SERVICING & STORMWATER MANAGEMENT REPORT
637 CUMMINGS AVENUE

Project No.: CCO-23-0018

City File No.: D07-12-22-0129

Prepared for:

Jawan Properties Inc.
200 Skipper Drive
Manotick, ON
K4M 0M5

Prepared by:

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Subm1: August 29th, 2022
Rev02: February 17th, 2023

McINTOSH PERRY

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1.0 PROJECT DESCRIPTION

1.1 Purpose

McIntosh Perry (MP) has been retained by Jawan Properties Inc. to prepare this Servicing and Stormwater Management Report in support of the Site Plan Control process for the proposed development located at 637 Cummings Avenue within the City of Ottawa.

The main purpose of this report is to present a servicing and stormwater management design for the development in accordance with the recommendations and guidelines provided by the City of Ottawa (City), the Rideau Valley Conservation Authority (RVCA), and the Ministry of the Environment, Conservation and Parks (MECP). This report will address the water, sanitary and storm sewer servicing for the development, ensuring that existing and available services will adequately service the proposed development.

This report should be read in conjunction with the following drawings:

- CCO-23-0018, C101 – Site Grading Plan
- CCO-23-0018, C102 – Site Servicing Plan
- CCO-23-0018, PRE – Pre-Development Drainage Area Plan (Appendix E)
- CCO-23-0018, POST – Post-Development Drainage Area Plan (Appendix F)

1.2 Site Description

Figure 1: Site Map

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- CCO-23-0018, POST – Post-Development Drainage Area Plan (Appendix F)

1.2 Site Description

Figure 1: Site Map

The subject property, herein referred to as the site, is located at 637 Cummings Avenue within the Rideau-Rockcliffe ward. The site covers approximately 0.33 ha and is located along Cummings Avenue. The site is zoned for Residential Fourth Density (R4UC). See Site Location Plan in Appendix 'A' for more details.

1.3 Proposed Development and Statistics

The proposed development consists of the addition of a 3-storey 502 m² apartment building in the rear yard. Parking and drive aisles will be reconfigured as part of the development, complete with new landscaped areas. Development is proposed within 0.24 ha of the site. Refer to Site Plan prepared by Woodman Architect & Associates LTD and included in Appendix B for further details.

1.4 Existing Conditions and Infrastructures

The site is currently developed containing an existing 2-storey apartment building with asphalt parking areas and a concrete garage. The existing building is serviced via a 150 mm diameter combined service connected to the 225 mm sanitary sewer within Cummings Avenue, and a water service connection to the existing 305 mm diameter watermain within Cummings Avenue.

Sewer and watermain mapping collected from the City of Ottawa indicate that the following services exist across the property frontages within the adjacent municipal rights-of-way(s):

- Cummings Avenue
  - 305 mm diameter CI watermain, a
  - 225 mm diameter concrete sanitary sewer, and a
  - 1200 mm diameter concrete storm sewer, which outlets at the Aviation Parkway Extension approximately 2.8km downstream.

1.5 Approvals

The proposed development is subject to the City of Ottawa site plan control approval process. Site plan control requires the City to review, provided concurrence and approve the engineering design package. Permits to construct can be requested once the City has issued a site plan agreement.

An Environmental Compliance Approval (ECA) through the Ministry of Environment, Conservation and Parks (MECP) is not anticipated to be required since the proposed storm sewer system services one parcel of land and does not propose industrial use. In accordance with Section 3(1)1 of O. Reg. 525/98, the alteration or change in service connection qualifies for an ECA exemption from Subsections 53 (1) and (3) of the Act.

2.0 BACKROUND STUDIES, STANDARDS, AND REFERENCES

2.1 Background Reports / Reference Information

As-built drawings of existing services, provided by the City of Ottawa Information centre, within the vicinity of the proposed site were reviewed in order to identify infrastructure available to service the proposed development.

A topographic survey (22514-22) of the site was completed by AOV and dated March 18th, 2022.

The Site Plan (SP01) was prepared by Woodman Architect & Associates Ltd and dated July 13th, 2022 (Site Plan).

2.2 Applicable Guidelines and Standards

City of Ottawa:

- Ottawa Sewer Design Guidelines, City of Ottawa, SDG002, October 2012. (Ottawa Sewer Guidelines)
  - Technical Bulletin ISTB-2014-01 City of Ottawa, February 2014. (ISTB-2014-01)
  - Technical Bulletin PIEDTB-2016-01 City of Ottawa, September 2016. (PIEDTB-2016-01)
  - Technical Bulletin ISTB-2018-01 City of Ottawa, January 2018. (ISTB-2018-01)
  - Technical Bulletin ISTB-2018-04 City of Ottawa, March 2018. (ISTB-2018-04)
  - Technical Bulletin ISTB-2019-02 City of Ottawa, February 2019. (ISTB-2019-02)
- Ottawa Design Guidelines – Water Distribution City of Ottawa, July 2010. (Ottawa Water Guidelines)
  - Technical Bulletin ISD-2010-2 City of Ottawa, December 15, 2010. (ISD-2010-2)
  - Technical Bulletin ISDTB-2014-02 City of Ottawa, May 2014. (ISDTB-2014-02)
  - Technical Bulletin ISTB-2018-02 City of Ottawa, March 2018. (ISTB-2018-02)
  - Technical Bulletin ISTB-2021-03 City of Ottawa, August 2021. (ISTB-2021-03)

Ministry of Environment, Conservation and Parks:

- Stormwater Planning and Design Manual, Ministry of the Environment, March 2003. (MECP Stormwater Design Manual)
- Design Guidelines for Sewage Works, Ministry of the Environment, 2008. (MECP Sewer Design Guidelines)

Other:

- Water Supply for Public Fire Protection, Fire Underwriters Survey, 2020. (FUS Guidelines)

3.0 PRE-CONSULTATION SUMMARY

A pre-consultation meeting was held with City staff on January 20th, 2022, regarding the proposed site servicing. Specific design parameters to be incorporated within this design include the following:

- Pre-development and post-development flows shall be calculated using a time of concentration (Tc) no less than 10 minutes.
- Control 5 through 100-year post-development flows for the roof to the 5-year pre-development flows with a combined C value to a maximum of 0.50.
- Based on direction from the Rideau Valley Conservation Authority (RVCA), quality controls will not be required due to the distance to the outlet.

4.0 WATERMAIN

4.1 Existing Watermain

The site is located within the 1E pressure zone, as per the Water Distribution System mapping included in Appendix C. There is one municipal fire hydrant on Cummings Avenue available to service the development.

4.2 Proposed Watermain

A new 150 mm diameter watermain will be installed to provide sufficient flow to the proposed on-site hydrant. The private watermain will be connected to the existing 305 mm diameter watermain located within Cummings Avenue.

It is proposed to service the new building by extending a 50 mm diameter water service from the existing building. The existing service connection to the existing building will be blanked at the main and removed. The existing building will be serviced by a proposed 50 mm diameter water service connection to the proposed 150 mm diameter watermain.

Table 1, below, summarizes the water supply design criteria obtained from the Ottawa Water Guidelines and utilized for the water analysis.

Table 1: Water Supply Design Criteria

Site Area	0.33 ha
Residential	280 L/day/person
Residential Apartment – 1 Bedroom	1.4 person/unit
Residential Apartment – 2 Bedroom	2.1 person/unit
Max Day Peaking Factor - Residential	4.9 x avg. day
Peak Hour Peaking Factor - Residential	7.4 x avg. day

The OBC and Fire Underwriters Survey 2020 (FUS) methods were utilized to estimate the required fire flow for the proposed building. Fire flow requirements were calculated per City of Ottawa Technical Bulletin ISTB-2018-02. The following parameters were coordinated with the architect.

FUS:

- Type of construction – Non-Combustible Construction
- Occupancy Type – Limited Combustible
- Sprinkler Protection – No Sprinkler System

OBC:

- Type of construction – Non-Combustible Construction
- Occupancy Type: Group C

- Water Supply Coefficient (K): 16

The results of the FUS calculations yielded a required fire flow of 4,000 L/min (66.67 L/s), and the results of the OBC calculation yielded a required fire flow of 5,400 L/min (90.0 L/s). The detailed calculations for the FUS and OBC can be found in Appendix C.

The City provided the estimated water pressures at both the average day scenario, peak hour scenario, and the max day plus fire flow scenario for the demands indicated by the correspondence in Appendix C. The resulting pressures for the boundary conditions results are shown in Table 2, below.

Table 2: Summary of Estimated Water Demand

Scenario	Proposed Demands (L/S)	Connection 1 HGL (m H_2O)* / kPa
Average Day Demand	0.28	44.2 / 433.4
Maximum Daily + Fire Flow Demand (FUS)	68.05	38.4 / 376.5
Maximum Daily + Fire Flow Demand (OBC)	91.38	38.0 / 372.6
Peak Hourly Demand	2.09	35.8 / 351.0
* Adjusted for an estimated ground elevation of 76.5m above the connection point.		

The normal operating pressure range is anticipated to be 351.0 kPa to 433.4 kPa and will not be less than 275 kPa (40 psi) or exceed 689 kPa (100 psi). The proposed watermains will meet the minimum required 20 psi (140 kPa) from the Ottawa Water Guidelines at the ground level under maximum day demand and fire flow conditions.

To confirm the adequacy of fire flow to protect the proposed development, existing and proposed fire hydrants within 150 m of the proposed building were analysed per City of Ottawa ISTB 2018-02 Appendix I Table 1. The results are summarized below.

Table 3: Fire Protection Confirmation

Building	Fire Flow Demand (L/min.)	Fire Hydrant(s) within 75m (5,700 L/min)	Fire Hydrant(s) within 150m (3,800 L/min)	Combined Fire Flow (L/min.)
637 Cummings	5,400 (OBC) 4,000 (FUS)	1 Private	1 Public	9,500

Based on City guidelines (ISTB-2018-02), the existing and proposed hydrants provide adequate protection for the proposed development. A hydrant coverage figure can be found in Appendix C.

5.0 SANITARY DESIGN

5.1 Existing Sanitary Sewer

There is an existing 150 mm diameter combined service connection to the 225 mm diameter concrete sanitary sewer located within Cummings Avenue, tributary to the Rideau River Collector.

5.2 Proposed Sanitary Sewer

A new 135 mm diameter gravity sanitary service will be extended from the 225 mm diameter sanitary main within Cummings Avenue to service the proposed building, installed with a maintenance hole located within the property line. The existing combined service to the existing building will be abandoned, and the existing building will be serviced by a new 135 mm diameter sanitary service connection to the proposed 135 mm diameter sanitary service.

Refer to drawing C102 for a detailed servicing layout.

Table 4, below, summarizes the wastewater design criteria identified by the Ottawa Sewer Guidelines.

Table 4: Sanitary Design Criteria

Design Parameter	Value
Site Area	0.33 ha
Residential	280 L/person/day
1 Bedroom Apartment	1.4 persons/unit
2 Bedroom Apartment	2.1 persons/unit
Residential Peaking Factor	3.64
Extraneous Flow Allowance	0.33 L/s/ha

Table 5 below, summarizes the estimated wastewater flow from the existing and proposed building. Refer to Appendix D for detailed calculations.

Table 5: Summary of Estimated Sanitary Flow

Design Parameter	Total Flow (L/s)
Total Estimated Average Dry Weather Flow	0.30
Total Estimated Peak Dry Weather Flow	1.03
Total Estimated Peak Wet Weather Flow	1.13

As noted above, the development is proposed to be serviced via a proposed 135 mm sanitary service connection to the 225 mm concrete sanitary sewer within Cummings Avenue.

The full flowing capacity of a 135 mm diameter service at 1.19% slope is estimated to be 12.67 L/s. Per Table 5, a peak wet weather flow of 1.13 L/s will be conveyed within the 135 mm diameter service, therefore the proposed system is sufficiently sized for the development. Due to the complexity of the downstream network the City will need to advise of any downstream constraints.

6.0 STORM SEWER DESIGN

6.1 Existing Storm Sewers

Stormwater runoff from the existing building is conveyed through a 150 mm diameter combined service connection to the 225 mm diameter concrete sanitary sewer located within Cummings Avenue, tributary to the Rideau River Collector. Surface runoff from the existing site is directed south towards a neighbouring property and west towards Cummings Avenue.

6.2 Proposed Storm Sewers

The proposed development will be serviced through a new 300 mm service connection to the existing 1200 mm diameter storm sewer within Cummings Avenue.

Runoff collected on the roof of the proposed building will be stored and controlled internally using 2 roof drains. The roof drains will be used to limit the flow from the roof to the specified allowable release rate. For calculation purposes a Watts Accutrol roof drain was used to estimate a reasonable roof flow. Other products may be specified at detailed building design provided release rates and storage volumes are respected.

Runoff from the proposed surface parking lot and landscaped areas will be directed towards catch basins and catch basin maintenance holes. Flow restriction is not proposed for the surface runoff.

Roof drainage from the existing building is proposed to be conveyed via a 250 mm diameter service connection to the proposed 300 mm diameter storm service.

Foundation drainage from the proposed building is proposed to be conveyed via a 250 mm storm service connected to the catch basin maintenance hole CBMH2.

See CCO-23-0018 - POST include in Appendix F of this report for more details. The Stormwater Management design for the subject property will be outlined in Section 7.0 of this report.

7.0 PROPOSED STORMWATER MANAGEMENT

7.1 Design Criteria and Methodology

As per Section 6.2, stormwater management for the proposed development will be provided by roof storage. The controlled stormwater flow will be directed to the existing 1200 mm diameter storm sewer within Cummings Avenue.

In summary, the following design criteria have been employed in developing the stormwater management design for the site as directed by the RVCA and City:

Quality Control

- Based on consultation with the RVCA, quality controls are not required due to the distance to the outlet.

Quantity Control

- Any storm events greater than the 2-year, up to 100-year, and including 100-year storm event must be detained on the roof only. The remainder of the site is permitted to direct unrestricted flow towards the Cummings Avenue ROW.
- Post-development roof area to be restricted to the 2-year storm event, based on a calculated time of concentration greater than 10 minutes and a combined maximum rational method coefficient of 0.50. Refer to Section 7.2 for further details.

7.2 Runoff Calculations

Runoff calculations presented in this report are derived using the Rational Method, given as:

$$Q = 2.78CIA \text{ (L/s)}$$

Where: C = Runoff coefficient
I = Rainfall intensity in mm/hr (City of Ottawa IDF curves)
A = Drainage area in hectares

It is recognized that the Rational Method tends to overestimate runoff rates. As a result, the conservative calculation of runoff ensures that any SWM facility sized using this method is expected to function as intended. The following coefficients were used to develop an average C for each area:

Roofs/Concrete/Asphalt	0.90
Undeveloped and Grass	0.20

As per the City of Ottawa - Sewer Design Guidelines, the 5-year balanced 'C' value must be increased by 25% for a 100-year storm event to a maximum of 1.0.

7.3 Pre-Development Drainage

It has been assumed that the development area contains no stormwater management controls for flow attenuation. The estimated pre-development peak flows for the 5- and 100-year events are summarized below in Table 6. See CCO-23-0018 - PRE in Appendix E and Appendix G for calculations.

Table 6: Pre-Development Runoff Summary

Drainage Area	Area (ha)	C (5/100-Year)	Q (L/s)	
			5-Year	100-Year
A1	0.19	0.70 / 0.79	38.17	73.42
A2	0.05	0.90 / 1.00	13.08	24.91
Total	0.24		51.25	98.33

7.4 Post-Development Drainage

To meet the stormwater objectives, the development will contain flow attenuation via rooftop storage. Table 7, below, summarizes the required restricted flow for the roof.

Table 7: Required Restricted Flow

Drainage Area	Area (ha)	C (2-Year)	Q (L/s) 2-Year
A2	0.05	0.50	5.36

Based on the criteria listed in Section 7.1, the development will be required to restrict roof flow to the 2-year storm event. It is estimated that the target release rate during the 100-year event will be 5.36 L/s. See Appendix G for calculations.

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CCO-23-0018 - POST in Appendix F of this report for more details. A summary of the post-development runoff calculations can be found below.

Table 8: Post-Development Runoff Summary

Drainage Area	Area (ha)	5-year Peak Flow (L/s)	100-year Peak Flow (L/s)	100-year Storage Required (m^3)	100-year Storage Available (m^3)
B1	0.09	12.94	25.37	-	-
B2	0.05	0.84	1.56	22.64	24.46
B3	0.10	21.85	41.85	-	-
Total	0.24	35.63	68.78	22.64	24.46

Runoff for area B1 will flow overland towards the proposed catch basin systems and be collected on site. Runoff for area B3 will travel overland towards the Cummings Avenue right of way.

Runoff from area B2 will be controlled and stored on the roof of the proposed building (B2) using 2 roof drains. The roof drains will be used to limit the flow from the roof to the specified allowable release rate. For calculation purposes a Watts Accutrol roof drain was used to estimate a reasonable roof flow. Other products may be specified at detailed building design provided release rates and storage volumes are respected.

As seen in Table 9, below, roof runoff will be restricted to a maximum release rate of 1.56 L/s, allowing for a proposed 24.46 m^3 of roof storage.

Table 9: Roof Drainage Summary

Drainage Area	Area (ha)	# of Roof Drains	Storage Depth (mm)		Total Flow Rate (L/s)	
			5-Year	100-Year	5-Year	100-Year
B2	0.05	2	35	65	0.84	1.56

7.5 Quality Control

As noted in Section 7.1, quality controls are not required for the development due to the distance to the outlet.

8.0 EROSION AND SEDIMENT CONTROL

8.1 Temporary Measures

Before construction begins, temporary silt fence, straw bale or rock flow check dams will be installed at all-natural runoff outlets from the property. It is crucial that these controls be maintained throughout construction and inspection of sediment and erosion control will be facilitated by the Contractor or Contract Administration staff throughout the construction period.

Silt fences will be installed where shown on the final engineering plans, specifically along the downstream property limits. The Contractor, at their discretion or at the instruction of the City, Conservation Authority or the Contract Administrator shall increase the quantity of sediment and erosion controls on-site to ensure that the site is operating as intended and no additional sediment finds its way off site. The rock flow, straw bale & silt fence check dams and barriers shall be inspected weekly and after rainfall events. Care shall be taken to properly remove sediment from the fences and check dams as required. Fibre roll barriers are to be installed at all existing curb inlet catch basins and filter fabric is to be placed under the grates of all existing catch basins and manholes along the frontage of the site and any new structures immediately upon installation. The measures for the existing/proposed structures are to be removed only after all areas have been paved. Care shall be taken at the removal stage to ensure that any silt that has accumulated is properly handled and disposed of. Removal of silt fences without prior removal of the sediments shall not be permitted.

Although not anticipated, work through winter months shall be closely monitored for erosion along sloped areas. Should erosion be noted, the Contractor shall be alerted and shall take all necessary steps to rectify the situation. Should the Contractor's efforts fail at remediating the eroded areas, the Contractor shall contact the City and/or Conservation Authority to review the site conditions and determine the appropriate course of action. As the ground begins to thaw, the Contractor shall place silt fencing at all required locations as soon as ground conditions warrant. Please see the Site Grading, Drainage and Sediment & Erosion Control Plan for additional details regarding the temporary measures to be installed and their appropriate OPSD references.

8.2 Permanent Measures

It is expected that the Contractor will promptly ensure that all disturbed areas receive topsoil and seed/sod and that grass be established as soon as possible. Any areas of excess fill shall be removed or levelled as soon as possible and must be located a sufficient distance from any watercourse to ensure that no sediment is washed out into the watercourse. As the vegetation growth within the site provides a key component to the control of sediment for the site, it must be properly maintained once established. Once the construction is complete, it will be up to the landowner to maintain the vegetation and ensure that the vegetation is not overgrown or impeded by foreign objects.

9.0 SUMMARY

- A new 3-storey 502 m^2 building is proposed to be constructed east of the existing building at 637 Cummings Avenue. The development is proposed within 0.24 ha of the site.
- It is proposed to service the new building through a new 50 mm diameter water service and 135 mm diameter sanitary service. A new 250-300mm diameter storm service is proposed to collect and control drainage within the development area.
- It is proposed to remove the existing water service and abandon the existing combined service. The existing building will be serviced through new 50 mm diameter water, 135 mm diameter sanitary, and 250 mm diameter storm services.
- It is proposed to service the development area via a series of catch basins. The storm system will connect to the existing 1200 mm diameter concrete storm sewer located within Cummings Avenue.
- Storage for the 5- through 100-year storm events will be provided on the roof.
- Quality controls are not required due to the distance to the outlet.

10.0 RECOMMENDATION

Based on the information presented in this report, we recommend that City of Ottawa approve this Servicing and Stormwater Management report in support of the proposed development at 637 Cummings Avenue.

This report is respectfully being submitted for approval.

Regards,

McIntosh Perry Consulting Engineers Ltd.

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11.0 STATEMENT OF LIMITATIONS

This report was produced for the exclusive use of Jawan Properties INC. The purpose of the report is to assess the existing stormwater management system and provide recommendations and designs for the post-construction scenario that are in compliance with the guidelines and standards from the Ministry of the Environment, Parks and Climate Change, City of Ottawa and local approval agencies. McIntosh Perry reviewed the site information and background documents listed in Section 2.0 of this report. While the previous data was reviewed by McIntosh Perry and site visits were performed, no field verification/measures of any information were conducted.

Any use of this review by a third party, or any reliance on decisions made based on it, without a reliance report is the responsibility of such third parties. McIntosh Perry accepts no responsibility for damages, if any, suffered by any third party as a result of decisions or actions made based on this review.

The findings, conclusions and/or recommendations of this report are only valid as of the date of this report. No assurance is made regarding any changes in conditions subsequent to this date. If additional information is discovered or becomes available at a future date, McIntosh Perry should be requested to re-evaluate the conclusions presented in this report, and provide amendments, if required.

APPENDIX A
KEY PLAN

McINTOSH PERRY

LEGEND

- Site Location
- Local Road
- Major Road
- Watercourse
- Waterbody
- Wooded Area

600 300 0 600

Scale 1:20,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Northern Development, Mines, Natural Resources and Forestry, 2022.

CLIENT: JAWAN PROPERTIES INC.

PROJECT: 637 CUMMINGS AVENUE

TITLE: SITE LOCATION

McINTOSH PERRY
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www.mcintoshperry.com

PROJECT NO: CCO-23-0018	
Date	Jul., 11, 2022
GIS	AH
Checked By	FV

FIGURE: 1

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APPENDIX B
BACKGROUND DOCUMENTS

McINTOSH PERRY

Pre-Application Consultation Meeting Notes

637 Cummings
Thursday, January 20, 2022, MS Teams

Attendees:

City of Ottawa:
Jessica Button, File Lead
Sarah McLaughlin Seymour, Civil Engineer
Reza Bakhit, Infrastructure Project Manager
Wally Dubyk, Transportation Project Manager
Matthew Ippersiel, Urban Designer
Parthvi Patel, Student Planner

Ted Horton, NCC Municipal Liaison

Applicant Team:
Dennis Jacobs, Planning Lead
Bob Woodman, Woodman Architect
Juan Gomez, Woodman Architect
Raju B., Property Owner

Subject: Development of a 3-storey, 28-unit apartment building at 637 Cummings Avenue

Meeting Notes:

Opening & attendee Introduction

- Introduction of meeting attendees.

Proposal Overview

- The subject site is zoned R4UC, with an existing 2-storey apartment building at the front of the property and a parking garage at the rear.
- The proposed development is for a new 3-storey building at the rear of the lot.

Staff Comments:

Planning (Jessica)

- Application required
  - Zoning By-law Amendment
  - Site Plan Control – Complex (Manager Approval, Public Consultation)
- The following City policies or guidelines are applicable to the site:
  - Tree Protection By-law
  - Waste Management Guidelines
- The site is zoned R4UC.
- Permission is required to reduce the rear yard setback.
- The applicant is encouraged to refence the zoning by-for specific requirements and make note of the following:

    - Parking is not permitted within the required front yard
    - Landscaping requirements apply to the periphery of the parking lot.
    - Amenity space should be provided in accordance with the by-law.
    - Consider the impacts the removal of the existing garage may have on the existing building's parking, bicycle parking and waste storage.
- Consider the parking needs of the site. As proposed, the site oversupplies parking, there may be opportunities to reduce the parking and paved coverage in favour of landscaping and / or a more prominent pedestrian entrance.
- Consider enhancing landscaping the front yard to provide a buffer for the parking and a continuous streetscape.
- The entrance to the new building and an accessible pedestrian connection
- The new Official Plan was approved by City Council on October 27, 2021. Please include a planning rationale identifying how the proposed development and requested amendments have regard for the Council-approved policies. In the period between Council approval of the New OP and the Minister's approval of the New OP, City staff will apply whichever provision, as between the Current and New OP, is more restrictive.
- Within then new OP, the property is designated as within the inner urban transect, minor corridor, and evolving neighbourhood.
    - 2-4 storeys in height is permitted
    - An active entrance should be prioritized.
    - Parking should be hidden from view, behind a building, or underground.

<u>Transportation (Wally)</u>

- The Screening Form has indicated that no TIA Triggers have been met. The development site proposes 28 units and 29 parking spaces. This development would not generate sufficient traffic to warrant a TIA report.
- Cummings Avenue is designated as a Collector road within the City's Official Plan with a ROW protection limit of 24.0 metres. The ROW protection limit and the offset distance (12.0 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.
- **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.
- 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.
- The proponent shall comply with the Private Approach By-Law 2003-447
- Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be located in safe, secure places near main entrances and preferably protected from the weather.
- 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.

Urban Design (Matthew)

- Parking
    - Eliminating some of parking spaces from the site plan is recommended. In particular, the spaces closest to the street and on the "island" are problematic.
        - The spaces closest to the street should not extend beyond the front wall of the existing building. Ensure that a landscaping buffer screens the parking lot visually from the public realm.
        - It is recommended that the spaces on the "island" in the rear of the site be removed and the space dedicated to a landscaping feature, a walkway, and perhaps seating for residents. Perhaps the accessible spaces could be relocated to the spaces closest to the new building along the south property line.
    - Ensure that a fence will line the south property line as a part of this application to shield headlights from beaming into the neighbouring building's basement unit windows.
- Pedestrian Connections
    - A more direct pedestrian pathway that links the walkway and the primary entrance of the new building is needed. Continue a direct sidewalk across the "island". Relocating the accessible parking spaces will help in this respect.
    - Consider a change in paving materials where the walkway crosses through the parking lot.
    - Ensure the pedestrian pathway is sufficiently lit for the safety and comfort of its users.
- Building Design
    - The main entrance of the building appears to be in the right location, as it is aligned with the pedestrian walkway and will be visible from a distance. Ensure that it is well lit to be visible at night and explore opportunities to increase the amount of glazing to enhance its visibility. Perhaps the mail room could be reconfigured or glazed to achieve this.
- Other Site Plan Comments
    - Consider locating another exterior bike rack in the rear yard for visitors.
    - There appears to be a significant grade change between the existing building and the property to the south. Consider how this will be resolved as the plan progresses.
- Submission Materials
    - An Urban Design Brief is required as a part of your submission. This may be combined with your Planning Rationale report. Please refer to the attached Urban Design Brief Terms of Reference to inform the content of the brief.
- Urban Design Review Panel
    - This application is not subject to review by the Urban Design Review Panel.

Forester (Mark)
TCR requirements:

1. a Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
    a. an approved TCR is a requirement of Site Plan approval.
    b. The TCR may be combined with the LP provided all information is supplied
2. As of January 1 2021, any removal of privately-owned trees 10cm or larger in diameter, or publicly (City) owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
3. The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
    a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester
    b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit
4. the TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
5. please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
6. the TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site
7. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
8. All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
    a. the location of tree protection fencing must be shown on a plan
    b. show the critical root zone of the retained trees
    c. if excavation will occur within the critical root zone, please show the limits of excavation
9. the City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
10. For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa

    LP tree planting requirements:

    For additional information on the following please contact tracy.smith@Ottawa.ca

Minimum Setbacks

- Maintain 1.5m from sidewalk or MUP/cycle track.

- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

Tree specifications

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

Hard surface planting

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

Soil Volume

- Please ensure adequate soil volumes are met:

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

Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

Sensitive Marine Clay

- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

NCC (Ted)

1. Tree Conservation Report
    a. Please ensure the location and ownership of trees is identified by an Ontario Land Surveyor.
    b. The TCR should consider both trees located on the property, as well as those on adjacent NCC property that have the possibility of impact from development.
        i. **Note:** A Land Access Permit is required for access to NCC land, if required for completing necessary studies.
        ii. **Request:** Please ensure the TCR provides recommendations to prevent any injury to NCC-owned trees, including appropriate tree protection fencing during development.
2. Views - Landscape plan & lighting
    a. Aviation Parkway is Capital Urban Greenspace. The NCC's plans call for the protection of the landscaped experience of Capital Urban Greenspace and the enhancement of views.
    b. As provided by the City's current OP, development adjacent to greenspace will demonstrate, at the time of site plan review, how the building design, building orientation and the external site design contribute to the views of greenspace.
    c. The City's new OP also requires development to address scenic routes such as the Aviation Parkway through managing the intensity and spill-over of lighting on adjacent parcels, and preserving and restoring landscaping, including but not limited to distinctive trees and vegetation along the right of way.
        i. **Request:** Please ensure there is a landscape plan provided with the application that provides a robust planting plan along the eastern property edge with a mix of deciduous and coniferous trees.
        ii. **Request:** Please ensure illumination is limited along the eastern side of the building, luminaires are full-cut off, and no light spillover is present at the property line. This should be either identified through a photometric plan, or certified by an engineer as a condition of future site plan approval.
3. Stormwater Management
    a. The NCC does not accept stormwater runoff onto its lands.
        i. **Request**: Please ensure a stormwater management plan is provided which demonstrates that all stormwater is contained on site and directed to municipal stormwater facilities.
4. Interprovincial Crossings Plan
    a. As we have expressed through consultations with the City, the NCC is undertaking a refresh of studies for a potential sixth interprovincial crossing. One of the corridors under consideration as an approach to such a crossing is Aviation Parkway. No decision on a potential future crossing location has yet been made.
        i. **Note:** The City may wish to consider requiring the development provide a Traffic Noise Feasibility Assessment, in light of the possibility of this corridor serving as the future approach to a sixth crossing.

ii. **Request:** In the event that noise barriers are required, that they be located within the property and placed so as to avoid injury to the NCC's trees

City Surveyor (Bill)

- 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, Bill Harper, at Bill.Harper@ottawa.ca

Engineering (Reza)

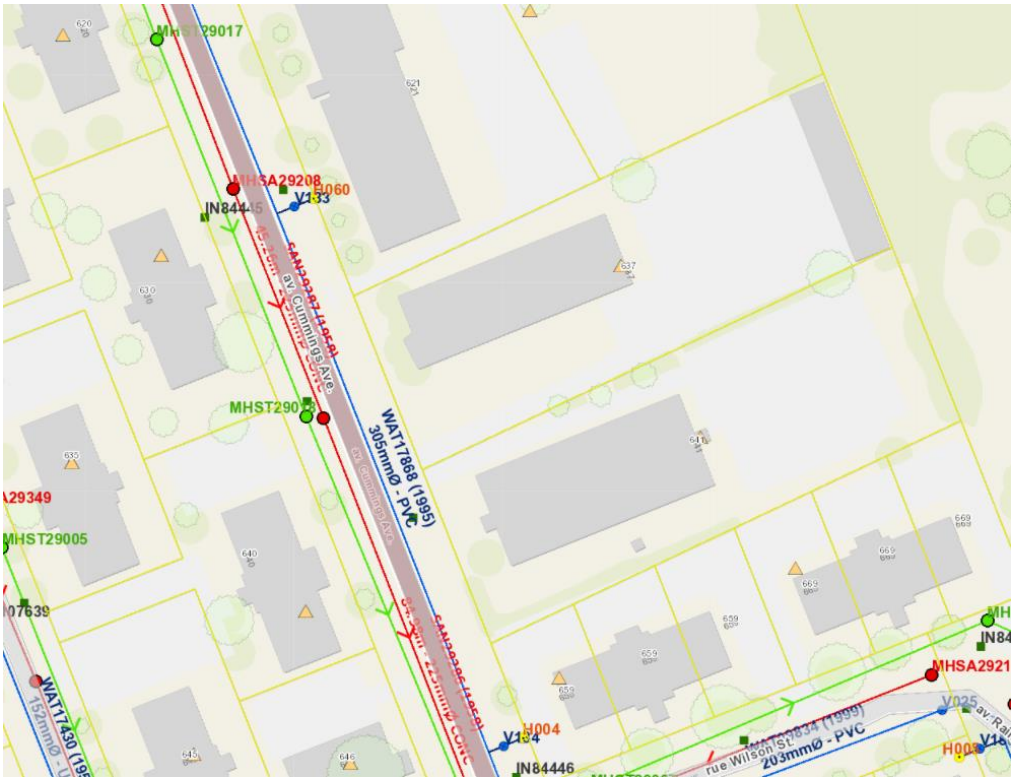
Note that the information is considered **preliminary,** and the assigned Development Review Project Manager may modify and/or add additional requirements and conditions upon review of an application if deemed necessary.

- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided and all easements shall be shown on the engineering plans.
- **Concern** about storm and sanitary sewer capacity: please provide the new sewer discharge and we confirm if sewer mains have the capacity. Also provide the size proposed for the sanitary and service.
- A deep excavation and dewatering operations have the potential to cause damages to the neighboring adjacent buildings/City infrastructure. Document that construction activities (excavation, dewatering, vibrations associated with construction, etc.) will not have an impact on any adjacent buildings and infrastructure.
- Existing buildings require a CCTV inspection and report to ensure existing services to be re-used are in good working order and meet current minimum size requirements. Located services to be placed on site servicing plans.

- Reference documents for information purposes:
  - Ottawa Sewer Design Guidelines (October 2012)
  - Technical Bulletin PIEDTB-2016-01
  - Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
  - Ottawa Design Guidelines - Water Distribution (2010)
  - Technical Bulletin ISTB-2021-03

- Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
- City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
- City of Ottawa Environmental Noise Control Guidelines (January 2016)
- City of Ottawa Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
- Ottawa Standard Tender Documents (latest version)
- Ontario Provincial Standards for Roads & Public Works (2013)
- Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-424 x.44455).

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



Disclaimer:

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Stormwater Management Criteria and Information

- **Water Quantity Control:** It would be acceptable to control the new building roof portion only **100-year storm event**, to **a 5-year pre-development level** and leave the remainder of the site uncontrol as long as the uncontrolled portion is directed towards the right of way. This approach should be discussed in the SWM report. Also, the grading plan should clearly demonstrate that the runoff from the uncontrolled portion of the site will be directed towards the ROW. The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.5 [**If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.5**]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations*].
- Any storm events greater than the established **5-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on the roof. The SWM measures required to avoid impact on downstream sewer system will be subject to review.
- Please note that foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump, and back flow prevention. **It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.**
- **Water Quality Control:** Please consult with the local conservation authority (RVCA) regarding water quality criteria prior to submission of a Site Plan Control Proposal application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.
- Please note that **there shall be no surface ponding on private parking areas during the 2-year storm rainfall event**.
- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.
- Please provide a **Pre-Development Drainage Area Plan** to define the pre-development drainage areas/patterns. **Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution**.
- **If rooftop control** and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.
- If **Window wells** are proposed, they are to be indirectly connected to the footing drains. A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.
- There must be at least **15cm of vertical clearance** between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.

- Only one service connection for storm, sanitary, and water will be permitted for the entire property (will have a shared connection for sewer/water with the existing residential building); the existing service connections may need to be upgraded to accommodate the additional flows and demand.
    - Alternatively, the lot can be severed to allow for new sewer and water connections on Cummings Avenue.
- If it is proposed to reuse the existing service laterals A CCTV scan and report (By an Engineer) will be required to verify the absence of any service or structural defects (both sanitary and storm). This strategy should be discussed in the serving report and the engineer to confirm the integrity of the existing services to be reused. (Replacement of lateral is required if minimum size or current material requirements are not met.)

Storm Sewer:

- A 1200mm dia. CONC storm sewer (1995) is available within Cummings Avenue**.**
- A 900mm dia. CSP storm sewer (1995) is available within Cummings Avenue**.**
- Storm sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property).

Sanitary Sewer:

- A 225 mm dia. CONC sanitary sewer (1958) is available within Cummings Avenue**.**
- Please provide the new sanitary sewer discharge and we confirm if sanitary sewer main has the capacity. An analysis and demonstration that there is sufficient/adequate residual capacity to accommodate any increase in wastewater flows in the receiving and downstream wastewater system is required to be provided. It needs to be demonstrated that there is adequate capacity to support any increase in wastewater flow.
- Please apply the wastewater design flow parameters *in Technical Bulletin PIEDTB-2018-01.*
- Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property).
- A backwater valve is required on the sanitary service for protection.

Water:

- A 305 mm dia. PVC watermain (1995) is available within Cummings Avenue**.**
- **Water Supply Redundancy:** Residential buildings with a basic day demand greater than 50m^3/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area.
- 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**. Two or more public hydrants are anticipated to be required to handle fire flow.
- Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to

request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.

- Type of Development and Units
- Site Address
- A plan showing the proposed water service connection location.
- **Average Daily Demand** (L/s)
- **Maximum Daily Demand** (L/s)
- **Peak Hour Demand** (L/s)
- **Fire Flow** (L/min)

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

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

Note: The OBC method can be used if the fire demand for the private property is less than 9,000 L/min. If the OBC fire demand reaches 9000 L/min, then the FUS method is to be used.

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

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

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).

Trees:

- Please note that a new Tree By-law is now in effect.

General Bulletin_New Tree Protection Bylaw.

Severance:

- If severance is planned, this needs to be addressed in servicing to satisfy severance requirements. Where a large parcel with multiple buildings is planned, City will require an ultimate servicing plan so as to appropriately understand how severance requirements are being met.

Gas pressure regulating station

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

Gas Pressure Regulating Station.pd

Regarding Quantity Estimates:

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

CCTV sewer inspection

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

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).

Required Engineering Plans and Studies:

PLANS:

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

REPORTS:

- Site Servicing and Stormwater Management Report
- Geotechnical Study/Investigation (including sensitive marine clays and unstable slopes)
- Noise Control Study
- Phase I ESA 4) A Phase 1 and where required Phase II ESA (Depending on recommendations of Phase I ESA)
- Site lighting certificate

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

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

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

Phase One Environmental Site Assessment:

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

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

Geotechnical Investigation:

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

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

Slope Stability Assessment Reports

- A report addressing the stability of slopes, prepared by a qualified geotechnical engineer licensed in the Province of Ontario, should be provided wherever a site has slopes (existing or proposed) steeper than 5 horizontal to 1 vertical (i.e., 11 degree inclination from horizontal) and/or more than 2 metres in height.
- A report is also required for sites having retaining walls greater than 1 metre high, that addresses the global stability of the proposed retaining walls. https://documents.ottawa.ca/en/document/slope-stability-guidelines-development-applications

Noise Study:

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

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

Exterior Site Lighting:

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

Fourth (4th) Review Charge:

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

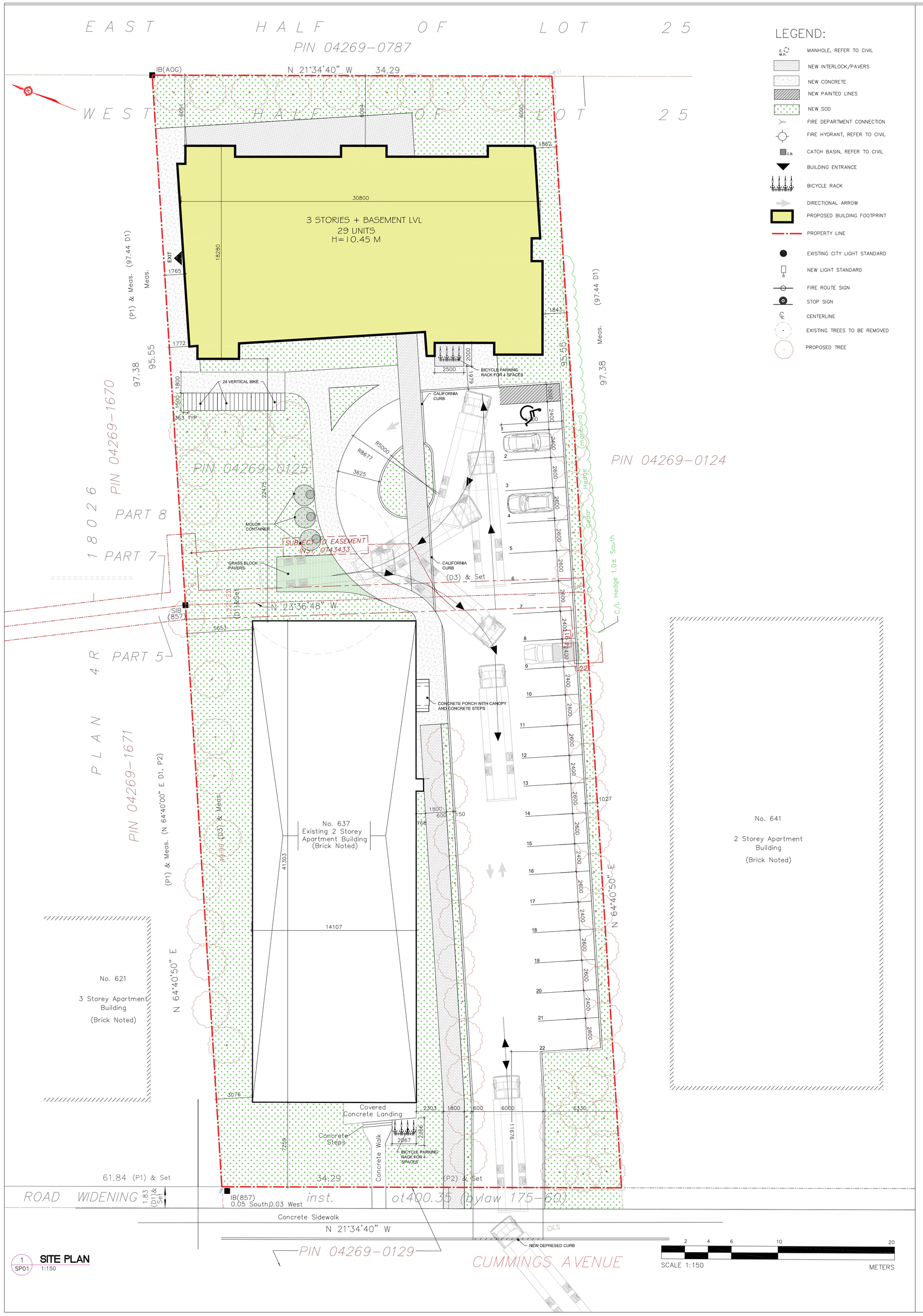
Construction approach – Please contact the Right-of-Ways Permit Office TMconstruction@ottawa.ca early in the Site Plan process to determine the ability to construct site and copy File Lead on this request.

Other:

- Please refer to the links to the guide to preparing studies and plans and development application fees for general information. Additional information is available related to

building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

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



1 SP01 **SITE PLAN** 1:150

LEVEL	UNIT	SQ FT G.B.A	SQ FT G.F.A		SQ FT G.F.A FT/LEVEL	SQ M G.B.A	SQ M G.F.A	SQ M G.F.A FT/LEVEL	TYPE 1 BEDROOM	TYPE STUDIO BF	TYPE 2 BEDROOM	TYPE 2 BEDROOM BF	TOTAL UNITS BY LEVEL
MECHANICAL LEVEL	MECH.	376	0		0	35	0	0					
BASEMENT	1	4964	547		3626	461	51	300			1		7
	2		544				51				1		
	3		344				32			1			
	4		682				63					1	
	5		562				52				1		
	6		554				51				1		
	7		393				37		1				
MAIN LEVEL	101	5375	569		3371	499	53	313			1		6
	102		563				52				1		
	103		351				33			1			
	104		699				65					1	
	105		615				57				1		
	106		574				53				1		
2	201	5419	569		4388	503	53	408			1		8
	202		563				52				1		
	203		351				33			1			
	204		699				65					1	
	205		614				57				1		
	206		561				52				1		
	207		632				59				1		
	208		399				37		1				
3	301	5419	569		4388	503	53	408			1		8
	302		563				52				1		
	303		351				33			1			
	304		699				65					1	
	305		614				57				1		
	306		561				52				1		
	307		632				59				1		
	308		399				37		1				
TOTAL		21 553	15 773		15 773	2 002	1 465	1 429	3		18	4	29

Section 161: Residential Fourth Density Subzone UC – R4-UC			
Section 161 (Subsection)	Requirement	Provided	Compliance
(8) for lots > 450 m²	30% of lot area to be landscaped Lot area = 3268 m² 30% = 980 m²	Provided = 990 m²	Yes
(15) (b) (iii) for lots > 450 m²	50% of rear yard to be soft landscaped	97 %	Yes
(15) (d) where front yard setback > 3 m	40% of front yard to be soft landscaped where lot width > 12 m	68.7 %	Yes
(16) (b) for lots > 450 m²	Minimum 25% of units to be 2 bedroom	Total units = 29; Total 2 bed units = 22 or 76%	Yes
Table 162A – Subzone UC			
Table 162A Standards	Requirement	Provided	Compliance
Minimum lot width	15 m	34.29 m	Yes
Minimum lot area	450 m²	3268 m²	Yes
Maximum height	11 m or 4 storeys	10.45 m and 3 storeys	Yes
Minimum front yard	4.5 m	7.26 m	Yes
Minimum rear yard where front yard setback > 4.5 m (Table 144 B (b) and Table 162A - Endnote 4)	For low-rise buildings with > 9 units - 25% of the lot depth which must comprise at least 25% of the area of the lot, and need not exceed 7.5 m	6 m	Not compliant Minor variance required
Minimum interior side yard	1.5 m	1.7 m	Yes
Section 137 – Amenity Area			
Table 137 (3) Low-rise apartment dwelling	6 m² per dwelling unit = 29 units x 6 = 174 m² aggregated into areas up to 54 m² – 50% of total for community area	Total area provided = Interior Amenity = 56 m² Balconies = 39 m² Ext. amenity = 394 m² Total = 489 m²	Yes
Section 139 – Low-rise Residential Development Within the Greenbelt			
Table 139 (Subsection)	Requirement	Provided	Compliance
(1) Minimum % aggregated soft landscaped area	Front yard > 3 m with lot width > 12 m = 40%	Lot width > 12 m 76 %	Yes
(4) A walkway located in a front yard or corner side yard is permitted subject to the following:	(b) Where a walkway extends from the right-of-way, it must be separated from any driveway by at least 0.6m of soft landscaping.	0.60 m	Yes
	(c) (i) The width of a walkway serving a low-rise apartment building may not exceed: 1.8 m	1.8 m	Yes
Parking, Queuing and Loading Provisions			
Section 101 - Resident	Requirement	Provided	Compliance
(3) In Area X and Table 101 Row 11	Total Units – 19 existing + 29 new units = 48 0 spaces for first 12 units - .5 spaces for 36 (balance) = 18 spaces	18 spaces	Yes
Section 102 - Visitor	Requirement	Provided	Compliance
Visitor spaces (2) in Area X and Table 102 Low-rise Apartment	Total Units – 19 existing + 29 new units = 48 0 spaces for first 12 units - .1 spaces for 36 (balance) = 3.6 or 4 spaces	4 spaces	Yes
Section 107 - Aisle and Driveway Provisions	Requirement	Provided	Compliance
(1) (a) A driveway providing access to a parking lot or parking garage must have a minimum width of;	For two way traffic – 6 m	6 m	Yes
Section 110 - Landscaping provisions for Parking lots	Requirement	Provided	Compliance
Table 110 (b) lot containing > 10 and < 100 spaces	Minimum width - 1.5 m	1.03 m	Not compliant Minor variance required
Section 111 – Bicycle Parking Space Rates and Provisions	Requirement	Provided	Compliance
Table 111A (b) (i)	.5 per unit: 48 X .5 = 24 spaces	24 spaces	Yes

2 SP01 **ZONING PLAN**
N.T.S.

KEY PLAN

ALL CONTRACTORS TO VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

ALL CONTRACTORS MUST COMPLY WITH ALL CODES AND BYLAWS AND OTHER AUTHORITIES HAVING JURISDICTION OVER THE WORK.

DO NOT SCALE DRAWINGS.

THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT.

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#	Description	Date
2	ISSUED FOR REVIEW	2022-07-11
1	ISSUED FOR REVIEW	2022-03-30

JAWAN PROPERTIES INC.
637 CUMMINGS AVE – OTTAWA

WOODMAN ARCHITECT & ASSOCIATES LTD.
4 BEECHWOOD, SUITE 201 OTTAWA, ONTARIO, CANADA K1L 8L9
TEL: 613 228 9850 • FAX 613 228 9848 • mailbox@woodmanarchitect.com

CONSULTANTS:
STRUCTURAL –
MECHANICAL –
CIVIL –
ELECTRICAL –
LANDSCAPING –

PROJECT
637 CUMMINGS AVE.
OTTAWA

DRAWING:

DATE
SCALE
DRAWN BY
REVIEWED BY
JOB NO. 2111
DRAWING NO.

Francis Valenti

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: August 8, 2022 4:06 PM
To: Francis Valenti
Subject: RE: 23-0018 - Quality Control Requirement - 637 Cummings Avenue

Good Afternoon Francis,

You are correct, based on the distance to the downstream outlet, the RVCA accepts that no additional water quality measures would be required, save and except best management practices.

Jamie Batchelor, MCIP, RPP
Planner, ext. 1191
Jamie.batchelor@rvca.ca

Rideau Valley Conservation Authority
3889 Rideau Valley Drive
PO Box 599, Manotick ON K4M 1A5
T 613-692-3571 | 1-800-267-3504 **F** 613-692-0831 | www.rvca.ca

From: Francis Valenti <F.Valenti@McIntoshPerry.com>
Sent: Wednesday, August 3, 2022 1:17 PM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Subject: RE: 23-0018 - Quality Control Requirement - 637 Cummings Avenue

Hi Jamie,

I was just looking to follow up on the quality control requirements for 637 Cummings. Have you had a chance to review yet?

Thanks,

From: Francis Valenti <F.Valenti@McIntoshPerry.com>
Sent: July 7, 2022 12:01 PM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Subject: 23-0018 - Quality Control Requirement - 637 Cummings Avenue

Good afternoon,

We wanted to touch base with you regarding the proposed development at 637 Cummings Avenue.

The property covers approximately 0.33 ha, and currently contains a 2-storey apartment building and a parking garage. The proposed development involves the construction of a new 3-storey apartment building in the rear, and removal of the existing parking garage. Runoff collected on site will be directed to the 1200mm concrete storm sewer within Cummings Avenue, where, as shown by the attached figure, it will travel approximately 2.8km downstream to Outlet#09728 at the Aviation Parkway.

Due to the distance to the outlet, it is not anticipated that quality controls will be required for the proposed development. Can you please review and confirm?

Thanks,

Francis Valenti, EIT
Engineering Intern, Land Development
T. 613.714.6895 | **C.** 613.808.2123
F.Valenti@McIntoshPerry.com | www.mcintoshperry.com

McINTOSH PERRY

Turning Possibilities Into Reality

APPENDIX C
WATERMAIN CALCULATIONS

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CCO-23-0018 - 637 Cummings - Existing Water Demands

Project:	637 Cummings
Project No.:	CCO-23-0018
Designed By:	FV
Checked By:	AG
Date:	July 19, 2022
Site Area:	0.33 gross ha

Residential (Existing)	NUMBER OF UNITS		UNIT RATE	
Bachelor Apartment	1	units	1.4	persons/unit
1 Bedroom Apartment	12	units	1.4	persons/unit
2 Bedroom Apartment	6	units	2.1	persons/unit
Total Population	31	persons		

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	
Residential	280	L/c/d	
Industrial - Light	35,000	L/gross ha/d	
Industrial - Heavy	55,000	L/gross ha/d	
Shopping Centres	2,500	L/(1000m² /d	
Hospital	900	L/(bed/day)	
Schools	70	L/(Student/d)	
Trailer Park with no Hook-Ups	340	L/(space/d)	
Trailer Park with Hook-Ups	800	L/(space/d)	
Campgrounds	225	L/(campsite/d)	
Mobile Home Parks	1,000	L/(Space/d)	
Motels	150	L/(bed-space/d)	
Hotels	225	L/(bed-space/d)	
Tourist Commercial	28,000	L/gross ha/d	
Other Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	Residential	0.10	L/s
	Commerical/Industrial/Institutional	0.00	L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	0.95	L/s
	Commerical/Industrial/Institutional	0.00	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	1.44	L/s
	Commerical/Industrial/Institutional	0.00	L/s

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.10	L/s
MAXIMUM DAILY DEMAND	0.95	L/s
MAXIMUM HOUR DEMAND	1.44	L/s

McINTOSH PERRY

CCO-23-0018 - 637 Cummings - Proposed Water Demands

Project:	637 Cummings
Project No.:	CCO-23-0018
Designed By:	FV
Checked By:	AG
Date:	July 19, 2022
Site Area:	0.33 gross ha

Residential (Existing)	NUMBER OF UNITS		UNIT RATE	
Bachelor Apartment	1	units	1.4	persons/unit
1 Bedroom Apartment	12	units	1.4	persons/unit
2 Bedroom Apartment	6	units	2.1	persons/unit

Residential (Proposed)	NUMBER OF UNITS		UNIT RATE	
1 Bedroom Apartment	7	units	1.4	persons/unit
2 Bedroom Apartment	22	units	2.1	persons/unit

Total Population 87 persons

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS
Residential	280	L/c/d
Industrial - Light	35,000	L/gross ha/d
Industrial - Heavy	55,000	L/gross ha/d
Shopping Centres	2,500	L/(1000m² /d
Hospital	900	L/(bed/day)
Schools	70	L/(Student/d)
Trailer Park with no Hook-Ups	340	L/(space/d)
Trailer Park with Hook-Ups	800	L/(space/d)
Campgrounds	225	L/(campsite/d)
Mobile Home Parks	1,000	L/(Space/d)
Motels	150	L/(bed-space/d)
Hotels	225	L/(bed-space/d)
Tourist Commercial	28,000	L/gross ha/d
Other Commercial	28,000	L/gross ha/d
AVERAGE DAILY DEMAND	Residential	0.28 L/s
	Commerical/Industrial/ Institutional	0.00 L/s

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	4.9	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	1.38	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	7.4	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	2.09	L/s
	Commerical/Industrial/ Institutional	0.00	L/s

WATER DEMAND DESIGN FLOWS PER UNIT COUNT
CITY OF OTTAWA - WATER DISTRIBUTION GUIDELINES, JULY 2010

AVERAGE DAILY DEMAND	0.28	L/s
MAXIMUM DAILY DEMAND	1.38	L/s
MAXIMUM HOUR DEMAND	2.09	L/s

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CCO-23-0018 - 637 Cummings - OBC Fire Calculations

Project:	637 Cummings
Project No.:	CCO-23-0018
Designed By:	FV
Checked By:	AG
Date:	July 19, 2022

Ontario 2006 Building Code Compendium (Div. B - Part 3)

Water Supply for Fire-Fighting - Apartment Building

Building is classified as Group : C (from table 3.2.2.55)

Building is of noncombustible construction or of heavy timber construction conforming to Article 3.1.4.6. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.

From Div. B A-3.2.5.7. of the Ontario Building Code - 3. Building On-Site Water Supply:

(a) Q = K x V x Stot

where:

Q = minimum supply of water in litres

K = water supply coefficient from Table 1

V = total building volume in cubic metres

Stot = total of spatial coefficient values from the property line exposures on all sides as obtained from the formula:

Stot = 1.0 + [Sside1+Sside2+Sside3+..etc.]

K	16	(from Table 1 pg A-31)
V	5,520	(Total building volume in m³.)
Stot	2.0	(From figure 1 pg A-32)
Q =	176,635.84 L	

From Figure 1 (A-32)

Snorth	1.64	m	0.5
Seast	5.99	m	0.4
Ssouth	1.79	m	0.5
Swest	71.02	m	0.0

* approximate distances

From Table 2: Required Minimum Water Supply Flow Rate (L/s)

5400 L/min if Q > 162,000 L and < 190,000 L

1427 gpm

115 Walgreen Road, R.R.3. Carp, ON K0A 1L0 | T. 613-836-2184 | F. 613-836-3742
info@mcintoshperry.com | www.mcintoshperry.com

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CCO-23-0018 - 637 Cummings - Fire Underwriters Survey

Project:	637 Cummings
Project No.:	CCO-23-0018
Designed By:	FV
Checked By:	AG
Date:	July 19, 2022

From the Fire Underwriters Survey (2020)

From Part II – Guide for Determination of Required Fire Flow Copyright I.S.O.:
City of Ottawa Technical Bulletin ISTB-2018-02 Applied Where Applicable

A. BASE REQUIREMENT (Rounded to the nearest 1000 L/min)

F = 220 x C x √A Where:

F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Non-Combustible Construction

C	0.8	A	1,128.0 m^2	
	Total Floor Area (per the 2020 FUS Page 20 - Total Effective Area)		925.0 m^2	* Unprotected Vertical Openings

Calculated Fire Flow	5,352.8 L/min
	5,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From Page 24 of the Fire Underwriters Survey:

Limited Combustible	-15%

Fire Flow	4,250.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered	0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons. of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	Over 30 m	Ordinary - Mass Timber (Unprotected)				0%
Exposure 2	Over 30 m	Ordinary - Mass Timber (Unprotected)				0%
Exposure 3	20.1 to 30	Ordinary - Mass Timber (Unprotected)	40.55	2	81.1	4%
Exposure 4	20.1 to 30	Ordinary - Mass Timber (Unprotected)	14.01	2	28.0	1%
					% Increase*	5%

Increase*	212.5 L/min

E. Total Fire Flow (Rounded to the Nearest 1000 L/min)

Fire Flow	4,462.5 L/min
Fire Flow Required**	4,000.0 L/min

* In accordance with Part II, Section 4, the Increase for separation distance is not to exceed 75%
** In accordance with Section 4 the Fire flow is not to exceed 45,000 L/min or be less than 2,000 L/min

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CCO-23-0018 - 637 Cummings - Boundary Condition Unit Conversion

Project:	637 Cummings
Project No.:	CCO-23-0018
Designed By:	FV
Checked By:	AG
Date:	July 19, 2022

Boundary Conditions Unit Conversion

Cummings Avenue

Scenario	Height (m)	Elevation (m)	m H_2O	PSI	kPa
Avg. DD	118.3	74.1	44.2	62.9	433.4
Fire Flow (66.67 L/s or 4,000 L/min)	112.5	74.1	38.4	54.6	376.5
Fire Flow (90 L/s or 5,400 L/min)	112.1	74.1	38.0	54.0	372.6
Peak Hour	109.9	74.1	35.8	50.9	351.0

Francis Valenti

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: July 11, 2022 11:20 AM
To: Francis Valenti
Cc: Alison Gosling
Subject: RE: 23-0018 - Boundary Condition Request - 637 Cummings Avenue
Attachments: 637 Cummings Avenue July 2022.pdf

Hi Francis,

The following are boundary conditions, HGL, for hydraulic analysis at 637 Cummings Avenue (zone 1E) assumed to be connected to the 305 mm watermain on Cummings Avenue (see attached PDF for location).

Minimum HGL: 109.9 m

Maximum HGL: 118.3 m

Max Day + FF (66.67 L/s): 112.5 m

Max Day + FF (90 L/s): 112.1 m

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

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

Regards,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Real Estate and Economic Development Department / Direction générale de la planification, des biens immobiliers et du développement économique
Development Review - Centeral Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 19346, reza.bakhit@ottawa.ca
Please note: Given the current pandemic, I will be working from home until further notice; reaching me by email is the easiest. I will be checking my voicemail, just not as frequently as I normally would be.

From: Francis Valenti <F.Valenti@McIntoshPerry.com>
Sent: Wednesday, June 29, 2022 12:11 PM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>

Cc: Alison Gosling <a.gosling@mcintoshperry.com>
Subject: RE: 23-0018 - Boundary Condition Request - 637 Cummings Avenue

Good morning Reza,

Water demands have been revised per the attached technical bulletin. Please see below for updated demands:

- The estimated fire flow is 4,000 L/min based on the FUS for the proposed building
- The estimated fire flow is 5,400 L/min based on the OBC for the proposed building
- Average Daily Demand (combined): 0.28 L/s
- Maximum Daily Demand (combined): 1.38 L/s
- Maximum hourly daily demand (combined): 2.09 L/s

Please also find attached a map showing the proposed connection location and calculations prepared for the demands listed above.

Regards,

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: June 28, 2022 2:29 PM
To: Francis Valenti <F.Valenti@McIntoshPerry.com>
Cc: Alison Gosling <a.gosling@mcintoshperry.com>
Subject: RE: 23-0018 - Boundary Condition Request - 637 Cummings Avenue

Hi Francis,

Could you please confirm that the OBC calculation reaches 9000 L/min and that is why FUS has been used ? Please refer to the attached Tech bulletin.

Thanks,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Real Estate and Economic Development Department / Direction générale de la planification, des biens immobiliers et du développement économique
Development Review - Centeral Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 19346, reza.bakhit@ottawa.ca
Please note: Given the current pandemic, I will be working from home until further notice; reaching me by email is the easiest. I will be checking my voicemail, just not as frequently as I normally would be.

From: Francis Valenti <F.Valenti@McIntoshPerry.com>
Sent: Tuesday, June 28, 2022 1:34 PM

To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Cc: Alison Gosling <a.gosling@mcintoshperry.com>
Subject: 23-0018 - Boundary Condition Request - 637 Cummings Avenue

Good afternoon,

We would like to request boundary conditions for the proposed development at 637 Cummings Avenue. The proposed development consists of a new 3-storey residential building. The proposed connection (single) will be to the existing 305 mm dia. watermain located within Cummings Avenue.

- The estimated fire flow is 4,000 L/min based on the FUS for the proposed building
- Average Daily Demand (combined): 0.28 L/s
- Maximum Daily Demand (combined): 1.38 L/s
- Maximum hourly daily demand (combined): 2.09 L/s

Please find attached a map showing the proposed connection location and calculations prepared for the demands listed above.

Regards,

Francis Valenti, EIT
Engineering Intern, Land Development
T. 613.714.6895 | **C.** 613.808.2123
F.Valenti@McIntoshPerry.com | www.mcintoshperry.com

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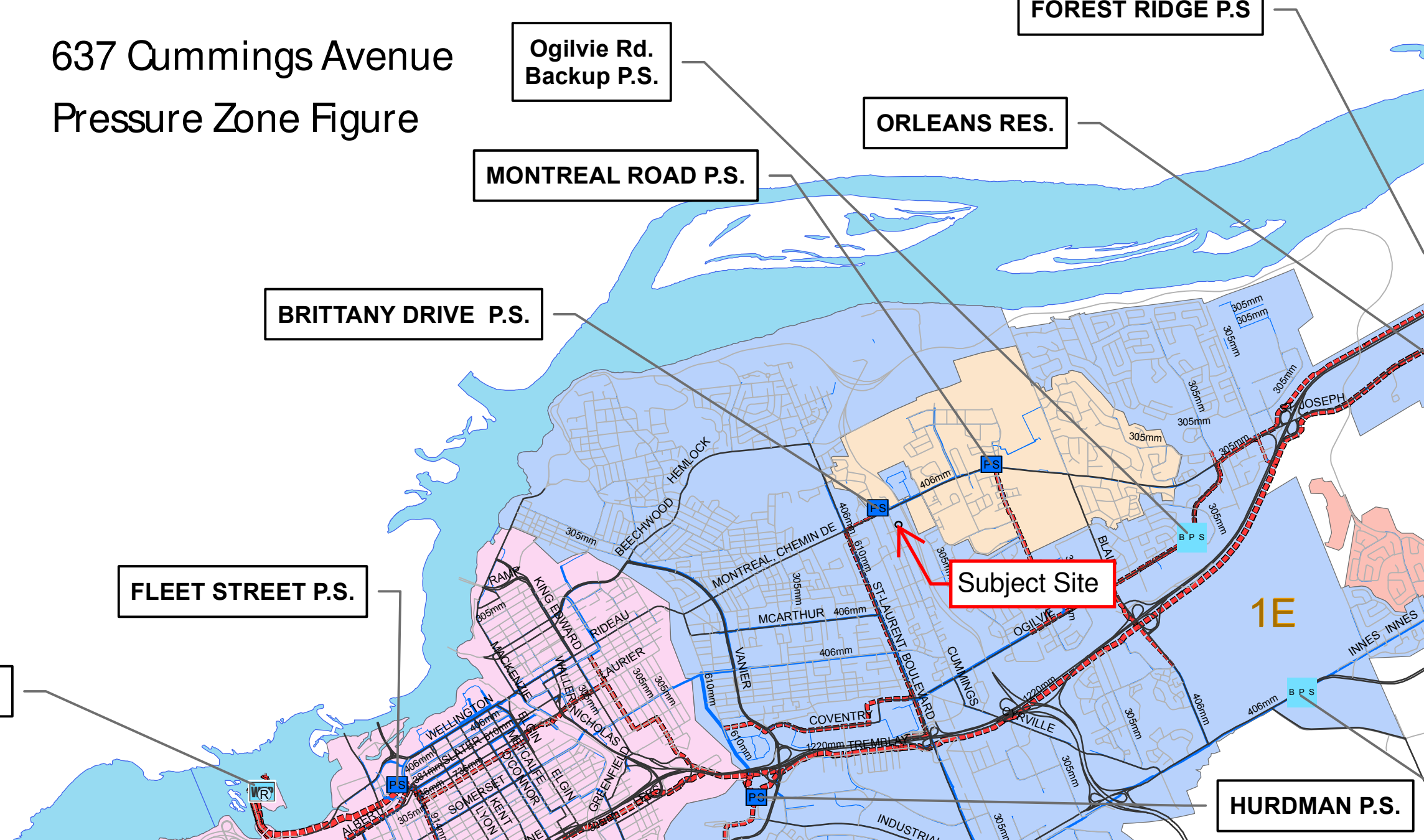
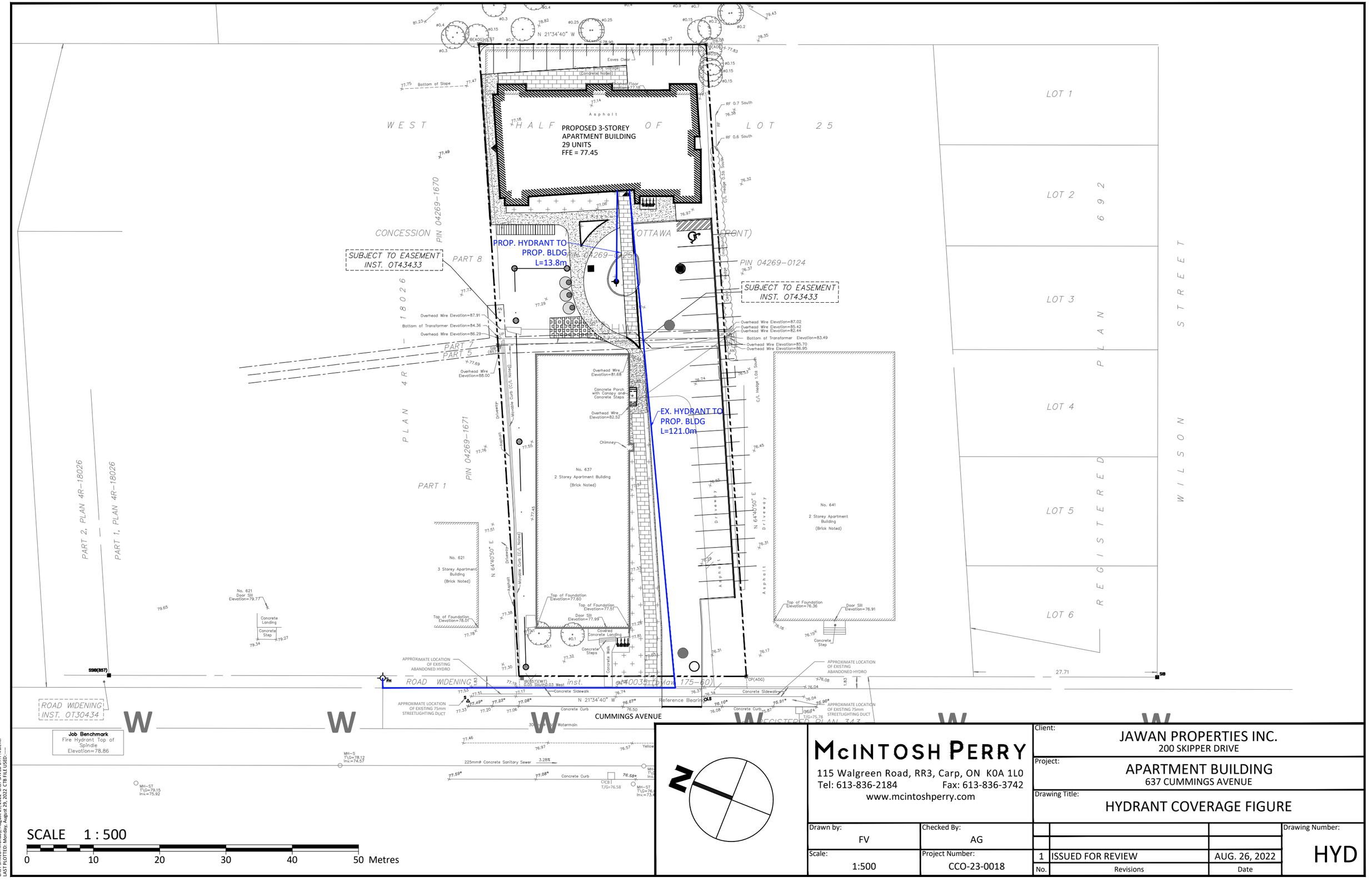
'

637 Cummings Avenue

Pressure Zone Figure





FILENAME: U:\Ottawa\01 Project - Proposals\2023 Jobs\CCO\CCO-23-0018 Jawan Properties_Apartment_637 Cummings\12 - Drawings\CCO-23-0018_Presentation.dwg
LAST SAVED: Monday, August 29, 2022 LAST SAVED BY: F.Valenti
LAST PLOTTED: Monday, August 29, 2022 CTB FILE USED: ---

McINTOSH PERRY
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Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Client: JAWAN PROPERTIES INC.
200 SKIPPER DRIVE

Project: APARTMENT BUILDING
637 CUMMINGS AVENUE

Drawing Title: HYDRANT COVERAGE FIGURE

Drawn by:	Checked By:			
FV	AG			Drawing Number:
Scale: 1:500	Project Number: CCO-23-0018	1	ISSUED FOR REVIEW	AUG. 26, 2022	HYD
		No.	Revisions	Date	

Francis Valenti

From:	Juan Gomez <gomez@woodmanarchitect.com>
Sent:	June 15, 2022 3:44 PM
To:	Alison Gosling
Cc:	Dennis Jacobs; Curtis Melanson; Raju Bhagrath; Robert Woodman
Subject:	Re: FW: Topo Survey Update - 637 Cummings Avenue
Follow Up Flag:	Follow up
Flag Status:	Flagged

Noncombustible Construction (Type II)

Juan Gomez

Associate

4 Beechwood Ave. Suite 201, Ottawa, ON K1L 8L9
Tel: 613.228.9850 ext. 225
Fax: 613.228.9848
Email: gomez@woodmanarchitect.com

On Wed, Jun 15, 2022 at 2:56 PM Alison Gosling <a.gosling@mcintoshperry.com> wrote:

> Thank you Juan. Can you please confirm construction type based on the building materials? Definitions are noted on pages 20-21 under the headings – Wood Frame, Mass Timber, Ordinary, Non-combustible, Fire Resistive
>
> Thank you,
>
> ---
>
> From: Juan Gomez <gomez@woodmanarchitect.com>
> Sent: June 15, 2022 2:50 PM
> To: Alison Gosling <a.gosling@mcintoshperry.com>
> Cc: Dennis Jacobs <djacobs@momentumplancom.ca>; Curtis Melanson <c.melanson@mcintoshperry.com>; Raju Bhagrath <bhagrath@gmail.com>; Robert Woodman <bob@woodmanarchitect.com>
> Subject: Re: FW: Topo Survey Update - 637 Cummings Avenue
>
> Hi Alison

Francis Valenti

From: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Sent: November 28, 2022 3:11 PM
To: Francis Valenti
Subject: RE: 23-0018 - 637 Cummings Avenue - 1st Review Comments

Hi Franics,

I've been informed that the HGL has not changed and the previous results can be used.

Thank you.

Best Regards,

Mohammed Fawzi, P.Eng.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 20120, Mohammed.Fawzi@ottawa.ca

Please note that due to the current situation, I am working remotely. Email is currently the best way to contact me

---

From: Fawzi, Mohammed
Sent: November 22, 2022 3:23 PM
To: Francis Valenti <F.Valenti@McIntoshPerry.com>
Subject: RE: 23-0018 - 637 Cummings Avenue - 1st Review Comments

Hi Francis,

Although it won't trigger much of a change, revised boundary conditions will still be provided for record purposes.

Thank you.

Best Regards,

Mohammed Fawzi, P.Eng.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique

Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 20120, Mohammed.Fawzi@ottawa.ca

Please note that due to the current situation, I am working remotely. Email is currently the best way to contact me

---

From: Fawzi, Mohammed
Sent: November 20, 2022 9:17 PM
To: Francis Valenti <F.Valenti@McIntoshPerry.com>
Subject: RE: 23-0018 - 637 Cummings Avenue - 1st Review Comments

Hi Francis,

I wouldn't suppose a new set of boundary conditions would be required given the minimal increase but nonetheless I reached out internally to make sure.

I'll get back to you when I receive a response.

Thanks Francis.

Best Regards,

Mohammed Fawzi, P.Eng.
Project Manager
Planning, Infrastructure and Economic Development Department - Services de la planification, de l'infrastructure et du développement économique
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 20120, Mohammed.Fawzi@ottawa.ca

Please note that due to the current situation, I am working remotely. Email is currently the best way to contact me

---

From: Francis Valenti <F.Valenti@McIntoshPerry.com>
Sent: November 18, 2022 2:55 PM
To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Subject: 23-0018 - 637 Cummings Avenue - 1st Review Comments

Good afternoon,

I was hoping to touch base on one of the comments for 637 Cummings Avenue. Comment 1.10 noted that water demands should be revised based on interpolated peaking factors. I've updated the water demands (summarized below), and have also attached detailed calculations prepared for the revised demands. Based on the previous boundary condition results it's not expected that the increased demand will have a significant impact, but can you please confirm if a new boundary condition request is required?

Previous Demands:

- Average Daily Demand (combined): 0.28 L/s
- Maximum Daily Demand (combined): 1.38 L/s
- Maximum hourly daily demand (combined): 2.09 L/s
- OBC: 5,400 L/min
- FUS: 4,000 L/min

Revised Demands:

- Average Daily Demand (combined): 0.28 L/s
- Maximum Daily Demand (combined): 2.06 L/s
- Maximum hourly daily demand (combined): 3.10 L/s
- OBC: 5,400 L/min
- FUS: 4,000 L/min

Thanks,

Francis Valenti, EIT
Engineering Intern, Land Development
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F.Valenti@McIntoshPerry.com | www.mcintoshperry.com

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APPENDIX D
SANITARY CALCULATIONS

McINTOSH PERRY

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CCO-23-0018 - 637 Cummings Ave - Existing Sanitary Demands

Project:	637 Cummings Ave
Project No.:	CCO-23-0018
Designed By:	FV
Checked By:	AG
Date:	Jul-22

Residential (Existing)			
Site Area	0.33	Gross ha	
1 Bedroom	12	1.40	Persons per unit
Bachelor	1	1.40	Persons per unit
2 Bedroom	6	2.10	Persons per unit
Total Population	31	Persons	

DESIGN PARAMETERS

Institutional/Commercial Peaking Factc	1.5	
Residential Peaking Factor	3.68	* Using Harmon Formula = 1+(14/(4+P^0.5))*0.8 where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.02
Wet	0.09
Total	0.11

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	31	0.10
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m^2/d)	0	0
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.10	L/s
PEAK RESIDENTIAL FLOW	0.37	L/s
AVERAGE ICI FLOW	0.00	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.00	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.00	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.12	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	0.39	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	0.48	L/s

McINTOSH PERRY

CCO-23-0018 - 637 Cummings Ave - Proposed Sanitary Demands

Project:	637 Cummings Ave
Project No.:	CCO-23-0018
Designed By:	FV
Checked By:	AG
Date:	Jul-22

Site Area	0.33	Gross ha
Residential (Proposed)		
1 Bedroom	7	1.40 Persons per unit
2 Bedroom	22	2.10 Persons per unit
Total Population	56	Persons

DESIGN PARAMETERS

Institutional/Commercial Peaking Factc	1.5	
Residential Peaking Factor	3.64	* Using Harmon Formula = 1+(14/(4+P^0.5))*0.8 where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.02
Wet	0.09
Total	0.11

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	56	0.18
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m^2/d)	0	0
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.18	L/s
PEAK RESIDENTIAL FLOW	0.66	L/s
AVERAGE ICI FLOW	0.00	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.00	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.00	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.20	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	0.68	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	0.77	L/s

McINTOSH PERRY

CCO-23-0018 - 637 Cummings Ave - Proposed Sanitary Demands

Project:	637 Cummings Ave
Project No.:	CCO-23-0018
Designed By:	FV
Checked By:	AG
Date:	Jul-22

Residential (Existing)		
Site Area	0.33	Gross ha
1 Bedroom	12	1.40 Persons per unit
Bachelor	1	1.40 Persons per unit
2 Bedroom	6	2.10 Persons per unit
Residential (Proposed)		
1 Bedroom	7	1.40 Persons per unit
2 Bedroom	22	2.10 Persons per unit
Total Population	87	Persons

DESIGN PARAMETERS

Institutional/Commercial Peaking Factor	1.5	
Residential Peaking Factor	3.61	* Using Harmon Formula = 1+(14/(4+P^0.5))* 0.8 where P = population in thousands, Harmon's Correction Factor = 0.8
Mannings coefficient (n)	0.013	
Demand (per capita)	280	L/day
Infiltration allowance	0.33	L/s/Ha

EXTRANEOUS FLOW ALLOWANCES

Infiltration / Inflow	Flow (L/s)
Dry	0.02
Wet	0.09
Total	0.11

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	87	0.28
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m² /d)	0	0
Hospital	900	L/(bed/day)		0
Schools	70	L/(Student/d)		0
Trailer Parks no Hook-Ups	340	L/(space/d)		0
Trailer Park with Hook-Ups	800	L/(space/d)		0
Campgrounds	225	L/(campsite/d)		0
Mobile Home Parks	1,000	L/(Space/d)		0
Motels	150	L/(bed-space/d)		0
Hotels	225	L/(bed-space/d)		0
Office	75	L/7.0m^2/d		0
Tourist Commercial	28,000	L/gross ha/d		0
Other Commercial	28,000	L/gross ha/d		0

AVERAGE RESIDENTIAL FLOW	0.28	L/s
PEAK RESIDENTIAL FLOW	1.02	L/s
AVERAGE ICI FLOW	0.00	L/s
PEAK INSTITUTIONAL/COMMERCIAL FLOW	0.00	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.00	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.30	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	1.03	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	1.13	L/s

SANITARY SEWER DESIGN SHEET

PROJECT: Proposed Apartment Building
LOCATION: 637 Cummings Avenue
CLIENT: Jawan Properties Inc.

McINTOSH PERRY

LOCATION				RESIDENTIAL									ICI AREAS							INFILTRATION ALLOWANCE			FLOW	SEWER DATA						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
STREET	AREA ID	FROM MH	TO MH	UNIT TYPES SF	SD	TH	APT	AREA (ha)	POPULATION IND	CUM	PEAK FACTOR	PEAK FLOW (L/s)	AREA (ha) INSTITUTIONAL IND	CUM	COMMERCIAL IND	CUM	INDUSTRIAL IND	CUM	PEAK FLOW (L/s)	AREA (ha) IND	CUM	FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	DIA (mm)	SLOPE (%)	VELOCITY (full) (m/s)	AVAILABLE CAPACITY L/s	(%)
		PROP. BLDG	MH2				29		67.0	67.0	3.63	0.79								0.33	0.33	0.11	0.90	13.20	39.52	135	1.21	0.893	12.30	93.20
		EX. BLDG	MH2				19		44.0	44.0	3.66	0.52									0.33	0.11	0.63	12.00	49.51	135	1.00	0.812	11.37	94.74
		MH2	MH1							111.0	3.58	1.29									0.33	0.11	1.40	13.09	28.50	135	1.19	0.886	11.69	89.31
		MH1	MAIN							111.0	3.58	1.29									0.33	0.11	1.40	15.08	17.04	135	1.58	1.021	13.68	90.73

Design Parameters:

Residential			ICI Areas			Peak Factor
SF	3.4	p/p/u				
TH/SD	2.7	p/p/u	INST	28,000	L/Ha/day	1.5
APT	2.3	p/p/u	COM	28,000	L/Ha/day	1.5
Other	60	p/p/Ha	IND	35,000	L/Ha/day	MOE Chart

Notes:
1. Mannings coefficient (n) = 0.013
2. Demand (per capita): 280 L/day
3. Infiltration allowance: 0.33 L/s/Ha
4. Residential Peaking Factor:
Harmon Formula = 1+(14/(4+P^0.5)*0.8)
where P = population in thousands

Designed: FV
Checked: AG
Project No.: CCO-23-0018

No.	Revision	Date
1.	Issued for Municipal Reivew	2022.08.26
2	Revised Per New Sanitary Layout	2023.02.10

Sheet No:
1 of 1

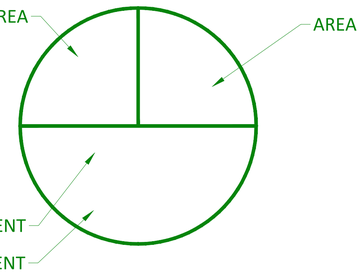
APPENDIX E
PRE-DEVELOPMENT DRAINAGE PLAN

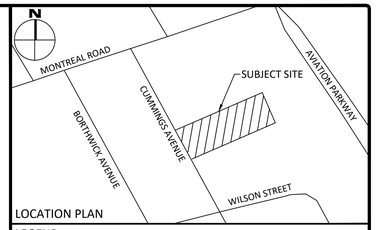
McINTOSH PERRY

GENERAL NOTES

1. THE ORIGINAL TOPOGRAPHY, GROUND ELEVATION AND SURVEY DATA SHOWN ARE SUPPLIED FOR INFORMATION PURPOSES ONLY, AND IMPLY NO GUARANTEE OF ACCURACY. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY ALL INFORMATION SHOWN.
2. THIS PLAN IS NOT A CADASTRAL SURVEY SHOWING LEGAL PROPERTY BOUNDARIES AND EASEMENTS. THE PROPERTY BOUNDARIES SHOWN HEREON HAVE BEEN DERIVED INFORMATION SUPPLIED BY ANNIS O'SULLIVAN VOLLEBEKK LTD (OR SHOWN ON) DRAWING V-22629 AND CANNOT BE RELIED UPON TO BE ACCURATE OR COMPLETE. THE PRECISE LOCATION OF THE CURRENT PROPERTY BOUNDARIES AND EASEMENTS CAN ONLY BE DETERMINED BY AN UP-TO-DATE LAND TITLES SEARCH AND A SUBSEQUENT CADASTRAL SURVEY PERFORMED AND CERTIFIED BY AN ONTARIO LAND SURVEYOR.
3. THE CONTRACTOR IS TO OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY BEFORE COMMENCING CONSTRUCTION.
4. THE CONTRACTOR IS RESPONSIBLE FOR ALL LAYOUT.
5. THE CONTRACTOR IS TO DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME ALL RESPONSIBILITY FOR EXISTING UTILITIES WHETHER OR NOT SHOWN ON THESE DRAWINGS. IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
6. RESTORE ALL TRENCHES AND SURFACES OF PUBLIC ROAD ALLOWANCES TO CONDITION EQUAL OR BETTER THAN ORIGINAL CONDITION AND TO THE SATISFACTION OF THE CITY AUTHORITIES.
7. EXCAVATE AND DISPOSE OF ALL EXCESS EXCAVATED MATERIAL, SUCH AS ASPHALT, CURBING AND DEBRIS, OFF SITE AS DIRECTED BY THE ENGINEER AND THE CITY.
8. TOPSOIL TO BE STRIPPED AND STOCKPILED FOR REHABILITATION. CLEAN FILL TO BE PLACED IN FILL AREAS AND COMPACTED TO 95% STANDARD PROCTOR DENSITY.
9. ALL DISTURBED AREAS TO BE RESTORED TO ORIGINAL CONDITION OR BETTER UNLESS OTHERWISE SPECIFIED.
10. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TRAFFIC CONTROL AND SAFETY MEASURES DURING THE CONSTRUCTION PERIOD, INCLUDING THE SUPPLY, INSTALLATION, AND REMOVAL OF ALL NECESSARY SIGNAGE, DELINEATORS, MARKERS AND BARRIERS.
11. DO NOT ALTER GRADING OF THE SITE WITHOUT PRIOR APPROVAL OF THE ENGINEER/CITY.
12. ALL ROADWAY, PARKING LOT, AND GRADING WORKS TO BE UNDERTAKEN IN ACCORDANCE WITH CITY STANDARDS AND SPECIFICATIONS. THE CONTRACTOR IS TO PROVIDE POSITIVE DRAINAGE AWAY FROM THE BUILDING.
13. CONTACT THE CITY FOR INSPECTION OF ROUGH GRADING OF PARKING LOTS, ROADWAYS AND LANDSCAPED AREAS PRIOR TO PLACEMENT OF ASPHALT AND TOPSOIL. ALL DEFICIENCIES NOTED SHALL BE RECTIFIED TO THE CITY'S SATISFACTION PRIOR TO PLACEMENT OF ANY ASPHALT, TOPSOIL, SEED & MULCH AND/OR SOD.
14. ALL DIMENSIONS AND INVERTS MUST BE VERIFIED PRIOR TO CONSTRUCTION, IF THERE IS ANY DISCREPANCY THE CONTRACTOR IS TO NOTIFY THE ENGINEER PROMPTLY.
15. ELECTRICAL, GAS, TELEPHONE AND TELEVISION SERVICE LOCATIONS ARE SUBJECT TO THE INDIVIDUAL AGENCY:
    - ELECTRICAL SERVICE - HYDRO ONE,
    - GAS SERVICE - ENBRIDGE,
    - TELEPHONE SERVICE - BELL CANADA,
    - TELEVISION SERVICE - ROGERS.
16. INSTALLATION TO BE IN ACCORDANCE WITH CURRENT CODES AND STANDARDS OF APPROVAL AGENCIES HYDRO ONE, BELL AND THE CITY.
17. CONTRACTOR TO ENSURE ALL APPLICABLE OPS SPECIFICATIONS ARE FOLLOWED DURING CONSTRUCTION
18. ALL PROPOSED CURB TO BE CONCRETE BARRIER CURB UNLESS OTHERWISE SPECIFIED.
19. THIS PLAN MUST BE READ IN CONJUNCTION WITH THE GEOTECHNICAL INVESTIGATION COMPLETED BY PATERSON GROUP, DATED JULY 20, 2022.

LEGEND:





LOCATION PLAN

LEGEND

SUBJECT TO APPROVAL

No.	Revisions	Date
2	REVISED PER CITY COMMENTS	JAN. 12, 2023
1	ISSUED FOR MUNICIPAL REVIEW	AUG. 29, 2022

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 250

0 5 10 15 20 25 Metres

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp:

Client:
JAWAN PROPERTIES INC.
200 SKIPPER DRIVE
MANOTICK, ON K4M 0M5

Project:
637 CUMMINGS AVE

Drawing Title:
PRE-DEVELOPMENT DRAINAGE PLAN

Scale: 1:250	Project Number: CCO-23-0018
Drawn By: FV	
Checked By: AG	Drawing Number: PRE
Designed By: AG	

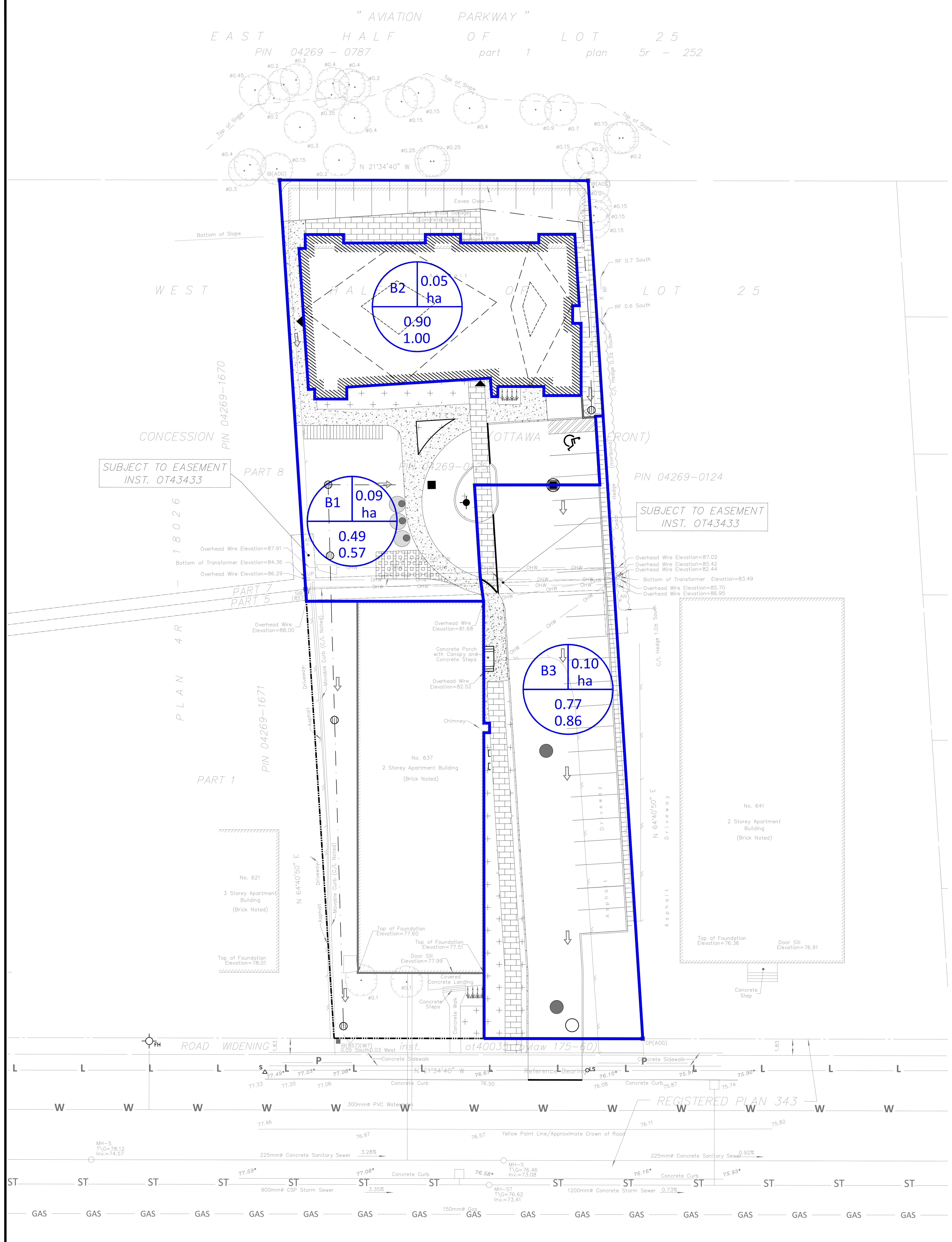
D07-12-22-0129

#18832

FILENAME: U:\Ottawa\01 Project - Proposals\2023 Jobs\CO\CCO-23-0018 Jawan Properties_Apartment_637 Cummings\12 - Drawings\CCO-23-0018_ Presentation.dwg
LAST SAVED: Tuesday, December 13, 2022 LAST SAVED BY: F.Valeri
LAST PLOTTED: Thursday, January 12, 2023 [TB PLOTTED] —

APPENDIX F
POST-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY



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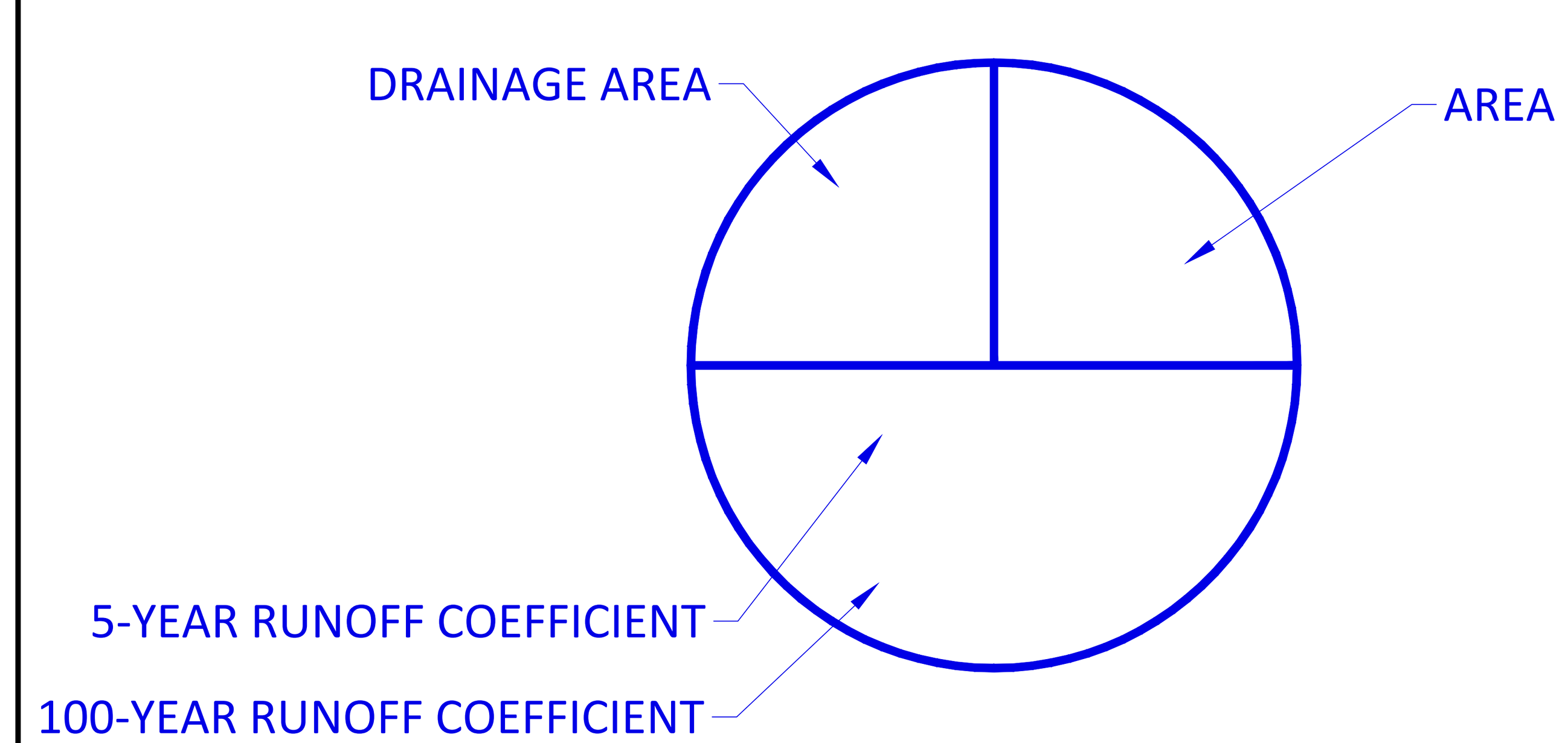
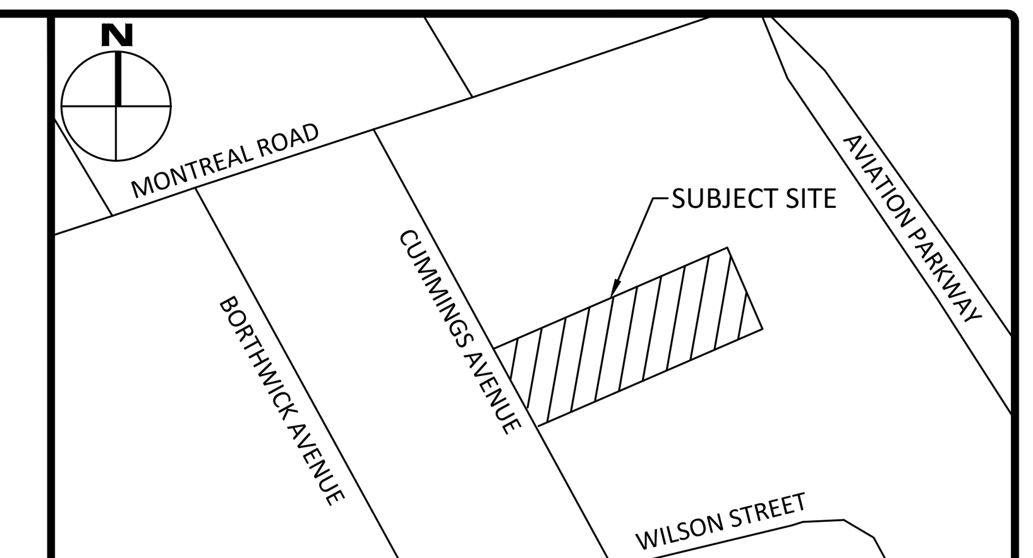
19. THIS PLAN MUST BE READ IN CONJUNCTION WITH THE GEOTECHNICAL INVESTIGATION COMPLETED BY PATERSON GROUP, DATED JULY 20, 2022.

LEGEND:





LOCATION PLAN

LEGEND

SUBJECT TO APPROVAL

No.	Revisions	Date
2	REVISED PER CITY COMMENTS	JAN. 12, 2023
1	ISSUED FOR MUNICIPAL REVIEW	AUG. 29, 2022

Check and verify all dimensions before proceeding with the work — Do not scale drawings

SCALE 1 : 250 — 0 5 10 15 20 25 Metres

McINTOSH PERRY
115 Walgreen Road, RR3, Carp, ON K0A 1L0
Tel: 613-836-2184 Fax: 613-836-3742
www.mcintoshperry.com

Stamp:

Client: JAWAN PROPERTIES INC.
200 SKIPPER DRIVE
MANOTICK, ON K4M 0M5

Project: 637 CUMMINGS AVE

Drawing Title: POST-DEVELOPMENT DRAINAGE PLAN

Scale: 1:250	Project Number: CCO-23-0018
Drawn By: FV	
Checked By: AG	Drawing Number: POST
Designed By: AG	

D07-12-22-0129

#18832

APPENDIX G
STORMWATER MANAGEMENT CALCULATIONS

McINTOSH PERRY

CCO-23-0018 - 637 Cummings Avenue - SWM Calculations

Tc (min)	Intensity (mm/hr)		
	2-Year	5-Year	100-Year
20	52.0	70.3	120.0
10	76.8	104.2	178.6

C-Values	
Impervious	0.90
Gravel	0.60
Pervious	0.20

Pre-Development Runoff Coefficient

Drainage Area	Impervious Area (m^2)	Gravel (m^2)	Pervious Area (m^2)	Average C (5-year)	Average C (100-year)
A1	1,345	0	538	0.70	0.79
A2	502	0	0	0.90	1.00

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)		
					5-Year	100-Year	
A1	0.19	0.70	0.79	10	38.17	73.42	
A2	0.05	0.90	1.00	10	13.08	24.91	Area Matching Post-Dev Roof
Total	0.24				51.25	98.33	

Post-Development Runoff Coefficient

Drainage Area	Impervious Area (m^2)	Gravel (m^2)	Pervious Area (m^2)	Average C (5-year)	Average C (100-year)	
B1	380	0	524	0.49	0.57	Unrestricted - Collected
B2	502	0	0	0.90	1.00	Roof
B3	798	0	181	0.77	0.86	Unrestricted - Uncollected

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 2/5-Year	C 100-Year	Tc (min)	Q (L/s)		
					5-Year	100-Year	
B1	0.09	0.49	0.57	10	12.94	25.37	Unrestricted - Collected
B2	0.05	0.90	1.00	10	13.08	24.91	Roof
B3	0.10	0.77	0.86	10	21.85	41.85	Unrestricted - Uncollected
Total	0.24				47.87	92.13	

Required Restricted Roof Flow for Area B2

Drainage Area	Area (ha)	C 2-Year	Tc (min)	Q (L/s)
				2-Year
A2	0.05	0.50	10	5.36

Post-Development Restricted Runoff Calculations

Drainage Area	Unrestricted Flow (L/S)		Restricted Flow (L/S)		Storage Required (m^3)		Storage Provided (m^3)	
	5-year	100-Year	5-Year	100-Year	5-Year	100-Year	5-Year	100-Year
B1	12.94	25.37	12.94	25.37				
B2	13.08	24.91	0.84	1.56	12.00	22.64	13.17	24.46
B3	21.85	41.85	21.85	41.85				
Total	47.87	92.13	35.63	68.78	12.00	22.64	13.17	24.46

Storage Requirements for Area B2

2-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B2	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
50	28.0	3.52	0.60	2.92	8.76
60	24.6	3.08	0.60	2.48	8.94
70	21.9	2.75	0.60	2.15	9.03
80	19.8	2.49	0.60	1.89	9.07
90	18.1	2.28	0.60	1.68	9.06

Maximum Storage Required 2-year =	9	m^3

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B2	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
50	37.7	4.73	0.84	3.89	11.68
60	32.9	4.13	0.84	3.29	11.85
70	29.4	3.69	0.84	2.85	11.97
80	26.6	3.34	0.84	2.50	12.00
90	24.3	3.05	0.84	2.21	11.94

Maximum Storage Required 5-year =	12	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B2	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
50	64.0	8.93	1.56	7.37	22.10
60	55.9	7.80	1.56	6.24	22.45
70	49.8	6.95	1.56	5.39	22.62
80	45.0	6.28	1.56	4.72	22.64
90	41.1	5.73	1.56	4.17	22.53
100	37.9	5.29	1.56	3.73	22.36
110	35.2	4.91	1.56	3.35	22.11
120	32.9	4.59	1.56	3.03	21.81

Maximum Storage Required 100-year =	23	m^3

2-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	376.32	0.025	9.41

Storage Available (m^3) =	9.41
Storage Required (m^3) =	9.07

5-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	376.32	0.035	13.17

Storage Available (m^3) =	13.17
Storage Required (m^3) =	12.00

100-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	376.32	0.065	24.46

Storage Available (m^3) =	24.46
Storage Required (m^3) =	22.64

* Area is 75% of the total roof area

Roof Drain Flow (B2)

Roof Drains Summary			
Type of Control Device	Watts Drainage - Accutrol Weir		
Number of Roof Drains	2		
	5-Year	5-Year	100-Year
Rooftop Storage (m^3)	0.04	13.17	24.46
Storage Depth (mm)	0.025	0.035	0.065
Flow (Per Roof Drain) (L/s)	0.30	0.42	0.78
Total Flow (L/s)	0.60	0.84	1.56

Flow Rate Vs. Build-Up (One Weir)	
Depth (mm)	Flow (L/s)
15	0.18
20	0.24
25	0.30
30	0.36
35	0.42
40	0.48
45	0.54
50	0.60
55	0.66

* Roof Drain model to be Accutrol Weirs, See attached sheets
* Roof Drain Flow information taken from Watts Drainage website

CALCULATING ROOF FLOW EXAMPLES

1 roof drain during a 5 year storm
elevation of water = 25mm
Flow leaving 1 roof drain = (1 x 0.30 L/s) = 0.30 L/s

1 roof drain during a 100 year storm
elevation of water = 50mm
Flow leaving 1 roof drain = (1 x 0.60 L/s) = 0.60 L/s

4 roof drains during a 5 year storm
elevation of water = 25mm
Flow leaving 4 roof drains = (4 x 0.30 L/s) = 1.20 L/s

4 roof drains during a 100 year storm
elevation of water = 50mm
Flow leaving 4 roof drains = (4 x 0.60 L/s) = 2.40 L/s

Roof Drain Flow		
Flow (l/s)	Storage Depth (mm)	Drains Flow (l/s)
0.18	15	0.36
0.24	20	0.48
0.30	25	0.60
0.36	30	0.72
0.42	35	0.84
0.48	40	0.96
0.54	45	1.08
0.60	50	1.20
0.66	55	1.32
0.72	60	1.44
0.78	65	1.56
0.84	70	1.68
0.90	75	1.80
0.96	80	1.92
1.02	85	2.04
1.08	90	2.16
1.14	95	2.28
1.20	100	2.40
1.26	105	2.52
1.32	110	2.64
1.38	115	2.76
1.44	120	2.88
1.50	125	3.00
1.56	130	3.12
1.62	135	3.24
1.68	140	3.36
1.74	145	3.48
1.80	150	3.60

Note: The flow leaving through a restricted roof drain is based on flow vs. head information

Time of Concentration Pre-Development

Drainage Area ID	Sheet Flow Distance (m)	Slope of Land (%)	Tc (min) (5-Year)	Tc (min) (100-Year)
A1	103	2.33	10	10

Tc= (3.26(1.1-c)L^0.5/S^0.33)

c = Balanced Runoff Coefficient

L = Length of drainage area

S = Average slope of watershed

STORM SEWER DESIGN SHEET

PROJECT: CCO-23-0018
LOCATION: 637 Cummings
CLIENT: Jawan Properties Inc.

McINTOSH PERRY

LOCATION				CONTRIBUTING AREA (ha)				RATIONAL DESIGN FLOW								SEWER DATA								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	19	20	21	22	23	24	25	26	27	28
STREET	AREA ID	FROM MH	TO MH	C-VALUE	AREA	INDIV AC	CUMUL AC	INLET (min)	TIME IN PIPE	TOTAL (min)	i (5) (mm/hr)	i (10) (mm/hr)	i (100) (mm/hr)	5yr PEAK FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm) DIA	W	H	SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (5yr) (L/s)	(%)
637 Cummings		Prop. Bldg	CBMH2	0.90	0.05	0.05	0.05	10.00	0.06	10.06	104.19	122.14	178.56	13.08	13.08	124.70	8.96	250			4.04	2.461	111.61	89.51%
		LCB3	LCB4	0.49	0.09	0.04	0.04	10.00	0.15	10.15	104.19	122.14	178.56	12.83	12.83	43.87	7.89	250			0.50	0.866	31.04	70.75%
		LCB4	CB3			0.00	0.04	10.15	0.22	10.37	103.40	121.20	177.18	12.73	12.73	43.87	11.50	250			0.50	0.866	31.14	70.98%
		CB3	CBMH2			0.00	0.04	10.37	0.19	10.56	102.26	119.87	175.22	12.59	12.59	60.15	13.51	250			0.94	1.187	47.56	79.07%
		CBMH2	STMH1	0.90	0.06	0.05	0.14	10.56	1.10	11.66	101.31	118.75	173.57	39.89	39.89	66.31	60.06	300			0.43	0.909	26.41	39.83%
		LCB1	LCB2	0.24	0.03	0.01	0.01	10.00	0.65	10.65	104.19	122.14	178.56	2.11	2.11	43.87	34.01	250			0.50	0.866	41.76	95.19%
		LCB2	STMH1				0.01	10.65	0.19	10.84	100.86	118.21	172.79	2.04	2.04	114.23	25.40	250			3.39	2.254	112.18	98.21%
		STMH1	EX. MAIN				0.15	11.66	0.33	11.99	96.15	112.67	164.65	39.81	39.81	66.31	17.74	300			0.43	0.909	26.50	39.96%

Definitions:
Q = 2.78CIA, where:
Q = Peak Flow in Litres per Second (L/s)
A = Area in Hectares (ha)
i = Rainfall intensity in millimeters per hour (mm/hr)
[i = 998.071 / (TC+6.053)^0.814] 5 YEAR
[i = 1174.184 / (TC+6.014)^0.816] 10 YEAR
[i = 1735.688 / (TC+6.014)^0.820] 100 YEAR

Notes:
1. Mannings coefficient (n) = 0.013

Designed: FV

Checked: CH

Project No.: CCO-23-0018

No.	Revision	Date
1.	Issued for Municipal Review	2022-08-26
2.	Revised Servicing	2023.02.10

Date: 2022.08.25

Sheet No: 1 of 1

APPENDIX H
CITY OF OTTAWA DESIGN CHECKLIST

McINTOSH PERRY

City of Ottawa

4. Development Servicing Study Checklist

The following section describes the checklist of the required content of servicing studies. It is expected that the proponent will address each one of the following items for the study to be deemed complete and ready for review by City of Ottawa Infrastructure Approvals staff.

The level of required detail in the Servicing Study will increase depending on the type of application. For example, for Official Plan amendments and re-zoning applications, the main issues will be to determine the capacity requirements for the proposed change in land use and confirm this against the existing capacity constraint, and to define the solutions, phasing of works and the financing of works to address the capacity constraint. For subdivisions and site plans, the above will be required with additional detailed information supporting the servicing within the development boundary.

4.1 General Content

Criteria	Location (if applicable)
☐ Executive Summary (for larger reports only).	N/A
☐ Date and revision number of the report.	On Cover
☐ Location map and plan showing municipal address, boundary, and layout of proposed development.	Appendix A
☐ Plan showing the site and location of all existing services.	Site Servicing Plan (C102)
☐ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.	1.1 Purpose 1.2 Site Description 6.0 Stormwater Management
☐ Summary of pre-consultation meetings with City and other approval agencies.	Appendix B
☐ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	1.1 Purpose 1.2 Site Description 6.0 Stormwater Management
☐ Statement of objectives and servicing criteria.	3.0 Pre-Consultation Summary

☐ Identification of existing and proposed infrastructure available in the immediate area.	N/A
☐ Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).	Site Grading Plan (C101)
☐ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.	Site Grading Plan (C101)
☐ Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
☐ Proposed phasing of the development, if applicable.	N/A
☐ Reference to geotechnical studies and recommendations concerning servicing.	Section 2.0 Background Studies, Standards and References
☐ All preliminary and formal site plan submissions should have the following information: o Metric scale o North arrow (including construction North) o Key plan o Name and contact information of applicant and property owner o Property limits including bearings and dimensions o Existing and proposed structures and parking areas o Easements, road widening and rights-of-way o Adjacent street names	Site Grading Plan (C101)

4.2 Development Servicing Report: Water

Criteria	Location (if applicable)
☐ Confirm consistency with Master Servicing Study, if available	N/A
☐ Availability of public infrastructure to service proposed development	N/A
☐ Identification of system constraints	N/A
☐ Identify boundary conditions	Appendix C
☐ Confirmation of adequate domestic supply and pressure	N/A
☐ Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.	Appendix C
☐ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.	N/A
☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
☐ Address reliability requirements such as appropriate location of shut-off valves	N/A
☐ Check on the necessity of a pressure zone boundary modification.	N/A
☐ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range	Appendix C, Section 4.2

☐ Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Site Servicing Plan (C101)
☐ Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
☐ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Appendix C
☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A

4.3 Development Servicing Report: Wastewater

Criteria	Location (if applicable)
☐ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).	N/A
☐ Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A
☐ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	N/A
☐ Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 5.2 Proposed Sanitary Sewer

☐ Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Section 5.3 Proposed Sanitary Design
☐ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	N/A
☐ Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 5.2 Proposed Sanitary Sewer
☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A
☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	N/A
☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
☐ Special considerations such as contamination, corrosive environment etc.	N/A

4.4 Development Servicing Report: Stormwater Checklist

Criteria	Location (if applicable)
☐ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Analysis of available capacity in existing public infrastructure.	N/A
☐ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	Pre & Post-Development Plans
☐ Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5-year event (dependent on the receiving sewer design) to 100-year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Set-back from private sewage disposal systems.	N/A
☐ Watercourse and hazard lands setbacks.	N/A
☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A
☐ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
☐ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5-year return period) and major events (1:100-year return period).	Appendix G

☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	Site Grading Plan
☐ Calculate pre-and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Section 7.0 Proposed Stormwater Management Appendix G
☐ Any proposed diversion of drainage catchment areas from one outlet to another.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.	N/A
☐ Identification of potential impacts to receiving watercourses	N/A
☐ Identification of municipal drains and related approval requirements.	N/A
☐ Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 6.0 Stormwater Sewer Design & Section 7.0 Proposed Stormwater Management
☐ 100-year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	Site Grading Plan (C101)
☐ Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A

☐ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 8.0 Sediment & Erosion Control
☐ Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
☐ Identification of fill constraints related to floodplain and geotechnical investigation.	N/A

4.5 Approval and Permit Requirements: Checklist

The Servicing Study shall provide a list of applicable permits and regulatory approvals necessary for the proposed development as well as the relevant issues affecting each approval. The approval and permitting shall include but not be limited to the following:

Criteria	Location (if applicable)
☐ Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.	N/A
☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.	N/A
☐ Changes to Municipal Drains.	N/A
☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)	N/A

4.6 Conclusion Checklist

Criteria	Location (if applicable)
☐ Clearly stated conclusions and recommendations	Section 9.0 Summary Section 10.0 Recommendations
☐ Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.	All are stamped
☐ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	All are stamped