240 PRESLAND ROAD – SERVICING AND STORMWATER MANAGEMENT REPORT

Project No.: CCO-25-2177

City File No.: PCO2024-0468

Prepared for:

Figurr Architects Collective // collectif d'architectes
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April 10, 2025

egis

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1.0 PROJECT DESCRIPTION

1.1 Purpose

Egis Canada (Egis) has been retained by Figurr Architects Collective to prepare this Servicing and Stormwater Management Report in support of the Official Plan Amendment, Site Plan Application and Zoning By-Law Amendment process for the development located at 240 Presland Road within the City of Ottawa (City File No. PC2024-0468).

The main purpose of this report is to present a servicing design for the development in accordance with the recommendations and guidelines provided by the City of Ottawa (City), 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-25-2177, C101 – Grading, Servicing and Sediment & Erosion Control Plan
- CCO-25-2177, PRE – Pre-Development Drainage Area Plan (Appendix E)
- CCO-25-2177, 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 240 Presland Road within the Rideau-Rockliffe Ward. The site covers approximately 0.20 ha and is located immediately south of the intersection of Presland Road and Whitton Crescent. The site is zoned for Residential use (R4-UC). See Site Location Plan in Appendix A for more details.

1.3 Proposed Development and Statistics

The proposed development consists of a six-storey mid-rise apartment dwelling. A drive aisle extending from Presland Road will provide vehicular access to the site from which the proposed parking lot can be accessed. Additionally, landscaping features such as interlock pathways and soft landscaping areas are proposed throughout the site.

1.4 Existing Conditions and Infrastructure

The previous development on the site consisted of a three-storey residential building with a drive aisle and surface parking. The existing building has subsequently been demolished with the surface of the site currently occupied by granular backfill. The site contains an existing storm sewer system with a catch basin system in the former parking lot area. It is assumed that the building was previously serviced by a water and sanitary lateral.

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

- Presland Road
    - 150 mm diameter UCI watermain, a
    - 900 mm diameter concrete sanitary sewer tributary to the Rideau River Collector and a
    - 1800 mm diameter concrete storm sewer, which outlets at the Rideau River approximately 1 km 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, provide 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, does not propose industrial use, and does not outlet to a combined sewer.

2.0 BACKGROUND STUDIES, STANDARDS, AND REFERENCES

2.1 Background Reports / Reference Information

Background studies have been completed for the proposed development, which include the City of Ottawa as-built drawings, a topographical survey, a geotechnical report, and a Phase I Environmental Site Assessment (ESA).

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.

The following reports have previously been completed and are available under separate cover:

- A topographic survey (Job No. 24681-24) of the site was completed by Annis, O'Sullivan, Vollebekk LTD. and dated May 23, 2024.
- The Site Plan (A100) was prepared by Figurr Architects Collective (Site Plan).
- A Geotechnical Investigation of the site was completed by Paterson Group (Report No. PG7188-1).
- A Phase I Environmental Site Assessment of the site was completed by Paterson Group (Report No. PE6608-1).

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 conducted on November 26, 2024, regarding the proposed site. Specific design parameters to be incorporated within this design include the following:

- Pre-development flows shall be determined using a calculated time of concentration (TC) and should not be less than 10 minutes. A TC of 10 minutes shall be used for all post development calculations.
- Control 5 through 100-year post-development flows to the 5-year pre-development flows with a combined C value to a maximum of 0.50.
- Any storm events greater than the established 5-year allowable release rate, up to and including the 100-year storm event, shall be detained on-site. For events greater than 100 years, spillage must be directed to a public ROW and not to neighboring private property.
- Quality control is required to be provided for this site (80% TSS Removal) as per City requirements.

The notes from the City of Ottawa can be found in Appendix B.

4.0 WATER SERVICING

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 an existing municipal 150 mm diameter UCI watermain within Presland Road. There is an existing municipal Hydrant on Presland Road fronting the site. It is assumed the site was previously serviced by a water lateral extending from the municipal watermain within Presland.

4.2 Proposed Water Servicing

A dual 150 mm diameter watermain is proposed to service the site, complete with valves located at the property line. The services will be connected to the existing 150 mm diameter watermain within Presland Road, separated by a new valve to ensure redundancy in accordance with Section 4.3.1 of the Water Design Guidelines.

The Fire Underwriters Survey 2020 (FUS) method was utilized to determine the required fire flow for the site. Information regarding the building area, construction, occupancy and sprinkler type were provided by the architect and is available in Appendix B. The 'C' factor (type of construction) for the FUS calculation was determined to be 0.80 (non-combustible). The total effective floor area ('A' value) for the FUS calculation was determined to be 1,654 m^2. The results of the calculations yielded a required fire flow of 4,000 L/min. A fire flow of 9,000 L/min was calculated using the Ontario Building Code (OBC) criteria. The detailed calculations for the FUS and OBC can be found in Appendix C.

The water demands for the proposed building have been calculated to adhere to the Ottawa Design Guidelines – Water Distribution manual and can be found in Appendix C. The results have been summarized in Table 1, below.

Table 1: Water Supply Design Criteria and Water Demands

Site Area	0.20 ha
Residential	280 L/person/day
1 Bedroom/Bachelor Apartment	1.4 persons/unit
2 Bedroom Apartment	2.1 persons/unit
3 Bedroom Apartment	3.1 persons/unit
Maximum Daily Peaking Factor	3.6 x avg day
Maximum Hour Peaking Factor	5.4 x avg day
Average Day Demand (L/s)	0.36
Maximum Daily Demand (L/s)	1.31
Peak Hourly Demand (L/s)	1.96
FUS Fire Flow Requirement (L/s)	66.67 (4,000 L/min)

The City provided the estimated water pressures at both for the average day scenario, peak hour scenario and the maximum available fire flow 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: Boundary Conditions Results

Scenario	Proposed Demands (L/s)	Connection HGL (m H_2O)*/kPa
Average Day Demand	0.36	57.8 / 567.0
Max Daily + Fire Flow Demand (88 L/s Maximum Available Fire Flow @ 20 psi)	1.31+ 66.67 =67.98	14.1 / 137.8 @ 88.00 L/s
Peak Hour Demand	1.96	69.3 / 477.7
*Adjusted for an estimated ground elevation of 60.80 m above the connection point.		

The normal operating pressure range is anticipated to be 478 kPa to 567 kPa and will not be less than 275 kPa (40 psi) or exceed 689 kPa (100 psi). The City provided a maximum available fire flow of 88.00 L/s from the existing municipal watermain at 20 psi. Based on a calculated fire demand of 66.67 L/s, the proposed watermains will meet the minimum required 20 psi (138 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, public fire hydrants within 150 m of the proposed building were analysed per City of Ottawa ISTB 2018-02 Appendix I Table 1. Based on City guidelines (ISTB-2018-02), the existing hydrants can provide adequate fire protection to the proposed development. The results are summarized in Table 3, 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)
240 Presland	4,000	1	2	13,300

5.0 SANITARY SERVICING

5.1 Existing Sanitary Sewers

There is an existing municipal 900 mm diameter concrete sanitary sewer within Presland Road. It is assumed the site was previously serviced by a sanitary lateral extending from the existing municipal sewer.

5.2 Proposed Sanitary Servicing

A new 150 mm diameter gravity sanitary service will be connected to the existing 900 mm diameter sanitary sewer within Presland Drive. The sanitary service will be complete with a maintenance manhole (MH1A) which will be installed just inside the property line as per the City of Ottawa – Sewer Design Guidelines, October 2012, Clause 4.4.4.7 and City of Ottawa Sewer-Use By-Law 2003-514 (14).

The peak design flows for the proposed residential building were calculated using criteria from the City of Ottawa – Sewer Design Guidelines, October 2012. The proposed site development area (0.20 ha) will generate a flow of 1.41 L/s.

The proposed 150 mm diameter gravity sanitary sewer will be installed throughout the subject property with a minimum full flow target velocity (cleansing velocity) of 0.6 m/s and a full flow velocity of not more than 3.0 m/s. Design parameters for the site include an infiltration rate of 0.28 L/s/ha.

Table 4: Sanitary Design Criteria

Design Parameter	Value
Site Area	0.20 ha
Residential	280 L/person/day
Bachelor & 1 Bedroom Apartment	1.4 persons/unit
2 Bedroom Apartment	2.1 persons/unit
3 Bedroom Apartment	3.1 persons/unit
Residential Peaking Factor	3.6
Institutional/Commercial Peaking Factor	1.5
Extraneous Flow Allowance	0.33 L/s/ha

Table 5, below, summarizes the estimated wastewater flow from the proposed development. 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	0.40
Total Estimated Peak Dry Weather Flow	1.35
Total Estimated Peak Wet Weather Flow	1.41

The proposed 150 mm diameter gravity sanitary service will be installed with a minimum full flow target velocity (cleansing velocity) of 0.6 m/s and a full flow velocity of not more than 3.0 m/s. The capacity of the lateral is 12.00 L/s at a proposed slope of 1.00%. Therefore, based on a peak design flow of 1.41L/s, the building sanitary service is sufficiently sized to accommodate the development. Refer to Appendix D for the sanitary sewer design sheets.

Due to the complexity of the downstream network, City staff will need to advise of any downstream constraints.

6.0 STORM SEWER SERVICING

6.1 Existing Storm Sewers

Storm runoff from the site is currently tributary to the Lower Rideau River Watershed. There is an existing 1800 mm diameter concrete storm sewer within Presland Road that is available for servicing the proposed development.

It is assumed that the development was previously serviced by a storm network complete with a service sewer extending storm the 1800mm storm within Presland, complete with surface catch basins which collected runoff.

6.2 Proposed Storm Servicing

A new sewer system will be extended from the existing 1800 mm diameter storm sewer within Presland Road. The new pipe network will collect storm flows and restrict runoff prior to leaving the site. Storm services for roof and foundation drainage from the proposed building will be connected to the proposed on-site storm system downstream of the parking lot drainage system controls.

Runoff from the parking lot area and rear yard landscape area will be collected by proposed catch basins. Surface runoff will be attenuated by a Tempest LMF ICD (or approved equivalent) on the outlet of CBMH06 before discharging to the existing 1800mm sewer.

Runoff collected on the roof of the proposed building will be stored and controlled using roof top storage and eight roof drains. 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 in the fully closed setting was used to estimate a reasonable roof flow. Other products maybe specified at detailed building design so long as release rates and storage volumes are respected. Attenuated roof drainage is to discharge to the proposed sewer system via a 150 mm diameter storm service downstream of the parking lot controls.

Runoff collected in the rear and side yard areas will be collected by proposed surface landscape catch basins and conveyed to the 1800mm storm sewer without attenuation.

Foundation drainage is to discharge from the building via a 150 mm diameter service lateral to proposed storm sewer system, downstream of parking lot controls. Note, there are separate laterals for roof and foundation drainage. Please refer to mechanical plans.

The minor storm sewers will be sized for the 5-year flow without any restriction. A storm sewer design sheet was created using the rational method and City of Ottawa 5-year storm event. Storm flows will be controlled by an inlet control device (ICD) to limit flows to the specified allowable release rate.

The storm design sheet calculates the proper sizing of the storm pipes within the development. Drainage area information, along with respective pipe slopes and other necessary information was utilized to evaluate the performance of the storm sewer network. The time of concentration calculated for the storm sewer system is

based on a 10-minute inlet time at the uppermost sewer run. Within the design sheet, pipe capacities and associated full flow velocities have been calculated. The design flow (peak flow) was checked against the theoretical capacity to ensure that each storm sewer pipe can convey the 5-year unrestricted flow.

See CCO-25-2177 - POST and Storm Sewer Design Sheet in Appendix F of this report for more details. The Stormwater Management design for the subject property will be outlined in Section 6.0.

7.0 PROPOSED STORMWATER MANAGEMENT

7.1 Design Criteria and Methodology

Stormwater management for the proposed site will be maintained through two methods. The first will store and control runoff collected on the roof of the proposed building. The building will use eight – Watts Accutrol Weir (fully closed) to control the release rate of the roof drainage The second will control stormwater via an underground sewer system and will collect runoff from parking lot area within the site. The flow will be controlled prior to discharging from the site via a proposed 375 mm storm sewer.

The quantitative and qualitative properties of the storm runoff for both the pre & post development flows are further detailed below. Stormwater Best Management Practices (SWM BMP's) will be implemented at the "Lot level", "Conveyance" and "End of Pipe" locations. These concepts will be explained further in Section 7.6.

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

Quality Control

- The site has been designed to achieve an 80% total suspended solids removal (enhanced level of treatment) using a proposed oil/grit separator.

Quantity Control

- Post-development flow 5/100-year is be restricted to match the 5-year pre-development flow with a maximum C value of 0.50.

7.2 Runoff Calculations

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

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

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
Gravel	0.60
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.

As per the pre-consultation meeting with the City of Ottawa the time of concentration (Tc) used for pre-development shall be calculated using a minimum Tc of 10 minutes and post-development flows shall be calculated using a Tc of 10 minutes.

7.3 Pre-Development Drainage

It has been assumed that the site contains no stormwater management controls for flow attenuation. Based on topographic information, there is an existing drainage area which currently conveys side yard drainage overland from the site at 246 Presland to the subject site (EX). Furthermore, there is a portion of existing side and rear yard drainage that currently flows overland to the adjacent development west of the site. Estimated pre-development peak flows for the 5, and 100-year events are summarized below in Table 6. There is a small area on the adjacent site which currently drains See CCO-25-2177 - PRE in Appendix E and Appendix G for calculations.

Table 6: Pre-Development Runoff Summary

Drainage Area	Area (ha)	Q (L/s)	
		5-Year	100-Year
A1	0.20	38.71	77.79
EX (External Drainage Area)	0.02	2.38	4.69

7.4 Post-Development Drainage Quantity Control

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CCO-25-2177 - POST in Appendix F of this report for more details. A summary of the Post-Development Runoff Calculations can be found below.

Table 7: 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	0.10	2.52	2.52	48.3	52.7
B2	0.06	13.70	13.85	5.3	6.8
B3	0.06	6.80	13.93	-	-
Total	0.22	23.03	30.30	53.6	59.5

See Appendix G for calculations.

Post development drainage will be restricted to a maximum release rate of 23.03 L/s during the 5-year storm event and 30.30 L/s during the 100-year storm event based on a maximum release rate of 31.50 L/s. To meet the stormwater objectives the development will contain a combination of flow attenuation with rooftop controls, surface and subsurface storage.

Runoff for area B1 will be stored on the roof of the proposed building A and restricted using eight (8) fully closed Watts Accutrol roof drains (or approved equivalent) to a maximum release rate of 2.52 L/s and will provide up to 52.7 m^3 of surface storage.

Runoff from area B2 will be restricted to a maximum release rate of 13.85 L/s and the required storage will be provided via surface ponding above the proposed storm structure within the parking lot. Note, there is to be no surface ponding during the 2-year storm event with the required storage volume being provided within the storm sewer maintenance structures within the parking lot.

In the event that there is a rainfall above the 100-year storm event, or a blockage within the storm sewer system, an emergency overland flow route has been provided so that the storm water runoff from the parking lot will be conveyed towards the site entrance at Presland Road.

The majority of runoff for area B3 will be collected by surface landscape catch basins and discharge from the site without restriction. To conserve the existing trees along the western property line, identified as to be conserved within the Tree Conservation Report, a small portion of the landscaped area will be allowed to drain overland off site. However, the total runoff and runoff coefficient for the post-development area represents an improvement compared to existing conditions.

7.5 Quality Control

The development of this lot will employ Best Management Practices (BMP's) wherever possible. The intent of implementing stormwater BMP's is to ensure that water quality and quantity concerns are addressed at all stages of development. Lot level BMP's typically include temporary retention of the parking lot runoff, minimizing ground slopes and maximizing landscaped areas. Some of these BMP's cannot be provided for this site due to site constraints and development requirements.

A Stormceptor EF04 (or approved equivalent) oil grit separator unit (OGS) has been sized to provide a TSS removal rate of 80% as per City requirements. The OGS Unit will provide a water quality of at least 80% TSS. The OGS Unit shall be placed downstream of the parking lot restrictions in area B2 to provide the required water quality treatment for the site runoff before discharging to the storm sewer within Presland Road. Roof drainage from area B1 is assumed to be clean and will discharge from the site downstream of the OGS Unit. Detailed sizing information for the OGS Unit has been provided in Appendix G.

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 catchbasins and filter fabric is to be placed under the grates of all existing catchbasins and manholes along the frontage of the site and any new structures immediately upon installation. The measures for the existing/proposed structures is 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 Plan and Sediment & Erosion Control Plan for additional details regarding the temporary measures to be installed and their appropriate OPSD references.

8.2 Permanent Measures

Rip-rap will be placed at all locations that have the potential for concentrated flow. It is crucial that the Contractor ensure that the geotextile is keyed in properly to ensure runoff does not undermine the rip rapped area. Additional rip rap is to be placed at erosion prone locations as identified by the Contractor / Contract Administrator / City or Conservation Authority.

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 6-Storey apartment building is proposed to be constructed 240 Presland Road.
- Dual 150 mm diameter water laterals will be installed to service the site, connecting to the watermain within Presland Road.
- A new 150 mm sanitary sewer will be installed to service the development, connecting to the existing sanitary sewer within 900mm Presland Road.
- The proposed storm sewer, ranging in diameter from 150 mm to 375mm, will be installed throughout the site and drain to the existing 1800 mm diameter storm sewer within Presland Road.
- Storage for the 5- through 100-year storm events will be provided via rooftop and surface storage.
- An OGS is proposed to provide quality controls for site runoff.

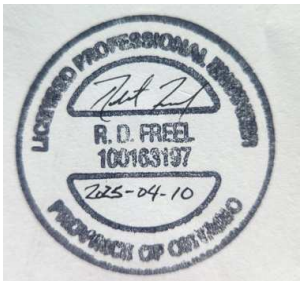
10.0 RECOMMENDATIONS

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 6-storey apartment building at 240 Presland Road.

This report is respectfully being submitted for approval.

Regards,

Egis Canada Ltd.



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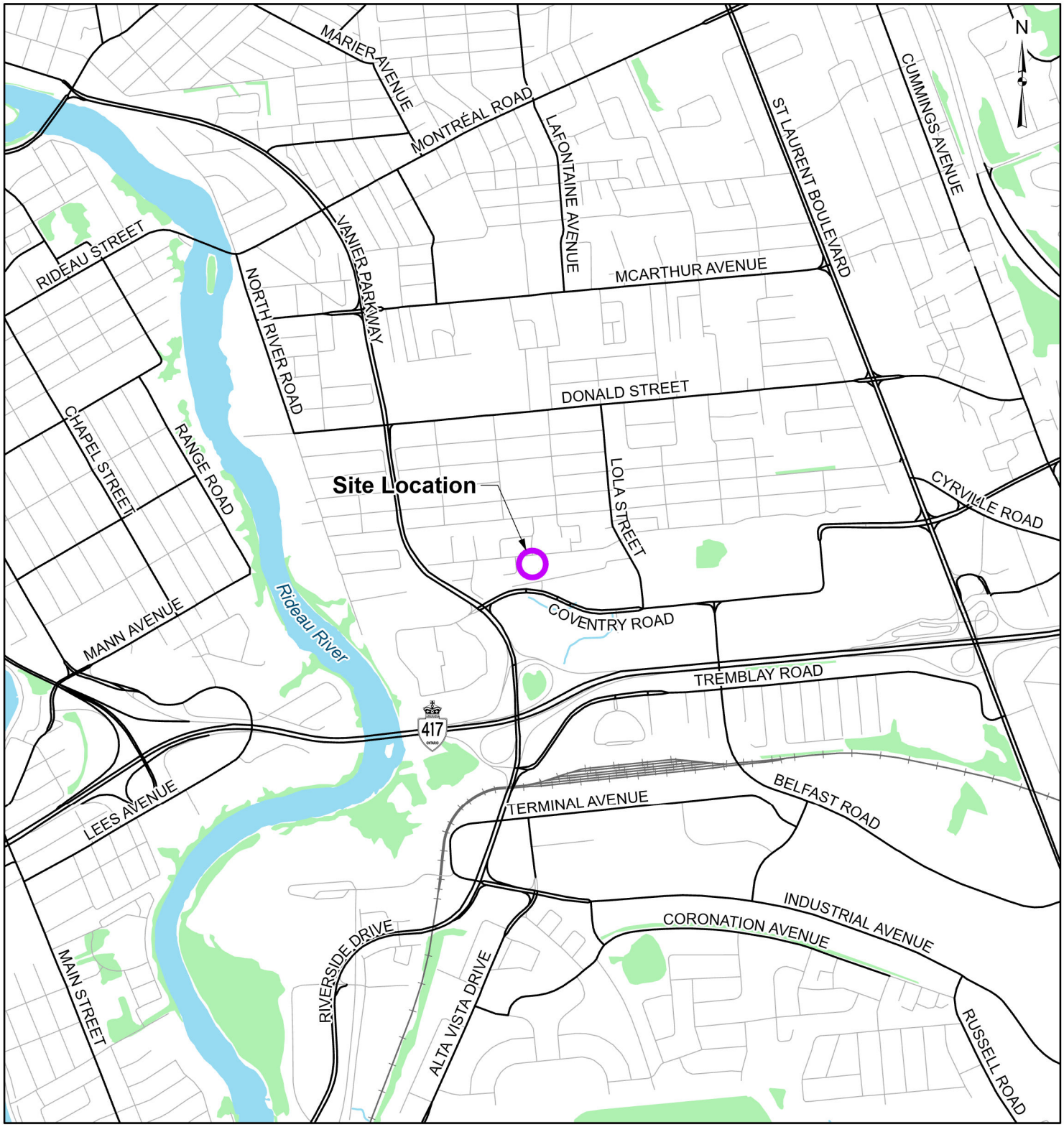
11.0 STATEMENT OF LIMITATIONS

This report was produced for the exclusive use of Figurr Architects Collective/ collectif d'architectes. 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, Conservation and Parks, City of Ottawa and local approval agencies. Egis Canada reviewed the site information and background documents listed in Section 2.0 of this report. While the previous data was reviewed by Egis Canada 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. Egis Canada 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, Egis Canada should be requested to re-evaluate the conclusions presented in this report, and provide amendments, if required.

APPENDIX A
KEY PLAN



LEGEND

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

600 300 0 600

Scale 1:20,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2025.

CLIENT:	FIGURR ARCHITECTS COLLECTIVE / COLLECTIF D'ARCHITECTE
PROJECT:	240 PRESLAND ROAD OTTAWA, ONTARIO
TITLE:	SITE LOCATION

egis
115 Walgreen Road, RR3, Carp, ON K0A1L0
Tel: 613-836-2184 Fax: 613-836-3742

PROJECT NO: CCO-25-2177		FIGURE: 1
Date	Jan., 09, 2025	
GIS	CZ	
Checked By	RR	

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APPENDIX B
BACKGROUND DOCUMENTS

File No.: PC2024-0468

November 26, 2024

Kenneth Blouin
Fotenn Consultants Inc
Via email: Blouin@fotenn.com

Subject: **Pre-Consultation: Meeting Feedback**
Proposed Official Plan Amendment and Zoning By-law Amendment Application – 240 Presland Road

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on November 19, 2024.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☒	**4** ☐	**5** ☐

One (1) indicates that considerable major revisions are required while five (5) suggests that the proposal appears to meet the City's key land use policies and guidelines. This assessment is purely advisory and does not consider technical aspects of the proposal or in any way guarantee application approval.

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. If the development proposal changes significantly in scope, design or density before formal submission, please complete another pre-consultation for updated comments and SPIL requirements.
2. In your subsequent submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.

Supporting Information and Material Requirements

1. The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Consultation with Technical Agencies

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

Planning

Comments:

1. The subject site is located within the Inner Urban Transect and designated Neighbourhood within the Evolving Overlay.

    a. This transect encourages a variety of housing types and contemplates more intense forms of housing as lower density is not encouraged. The transect is clear in permitting a maximum of four-storeys in Neighbourhoods, and provides emphasis on framing the public ROW.

    b. This designation and overlay encourages gradual transformation to a more urban character and is planned for more density and missing middle housing (6-16 units) to meet the density goals and support 15-minute neighbourhoods. Building heights shall be low-rise, except where in an area that is already characterized by taller buildings. Form-based regulation should have regard for the local context and character of existing development, appropriate interfaces with the public realm and between residential buildigns, and proximity to Hubs.

2. The lots fronting onto Coventry are designated Hub.

3. The site is zoned R4UC[493], which permits a range of low-rise built forms and has specific requirements for things such as soft landscaping, building articulation, and window coverage.

4. Presland Street has many three-3.5 storey buildings and a few two-storey buildings. The area is characterized by low-rise buildings. Urban Exception 493 restricts height based on an angular plane. Would a four-storey building be beyond this angular plane?

5. A Zoning By-law Amendment and Official Plan Amendment (OP Section 11.6 4) will be required to permit a six-storey building. What is the proposed zone? A height schedule might be appropriate if there are step backs proposed.

6. The request for an amendment to the Official Plan to create an area-specific policy will require a planning rationale which considers all of the criteria under Section 12.3.

Section 12.3 in the Official Plan was amended under the omnibus 2 OPA. Please see this report from the October 30, 2024 council agenda for the approved wording until the omnibus 2 amendments are consolidated into the online Official Plan.

7. There are many key policies in Official Plan Sections 2, 3, and 4 that should be considered in this rationale. For example, increasing intensification and a range of housing options, shifting towards sustainable modes of transportation, maximizing affordable housing, enabling sensitive integration of new development while considering livability, etc.

8. Staff have concerns with how the proposed development conforms with the Neighbourhood designation policies. Section 4.6 encourages providing an appropriate setback within the street context, providing transition between existing buildings of different heights, and providing active entrances. It doesn't appear that there are any step backs or sensitivity to the existing context facing Presland, and the rooms facing the public realm at street level are not active uses. Could the lobby face onto Presland?

9. The R4UC zone typically would require a minimum rear yard setback of 30% of the lot depth (~20 metres). Are there any privacy concerns on abutting properties if there is a reduced setback than what is currently permitted?

10. The Presland ROW is approximately 15 metres wide, and a six-storey building might be around 18-20 metres tall. What has been done in the design to address the sensitivity on this street?

11. The lot appears to be almost 100% coverage of building or hard landscaping. How does this compare to the existing conditions, and will the new development contribute to the urban forest canopy? Is there any opportunity and rationale to reduce parking at this location?

12. Any site-specific zone requirements are to be identified.

13. The site appears to be ~1500-metres walking distance from both Tremblay and St. Laurent O-Train Stations, and a 650-metre radius from Tremblay Station. The nearest Transit Priority Corridors are even further away. It will be difficult using proximity to higher order transit as part of a justification for increased building height. Are there any high frequency local bus routes nearby?

14. In the planning rationale, please consider the low-rise urban design guidelines, but also some of the applicable policies in the high-rise urban design guidelines that apply to mid-rise development that appears tall in relation to its context.

15. Why is the existing Official Plan designation inappropriate on this particular site?

16. Please note that while you can mention the draft new Zoning By-law, you should be relying on policies in the Official Plan to support what the proposal is since the draft is only out for public consultation purposes and is not in effect.

17. Planning fees will be waived for the Official Plan Amendment and Zoning By-law Amendment where there is an affordable housing agreement. Please note that there will still be a conservation authority fee.

Urban Design

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

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

    b. The proposal is not subject to the Urban Design Review Panel.

Additional drawings and studies are required as shown on the ASPIL. Please follow the terms of references (Planning application submission information and materials | City of Ottawa) for the preparation these drawings and studies this includes:

    c. Design Brief

    d. Site Plan

    e. Landscape Plan (conceptual)

    f. Elevations (conceptual)

    g. Floor plans (conceptual)

Comments:

19. While a mid-rise building is proposed, please address the Low Rise Infill guidelines to ensure that the proposed building fits into the low rise context of the neighbourhood.

20. Bird Friendly Design Guidelines Apply

21. Urban design staff does have some concern with the overall height and massing of the building proposed in context. It will have to be demonstrated that the building responds to the context of the surrounding neighborhood and that impacts on neighbouring properties and the public realm are mitigated.

22. The massing and architecture of the building must respond to context. Transition to the low-rise neighbourhood is crucially important:

    a. Please study pedestrian level views along Presland;

    b. A building setback from Presland in keeping with the rest of the neighbourhood with allowance for healthy growth of mature canopy trees can contribute to compatibility.

    c. The building height should be proportional to the road right of way, stepbacks may be required to improve compatibility and micro climate impacts to the public realm.

    d. The relationship with abutting properties should be further studied and illustrated.

        i. A gentle transition from surrounding properties must be provided, building heights should be generally in alignment with a 45 degree angular plane. Please provide angular plane diagrams, illustrating transition from all sides.

        ii. Please consider landscape buffering and treatment

        iii. Please consider shadow impacts.

    e. Active uses and glazing should be provided along the ground floor of the Presland frontage

23. Overall, a base-middle-top approach to built form design is appropriate.

Engineering

Comments:

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

    a. **Water Quality Control**: based on the proposed site plan please provide enhanced levels of protection of 80% for total suspended solids removal.

    b. **Water Quantity Control**: In the absence of area specific SWM criteria please control post-development runoff from the subject site, up to and including the **100-year storm event**, to the **5-year pre-development level**.

        i. 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].

ii. The time of concentration (Tc) 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; **Tc of 10 minutes shall be used for all post-development calculations.**

iii. Any storm events greater than the established 5-year allowable release rate, up to and including the 100-year storm event, shall be detained on-site. For events greater than 100 years, spillage must be directed to a public ROW and not to neighboring private property.

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

i. When underground storage is used, the release rate fluctuates from a maximum peak flow based on maximum head down to a release rate of zero. This difference is large and has a significant impact on storage requirements. **We therefore require that an average release rate equal to 50% of the peak allowable rate shall be applied to estimate the required volume.** Alternatively, the consultant may choose to use a submersible pump in the design to ensure a constant release rate. In the event that there is a disagreement from the designer regarding the required storage, The City will require that the designer demonstrate their rationale utilizing dynamic modelling, that will then be reviewed by City modelers in the Water Resources Group. Regarding all proposed UG storage, ground water levels (and in particular HGW levels) will need to be reviewed to ensure that the proposed system does not become surcharged and thereby ineffective.

25. Water:

a. A 150mm dia. UCI watermain (1952) is available on Presland Road.

b. Water Supply Redundancy: Residential buildings with a basic day demand greater than 50m3/day (0.57 L/s) or with 50+ units are required to be connected to a minimum of two water services, with each their own meter, separated by an isolation valve to avoid a vulnerable service area.

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

   i. Plan showing the proposed location of service(s).

   ii. Type of development and the amount of fire flow required (L/min). 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.

   iii. Average daily demand: __L/s.

   iv. Maximum daily demand: __L/s.

   v. Maximum hourly daily demand: __L/s.

   vi. Note: 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.

d. 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.

e. Any proposed emergency route is to be to the satisfaction of Fire Services.

26. Storm Sewer

a. A 1800mm dia. CONR storm sewer (1979) is available within Presland.

27. Sanitary Sewer

a. A 900mm dia. CONR sanitary sewer (1979) is available on Presland Road.

b. We do not see any issues with sanitary capacity, but we would like to see the sanitary flow demand for the addition to confirm it.

c. Include correspondence from the Architect within the Appendix of the report confirming the population breakdown to support the calculated building population.

d. Please apply the wastewater design flow parameters in Technical Bulletin PIEDTB-2018-01.

28. Environmental (will be required at Site Plan Control)

a. 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.

b. 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.

c. Official Plan: Section 10. Protection of Health and Safety (ottawa.ca)

d. A remediation plan may be required as per the outcome of the Phase one study. If required, a complete Phase Two study with the remediation activities will need to be submitted for our review.

29. Geotechnical (will be required at Site Plan Control)

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

b. 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.

c. Geotechnical Study shall be consistent with the Geotechnical Investigation and Reporting Guidelines for Development Applications. Geotechnical Investigation and Reporting (ottawa.ca)

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

Feel free to contact Anton Chetrar, Project Manager, for follow-up questions at anton.chetrar@ottawa.ca .

Noise

Comments:

30. Noise study is not required for OPA/ZBLA applications.

31. Noise Impact Studies will be required at Site Plan for the following:

    a. Road, as the site is within proximity to Coventry Rd.

    b. Stationary, if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses.

Feel free to contact Josiane Gervais, TPM, for follow-up questions.

Transportation

Comments:

32. A Transportation Impact Assessment (TIA) is not required.

33. Complete and submit the Transportation Demand Management Measures Checklist and the Transportation Demand Management Supportive Development Design and Infrastructure Checklist in support of the application.

34. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16. It is acknowledged that ROW conveyance, if applicable, does not take place at rezoning, but the concept plan and setbacks must account for any future conveyance.

35. The following comments are provided for consideration at site plan:

    a. Ensure site access meets the City's Private Approach Bylaw.

    b. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.

    c. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.

    d. Turning movement diagrams required for internal movements (loading areas, garbage).

    e. As the site proposed is residential, AODA legislation applies for all areas accessible to the public (i.e. outdoor pathways, parking, etc.). Clearly define accessible parking stalls and ensure they meet AODA standards

(include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).

f. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).

g. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)

h. Pavers within City ROW would require a Maintenance and Liability Agreement.

Feel free to contact Josiane Gervais, Transportation Project Manager, for follow-up questions.

Environment

Comments:

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

37. Bird-Safe Design Guidelines - Please review and incorporate bird safe design elements. Some of the risk factors include glass and related design traps such as corner glass and fly-through conditions, ventilation grates and open pipes, landscaping, light pollution. More guidance and solutions are available in the guidelines which can be found here: https://documents.ottawa.ca/sites/documents/files/birdsafedesign_guidelines_en.pdf

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

Forestry

Comments:

38. Planning Forestry has concerns with the ability to fit trees within the site concept dictated by the proposed zoning. To provide a livable space for future residents and contribute to the urban forest canopy, suitable soil volume must be provided. While a detailed landscape plan is not required, please provide the following:

- Dimensions of the soft landscaped area available
- Estimated soil volume, based on at least 1 m depth

- The number and size class of tree that could feasibly be planted (table for reference).

Tree Type/Size	Single Tree Soil Volume (m^3)	Multiple Tree Soil Volume (m^3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18
Conifer	25	15

These minimums do not apply where sensitive marine clay soils are present. Please refer to the "Tree Planting in Sensitive Marine Clay Soils - 2017 Guidelines Background: Existing" for soil volumes related to tree planting in the right of way

39. A 4.5m front yard setback and 7.5m rear yard setback is feasible to support trees. Soft landscaping that supports trees in these areas must be prioritized.

40. While the updated site plan concept, improves the softscape condition in the rear yard to support tree planting the overall site still lacks space for trees.

    a. The City is working towards a 40% canopy cover target **with equity as a guiding principal**. This site is dominated by hard surface.

    b. If the unit count triggers this extent of parking, consider whether a parking reduction is possible or re-designing the project to reduce parking demand is feasible.

41. Section 4.1.4, policy 11 of the OP provides direction on incorporating regular spacing of tree islands that support the growth of mature shade trees. Please align with this policy.

42. If marine clay soils are present, this will influence planting setbacks. Confirm this as early as possible as this will influence site design as trees must be a component of the development.

43. A Tree Conservation Report and Full Landscape Plan will be requirements of the site plan control application. A tree removal permit would be required for any City trees and privately owned trees 10 cm in diameter or greater. Provide a design that does not impact adjacently owned trees.

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

Parkland

Comments:

44. Bill 23 has provided exemptions from parkland dedication for non-profit and affordable residential units.

Housing

Comments:

45. Great to see varying levels of affordability proposed. Note, the city has no immediate plans to issue an RFP for pre-development or capital funding. However, if CCOC anticipates needing city funding in the future, staff would encourage all units to remain below AMR and at a weighted average of 80% of AMR to ensure eligibility for future RFPs, based on the most recent REOI. If CCOC is successful in future city funding, housing staff would also require that all units be visitable, as per Section 6.13 of the Accessibility Design Standards.

46. Can confirm the previous building did not have agreements with Community Housing or RGI units through the city.

Feel free to contact Justin Grift, Housing Developer, for follow-up questions or with any assistance needed during the approval process.

Community issues

Comments:

47. Please see attached comments.

Other

48. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design and will be applicable to Site Plan Control and Plan of Subdivision applications.

    a. The HPDS was passed by Council on April 13, 2022, but is not in effect at this time, as Council has referred the 2023 HPDS Update Report back to staff with the direction to bring forward an updated report to Committee at a later date. The timing of an updated report to Committee is unknown at this time, and updates will be shared when they are available.

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

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

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

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

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

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

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

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

Submission Requirements and Fees

1. An Official Plan Amendment and Major Zoning By-law Amendment application will be required to permit the proposed six-storey building. A subsequent Complex Site Plan Control application will also be required.
    a. Additional information regarding fees related to planning applications can be found here.
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.
    a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.
3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

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

Kind regards,
Margot Linker

c.c. Anton Chetrar
Lisa Stern
Josiane Gervais
Hayley Murray
Matthew Hayley
Paul Landry
Justin Grift

ROBINEAU Ryan

From: Zaphira Kalaitzakis <ZKalaitzakis@figurr.ca>
Sent: March 11, 2025 8:16 AM
To: ROBINEAU Ryan; GOSLING Alison
Cc: Roberto Campos; adrian.schut@cahdco.org; Warren Vibert-Adams; Cat Carkner
Subject: 240 Presland - construction type

/!\ Courriel externe - Merci d'être prudent avec les liens et les pièces jointes /!\ External email - Please be careful with links and attachments /!\

Good morning Ryan,

As discussed during our meeting with yourself and the clients on Friday March 7th, we will proceed with non-combustible construction on all floors.

Thank you,

Zaphira Kalaitzakis, OAQ
Chargée de projet, Architecte // Project Manager, Architect
Figurr collectif d'architectes // Architects Collective

fig.35

FIG. 1
3550, Saint-Antoine O.
Montréal QC H4C 1A9
T 514 861–5122
C 514 207-7506

FIG. 2
252 Argyle Ave
Ottawa ON K2P 1B9
T 613 695–6122

figurr.ca

UTILITY NOTES

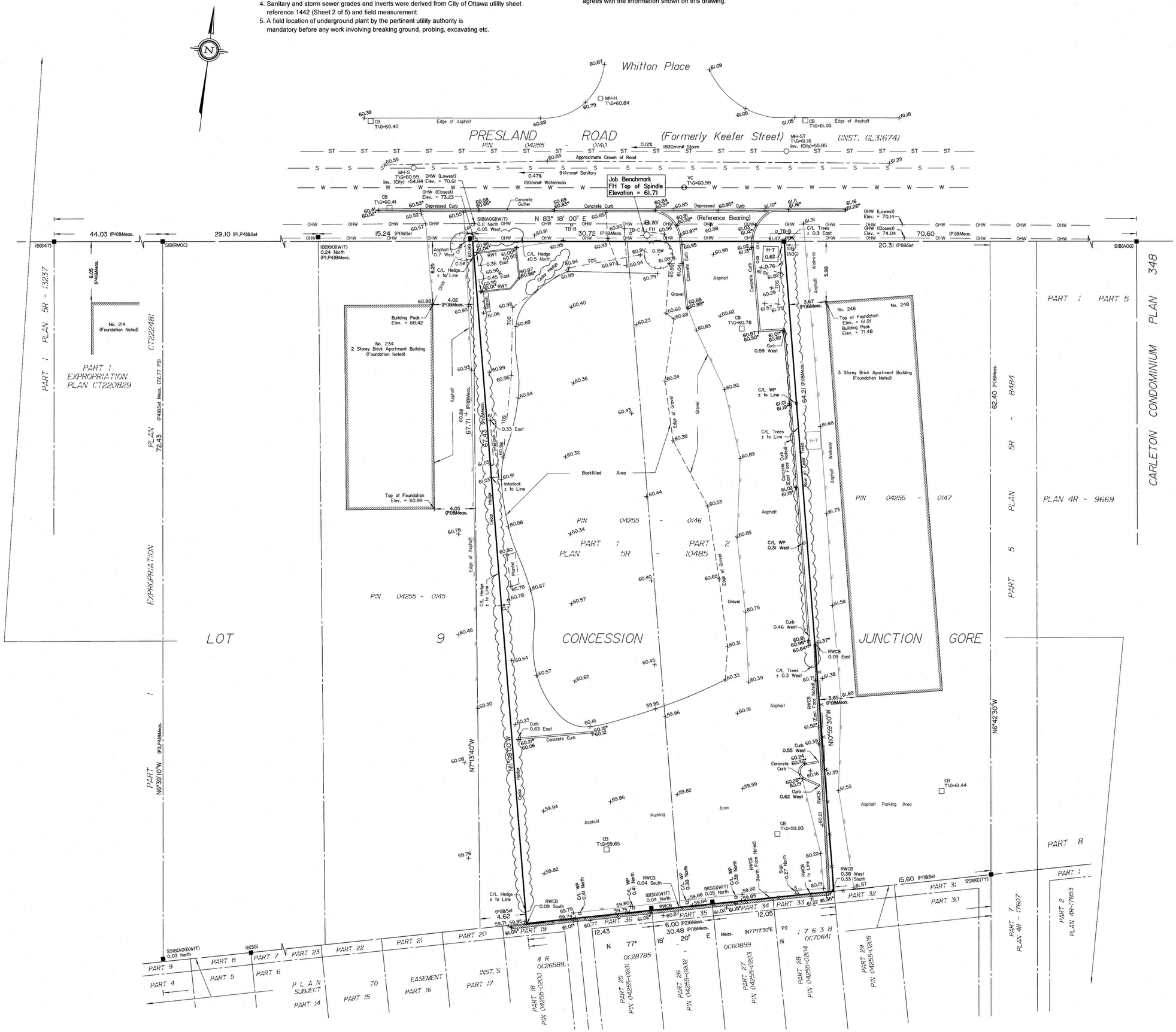
1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data derived from City of Ottawa utility sheet reference 1442 (Sheet 2 of 5)
4. Sanitary and storm sewer grades and inverts were derived from City of Ottawa utility sheet reference 1442 (Sheet 2 of 5) and field measurement.
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum, derived from City of Ottawa benchmark No. G-38 (Index No. 313) having a published elevation of 60.616 metres.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 0°00'20"counter-clockwise was applied to bearings on P3 & P4.



SURVEYOR'S REAL PROPERTY REPORT

PART 1 Plan of

PART OF LOT 9

CONCESSION JUNCTION GORE

GEOGRAPHIC TOWNSHIP OF GLOUCESTER

CITY OF OTTAWA

Surveyed by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 200

8.0 6.0 4.0 2.0 0 4 8 Metres

Metric

DISTANCES SHOWN ON THIS PLAN ARE IN METRES AND CAN BE CONVERTED TO FEET BY DIVIDING BY 0.3048

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act and the Surveyors Act and the regulations made under them.
2. The survey was completed on the 10th day of May, 2024.

May 23, 2024
Date

E. H. Herweyer
Ontario Land Surveyor

PART 2

THIS PLAN MUST BE READ IN CONJUNCTION WITH SURVEY REPORT DATED: May 23, 2024

ANNIS, O'SULLIVAN, VOLLEBEKK LTD. grants to Centretown Citizens Housing Co-operative Inc. ("The Client"), their solicitors, mortgagees, and other related parties, permission to use original, signed, sealed copies of the Surveyor's Real Property Report in transactions involving The Client.

Notes & Legend

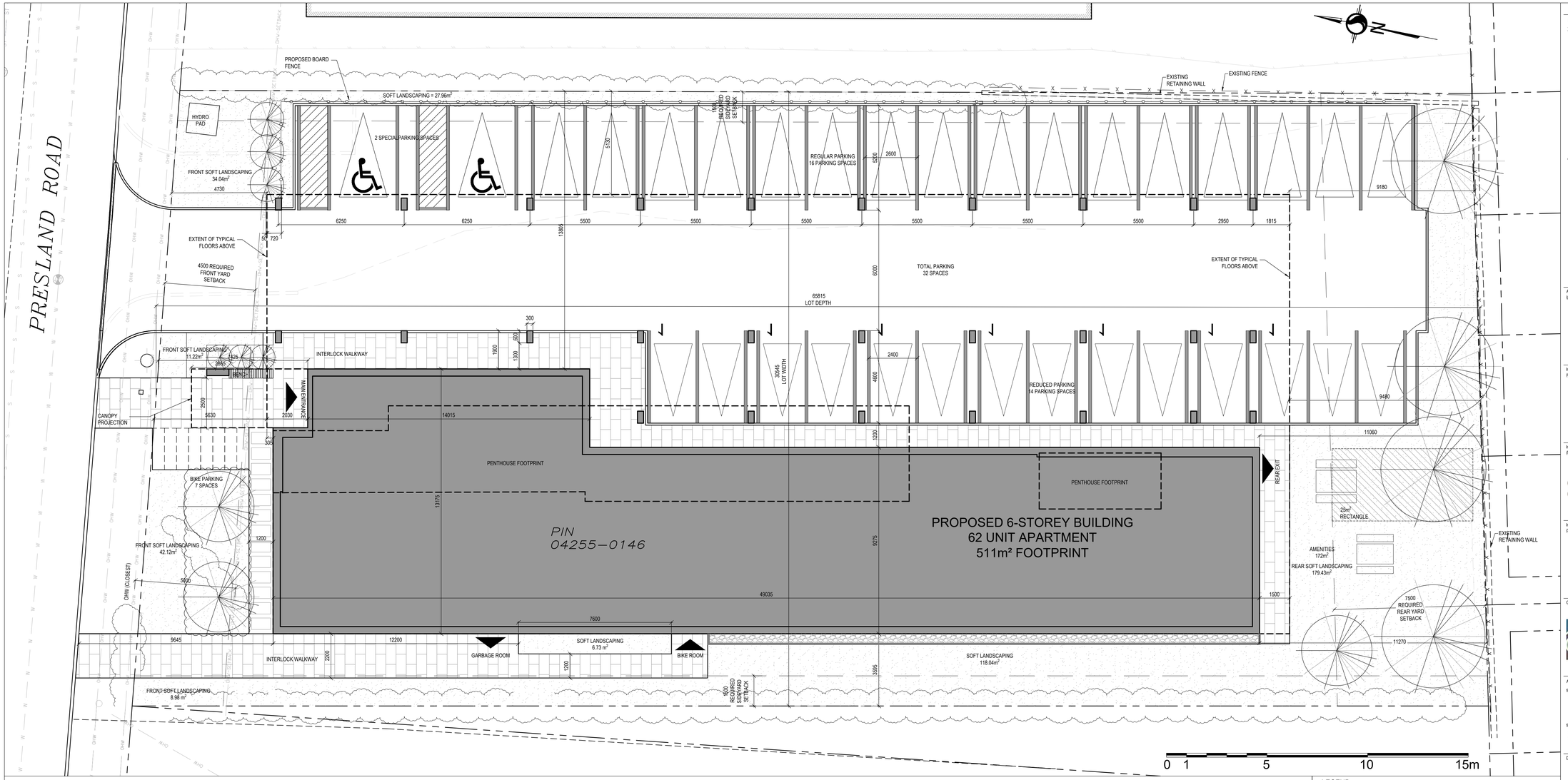
Denotes		
—□—	"	Survey Monument Planted
—■—	"	Survey Monument Found
SIB	"	Standard Iron Bar
SSIB	"	Short Standard Iron Bar
IB	"	Iron Bar
(WIT)	"	Witness
Meas.	"	Measured
(AOG)	"	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	"	Plan 5R-10485
(P2)	"	Plan 4R-17638
(P3)	"	Expropriation Plan CT222481
(P4)	"	(AOG) Plan Dated November 13, 2017
WP	"	Wooden Pole With Electrical Plug
○ MH-ST	"	Maintenance Hole (Storm Sewer)
○ MH-S	"	Maintenance Hole (Sanitary)
○ MH-H	"	Maintenance Hole (Hydro)
⊖ VC	"	Valve Chamber (Watermain)
—— OHW ——	"	Overhead Wires
H-T	"	Hydro Transformer
○ UP	"	Utility Pole
○ B	"	Bollard
△ S	"	Sign
CLF	"	Chain Link Fence
BF	"	Board Fence
TOS	"	Top of Slope
□ CB	"	Catch Basin
Ø	"	Diameter
+ 65.00	"	Location of Elevations
+ 65.00*	"	Top of Concrete Curb Elevation
C/L	"	Centreline
	"	Deciduous Tree
RWCB	"	Concrete Block Retaining Wall
RWT	"	Timber Retaining Wall
▫ TB-B	"	Bell Terminal Box
▫ TB-C	"	Cable Terminal Box
⊖ FH	"	Fire Hydrant
⊖ WV	"	Water Valve

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-75454

THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com
Ontario Land Surveyors

Job No. 2468I-24 CAHDC0 Pt L19 JG 0 D F FS



KEY PLAN

PROPERTY DESCRIPTION

SIX STOREY RESIDENTIAL BUILDING	
CITY OF OTTAWA PIN NUMBER	04255-0146
MUNICIPAL ADDRESS	240 PRESLAND ROAD

SITE INFORMATION

LOT AREA:	2,010m²
LOT FRONTAGE:	30.7m
LOT DEPTH:	67m

BUILDING INFORMATION

BUILDING AREA:	1,103m²
GROSS FLOOR AREA:	6,618m²
PROPOSED USE:	APARTMENT DWELLING, MID-RISE

UNIT BREAKDOWN:

LEVEL 2 & 3 (EACH):	13 UNITS	2- STUDIO, 6- 1 BD, 3- 2BD, 2- 3BD
LEVEL 4:	12 UNITS	1- STUDIO, 6- 1 BD, 4- 2BD, 1- 3BD
LEVEL 5 & 6 (EACH):	12 UNITS	1- STUDIO, 6- 1 BD, 4- 2BD, 1- 3BD
TOTAL:	62 UNITS	7- STUDIO, 30- 1 BD, 18- 2BD, 7- 3BD

ZONING TABLE — R4-UC [493]

CITY OF OTTAWA ZONING BY-LAW No. 2008-250	REQUIRED	PROPOSED
MINIMUM LOT AREA	450m²	2,010m² (Existing)
MINIMUM LOT WIDTH	15m	30m (Existing)
FRONT YARD SETBACK	4.5m	6.3m
MINIMUM INTERIOR SIDE YARD SETBACK	1.5m	5.1m EAST PROP. LINE 3.5m WEST PROP. LINE
MINIMUM REAR YARD SETBACK	30% of lot depth and 25% lot area 67m x 30% = 20.1m 25% lot area = 502.5m²	9.5m 208.4m²
MAXIMUM BUILDING HEIGHT	11m	20.14m
MAX. FLOOR SPACE INDEX	N/A	
LANDSCAPED AREA	30% = 603m² including 40% front = 57.14m² 50% rear = 151.6m²	421.79m² = 20.98% Front = 96.36m² Rear = 179.43m²
VEHICLE PARKING REQUIREMENTS	0.5 parking spaces per unit = 31 SPACES REQUIRED	32 SPACES
VISITOR PARKING REQUIREMENTS	0.1 / DWELLING UNIT AFTER 12 UNITS 6 SPACES REQUIRED	0 SPACES
AMENITY AREA REQUIREMENTS	6m² per unit = 372m² 10% of gross floor area of each rooming unit = 421m² Total = 793m²	Rooftop = 519.9m² Rear+Side Garden = 229.83m² Terrace=50.03m² Lobby=12m² TOTAL = 821.79m²
BICYCLE PARKING SPACES	0.5 per dwelling unit = 31	68 INTERIOR BICYCLE STORAGE SPACES + 7 EXTERIOR SPACES TOTAL = 75 SPACES

LEGEND

- RIVERSTONE — REFER TO LANDSCAPE
- EXISTING BUILDING ELEMENT TO BE REMOVED
- EXISTING FENCE
- NEW BOARD FENCE — REFER TO LANDSCAPE
- LOT LINE
- SETBACK LINE
- DESIGNATED BUILDING ENTRANCE / EXIT
- FH — FIRE HYDRANT. REFER TO CIVIL
- CB CB — CATCH BASIN
- MH — MANHOLE
- FLOOR DRAIN
- UTILITY POLE
- OVERHEAD UTILITY WIRES
- L.S. — LIGHT STANDARD
- DC — DEPRESSED CURB
- 0.20ø — EXISTING TREE TO REMAIN (REFER TO LANDSCAPE DRAWINGS)
- NEW TREE (REFER TO LANDSCAPE DRAWINGS)
- NEW SHRUBS (REFER TO LANDSCAPE DRAWINGS)
- 77.70 — EXISTING GROUND ELEVATION (TO DETERMINE EXISTING AVERAGE GRADE)
- 58.84 — NEW GROUND ELEVATION REFER TO CIVIL

NOTE: 'X'-E INDICATES EXISTING TO REMAIN

STANDARD PARKING SPACE 5200 × 2600

SMALL PARKING SPACE 4600 × 2400

TYPE 'A' BARRIER-FREE PARKING SPACE c/w AISLE, PAINTED MARKINGS & SIGN WHERE SHOWN 5200 × 1500 + 3400

BICYCLE PARKING (HORIZONTAL) N.T.S. 1500 × 1800

No.	Date	Émis pour / Object
1	2025-03-05	COORDINATION
2	2025-03-18	COORDINATION

Architecte/ Architect (paysagiste / Landscape)

NAK design strategies

Ingénieur / Engineer (Civil / Civil)

Stantec

Ingénieur / Engineer (Mécanique & Électricité / Mechanical & Electrical)

Smith + Andersen

Ingénieur / Engineer (Structure / Structure)

D+M STRUCTURAL ENGINEERING

Client / Client

Centretown Citizens Ottawa Corporation

Architecte / Architect
fig. 1
3550, Saint-Antoine O.
Montréal QC H4C 1A9
T. 514 861-5122

fig. 2
252 Argyle Ave
Ottawa ON K2P 1B9
T. 613 695-6122

Collectif d'architectes / Architects Collective

figurr

www.figurr.ca

Sceau / Seal

Note:

L'entrepreneur doit vérifier toutes les dimensions et informations sur le site et aviser immédiatement l'architecte de toutes erreurs ou omissions.

Contractor shall verify all information and dimensions on site and immediately report any errors or omissions to the architect.

Projet / Project

SIX STOREY APARTMENT BUILDING

240 Presland Road

Ottawa, ON

Titre / Title

SITE PLAN

Dessiné par / Drawn by	No. projet / Project number: 2424
Vérifié par / Verified by	No. dessin / Drawing number
Échelle / Scale: 1:100	Révision / Revision: 0
Date de création du dessin / Drawing creation date: 2025-03-18	

A100

APPENDIX C
WATERMAIN CALCULATIONS

CCO-25-2177 - 6-Storey Residential Building - Water Demands

Project:	6-Storey Residential Building
Project No.:	CCO-25-2177
Designed By:	RRR
Checked By:	AJG
Date:	March 19, 2025
Site Area:	0.20 gross ha

Residential	NUMBER OF UNITS		UNIT RATE	
Single Family		homes	3.4	persons/unit
Semi-detached		homes	2.7	persons/unit
Townhouse		homes	2.7	persons/unit
Bachelor Apartment	7	units	1.4	persons/unit
1 Bedroom Apartment	30	units	1.4	persons/unit
2 Bedroom Apartment	18	units	2.1	persons/unit
3 Bedroom Apartment	7	units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit
Total Population	112	persons		
Commercial		m2		
Industrial - Light		m2		
Industrial - Heavy		m2		

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	0.36	L/s
	Commercial/Industrial/ Institutional	0.00	L/s

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MAXIMUM DAILY DEMAND

DEMAND TYPE		AMOUNT	UNITS
Residential	3.6	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	1.31	L/s
	Commercial/ Industrial/ Institutional	0.00	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE		AMOUNT	UNITS
Residential	5.4	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	1.96	L/s
	Commercial/ Industrial/ Institutional	0.00	L/s

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

AVERAGE DAILY DEMAND	0.36	L/s
MAXIMUM DAILY DEMAND	1.31	L/s
MAXIMUM HOUR DEMAND	1.96	L/s

CCO-25-2177 - 6-Storey Residential Building - OBC Fire Calculations

Project:	6-Storey Residential Building
Project No.:	CCO-25-2177
Designed By:	RRR
Checked By:	AJG
Date:	March 19, 2025

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

Water Supply for Fire-Fighting - Residential Building

Building is classified as Group : C- Residential Occupancies (from table 3.2.2.55)
Building is of combustible construction. Floor assemblies are fire separations but with no fire-resistance ratings. Roof assemblies, mezzanies, 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	10	(from Table 1 pg A-31)
V	21,509	(Total building volume in m³.)
Stot	2.0	(From figure 1 pg A-32)
Q =	430,170.00 L	

From Figure 1 (A-32)

Shorth	6.3	m	0.4
Seast	5.1	m	0.5
Ssouth	9.5	m	0.0
Swest	3.5	m	0.5

* approximate distances

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

9000 L/min if Q > 270,000 L
2378 gpm

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CCO-25-2177 - 6-Storey Residential Building - Fire Underwriters Survey

Project:	6-Storey Residential Building
Project No.:	CCO-25-2177
Designed By:	RRR
Checked By:	AJG
Date:	March 19, 2025

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 = Total effective floor area - if all vertical openings and exterior vertical communications are properly protected in accordance with the National Building Code, consider only the single largest Floor Area plus 25% of each of the two immediately adjoining floors.

Construction Type Non-Combustible Construction

C 0.8 Total Floor Area 6,618.0 m^2

Floor Level	Area (M2)	Area Applied(M2)
L1	1103	1103
L2	1103	275.75
L3	1103	275.75
L4	1103	0
L5	1103	0
L6	1103	0

A Total Floor Area (per the 2020 FUS Page 20 - Total Effective Area) 1,654.5 m^2 * Unprotected Vertical Openings

Calculated Fire Flow	7,158.9 L/min
	7,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From Page 24 of the Fire Underwriters Survey:
Limited Combustible -15%

Fire Flow	5,950.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Fully Supervised Sprinklered -50%

Reduction	-2,975.0 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	20.1 to 30	Ordinary - Type III	26	2	52.0	2%
Exposure 2	10.1 to 20	Ordinary - Type III	40	4	160.0	10%
Exposure 3	10.1 to 20	Ordinary - Type III	38	3	114.0	10%
Exposure 4	Over 30 m	Ordinary - Type III	25	3	75.0	0%
					%Increase*	22%

Increase*	1,309.0 L/min

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

Fire Flow	4,284.0 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-25-2177 - 6-Storey Residential Building - Boundary Condition Unit Conversion

Project:	6-Storey Residential Building
Project No.:	CCO-25-2177
Designed By:	RRR
Checked By:	AJG
Date:	March 19, 2025

Boundary Conditions Unit Conversion

PRESLAND ROAD

Scenario	Height (m)	Elevation (m)	m H_2O	PSI	kPa
Avg. DD	118.6	60.8	57.8	82.2	567.0
Fire Flow (88.0 L/s)	74.9	60.8	14.1	20.0	137.8
Peak Hour	109.5	60.8	48.7	69.3	477.7

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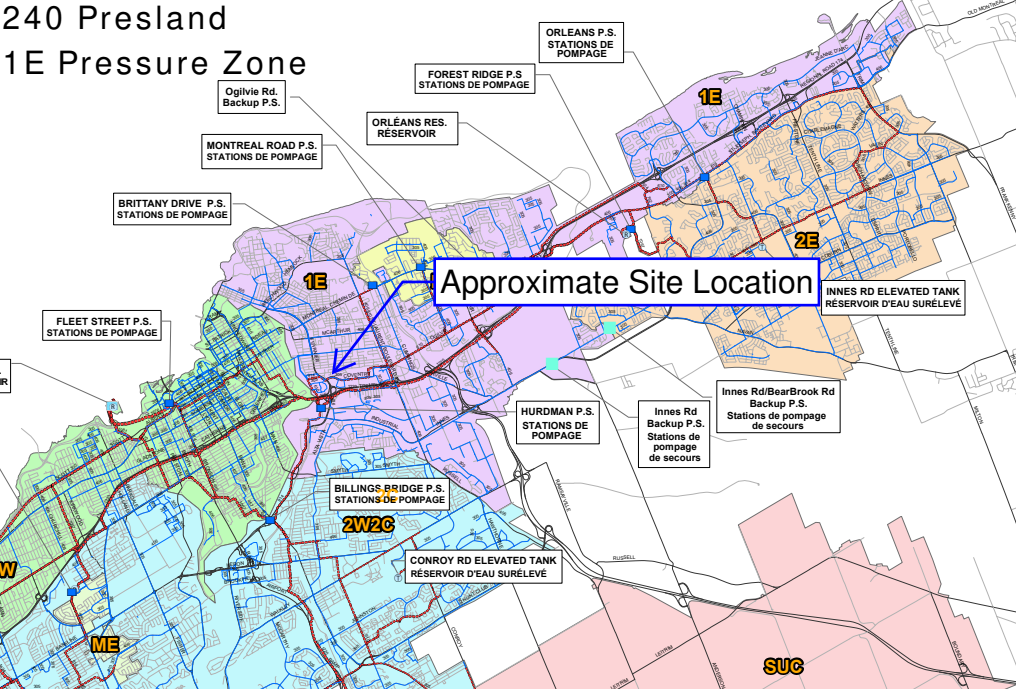
240 Presland
1E Pressure Zone



ROBINEAU Ryan

From:	Chetrar, Anton <anton.chetrar@ottawa.ca>
Sent:	March 6, 2025 8:13 AM
To:	ROBINEAU Ryan
Cc:	GOSLING Alison; Mottalib, Abdul
Subject:	RE: 240 Presland Boundary Condition Request - PC2024-0468
Attachments:	240 Presland Road Current Scenario 2025.pdf; 240 Presland Road Upgraded Scenario 2025.pdf

Hi Ryan,

Please find below water boundary conditions for 240 Presland. Note that the Required Fire Flow has not been met and the Available Fire Flow is provided.
Also included below is the Available Fire Flow given an upgrade scenario where a portion of the watermain on Presland is upgraded from 152mm to 203mm (as per attached sketch).

The following are boundary conditions, HGL, for hydraulic analysis at 240 Presland Road (zone 1E) assumed to be connected via a dual connection to the 152mm watermain on Presland Road (see attached PDF for location).

Minimum HGL = 109.9 m
Maximum HGL = 118.6 m
Available Fire Flow at 20 (psi): 88.0 L/s, assuming ground elevation of 60.8 m

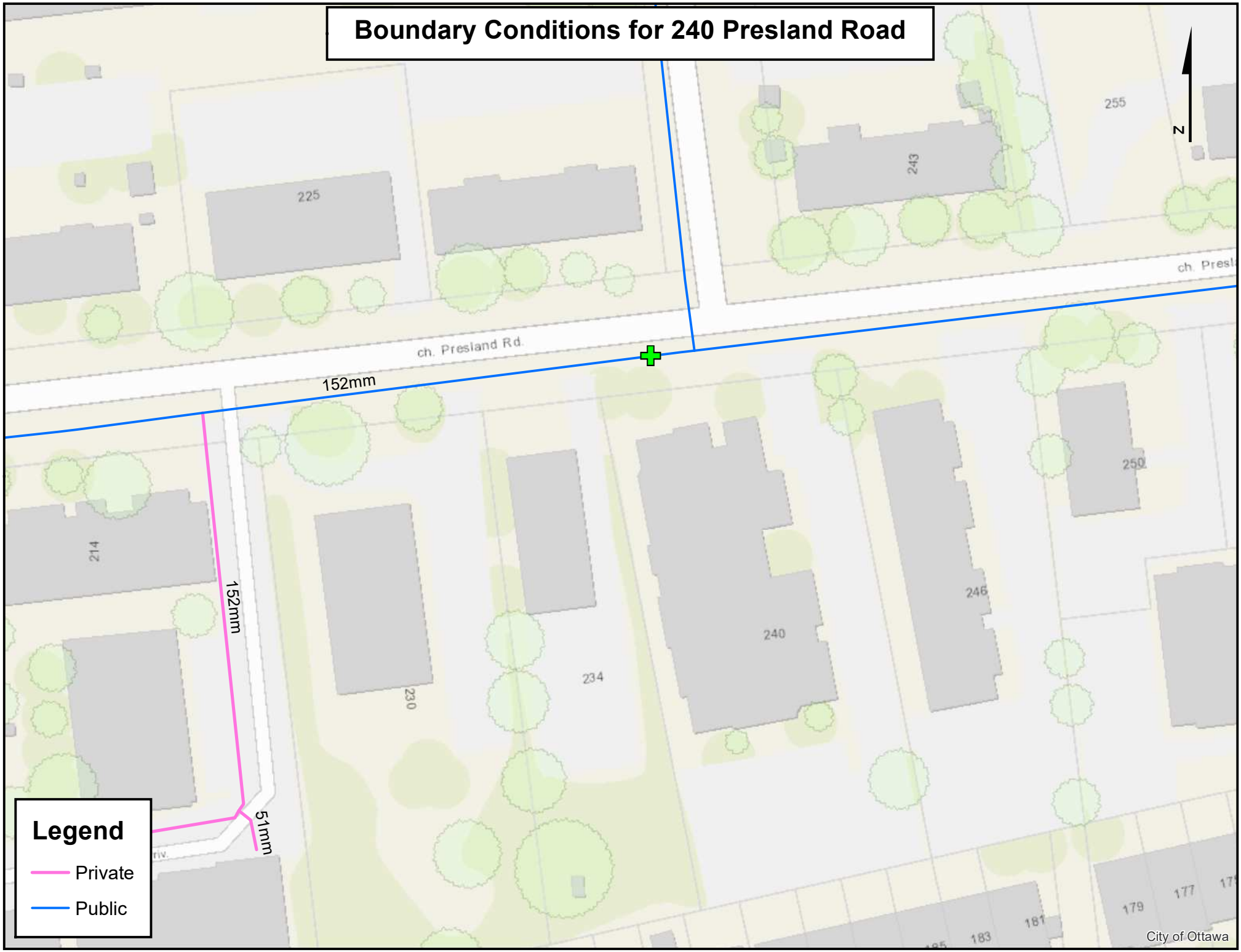
Upgrade Scenario:
Upgrade Section of Watermain on Presland from 152mm to 203mm (see attached PDF):
Available Fire Flow at 20 (psi): 145.0 L/s, assuming ground elevation of 60.8 m

The maximum pressure is estimated to be more than 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.

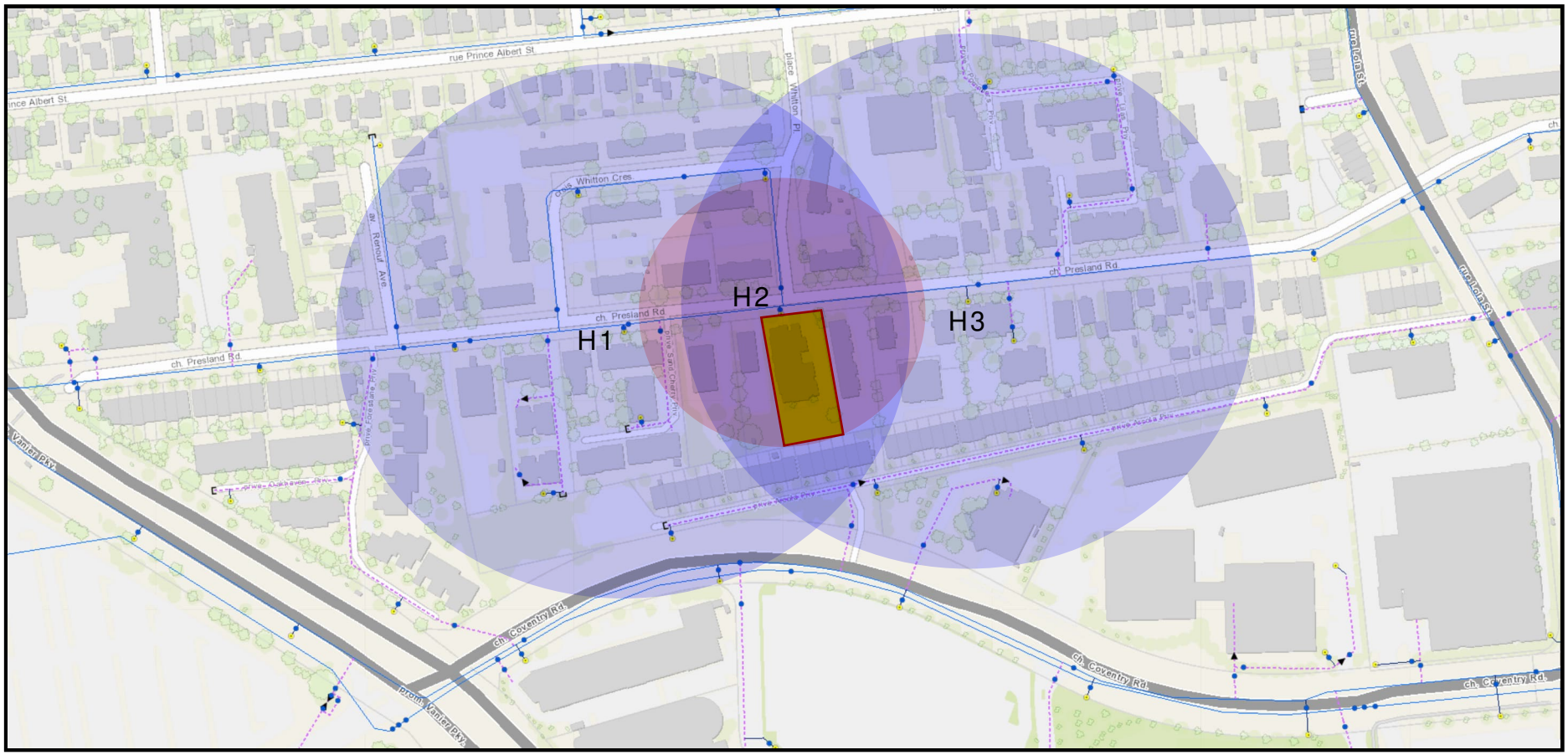
These are for current conditions and are based on computer model simulation.

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. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

Regards,
Anton Chetrar | P. Eng
Project Manager, Infrastructure - Gestionnaire de projet, Projets d'infrastructure
Development Review All Wards (DRAW) | Direction de l'examen des projets d'aménagement -Tous les quartiers (EPATQ)
Planning, Development and Building Services Department (PDBS) and Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)


Boundary Conditions for 240 Presland Road
N
ch. Presland Rd.
152mm
152mm
51mm
225
243
255
214
230
234
240
246
250
179
177
183
181
Legend
Private
Public
City of Ottawa

240 Presland - Hydrant Coverage Figure

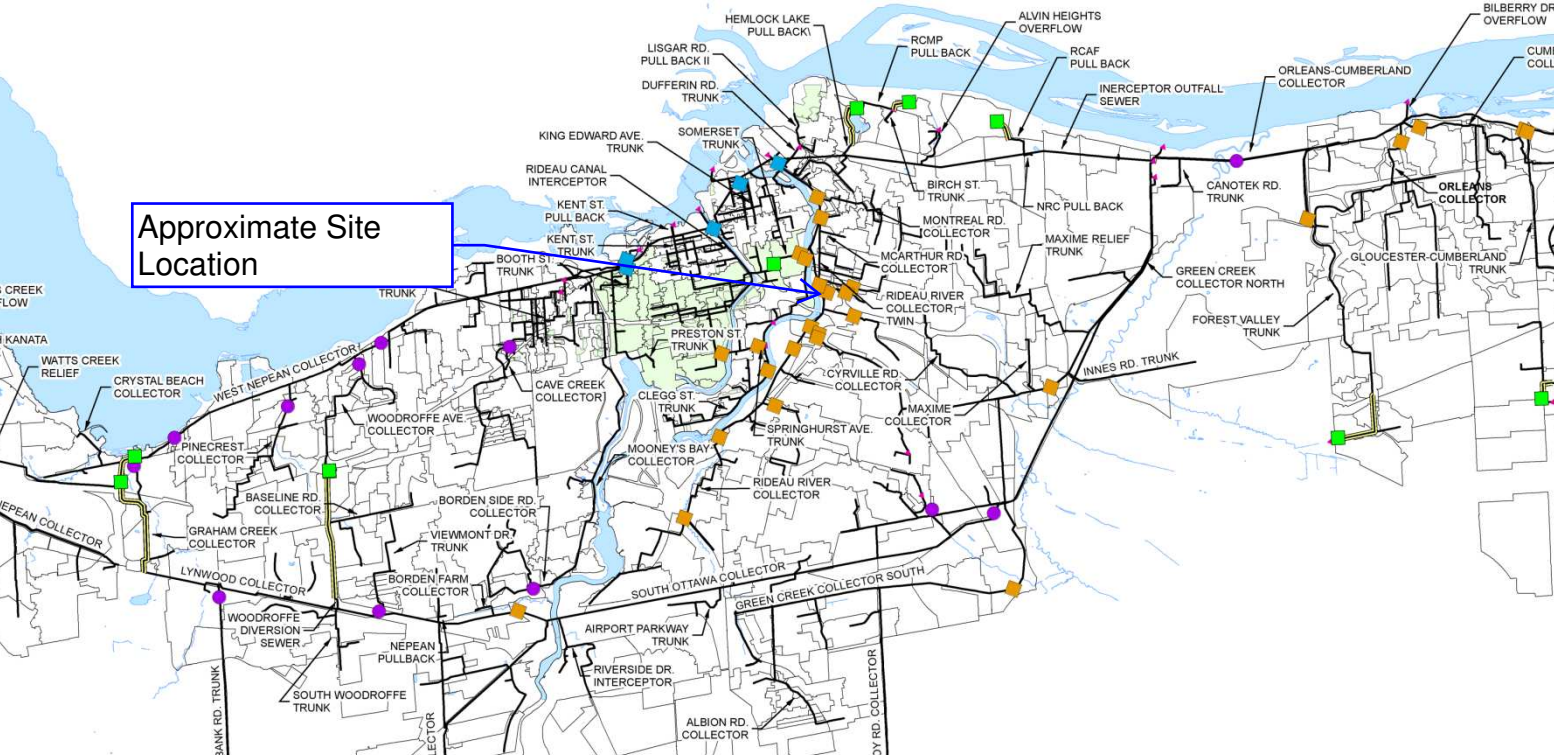


Hydrants Within 75m = 1

Hydrants Within 150m = 2

APPENDIX D
SANITARY CALCULATIONS

240 Presland Sanitary Trunk Sewer Figure



CCO-25-2177 - 6-Storey Residential Building - Sanitary Demands

Project:	6-Storey Residential Building
Project No.:	CCO-25-2177
Designed By:	RRR
Checked By:	AJG
Date:	March 19, 2025

Site Area	0.20	Gross ha	
Bachelor	7	1.40	Persons per unit
1 Bedroom	30	1.40	Persons per unit
2 Bedroom	18	2.10	Persons per unit
3 Bedroom	7	3.10	Persons per unit

Total Population	112	Persons
Commercial Area	0.00	m^2
Amenity Space	821.79	m^2

DESIGN PARAMETERS

Institutional/Commercial Peaking Factor	1.5	Per Technical Bulletin ISTB-2018-01
Residential Peaking Factor	3.58	* 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	0.01
Wet	0.06
Total	0.07

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	112	0.36
Industrial - Light**	35,000	L/gross ha/d		0.00
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m^2/d)	822	0.03
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	0.36	L/s
PEAK RESIDENTIAL FLOW	1.30	L/s
AVERAGE ICI FLOW	0.03	L/s
PEAK INSTITUTIONAL/ COMMERCIAL FLOW	0.04	L/s
PEAK INDUSTRIAL FLOW	0.00	L/s
TOTAL PEAK ICI FLOW	0.04	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.40	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	1.35	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	1.41	L/s

** PEAK INDUSTRIAL FLOW PER CITY OF OTTAWA SEWER DESIGN GUIDELINES APPENDIX 4B

SANITARY SEWER DESIGN SHEET

PROJECT: 6-Storey Apartment Building
LOCATION: 244 Presland Road

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 BAC/1-BED	2-BED	3-BED		AREA (ha)	POPULATION IND	CUM	PEAK FACTOR	PEAK FLOW (L/s)	AREA (ha) AMMENITY 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	(%)
Presland		BLDG	MH1A	37	18	7		0.20	112	112	3.58	1.30	0.08	0.08		0.00		0.00	0.04	0.20	0.20	0.07	1.41	15.89	5.14	150	1.00	0.871	14.48	91.14
		MH1A	900mm SEWER									1.30							0.04			0.07	1.41	15.89	7.20	150	1.00	0.871	14.48	91.14

Design Parameters:

Residential			ICI Areas			
BAC/1-BED	1.4	p/p/u				Peak Factor
2-BED	2.1	p/p/u	AMM	28,000	L/Ha/day	1.5
3-BED	3.1	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: RRR
Checked: AJG
Project No.: CCO-25-2177

No.	Revision	Date

Sheet No: 1 of 1

APPENDIX E
PRE-DEVELOPMENT DRAINAGE PLAN

LEGEND:

A1 | 0.20 ha
0.20
0.50

SCALE 1 : 250

0 5 10 15 20 25 Metres

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Carp, ON K0A 1L0
Tel: 613-836-2184 Fax:613-836-3742
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Client: FIGURR ARCHITECTS COLLECTIVE
25 ARGYLE AVE, OTTAWA ON K2P 1B9

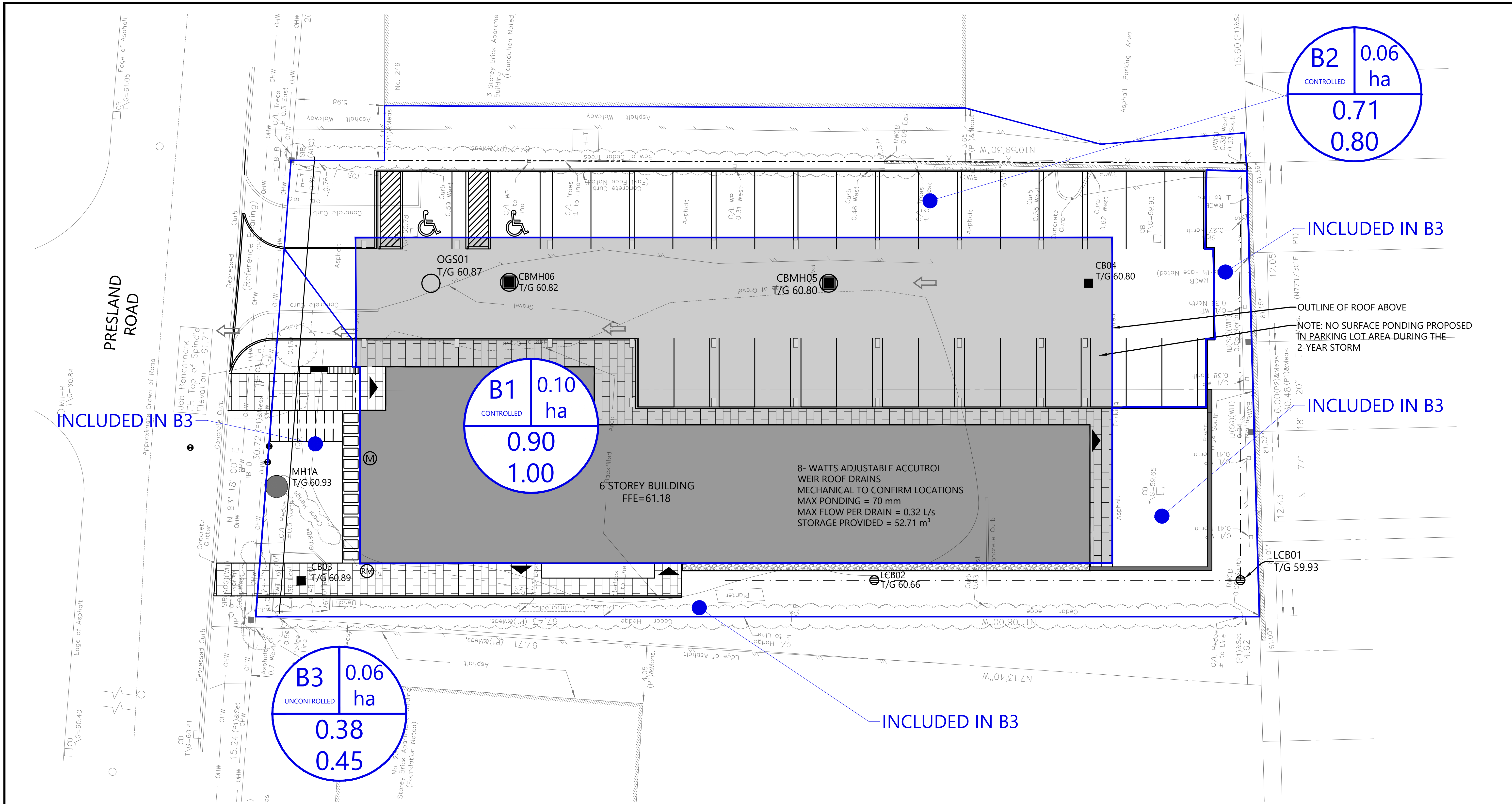
Project: 6-STOREY APARTMENT BUILDING
240 PRESLAND ROAD, OTTAWA, ON

Drawing Title: PRE-DEVELOPMENT DRAINAGE AREA PLAN

Drawn by:	Checked By:			Drawing Number:
RRR	AJG			PRE
Scale: 1:250	Project Number: CCO-25-2177	1	ISSUED FOR REVIEW	
		No.	Revisions	Date

FILENAME: U:\Infrastructure\2025\CCO-25-2177 Figurr-Net Zero Ready Development-240 Presland- RFP\12 - Drawings\CCO-25-2177_DE
LAST SAVED: Monday, March 10, 2025 LAST SAVED BY: r.robineau
LAST PLOTTED: Monday, March 10, 2025 CTB FILE USED: MP-CV-STANDARD.ctb

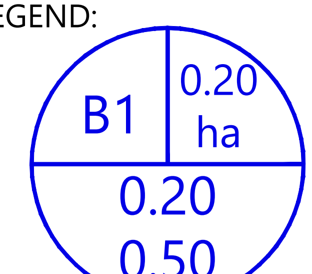
APPENDIX F
POST-DEVELOPMENT DRAINAGE PLAN



SCALE 1 : 250

0 5 10 15 20 25 Metres

LEGEND:



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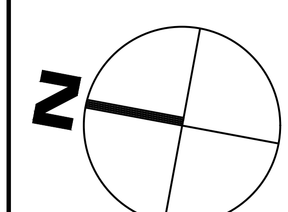

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Carp, ON K0A 1L0
Tel: 613-836-2184 Fax:613-836-3742
www.egis-group.com

Client:	FIGURR ARCHITECTS COLLECTIVE 25 ARGYLE AVE, OTTAWA ON K2P 1B9
Project:	6-STOREY APARTMENT BUILDING OTTAWA, ON
Drawing Title:	240 PRESLAND ROAD, OTTAWA, ON

Drawn by:	Checked By:
RRR	RDF
Scale: 1:250	Project Number: CCO-25-2177

No.	Revisions	Date
1	ISSUED FOR REVIEW	

Drawing Number: POST

FILENAME: U:\Infrastructure\2025\CCO-25-2177 Figurr-Net Zero Ready Development-240 Presland- RFP\12 - Drawings\CCO-25-2177_DESIGN.dwg
LAST SAVED: Saturday, April 05, 2025 LAST SAVED BY: r.robineau
LAST PLOTTED: Saturday, April 05, 2025 CTB FILE USED: MP-CV-STANDARD.ctb

APPENDIX G
STORMWATER MANAGEMENT CALCULATIONS

Tc (min)	Intensity (mm/hr)		
	5-Year	100-Year	
10	104.2	178.6	PRE-DEVELOPMENT
10	104.2	178.6	POST-DEVELOPMENT

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	828	887	296	0.66	0.78	
EX	66	0	114	0.46	0.53	External Drainage Area

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)	
					5-Year	100-Year
A1	0.20	0.66	0.78	10	38.71	77.79
EX	0.02	0.46	0.53	10	2.38	4.69
Total	0.22				41.09	82.48

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	1,004	0	0	0.90	1.00
B2	412	0	149	0.71	0.80
B3	104	0	707	0.38	0.45

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	Q (L/s)		
					5-Year	100-Year	
B1	0.10	0.90	1.00	10	26.17	49.84	Restricted
B2	0.06	0.71	0.80	10	11.60	22.30	Restricted
B3	0.06	0.38	0.45	10	6.80	13.93	Unrestricted
Total	0.22				44.58	86.07	

Required Restricted Flow

Drainage Area	Area (ha)	C 5-Year	Tc (min)	Q (L/s)	
				5-Year	
A1	0.20	0.50	10	29.12	Calculated Pre Development C>0.5,
EX	0.02	0.46	10	2.38	External Drainage Area Added to Target Flow Rate
Total	0.22			31.50	

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	26.17	49.84	2.52	2.52	20.8	48.3	22.6	52.7
B2	11.60	22.30	13.70	13.85	0.9	5.3	1.2	6.8
B3	6.80	13.93	6.80	13.93				
Total	44.58	86.07	23.03	30.30	21.7	53.6	23.7	59.5

Storage Requirements for Area B1

5-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B1	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
40	44.2	11.10	2.52	8.58	20.59
50	37.7	9.47	2.52	6.95	20.84
60	32.9	8.26	2.52	5.74	20.67
70	29.4	7.39	2.52	4.86	20.42
80	26.6	6.68	2.52	4.16	19.96

Maximum Storage Required 5-year =	21	m^3

100-Year Storm Event

Tc (min)	I (mm/hr)	Runoff (L/s) B1	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
70	49.8	13.90	2.52	11.38	47.78
52	62.1	17.33	2.52	14.81	46.20
62	54.5	15.21	2.52	12.69	47.20
72	48.7	13.59	2.52	11.07	47.82
82	44.2	12.34	2.52	9.81	48.28
92	40.4	11.28	2.52	8.75	48.31
102	37.3	10.41	2.52	7.89	48.27
112	34.7	9.69	2.52	7.16	48.13
122	32.5	9.07	2.52	6.55	47.93
132	30.5	8.51	2.52	5.99	47.44

Maximum Storage Required 100-year =	48	m^3

5-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	753.00	0.030	22.59

Storage Available (m^3) =	22.59
Storage Required (m^3) =	20.84

100-Year Storm Event Storage Summary

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	753.00	0.070	52.71

Storage Available (m^3) =	52.71
Storage Required (m^3) =	48.31

* Area is 75% of the total roof area

Roof Drain Flow (B1)

Roof Drains Summary		
Type of Control Device	Watts Drainage - Accutrol Weir	
Number of Roof Drains	8	
	5-Year	100-Year
Rooftop Storage (m^3)	22.59	52.71
Storage Depth (m)	0.030	0.070
Flow (Per Roof Drain) (L/s)	0.32	0.32
Total Flow (L/s)	2.52	2.52

Flow Rate Vs. Build-Up (One Weir)	
Depth (mm)	Flow (L/s)
15	0.18
20	0.24
25	0.32
30	0.32
35	0.32
40	0.32
45	0.32
50	0.32
55	0.32

* Roof Drain model to be Accutrol Weirs, See attached shee
* Roof Drain Flow information taken from Watts Drainage website
* Maximum design ponding < 150mm
* Weir in Closed Flow Setting

CALCULATING ROOF FLOW EXAMPLES

1 roof drain during a 5 year storm
elevation of water = 25mm
Flow leaving 1 roof drain = (1 x 0.32 L/s) = 0.32L/s

1 roof drain during a 100 year storm
elevation of water = 50mm
Flow leaving 1 roof drain = (1 x 0.32 L/s) = 0.32 L/s

4 roof drains during a 5 year storm
elevation of water = 25mm
Flow leaving 4 roof drains = (4 x 0.32 L/s) = 1.28 L/s

4 roof drains during a 100 year storm
elevation of water = 50mm
Flow leaving 4 roof drains = (4 x 0.32L/s) = 1.28 L/s

	Roof Drain Flow		
	Flow (l/s)	Storage Depth (mm)	Drains Flow (l/s)
	0.18	15	1.44
	0.24	20	1.92
	0.32	25	2.52
5-Year	0.32	30	2.52
	0.32	35	2.52
	0.32	40	2.52
	0.32	45	2.52
	0.32	50	2.52
	0.32	55	2.52
	0.32	60	2.52
	0.32	65	2.52
100-Year	0.32	70	2.52
	0.32	75	2.52
	0.32	80	2.52
	0.32	85	2.52
	0.32	90	2.52
	0.32	95	2.52
	0.32	100	2.52
	0.32	105	2.52
	0.32	110	2.52
	0.32	115	2.52
	0.32	120	2.52
	0.32	125	2.52
	0.32	130	2.52
	0.32	135	2.52
	0.32	140	2.52
	0.32	145	2.52
	0.32	150	2.52

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

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)
1	147.0	16.37	13.50	2.87	0.17
2	132.2	14.72	13.50	1.22	0.15
3	120.4	13.41	13.50	0.00	0.00
4	110.7	12.33	13.50	0.00	0.00
5	102.6	11.43	13.50	0.00	0.00

Maximum Storage Required 2-year =	0.17 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)
1	203.5	22.66	13.70	8.96	0.54
2	182.7	20.35	13.70	6.65	0.80
3	166.1	18.50	13.70	4.80	0.86
4	152.5	16.98	13.70	3.28	0.79
5	141.2	15.72	13.70	2.02	0.61

Maximum Storage Required 5-year =	1 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)
3	286.0	35.72	13.85	21.87	3.94
4	262.4	32.77	13.85	18.92	4.54
5	242.7	30.31	13.85	16.46	4.94
6	226.0	28.23	13.85	14.38	5.18
7	211.7	26.44	13.85	12.59	5.29
8	199.2	24.88	13.85	11.03	5.29
9	188.3	23.52	13.85	9.67	5.22
10	178.6	22.31	13.85	8.46	5.07
11	169.9	21.22	13.85	7.37	4.86
12	162.1	20.24	13.85	6.39	4.60

Maximum Storage Required 100-year =	5 m^3

2-Year Storm Event Storage Summary

Water Elev. (m) =		60.79		
Location	T/G	INV. (out)	Head (m)	Volume In Structures (m^3)
CB04	60.80	59.11	-	0.2
CBMH05	60.80	58.68	-	2.4
CBMH06	60.82	57.89	2.87	3.3

*No surface ponding during 2-year storm. Storage volume provided within storm sturctures

Storage Available (m^3) =	5.9
Storage Required (m^3) =	0.2

Note:

Volume of CBMHs assumed to be volume of a cylinder. Height assumed to be T/G to Pipe Invert

Volume of CB assumed to be volume of rectangular based prism. Height assumed to be T/G to Pipe Invert.

Water Elev. (m) =		60.85		
Location	T/G	INV. (out)	Head (m)	Surface Ponding Volume (m^3)
CB04	60.80	59.11	-	0.3
CBMH05	60.80	58.68	-	0.4
CBMH06	60.82	57.89	2.93	0.4

*Surface ponding volume caculated in AutoCAD

Storage Available (m^3) =	1.2
Storage Required (m^3) =	0.9

100-Year Storm Event Storage Summary

Water Elev. (m) =		60.89		
Location	T/G	INV. (out)	Head (m)	Surface Ponding Volume (m^3)
CB04	60.80	59.11	-	1.9
CBMH05	60.80	58.68	-	2.6
CBMH06	60.82	57.89	2.97	2.3

*Surface ponding volume caculated in AutoCAD

Storage Available (m^3) =	6.8
Storage Required (m^3) =	5.3

Time of Concentration Pre-Development

Drainage Area ID	Sheet Flow Distance (m)	Slope of Land (%)	Tc (min) (5-Year)	Tc (min) (100-Year)
A1	37	2.40	6	5

Therefore, a Tc of 10 can be used

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

For Orifice Flow, C= 0.60
For Weir Flow, C= 1.84

	Orifice 1	Orifice 2	Weir 1	Weir 2
invert elevation	57.89	X		X
center of crest elevation	57.92	X		X
orifice width / weir length	65 mm	X		X
weir height				X
orifice area (m^2)	0.003	X	x	X

Elevation Discharge Table - Storm Routing

Elevation	Orifice 1		Orifice 2		Weir 1		Weir 2		Total	
	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	H [m]	Q [m^3/s]	Q [L/s]	
57.89	x	x	x	x			x	x	0	
57.90	x	x	x	x			x	x	0	
57.91	x	x	x	x			x	x	0	
57.92	x	x	x	x			x	x	0	
57.93	0.01	0.00	x	x			x	x	1	
57.94	0.02	0.00	x	x			x	x	1	
57.95	0.03	0.00	x	x			x	x	1	
57.96	0.04	0.00	x	x			x	x	2	
57.97	0.05	0.00	x	x			x	x	2	
57.98	0.06	0.00	x	x			x	x	2	
57.99	0.07	0.00	x	x			x	x	2	
58.00	0.08	0.00	x	x			x	x	2	
58.01	0.09	0.00	x	x			x	x	3	5-Year
58.02	0.10	0.00	x	x			x	x	3	
58.03	0.11	0.00	x	x			x	x	3	
58.04	0.12	0.00	x	x			x	x	3	
58.05	0.13	0.00	x	x			x	x	3	
58.06	0.14	0.00	x	x			x	x	3	
58.07	0.15	0.00	x	x			x	x	3	100-Year
58.08	0.16	0.00	x	x			x	x	3	
58.09	0.17	0.00	x	x			x	x	4	
58.10	0.18	0.00	x	x			x	x	4	
58.11	0.19	0.00	x	x			x	x	4	
58.12	0.20	0.00	x	x			x	x	4	
58.13	0.21	0.00	x	x			x	x	4	
58.14	0.22	0.00	x	x			x	x	4	
58.15	0.23	0.00	x	x			x	x	4	
58.16	0.24	0.00	x	x			x	x	4	
58.17	0.25	0.00	x	x			x	x	4	
58.18	0.26	0.00	x	x			x	x	4	
58.19	0.27	0.00	x	x			x	x	5	
58.20	0.28	0.00	x	x			x	x	5	
58.21	0.29	0.00	x	x			x	x	5	
58.22	0.30	0.00	x	x			x	x	5	
58.23	0.31	0.00	x	x			x	x	5	
58.24	0.32	0.00	x	x			x	x	5	
58.25	0.33	0.01	x	x			x	x	5	
										100-Year
58.26	0.34	0.01	x	x			x	x	5	
58.27	0.35	0.01	x	x			x	x	5	
58.28	0.36	0.01	x	x			x	x	5	
58.29	0.37	0.01	x	x			x	x	5	
58.30	0.38	0.01	x	x			x	x	5	
58.31	0.39	0.01	x	x			x	x	5	
58.32	0.40	0.01	x	x			x	x	6	
58.33	0.41	0.01	x	x			x	x	6	

STORM SEWER DESIGN SHEET

PROJECT: CCO-25-2177
LOCATION: 240 Presland

LOCATION				CONTRIBUTING AREA (ha)				RATIONAL DESIGN 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
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)	10yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	FIXED FLOW (L/s)	DESIGN FLOW (L/s)	CAPACITY (L/s)	LENGTH (m)	PIPE SIZE (mm)			SLOPE (%)	VELOCITY (m/s)	AVAIL CAP (5yr)	
																					DIA	W	H			(L/s)	(%)
	B2	CB04	CBMH05	0.71	0.06	0.04	0.04	10.00	0.19	10.19	104.19	122.14	178.56	11.60				11.60	75.98	17.45	250			1.50	1.500	64.38	84.73%
		CBMH05	OGS01 (Inlet)				0.04	10.19	0.17	10.37	103.18	120.95	176.81	11.49				11.49	237.08	21.46	375			1.68	2.079	225.59	95.15%
	B1 (Controlled Roof Drainage)	BLDG	OGS1 (Outlet)	0.10	0.90	0.09	0.09	10.00	0.12	10.12	104.19	122.14	178.56	-				2.52	5.39	4.86	100			1.00	0.665	2.87	53.17%
		OGS1 (OUTLET)	EX. 1800mm Dia STM	-	-	-	0.13	10.37	0.27	10.64	102.30	119.91	175.28	-				13.92	129.34	18.45	375			0.50	1.134	115.42	89.24%
	B3	LCB01	LCB02	0.38	0.06	0.02	0.02	10.00	0.47	10.47	104.19	122.14	178.56	6.80				6.80	43.87	24.60	250			0.50	0.866	37.06	84.49%
		LCB02	CB03				0.02	10.47	0.74	11.21	101.76	119.27	174.34	6.64				6.64	43.87	38.51	250			0.50	0.866	37.22	84.85%
		CB03	EX. 1800mm Dia STM				0.02	11.21	0.23	11.44	98.19	115.07	168.17	6.41				6.41	43.87	11.73	250			0.50	0.866	37.46	85.38%

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: RRR
Checked: RDF
Project No.: CCO-25-2177

No.	Revision	Date
1.		

Date:

Sheet No: 1 of 1

Stormceptor® Rinker Materials

Stormceptor® EF Sizing Report

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

03/07/2025

Province:	Ontario
City:	Ottawa
Nearest Rainfall Station:	OTTAWA CDA RCS
Climate Station Id:	6105978
Years of Rainfall Data:	20

Site Name:	240 PRESLAND

Drainage Area (ha):	0.08
Runoff Coefficient 'c':	0.59

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	1.52
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	20.00
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	100
Estimated Average Annual Sediment Load (kg/yr):	26
Estimated Average Annual Sediment Volume (L/yr):	21

Project Name:	240 Presland Road
Project Number:	CCO-25-2177
Designer Name:	Ryan Robineau
Designer Company:	Egis Canada Ltd.
Designer Email:	ryan.robineau@egis-group.com
Designer Phone:	613-714-6611
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	100
EFO5	100
EFO6	100
EFO8	100
EFO10	100
EFO12	100

Recommended Stormceptor EFO Model: EFO4

Estimated Net Annual Sediment (TSS) Load Reduction (%): 100

Water Quality Runoff Volume Capture (%): > 90

imbrium

THIRD-PARTY TESTING AND VERIFICATION

►**Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

►**Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterwavs.

PARTICLE SIZE DISTRIBUTION (PSD)

►The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV ***Procedure for Laboratory Testing of Oil-Grit Separators*** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

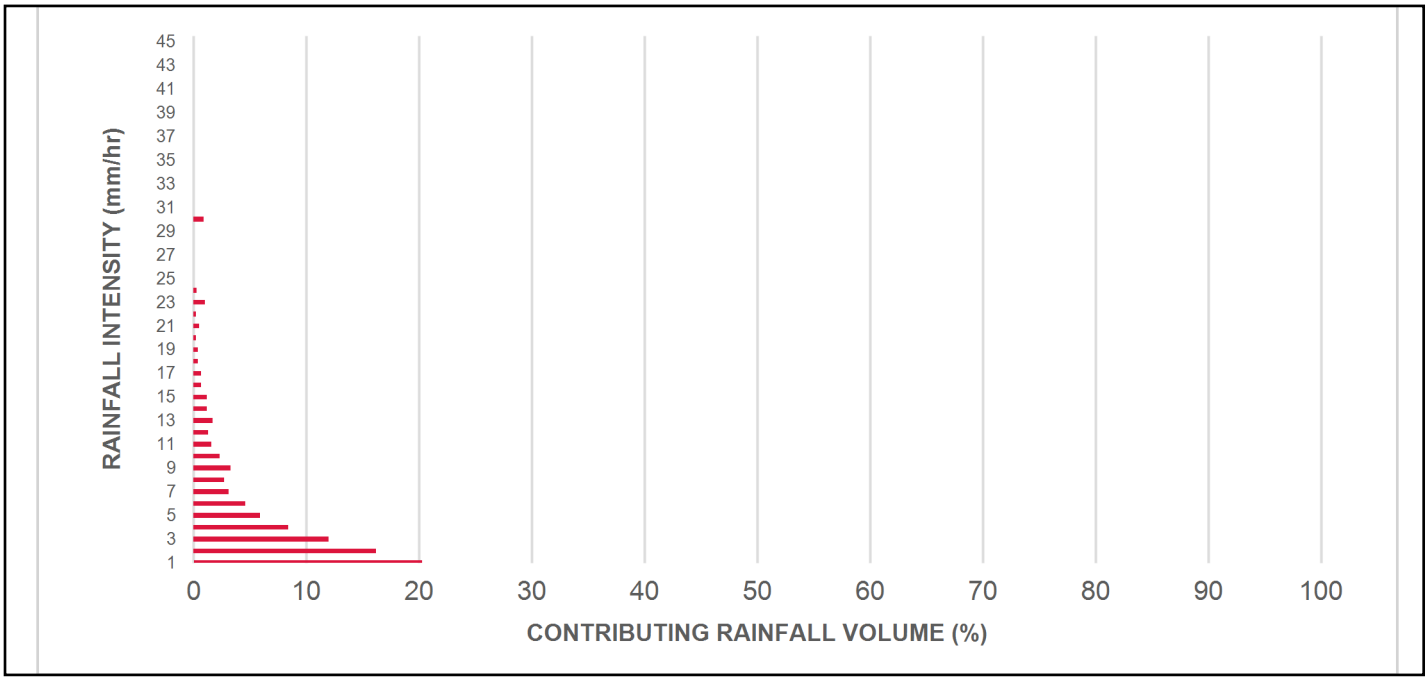
Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Upstream Flow Controlled Results

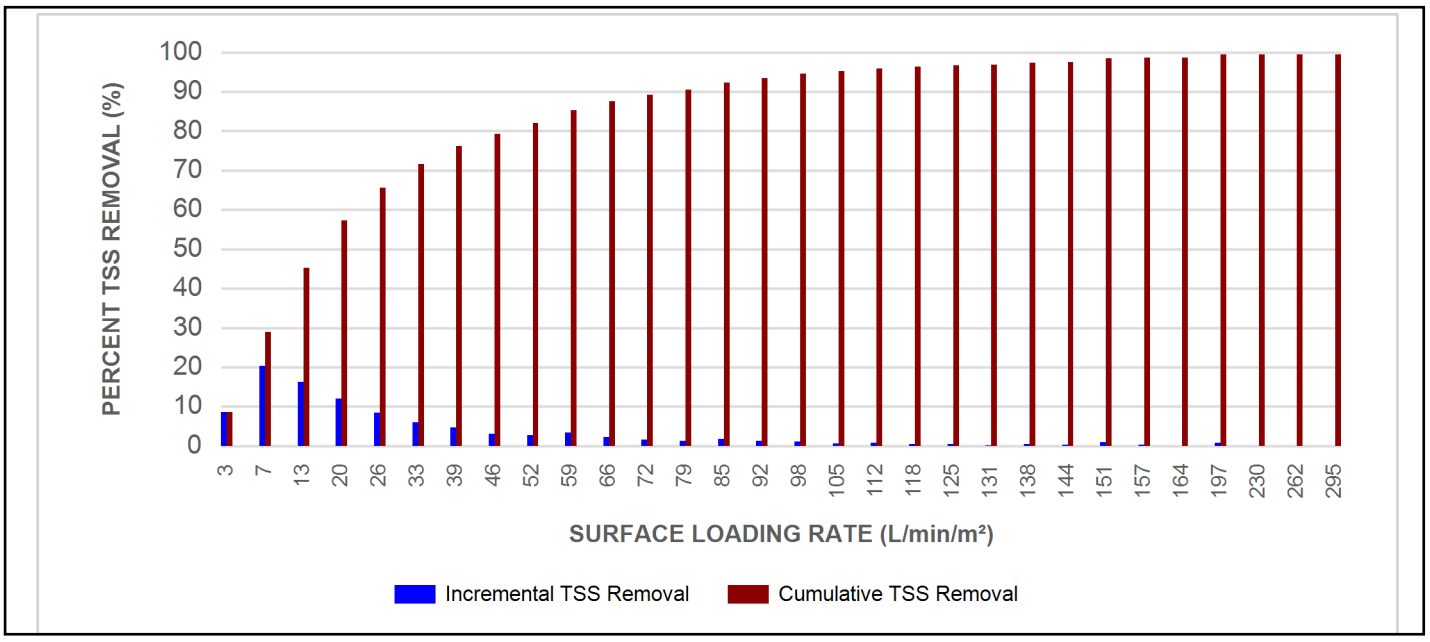
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	0.07	4.0	3.0	100	8.6	8.6
1.00	20.3	29.0	0.13	8.0	7.0	100	20.3	29.0
2.00	16.2	45.2	0.26	16.0	13.0	100	16.2	45.2
3.00	12.0	57.2	0.39	24.0	20.0	100	12.0	57.2
4.00	8.4	65.6	0.52	31.0	26.0	100	8.4	65.6
5.00	5.9	71.6	0.66	39.0	33.0	100	5.9	71.6
6.00	4.6	76.2	0.79	47.0	39.0	100	4.6	76.2
7.00	3.1	79.3	0.92	55.0	46.0	100	3.1	79.3
8.00	2.7	82.0	1.05	63.0	52.0	100	2.7	82.0
9.00	3.3	85.3	1.18	71.0	59.0	100	3.3	85.3
10.00	2.3	87.6	1.31	79.0	66.0	100	2.3	87.6
11.00	1.6	89.2	1.44	87.0	72.0	100	1.6	89.2
12.00	1.3	90.5	1.57	94.0	79.0	100	1.3	90.5
13.00	1.7	92.2	1.71	102.0	85.0	98	1.7	92.2
14.00	1.2	93.5	1.84	110.0	92.0	97	1.2	93.4
15.00	1.2	94.6	1.97	118.0	98.0	97	1.1	94.5
16.00	0.7	95.3	2.10	126.0	105.0	96	0.7	95.2
17.00	0.7	96.1	2.23	134.0	112.0	95	0.7	95.9
18.00	0.4	96.5	2.36	142.0	118.0	95	0.4	96.3
19.00	0.4	96.9	2.49	150.0	125.0	93	0.4	96.7
20.00	0.2	97.1	2.62	157.0	131.0	92	0.2	96.9
21.00	0.5	97.5	2.76	165.0	138.0	92	0.4	97.3
22.00	0.2	97.8	2.89	173.0	144.0	91	0.2	97.5
23.00	1.0	98.8	3.02	181.0	151.0	89	0.9	98.4
24.00	0.3	99.1	3.15	189.0	157.0	89	0.2	98.6
25.00	0.9	100.0	3.28	197.0	164.0	88	0.8	99.5
30.00	0.9	100.9	3.94	236.0	197.0	84	0.8	100.3
35.00	-0.9	100.0	4.59	276.0	230.0	82	N/A	99.5
40.00	0.0	100.0	5.25	315.0	262.0	80	0.0	99.5
45.00	0.0	100.0	5.90	354.0	295.0	79	0.0	99.5
Estimated Net Annual Sediment (TSS) Load Reduction =								**99 %**

Climate Station ID: 6105978 *Years of Rainfall Data*: 20

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

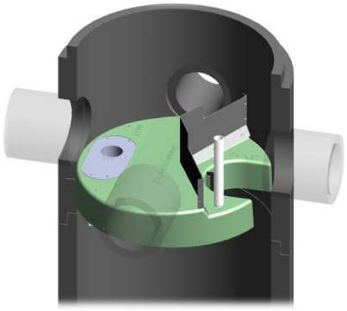
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

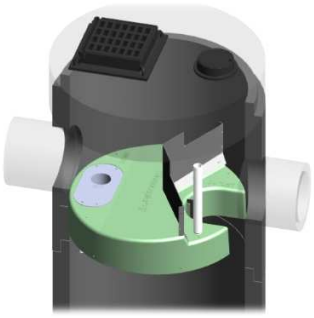
DESIGN FLEXIBILITY

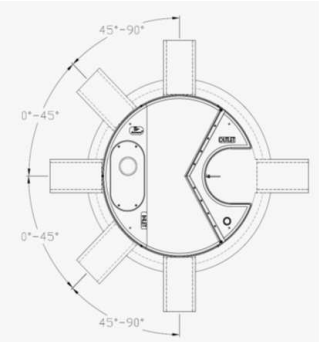
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

►While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREAMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program's **Procedure for Laboratory Testing of Oil-Grit** S**eparators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m^3 sediment / 420 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid

Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators,** with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

APPENDIX H
CITY OF OTTAWA DESIGN CHECKLIST

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 Proposed 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 Proposed 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 Proposed Water Servicing

☐ 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 Servicing

☐ 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 5.2 Proposed Sanitary Servicing
☐ 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 Servicing
☐ 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 Storm Sewer Servicing & 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 Storm Sewer Servicing & 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 Storm Sewer Servicing & 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 Storm Sewer Servicing & 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 (C101)
☐ 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.	Appendix G, Section 7.0 Proposed Stormwater Management
☐ Any proposed diversion of drainage catchment areas from one outlet to another.	Section 6.0 Storm Sewer Servicing & 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 Storm Sewer Servicing & 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 Storm Sewer Servicing & 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