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39 Years

PROPOSED SIX STOREY MIXED-USE DEVELOPMENT
627 Kirkwood Avenue

Assessment of Adequacy of Public Services Report

PROPOSED SIX STOREY MIXED-USE DEVELOPMENT
627 KIRKWOOD AVENUE

ASSESSMENT OF ADEQUACY OF PUBLIC SERVICES REPORT

Prepared by:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Kanata, Ontario
K2M 1P6

February 21, 2025
Revised May 23, 2025

Ref: R-2024-137
Novatech File No. 124151

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May 23, 2025

Konson Homes Inc.
361 Churchill Avenue,
Ottawa, Ontario
K1Z 5C4

Attention: Mr. Jimmy Wang

Re: Assessment of Adequacy of Public Services Report
Proposed 6-Storey Mixed-Use Development
627 Kirkwood Avenue, Ottawa, ON
Novatech File No.: 124151

Enclosed is a copy of the 'Assessment of Adequacy of Public Services Report' for the proposed 6-Storey mixed-use development located at 627 Kirkwood Avenue in the City of Ottawa. The purpose of this report is to prove that the proposed development can be serviced by the existing municipal infrastructure next 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: Brett Hughes (City of Ottawa)
Toon Dreessen (Architects DCA)

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 Fax: 613.254.5867 www.novatech-eng.com

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF APPENDICES

1.0 INTRODUCTION

Novatech has been retained by Konson Homes Inc. to assess the adequacy of the existing public services related to the proposed development of the 627 Kirkwood Avenue property. The purpose of this report is to demonstrate that the proposed development can be serviced by the existing municipal infrastructure. This report is being submitted in support of a Zoning By-Law Amendment application.

1.1 Location and Site Description

The 0.22-hectare site to be developed currently consists of a vacant lot located on the east side of Kirkwood Avenue, which is bordered by other residential properties to the north, east, and south. The legal description of the site is designated as Part 1 Plan of Part of Lot 10, Registered Plan 152, City of Ottawa.

Figure 1: Aerial View of the Subject Site

Image Source: geoOttawa (City of Ottawa)

1.2 Pre-Consultation Information

An initial pre-consultation meeting was held with the City of Ottawa on September 12, 2024, at which time the client was advised of the general submission requirements. Refer to **Appendix A** for a summary of the correspondence related to the proposed development.

1.3 Proposed Development

The proposed development will consist of a 6-storey mixed-use building with outdoor amenity space and associated underground parking. The development will include a single site entrance off Kirkwood Avenue.

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 and 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.

2.1 Sanitary Servicing

The previous building was serviced by the local 225mm dia. sewer in Kirkwood Avenue. The local sanitary sewer flows north along Kirkwood Avenue and ultimately discharges into the 1500mm dia. West Nepean Collector sewer, west of Island Park Drive. Under post-development conditions, the proposed development will continue to be serviced by the local sanitary sewer in Kirkwood Avenue. A backflow preventor will be required per OBC and Ottawa Sewer Design Guidelines to ensure the proposed building is protected from any potential backflow from the municipal sanitary sewer system. Based on criteria in Section 4 of the City of Ottawa Sewer Design Guidelines, the total theoretical peak sanitary flow from the proposed development will be approximately 1.45 L/s, including infiltration. Refer to the table below for a summary of the preliminary post-development sanitary sewage flows and to **Appendix B** for detailed calculations.

Proposed Development	Unit Count	Design Population / Area	Average Flow (L/s) *	Peaking Factor	Sanitary Peak Flow (L/s) *
1-Bdrm / 2-Bdrm	60 / 16	118	0.38	3.58	1.37
Commercial	-	225 m²	<0.01	1.5	0.01
Infiltration Allowance	-	0.222 ha.	-	-	0.07
Total	**76**	**-**	**0.39**	**-**	**1.45**

*Represents rounded values

The existing 225mm dia. concrete sanitary sewer in Kirkwood Avenue is approximately 2.85m deep, with an invert elevation of 75.9+/-. The roadway elevation is approximately 79.0+/- at the anticipated service connection location. Despite an increase in the theoretical sewage flow from the site, the City has confirmed they have no concerns the 225mm dia. sanitary will have adequate capacity to accommodate the proposed development. Refer to **Appendix B** for a copy of e-mail correspondence from the City of Ottawa and to **Figure 2** showing the existing sanitary sewer infrastructure and conceptual servicing layout.

Figure 2: Conceptual Sanitary Servicing Layout

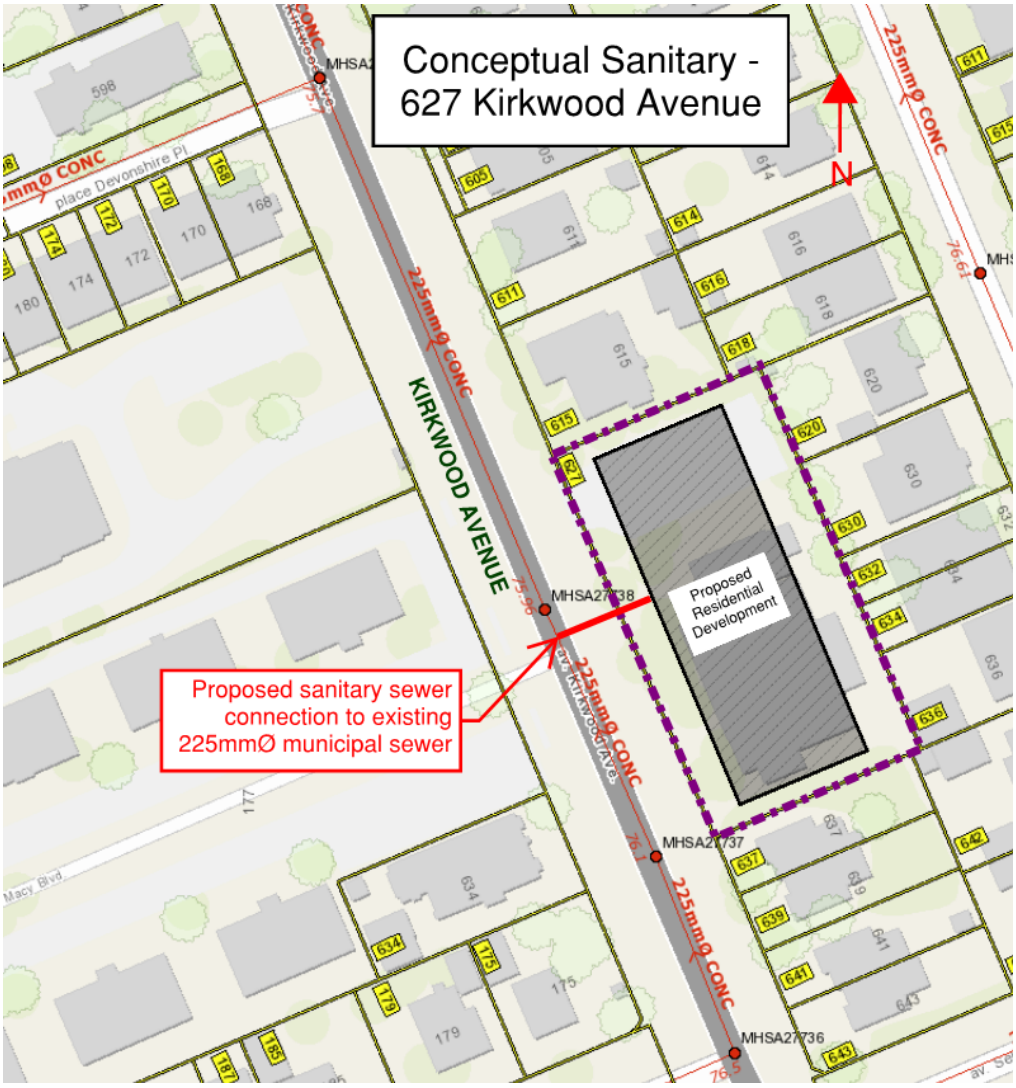

Image Source: geoOttawa (City of Ottawa)

The sanitary sewage calculations and servicing design will be refined as part of the 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 1W pressure zone. The previous building was serviced by the local 200mm dia. PVC watermain in Kirkwood Avenue. Under post-development conditions, the proposed site will continue to be serviced by the 200mm dia. watermain in Kirkwood Avenue via water service connection(s). If twin services are necessary, then a new isolation valve will be required between the service laterals. As discussed with the City of Ottawa, the water servicing configuration will be determined at the Site Plan Control application stage. Refer to **Figure 3** showing the existing watermain infrastructure and conceptual servicing layout.

Figure 3: Conceptual Water Servicing Layout

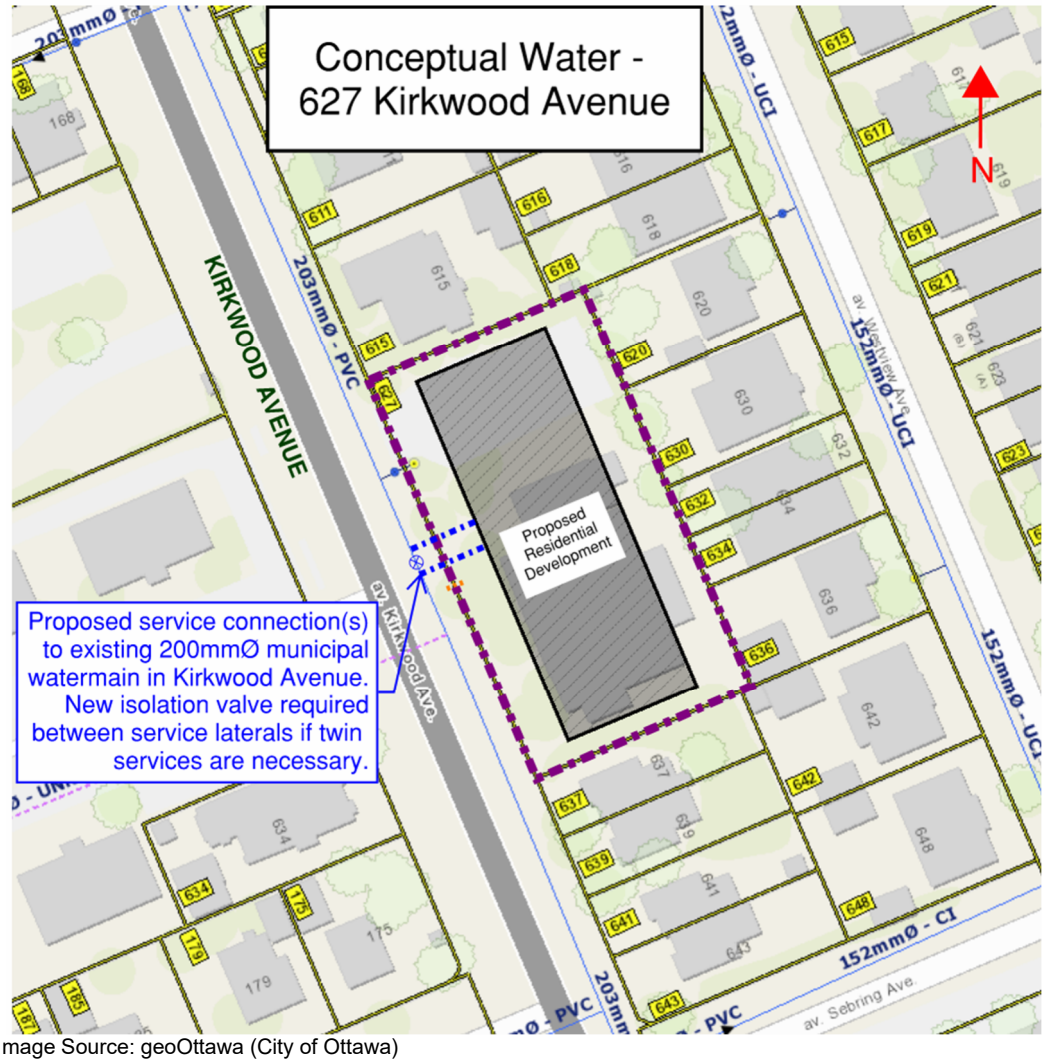

Image Source: geoOttawa (City of Ottawa)

Preliminary water demand and fire flow calculations have been prepared for the proposed development based on criteria in Section 4 of the City of Ottawa Design Guidelines for Water Distribution Systems. The fire flows are calculated using the Fire Underwriters Survey (FUS) method, based on general building assumptions, including building footprint, construction materials and a fully sprinklered building. Refer to the table below for a summary of the water demands and fire flows and to **Appendix C** for detailed calculations.

Proposed Development	Unit Count	Design Population/Area	Avg. Daily Demand (L/s)	Max. Daily Demand (L/s)*	Peak Hour Demand (L/s)*
Studio / 1-2 Bedroom	76	118	0.38	0.96	2.10
Commercial	-	225 m²	< 0.01	0.01	0.02
Total	**76**	**-**	**0.39**	**0.97**	**2.12**

*Represents rounded values

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

The following table summarizes preliminary hydraulic analysis results based on municipal watermain boundary conditions provided by the City as indicated in the correspondence from the City of Ottawa.

Municipal Watermain Boundary Condition	Boundary Condition Head of Water (m)	Normal Operating Pressure Range (psi)	Anticipated WM Pressure (psi)*
Connection to 200mm dia. WM in Kirkwood Avenue			
Minimum HGL (Peak Hour Demand)	108.5 m	40 psi (min.)	~ 45 psi
Maximum HGL (Max Day Demand)	114.5 m	50-70 psi	~ 54 psi
HGL Max Day + Fire Flow (133 L/s)	Not provided (City confirmed Max Fire Flow available @ 20psi= 133L/s)	20 psi (min.)	~ 20 psi

*Based on an approximate roadway elevation of 78.90m in Kirkwood Drive. Design pressure = (HGL – watermain elevation) x 1.42197 PSI/m
**A multi-hydrant approach to firefighting will be necessary.

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 within the normal operating pressure range during the Peak Hour, Max and Max Day + Fire Flow Conditions. Given the height of the proposed tower, it is anticipated that a booster pump(s) will be required to provide adequate water pressure to the upper floors; however, this will be determined by the mechanical consultant as part of the detail design of the building.

A multi-hydrant approach to firefighting will be required to supply the fire flow calculated above. Based on a review of the geoOttawa website, there is one (1) Class AA (blue bonnet) municipal fire hydrant within 75m of the subject site and at least two (3) additional hydrants within 150m of the site. Based on the City of Ottawa Technical Bulletin ISTB-2018-02, Class AA (blue bonnet) hydrants within 75m of the building should provide a capacity 95 L/s each (at a pressure of 20 PSI) while hydrants between 75m and 150m should provide at least 63 L/s (at a pressure of 20 PSI). Based on correspondence from the City of Ottawa, the combined maximum flow from these hydrants can provide approximately 133 L/s at a system pressure of 20 psi. This multi-hydrant approach to firefighting is in accordance with the City of Ottawa Technical Bulletin ISTB-2018-02.

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 Site Plan Control application to the City of Ottawa.

2.3 Storm Drainage and Stormwater Management

Storm drainage from the site is currently being directed towards the local storm sewer in Kirkwood Avenue. The local sewer flows south, discharging into the 1800mm dia. trunk sewer in Carling Avenue. Stormwater then generally flows in a northeast direction and ultimately discharge into the Ottawa River >4km downstream of the subject site, via the Cave Creek Collector Trunk Sewer.

Under post-development conditions, stormwater runoff from the site will continue to be directed to the local 300mm-375mm dia. storm sewer in Kirkwood Avenue and on-site stormwater management will be implemented to meet the requirements of the City of Ottawa. Refer to **Figure 4** showing the existing storm sewer infrastructure and conceptual servicing layout.

Figure 4: Conceptual Storm Servicing Layout

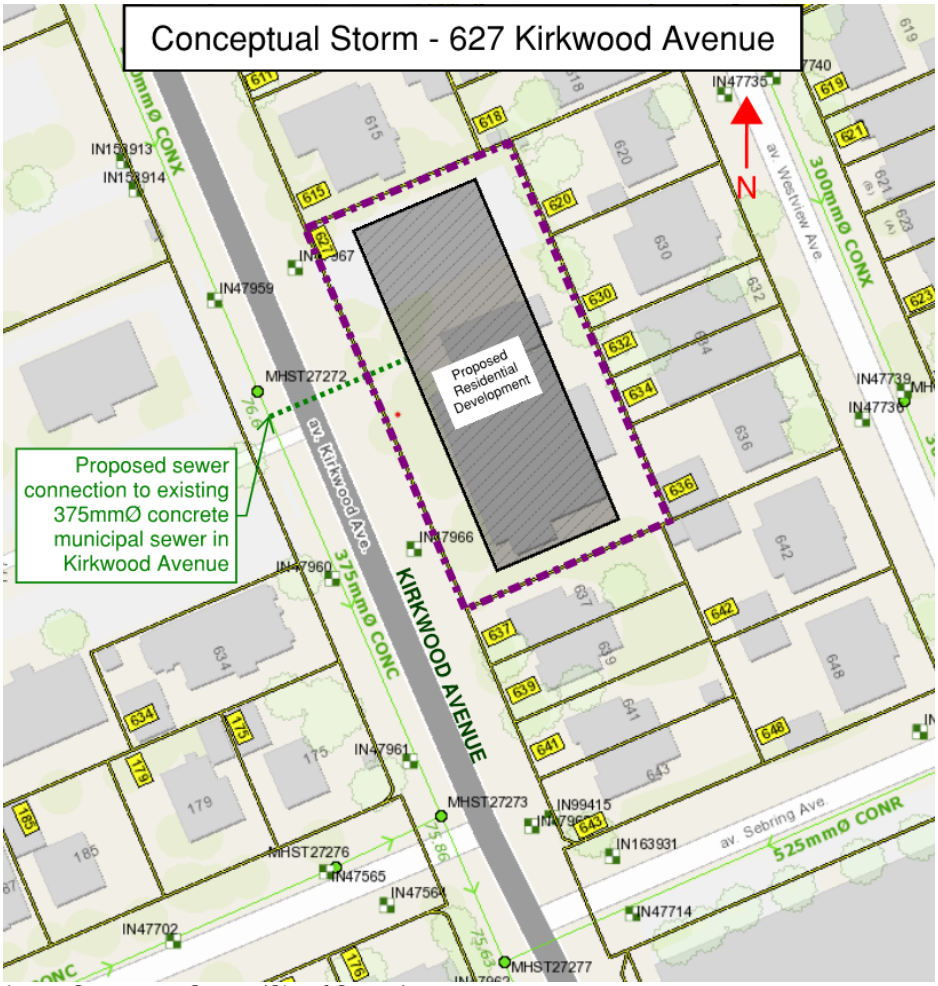

Image Source: geoOttawa (City of Ottawa)

The 375mm dia. storm sewer in Kirkwood Avenue is approximately 2.0 m deep, with an approximate invert elevation of 76.5+/-. The roadway elevation is approximately 79.0m+/- at the proposed service connection location. If a gravity outlet is not possible, post-development stormwater flows from the site will need to be pumped to the municipal outlet sewer, however this will need to be determined at the detailed design stage. A backflow preventor will be required per OBC and Ottawa Sewer Design Guidelines to ensure the proposed building is protected from any potential backflow from the municipal storm sewer system.

On-site stormwater management (SWM) will be required and provided in the form of quantity control measures; however, stormwater quality control measures will not be required due to the fact that on-site parking will be provided underground and that the distance to the stormwater outlet is >4km downstream. The SWM criteria have been provided during a pre-consultation meeting and subsequent discussions with the City of Ottawa. The allowable release rate from the site has been calculated using the Rational Method, with a maximum allowable runoff coefficient equivalent to existing conditions, but in no case greater than C=0.5, a time of concentration of 10 minutes and a 2-year rainfall intensity from City of Ottawa IDF curves. Based on a weighted runoff coefficient (C_w=0.43) and a time of concentration of 10 mins., the allowable release rate for the site was calculated using the Rational Method to be approximately 20.6 L/s. The portion of the total allowable release rate will have to be allotted to the various catchment areas on site, depending on the relative size and imperviousness as well as the potential storage available within the sub-catchment areas. For the purpose of this report (and preliminary calculations), the total site area (0.222 ha) was divided into the following sub-catchment areas with an estimated allotted allowable release rate:

- A-1: Uncontrolled direct runoff (~0.042 ha) – Allotted 100-year release rate = 12.5 L/s
- A-2 & A-3: Controlled Site Flow (~0.180 h) – Allotted 100-year release rate = 8.1 L/s

Refer to **Figure 5** showing the conceptual stormwater management plan and approach to on-site stormwater management.

Figure 5: Conceptual Stormwater Management Plan

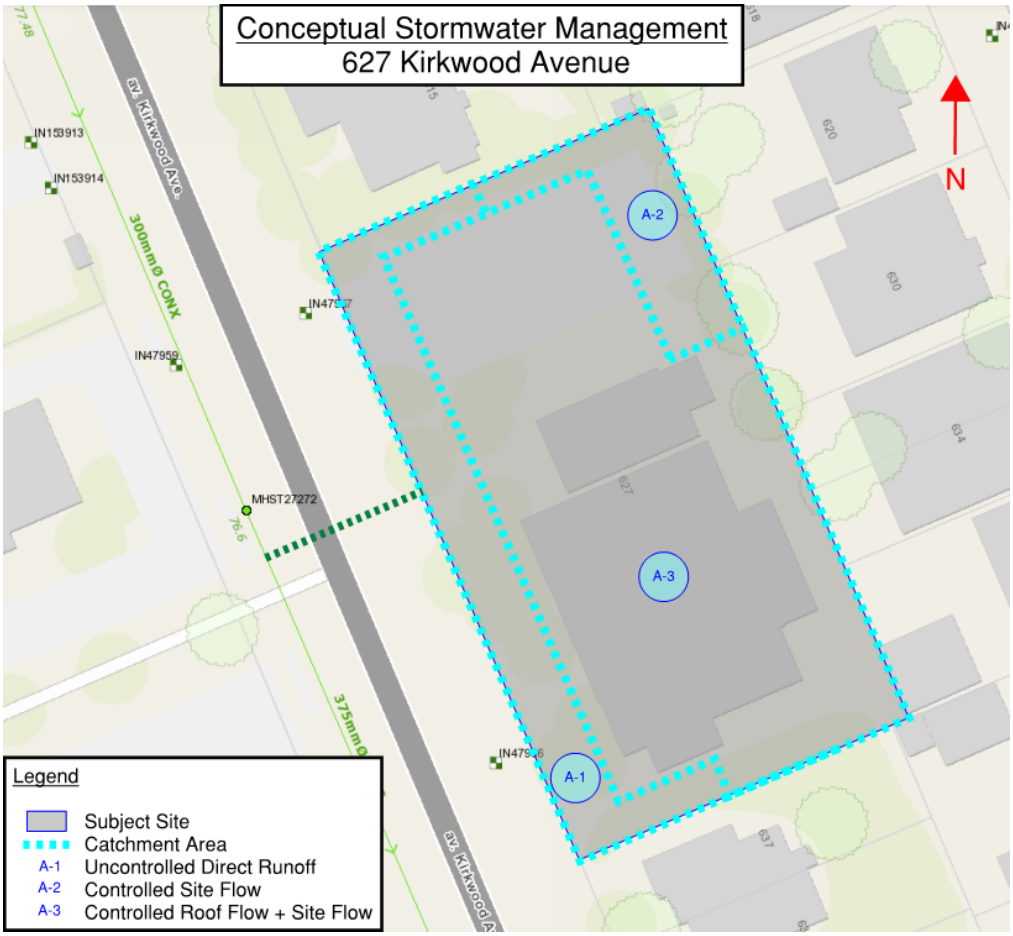

Image Source: geoOttawa (City of Ottawa)

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

Preliminary Stormwater Flow Comparison Table

Design Event	Drainage Areas				
	Pre-Development Conditions		Post-Development Conditions		
	Uncontrolled Flow (L/s)	Allowable Release Rate (L/s)	A-1 Flow (L/s)	A-2 + A-3 Flow (L/s)	Total Flow (L/s)*
5-Yr	28.0	20.6	6.4	8.1	14.5
100-Yr	55.3		12.5	8.1	20.6

*Reduced flow compared to pre-development uncontrolled conditions

It is anticipated that the controlled flows from areas A-2 and A-3 will be directed to an internal SWM storage tank, then pumped out to the existing 375mm dia. storm sewer in Kirkwood Avenue.

The following table summarizes the approximate storage volume requirements for the various sub-catchment areas, based on the allotted release rates.

Preliminary Stormwater Storage Requirements Table

Design Event	Post-Development Storage Volume Requirements		
	A-1 Direct Runoff	A-2 + A-3 Controlled Flows (m^3)	Total Site (m^3)
5-Yr	-	~24	~24
100-Yr	-	~60	~60

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 the Ottawa River. As confirmed by the City of Ottawa, no additional on-site stormwater quality control measures will be required for this development. Rainwater runoff from rooftops and landscaped areas are generally considered clean for the purpose of protecting water quality for aquatic habitat. Furthermore, all on-site parking will be provided underground. Refer to **Appendix D** for a copy of e-mail correspondence from the City of Ottawa.

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

3.0 CONCLUSION

Based on our analysis of the information available, the existing municipal watermain, sanitary and storm sewers should have adequate capacity to service the proposed development. On-site stormwater management will be implemented to meet the requirements of the City of Ottawa and the Rideau Valley Conservation Authority (RVCA). A complete servicing, grading and SWM design will be included as part of the Site Plan Control submission to the City.

NOVATECH

Prepared by:

François Thauvette, P. Eng.
Senior Project Manager

APPENDIX A

Correspondence

File No.: PC2024-0359

September 17, 2024

NOVATECH
C/O Simran Soor
Via email: s.soor@novatech-eng.com

Subject: Pre-Consultation: Meeting Feedback
Proposed Zoning By-Law Amendment Application –
627 Kirkwood Avenue

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on September 12, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐

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

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 2 / Phase 3 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.

2. 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.

3. 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

1. 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.

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Proposed Zoning By-Law Amendment Precon Application – 627 Kirkwood Avenue – PC2024-0359

Legend: **R** = Required, the study or plan is required with application submission
A = Advised, the study or plan is advised to evaluate the application or satisfy a condition of approval/draft approval
1 - OPA, **2** - ZBA, **3** - Plan of Subdivision, **4** - Plan of Condominium, **5** - SPC

Core studies required for certain applications all the time (Remaining studies are site specific)

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

ENGINEERING										
R	**A**	**Study/ Plan Name**	**Description**	**When Required**					**Applicable Study Components & Other Comments**
				1	**2**	**3**	**4**	**5**	
☒	☐	1. Environmental Site Assessment (Phase 1 & Phase 2)	Ensures development only takes place on sites where the environmental conditions are suitable for the proposed use	☒	☒	☒	☒	☒	Record of Site Condition Yes ☒ No ☐ (*if ESA deems it applicable)
				Study Trigger Details: All cases					
☒	☐	2. Geotechnical Study	Geotechnical design requirements for the subsurface conditions	☒	☒	☒	☒	☒	
				Study Trigger Details: All cases					
☐	☐	3. Grading and Drainage Plan	Grading relationships between connecting (or abutting) properties and surface runoff control	☐	☐	☒	☐	☒	
				Study Trigger Details: All cases					
☐	☐	4. Hydrogeological and Terrain Analysis	A scientific study or evaluation that includes a description of the ground and surface hydrology, geology, terrain, affected landform and its susceptibility	☐	☐	☒	☒	☒	Reasonable Use Study Yes ☐ No ☐ Groundwater Impact Study Yes ☐ No ☐
				Study Trigger Details: When developing on private services or when urban development is in close proximity to existing private serviced development					
☒	☐	5. Noise Control Study	Potential impacts of noise on a development	☒	☒	☒	☒	☒	Vibration Study Yes ☐ No ☐
				Study Trigger Details: See Terms of Reference for full details.					

☐	☐	6. Rail Proximity Study	Development on land adjacent to all Protected Transportation Corridors and facilities shown on Schedule C2 of the Official Plan, to follow rail safety and risk mitigation best practices	☐	☒	☒	☒	☒	Rail Safety Report Yes ☐ No ☐ O-Train Network Proximity Study Yes ☐ No ☐
				Study Trigger Details: Within the Development Zone of Influence for existing and future rapid transit stations and corridors, as shown on Annex 2 of the OP OR on land adjacent to all Protected Transportation Corridors and facilities shown on Schedule C2 of the Official Plan					
☒	☐	7. Site Servicing Study	Provides servicing details based on proposed scale of development with an engineering overview taking into consideration surrounding developments and connections.	☐	☒	☒	☒	☒	Fluvial Geomorphological Report Yes ☐ No ☐ Assessment of Adequacy of Public Services Yes ☒ No ☐ Servicing Options Report Yes ☐ No ☐ Erosion and Sediment Control Plan / Brief Yes ☐ No ☐ Hydraulic Water Main Analysis Yes ☐ No ☐ Stormwater Management Report and Detailed Design Brief Yes ☐ No ☐
				Study Trigger Details: All cases					
☐	☐	8. Slope Stability Study	Assessment of slope stability and measures to provide safe set-back.	☐	☒	☒	☒	☒	Retrogressive Landslide Analysis Yes ☐ No ☐
				Study Trigger Details: Where the potential for Hazard Lands exists on a site.					
☐	☐	9. Transportation Impact Assessment	Identify on and off-site measures to align a development with City transportation objectives.	☐	☒	☒	☒	☒	Roadway Modification Functional Design Yes ☐ No ☐
				Study Trigger Details: If the development generates 60 person-trips or more; or if the development is located in a Location Trigger; or if the development has a Safety Trigger.					

☐	☐	10. Water Budget Assessment	Identify impact of land use changes on the hydrologic cycle and post-development mitigation targets.	☐	☒	☒	☒	☒	
				Study Trigger Details: May be required for site plan control applications for sites with private servicing and / or proximity to hydrogeologically-sensitive areas. Draft plans of subdivision are required to integrate water budget assessments into supporting stormwater management plans and analysis for the study area.					
☐	☐	11. Wellhead Protection Study	Delineate a Wellhead Protection Area (WHPA) and characterize vulnerability for new communal residential drinking water well systems, in accordance with Technical Rules under *Clean Water Act.*	☐	☒	☒	☒	☒	
				Study Trigger Details: Required for all new communal residential drinking water well systems; including new municipal wells, new private communal wells (small water works) that require a Municipal Responsibility Agreement (MRA), expansions or increased water takings from an existing municipal well or existing private communal well and new private communal wells.					

PLANNING									
R	**A**	**Study/Plan Name**	**Description**	**When Required**					**Applicable Study Components & Other Comments**
				1	**2**	**3**	**4**	**5**	
☐	☐	12. Agrology and Soil Capability Study	Confirm or recommend alterations to mapping of agricultural lands in the City.	☒	☐	☐	☐	☐	
				Study Trigger Details: For the expansion of a settlement area or identification of a new settlement area through a comprehensive review; or where it is demonstrated that the land does not meet the requirements for an Agricultural Resource Area.					
☐	☐	13. Archaeological Assessment	Discover any archaeological resources on site, evaluate cultural heritage value and conservation strategies	☒	☒	☒	☒	☒	
				Study Trigger Details: When the land has either: a known archaeological site; or the potential to have archaeological sites; or where the City's Archaeological Resource Potential Mapping Study indicates archaeological potential, outside of the historic core; or upon discovery of any archaeological resource during construction in the City's historic core area.					
☒	☐	14. Building Elevations	Visual of proposed development to understand facing of building including direction of sunlight, height, doors, and windows.	☒	☒	☐	☐	☒	
				Study Trigger Details: Site Plan: for residential buildings with 25 or more residential units; or for residential buildings with less than 25 residential units, if the units are within the Urban area or the High-performance Development Standard threshold in the rural area. Official Plan or Zoning By-law: if staff deem it necessary to determine compliance with OP policies, the Zoning By-law or City of Ottawa Urban Design Guidelines.					

☐	☐	15. Heritage Impact Assessment	Determine impacts of proposed development on cultural heritage resources.	☒	☒	☒	☒	☒	Study Trigger Details: Where development or an application under the Ontario Heritage Act is proposed on, adjacent to, across the street from or within 30 metres of a protected heritage property; or for any development adjacent to the Rideau Canal UNESCO World Heritage Site and its landscaped buffer.	Conservation Plan Yes ☐ No ☐
☐	☐	16. Heritage Act Acknowledgement Report	A submission requirement to demonstrate that the *Ontario Heritage Act* requirements have been satisfied, to ensure that multiple applications are considered currently.	☐	☒	☒	☒	☒	Study Trigger Details: Where the subject property is listed on the Heritage Register and the applicant must submit a Heritage Permit Application (designated heritage property listed on the Heritage Register) or provide notice of intent to demolish or remove a building (non-designated property listed on the Heritage Register).	Heritage Permit Application Yes ☐ No ☐ Notice of Intent to Demolish Yes ☐ No ☐
☐	☐	17. Impact Assessment Study – Mineral Aggregate	Mineral aggregate extraction activities; and to protect known high quality mineral aggregate resources from development and activities that would preclude or hinder their existence (ability to be extracted) or expansion.	☒	☒	☒	☒	☒	Study Trigger Details: New Development within 500 metres of lands within the Bedrock Overlay , or within 300 metres of lands within the Sand and Gravel Resource Area Overlay.	
☐	☐	18. Impact Assessment Study – Mining Hazards	To identify or confirm known mineral deposits or petroleum resources and significant areas of mineral potential. To protect mineral and petroleum resources from development and activities which would preclude or hinder the establishment of new operations or access to the resources.	☒	☒	☒	☒	☒	Study Trigger Details: For all applications in proximity to mining operations.	

☐	☐	19. Impact Assessment Study – Waste Disposal Sites / Former Landfill Sites	To identify or confirm known proximity of existing or former waste disposal sites. To ensure issues of public health, public safety and environmental impact are addressed.	☒	☒	☒	☒	☒	
				Study Trigger Details: For the establishment of any new Solid Waste Disposal Site or for a footprint expansion of an operating Solid Waste Disposal Site; or development within three kilometers of an operating or non-operating Waste Disposal Site.					
☒	☐	20. Landscape Plan	A plan to demonstrate how the canopy cover, urban design, health, and climate change objectives of Official Plan will be met through tree planting and other site design elements.	☒	☒	☒	☒	☒	
				Study Trigger Details: Site Plan, Plan of Subdivision, and Plan of Condominium: always required, except where it is demonstrated that the landscape component of a project is not relevant to the review of the application. A high-level conceptual Landscape Plan may be required to support Zoning By-law and Official Plan Amendment applications.					
☐	☐	21. Mature Neighbourhood Streetscape Character Analysis	In the Mature Neighbourhoods a Streetscape Character Analysis is required to determine the applicable zoning requirements.	☐	☒	☐	☐	☐	
				Study Trigger Details: Zoning By-law amendment application in areas covered by the Mature Neighbourhoods zoning overlay for applications of residential development of four storeys or less located in a R1, R2, R3, or R4 zone.					
☐	☐	22. Minimum Distance Separation	Provincial land use planning tool that determines setback distances between livestock barns, manure storages or anaerobic digesters and surrounding land uses, with the objective of minimizing land use conflicts and nuisance complaints related to odour.	☒	☒	☒	☒	☒	
				Study Trigger Details: Applications in the Rural Area, outside of a village.					

☐	☐	23. Parking Plan	A tool to assess the sufficiency of on-street parking in plans of subdivision.	☐	☐	☒	☒	☐	
				Study Trigger Details: For new or revised plans of subdivision with public streets.					
☒	☐	24. Plan of Survey	A Plan of Survey depicts legal boundaries and is a specialized map of a parcel of land and it delineates boundary locations, building locations, physical features and other items of spatial importance.	☒	☒	☒	☒	☒	
				Study Trigger Details: Required for all *Planning Act* applications.					
☐	☐	25. Plan of Subdivision	Proposed subdivision layout to be used for application approval	☐	☒	☒	☐	☐	
				Study Trigger Details: Always required with the submission of plan of subdivision application. Only required with a Zoning By-law Amendment application, where such ZBLA is in response to enable a subdivision.					
☐	☐	26. Plan of Condominium	Proposed condominium layout to be used for application approval	☐	☐	☐	☒	☐	
				Study Trigger Details: With the submission of plan of condominium application.					
☒	☐	27. Planning Rationale	Provides the planning justification in support of the *Planning Act* application and to assist staff and the public in the review of the proposal.	☒	☒	☒	☐	☐	Integrated Environmental Review Summary Yes ☐ No ☐
				Study Trigger Details: For all Official Plan amendment, Zoning By-law amendment, or plan of subdivision applications.					
☐	☐	28. Preliminary Construction Management Plan	A checklist that shows a development proposal's anticipated impacts to all modes of transportation and all elements in the right of way during construction.	☐	☐	☒	☐	☒	
				Study Trigger Details: For all Site Plan and plan of subdivision applications.					

☒	☐	29. Public Consultation Strategy	Proposal to reach and collect public input as part of development application.	☒	☒	☒	☒	☒	Study Trigger Details: Official Plan Amendment, Zoning By-law Amendment and Subdivision: Always required. Condominium: Vacant Land only Site Plan: At the discretion of the City's file lead in consultation with the Business and Technical Support Services Manager.	
☒	☐	30. Shadow Analysis	A visual model of how the proposed development will cast its shadow.	☐	☒	☐	☐	☐	Study Trigger Details: When there is an increase in height or massing proposed for a residential, commercial or office use. Two triggers: 1. Inside the Greenbelt: proposed development is over 5 storeys in height (≤15 meters). If a development proposal is 5 storeys or less, but is proposing an increase in height and/or massing and is in close proximity to a shadow sensitive area, a shadow analysis may be requested. 2. Outside the Greenbelt: proposed development is over 3 storeys in height (≤9 meters) and is in close proximity to a shadow sensitive area. Where a proposed development is not in close proximity to a shadow sensitive area (e.g. industrial development) the trigger for a shadow analysis is over 5 storeys in height (≤15 meters).	
☒	☐	31. Site Plan	A Site Plan is a visual drawing that illustrates the proposed development of a site in two dimensions.	☒	☒	☒	☒	☒	Study Trigger Details: Site Plan: All Other applications: where a layout of the	Site Plan Yes ☐ No ☐ Concept Plan Yes ☐ No ☐

				public realm, building massing, heights, densities or massing of the proposal provides changes to the planned context; sites proposing multiple land uses; sites with multiple landowners; sites with two or more buildings, on-site park dedication, and/or a new public or private street(s); sites with proposed changes to connectivity (such as active transportation networks, vehicular circulation or access to transit); sites where the development potential on adjacent properties may be impacted by or could be integrated into the proposed site.	Facility Fit Plan Yes ☐ No ☐
☒	☐	32. Urban Design Brief	Illustrate how a development proposal represents high-quality and context sensitive design that implements policies of the Official Plan, relevant secondary plans, and Council approved plans and guidelines.	☒ ☒ ☒ ☐ ☒ Study Trigger Details: For all Official Plan amendment, Zoning By-law amendment, and plan of subdivision applications. For SPC applications: proposals for residential buildings with 25 or more residential units, or for proposals for residential buildings with less than 25 residential units, if the units are within the Urban area or the High-performance Development Standard threshold in the rural area where OP Policy 11.3 (3) is relevant; for non-residential and mixed-use proposals.	
☐	☐	33. Urban Design Review Panel Report	Demonstrates that a development proposal has attended an Urban Design Review Panel formal review meeting, received, and responded to the associated recommendations, if applicable	☒ ☒ ☒ ☒ ☒ Study Trigger Details: Required for all planning act applications subject to UDRP review, in accordance with the UDRP Panel Terms of Reference.	
☒	☐	34. Wind Analysis	A visual model and a written evaluation of how a proposed development will impact pedestrian-level wind conditions.	☐ ☒ ☐ ☐ ☒ Study Trigger Details: Applications seeking an increase in height and/or massing which is either: a tall building(s), 10 storeys or more or a proposed building that is more than twice the height of	

				adjacent existing buildings and is greater than five storeys in height and is adjacent to existing or planned low rise development, open spaces, water bodies and large public amenity areas.					
☒	☐	35. Zoning Confirmation Report	The purpose of the Zoning Confirmation Report (ZCR) is to identify all zoning compliance issues, if any, at the outset of a planning application.	☐	☒	☐	☐	☒	
				Study Trigger Details: Required for all SPC and ZBLA applications.					

ENVIRONMENTAL										
R	**A**	**Study / Plan Name**	**Description**	**When Required**					**Applicable Study Components & Other Comments**
				1	**2**	**3**	**4**	**5**	
☐	☐	36. Community Energy Plan	Includes a community energy analysis, alongside mitigation measures, and other associated information. The community energy analysis refers to the overall assessment process to identify on and off-site measures to align the design of the development with City climate objectives.	☐	☐	☐	☐	☐	
				NOT IMPLEMENTED & NOT REQUIRED					
☐	☐	37. Energy Modelling Report	The Energy Modeling Report is a Site Plan Control application submission requirement to show how climate change mitigation, and energy objectives will be met through exterior building design elements.	☐	☐	☐	☐	☐	
				NOT IMPLEMENTED & NOT REQUIRED					
☐	☐	38. Environmental Impact Study	Assessment of environmental impacts of a project and documents the existing natural features, identifies the potential environmental impacts,	☒	☒	☒	☐	☒	Assessment of Landform Features Yes ☐ No ☐ Integrated Environmental Review Yes ☐ No ☐
				Study Trigger Details: Is required when development or site alteration is proposed in or within a					

			recommends ways to avoid and reduce the negative impacts, and proposes ways to enhance natural features and functions.	specified distance of environmentally designated lands, natural heritage features, the City's Natural Heritage System, or hazardous forest types for wildland fire. The EIS Decision Tool (Appendix 2 of the Environmental Impact Study Guidelines) provides a checklist of the natural heritage features and adjacent areas within which an EIS is required to support development applications under the *Planning Act.*	Protocol for Wildlife Protection during Construction Yes ☐ No ☐ Significant Woodlands Guidelines for Identification, Evaluation, and Impact Assessment Yes ☐ No ☐
☐	☐	39. Environmental Management Plan	A comprehensive environmental planning document that identifies, evaluates, and mitigates the potential impacts of proposed development on the natural environment and its ecological functions at local planning stage.	☒ ☐ ☐ ☐ ☐ Study Trigger Details: Official Plan amendments for local plans (area-specific policy or secondary plan, where: there is significant change in the conditions upon which the original study was based; there are proposed changes to planned infrastructure needed to service a subdivision that would have a significant impact on the infrastructure needs of another subdivision within the EMP study area, or the applicable Class Environmental Assessment approval has expired.	
☐	☐	40. High-performance Development Standard	A collection of voluntary and required standards that raise performance of new building projects to achieve sustainable and resilient design	☐ ☐ ☐ ☐ ☐ NOT IMPLEMENTED & NOT REQUIRED	
☐	☐	41. Tree Conservation Report	Demonstrates how tree cover will be retained and protected on the site, including mature trees, stands of trees, and hedgerows.	☐ ☐ ☒ ☒ ☒ Study Trigger Details: Where there is a tree of 10 centimeters in diameter or greater on the site and/or if there is a tree on an adjacent site that has a Critical Root Zone (CRZ) extending onto the development site.	

SUPPLEMENTARY DEVELOPMENT INFORMATION

The following details have been compiled to provide additional information on matters for consideration throughout the application approval and development process. Please note, this document is updated from time to time and should be reviewed for each project proposed to be undertaken.

General

- Refer to Planning application submission information and materials and fees for further information on preparing for application submission. Be aware that other fees and permits may be required, outside of the development review process.
- Additional information is available related to building permits, development charges, and the Accessibility Design Standards.
- You may obtain background drawings by contacting geoinformation@ottawa.ca.
- Plans are to be standard A1 size (594 mm x 841 mm) or Arch D size (609.6 mm x 914.4 mm) sheets, dimensioned in metric and utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400 or 1:500).
- All PDF submitted documents are to be unlocked, flattened and not saved as a portfolio file.
- Where private roads are proposed:
    - Submit a Private Roadway Street Naming application to Building Code Services Branch for any internal private road network.
    - Applications are available at all Client Service Centres and the private roadway approval process takes three months.

Servicing and Site Works

Servicing and site works shall be in accordance with the following documents:

- 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)
- Ontario Provincial Standards for Roads & Public Works (2013)

Exterior Site Lighting

Where proposed, requires certification by an acceptable professional engineer, licensed in the Province of Ontario, which states that the exterior site lighting has been designed to meet the following criteria:

- It uses only fixtures that meet the criteria for Full Cut-Off (Sharp cut-off) classification, as recognized by the Illuminating Engineering Society of North America (IESNA or IES), and
- It results in minimal light spillage onto adjacent properties. As a guideline, 0.5 foot-candle is normally the maximum allowable spillage.

The location of the fixtures, fixture type (make, model, part number and the mounting height) must be shown on one of the approved plans.

City Surveyor Direction

- The determination of property boundaries, minimum setbacks and other regulatory constraints are a critical component of development. An Ontario Land Surveyor (O.L.S.) needs to be consulted at the outset of a project to ensure properties are properly defined and can be used as the geospatial framework for the development.
- Topographic details may also be required for a project and should be either carried out by the O.L.S. that has provided the Legal Survey or done in consultation with the O.L.S. to ensure that the project is integrated to the appropriate control network.

  Questions regarding the above requirements can be directed to the City's Surveyor, Andre Roy, at Andre.Roy1@ottawa.ca.

Waste Management

- New multi-unit residential development, defined as containing six (6) or more units, intending to receive City waste collection services will be required, as of June 1, 2022, to participate in the City's Green Bin program in accordance with Council's approval of the multi-residential waste diversion strategy. The development must include adequate facilities for the proper storage of allocated garbage, recycling, and green bin containers and such facilities built in accordance with the approved site design. Questions regarding this change and requirements can be directed to Andre.Laplante@ottawa.ca.

- For sites containing:
  - One or more buildings with a total GFA greater than 2000 square metres;
  - Retail shopping complexes with a total GFA greater than 10,000 square metres;
  - Sites containing office buildings with total GFA greater than 10,000 square metres;
  - Hotels and motels with more than 75 units;
  - Hospitals (human);
  - Educational institutions with more than 350 students; or
  - Manufacturing establishments working more than 16,000 person-hours in a month

  A Waste Reduction Workplan Summary is required for the construction project as required by O.Reg. 102/94, being "Waste Audits and Waste Reduction Work Plans" made under the Environmental Protection Act, RSO 1990, c E.19, as amended.

Fire Routes

- Fire routes are required to be designated by By-law for Fire Services to establish them as a legal fire route. Where a development proposes to establish a fire route, an Application for Fire Route

Designation is to be made. Questions regarding the designation of fire routes and required process can be directed to fireroutes@ottawa.ca.

Dewatering Activities

- Project contractors and/or your engineers are required to contact the Sewer Use Program to arrange for the proper agreements or approvals to allow for the discharge of water from construction dewatering activities to the City's sanitary or storm sewer system. Please contact the Sewer Use Duty Officer at 613-580-2424 ext. 23326 and/or suppue@ottawa.ca.

Backflow Prevention Devices for Premise Isolation

- Buildings or facilities installing a backflow preventer for premise isolation of the drinking water system must register with the City's Backflow Prevention Program where a moderate or severe hazard may be caused in accordance with CSA B64.10 "Selection and Installation of Backflow Preventers". Please contact the Backflow Prevention Program at 613-580-2424 ext. 22299 or backflow@ottawa.ca to submit a Premise Isolation Survey.

Energy Considerations

- Are you considering harvesting thermal energy from the wastewater infrastructure or harvesting geothermal energy?
    - Additional information can be found on the City website or by contacting Melissa Jort-Conway.

Flood Plain Mapping and Climate Change

- An interactive map, for informational purposes only, showing the results of on-going flood plain mapping work completed by the Conservation Authorities in partnership with the City is now available. This mapping may be used to identify known riverine flood hazards for a property or area. The map and additional related information can be found on Ottawa.ca.

Blasting

- Where blasting may take place:
    - Blasting activities will be required to conform to the City's Standard S.P. No. F-1201 entitled Use of Explosives, as amended.
    - To avoid future delays in process, including the Municipal Consent process for shoring, ensure communication with necessary entities, including utilities, is undertaken early.
- Blasting and pile driving activities in the vicinity of Enbridge Gas Distribution and Storage (GDS) facilities require prior approval by GDS. The Blasting and Pile Driving Form, referenced in Enbridge's Third Party Requirements in the Vicinity of Natural Gas Facilities Standard, must be provided to mark-ups@enbridge.com by the Owner of the proposed work for all blasting and pile driving operations. In addition, a licensed blasting consultant's stamped validation report must be submitted to GDS for review if blasting is to occur within thirty (30) metres of GDS facilities. The request must be submitted a minimum of four weeks prior to the beginning of work to allow sufficient time for review.

Archaeological

- Archaeological Resources
    - Should potential archaeological resources be encountered during excavation activities, all Work in the area must stop immediately and the Owner shall contact a provincially licensed archaeologist.
    - If during the process of development deeply buried/undetected archaeological remains are uncovered, the Owner shall immediately notify the Archaeology Section of the Ontario Ministry of Tourism, Culture and Sport.
    - In the event that human remains are encountered during construction, the Owner shall immediately contact the police, the Ministry of Tourism, Culture and Sport and the Registrar of Cemeteries, Cemeteries Regulation Unit, Ministry of Consumer and Business Services, Consumer Protection Branch.

Trees

- The City's Tree Protection Bylaw, being By-Law No. 2020-340, as amended, requires that any trees to be removed shall be removed in accordance with an approved Tree Permit and Tree Conservation Report and that all retained trees will be protected in accordance with an approved Tree Conservation Report.

Limiting Distance and Parks

- A Limiting Distance Agreement may be required by Building Code Services before building permit(s) can be issued with respect to the proximity of the building to a park block. The City will consider entering into a Limiting Distance Agreement with the Owner with such Agreement to be confirmed through the City's Reality Initiatives & Development Branch. A Limiting Distance Agreement is at the expense of the Owner.

Development Constructability

How a development is constructed, its constructability, is being looked at earlier in the development review process to raise awareness of potential impacts to the City's right of way and facilitate earlier issue resolution with stakeholders. Where a construction management plan is required as part of the site plan or subdivision application approval, conditions will be included that set out the specific parameters to be addressed for the specific project. However, please note the following construction and traffic management requirements and considerations in the development of your project.

- **Open Lane (includes all vehicular lanes, transit lanes and cycling lanes) Requirements**
    - Unless specified in the site-specific conditions to be provided by City of Ottawa Traffic Management at the time of approval, the following requirements must be adhered to and accommodated as part of any proposed encroachments and construction management plan. The standard requirements outlined in this section shall further apply to cycling facilities and Transit.
        - All lanes are to function uninterrupted at all times.
        - No interruption or blockage of traffic is permitted.
        - No loading or unloading from an open lane is permitted.
        - All vehicular travel lanes are to be a minimum of 3.5 metres in width.

        - All cycling lanes are to be a minimum of 1.5 metres.

- **Pedestrian Requirements**
    - Unless specified in the site-specific conditions provided by City of Ottawa Traffic Management at the time of approval, the contractor is required to maintain a minimum width of 1.5 metres for a pedestrian facility on one side of the corridor at all times; even in instances where a pedestrian facility was not present prior to construction.
    - The facility shall include a free and unobstructed hard surface acceptable for the use of all pedestrians including those with accessibility challenges and shall maintain access to all buildings and street crossings.
    - The facility must always be maintained in a clean condition and in a good state of repair to the satisfaction of the City.
    - Any change of level which is over 13 millimetres in height is to be provided with a smooth non-tripping transition.
    - Any temporary barriers or fencing shall include a cane detectable boundary protection with edge or barrier at least 75 millimetres high above the ground surface.
    - If works overhead are required, a 2.1 metre minimum clear headroom must be provided.
    - If overhead protection is required above the pedestrian facility, it is to be offset a minimum of 600 millimetres from any travel lane.
- **Transit Requirements**
    - Travel lanes accommodating OC Transpo must be a minimum of 3.5 metres in width and have a minimum 4.5 metre vertical clearance at all times.
    - Should access to a bus stop be impacted, the developer will be required to email TOPConstructionandDetours@ottawa.ca a minimum of 20 working days prior to work commencing to coordinate any site-specific conditions as part of the work. This includes temporary relocation of transit stops, removal of bus shelters or stops and transit detour routes.
    - The contractor may be required to relocate and provide a suitable alternative to OC Transpo's bus stop to the satisfaction of OC Transpo
    - The Contractor shall provide OC Transpo with a minimum of ten (10) working days' notice to coordinate temporary relocation of bus stops. When a bus stop and/or shelter must be temporarily relocated, the contractor may be required to provide stop infrastructure (i.e. bench, bus and/or shelter pads), to the satisfaction of OC Transpo.
    - All temporary stop locations including infrastructure are to be fully accessible in accordance with City of Ottawa Accessibility Design Standards and to the satisfaction of the OC Transpo.
    - Temporary bus stops are to be constructed and ready for use prior to the start of any works that would impact the regular bus stop location(s).
- **Public Consultation**
    - May include, but not be limited to, proponent lead public meeting(s), letter notification(s) and information dissemination via print, electronic means or social media, to impacted properties above and beyond the notification requirements specified in the Road Activity By-law.
- **General Considerations for all Applications**

- A comprehensive construction management plan should include and consider the following:
    - The proposed stages of construction and the anticipated durations of each stage and any impact to existing travel lanes, pedestrian facilities, cycling facilities and/or transit facilities. Any proposed encroachment should be identified and dimensioned on the site plan for review of feasibility.
    - The proposed constructability methods being used as part of the proposed development (ie: fly forming, Peri forming etc.) and any additional traffic impacts/interruptions anticipated with proposed methods. If a crane is being placed on site, the location should be identified, and show the overhead impacts of the crane.
    - Consideration that any tie-backs and/or shoring within the City of Ottawa Right of Way are subject to Municipal Consent in advance of commencement of the project. Approval for encroachments is not guaranteed if impacts to transportation facilities cannot be addressed to the City's satisfaction.
    - Identify any truck hauling routes to and from the proposed development site and any proposed accesses. Designated heavy truck routes are to be followed at all times, however, if a deviation is required from the existing heavy truck route network, then a structural review may be required as part of an Over-dimensional Vehicle Project Permit.
    - Identify the location of any site trailers and the location. Note, if placing a site trailer above any walk-through scaffolding or on the second floor (or above), an engineering drawing must be submitted to building code services for review. More information can be found on the Building Permit Approval process.
    - Identify equipment and/or materials storage locations as required. Storage is not permitted on the road or the roadway shoulders or boulevards, unless the storage areas are identified in the traffic control plan and appropriate traffic control devices protect the equipment or materials.
- Any work as part of the development that requires a road cut, road closure or encroachment will be subject to the Road Activity By-law and potential site-specific conditions identified at site plan or subdivision approval which will be noted on the subsequent Permit(s). Information about construction in the right-of-way including applying for permits and associated fees can be found on the City's website.

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

1. 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. Policy
    a. Official Plan
        i. Minor Corridor - Inner Urban Transect.
        ii. Evolving Neighbourhood Overlay
    b. Zoning By-Law
        i. Minor Institutional, Subzone A (I1A)
2. 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.

3. General Comments:
    a. The Official Plan is very supportive of the 6-storey Option.
    b. We're not very convinced that the 8-storey Option is best for this property based on how shallow it is and inability to address the issues of compatibility for the residential homes to the rear.
    c. The OP supports the proposed mixed-use development as it is located on a minor corridor, within walking distance services and the future LRT transit station.

d. Per the OP, the building height should be oriented towards the corridor.

e. Building transition to the east will be very important to address issues of compatibility, overlook, ect.

f. Very supportive of a stepback on the frontage.

Urban Design

Comments:

Submission Requirements

4. Urban Design Brief is required. Please see attached customized Terms of Reference to guide the preparation.

    a. The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 – Contents of these Terms of Reference.

5. Additional drawings and studies are required as shown on the ASPIL. Please follow the terms of references (Planning application submission information and materials | City of Ottawa) the prepare these drawings and studies. These include:

    a. Design Brief
    b. Site Plan
    c. Landscape Plan (Conceptual)
    d. Elevations (Massing at least)
    e. Wind Study
    f. Shadow Analysis

Comments on Preliminary Design

1. Applicants are to provide a response to these comments in the Design Brief.

2. Staff are supportive of the 6-storey massing over the 8-storey concept. 8-storeys would require an OPA and 6-storeys is consistent with Minor Corridor maximum permitted heights. The 6-storey proposal is generally aligned with the 45-degree plane.

3. Staff are supportive of the rooftop amenity area facing Kirkwood to prevent overlook on the rear neighbours.

4. Staff are supportive of the commercial uses on the ground floor.

5. Staff are not supportive of the overhang of floors 2-4, they should be inline with the first floor. Priority should be given for street trees given there are no overhead wires. Use materiality and architectural articulation to delineate and break up the building instead. Staff are available to meet and discuss design options as the proposal progresses.

6. The Landscape Plan, while conceptual, will need to demonstrate room for street trees. This portion of the street doesn't have overhead wires and the opportunity should be taken to plant street trees.

7. Consider retaining and utilizing existing trees along the rear and side yard property line for amenity space and landscape opportunities.

Feel free to contact **Molly Smith**, Urban Designer, for follow-up questions.

Engineering

Comments:

8. The Stormwater Management Criteria, for the subject site, is to be based on the following:

    a. Application of the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.

    b. In separated areas, the pre-development runoff shall be the lower of the existing coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).

    c. A calculated time of concentration (cannot be less than 10 minutes).

    d. Flows to the storm sewer in excess of the 2-year storm release rate, up to and including the 100-year storm event, must be detained on site.

    e. Storm sewer outlets should not be submerged.

    f. The quantity control criteria (100-year post-development to 2-year pre-development **or** c = 0.5 **or** some other criteria).

    g. Quality control criteria.

9. Deep Services (Storm, Sanitary and/or Water Supply)

    - 203 mm dia. PVC Watermain (c. 1999) is available on Kirkwood Avenue

    - 225 mm dia. Conc. Sanitary Sewer (c. 1965) is available on Kirkwood Avenue

- 375 dia. mm Conc. Storm Sewer (c. 1966) is available on Kirkwood Avenue

    a. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.

    b. Connections to trunk sewers and easement sewers are typically not permitted.

    c. Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).

    d. Review provision of a high-level sewer.

    e. Sewer connections to be made above the springline of the sewermain as per:

        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 that 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 that 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 siz.

10. Water

    a. As per ISTB-2021-03, Industrial, commercial, institutional service areas with a basic day demand greater than 50 m^3/day and residential areas serving 50 or more dwellings shall be connected with a minimum of two watermains, separated by an isolation valve, to avoid the creation of a vulnerable service area. Individual residential facilities with a basic day demand greater than 50 m3/day shall be connected with a minimum of two water services, separated by an isolation valve, to avoid the creation of a vulnerable service area.

    b. Water Data Card (future requirement)

c. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:

   i. Location of service

   ii. Type of development

   iii. The amount of fire flow required (per OBC or FUS).

   iv. Average daily demand: ___ l/s.

   v. Maximum daily demand: ___l/s.

   vi. Maximum hourly daily demand: ___ l/s.

11. Sewer Capacity (sanitary and storm)

a. Provide the new proposed Sanitary sewer discharge and the City will confirm the existing infrastruture has capacity to support the proposed development.

b. Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.

c. A storm sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.

12. Stormwater

a. Underground Storage: Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

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

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

Provide information on type of underground storage system including product name and model, number of chambers, chamber configuration, confirm invert of chamber system, top of chamber system, required cover over system and details, interior bottom slope (for self-cleansing), chart of storage values, length, width and height, capacity, entry ports (maintenance) etc. UG storage to provide actual 2- and 100-year event storage requirements.

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

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

b. If **rooftop control** and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.

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

d. Document how any foundation drainage system will be integrated into the servicing design and show the positive outlet on the plan. Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. **It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.**

13. Grading

    a. Post-development site grading shall match existing property line grades to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.

14. Fire-fighting flow rate(s)

a. Please review Technical Bulletin ISTB-2018-02, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A hydrant coverage figure shall be provided and demonstrate there is adequate fire protection for the proposal.

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

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

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

15. Geotechnical (including, where applicable, detailed sensitive marine clay investigation)

a. A Geotechnical Study/Investigation shall be prepared in support of this development proposal.

Reducing the groundwater level in this area can lead to potential damages to surrounding structures due to excessive differential settlements of the ground. The impact of groundwater lowering on adjacent properties needs to be discussed and investigated to ensure there will be no short term and long-term damages associated with lowering the groundwater in this area.

Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications. See the Studies Plans and Identification List for more information.

If Sensitive marine clay soils are present in this area that are susceptible to soil shrinkage that can lead to foundation and building damages. All six (6) conditions listed in the Tree Planting in Sensitive Marine Clay Soils-2017 Guidelines are required to be satisfied. Note that if the plasticity index of the soil is determined to be less than 40% a minimum separation between a street tree and the proposed building foundations of 4.5m will need to be achieved. A memorandum addressing the Tree in Clay Soil Guidelines prepared by a geotechnical engineer is required to be provided to the City.

https://ottawa.ca/en/city-hall/planning-and-development/community-plans-and-design-guidelines/design-and-planning/completed-guidelines/tree-planting-sensitive-marine-clay-soils-2017-guidelines

16. CCTV sewer inspection

CCTV sewer inspection required for pre and post construction conditions to ensure no damage to City Assets surrounding site.

17. Snow Storage

    Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site please indicate this on the plan(s).

18. Road Reinstatement

    Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By- Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

19. Exterior Site Lighting

    The following will be added as a condition of approval:

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

20. Environmental Site Assessment

    A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.

    The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.

    Official Plan Section 4.8.4:

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

Feel free to contact **Brett Hughes**, Project Manager, for follow-up questions.

Noise

Comments:

1. A Transportation Noise Assessment is required as the subject development is located within 100m proximity of Montreal Road existing Arterial Road.

2. A Stationary Noise Assessment is required to assess the noise impact of the proposed sources of stationary noise (mechanical HVAC system/equipment) of the development onto the surrounding residential area to ensure the noise levels do not exceed allowable limits specified in the City Environmental Noise Control Guidelines.

Feel free to contact **Brett Hughes**, Project Manager, for follow-up questions.

Transportation

Comments:

3. Right-of-way protection.

    a. See Schedule C16 of the Official Plan.

a. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

4. Kirkwood Drive is designated as an Arterial Road within the City's Official Plan with a ROW protection limit of 26.0 metres between Richmond Road and Merivale Road. The ROW protection limit and the offset distance (18.75 metres) are to be dimensioned from the existing centerline of pavement and shown on the drawings. The Certified Ontario Land Surveyor is to confirm the ROW protected limits and any portion that may fall within the private property to be conveyed to the City. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16.

5. ROW interpretation – Land for a road widening will be taken equally from both sides of a road, measured from the centreline in existence at the time of the widening if required by the city. The centreline is a line running down the middle of a road surface, equidistant from both edges of the pavement. In determining the centreline, paved shoulders, bus lay-bys, auxiliary lanes, turning lanes and other special circumstances are not included in the road surface.

6. The Screening Form has indicated that the TIA safety Trigger has been met. Please proceed with the TIA Stage 2- Scoping Report. The consultant is to address how they plan to enable and encourage travel by sustainable modes (i.e., to make walking, cycling, transit, carpooling and telework more convenient, accessible, safe, and comfortable). Please complete the City of Ottawa's *TDM Measures Checklist*.

7. The purchaser, tenant or sub-lessee acknowledges the unit being rented/sold is not provided with any on-site parking and should a tenant/purchaser have a vehicle for which they wish to have parking that alternative and lawful arrangements will need to be made to accommodate their parking need at an alternative location. The Purchaser/Tenant also acknowledges that the availability and regulations governing on-street parking vary; that access to on-street parking, including through residential on-street parking permits issued by the City cannot be guaranteed now or in the future; and that a purchaser, tenant, or sub-lessee intending to rely on on-street parking for their vehicle or vehicles does so at their own risk.

8. The Owner acknowledges and agrees that all private accesses to Roads shall comply with the City's Private Approach By-Law being By-Law No. 2003-447 as amended https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/law-z/private-approach-law-no-2003-447 or as approved through the Site Plan control process.

9. The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb, and boulevard to City standards.

10. All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any permanent structure does not extend either above or below into the sight triangles and/or future road widening protection limits.
11. Permanent structures such as curbing, stairs, retaining walls, and underground parking foundation also bicycle parking racks are not to extend into the City's right-of-way limits.

12. The Owner shall be required to enter into maintenance and liability agreement for all pavers, plant and landscaping material placed in the City right-of-way and the Owner shall assume all maintenance and replacement responsibilities in perpetuity.

13. Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be in safe, secure places near main entrances and preferably protected from the weather.

14. Should the property Owner wish to use a portion of the City's Road allowance for construction staging, prior to obtaining a building permit, the property Owner must obtain an approved Traffic Management Plan from the Manager, Traffic Management, Transportation Services Department. The city has the right for any reason to deny use of the Road Allowance and to amend the approved Traffic Management Plan as required

Feel free to contact **Wally Dubyk**, Transportation Project Manager, for follow-up questions.

Environment

Comments:

15. There are no significant natural features present to trigger an environmental impact study.

16. Urban Heath Island - Please add features that reduce the urban heat island effect (see OP 10.3.3) produced by the parking lot and a building footprint. For example, this impact can be reduced by adding large canopy trees, green roofs or vegetation walls, or constructing the parking lot or building with low heat absorbing materials.

17. Bird-Safe Design Guidelines – no requirements at Zoning Amendment, please consider the following for future site plan. Please review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf

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

Forestry

Comments:

18. Tree retention / removal

    a. Any removal of trees greater than 10cm in diameter will require a tree permit.

    b. Any removal of trees with a trunk that touches/crosses a property line are co-owned by both property owners – the adjoining landowners written permission must be obtained prior to the issuance of a tree permit.

    c. A Tree Conservation Report is not required until a Site Plan Control application is submitted. Contact the planning forester for more information on permitting.

19. Tree planting submission requirements

    a. With a zoning submission, a conceptual landscape plan is required which must demonstrate:

    b. Adequate above and below ground space for planted trees.

    c. The following minimum soil volume table should be referenced:

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

d. Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. Please provide a projection of the future canopy cover for the site to 40 years.

Feel free to contact **Mark Richardson**, Planning Forester, for follow-up questions.

Parkland

Comments:

20. Cash-in-lieu of parkland / parkland dedication

    a. Parkland Dedication By-law No. 2022-280

Heritage

n/a

Conservation Authority

n/a

Community issues

Hampton Iona Community Association

Comments:

21. No comments at this time.

Other

22. 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 and will be applicable to Site Plan Control and Plan of Subdivision applications.

    a. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. Please be advised that this is expected to occur in Q3 2024.

    b. Please refer to the HPDS information at ottawa.ca/HPDS for more information.

23. Under the Affordable Housing Community Improvement Plan, a Tax Increment Equivalent Grant (TIEG) program was created to incentivize the development of affordable rental units. It provides a yearly fixed grant for 20 years. The grant helps offset the revenue loss housing providers experience when incorporating affordable units in their developments.

a. To be eligible for the TIEG program you must meet the following criteria:

    i. the greater of five units OR 15 per cent of the total number of units within the development must be made affordable

    ii. provide a minimum of 15 per cent of each unit type in the development as affordable

    iii. enter into an agreement with the city to ensure the units maintain affordable for a minimum period of 20 years at or below the city-wide average market rent for the entire housing stock based on building form and unit type, as defined by the Canada Mortgage and Housing Corporation

    iv. must apply after a formal Site Plan Control submission, or Building Permit submission for projects not requiring Site Plan Control, and prior to Occupancy Permit issuance

b. Please refer to the TIEG information *at Affordable housing community improvement plan / Plan d'améliorations communautaires pour le logement abordable for more details or contact the TIEG coordinator via email at affordablehousingcip@ottawa.ca.*

24. Other concerns or comments

Submission Requirements and Fees

1. Outlines the application type/subtype required and the associated fees

a. Additional information regarding fees related to planning applications can be found here.

2. The attached **Study and Plan Identification List** outlines the information and material that has been identified 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.

3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

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

Yours Truly,
John Bernier (Planner II)

Encl. Study and Plan Identification List
Technical Agencies
Urban Design Brief ToR
Supplementary Development Information
ADS Site Plan Checklist
HPDS Example Checklist
HPDS Overview for Applicants

c.c. Nastassia Pratt (Planning)
Wally Dubyk (Transportation)
Amy Whalen (Infrastructure)
Brett Hughes (Infrastructure)
Molly Smith (Urban Design)
Mark Richardson (Forestry)
Mike Russett (Parks)
Matthew Hayley (Environmental)
Murray Chown (Applicant Team - Novatech)
Toon Dressen (Applicant Team - Architect)

APPENDIX B

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

NOVATECH
Engineers, Planners & Landscape Architects

627 Kirkwood Avenue - 6-Storey Building
POST-DEVELOPMENT SANITARY FLOWS

Residential Flows	**Post-Development**	
Number of Studio / 1-Bedroom Units	60	
Persons per Studio / 1-Bedroom Unit	1.4	
Number of 2-Bedroom Units	16	
Persons per 2-Bedroom Unit	2.1	
Total Number of Units	76	
Design Population	118	
Average Daily Flow per Resident	280	L/c/day
Peak Factor (Harmon Formula)	3.58	
Peak Residential Flow	**1.37**	**L/s**
Commercial Flows		
Ground Floor Area	225	m^2
Average Commercial Daily Demand	2.8	$L/m^2/day$
Peaking Factor	1.5	
Peak Commercial Flows	**0.01**	**L/s**
Extraneous Flow		
Site Area	0.222	ha
Infiltration Allowance	0.33	L/s/ha
Peak Extraneous Flow	**0.07**	**L/s**
Total Peak Sanitary Flow	**1.45**	**L/s**

Leonel Perez

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Monday, December 9, 2024 1:57 PM
To: Francois Thauvette
Cc: Leonel Perez; Jeffrey Kelly; Hughes, Brett
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)
Attachments: 124151-SAN Flows.pdf

Thank you Francois.

Water Resources had provided the following comment, based on your request and provided information:

No Sanitary concerns for the proposed 1.45L/s peak flows.

Please be advised that I will be away December 23-27, inclusive. Please contact the City File Lead or Sr. Engineer in my absence.

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Monday, December 9, 2024 11:15 AM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett

<brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Shawn,

Please find attached the anticipated peak sanitary sewage flows for the proposed development. Please review and advise if all is good, so we can include the correspondence in the Assessment of Adequacy of Public Services Report.

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

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Monday, December 9, 2024 8:51 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hello Francois.

The SWM criteria is 2 yr and C=0.5 or calculated.

Can I ask what the sanitary flows are for this site so I can check on any HGL issues in area, historical flooding, etc.

Thanks

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale

Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

Please consider the environment before printing this email

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Thursday, December 5, 2024 4:20 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Shawn,

Thanks for sending in the WM boundary conditions request.

We have another clarification request re: SWM design criteria. Could you please review the attached pre-con notes and confirm the SWM quantity and quality control criteria (i.e. Engineering Comment Items 8 (f) and 8 (g)) on page 4of 15 of the attached PDF? We will require this information ASAP to finalize the report by Dec. 20, 2024.

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

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Thursday, December 5, 2024 2:12 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett

<brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Thanks Francois and no problem.

Request sent.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
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(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Thursday, December 5, 2024 2:10 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Shawn,

I sent this e-mail to Brett but received an Automatic Out-of-Office message until Dec. 11th. Would you be able to forward this watermain boundary condition request to the City's water department in his absence?

There is a bit of urgency to this request as our client wants us to submit for ZBLA before the Christmas Holidays and we require this information ASAP to complete our analysis and finalize the Assessment of Adequacy of Public Services Report before Dec. 20, 2024.

We simply cannot wait upon his return to request the watermain boundary conditions if we are to submit by Dec. 20, 2024.

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

From: Francois Thauvette
Sent: Thursday, December 5, 2024 2:05 PM
To: brett.hughes@ottawa.ca
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>
Subject: FW: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Brett,

We are sending this e-mail to request watermain boundary conditions for the proposed development at 627 Kirkwood Avenue. Please see e-mail below and attachments for details.

There is a bit of urgency to this request as our client wants us to submit for ZBLA before the Christmas Holidays and we require this information ASAP to complete our analysis and finalize the Assessment of Adequacy of Public Services Report before Dec. 20, 2024.

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

From: Leonel Perez <l.perez@novatech-eng.com>
Sent: Thursday, December 5, 2024 1:21 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Subject: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi François,

The proposed development of 627 Kirkwood Avenue involves the construction of a 6-storey tower containing at-grade commercial units below residential development.

The purpose of this email is to request watermain boundary conditions for the 203mm dia. PVC watermain in Kirkwood Avenue (as shown on geoOttawa). We anticipate requiring one (1) water service connection. The anticipated water demands for the proposed development are as follows:

- Average Day Demand = 0.4 L/s
- Maximum Day Demand = 1.0 L/s
- Peak Hour Demand = 2.1 L/s
- Maximum Fire Flow Demand Range = 183 L/s

See attached calculation sheets for details.

The option provided for the service connection proposes a single connection to the existing 203mm dia. watermain in Kirkwood Avenue. See attached **124151- Water Boundary Conditions Sketch** for details.

A multi-hydrant approach to firefighting is anticipated to be required. As indicated on the geoOttawa website, there is a single blue bonnet municipal hydrant within 75m of the subject as well as three (3) blue bonnet municipal hydrants within 150m of the subject site. See attached **124151- Water Boundary Conditions Sketch** for details.

Please review and let me know if you require any additional information.

Thanks,

Leonel Perez, Design Technologist
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6
Tel: 613.254.9643

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'

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.

APPENDIX C

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

627 KIRKWOOD AVENUE - 6-Storey Tower and Penthouse
POST-DEVELOPMENT WATER DEMANDS

DOMESTIC WATER DEMAND

Residential Water Demands	**Post-Development**	
Number of Studio / 1-Bedroom Units	60	
Persons per Studio / 1-Bedroom Unit	1.4	
Number of 2-Bedroom Units	16	
Persons per 2-Bedroom Unit	2.1	
Total Number of Units	76	
Design Population	118	
Average Daily Flow per resident	280	L/c/day
Average Day Demand	**0.38**	**L/s**
Maximum Day Demand (2.5 x avg. day)	**0.96**	**L/s**
Peak Hour Demand (2.2 x max. day)	**2.10**	**L/s**
Commercial Water Demands		
Ground Floor Area	225	m^2
Average Commercial Daily Demand	2.8	$L/m^2/day$
Average Day Demand	**0.01**	**L/s**
Maximum Day Demand (1.5 x avg. day)	**0.01**	**L/s**
Peak Hour Demand (1.8 x max. day)	**0.02**	**L/s**
TOTALS		
Average Day Demand	**0.4**	**L/s**
Maximum Day Demand	**1.0**	**L/s**
Peak Hour Demand	**2.1**	**L/s**

FUS - Fire Flow Calculations

NOVATECH
Engineers, Planners & Landscape Architects

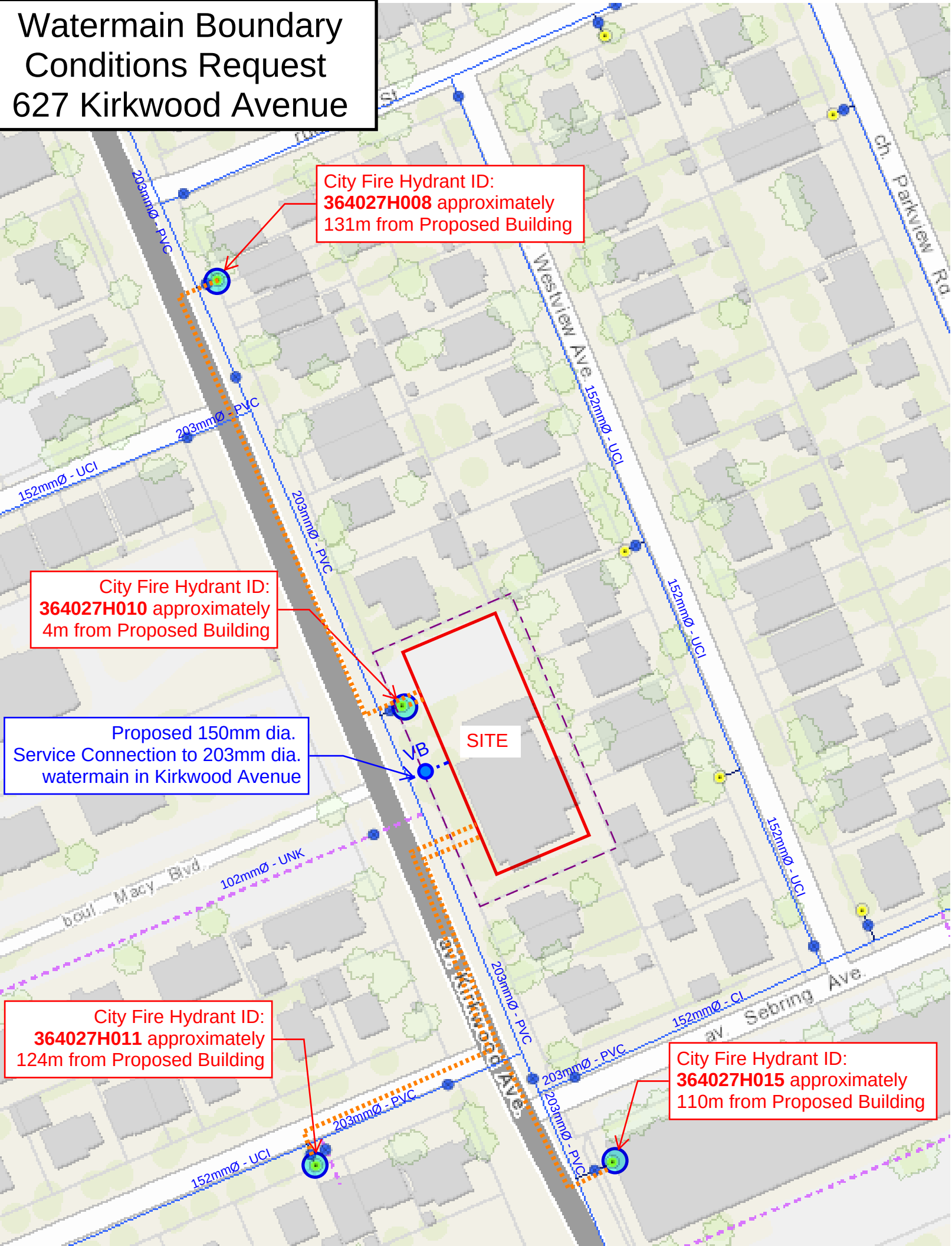
Novatech Project #: 124151
Project Name: 627 Kirkwood Avenue
Date: 12/5/2024
Input By: L. Perez
Reviewed By: F. Thauvette
Drawing Reference:

Legend: Input by User
No Input Required
Reference: Fire Underwriter's Survey Guideline (2020)
Formula Method

Building Description: 6 Storey building
Type I - Fire resistive construction (2 hrs)

Step			Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow						
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction **C**	Type V - Wood frame		1.5	0.6	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)	Yes	0.6		
2	**Floor Area**					
	A	Building Footprint (m^2)	1184			
		Number of Floors/Storeys	7			
		Protected Openings (1 hr) if C<1.0	No			
		Area of structure considered (m^2)			**5,328**	
	F	**Base fire flow without reductions**				**10,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**8,500**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-4,250**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	Yes	-10%	-10%	
				Cumulative Sub-Total	**-50%**	
		Area of Sprinklered Coverage (m^2)	8288	100%		
				Cumulative Total	**-50%**	
5	**Exposure Surcharge**		**FUS Table 6**		**Surcharge**	
	(3)	North Side	3.1 - 10 m		16%	**3,910**
		East Side	10.1 - 20 m		14%	
		South Side	3.1 - 10 m		16%	
		West Side	>30m		0%	
				Cumulative Total	**46%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**8,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**133**
				or	USGPM	2,114

Watermain Boundary Conditions Request
627 Kirkwood Avenue



Kynan Dsa

From: Hughes, Brett <brett.hughes@ottawa.ca>
Sent: Wednesday, April 30, 2025 1:10 PM
To: Francois Thauvette
Cc: Leonel Perez; Jeffrey Kelly; Wessel, Shawn
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)
Attachments: 627 Kirkwood Avenue Multi-Hydrant Analysis December 2024.pdf

Francois,
In reviewing the submission materials associated with the ZBLA for 627 Kirkwood, specifically the Assessment of Adequacy of Public Services Report, it was realized that the boundary condition confirmation email correspondence with the City included in Appendix C states *"The total aggregate flow assuming the four identified hydrants running simultaneously **DOES NOT** provide the requested fire flow of 183 L/s for the site."* Unfortunately, following a deeper investigation into the history of this application, email records have confirmed that neither I, nor Shawn Wessell ever received any follow up or confirmation email from the modeling group confirming the revised demand can accommodate. Please see below email confirmation email (received this morning) to be included in the revised Assessment of Adequacy of Public Services Report and subsequent Serviceability Report (associated with the future SPC application).

In addition, I noticed that despite the feedback form indicating 2 water services would be a required, and also the bolded reference to ISDTB-2021-01 detailed in the original boundary condition request email correspondence provided by the modeling group, the Assessment of Adequacy of Public Services Report still only proposes 1 water service connection. I wanted to bring this to your attention now as well, but it will also be identified in the Feedback which will be shared with the Applicant shortly.

Please do not hesitate to contact me with any questions or concerns.

Regards,
Brett Hughes BEng.
Project Manager, Infrastructure
Development Review Central
PLANNING, DEVELOPMENT & BUILDING SERVICES (PDBS)
110 Laurier Ave West | 4th Floor | Ottawa, ON | K1P 1J1
City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 32541

The following are boundary conditions, HGL, for hydraulic analysis at 627 Kirkwood Avenue (zone 1W) assumed **a dual connection** connected to the 203mm watermain on Kirkwood Avenue (see attached PDF for location).

Minimum HGL: 108.5 m
Maximum HGL: 114.5 m
Max available Fire Flow at 20 psi: **133 L/s** (from the **Multi-Hydrant Analysis**)

A multi-hydrant analysis was performed with 4 existing hydrants within 150 m of the property. **The total aggregate flow assuming the four identified hydrants running simultaneously can provide the requested fire flow of 133 L/s for the site.**

Please refer to Guidelines and Technical bulletin ISDTB-2021-01 concerning residential areas serving 50 or more dwellings.

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

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

Regards,

Brett Hughes BEng.
Project Manager, Infrastructure
Development Review Central
PLANNING, DEVELOPMENT & BUILDING SERVICES (PDBS)
110 Laurier Ave West | 4th Floor | Ottawa, ON | K1P 1J1
City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 32541

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: February 14, 2025 5:06 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Thanks Francois

I have forwarded to Water Dept. for review and comments.

Thank you

Please be advised that I will be away from the office Feb 17-21, 2025, inclusive. Please contact the City File Lead or Sr. Engineer in my absence.

Regards,

Shawn Wessel, A.Sc.T.,rcji

Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

Please consider the environment before printing this email

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Friday, February 14, 2025 4:56 PM
To: Hughes, Brett <brett.hughes@ottawa.ca>; Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Brett/Shawn,

We spoke with the architect and by designing the building with 'fire resistive (2hr rating)' materials and having a 'fully supervised' sprinkler system, the FUS fire flow requirement drop down to 133 L/s, which can be supported by the municipal watermain network. See revised calculations (attached). We will proceed accordingly in our Assessment of Adequacy of Public Services Report to support the ZBLA application.

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

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Wednesday, December 18, 2024 1:45 PM

To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hello Francois.

I have received the BC, as requested.

Please see below and attached:

The following are boundary conditions, HGL, for hydraulic analysis at 627 Kirkwood Avenue (zone 1W) assumed a dual connection connected to the 203mm watermain on Kirkwood Avenue (see attached PDF for location).

Minimum HGL: 108.5 m
Maximum HGL: 114.5 m
Max available Fire Flow at 20 psi: **133 L/s** (from the **Multi-Hydrant Analysis**)

A multi-hydrant analysis was performed with 4 existing hydrants within 150 m of the property. **The total aggregate flow assuming the four identified hydrants running simultaneously DOES NOT provide the requested fire flow of 183 L/s for the site.**

Please refer to Guidelines and Technical bulletin ISDTB-2021-01 concerning residential areas serving 50 or more dwellings.

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.

If you require additional information or clarification, please do not hesitate to contact me anytime.

Thank you

Please be advised that I will be away December 23-27, inclusive. Please contact the City File Lead or Sr. Engineer in my absence.

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

Please consider the environment before printing this email

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Wessel, Shawn
Sent: Wednesday, December 18, 2024 11:13 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hello Francois.

I sent another request to the Water Resources Dept.

Once I receive the BC, it will be forwarded along.

Have a nice day!

Please be advised that I will be away December 23-27, inclusive. Please contact the City File Lead or Sr. Engineer in my absence.

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale

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(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

Please consider the environment before printing this email

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From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Wednesday, December 18, 2024 9:53 AM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Shawn,

Any updates on the WM boundary conditions request? It's almost been 2 weeks since we sent in the request.

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

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Thursday, December 5, 2024 2:12 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Thanks Francois and no problem.

Request sent.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
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shawn.wessel@ottawa.ca

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Thursday, December 5, 2024 2:10 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Shawn,

I sent this e-mail to Brett but received an Automatic Out-of-Office message until Dec. 11th. Would you be able to forward this watermain boundary condition request to the City's water department in his absence?

There is a bit of urgency to this request as our client wants us to submit for ZBLA before the Christmas Holidays and we require this information ASAP to complete our analysis and finalize the Assessment of Adequacy of Public Services Report before Dec. 20, 2024.

We simply cannot wait upon his return to request the watermain boundary conditions if we are to submit by Dec. 20, 2024.

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

From: Francois Thauvette
Sent: Thursday, December 5, 2024 2:05 PM
To: brett.hughes@ottawa.ca
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>
Subject: FW: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Brett,

We are sending this e-mail to request watermain boundary conditions for the proposed development at 627 Kirkwood Avenue. Please see e-mail below and attachments for details.

There is a bit of urgency to this request as our client wants us to submit for ZBLA before the Christmas Holidays and we require this information ASAP to complete our analysis and finalize the Assessment of Adequacy of Public Services Report before Dec. 20, 2024.

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

From: Leonel Perez <l.perez@novatech-eng.com>
Sent: Thursday, December 5, 2024 1:21 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Subject: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi François,

The proposed development of 627 Kirkwood Avenue involves the construction of a 6-storey tower containing at-grade commercial units below residential development.

The purpose of this email is to request watermain boundary conditions for the 203mm dia. PVC watermain in Kirkwood Avenue (as shown on geoOttawa). We anticipate requiring one (1) water service connection. The anticipated water demands for the proposed development are as follows:

- Average Day Demand = 0.4 L/s
- Maximum Day Demand = 1.0 L/s
- Peak Hour Demand = 2.1 L/s
- Maximum Fire Flow Demand Range = 183 L/s

See attached calculation sheets for details.

The option provided for the service connection proposes a single connection to the existing 203mm dia. watermain in Kirkwood Avenue. See attached **124151- Water Boundary Conditions Sketch** for details.

A multi-hydrant approach to firefighting is anticipated to be required. As indicated on the geoOttawa website, there is a single blue bonnet municipal hydrant within 75m of the subject as well as three (3) blue bonnet municipal hydrants within 150m of the subject site. See attached **124151- Water Boundary Conditions Sketch** for details.

Please review and let me know if you require any additional information.

Thanks,

Leonel Perez, Design Technologist
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6
Tel: 613.254.9643

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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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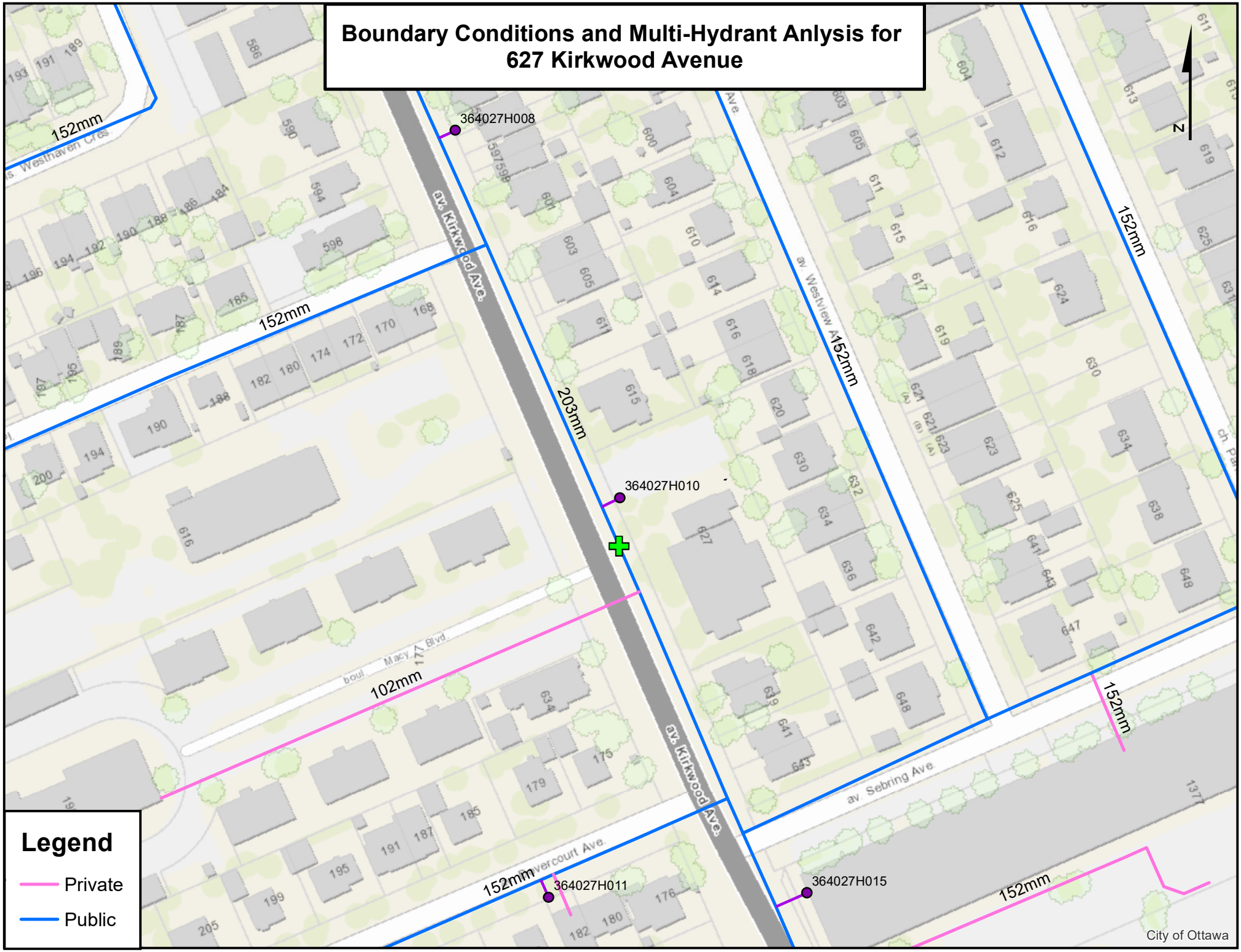
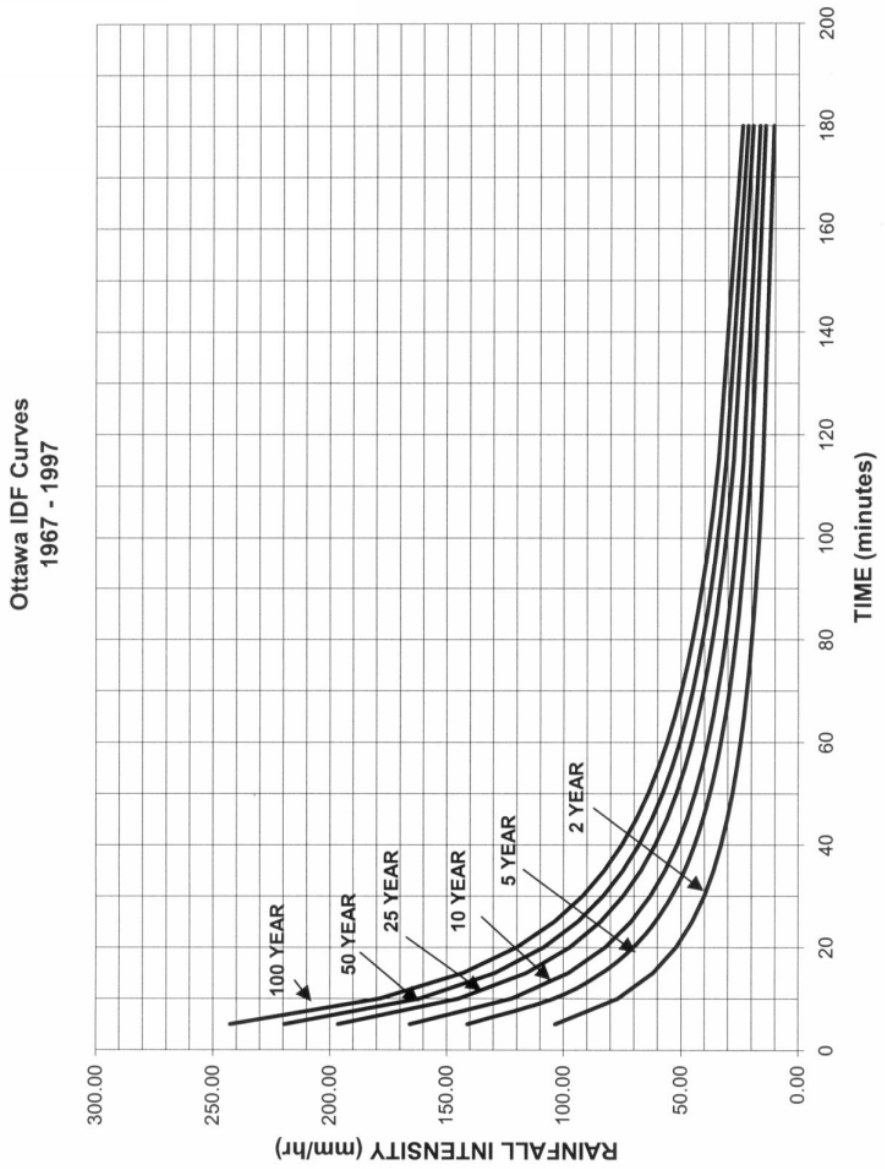

Boundary Conditions and Multi-Hydrant Anlysis for
627 Kirkwood Avenue
364027H008
364027H010
364027H011
364027H015
152mm
203mm
102mm
av. Kirkwood Ave.
av. Westview Ave
av. Sebring Ave
boul. Macy
N
Legend
Private
Public
City of Ottawa

APPENDIX D

IDF Curves, Preliminary SWM Calculations and E-mail Correspondence from the City of Ottawa

APPENDIX 5-A OTTAWA INTENSITY DURATION FREQUENCY (IDF) CURVE



Project #: 124151
Project Name: 627 Kirkwood Avenue
Location: Ottawa

NOVATECH
Engineers, Planners & Landscape Architects

Date Prepared: 2/21/2025

Proposed 6-Storey Mixed-Use Building Site Development
627 Kirkwood Avenue

Pre - Development Site Flows

Description	Area (ha)	$A_{impervious}$ (ha) C=0.9	A_{gravel} (ha) C=0.6	$A_{pervious}$ (ha) C=0.2	Weighted C_{w5}	Weighted C_{w100}	2yr or 5yr Flow (L/s)	100-Year Flow (L/s)	Allowable C_w=0.5 Max	Allowable Flow 2-year (L/s)
Site to be Developed	0.222	0.074	0.000	0.148	0.43	0.50	28.0	55.3	0.43	20.6

T_c = 10mins

Post - Development Site Flows

Area	Description	Area (ha)	A_{imp} (ha) C=0.9	$A_{planters}$ (ha) C=0.6	A_{perv} (ha) C=0.2	C_5	C_{100}	Uncontrolled Flow (L/s) 5-year	Uncontrolled Flow (L/s) 100-year	Controlled Flow (L/s) 5-year	Controlled Flow (L/s) 100-year	Storage Required (m^3) 5-year	Storage Required (m^3) 100-year
A-1	Direct Runoff (Street Side)	0.042	0.020	0.000	0.022	0.53	0.61	6.4	12.5	-	-	-	-
A-2	Contributing Site Flow (Rear-North East)	0.020	0.004	0.000	0.016	0.34	0.40	-	-	-	-	-	-
A-3	Contributing Flow (Roof + Rear-South East)	0.160	0.146	0.000	0.014	0.84	0.93	-	-	-	-	-	-
A-2 +A-3	Controlled Site Flow	0.180	0.150	0.000	0.030	0.78	0.87	-	-	8.1	8.1	23.6	59.8
		0.222					Total Site Flows :	14.5	20.6				
						T_c = 10mins	T_c = 10mins	6.1	0.0				

Project #: 124151
Project Name: 627 Kirkwood Avenue
Location: Ottawa

NOVATECH
Engineers, Planners & Landscape Architects

Date Prepared: 2/21/2025

Proposed 6-Storey Mixed-Use Development
Novatech Project No. 124151
REQUIRED STORAGE - 1:2 YEAR EVENT
AREA A-1 Direct Runoff (Street Side)

OTTAWA IDF CURVE

Area =	0.042	ha	Qallow =	4.7	L/s
C =	0.53		Vol(max) =	0.0	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	103.57	6.36	1.64	0.49
10	76.81	4.72	0.00	0.00
15	61.77	3.79	-0.92	-0.83
20	52.03	3.20	-1.52	-1.83
25	45.17	2.77	-1.94	-2.91
30	40.04	2.46	-2.26	-4.06
35	36.06	2.21	-2.50	-5.25
40	32.86	2.02	-2.70	-6.48
45	30.24	1.86	-2.86	-7.72
50	28.04	1.72	-2.99	-8.98
55	26.17	1.61	-3.11	-10.26
60	24.56	1.51	-3.21	-11.55
65	23.15	1.42	-3.29	-12.85
70	21.91	1.35	-3.37	-14.16
75	20.81	1.28	-3.44	-15.47
80	19.83	1.22	-3.50	-16.79
85	18.94	1.16	-3.55	-18.12
90	18.14	1.11	-3.60	-19.45

Proposed 6-Storey Mixed-Use Development
Novatech Project No. 124151
REQUIRED STORAGE - 1:5 YEAR EVENT
AREA A-1 Direct Runoff (Street Side)

OTTAWA IDF CURVE

Area =	0.042	ha	Qallow =	6.4	L/s
C =	0.53		Vol(max) =	0.0	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	141.18	8.67	2.27	0.68
10	104.19	6.40	0.00	0.00
15	83.56	5.13	-1.27	-1.14
20	70.25	4.31	-2.08	-2.50
25	60.90	3.74	-2.66	-3.99
30	53.93	3.31	-3.09	-5.56
35	48.52	2.98	-3.42	-7.18
40	44.18	2.71	-3.69	-8.84
45	40.63	2.50	-3.90	-10.54
50	37.65	2.31	-4.09	-12.26
55	35.12	2.16	-4.24	-14.00
60	32.94	2.02	-4.38	-15.75
65	31.04	1.91	-4.49	-17.52
70	29.37	1.80	-4.59	-19.30
75	27.89	1.71	-4.69	-21.09
80	26.56	1.63	-4.77	-22.88
85	25.37	1.56	-4.84	-24.69
90	24.29	1.49	-4.91	-26.50

Proposed 6-Storey Mixed-Use Development
Novatech Project No. 124151
REQUIRED STORAGE - 1:100 YEAR EVENT
AREA A-1 Direct Runoff (Street Side)

OTTAWA IDF CURVE

Area =	0.042	ha	Qallow =	12.5	L/s
C =	0.61		Vol(max) =	0.0	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	242.70	16.97	4.48	1.35
10	178.56	12.48	0.00	0.00
15	142.89	9.99	-2.49	-2.24
20	119.95	8.39	-4.10	-4.92
25	103.85	7.26	-5.22	-7.84
30	91.87	6.42	-6.06	-10.91
35	82.58	5.77	-6.71	-14.09
40	75.15	5.25	-7.23	-17.35
45	69.05	4.83	-7.66	-20.67
50	63.95	4.47	-8.01	-24.04
55	59.62	4.17	-8.32	-27.44
60	55.89	3.91	-8.58	-30.87
65	52.65	3.68	-8.80	-34.33
70	49.79	3.48	-9.00	-37.81
75	47.26	3.30	-9.18	-41.31
80	44.99	3.15	-9.34	-44.83
85	42.95	3.00	-9.48	-48.35
90	41.11	2.87	-9.61	-51.89

Proposed 6-Storey Mixed-Use Development
Novatech Project No. 124151
REQUIRED STORAGE - 1:100 YR + 20% IDF Increase
AREA A-1 Direct Runoff (Street Side)

OTTAWA IDF CURVE

Area =	0.042	ha	Qallow =	15.0	L/s
C =	0.61		Vol(max) =	0.7	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	291.24	20.36	5.38	1.61
10	214.27	14.98	0.00	0.00
15	171.47	11.99	-2.99	-2.69
20	143.94	10.06	-4.92	-5.90
25	124.62	8.71	-6.27	-9.40
30	110.24	7.71	-7.27	-13.09
35	99.09	6.93	-8.05	-16.91
40	90.17	6.30	-8.68	-20.82
45	82.86	5.79	-9.19	-24.81
50	76.74	5.37	-9.62	-28.85
55	71.55	5.00	-9.98	-32.93
60	67.07	4.69	-10.29	-37.05
65	63.18	4.42	-10.56	-41.20
70	59.75	4.18	-10.80	-45.38
75	56.71	3.96	-11.02	-49.57
80	53.99	3.77	-11.21	-53.79
85	51.54	3.60	-11.38	-58.02
90	49.33	3.45	-11.53	-62.27

Project #: 124151
Project Name: 627 Kirkwood Avenue
Location: Ottawa

NOVATECH
Engineers, Planners & Landscape Architects

Date Prepared: 2/21/2025

Proposed 6-Storey Mixed-Use Development
Novatech Project No. 124151
REQUIRED STORAGE - 1:2 YEAR EVENT
AREA A-2 + A-3 Contributing Flow (Roof + Rear-South East)

OTTAWA IDF CURVE

Area =	0.180	ha	Qallow =	8.1	L/s
C =	0.78		Vol(max) =	14.7	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	103.57	40.59	32.49	9.75
10	76.81	30.10	22.00	13.20
15	61.77	24.21	16.11	14.50
20	52.03	20.39	12.29	14.75
25	45.17	17.70	9.60	14.40
30	40.04	15.69	7.59	13.67
35	36.06	14.13	6.03	12.67
40	32.86	12.88	4.78	11.47
45	30.24	11.85	3.75	10.13
50	28.04	10.99	2.89	8.67
55	26.17	10.26	2.16	7.12
60	24.56	9.62	1.52	5.49
65	23.15	9.07	0.97	3.80
70	21.91	8.59	0.49	2.05
75	20.81	8.16	0.06	0.26
80	19.83	7.77	-0.33	-1.58
85	18.94	7.42	-0.68	-3.44
90	18.14	7.11	-0.99	-5.34

Proposed 6-Storey Mixed-Use Development
Novatech Project No. 124151
REQUIRED STORAGE - 1:5 YEAR EVENT
AREA A-2 + A-3 Contributing Flow (Roof + Rear-South East)

OTTAWA IDF CURVE

Area =	0.180	ha	Qallow =	8.1	L/s
C =	0.78		Vol(max) =	23.6	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	141.18	55.33	47.23	14.17
10	104.19	40.83	32.73	19.64
15	83.56	32.75	24.65	22.18
20	70.25	27.53	19.43	23.32
25	60.90	23.87	15.77	23.65
30	53.93	21.13	13.03	23.46
35	48.52	19.01	10.91	22.92
40	44.18	17.32	9.22	22.12
45	40.63	15.92	7.82	21.12
50	37.65	14.76	6.66	19.97
55	35.12	13.77	5.67	18.70
60	32.94	12.91	4.81	17.32
65	31.04	12.17	4.07	15.86
70	29.37	11.51	3.41	14.33
75	27.89	10.93	2.83	12.73
80	26.56	10.41	2.31	11.09
85	25.37	9.94	1.84	9.40
90	24.29	9.52	1.42	7.66

Proposed 6-Storey Mixed-Use Development
Novatech Project No. 124151
REQUIRED STORAGE - 1:100 YEAR EVENT
AREA A-2 + A-3 Contributing Flow (Roof + Rear-South East)

OTTAWA IDF CURVE

Area =	0.180	ha	Qallow =	8.1	L/s
C =	0.87		Vol(max) =	59.8	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	242.70	106.26	98.16	29.45
10	178.56	78.17	70.07	42.04
15	142.89	62.56	54.46	49.01
20	119.95	52.51	44.41	53.30
25	103.85	45.46	37.36	56.05
30	91.87	40.22	32.12	57.82
35	82.58	36.15	28.05	58.91
40	75.15	32.90	24.80	59.52
45	69.05	30.23	22.13	59.75
50	63.95	28.00	19.90	59.70
55	59.62	26.10	18.00	59.41
60	55.89	24.47	16.37	58.94
65	52.65	23.05	14.95	58.30
70	49.79	21.80	13.70	57.53
75	47.26	20.69	12.59	56.65
80	44.99	19.70	11.60	55.67
85	42.95	18.81	10.71	54.60
90	41.11	18.00	9.90	53.45

Proposed 6-Storey Mixed-Use Development
Novatech Project No. 124151
REQUIRED STORAGE - 1:100 YR + 20% IDF Increase
AREA A-2 + A-3 Contributing Flow (Roof + Rear-South East)

OTTAWA IDF CURVE

Area =	0.180	ha	Qallow =	8.1	L/s
C =	0.87		Vol(max) =	76.6	m^3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m^3)
5	291.24	127.51	119.41	35.82
10	214.27	93.81	85.71	51.43
15	171.47	75.07	66.97	60.27
20	143.94	63.02	54.92	65.90
25	124.62	54.56	46.46	69.69
30	110.24	48.26	40.16	72.30
35	99.09	43.38	35.28	74.10
40	90.17	39.48	31.38	75.31
45	82.86	36.28	28.18	76.08
50	76.74	33.60	25.50	76.50
55	71.55	31.32	23.22	76.64
60	67.07	29.37	21.27	76.55
65	63.18	27.66	19.56	76.28
70	59.75	26.16	18.06	75.84
75	56.71	24.83	16.73	75.27
80	53.99	23.64	15.54	74.58
85	51.54	22.57	14.47	73.78
90	49.33	21.60	13.50	72.89

Leonel Perez

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Monday, December 9, 2024 12:58 PM
To: Francois Thauvette
Cc: Leonel Perez; Jeffrey Kelly; Hughes, Brett
Subject: RE: 627 Kirkwood Avenue - SWM criteria confirmation (124151)

Hello again Francois

My apologies. You are correct, no additional QC is required, other than a STM MH or sampling port. Brett can speak to this further.

Thank you

Please be advised that I will be away December 23-27, inclusive. Please contact the City File Lead or Sr. Engineer in my absence.

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bàtiment (DGSPAB)
City of Ottawa | Ville d'Ottawa
110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1
(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Monday, December 9, 2024 12:16 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett

<brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - SWM criteria confirmation (124151)

Hi Shawn,

Thank you for confirming the stormwater quantity control criteria.

Could you also confirm the quality control criteria (if any apply)? Often water quality control is not required if:

- the development is residential
- there is no surface parking being proposed (in this case it's all underground)
- site flows are being directed to a separated storm sewer (not a combined sewer system)
- the outlet to the water course/river is > 1km away

Please review and confirm, so that we may finalize our report.

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

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Monday, December 9, 2024 8:51 AM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hello Francois.

The SWM criteria is 2 yr and C=0.5 or calculated.

Can I ask what the sanitary flows are for this site so I can check on any HGL issues in area, historical flooding, etc.

Thanks

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

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*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Thursday, December 5, 2024 4:20 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Shawn,

Thanks for sending in the WM boundary conditions request.

We have another clarification request re: SWM design criteria. Could you please review the attached pre-con notes and confirm the SWM quantity and quality control criteria (i.e. Engineering Comment Items 8 (f) and 8 (g)) on page 4of 15 of the attached PDF? We will require this information ASAP to finalize the report by Dec. 20, 2024.

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

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Thursday, December 5, 2024 2:12 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Thanks Francois and no problem.

Request sent.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji
Pronouns: he/him | Pronom: il
Project Manager - Infrastructure Approvals
Gestionnaire de projet – Approbation des demandes d'infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
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(613) 580 2424 Ext. | Poste 33017
Int. Mail Code | Code de Courrier Interne 01-14
shawn.wessel@ottawa.ca

Please consider the environment before printing this email

*****Please also note that, while my work hours may be affected by the current situation and am working from home, I still have access to email, video conferencing and telephone. Feel free to schedule video conferences and/or telephone calls, as necessary.*****

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Thursday, December 5, 2024 2:10 PM
To: Wessel, Shawn <shawn.wessel@ottawa.ca>
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>; Hughes, Brett <brett.hughes@ottawa.ca>
Subject: RE: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Shawn,

I sent this e-mail to Brett but received an Automatic Out-of-Office message until Dec. 11th. Would you be able to forward this watermain boundary condition request to the City's water department in his absence?

There is a bit of urgency to this request as our client wants us to submit for ZBLA before the Christmas Holidays and we require this information ASAP to complete our analysis and finalize the Assessment of Adequacy of Public Services Report before Dec. 20, 2024.

We simply cannot wait upon his return to request the watermain boundary conditions if we are to submit by Dec. 20, 2024.

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

From: Francois Thauvette
Sent: Thursday, December 5, 2024 2:05 PM
To: brett.hughes@ottawa.ca
Cc: Leonel Perez <l.perez@novatech-eng.com>; Jeffrey Kelly <j.kelly@novatech-eng.com>
Subject: FW: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi Brett,

We are sending this e-mail to request watermain boundary conditions for the proposed development at 627 Kirkwood Avenue. Please see e-mail below and attachments for details.

There is a bit of urgency to this request as our client wants us to submit for ZBLA before the Christmas Holidays and we require this information ASAP to complete our analysis and finalize the Assessment of Adequacy of Public Services Report before Dec. 20, 2024.

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

From: Leonel Perez <l.perez@novatech-eng.com>
Sent: Thursday, December 5, 2024 1:21 PM
To: Francois Thauvette <f.thauvette@novatech-eng.com>
Subject: 627 Kirkwood Avenue - WM Boundary Conditions Request (124151)

Hi François,

The proposed development of 627 Kirkwood Avenue involves the construction of a 6-storey tower containing at-grade commercial units below residential development.

The purpose of this email is to request watermain boundary conditions for the 203mm dia. PVC watermain in Kirkwood Avenue (as shown on geoOttawa). We anticipate requiring one (1) water service connection. The anticipated water demands for the proposed development are as follows:

- Average Day Demand = 0.4 L/s
- Maximum Day Demand = 1.0 L/s
- Peak Hour Demand = 2.1 L/s
- Maximum Fire Flow Demand Range = 183 L/s

See attached calculation sheets for details.

The option provided for the service connection proposes a single connection to the existing 203mm dia. watermain in Kirkwood Avenue. See attached **124151- Water Boundary Conditions Sketch** for details.

A multi-hydrant approach to firefighting is anticipated to be required. As indicated on the geoOttawa website, there is a single blue bonnet municipal hydrant within 75m of the subject as well as three (3) blue bonnet municipal hydrants within 150m of the subject site. See attached **124151- Water Boundary Conditions Sketch** for details.

Please review and let me know if you require any additional information.

Thanks,

Leonel Perez, Design Technologist
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6
Tel: 613.254.9643

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