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PROPOSED MULTI-STOREY RETIREMENT RESIDENCE 1440 BLAIR TOWERS PLACE

Assessment of Adequacy of Public Services Report

**PROPOSED MULTI-STOREY RETIREMENT RESIDENCE
1440 BLAIR TOWERS PLACE**

**ASSESSMENT OF ADEQUACY OF
PUBLIC SERVICES REPORT**

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December 12, 2024

Ref: R-2024-139
Novatech File No. 123198

December 12, 2024

Le Group Maurice
2400 rue des Nations, bureau 137
Saint-Laurent (Québec)
H4R 3G4

Attention: Yveline Roc, Directrice développement

**Re: Assessment of Adequacy of Public Services Report
Proposed Multi-Storey Retirement Residence
1440 Blair Towers Place, Ottawa, ON
Novatech File No.: 123198**

Enclosed is a copy of the 'Assessment of Adequacy of Public Services Report' for the proposed retirement residence located at 1440 Blair Towers Place 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 adjacent to the subject site. This report is being submitted in support of a Zoning By-Law Amendment application.

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

NOVATECH



François Thauvette, P. Eng.
Senior Project Manager

cc: Kelsey Charie (City of Ottawa)
Rheal Labelle (Hobin Architecture Inc.)
Jacob Bolduc (Fotenn)

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1.0 INTRODUCTION

Novatech has been retained by Le Groupe Maurice to assess the adequacy of the existing public services related to the proposed re-development of the 1440 Blair Towers property. The purpose of this report is to demonstrate that the proposed development can be serviced by the municipal infrastructure adjacent to the subject site. This report is being submitted in support of a Zoning By-Law Amendment application.

1.1 Site Location and Description

The subject site consists of the recently severed property at 1440 Blair Towers Place and covers an approximate area of 1.105 hectares. The legal description of the site as indicated on the Topographic Survey prepared by Fairhall, Moffatt & Woodland Limited is designated as Part of Lot 21, Concession 2 (Ottawa Front), Geographic Township of Gloucester, City of Ottawa.

Figure 1: Aerial View of the Subject Site



Image Source: geoOttawa (City of Ottawa)

1.2 Existing Conditions

The subject site is abutted by a commercial development to the northeast, Ogilvie Road to the north, Blair Road to the southwest, and an open-air parking garage to the east that supports the nearby mid-rise commercial office towers. Under existing conditions, the undeveloped property consists of large grass fields, with a shared entrance off Blair Road to provide access to the existing commercial office towers. Private services (i.e., watermain and sanitary and storm sewers) are located with the private roadway and sanitary and storm service stubs were previously installed to accommodate the future development (i.e. the 5th tower) originally envisioned for this undeveloped parcel of land. Joint

Use and Maintenance Agreements (JUMA) will be required for the shared services (i.e., sanitary, storm and water) and for the shared site access.

Neither the current owner nor the City of Ottawa have a record of a Master Servicing Study/Stormwater Management Report for the existing Blair Towers Place commercial office towers development.

1.3 Pre-Consultation Information

A pre-consultation meeting was held with the City of Ottawa on August 17, 2023, at which time the client was advised of the general submission requirements. Additional meetings were held with City staff to further discuss the water servicing approach, as there are no local (smaller diameter) watermains fronting the subject site and the existing private watermain network servicing the existing office towers is fed off the 600mm dia. feedermain in Ogilvie Road.

Based on a review of **O. Reg. 525/98: Approval Exemptions**, a Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) will be required for the proposed development, as multiple properties are being serviced by common sewers. Refer to **Appendix A** for a summary of the correspondence related to the proposed development.

1.4 Proposed Development

The proposed development will consist of a 2-tower retirement residence connected by a 6-storey central podium, with a total of approximately 400 units. The development will include underground parking, indoor amenity spaces including an art room, hair salon, pool, fitness spaces, and activity rooms, as well as ancillary facilities, such as a sport lounge bar, health offices, and a pharmacy. The remainder of the subject site will consist of surface parking areas, access roads, a loading area, and outdoor amenity space. The development will continue to be accessible via the existing driveway off Blair Towers Place but would also include two access points off Blair Road. The proposed building will be serviced by the existing private watermain network and private sanitary and storm sewer systems currently servicing the existing commercial office towers. A new connection to the municipal watermain (feedermain) in Blair Road is being proposed to supply adequate water to the site for firefighting purposes.

A dedicated City Parkland block located on the northern portion of the site will occupy approximately 12% (or 0.134 ha.) of the total 1.105 ha. Site. Based on a pre-consultation meeting held with the City of Ottawa on Dec. 14, 2023, the City of Ottawa confirmed that separate sanitary and water servicing would not be required for the proposed park block.

2.0 SITE SERVICING

The objective of this report is to demonstrate that proper sewage outlets (sanitary and storm) as well as a suitable domestic water supply with appropriate fire protection 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. Stormwater flows will continue to be directed to the existing private storm sewer system, which outlets to the municipal storm sewer system east of the existing commercial tower at 1400 Blair Towers Place. On-site stormwater management will be implemented to meet the requirements of the City of Ottawa and the RVCA.

2.1 Sanitary Servicing

The subject site is currently serviced by an existing 250mm dia. private sanitary sewer system, which outlets to the municipal 250mm dia. sanitary sewer north of the existing commercial tower at 1400 Blair Towers Place. Based on the proposed site layout, it is anticipated that the existing sanitary service stub will need to be removed and that an extension of the private sewer system will be required to service the proposed development. Refer to **Figure 2** showing the existing sanitary sewer infrastructure and conceptual servicing layout.

Figure 2: Conceptual Sanitary Servicing Layout



Image Source: geoOttawa (City of Ottawa)

The theoretical peak sanitary flows from the development have been calculated based on criteria in the City of Ottawa Sewer Design Guidelines and subsequent Technical Bulletins. Theoretical sanitary flows have been broken down into residential and commercial components instead of using an all-inclusive flow often applied to institutional residences. The commercial components were subdivided to account for the various on-site amenities used by the residents, including a hair salon, sports lounge bar, swimming pool with showers, health offices, and building staff. Some of the other on-site amenities such as the library, art room, activity rooms and pharmacy were excluded from the calculations as they will not generate additional flows.

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

Table 1: Preliminary Theoretical Post-Development Sanitary Flows

Residential Units	Unit Count	Design Population	Average Flow (L/s)**	Peaking Factor	Peak Flow (L/s)
1-/2-/3-Bedroom Units	288 / 104 / 8	647	2.10*	3.59	7.53*
Commercial Flows (Ancillary Uses)					
Hair Salon	-	2 stations	0.02	1.5	0.03
Sport Lounge Bar	-	66 seats	0.09		0.14
Pool/Fitness + Showers	-	100 users	0.05		0.07
Health Offices – Medical Staff	-	3 persons	0.01		0.01
Health Offices – Office Staff	-	1 person	<0.01		<0.01
Health Offices – Patients	-	200 persons	0.06		0.09
Auxiliary Staff	-	30 persons	0.03		0.05
Sub-Total	-	-	0.26*	-	0.39*
Infiltration Allowance	-	0.971 ha.	-	-	0.32*
City Parkland	N/A				
Total	-	-	2.42*	-	8.24*

*Represents rounded values.

**Average daily sewage flow values taken from the Ottawa Sewer Design Guidelines, Appendix 4-A, and subsequent technical bulletins.

The existing 250mm dia. private sanitary sewer currently servicing the existing office towers has adequate depth (~3.2m deep at the anticipated connection) and sufficient conveyance capacity (~31.7 L/s at the upstream end of the system) to service the proposed development. The downstream sanitary sewer system in Blair Towers Place, with reduced pipe slopes, appear to have adequate capacity for the anticipated sanitary flows. Peak sanitary flows from the proposed residential development are not expected to coincide with peak sanitary flows from the existing office towers.

Preliminary feedback received from the City of Ottawa during the pre-consultation meeting indicated that there were concerns regarding potential flooding of the nearby municipal sanitary sewer system and that anticipated peak flows for the proposed development would need to be provided to the City of Ottawa for further analysis. Anticipated peak sanitary sewage flows were subsequently provided for review and analysis based on the conceptual development. Upon further review, the City of Ottawa (Asset Management Branch) determined that the proposed development should not have a negative impact on the municipal sanitary sewer system. Refer to **Appendix B** for preliminary sanitary flows analysis and correspondence from the City of Ottawa. The sanitary flows calculations and servicing design will be refined as part of the subsequent Site Plan Control application to the City of Ottawa.

2.2 Water Supply for Domestic Use and Firefighting

The subject site is located within the City of Ottawa 1E watermain pressure zone and is currently serviced by an existing 200mm dia. private looped watermain network. The private watermain network has direct connections to the 600mm dia. feedermain in Ogilvie Road and to the 200mm dia. watermain in Blair Towers Place to the east (which is also fed off the 600mm dia. feedermain in

Ogilvie Road). Based on the proposed site layout, a portion of the existing private watermain will need to be removed and realigned to service the proposed development. To optimize the use of the proposed Park Land, the portion of watermain within the park parcel would need to be shifted and realigned along the east property line. The realigned watermain would then follow the common property line and shift towards the west property line of the subject site to accommodate the proposed development. The segment of private watermain within the Parkland block would need to be installed within an easement per City of Ottawa standards. Based on feedback from the City of Ottawa, the proposed works would also include a new connection to the 600mm dia. feedermain in Blair Road to ensure adequate fire flow is provided to the site, in the event of a single supply scenario (off either Ogilvie or Blair Roads). Refer to **Figure 3** showing the existing watermain infrastructure and conceptual servicing layout.

Figure 3: Conceptual Water Servicing Layout

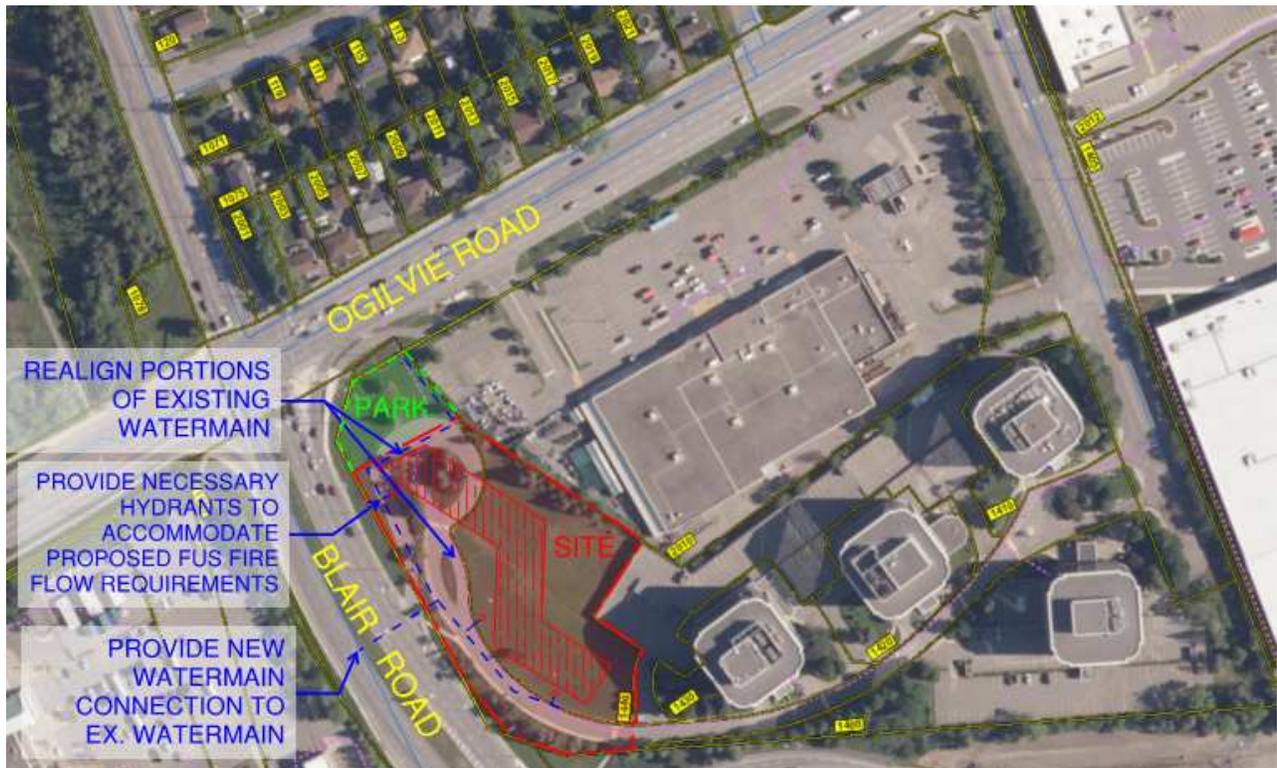


Image Source: geoOttawa (City of Ottawa)

Preliminary water demand and fire flow calculations have been prepared for the proposed development based on criteria in the City of Ottawa Design Guidelines for Water Distribution Systems and subsequent Technical Bulletins. The theoretical domestic water demands for the proposed development have been broken down into residential and commercial components instead of using an all-inclusive flow often applied to institutional residences. The commercial components were subdivided to account for the various on-site amenities used by the residents, including a hair salon, sport lounge bar, swimming pool with showers, health offices, and building staff. Some of the other on-site amenities such as the library, art room, activity lounges and pharmacy were excluded from the calculations as they will not generate additional demand.

Given the size of the development, the fire flow requirements were calculated using the Fire Underwriters Survey (FUS) method, based on a fully sprinklered building, its size (storeys), footprint,

and non-combustible construction materials. Refer to **Table 2** below for a summary of the water demands and to **Appendix C** for detailed calculations.

Table 2: Preliminary Theoretical Post-Development Water Demand and FUS Fire Flow

Residential Units	Unit Count	Design Population	Avg. Daily Demand (L/s)	Max. Day Demand (L/s)	Peak Hr Demand (L/s)	FUS Fire Flow (L/s)
1/2/3 – Bdrm. Units	288 / 104 / 8	647	2.10*	5.24	11.53*	183
Commercial Flows (Ancillary Uses)						
Hair Salon	-	2 seats	0.02	0.03	0.05	
Sport Lounge Bar	-	66 seats	0.10	0.15	0.27	
Pool/Fitness + Showers	-	100 users	0.05	0.07	0.13	
Health Offices – Medical Staff	-	3 persons	0.01	0.02	0.03	
Health Offices – Office Staff	-	1 person	<0.01	<0.01	0.01	
Health Offices – Patients	-	200 persons	0.06	0.09	0.16	
Auxiliary Staff	-	30 persons	0.03	0.05	0.08	
Sub-Total	-	-	0.25*	0.38*	0.68*	
Parkland	N/A					
Total	-	-	2.35*	5.62*	12.21*	-

*Represents rounded values

Based on the calculations above, the anticipated average daily water demand will be greater than 50m³/day (0.58 L/s), therefore, the proposed building will require twin service laterals for redundancy purposes. The proposed building will be sprinklered and will include an internal water meter, with a remote meter and siamese connection on the exterior face of the building, all to be determined at the detailed design stage.

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:

- Normal operating pressures are to range between 345 kPa (50 psi) and 483 kPa (70 psi) under Max Day demands.
- Minimum system pressures are to be 276 kPa (40 psi) under Peak Hour demands.
- Minimum system pressures are to be 140 kPa (20 psi) under Max Day + Fire Flow demands.

Table 2.1 summarizes the anticipated watermain pressures based on a preliminary watermain network analysis, including a new connection to the 600mm dia. feedermain in Blair Road.

Table 2.1: Hydraulic Boundary Conditions Provided by the City (Looped Private WM)

Municipal Watermain Boundary Condition	Boundary Condition Head of Water (m)	Normal Operating Pressure Range (psi)	Anticipated WM Pressure (psi)*
Connection 1: Ex. Watermain connection to 600mm dia. Feedermain in Ogilvie Road			
Minimum HGL (Peak Hour Demand)	110.6	40 psi (min.)	~46 psi
Maximum HGL (Max Day Demand)	116.9	50-70 psi	~55 psi
HGL (Max Day + Fire Flow of 183 L/s)	112.5	20 psi (min.)	~49 psi
Connection 2: NEW Watermain connection to 600mm dia. Feedermain in Blair Road			
Minimum HGL (Peak Hour Demand)	110.6	40 psi (min.)	~46 psi
Maximum HGL (Max Day Demand)	117.0	50-70 psi	~55 psi
HGL (Max Day + Fire Flow of 183 L/s)	112.6	20 psi (min.)	~49 psi

* Based on approximate WM elevations of ~78.2m in Ogilvie Road and ~78.0m in Blair Road at the municipal watermain connections. Design pressure = (HGL – watermain elevation) x 1.42197 PSI/m.

Based on preliminary calculations and correspondence received from the City of Ottawa, it is anticipated that the pressure within the municipal watermain network will be adequate and within the normal operating pressure range during the Peak Hour and Max Day + Fire Flow Conditions. Given the height of the proposed building, it is anticipated that booster pumps will be required to provide adequate water pressure to the upper floors.

A multi-hydrant approach to firefighting will be required to supply the fire flows calculated above. Based on a review of the geoOttawa website, there are multiple Class AA (blue bonnet) hydrants within 150m of the proposed development. New private on-site hydrants are also being anticipated as part of the proposed development. Based on the City of Ottawa Technical Bulletin ISTB-2018-02, Class AA (blue bonnet) hydrants within 75m of the building should provide a maximum capacity of 95 L/s each, while hydrants between 75m and 150m should provide a maximum capacity of 63 L/s (at a pressure of 20 PSI). The combined theoretical maximum flow from the municipal hydrants and private on-site hydrants will exceed the Max Day + Fire Flow requirements of the proposed development. This multi-hydrant approach to firefighting is in accordance with the City of Ottawa Technical Bulletin ISTB-2018-02.

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

Table 2.2: Theoretical Fire Protection Summary Table

Institutional Residence	(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)
Entire Building	167	3+	2+	>183

Refer to **Appendix C** for preliminary domestic water demand, FUS fire flow calculations and correspondence with the City of Ottawa related to the municipal watermain network and fire flow available for the proposed development. An updated analysis will need to be provided as part of the subsequent Site Plan Control application to the City of Ottawa.

2.3 Storm Servicing & Stormwater Management

Stormwater currently sheet drains uncontrolled towards the existing private roadway. Runoff is directed to the existing 300mm-750mm dia. private storm sewer that services the commercial office towers, which outlets to the 750mm dia. municipal storm sewer southeast of the existing commercial tower at 1400 Blair Towers Place. Storm flows are ultimately tributary to Green's Creek, southeast of Highway 174.

Under post-development conditions, the 1.105 ha property will be split into two parcels: the 0.971 ha subject site and the 0.134 ha City Parkland block. Storm flows will include a combination of uncontrolled direct runoff, controlled site flows, as well as controlled flow from the City Parkland block. Based on the proposed site layout, it is anticipated that the existing storm service stub will need to be removed and that a realignment of the private sewer system as well as a new service lateral(s) will be required to service the proposed development. Refer to **Figure 4** showing the existing storm sewer infrastructure and conceptual servicing layout.

Figure 4: Conceptual Storm Servicing Layout

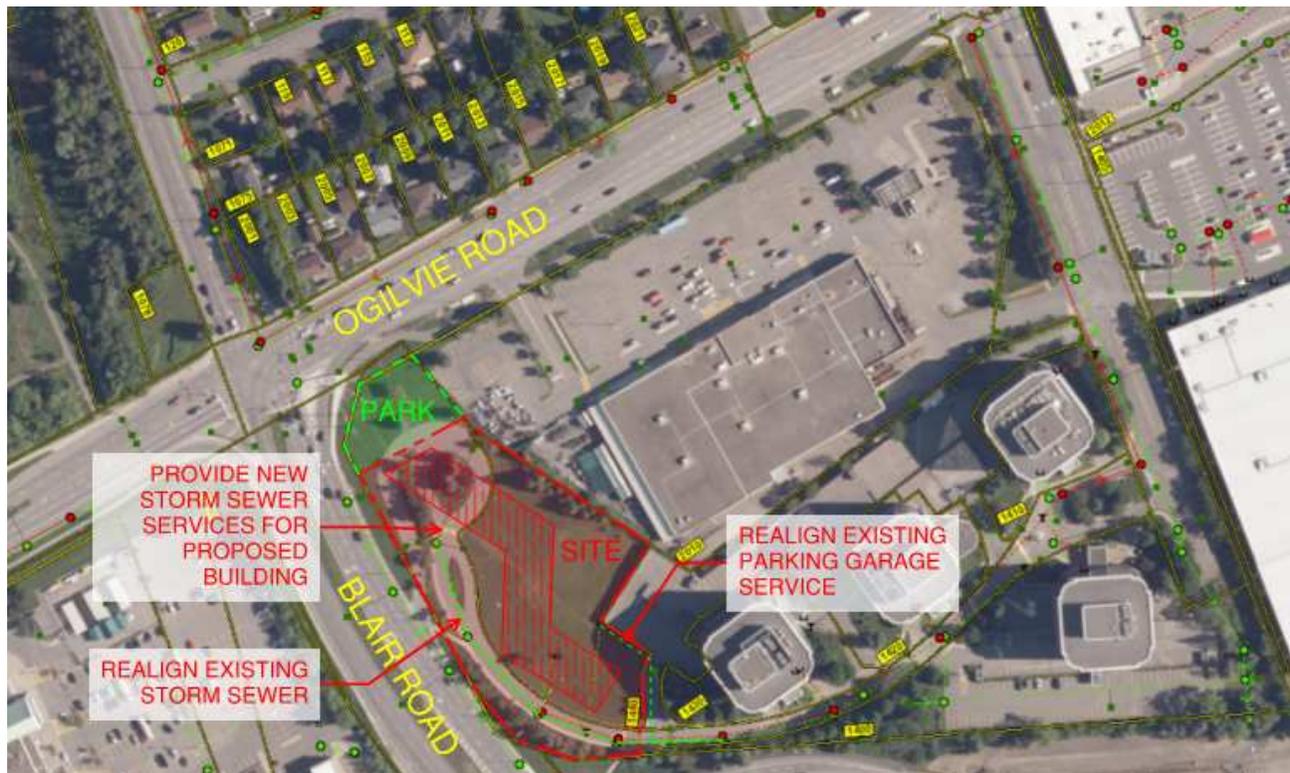


Image Source: geoOttawa (City of Ottawa)

Based on correspondence from the City of Ottawa, the following on-site stormwater management (SWM) quantity and quality measures will be required:

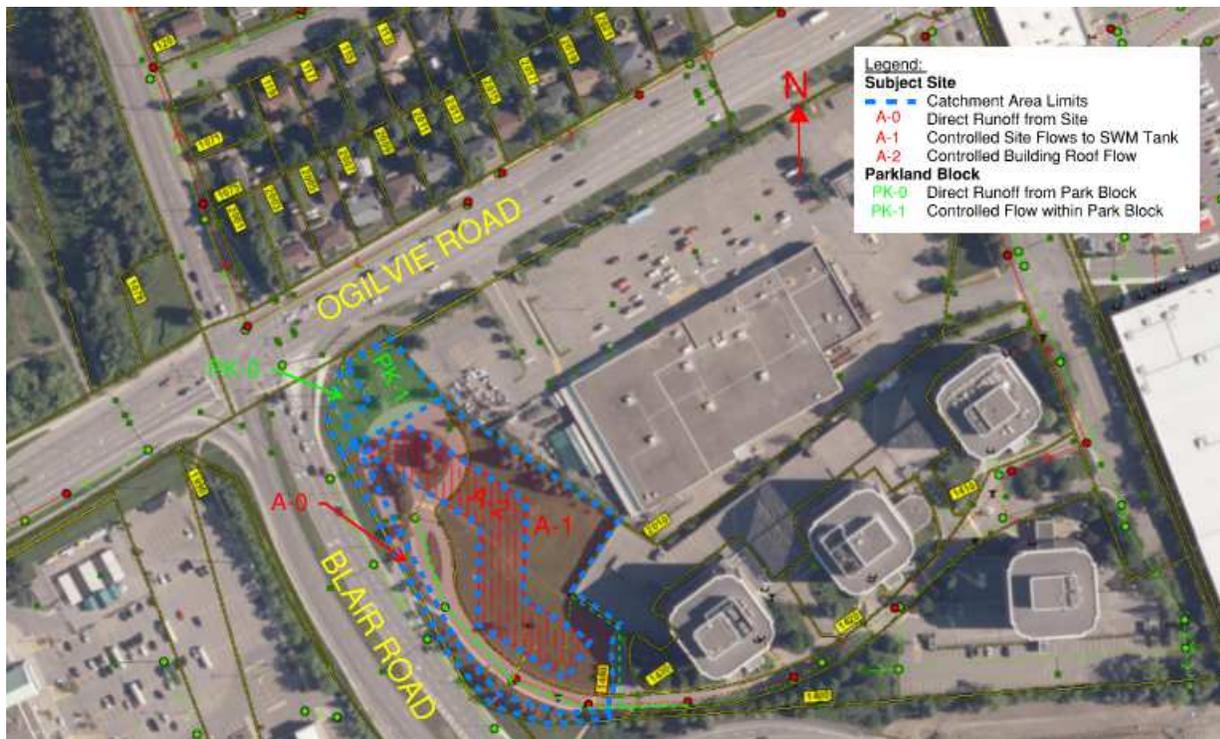
- Control the 100-year post-development flows from the site to the allowable 5-year pre-development levels, based on a runoff coefficient of $C_w=0.50$ or existing conditions, whichever is less, and a minimum time of concentration $T_c=10$ mins.
- Provide an Enhanced level of water quality treatment corresponding to 80% long-term removal of suspended solids (TSS).

The allowable release rate for the entire 1.105 ha property was calculated using the Rational Method to be approximately 112.0 L/s.

$$Q_{\text{allow(property)}} = 2.78 \times 0.35 \times 104.2\text{mm/hr} \times 1.105\text{ha} = 112.0 \text{ L/s}$$

Refer to **Appendix D** for preliminary SWM calculations and to **Figure 5** showing the conceptual stormwater management plan and approach to on-site stormwater management for the 0.971 ha subject site and 0.134 ha City parkland block.

Figure 5: Conceptual Stormwater Management Plan



Subject Site (0.971 hectares)

Based on a weighted runoff coefficient ($C_w=0.35$) and a time of concentration of 10 minutes, the allowable release rate for the 0.971 ha subject site (excl. the Parkland block) was calculated to be approximately 98.4 L/s (of the total allowable 112.0 L/s for the entire site). The 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 and preliminary calculations, the 0.971 ha site was divided into the following sub-catchment areas and estimated allotted 100-year allowable release rates:

- A-0: Direct Runoff from Site (~0.120 ha) – Allotted release rate = 20-33 L/s
- A-1: Controlled Site Flows from SWM tank (~0.520 ha) – Allotted release rate = 25-40 L/s
- A-2: Controlled Building Roof Flows (~0.331 ha) – Allotted release rate = 10-25 L/s

Table 3 compares the post-development flows from the proposed development to the allowable release rate specified by the City of Ottawa, for both the 5-year and the 100-year design events. Refer to **Appendix D** for preliminary SWM calculations and to **Appendix A** for a copy of the correspondence from the City of Ottawa.

Table 3: Preliminary Stormwater Flow Comparison Table – Subject Site

Design Event	Pre-Dev. Conditions	Post-Development Conditions Drainage Areas A-0, A-1 and A-2				
	Allowable Release Rate (L/s)	A-0 Flow (L/s)	A-1* Flow (L/s)	A-2 Flow* (L/s)	Total Flow (L/s)	Overcontrolled (L/s)
5-Yr	98.4	11.0	~ 40.0	~ 16.6	~ 67.6	~ 31 L/s (31%)
100-Yr		22.3		~ 20.0	~ 82.3	~ 16 L/s (16%)

*Represents controlled flow.

It is anticipated that a pump(s), within the internal SWM storage system, as well as the use of control flow roof drains will be required to control flows from catchment areas A-1 and A-2.

Table 3.1 summarizes the approximate storage volume requirements for the various sub-catchment areas, based on the controlled release rates. As indicated above, it will be possible to significantly over-control post-development site flows, if desired. Alternatively, it may also be possible to reduce the internal SWM storage requirements if a larger pump(s) is utilized and controlled flows are increased to match the maximum allowable release rate for the subject site. The intent of these preliminary calculations was to determine the storage requirements using a reasonably sized pump(s), while over-controlling post-development site flows to minimize the potential impacts on the receiving storm sewer system.

Table 3.1: Preliminary Stormwater Storage Requirements Table – Subject Site

Design Event	Post-Development Storage Volume Requirements			
	A-0 Direct Runoff	A-1 Internal SWM Storage (m ³)*	A-2 Roof Drains (m ³)*	Total Site (m ³)
5-Yr	-	~ 37	~ 51	~ 88
100-Yr	-	~ 111	~ 118	~ 229

*Represents preliminary calculations only.

Refer to **Appendix D** for preliminary SWM calculations and to **Figure 5** showing the conceptual stormwater management plan.

The subject site is located within the jurisdiction of the Rideau Valley Conservation Authority (RVCA) and is tributary to Green's Creek and ultimately to the Ottawa River. Based on preliminary feedback from the City of Ottawa and the RVCA, an 'Enhanced' Level of Protection, equivalent to a long-term average removal of 80% Total Suspended Solids (TSS), with at least 90% of the total rainfall being captured and treated, will be required for the on-site access roads and surface parking areas. Runoff from landscaped areas and building roofs are considered clean for the purpose of protecting water quality for aquatic habitat and would therefore not need to be treated.

City Parkland Block (0.134 hectares)

Based on a weighted runoff coefficient ($C_w=0.35$) and a time of concentration of 10 mins., the allowable release rate for the 0.134 ha Parkland block was calculated to be approximately 13.6 L/s (of the total allowable 112.0 L/s for the entire site). The allowable release rate will have to be allotted to the various catchment areas within the park block, 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 and preliminary calculations, the park block was divided into the following sub-catchment areas with an estimated allotted 100-year allowable release rate:

- PK-0: Direct Runoff from City Parkland (~0.033 ha) – Allotted release rate = 2.0-5.0 L/s
- PK-1: Controlled Flow within City Parkland (~0.101 ha) – Allotted release rate = 6.0-8.5 L/s

Table 3.2 compares the post-development flows from the proposed Parkland block to the allowable release rate specified by the City of Ottawa, for both the 5-year and the 100-year design events. Refer to **Appendix D** for preliminary SWM calculations and to **Appendix A** for a copy of the correspondence from the City of Ottawa.

Table 3.2: Preliminary Stormwater Flow Comparison Table – City Parkland Block

Design Event	Pre-Dev. Conditions	Post-Development Conditions Drainage Areas PK-0 and PK-1			
	Allowable Release Rate (L/s)	PK-0 Flow (L/s)	PK-1 Flow (L/s)	Total Flow (L/s)	Overcontrolled (L/s)
5-Yr	13.6	1.9	8.5	10.4	~3 L/s (24%)
100-Yr		4.1	9.4	13.5	-

It is anticipated that the use of an inlet control device (ICD) will be required to control flows from catchment area PK-1. **Table 3.3** summarizes the approximate storage volume requirements for the various sub-catchment areas, based on a controlled release rate.

Table 3.3: Preliminary Stormwater Storage Requirements Table – 0.183 ha Parkland Block

Design Event	Post-Development Storage Volume Requirements		
	PK-0 Direct Runoff	PK-1 Parkland (m ³)	Total (m ³)
5-Yr	-	1.1	~ 1
100-Yr	-	4.8	~ 5

Represents preliminary calculations only.

It is anticipated that the minimal storage requirement could be accommodated on the surface, thus avoiding the need for underground storage. Refer to **Appendix D** for preliminary SWM calculations and to **Figure 5** showing the conceptual stormwater management plan. If the total flows from the 0.971 ha subject site are significantly over-controlled, it may be possible to increase the allowable release rate for the City Parkland block to eliminate the need for any surface and/or underground storage at this location. This will need to be determined at the detailed design stage. On-site quality control measures will not be required for the City Parkland block.

The intention is to provide an emergency overland flow route for the private development towards Blair Road and/or through the City Parkland block towards Ogilvie Road, ensuring the protection of the adjacent parking garage and commercial development to the east. A complete stormwater management (SWM) analysis will be included as part of the subsequent Site Plan Control submission to the City of Ottawa, including both the 0.971 ha subject site and 0.134 ha City Parkland block.

3.0 GEOTECHNICAL CONSIDERATIONS

The Geotechnical Investigation Report (PG6881-1) Revision 1, dated February 13, 2024, was prepared by Paterson Group for the proposed development. A review of this report was completed to determine the possible impacts of the existing soils on the civil site servicing and grading designs.

As indicated in the report, bedrock was encountered at depths ranging from 3.2 to 5.4m below the existing ground surface. It is expected that the bedrock removal will be required for both servicing and for the underground parking structure. Groundwater levels were measured at elevations ranging from 3.5-4.5m below the surface. The existing soil conditions will need to be accounted for at the detailed design stage. Refer to the Geotechnical Investigation Report (PG6881-1) Revision 1, dated February 13, 2024, for further details.

4.0 CONCLUSION

Based on our analysis of the information available, the existing private and municipal sewers will have adequate capacity to service the proposed development. The existing private watermain network will require an additional connection to the municipal feedermain in Blair Road to provide adequate water supply for the proposed development, in the event of a single supply scenario (off either Ogilvie or Blair Roads). On-site stormwater management will be implemented to meet the requirements of the City of Ottawa and the Rideau Valley Conservation Authority. The findings of the Geotechnical Investigation Report should have minimal impact on the site servicing and will be accounted for at the detailed design stage. A complete servicing, grading and SWM design will be included as part of the subsequent Site Plan Control submission to the City of Ottawa.

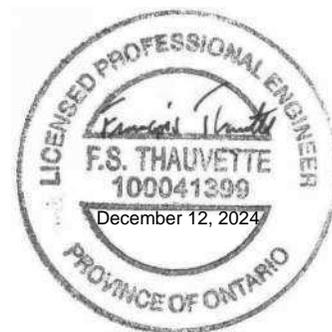
NOVATECH

Prepared by:



Kynan D'sa
Design Technologist

Reviewed by:



François Thauvette, P. Eng.
Senior Project Manager

Appendix A
Project Correspondence

Jacob Bolduc
Fotenn Planning and Design
Via email: bolduc@fotenn.com

**Subject: Pre-Consultation: Meeting Feedback
Proposed Zoning By-law Amendment and Site Plan Control
Application – 1440 Blair Towers Place**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on August 17, 2023.

Pre-Consultation Preliminary Assessment

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>
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One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City’s key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

- I. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a **Phase 2** Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.
- II. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.
- III. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to complete or repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

- I. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.
 - a. The required plans and studies must meet the City’s Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline

the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

- I. You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

1. Official Plan: the subject lands are within the Outer Urban Transect. The lands are designated Hub, Minor Corridor (along Ogilvie), and in proximity to an O-Train Station (Blair). They are also within a PMTSA (Protected Major Transit Station Area). Official Plan policies are found within Section 6.1, Hubs, which include 6.1.1, development direction for Hubs, and 6.1.2, development direction for PMTSA's. Other sections also provide relevant policy and should be evaluated in your Planning Rationale.
 - a. As discussed in our meeting, Official Plan section 6.1.2 firmly sets minimum building heights and lot coverage requirements (except where specified by a secondary plan) as 2-4 storeys, with minimum lot coverage in all PMTSA's as 70%. It's our opinion that an Official Plan Amendment (that takes form as an Area-Specific Policy for the lands) will be required to establish a site-specific lot coverage given the unique requirements.
Requirements of Official Plan section 12.3 must be addressed by your Planning Rationale.
2. Inner East Lines 1 and 3 Stations Secondary Plan: establishes the subject lands as having a maximum height of 20 storeys and a minimum density of 250 units per net hectare (for residential) and/or 1.0 FSI (for non-residential).
3. Blair TOD Area: establishes the subject lands as being mixed use with a TD2 density code, with a 400-1000 people per net hectare density range and 20 storey maximum. A future dedicated cycling facility is shown along Blair Road, a key pedestrian crossing at Blair/Ogilvie, a future MUP through the middle of the side, and amenity area as well.
4. Section 37 requirements / Community Benefits Charge
 - a. The former Section 37 regime has been replaced with a "Community Benefits Charge", [By-law No. 2022-307](#), of 4% of the land value. This charge will be required for ALL buildings that are 5 or more storeys and 10 or more units and will be required at the time of building permit unless the development is subject to an existing registered Section 37 agreement.

Questions regarding this change can be directed to Ranbir.Singh@ottawa.ca.

- b. Note that under Ontario Regulation 509/20, “development or redevelopment of a building or structure intended for use as a retirement home within the meaning of subsection 2 (1) of the Retirement Homes Act, 2010” is exempt from the Community Benefits Charge.
5. Zoning By-law 2008-250: The site-specific provisions for your Zoning By-law Amendment proposes to reduce/eliminate active frontage provisions. I am amenable to the idea given the unique lot configuration, access requirements, and proposal to provide parkland at the corner of the site. Your detailed site design should make every effort to provide improved pedestrian connections and a pedestrian/bicycle friendly layout, given your constraints. Design of the buildings should address Urban Design comments and address both streets with high quality, urban, landscaping and design, consistent with Official Plan and PMTSA requirements.
6. Site Design related comments from myself are covered by Urban Design and will be provided in further detail at a Stage 2 when more detailed plans are provided.
7. Under “List of Technical Agencies to Consult”, Infrastructure Ontario is selected because there is an Ontario owned parcel within the westerly shopping Centre, about 80-90m west of your site. Refer to “Property Parcels” – “Public Owned Lands” layer on geoOttawa. You are recommended to reach out to IO to determine the nature of this parcel and whether there are any requirements prior to submitting your Phase 2.

Urban Design

Comments:

8. Typical submission requirements include a Design Brief, elevations, landscape plan, shadow analysis and a wind study. Please see attached updated terms of reference for the Design Brief, Shadow Study, and Landscape Plan.
9. The site is within a Design Priority Area and will require attendance at the Urban Design Review Panel. Attendance at the Urban Design Review Panel should happen between Phase 1 and before Phase 3, using the Design Brief TOR as the submission requirement. Please reach out to the Urban Designer or File Lead if there are any questions on submission requirements.
10. Please review the City’s High Rise Design Guidelines and TOD Guidelines.
11. When reviewing where the parkland will be, please design the building to have a strong edge and relationship with the park. Active frontages similar to the zoning requirements for active frontages should be sought (entrances, seating, glazing, landscaping, ‘street furnishings’).

12. Locating the park at the corner of Blair and Ogilvie presents an opportunity to continue the parkland space when the Canadian Tire site eventually redevelops.
13. Please establish clear and safe pedestrian connections within the site and to adjacent lands. This is a traffic heavy area with many amenities that require crossing busy roadways. The connection to the grocery store plaza to the west has sidewalks within the parking lot but only on the south end, which logically would mean residents cross at the Blair and the highway off ramp, please support resident safety by providing a safe connection to the intersection crossing.
14. Please consider winter maintenance and conditions of pedestrian walkways.
15. In your submission, please examine the distance of your towers to the existing office towers. We will be expecting at minimum, a tower separation of 23 metres or a minimum of 11.5 metres from the side yard.
16. Towers over 10-storeys should abide by High-Rise design guidelines and be as close to a 750 sq.m. floorplate. Density distribution may need to be sought.
17. Please consolidate the loading and parking ramp. This ramp should be consolidated within the building.
18. Please reexamine the relationship between the amenity terrace and the 'back door' conditions of the two abutting sites. Canadian Tire will eventually redevelop but presently has loading and garbage adjacent to the terrace, then there's a 2-storey parking garage to the east for the existing office towers. In addition to strong landscape buffers, please examine the terrace and mitigation measures to reduce the visual and environmental (noise, smell, etc.) of these spaces.
19. Looking for strong planting along Blair and Ogilvie.
20. Please design the underground parking to maintain existing perimeter trees particularly adjacent to two parcels to the east.

Engineering

Comments:

Water	<p>There is an existing 200 mm private watermain running through the site it may be altered if needed, preferably it should be the first option to be considered. Please note that a joint use and maintenance agreement may be required if services are being shared.</p> <p>District Metering Area (DMA) Chamber(s) are required for private developments serviced by a connection 150 mm or larger or when there are two or more private connections to the public watermain. Refer to the City of Ottawa Water Distribution Guidelines.</p>
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	<p>Please be advised that capacity of the existing system will be determined after Water Boundary conditions are requested.</p> <p>Water Boundary condition requests must be submitted to the City Project Manager, Development Review by the civil design engineer or consultant prior to the 2nd pre-application consultation and include the following information:</p> <ul style="list-style-type: none"> ▪ The location of the service and the expected water demand of the proposed development shown on a plan, figure, or map; ▪ Type of development; ▪ Average daily demand: ___ l/s; ▪ Maximum daily demand: ___ l/s; ▪ Maximum hourly daily demand: ___ l/s; ▪ Required fire flow and completed FUS Design Declaration if applicable; ▪ Supporting Calculations for all demands listed above and required fire flow as per Ontario Building Code or Fire Underwriter Surveys (See technical Bulletin ISTB-2021-03; ▪ Watermain system analysis demonstrating adequate pressure as per section 4.2.2 of the Water Distribution Guidelines; ▪ Demonstrate adequate hydrant coverage for fire protection. Please review Technical Bulletin ISTB-2018-02, Appendix I Table 1 – maximum flow to be considered from a given hydrant; ▪ Proposed emergency route (to be satisfactory to Fire Services).
<p>Sanitary Sewers</p>	<p>An existing 150mm sanitary sewer lateral is dropped on site but may need to be increased depending on proposed sanitary flow.</p> <p>Provide an analysis to demonstrate that there is adequate residual capacity in the receiving and downstream wastewater system to accommodate the proposed development. The City's Asset Management Branch has flagged this area as at risk of sanitary flooding, please provide the proposed sanitary flows as soon as possible so capacity can be verified. A draft servicing report would be excellent prior to the phase 2 pre-consultation meeting.</p> <p>A monitoring maintenance hole shall be required just inside the property line for all non-residential and multi residential buildings connections from a private sewer to a public sewer. See the sewer use by-law for details.</p> <p>Plantings are not permitted overtop of City infrastructure other than sod.</p> <p>Please apply the wastewater design flow parameters in Technical Bulletin PIEDTB-2018-01.</p> <p>A maintenance hole is required to be installed over the public sewer where private sewer connection to the public sewer exceeds 50% of the public sewer diameter.</p> <p>If a maintenance hole is proposed to be installed over existing City infrastructure, clearly indicate on the design drawings the applicable Standard City Drawing. For example, S12.1 or doghouse structure / S12.2, etc.</p>
<p>Storm Sewers</p>	<p>An existing 150mm sanitary sewer lateral is dropped on site but may need to be increased depending on proposed release rate.</p> <p>A monitoring maintenance hole shall be required just inside the property line for all non-residential and multi residential buildings connections from a private sewer to a public sewer. See the sewer use by-law for details.</p>

	<p>A maintenance hole is required to be installed over the public sewer where private sewer connection to the public sewer exceeds 50% of the public sewer diameter.</p> <p>If a maintenance hole is proposed to be installed over existing City infrastructure, clearly indicate on the design drawings the applicable Standard City Drawing. For example, S12.1 or doghouse structure / S12.2, etc.</p>
<p>SWM Water Quality</p>	<p>Characterize the water quality to be protected and Stormwater Contaminants (e.g., suspended solids, nutrients, bacteria, water temperature) for potential impact on the Natural Environment, and control as necessary; OR As per the MSS, watershed/subwatershed plan, similar area-wide Stormwater study, or Stormwater management plan to minimize, or where possible, prevent increases in Contaminant loads and impacts to receiving waters.</p> <p>Provide Enhanced level of protection (80%) for suspended solids removal.</p> <p>OGS unit sizing shall be as per ISO 14034 Environmental Technology Verification (ETV)</p>
<p>SWM Water Quantity</p>	<p>Stormwater Management for the site requires runoff detention of the 100 year post to 5 year pre</p> <p>The allowable release rate is to be computed using the lesser of C=0.5 or existing.</p> <p>Time of concentration (Tc) to be calculated, min Tc = 10mins</p>
<p>Grading and Drainage</p>	<p>Permissible ponding of 350mm for 100-year. No spilling to adjacent sites.</p> <p>At 100-year ponding elevation you must spill to the ROW.</p> <p>100-year Spill elevation must be 300mm lower than any building opening or ramp.</p> <p>Consider pedestrian Accessibilities at max 5%.</p>
<p>Geotechnical and Slope Stability</p>	<p>Sensitive Marine Clay (SMC) is widely found across Ottawa- geotechnical reports should include Atterberg Limits, consolidation testing, sensitivity values, and vane shear test.</p> <p>Refer to City of Ottawa Geotechnical and Slope Stability Guidelines.</p>
<p>MECP ECA</p>	<p>An MECP Environmental Compliance Approval Municipal/Private Sewage Works may be required for the proposed development. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation:</p> <ul style="list-style-type: none"> a. Charlie Primeau at (613) 521-3450, ext. 251 or Charlie.Primeau@ontario.ca b. Emily Diamond at (613) 521-3450, ext. 238 or Emily.Diamond@ontario.ca
<p>Additional Notes</p>	<p>Provide consultation notes with the Conservation Authority</p> <p>No Capital Work Project that would impact the application has been identified at this time</p> <p>No road moratorium that would impact the application has been identified</p>

	<p>Any easement identified should be shown on all plans</p> <p>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</p> <p>Sewer connections to be made above the springline of the sewermain as per:</p> <ol style="list-style-type: none"> i. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings. ii. Std Dwg S11 (For rigid main sewers) – lateral must be less than 50% the diameter of the sewermain, iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain, iv. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size. v. No submerged outlet connections.
<p>Guidelines and By-Laws</p>	<p>For information on preparing required studies and plans refer to:</p> <ul style="list-style-type: none"> ▪ Planning application submission information and materials City of Ottawa; ▪ Ottawa Sewer Design Guidelines (October 2012); ▪ Ottawa Design Guidelines – Water Distribution (2010); ▪ Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007); ▪ City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012); ▪ City of Ottawa Environmental Noise Control Guidelines (January, 2016); ▪ City of Ottawa Park and Pathway Development Manual (2012); ▪ City of Ottawa Accessibility Design Standards (2012); ▪ Ottawa Standard Tender Documents (latest version); ▪ Please refer to other applicable Guidelines (provincial and federal); ▪ Site Alteration (By-law No. 2018-164) City of Ottawa; ▪ Sewer Connection (By-law No. 2003-513) City of Ottawa; ▪ Sewer Use (By-law No. 2003-514) City of Ottawa; ▪ Building (By-law No. 2014-220) City of Ottawa; ▪ Community Benefits Charge By-law (By-law No. 2022-307) City of Ottawa; ▪ Delegation of Authority (By-law No. 2023-67) City of Ottawa; ▪ Encroachments on City Highways (By-law No. 2003-446) City of Ottawa; ▪ Fence (By-law No. 2003-462) City of Ottawa; ▪ Fire Routes (By-law No. 2003-499) City of Ottawa; ▪ Integrated Orléans Community Improvement Plan (By-law No. 2021-284) City of Ottawa; ▪ Montreal Road Community Improvement Plan (By-law No. 2019-224) City of Ottawa; ▪ Montreal Road Community Improvement Plan Area (By-law No. 2019-213) City of Ottawa; ▪ Noise (By-law No. 2017-255) City of Ottawa; ▪ Private Approach (By-law No. 2003-447) City of Ottawa; ▪ Road Activity (By-law No. 2003-445) City of Ottawa; ▪ Site Plan Control (By-law No. 2014 - 256) City of Ottawa; ▪ Tree Protection (By-law No. 2020-340) City of Ottawa; ▪ Water (By-law No. 2019-74) City of Ottawa; ▪ Zoning (By-law No. 2008-250) City of Ottawa;

Minimum Drawing and File Requirements	Plans are to be submitted on standard A1 size (594mm x 841mm) sheets, utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400, or 1:500). With all submitted hard copies provide individual PDF of the DWGs and for reports please provide one PDF file of the reports. All PDF documents are to be unlocked and flattened.
	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 refer to GeoOttawa with the Water and Wastewater Infrastructure turned on to determine what servicing is available for this site: https://maps.ottawa.ca/geoottawa/

Feel free to contact Kelsey Charie, Infrastructure Project Manager, for follow-up questions.

Noise

Comments:

- 21. Road/rail noise study required at Site Plan control.

Feel free to contact Mike Giampa

Transportation

Comments:

- 22. The proposed separate access and egress is acceptable. Weaving issues may arise and should be reviewed in the TIA.

- 23. Right-of-way protection.

- a. See [Schedule C16 of the Official Plan](#).
- b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

- 24. Maintain existing corner sight triangles at traffic signals

- 25. A full TIA is warranted. Step 2 (Scoping) must be submitted at least 14 calendar days prior to the Phase 3 pre-con. Refer to the City website for the latest TIA procedure.

26. There have been recent geometric changes at the Blair/Ogilvie and Blair/417 signalized intersections. Ensure that these revisions are captured in the TIA.

Feel free to contact Mike Giampa, Transportation Project Manager, for follow-up questions.

Planning Forestry

27. A Tree Conservation Report (TCR) is required for submission of the Site Plan Application.
28. If the trees along the northwest property boundary are in good condition, a retention plan is expected. Please consider an underground parking garage design that would allow for retention and/or tree planting in this area.
29. Please maintain the landscape buffer that separates Blair Road from the access road on the south portion of the lot. If any trees in this area are in poor condition, they should be replaced.
30. Maximize tree planting opportunities on the site to contribute to the City's target of 40% canopy cover.
31. Planting trees in the City Right of Way is permitted if setbacks can be maintained (reference point 56). Also note 2.00m of space must be provided between a tree and a light post.
32. The Landscape Plan Terms of Reference are now on the City of Ottawa website and must be followed: [Landscape Plan TOR](#)
33. TCR requirements
 - 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
 - Please identify trees by ownership – private onsite, private on adjoining site, city owned, boundary (trees on a property line)
 - If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
 - 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
 - The location of tree protection fencing must be shown on the plan
 - 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 Hayley Murray hayley.murray@ottawa.ca or on [City of Ottawa](#)

34. LP Tree planting requirements

Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro’s planting guidelines (species and setbacks) when **planting around overhead primary conductors**.

Tree specifications

- Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- Tree planting on city property shall be in accordance with the City of Ottawa’s Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- Plant native trees whenever possible
- No root barriers, dead-man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

Hard surface planting

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade

Soil Volume

- Please document on the LP that adequate soil volumes can be met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

- ** Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay **
- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines for trees in the Right of Way

Tree Canopy

- The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.
- At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate. Indicate on the plan the projected future canopy cover at 40 years for the site.

Feel free to contact Hayley Murray, Planning Forester, for follow-up questions.

Environment

Comments:

35. Bird-safe design – as part of the sustainability measures, we will need this addressed at site plan (not necessary for zoning or OPA but should be considered early on by the project team. Bird-safe glass or integrated protection measures may be required through conditions of site plan approval for projects involving large expanses of glazing. However, it is important that the Bird-Safe Design Guidelines do not have a significant impact on the affordability or timelines of the respective project. Recognize that corporate standards or other design requirements may limit or preclude use of bird-safe glass or integrated protection measures in cases of small-scale commercial buildings (e.g. restaurant, retail pads).

36. Urban heat island – given the area and the amount of asphalt, they should consider features that reduce the urban heat island effect (see OP 10.3.3). For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, or constructing the parking lot or building differently.

Feel free to contact Matthew Hayley, Environmental Planner follow-up questions.

Parkland

Please find below Parks & Facilities Planning (PFP) comments on the above-noted development application.

37. PFP will be requesting land conveyances for parkland dedication in accordance with the Parkland Dedication By-law.

38. PFP requests a surveyor's note (or equivalent) which specifies the gross land area of the property with your application.
39. A continuous sidewalk is required along all park street frontages.
40. The park block shall be dedicated as one, contiguous parcel.
41. The park block shall be rectangular-based.
42. The City of Ottawa's Official Plan indicates development shall meet the following criteria to the satisfaction of the City:
 - Consider land acquisition for parks as directed by the Parkland Dedication By-law to meet community needs for both residential and non-residential development, with an emphasis on active recreation amenities and potential cultural development with new parks acquired to address gaps or community needs;
 - Be free of encumbrances above and below ground when land for parks is obtained by parkland dedication; or in the case of land purchases for the creation of new parks in established areas, unless the encumbrances have been approved by the City where reasonable;
 - Meet applicable provincial soil regulations;
 - Meet the minimum standards for drainage, grading and general condition.
 - Have a preferred minimum of 50% of the park perimeter having a continuous frontage on abutting streets; and
 - Be of a usable shape, topography and size that reflects its intended use.

Further Comments:

43. PFP is open to discussing an appropriate location for the proposed parkland and invites the applicant to review our Park Development Manual for further direction.
44. The future site plan illustrating the park block is to show high level park macro-grading on the Preliminary Grading Plan, including key spot elevations, stormwater flow arrows and slope percentages. Park block is to be graded to the surrounding levels and needs to show positive surface drainage towards the ROW.
45. Park services are to be connected from a municipal street. At a minimum, the park would require the following:
 - a. 300mm diameter storm sewer connection to a municipal storm sewer and CB/MH located 2m inside the park lot line

- b. A 50mm diameter water line complete with water vault chamber at 2m inside the park property line as per city standard details for unit price contracts. Costs for the water vault chamber and water meter, if ultimately required, shall be paid for by the City or be included as part of the maximum park construction budget for the park;
 - c. 150mm diameter sanitary sewer and Manhole at 2m inside the park property line;
 - d. A 120/240 volt, 200 amperes single phase hydro service at 2m inside the park property line complete with electrical kiosk for park services as per city standard details.
 - e. Electrical and water connections (minimum 50mm) are to be connected directly to the street line, including back flow preventors, shutoff valves, water and hydro meters and chambers.
46. The park block shall be conveyed to the City in a 'clean and green' state. This includes, but is not limited to:
- a. Removing all debris, contaminated soils, vegetation (except as identified for retention), etc;
 - b. Being brought to the same grade level as the surrounding area, ensuring positive surface drainage throughout the park block;
 - c. Services are to be provided to 2m inside the park block property line;
 - d. Supplying and installing a minimum depth of 150mm of topsoil and seed or sod to City standards.
47. The Owner may be required to supply and install a minimum 1.5m high commercial grade chain link fence or approved equivalent along the park lot lines depending on the final location of the park block and proposed land use(s) adjacent to the park.
48. The above noted requirements are standard requirements the owner is responsible for in the construction and installation of the 'base park improvements' for the park block and at the owner's sole expense.

Facility Fit Plan:

- 49. PFP requests a Facility Fit Plan
- 50. Facility Fit Plans must clearly show (in metric) the following:
 - a. Those items required on a Site Plan but for the park block

- b. Key Plan showing the location of the park block within the development site
- c. Overlaid over an aerial photo if requested
- d. Critical dimensions of all park amenities including buffers and setbacks
- e. Grading across the park block and within the context of development area
- f. Any existing vegetation and special features within the park which may be preserved

Urban Design Review Panel

51. In the event that the Urban Design Review Panel provides comments on the park size, location or configuration that differ from the above comments, staff may need to revisit the above comments.

Limiting Distance Agreement

52. The applicant, owner and architect should be aware that the City does not enter into limiting distance agreements under Part 3, subsection 3.2.3.1 of O.Reg. 332/12, Building Code, that would encumber parkland.

Please note that the park comments are preliminary and will be finalized (and subject to change) upon receipt of the development application and the requested supporting documentation.

Feel free to contact Phil Castro, Parks Planner for any follow up questions.

Other

53. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. The HPDS was passed by Council on April 13, 2022.

- a. At this time, the HPDS is not in effect and Council has referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law by no later than Q1 2024.
- b. Please refer to the HPDS information attached and ottawa.ca/HPDS for more information.



Should there be any questions, please do not hesitate to contact myself or the contact identified for the above areas / disciplines.

Yours Truly,
Kelly Livingstone, RPP MCIP
Planner 2, Development Review East
Planning, Real Estate and Economic Development Department

cc.

Amya Martinov, Co-op Planner, Development Review East
Mike Giampa, Project Manager (Transportation)
Kelsey Charie, Project Manager (Engineering)
Rafic Fadel, Engineering Intern
Molly Smith, Planner 2, Urban Design
Matthew Hayley, Planner 3
Phil Castro, Planner 2, Parks Planning
Hayley Murray, Planning Forester
Steve Belan, Planner 2, Development Review East

Appendix B

Preliminary Sanitary Sewage Calculations and E-mail Correspondence from the City of Ottawa

1440 Blair Towers Place - Proposed Multi-Storey Retirement Residence SANITARY SEWAGE ANALYSIS

Residential		
Number of 1-Bedroom/Studio Apartments	288	
Number of Persons per 1-Bdrm/Studio Apartment	1.4	
Number of 2-Bedroom Apartments	104	
Number of Persons per 2-Bdrm Apartment	2.1	
Number of 3-Bedroom Apartments	8	
Number of Persons per 3-Bdrm Apartment	3.1	
Total Design Population	647	
Average Daily Sanitary Flow	280	L/c/day
Peak Factor (Harmon Formula)	3.59	
Peak Residential Flow	7.53	L/s
Commercial		
Hair Salon - Stations	2	
Hair Salon - Avg. Daily Flow	650	L/s/day
Sport Lounge Bar - Seats	66	
Sport Lounge Bar - Avg. Daily Flow	125	L/s/day
Pool/Fitness + Shower Users	100	
Pool/Fitness - Avg. Daily Flow	40	L/c/day
Health Offices - Medical Staff	3	
Medical Staff - Avg. Daily Flow	275	L/c/day
Health Offices - Office Staff	1	
Med. Office Staff - Avg. Daily Flow	75	L/c/day
Health Offices - Patients	200	
Patients - Avg. Daily Flow	25	L/c/day
Auxiliary Staff	30	
Auxiliary Staff - Avg. Daily Flow	75	L/c/day
Commercial Peaking Factor	1.5	
Total Peak Flow	0.39	L/s
Extraneous Flow		
Site Area (excl. park block)	0.971	ha
Infiltration Allowance	0.33	L/s/ha
Peak Extraneous Flows	0.32	L/s
Total Peak Sanitary Flow	8.24	L/s

*Average daily sewage flow values taken from the Ottawa Sewer Design Guidelines, Appendix 4-A, and subsequent technical bulletins.

Francois Thauvette

From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Tuesday, December 19, 2023 1:39 PM
To: Francois Thauvette
Cc: Livingstone, Kelly; Unrau, Derek; Yveline Roc; rlabelle@hobinarc.com; Jacob Bolduc; Mohamad Faraj; Daniel Archambault; Bilal Khalife; BPoitras@legroupemaurice.com; Paul LeBlanc
Subject: RE: PC2023-0363 - 1440 Blair Towers - Preconsult Phase 2 - Prelim SAN Sewage Calcs (123198)

Hi Francois,

The meeting with Asset Management earlier today went well, they were able to pull up their modeling software and more precisely map out the route that the proposed flows would be directed down Ogilvie Road and they were able to determine that the proposed flows of 6.4 to 7.9 L/s would not impact the system.

I imagine this outcome is agreeable to everyone, but please let me know if you would like to discuss further.

Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: December 19, 2023 8:46 AM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>
Cc: Livingstone, Kelly <kelly.livingstone@ottawa.ca>; Unrau, Derek <derek.unrau@ottawa.ca>; Yveline Roc <yroc@legroupemaurice.com>; rlabelle@hobinarc.com; Jacob Bolduc <bolduc@fotenn.com>; Mohamad Faraj <mfaraj@legroupemaurice.com>; Daniel Archambault <darchambault@legroupemaurice.com>; Bilal Khalife <BKhalife@legroupemaurice.com>; BPoitras@legroupemaurice.com; p.leblanc@novatech-eng.com
Subject: Re: PC2023-0363 - 1440 Blair Towers - Preconsult Phase 2 - Prelim SAN Sewage Calcs (123198)

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Hi Kelsey,

Can you please send out the Teams invitation for the meeting with the City's Asset Management Dept. later today? Please send to all on this e-mail thread.

Regards,

François Thauvette, P. Eng., Senior Project Manager - Land Development & Public Sector Engineering
NOVATECH

Tel: 613.254.9643 x 219

Cell: 613.276.0310

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Sent from my iPhone

On Dec 14, 2023, at 2:54 PM, Francois Thauvette <f.thauvette@novatech-eng.com> wrote:

Hi Kelsey,

Please find attached preliminary theoretical sanitary sewage calculations for review by the City's Asset Management Dept. in advance of our Teams call next week. We anticipate the peak sanitary sewage flows for the proposed two-tower residential development (assuming a total of ~400 units) to be in the order of 6.4 - 7.9 L/s. See attached flow calculations for details. We provided a range, as the anticipated number of people per unit (in a retirement residence) will be less than in a typical apartment building, thus reducing peak flows.

Please review and let us know if the City has any questions and/or requires any additional information prior to our Teams call on Tuesday (Dec. 19th). Please invite all people on this e-mail on the Teams meeting invitation, in case they would like to join.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering
NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | T: 613.254.9643 Ext: 219 | C: 613.276.0310

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From: Charie, Kelsey <kelsey.charie@ottawa.ca>

Sent: Thursday, December 14, 2023 11:37 AM

To: Francois Thauvette <f.thauvette@novatech-eng.com>

Cc: Livingstone, Kelly <kelly.livingstone@ottawa.ca>; Unrau, Derek <derek.unrau@ottawa.ca>

Subject: RE: PC2023-0363 - 1440 Blair Towers - Preconsult Phase 2 - Follow up

Great chatting with you today Francois!

I've scheduled a meeting with asset management for Tuesday so please let me know if you can have the estimated sanitary flows to us by then.

Thank you,

Kelsey

,

This e-mail originates from the City of Ottawa e-mail system. Any distribution, use or copying of this e-mail or the information it contains by other than the intended recipient(s) is unauthorized. Thank you.

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par une personne autre que son destinataire prévu est interdite. Je vous remercie de votre collaboration.

'
<123198-SanFlows(Unit Breakdown).pdf>

'
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Appendix C

Preliminary Water Demands, FUS Calculations, Watermain Boundary Conditions and E-mail Correspondence from the City of Ottawa

1440 Blair Towers Place - Proposed Multi-Storey Retirement Residence
POST-DEVELOPMENT WATER DEMANDS

DOMESTIC WATER DEMAND

Residential Water Demands	Post-Development	
Number of 1-Bedroom/Studio Units	288	
Number of Persons per 1-Bdrm/Studio Units	1.4	
Number of 2-Bedroom Units	104	
Persons per 2-Bedroom Unit	2.1	
Number of 3-Bedroom Units	8	
Persons per 3-Bedroom Unit	3.1	
Total Number of Units	400	
Design Population	647	
Average Day Demand (280 L/c/day)	2.10	L/s
Maximum Day Demand (2.5 x avg. day)	5.24	L/s
Peak Hour Demand (2.2 x max. day)	11.53	L/s
Commercial Water Demands		
Hair Salon (2 stations, Avg=650L/station/day)	0.02	L/s
Sport Lounge Bar (66 seats, Avg=125L/s/day)	0.10	L/s
Pool/Fitness + Showers (100 users ,Avg=40L/c/day)	0.05	L/s
Health Offices - Medical Staff (3 persons, 275 L/c/day)	0.01	L/s
Health Offices - Office Staff (1 person, 75 L/c/day)	0.00	L/s
Health Offices - Patients (200 persons, 25 L/c/day)	0.06	L/s
Auxiliary Staff (30 persons, Avg=75L/c/day)	0.03	L/s
Average Day Demand	0.25	L/s
Maximum Day Demand (1.5 x avg. day)	0.38	L/s
Peak Hour Demand (1.8 x max. day)	0.68	L/s
TOTALS		
Average Day Demand	2.3	L/s
Maximum Day Demand	5.6	L/s
Peak Hour Demand	12.2	L/s

BOUNDARY CONDITIONS (PROVIDED BY THE CITY)

Maximum HGL =	117.0 m
Minimum HGL =	110.6 m
Max Day + Fire Flow =	112.6 m

PRESSURE TESTS

Average Ground Elevation (Ogilvie)	78.20 m
High Pressure Test = (Max HGL - Avg.Ground Elev.) x 1.42 PSI/m (should be between 50- 70 PSI)	55.2 PSI
Low Pressure Test = (Min. HGL - Avg. Ground Elev.) x 1.42 PSI/m (should be > 40 PSI)	46.1 PSI
Max Day + Fire Flow Test = (Max Day + Fire Flow - Avg. Ground Elev.) x 1.42 PSI/m (should be > 20 PSI)	48.9 PSI

Average Ground Elevation (Blair)	78.00 m
High Pressure Test = (Max HGL - Avg.Ground Elev.) x 1.42 PSI/m (should be between 50- 70 PSI)	55.5 PSI
Low Pressure Test = (Min. HGL - Avg. Ground Elev.) x 1.42 PSI/m (should be > 40 PSI)	46.4 PSI
Max Day + Fire Flow Test = (Max Day + Fire Flow - Avg. Ground Elev.) x 1.42 PSI/m (should be > 20 PSI)	49.2 PSI

FUS - Fire Flow Calculations

As per 2020 Fire Underwriter's Survey Guidelines



Engineers, Planners & Landscape Architects

Novatech Project #: 123198
 Project Name: 1440 Blair Towers Pl.
 Date: 12/11/2024
 Input By: Kynan D'sa
 Reviewed By: François Thauvette

Legend

Input by User
 No Information or Input Required

Building Description: Multi-Storey Towers with 6 Storey Podium
 Type II - Non-combustible construction

Step		Choose		Value Used	Total Fire Flow (L/min)	
Base Fire Flow						
1	Construction Material		Multiplier		0.8	
	Coefficient related to type of construction C	Type V - Wood frame		1.5		
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction	Yes	0.8		
Type I - Fire resistive construction (2 hrs)			0.6			
2	Floor Area				23,000	
	A	Podium Level Footprint (m ²)	3306			
		Total Floors/Storeys (Podium)	6			
		Tower Footprint (m ²)	1579			
		Total Floors/Storeys (Tower)	14			
		Protected Openings (1 hr)				
	A, Total Effective Floor Area (m ²)		16,382			
F	Base fire flow without reductions $F = 220 C (A)^{0.5}$					
Reductions or Surcharges						
3	Occupancy hazard reduction or surcharge		FUS Table 3	Reduction/Surcharge	19,550	
	(1)	Non-combustible		-25%		
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
			-15%			
4	Sprinkler Reduction		FUS Table 4	Reduction	-9,775	
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%		
		Standard Water Supply	Yes	-10%		
		Fully Supervised System	Yes	-10%		
		Cumulative Sub-Total		-50%		
		Area of Sprinklered Coverage (m²)	41942	100%		
Cumulative Total		-50%				
5	Exposure Surcharge per		FUS Table 6	Surcharge	1,564	
	(3)	North Side	>30m	0%		
		East Side	>30m	0%		
		South Side	3.1 - 10 m	8%		
		West Side	>30m	0%		
		Cumulative Total		8%		
Results						
6	(1) + (2) + (3)	Total Required Fire Flow, rounded to nearest 1000L/min		L/min	11,000	
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	183
				or	USGPM	2,906
7	Storage Volume	Required Duration of Fire Flow (hours)	FUS Table 1	Hours	2	
		Required Volume of Fire Flow (m ³)		m ³	1320	

Boundary Conditions for 1440 Blair Towers Place



Legend

- Private
- Public

Francois Thauvette

From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Friday, February 16, 2024 12:19 PM
To: Francois Thauvette; Armstrong, Justin
Cc: 'Yveline Roc'; Benoit Poitras; Bilal Khalife; Lee Sheets
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)
Attachments: 1440 Blair Towers Place REVISED February 2024.pdf

Hi Francois,

Please see attached and the following text that was provided for the revised boundary conditions.

Regards,
Kelsey

The following are boundary conditions, HGL, for hydraulic analysis at 1440 Blair Towers Place (zone 1E) assumed to be connected via two connections to the 610mm watermain on Ogilvie Road and the 610mm watermain on Blair Road (see attached PDF for location).

Connection 1 (Ogilvie Road):

Minimum HGL: 110.6 m

Maximum HGL: 116.9 m

Max Day + Fire Flow (183L/s): 112.5 m

Connection 2 (Blair Road):

Minimum HGL: 110.6 m

Maximum HGL: 117.0 m

Max Day + Fire Flow (183L/s): 112.6 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.

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: February 16, 2024 9:35 AM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>; Armstrong, Justin <justin.armstrong@ottawa.ca>
Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; Benoit Poitras <BPoitras@legroupemaurice.com>; Bilal Khalife <BKhalife@legroupemaurice.com>; Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey,

Just following up on the watermain boundary condition request for the subject site. Please send us the information as soon as it becomes available.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | T: 613.254.9643 Ext: 219 | C: 613.276.0310

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From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Thursday, February 1, 2024 12:00 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>
Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; Benoit Poitras <BPoitras@legroupemaurice.com>; Bilal Khalife <BKhalife@legroupemaurice.com>; Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Thank you Francois,

I've forwarded on the sketch, I will let you know as soon as I get the results back.

Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: February 01, 2024 11:53 AM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>; Armstrong, Justin <justin.armstrong@ottawa.ca>
Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; Benoit Poitras <BPoitras@legroupemaurice.com>; Bilal Khalife <BKhalife@legroupemaurice.com>; Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey,

Please see attached sketch showing approximate location of proposed connection to the 600mm dia. feedermain in Blair Road.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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From: Charie, Kelsey <kelsey.charie@ottawa.ca>

Sent: Thursday, February 1, 2024 10:48 AM

To: Francois Thauvette <f.thauvette@novatech-eng.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>

Cc: 'Yveline Roc' <yroc@legroupe maurice.com>; Benoit Poitras <BPoitras@legroupe maurice.com>; Bilal Khalife <BKhalife@legroupe maurice.com>; Lee Sheets <l.sheets@novatech-eng.com>

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hi again Francois,

For the updated boundary conditions, the Asset Management Branch requested a map with the anticipated connection point to the Blair Road watermain, would you be able to provide that please?

Thank you,
Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>

Sent: January 31, 2024 8:57 AM

To: Charie, Kelsey <kelsey.charie@ottawa.ca>; Armstrong, Justin <justin.armstrong@ottawa.ca>

Cc: 'Yveline Roc' <yroc@legroupe maurice.com>; Benoit Poitras <BPoitras@legroupe maurice.com>; Bilal Khalife <BKhalife@legroupe maurice.com>; Lee Sheets <l.sheets@novatech-eng.com>

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Thanks Kelsey.

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

NOVATECH

Engineers, Planners & Landscape Architects

From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Wednesday, January 31, 2024 8:51 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>
Cc: 'Yveline Roc' <yroc@legroupe maurice.com>; Benoit Poitras <BPoitras@legroupe maurice.com>; Bilal Khalife <BKhalife@legroupe maurice.com>; Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hi Francois,

I got the same impression from the Water Distribution Branch through the discussions we had, and I am sure the wording they use is hyper protective as they deny requests to connect to backbone water mains on a regular basis and worry that granting this one connection will lead to other applications wanting similar treatment. I have it in writing that they support this connection for this application so we would not let them back track on their position at a later date when this application comes in for a Phase 3 Pre-consultation and subsequent Official Submission.

In regards to water boundary conditions, I have sent an email requesting new boundary conditions with the connection to Blair Road and the info from the last request and asked whether they needed anything else, I will let you know if they require a new request.

Regards,
Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: January 30, 2024 11:46 AM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>; Armstrong, Justin <justin.armstrong@ottawa.ca>
Cc: 'Yveline Roc' <yroc@legroupe maurice.com>; Benoit Poitras <BPoitras@legroupe maurice.com>; Bilal Khalife <BKhalife@legroupe maurice.com>; Lee Sheets <l.sheets@novatech-eng.com>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey/Justin,

Thank you for the update. Based on the information provided in the e-mail below, would it be possible to schedule another brief Teams call with the City to discuss item 4? Item 4 is a bit concerning, and we (and our client) need a certain level of comfort regarding the water servicing constraints in this area before they decide to purchase this property.

We will also need to obtain complete WM boundary conditions, assuming a new connection to the feeder main in Blair Road. Is this something that the Water Distribution Branch can provide given the previous information provided to the City, or do you require a separate e-mail requesting the WM boundary conditions accompanied by a sketch showing this new proposed connection? Please advise ASAP.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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From: Charie, Kelsey <kelsey.charie@ottawa.ca>

Sent: Tuesday, January 30, 2024 7:48 AM

To: Francois Thauvette <f.thauvette@novatech-eng.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>

Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; Benoit Poitras <BPoitras@legroupemaurice.com>; Bilal Khalife <BKhalife@legroupemaurice.com>; Lee Sheets <l.sheets@novatech-eng.com>

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hello Francois,

Thank you for your patience while we have been having internal discussions with the Water Distribution Branch and the Asset Management Branch.

The outcome from the internal discussions are that the City will support a private water connection to the property of 1440 Blair Towers Place that connects to the 610mm watermain on Blair Road. Please note that connections to backbone watermains are not permitted and that this is a one-time exception only which does not set precedence for other or future applications.

Please also note the following criteria for the private connection to the backbone watermain:

1. There must be a secondary connection to another watermain, and that watermain cannot rely on the same backbone section (within the same isolation valves) of the other connection.
2. The secondary connection must provide BSDY + Fire when the backbone connection is isolated (out of service).
3. The proponent is required to demonstrate how the required fire flow will be met.
4. In the event the above criteria has been met, the City reserves the right to deny any connection to a backbone watermain.

I hope this information helps in the planning and design phases of your project, please let me know if you would like to discuss any of the above.

Regards,

Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>

Sent: January 25, 2024 12:51 PM

To: Charie, Kelsey <kelsey.charie@ottawa.ca>; Armstrong, Justin <justin.armstrong@ottawa.ca>

Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; Benoit Poitras <BPoitras@legroupemaurice.com>; Bilal Khalife <BKhalife@legroupemaurice.com>; Lee Sheets <l.sheets@novatech-eng.com>

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey/Justin,

As a follow-up to our Teams call earlier this week, could you please ask the City's Asset Management and Water Distribution Groups if they will allow a (new) direct connection to the 600mm dia. feedermain in Blair Road (as discussed during our Teams call earlier this week). This configuration would result in three (3) feeds to the private watermain currently servicing the subject site. Two of the 3 feeds off the 600mm dia. feedermain would be relatively short when compared to the water supply off Blair Towers Place.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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-----Original Appointment-----

From: Charie, Kelsey <kelsey.charie@ottawa.ca>

Sent: Monday, January 22, 2024 3:28 PM

To: Charie, Kelsey; Francois Thauvette; Armstrong, Justin

Cc: 'Yveline Roc'; Benoit Poitras; Bilal Khalife

Subject: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

When: Tuesday, January 23, 2024 1:00 PM-1:30 PM (UTC-05:00) Eastern Time (US & Canada).

Where: Microsoft Teams Meeting

Apologies, rescheduling to 1pm to adjust for some last minute conflicts.

Follow up meeting to discuss 1440 Blair Towers Place

Microsoft Teams meeting

Join on your computer, mobile app or room device

[Click here to join the meeting](#)

Meeting ID: 241 011 133 569

Passcode: aEmjdb

[Download Teams](#) | [Join on the web](#)

Join with a video conferencing device

teams@vc.ottawa.ca

Video Conference ID: 111 580 793 8

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Phone Conference ID: 602 151 389#

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From: Francois Thauvette <f.thauvette@novatech-eng.com>

Sent: January 22, 2024 2:59 PM

To: Charie, Kelsey <kelsey.charie@ottawa.ca>; Armstrong, Justin <justin.armstrong@ottawa.ca>

Cc: 'Yveline Roc' <yroc@legroupe maurice.com>; Benoit Poitras <BPoitras@legroupe maurice.com>; Bilal Khalife <BKhalife@legroupe maurice.com>

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey,

Would it be possible for you and Justin to set up a brief Teams call either later today or tomorrow (anytime except between 2-3pm)? Please include Yveline, Bilal, and Benoit (from Le Groupe Maurice) on the invitation.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | T: 613.254.9643 Ext: 219 | C: 613.276.0310

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

From: Charie, Kelsey <kelsey.charie@ottawa.ca>

Sent: Monday, January 22, 2024 9:50 AM

To: Francois Thauvette <f.thauvette@novatech-eng.com>

Cc: 'Yveline Roc' <yroc@legroupe maurice.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hi Francois,

I unfortunately don't think that will be a good idea, I've already gotten my hand slapped from Asset Management for trying to find solutions for this project as they've stated (and they are correct) that the designs and solutions need to be

put forward by the consulting engineers and not from our end. Happy to set up a meeting with myself and Justin for sometime today if you would like to chat with us though.

To summarize the data, this project requires 11,000L/min of fire flow and since the watermain looping is private the demand needs to be met at both connections. In regards, to fire hydrants, existing public hydrants in the vicinity can be used to account for the aggregate fire flow of total demand and if insufficient public hydrants exist, internal private hydrants can be used, however the private watermain still needs to be shown to be able to have sufficient flow from both connections for the private hydrants to be counted in the aggregate fire flow summation.

Let me know if you would like me to set up a meeting for later today.

Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: January 19, 2024 4:43 PM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>
Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey,

Would it be possible to schedule a Teams call with you and the Water Distribution Group early next week? We (and more importantly our client) need a better understanding of the water supply situation and possible options available to us before they can decide on the purchase of this property. It will be a lot easier to have a proper discussion via a Teams call rather than using e-mail.

Based on a review of geoOttawa, it appears that the municipal watermain in Blair Towers Place is fed off the same 610mm dia. watermain in Ogilvie. What happens to the water supply to all the nearby properties when the 610mm dia. feeder main is 'out of service' for maintenance or inspections?

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

NOVATECH

Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | T: 613.254.9643 Ext: 219 | C: 613.276.0310

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From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Friday, January 19, 2024 2:57 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; Armstrong, Justin <justin.armstrong@ottawa.ca>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hi Francois,

Apologies, I have been doing my best to get a resolution for you and your team.

The results from my meetings with asset management are the following:

For this site in regards to fire flows, the proposed building requires 11000 L/min fire flow which must be met from two separate connection points. The connection point on Ogilvie meets the 11000 L/min but the connection point at Blair Towers Place does not. In the event that the watermain on Ogilvie is out of service (which the City does for backbone water mains for maintenance and inspections on a regular basis), this site would be relying on fire flows from the connection from Blair Towers Place and there would not be sufficient flows to meet the fire flow demands.

I hope this helps clarify. I've also include Justin Armstrong the senior engineer for the East Branch in the conversation to keep him looped in.

Regards,
Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: January 18, 2024 11:47 AM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>
Cc: 'Yveline Roc' <yroc@legroupemaurice.com>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey,

We need to schedule a Teams call with you (and ideally with the Water Distribution Group) TODAY. I (and more importantly my client) need an explanation as to why the looped private watermain, servicing the subject site, is not being considered as looped in the simulation and in the resulting watermain boundary conditions.

Please advise when you would be available for a Teams call. I am available all day, until 4:30pm.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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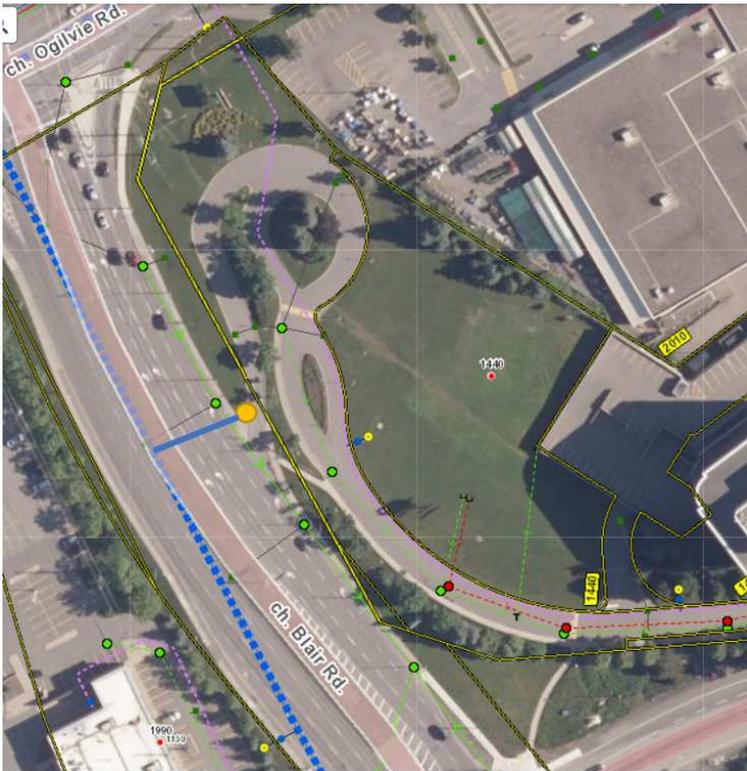
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From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Thursday, January 18, 2024 10:38 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: 'Yveline Roc' <yroc@legroupemaurice.com>
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hi Francois,

The water distribution group is concerned about the potential for a vulnerable service area for the property due to the length of the private watermain. This is why they didn't factor in the looping into their simulation and why the numbers for the connection on Blair Towers Place were so low. The simplest solution we could brainstorm was that a public hydrant installed along Blair Road would provide the adequate coverage. Something like below (please don't judge my terrible drawing skills)



The only outstanding item would be to have Asset Management sign off on this solution as they don't normally permit connections to the backbone watermain but I am hoping that since there are not a lot of options and that there is a fire hydrant just south for the Tim Hortons that they would accept this.

I have been trying to get an answer from them with no luck so far, I have sent a meeting request so I will hopefully get an answer from them today.

Let me know if you would like to discuss more or if you have a potential solution I can suggest. I am free most of today other than from 2-3pm

Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: January 16, 2024 2:14 PM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>

Cc: 'Yveline Roc' <yroc@legroupemaurice.com>

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey,

Thank you for letting us know. Please provide clarification as soon as you can. Should we be concerned with your statement below? "*The required fire flow item is more tricky than I had anticipated...*"

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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From: Charie, Kelsey <kelsey.charie@ottawa.ca>

Sent: Tuesday, January 16, 2024 1:17 PM

To: Francois Thauvette <f.thauvette@novatech-eng.com>

Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; Paul LeBlanc <p.leblanc@novatech-eng.com>

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hi Francois,

Just wanted to send you an update as I know your deadline is coming up quick and that I am still working on getting some answers for you. The required fire flow item is more tricky than I had anticipated but I am hoping to get some answers for you as soon as possible.

Kelsey

From: Francois Thauvette <f.thauvette@novatech-eng.com>

Sent: January 08, 2024 10:47 AM

To: Charie, Kelsey <kelsey.charie@ottawa.ca>

Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; p.leblanc@novatech-eng.com

Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey,

Just following up on the information request below. Is there any chance we can get the watermain boundary conditions this week? Ideally, we would obtain this information for review during the due diligence period.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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From: Francois Thauvette

Sent: Wednesday, December 20, 2023 12:03 PM

To: Charie, Kelsey <kelsey.charie@ottawa.ca>

Cc: Yveline Roc <yroc@legroupemaurice.com>; Paul LeBlanc <p.leblanc@novatech-eng.com>

Subject: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hi Kelsey,

We are sending this e-mail to request municipal watermain boundary conditions as part of the due diligence phase related to the proposed 2-tower residential development at 1440 Blair Towers Place. The preliminary anticipated water demands for the proposed development (incl. both towers) are as follows:

- Average Day Demand = 2.2 L/s
- Maximum Day Demand = 5.4 L/s
- Peak Hour Demand = 11.8 L/s
- FUS Fire Flow = 183 L/s

Also attached is a sketch showing the general watermain alignment and servicing configuration for the proposed development, as generally discussed during our pre-consultation meeting on Dec. 14, 2023. Since the domestic water demands are greater than 50m³/day, twin services will be required to provide the necessary redundancy per City standards. The building services will be fed off the realigned 200mm dia. private watermain on the west side of the towers.

Due to the time constraints of the due diligence period, we ask that this request be processed in a timely manner, so that we have enough time to review. Please let us know if you require any additional information.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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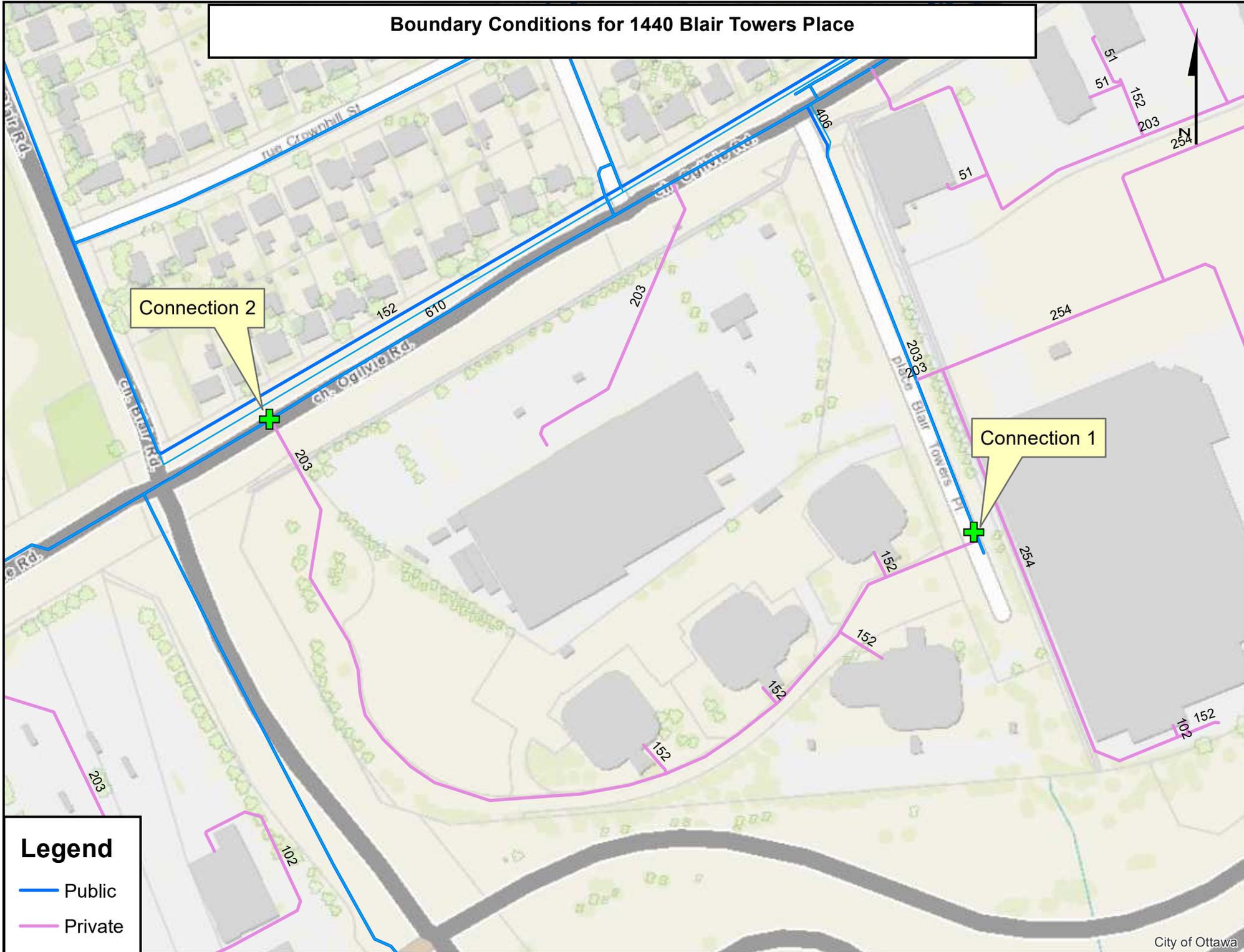
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,

Boundary Conditions for 1440 Blair Towers Place



Connection 2

Connection 1

Legend

- Public
- Private

Francois Thauvette

From: Charie, Kelsey <kelsey.charie@ottawa.ca>
Sent: Wednesday, January 10, 2024 9:15 AM
To: Francois Thauvette
Cc: 'Yveline Roc'; Paul LeBlanc
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)
Attachments: 1440 Blair Towers Place December 2023.pdf

Hi Francois,

Happy new year. Yes I have the water boundary results, apologies for the delay, getting back to everyone as quickly as I can after the break.

Please see the results below. There was also a note regarding the RFF not being met but I believe you had foreseen that issue and mentioned that additional hydrants would be installed.

Please let me know if you'd like to discuss further.

Kelsey

The following are boundary conditions, HGL, for hydraulic analysis at 1140 Blair Towers Place (zone 1E) assumed to be connected via two connections to the 203mm watermain on Blair Towers Place and the 610mm watermain on Ogilvie Road (see attached PDF for location).

Connection 1 (Blair Tower):

Minimum HGL: 110.6 m

Maximum HGL: 115.6 m

Available Fire Flow at 20 psi: 129.1 L/s, assuming ground elevation of 75.7 m.

Connection 2 (Ogilvie):

Minimum HGL: 110.6 m

Maximum HGL: 115.9 m

Max Day + Fire Flow (183L/s): 112.5 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.

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: January 08, 2024 10:47 AM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>
Cc: 'Yveline Roc' <yroc@legroupemaurice.com>; p.leblanc@novatech-eng.com
Subject: RE: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

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Hi Kelsey,

Just following up on the information request below. Is there any chance we can get the watermain boundary conditions this week? Ideally, we would obtain this information for review during the due diligence period.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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From: Francois Thauvette
Sent: Wednesday, December 20, 2023 12:03 PM
To: Charie, Kelsey <kelsey.charie@ottawa.ca>
Cc: Yveline Roc <yroc@legroupemaurice.com>; Paul LeBlanc <p.leblanc@novatech-eng.com>
Subject: 1440 Blair Towers Place - Request for WM boundary conditions (123198)

Hi Kelsey,

We are sending this e-mail to request municipal watermain boundary conditions as part of the due diligence phase related to the proposed 2-tower residential development at 1440 Blair Towers Place. The preliminary anticipated water demands for the proposed development (incl. both towers) are as follows:

- Average Day Demand = 2.2 L/s
- Maximum Day Demand = 5.4 L/s
- Peak Hour Demand = 11.8 L/s
- FUS Fire Flow = 183 L/s

Also attached is a sketch showing the general watermain alignment and servicing configuration for the proposed development, as generally discussed during our pre-consultation meeting on Dec. 14, 2023. Since the domestic water demands are greater than 50m³/day, twin services will be required to provide the necessary redundancy per City standards. The building services will be fed off the realigned 200mm dia. private watermain on the west side of the towers.

Due to the time constraints of the due diligence period, we ask that this request be processed in a timely manner, so that we have enough time to review. Please let us know if you require any additional information.

Regards,

François Thauvette, P. Eng., Sr. Project Manager | Land Development & Public-Sector Engineering

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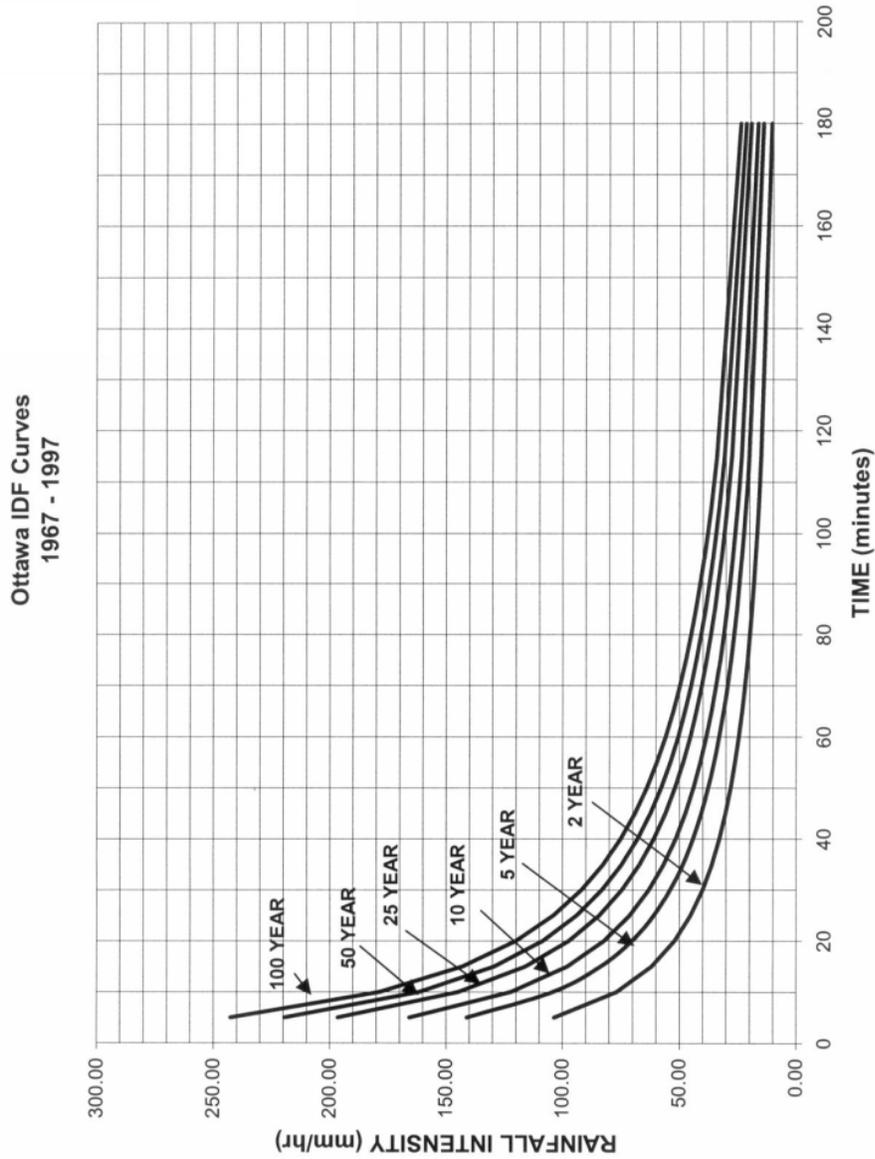
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Appendix D

City of Ottawa IDF Curves and Preliminary SWM Calculations

APPENDIX 5-A

OTTAWA INTENSITY DURATION FREQUENCY (IDF) CURVE



Proposed Multi-Storey Retirement Residence 1440 Blair Towers Place

Pre - Development Stormwater Flows											
Description	Area (ha)	A _{imperv} (ha) C=0.9	A _{gravel} (ha) C=0.6	A _{pervious} (ha) C=0.2	Weighted C _{w5}	Weighted C _{w100}	2-Year Flow (L/s)	5-Year Flow (L/s)	100-Year Flow (L/s)	Allowable C _{w5}	Allowable Flow 5-Year (L/s)
Subject Site (Excl. Parkland block)	0.971	0.230	0.000	0.741	0.37	0.43	75.9	102.9	206.2	0.35	98.4
Dedicated City Parkland	0.134	0.012	0.000	0.123	0.26	0.31	7.4	10.1	20.9		13.6
Total Area to be redeveloped	1.105	0.242	0.000	0.863	0.35	0.41	83.3	113.0	227.2		112.0

T_c = 10mins

Post - Development Stormwater Flows -Subject Site																
Area	Description	Area (ha)	A _{imp} (ha) C=0.9	A _{perv} (ha) C=0.2	C ₅	C ₁₀₀	Uncontrolled Flow (L/s)			Controlled Flow (L/s)			Storage Required (m ³)			
							2-year	5-year	100-year	2-year	5-year	100-year	2-year	5-year	100-year	
A-0	Direct Runoff from Site	0.120	0.020	0.100	0.32	0.38	8.1	11.0	22.3							
A-1	Controlled Site Flows (Internal SWM Storage)	0.520	0.353	0.168	0.67	0.76				40.0	40.0	40.0	20.9	37.3	110.8	
A-2	Controlled Building Roof Flow	0.331	0.331	0.000	0.90	1.00				14.9	16.6	20.0	33.8	50.7	117.9	
Totals :		0.971	-	-	-	-	8.1	11.0	22.3	54.9	56.6	60.0	54.7	88.0	228.7	
Total On-Site Stormwater Flows -Subject Site :							63.0	67.6	82.3							

T_c = 10mins 16.2 Overcontrolled

Post - Development Stormwater Flows -Parkland Block															
Area	Description	Area (ha)	A _{imp} (ha) C=0.9	A _{perv} (ha) C=0.2	C ₅	C ₁₀₀	Uncontrolled Flow (L/s)			Controlled Flow (L/s)			Storage Required (m ³)		
							2-year	5-year	100-year	2-year	5-year	100-year	2-year	5-year	100-year
PK-0	Direct Runoff from City Parkland	0.033	0.000	0.033	0.20	0.25	1.4	1.9	4.1						
PK-1	Controlled Flow within City Parkland	0.101	0.000	0.101	0.20	0.25				7.6	8.5	9.4	0.6	1.1	4.8
Totals :		0.134	-	-	-	-	1.4	1.9	4.1	7.6	8.5	9.4	0.6	1.1	4.8
Total On-Site Stormwater Flows -Parkland Block :							9.0	10.4	13.5						
Total On-Site Stormwater Flows :							72.0	78.0	95.8						

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Uncontrolled Runoff - 1:2 YEAR EVENT
 AREA A-0 Direct Runoff from Site

OTTAWA IDF CURVE
 Area = 0.120 ha Qallow = 8.1 L/s
 C = 0.32 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	103.57	10.94	2.83	0.85
10	76.81	8.11	0.00	0.00
15	61.77	6.53	-1.59	-1.43
20	52.03	5.50	-2.62	-3.14
25	45.17	4.77	-3.34	-5.01
30	40.04	4.23	-3.88	-6.99
35	36.06	3.81	-4.30	-9.04
40	32.86	3.47	-4.64	-11.14
45	30.24	3.19	-4.92	-13.28
50	28.04	2.96	-5.15	-15.45
55	26.17	2.76	-5.35	-17.65
60	24.56	2.59	-5.52	-19.87
65	23.15	8.32	-16.02	24.34
70	21.91	2.31	-5.80	-24.36
75	20.81	2.20	-5.91	-26.62
90	18.14	1.92	-6.20	-33.46
105	16.13	1.70	-6.41	-40.38
120	14.56	17.61	9.50	68.39
135	13.30	1.40	-6.71	-54.34
150	12.25	1.29	-6.82	-61.37

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Uncontrolled Runoff - 1:5 YEAR EVENT
 AREA A-0 Direct Runoff from Site

OTTAWA IDF CURVE
 Area = 0.120 ha Qallow = 11.0 L/s
 C = 0.32 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	14.91	3.91	1.17
10	104.19	11.01	0.00	0.00
15	83.56	8.83	-2.18	-1.96
20	70.25	7.42	-3.59	-4.30
25	60.90	6.43	-4.57	-6.86
30	53.93	5.70	-5.31	-9.56
35	48.52	5.13	-5.88	-12.35
40	44.18	4.67	-6.34	-15.21
45	40.63	4.29	-6.71	-18.13
50	37.65	3.98	-7.03	-21.09
55	35.12	3.71	-7.30	-24.08
60			-11.01	-39.63
65	31.04	3.28	-7.73	-30.14
70	29.37	3.10	-7.90	-33.20
75	27.89	2.95	-8.06	-36.27
90	24.29	2.57	-8.44	-45.58
105	21.58	2.28	14.91	93.93
120	19.47	2.06	-8.95	-64.44
135	17.76	1.88	-9.13	-73.96
150	16.36	1.73	-9.28	-83.51

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Uncontrolled Runoff - 1:100 YEAR EVENT
 AREA A-0 Direct Runoff from Site

OTTAWA IDF CURVE
 Area = 0.120 ha Qallow = 22.3 L/s
 C = 0.38 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	30.36	8.02	2.41
10	178.56	22.34	0.00	0.00
15	142.89	17.88	-4.46	-4.02
20	119.95	15.01	-7.33	-8.80
25	103.85	12.99	-9.35	-14.02
30	91.87	11.49	-10.85	-19.52
35	82.58	10.33	-12.01	-25.22
40	75.15	9.40	-12.94	-31.05
45	69.05	8.64	-13.70	-36.99
50	63.95	8.00	-14.34	-43.01
55	59.62	7.46	-14.88	-49.10
60	55.89	6.99	-15.35	-55.24
65	52.65	6.59	-15.75	-61.43
70	49.79	6.23	-16.11	-67.66
75	47.26	5.91	-16.43	-73.92
90	41.11	5.14	-17.19	-92.85
105	36.50	4.57	-17.77	-111.96
120	32.89	4.12	-18.22	-131.20
135	30.00	3.75	-18.59	-150.54
150	27.61	3.45	-18.88	-169.95

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Uncontrolled Runoff - 1:100 YR + 20% IDF Increase
 AREA A-0 Direct Runoff from Site

OTTAWA IDF CURVE
 Area = 0.120 ha Qallow = 26.8 L/s
 C = 0.38 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	291.24	36.43	9.63	2.89
10	214.27	26.81	0.00	0.00
15	171.47	21.45	-5.35	-4.82
20	143.94	18.01	-8.80	-10.56
25	124.62	15.59	-11.22	-16.82
30	110.24	13.79	-13.01	-23.43
35	99.09	12.40	-14.41	-30.26
40	90.17	11.28	-15.52	-37.26
45	82.86	10.37	-16.44	-44.39
50	76.74	9.60	-17.20	-51.61
55	71.55	8.95	-17.85	-58.92
60	67.07	8.39	-18.41	-66.29
65	63.18	7.90	-18.90	-73.72
70	59.75	7.47	-19.33	-81.19
75	56.71	7.09	-19.71	-88.70
90	49.33	6.17	-20.63	-111.42
105	43.80	5.48	-21.33	-134.36
120	39.47	4.94	-21.87	-157.44
135	36.00	4.50	-22.30	-180.65
150	33.13	4.14	-22.66	-203.94

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Required Storage - 1:2 YEAR EVENT
AREA A-1 Controlled Site Flows (Internal SWM Storage)

OTTAWA IDF CURVE
 Area = 0.520 ha Qallow = 40.0 L/s
 C = 0.67 Vol(max) = 20.9 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	103.57	101.01	61.01	18.30
10	76.81	74.91	34.91	20.95
15	61.77	60.24	20.24	18.22
20	52.03	50.75	10.75	12.90
25	45.17	44.05	4.05	6.08
30	40.04	39.05	-0.95	-1.70
35	36.06	35.17	-4.83	-10.15
40	32.86	32.05	-7.95	-19.07
45	30.24	29.49	-10.51	-28.37
50	28.04	27.35	-12.65	-37.95
55	26.17	25.52	-14.48	-47.77
60	24.56	23.95	-16.05	-57.78
65	23.15	22.58	-17.42	-67.94
70	21.91	21.37	-18.63	-78.24
75	20.81	20.30	-19.70	-88.65
80	19.83	19.34	-20.66	-99.17
85	18.94	18.48	-21.52	-109.77
90	18.14	17.69	-22.31	-120.45
95	17.41	16.98	-23.02	-131.19
100	16.75	16.33	-23.67	-142.00

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Required Storage- 1:5 YEAR EVENT
AREA A-1 Controlled Site Flows (Internal SWM Storage)

OTTAWA IDF CURVE
 Area = 0.520 ha Qallow = 40.0 L/s
 C = 0.67 Vol(max) = 37.3 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	137.69	97.69	29.31
10	104.19	101.62	61.62	36.97
15	83.56	81.49	41.49	37.34
20	70.25	68.52	28.52	34.22
25	60.90	59.39	19.39	29.09
30	53.93	52.60	12.60	22.67
35	48.52	47.32	7.32	15.37
40	44.18	43.09	3.09	7.42
45	40.63	39.63	-0.37	-1.01
50	37.65	36.72	-3.28	-9.83
55	35.12	34.26	-5.74	-18.95
60	32.94	32.13	-7.87	-28.33
65	31.04	30.28	-9.72	-37.92
70	29.37	28.65	-11.35	-47.68
75	27.89	27.20	-12.80	-57.60
80	26.56	25.91	-14.09	-67.65
85	25.37	24.74	-15.26	-77.82
90	24.29	23.69	-16.31	-88.08
95	23.31	22.73	-17.27	-98.44
100	22.41	21.85	-18.15	-108.88

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Required Storage - 1:100 YEAR EVENT
AREA A-1 Controlled Site Flows (Internal SWM Storage)

OTTAWA IDF CURVE
 Area = 0.520 ha Qallow = 40.0 L/s
 C = 0.76 Vol(max) = 110.8 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	266.16	226.16	67.85
10	178.56	195.82	155.82	93.49
15	142.89	156.70	116.70	105.03
20	119.95	131.54	91.54	109.85
25	103.85	113.88	73.88	110.82
30	91.87	100.75	60.75	109.34
35	82.58	90.56	50.56	106.17
40	75.15	82.41	42.41	101.78
45	69.05	75.72	35.72	96.45
50	63.95	70.13	30.13	90.40
55	59.62	65.39	25.39	83.77
60	55.89	61.30	21.30	76.67
65	52.65	57.73	17.73	69.16
70	49.79	54.60	14.60	61.33
75	47.26	51.82	11.82	53.20
80	44.99	49.34	9.34	44.83
85	42.95	47.11	7.11	36.24
90	41.11	45.08	5.08	27.45
95	39.43	43.25	3.25	18.50
100	37.90	41.57	1.57	9.40

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Required Storage - 1:100 YR + 20% IDF Increase
AREA A-1 Controlled Site Flows (Internal SWM Storage)

OTTAWA IDF CURVE
 Area = 0.520 ha Qallow = 40.0 L/s
 C = 0.76 Vol(max) = 145.6 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	291.24	319.39	279.39	83.82
10	214.27	234.98	194.98	116.99
15	171.47	188.04	148.04	133.24
20	143.94	157.85	117.85	141.42
25	124.62	136.66	96.66	144.99
30	110.24	120.90	80.90	145.61
35	99.09	108.67	68.67	144.21
40	90.17	98.89	58.89	141.33
45	82.86	90.87	50.87	137.34
50	76.74	84.16	44.16	132.48
55	71.55	78.46	38.46	126.93
60	67.07	73.56	33.56	120.80
65	63.18	69.28	29.28	114.20
70	59.75	65.52	25.52	107.19
75	56.71	62.19	22.19	99.84
80	53.99	59.21	19.21	92.19
85	51.54	56.53	16.53	84.28
90	49.33	54.10	14.10	76.14
95	47.32	51.89	11.89	67.80
100	45.48	49.88	9.88	59.28

Proposed Multi-Storey Retirement Residence					
Novatech Project No. 123198					
REQUIRED STORAGE - 1:2 YEAR EVENT					
AREA A-2		Controlled Roof Drains			
OTTAWA IDF CURVE					
Area =	0.331	ha	Qallow =	14.91	L/s
C =	0.90		Vol(max) =	33.8	m3
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)	
5	103.57	85.67	70.76	21.23	
10	76.81	63.53	48.62	29.17	
15	61.77	51.09	36.18	32.56	
20	52.03	43.04	28.13	33.75	
25	45.17	37.36	22.45	33.68	
30	40.04	33.12	18.21	32.78	
35	36.06	29.83	14.92	31.33	
40	32.86	27.18	12.27	29.46	
45	30.24	25.01	10.10	27.28	
50	28.04	23.19	8.28	24.85	
55	26.17	21.65	6.74	22.23	
60	24.56	20.31	5.40	19.45	
65	23.15	19.15	4.24	16.53	
70	21.91	18.13	3.22	13.50	
75	20.81	17.22	2.31	10.38	
80	19.83	16.40	1.49	7.16	
85	18.94	15.67	0.76	3.88	
90	18.14	15.01	0.10	0.52	

Proposed Multi-Storey Retirement Residence					
Novatech Project No. 123198					
REQUIRED STORAGE - 1:5 YEAR EVENT					
AREA A-2		Controlled Roof Drains			
OTTAWA IDF CURVE					
Area =	0.331	ha	Qallow =	16.59	L/s
C =	0.90		Vol(max) =	50.7	m3
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)	
5	141.18	116.78	100.19	30.06	
10	104.19	86.18	69.59	41.76	
15	83.56	69.12	52.53	47.27	
20	70.25	58.11	41.52	49.82	
25	60.90	50.37	33.78	50.67	
30	53.93	44.61	28.02	50.43	
35	48.52	40.13	23.54	49.44	
40	44.18	36.55	19.96	47.90	
45	40.63	33.61	17.02	45.94	
50	37.65	31.15	14.56	43.67	
55	35.12	29.05	12.46	41.13	
60	32.94	27.25	10.66	38.37	
65	31.04	25.68	9.09	35.44	
70	29.37	24.30	7.71	32.36	
75	27.89	23.07	6.48	29.15	
80	26.56	21.97	5.38	25.83	
85	25.37	20.98	4.39	22.41	
90	24.29	20.09	3.50	18.90	

Proposed Multi-Storey Retirement Residence					
Novatech Project No. 123198					
REQUIRED STORAGE - 1:100 YEAR EVENT					
AREA A-2		Controlled Roof Drains			
OTTAWA IDF CURVE					
Area =	0.331	ha	Qallow =	19.95	L/s
C =	1.00		Vol(max) =	117.9	m3
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)	
5	242.70	223.06	203.11	60.93	
10	178.56	164.11	144.16	86.49	
15	142.89	131.33	111.38	100.24	
20	119.95	110.24	90.29	108.35	
25	103.85	95.44	75.49	113.24	
30	91.87	84.43	64.48	116.07	
35	82.58	75.90	55.95	117.49	
40	75.15	69.06	49.11	117.87	
45	69.05	63.46	43.51	117.48	
50	63.95	58.78	38.83	116.48	
55	59.62	54.80	34.85	115.00	
60	55.89	51.37	31.42	113.12	
65	52.65	48.39	28.44	110.90	
70	49.79	45.76	25.81	108.40	
75	47.26	43.43	23.48	105.66	
80	44.99	41.35	21.40	102.72	
85	42.95	39.48	19.53	99.59	
90	41.11	37.78	17.83	96.30	

Proposed Multi-Storey Retirement Residence					
Novatech Project No. 123198					
REQUIRED STORAGE - 1:100 YEAR + 20%					
AREA A-2		Controlled Roof Drains			
OTTAWA IDF CURVE					
Area =	0.331	ha	Qallow =	19.95	L/s
C =	1.00		Vol(max) =	151.8	m3
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)	
5	291.24	267.67	247.72	74.32	
10	214.27	196.93	176.98	106.19	
15	171.47	157.60	137.65	123.88	
20	143.94	132.29	112.34	134.81	
25	124.62	114.53	94.58	141.87	
30	110.24	101.32	81.37	146.47	
35	99.09	91.07	71.12	149.36	
40	90.17	82.88	62.93	151.02	
45	82.86	76.15	56.20	151.75	
50	76.74	70.53	50.58	151.75	
55	71.55	65.76	45.81	151.17	
60	67.07	61.65	41.70	150.10	
65	63.18	58.06	38.11	148.64	
70	59.75	54.91	34.96	146.84	
75	56.71	52.12	32.17	144.75	
80	53.99	49.62	29.67	142.41	
85	51.54	47.37	27.42	139.86	
90	49.33	45.34	25.39	137.11	

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Uncontrolled Runoff - 1:2 YEAR EVENT

AREA PK-1 Direct Runoff from City Parkland

OTTAWA IDF CURVE
 Area = 0.033 ha Qallow = 1.4 L/s
 C = 0.20 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	103.57	1.90	0.49	0.15
10	76.81	1.41	0.00	0.00
15	61.77	1.13	-0.28	-0.25
20	52.03	0.95	-0.45	-0.55
25	45.17	0.83	-0.58	-0.87
30	40.04	0.73	-0.67	-1.21
35	36.06	0.66	-0.75	-1.57
40	32.86	0.60	-0.81	-1.93
45	30.24	0.55	-0.85	-2.31
50	28.04	0.51	-0.89	-2.68
55	26.17	0.48	-0.93	-3.07
60	24.56	0.45	-0.96	-3.45
65	23.15	0.42	-0.98	-3.84
70	21.91	0.40	-1.01	-4.23
75	20.81	0.38	-1.03	-4.62
80	19.83	0.36	-1.05	-5.02
85	18.94	0.35	-1.06	-5.41
90	18.14	0.33	-1.08	-5.81
95	17.41	0.32	-1.09	-6.21
100	16.75	0.31	-1.10	-6.61

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Uncontrolled Runoff - 1:5 YEAR EVENT

AREA PK-1 Direct Runoff from City Parkland

OTTAWA IDF CURVE
 Area = 0.033 ha Qallow = 1.9 L/s
 C = 0.20 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	2.59	0.68	0.20
10	104.19	1.91	0.00	0.00
15	83.56	1.53	-0.38	-0.34
20	70.25	1.29	-0.62	-0.75
25	60.90	1.12	-0.79	-1.19
30	53.93	0.99	-0.92	-1.66
35	48.52	0.89	-1.02	-2.15
40	44.18	0.81	-1.10	-2.64
45	40.63	0.75	-1.17	-3.15
50	37.65	0.69	-1.22	-3.66
55	35.12	0.64	-1.27	-4.18
60	32.94	0.60	-1.31	-4.71
65	31.04	0.57	-1.34	-5.23
70	29.37	0.54	-1.37	-5.77
75	27.89	0.51	-1.40	-6.30
80	26.56	0.49	-1.42	-6.84
85	25.37	0.47	-1.45	-7.38
90	24.29	0.45	-1.47	-7.92
95	23.31	0.43	-1.48	-8.46
100	22.41	0.41	-1.50	-9.00

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Uncontrolled Runoff - 1:100 YEAR EVENT

AREA PK-1 Direct Runoff from City Parkland

OTTAWA IDF CURVE
 Area = 0.033 ha Qallow = 4.1 L/s
 C = 0.25 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	5.57	1.47	0.44
10	178.56	4.10	0.00	0.00
15	142.89	3.28	-0.82	-0.74
20	119.95	2.75	-1.34	-1.61
25	103.85	2.38	-1.71	-2.57
30	91.87	2.11	-1.99	-3.58
35	82.58	1.89	-2.20	-4.62
40	75.15	1.72	-2.37	-5.69
45	69.05	1.58	-2.51	-6.78
50	63.95	1.47	-2.63	-7.89
55	59.62	1.37	-2.73	-9.00
60	55.89	1.28	-2.81	-10.13
65	52.65	1.21	-2.89	-11.26
70	49.79	1.14	-2.95	-12.40
75	47.26	1.08	-3.01	-13.55
80	44.99	1.03	-3.06	-14.70
85	42.95	0.99	-3.11	-15.86
90	41.11	0.94	-3.15	-17.02
95	39.43	0.90	-3.19	-18.19
100	37.90	0.87	-3.23	-19.36

Proposed Multi-Storey Retirement Residence
 Novatech Project No. 123198
 Uncontrolled Runoff - 1:100 YR + 20% IDF Increase

AREA PK-1 Direct Runoff from City Parkland

OTTAWA IDF CURVE
 Area = 0.033 ha Qallow = 4.9 L/s
 C = 0.25 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	291.24	6.68	1.77	0.53
10	214.27	4.91	0.00	0.00
15	171.47	3.93	-0.98	-0.88
20	143.94	3.30	-1.61	-1.94
25	124.62	2.86	-2.06	-3.08
30	110.24	2.53	-2.39	-4.29
35	99.09	2.27	-2.64	-5.55
40	90.17	2.07	-2.85	-6.83
45	82.86	1.90	-3.01	-8.14
50	76.74	1.76	-3.15	-9.46
55	71.55	1.64	-3.27	-10.80
60	67.07	1.54	-3.38	-12.15
65	63.18	1.45	-3.47	-13.51
70	59.75	1.37	-3.54	-14.88
75	56.71	1.30	-3.61	-16.26
80	53.99	1.24	-3.68	-17.65
85	51.54	1.18	-3.73	-19.03
90	49.33	1.13	-3.78	-20.43
95	47.32	1.09	-3.83	-21.83
100	45.48	1.04	-3.87	-23.23

Proposed Multi-Storey Retirement R Storage Calculations Using Average
 Novatech Project No. 123198 Release Rate Equal to 50% of the Qpeak
REQUIRED STORAGE - 1:2 YEAR EVENT
AREA PK-2 Controlled Flow within City Parkland

OTTAWA IDF CURVE Qpeak = 7.6 L/s
 Area = 0.101 ha Qavg = 3.8 L/s
 C = 0.20 Vol(max) = 0.6 m3
 (Vol calculated for Qallow-avg)

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	103.57	5.82	2.02	0.60
10	76.81	4.31	0.51	0.31
15	61.77	3.47	-0.33	-0.30
20	52.03	2.92	-0.88	-1.05
25	45.17	2.54	-1.26	-1.90
30	40.04	2.25	-1.55	-2.79
35	36.06	2.02	-1.78	-3.73
40	32.86	1.85	-1.95	-4.69
45	30.24	1.70	-2.10	-5.68
50	28.04	1.57	-2.23	-6.68
55	26.17	1.47	-2.33	-7.69
60	24.56	1.38	-2.42	-8.72
65	23.15	1.30	-2.50	-9.75
70	21.91	1.23	-2.57	-10.79
75	20.81	1.17	-2.63	-11.84
80	19.83	1.11	-2.69	-12.89
85	18.94	1.06	-2.74	-13.95
90	18.14	1.02	-2.78	-15.02
95	17.41	0.98	-2.82	-16.09
100	16.75	0.94	-2.86	-17.16

Proposed Multi-Storey Retirement R Storage Calculations Using Average
 Novatech Project No. 123198 Release Rate Equal to 50% of the Qpeak
REQUIRED STORAGE - 1:5 YEAR EVENT
AREA PK-2 Controlled Flow within City Parkland

OTTAWA IDF CURVE Qpeak = 8.5 L/s
 Area = 0.101 ha Qavg = 4.3 L/s
 C = 0.20 Vol(max) = 1.1 m3
 (Vol calculated for Qallow-avg)

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	7.93	3.68	1.10
10	104.19	5.85	1.60	0.96
15	83.56	4.69	0.44	0.40
20	70.25	3.95	-0.30	-0.37
25	60.90	3.42	-0.83	-1.25
30	53.93	3.03	-1.22	-2.20
35	48.52	2.72	-1.53	-3.20
40	44.18	2.48	-1.77	-4.25
45	40.63	2.28	-1.97	-5.31
50	37.65	2.11	-2.14	-6.41
55	35.12	1.97	-2.28	-7.52
60	32.94	1.85	-2.40	-8.64
65	31.04	1.74	-2.51	-9.78
70	29.37	1.65	-2.60	-10.92
75	27.89	1.57	-2.68	-12.08
80	26.56	1.49	-2.76	-13.24
85	25.37	1.42	-2.83	-14.41
90	24.29	1.36	-2.89	-15.58
95	23.31	1.31	-2.94	-16.77
100	22.41	1.26	-2.99	-17.95

Proposed Multi-Storey Retirement R Storage Calculations Using Average
 Novatech Project No. 123198 Release Rate Equal to 50% of the Qpeak
REQUIRED STORAGE - 1:100 YEAR EVENT
AREA PK-2 Controlled Flow within City Parkland

OTTAWA IDF CURVE Qpeak = 9.4 L/s
 Area = 0.101 ha Qavg = 4.7 L/s
 C = 0.25 Vol(max) = 4.8 m3
 (Vol calculated for Qallow-avg)

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	17.04	12.34	3.70
10	178.56	12.53	7.83	4.70
15	142.89	10.03	5.33	4.80
20	119.95	8.42	3.72	4.46
25	103.85	7.29	2.59	3.88
30	91.87	6.45	1.75	3.15
35	82.58	5.80	1.10	2.30
40	75.15	5.27	0.57	1.38
45	69.05	4.85	0.15	0.40
50	63.95	4.49	-0.21	-0.63
55	59.62	4.19	-0.51	-1.70
60	55.89	3.92	-0.78	-2.80
65	52.65	3.70	-1.00	-3.92
70	49.79	3.49	-1.21	-5.06
75	47.26	3.32	-1.38	-6.22
80	44.99	3.16	-1.54	-7.40
85	42.95	3.02	-1.68	-8.59
90	41.11	2.89	-1.81	-9.80
95	39.43	2.77	-1.93	-11.01
100	37.90	2.66	-2.04	-12.24

Proposed Multi-Storey Retirement R Storage Calculations Using Average
 Novatech Project No. 123198 Release Rate Equal to 50% of the Qpeak
REQUIRED STORAGE - 1:100 YR + 20% IDF Increase
AREA PK-2 Controlled Flow within City Parkland

OTTAWA IDF CURVE Qpeak = 8.2 L/s
 Area = 0.101 ha Qavg = 4.1 L/s
 C = 0.25 Vol(max) = 7.2 m3
 (Vol calculated for Qallow-avg)

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	291.24	20.44	16.34	4.90
10	214.27	15.04	10.94	6.56
15	171.47	12.04	7.94	7.14
20	143.94	10.10	6.00	7.20
25	124.62	8.75	4.65	6.97
30	110.24	7.74	3.64	6.55
35	99.09	6.96	2.86	6.00
40	90.17	6.33	2.23	5.35
45	82.86	5.82	1.72	4.63
50	76.74	5.39	1.29	3.86
55	71.55	5.02	0.92	3.04
60	67.07	4.71	0.61	2.19
65	63.18	4.43	0.33	1.31
70	59.75	4.19	0.09	0.39
75	56.71	3.98	-0.12	-0.54
80	53.99	3.79	-0.31	-1.49
85	51.54	3.62	-0.48	-2.46
90	49.33	3.46	-0.64	-3.44
95	47.32	3.32	-0.78	-4.44
100	45.48	3.19	-0.91	-5.44