 126.8 m

Maximum HGL: 132.7 m

Available fire flow at 20 psi: 240 L/s, assuming a ground elevation of 87.6 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.

Regards,
Abi

From: Steve deWit <steve@kollaard.ca>
Sent: November 10, 2021 10:34 AM
To: Dieme, Abi <Abibatou.Dieme@ottawa.ca>
Cc: Akash Sinha <Akash.Sinha@rohitgroup.com>
Subject: Request for Boundary Conditions - 42 Northside Road - PC2021-0295

Good Morning Abi

I am the civil Engineer retained by Rohit Group to complete the civil engineering design work for the proposed residential development at 42 Northside road.

Please see attached PDF document of our request for Boundary Conditions for this project

Thank you

--

Steven deWit, P.Eng.
Kollaard Associates Inc
210 Prescott Street, Unit 1
P.O. Box 189
Kemptville, Ontario
K0G 1J0 CANADA
t: 613.860.0923 f: 613.258.0475
c: 613.223.4049
www.kollaard.ca

Attachments:

42 Northside Road November 2021.pdf 637 KB

Appendix B – FUS Fire Flow Calculations

Kollaard Associates
Engineers
210 Prescott Street, Unit 1
P.O. Box 189
Kemptville, Ontario K0G 1J0

Civil • Geotechnical •
Structural • Environmental •
Hydrogeology

(613) 860-0923
FAX: (613) 258-0475

CALCULATION OF FIRE FLOW REQURIEMENTS - 42 NORTHSIDE ROAD

Calculation Based on Fire Underwriters Survey, 1999 and Ottawa Technical Bulletin ISTB-2018-02

Proposed Building:

6 storey wood frame building with non combustible cladding and fire protected exterior walls.

1) An estimate of the Fire Flow required for a given fire area may be estimated by:

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

where F = required fire flow in litres per minute

A = total floor area in m^2 (including all storeys, but excluding basements at least 50% below grade)

C = coefficient related to the type of construction:

1.5	for wood construction (structure essentially combustible)
1.0	for ordinary construction (brick or other masonry walls, combustible floor and interior)
0.8	for noncombustible construction (unprotected metal structural components, masonary or metal walls)
0.6	for fire-resistive construction (fully protected frame, floors, roof)

No. of Floors = 5 (FUS excludes basements that are at least 50% below grade)

Area (per floor) = 800 to 883 m^2

A = 4103 m^2

C = 1.0

F = 14,092 L/min ----------> Rounded to nearest 1000 = **14,000** L/min

2) The value obtained in 1) may be reduced by as much as 25% for occupancies having a low

Non-combustible =	-25%
Limited Combustible =	-15%
Combustible =	0%
Free Burning =	15%
Rapid Burning =	25%

Reduction due to low occupancy hazard = -15% x 14,000 = = **11,900** L/min

3) The value above my be reduced by up to 50% for automatic sprinlker system

Reduction due to automatic sprinker system = -40% x 11,900 = **-4,760** L/min

4) The value obtained in 2. may be increased for structures exposed within 45 metres by the fire

Separation (metres)	Condtion	Max Charge*
0m to 3.0m	1	25%
3.1m to 10.0m	2	20%
10.1m to 20.0m	3	15%
20.1m to 30.0m	4	10%
30.1m to 45.0m	5	5%
45.1m to	6	0%

Charge for separation has been modified by Technical Bulletin ISTB-2018-02 based on construction and Length-Height Factor

Lenght*Height (L * H) = Exposed wall length in feet x height of building in stories

No of Stories = 5

Exposures	Distance(m)	Length (m)	L * H	Condition		Charge
Front (north)	46.0	35	175	6	-------->	0%
Back (south)	6.9	35	175	2	-------->	20%
Side 1 (west)	30.7	25	125	5	-------->	5%
Side 2 (east)	17.1	25	125	3	-------->	15%
						40%

Increase due to separation = 40% x 11,900 = **4,760** L/min

The fire flow requirement is = **11,900**

Reduction due to Sprinkler = **-4,760**

Increase due to Separation = 4,760

11,900

The Total fire flow requirement is = 12,000 L/min

or **200.0** **L/sec**