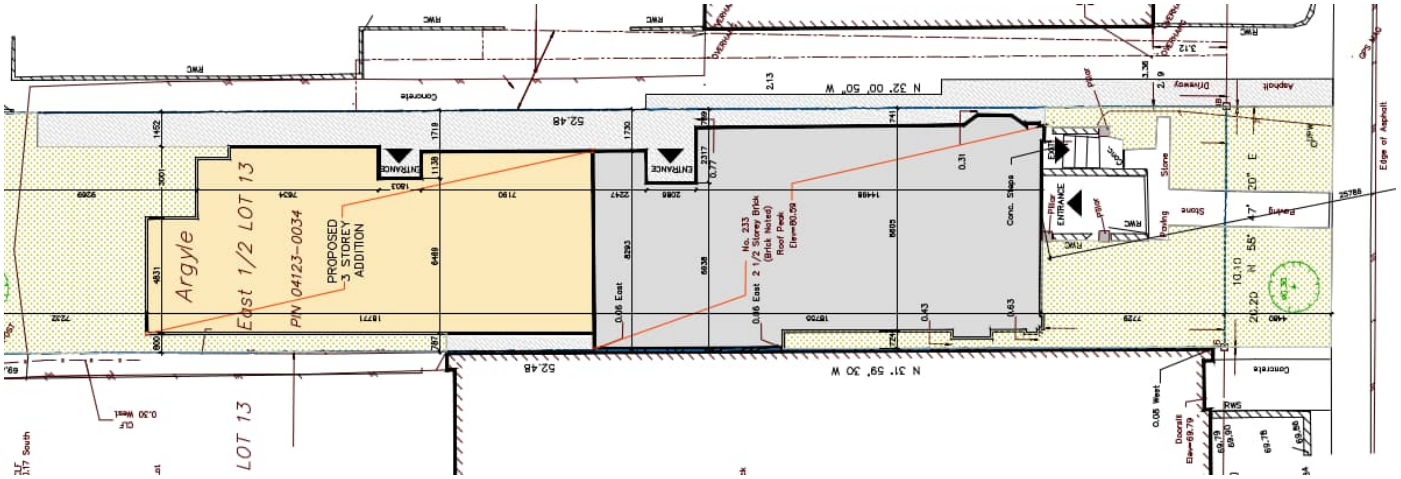
SERVICING & STORMWATER MANAGEMENT REPORT
233 ARGYLE AVENUE



Project No.: CCO-22-1648

City File No.: D07-12-21-0171

Prepared for:

Smart Living Properties
226 Argyle Avenue
Ottawa, ON K2P 1B9

Prepared by:

McIntosh Perry Consulting Engineers Ltd.
115 Walgreen Road
Carp, ON K0A 1L0

2022-12-12

McINTOSH PERRY

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APPENDICES

1.0 PROJECT OVERVIEW

1.1 Purpose

McIntosh Perry (MP) has been retained by Smart Living Properties to prepare this Servicing and Stormwater Management Report in support of the Zoning By-law Amendment (ZBLA) and Site Plan Control (SPC) application process for the proposed development at 233 Argyle Avenue, within the City of Ottawa.

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

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

- CCO-22-1648, C101 – Grading, Drainage, Servicing and Sediment & Erosion Control Plan
- CCO-22-1648, PRE – Pre-Development Drainage Area Plan (Appendix E)
- CCO-22-1648, 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 233 Argyle Avenue within the Somerset Ward in the City of Ottawa. The site covers approximately 0.05 ha and is located west of the Argyle Avenue and O'Connor Street intersection, as shown by Figure 1, above. The site is zoned for Residential Use (R4UD). Additional details are included on the Site Location Plan included in Appendix A.

1.3 Proposed Development and Statistics

The proposed development incorporates a building addition to the existing commercial building. 14 residential units to the existing 261 m^2 office building are proposed, with street access from Argyle Avenue. The development is proposed within 0.034 ha of the site. Refer to Site Plan prepared by Woodman Architect and Associates and included in Appendix B for further details.

1.4 Existing Conditions and Infrastructure

The property is located within the City of Ottawa's Central Sub-Watershed. A commercial building exists within the site and is proposed to be retained, along with the shared driveway with 229 Argyle Avenue. The existing building is currently serviced via the City's infrastructure within Argyle Avenue. The asphalt parking area is proposed to be removed as part of the development.

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-ways:

- Argyle Avenue
  - 203 mm diameter PVC watermain; and
  - 525 mm diameter concrete combined sewer, tributary to the Rideau Canal Interceptor and tributary to the Ottawa River, in the event of an overflow event.

1.5 Approvals

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

Based on pre-consultation with the City of Ottawa, an Environmental Compliance Approval (ECA) through the Ministry of Environment, Conservation and Parks (MECP) is required since the site is located within a combined sewer area and is tributary to the existing combined sewer within Argyle Avenue.

2.0 BACKROUND STUDIES, STANDARDS AND REFERENCES

2.1 Background Reports / Reference Information

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

A topographic survey (20643-20) of the site was completed by Annis, O'Sullivan, Vollebekk Ltd. dated July 28th, 2020.

The Site Plan, A0.1 was prepared by Woodman Architect and Associates Architects dated October 18th, 2022(Site Plan).

2.2 Applicable Guidelines and Standards

City of Ottawa:

- Ottawa Sewer Design Guidelines, City of Ottawa, SDG002, October 2012. (Ottawa Sewer Guidelines)
  - Technical Bulletin ISTB-2014-01 City of Ottawa, February 2014. (ISTB-2014-01)
  - Technical Bulletin PIEDTB-2016-01 City of Ottawa, September 2016. (PIEDTB-2016-01)
  - Technical Bulletin ISTB-2018-01 City of Ottawa, January 2018. (ISTB-2018-01)
  - Technical Bulletin ISTB-2018-03 City of Ottawa, March 2018. (ISTB-2018-03)
  - Technical Bulletin ISTB-2019-01 City of Ottawa, January 2019. (ISTB-2019-01)
  - 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)

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 February 10th, 2021, regarding the proposed development at 233 Argyle Avenue. Specific design parameters to be incorporated within this design are noted by the City of Ottawa pre-consultation found in Appendix B and are noted below.

- Control 5 through 100-year post-development flows to the 2-year storm event with a combined C value to a maximum of 0.40.
- Quality controls are not required since the site is tributary to a combined sewer and ultimately tributary to Robert O. Pickard Environmental Centre (ROPEC).

4.0 WATERMAIN

4.1 Existing Watermain

The subject site is located within the 1W pressure zone, as shown by the Water Distribution figure located in Appendix C. There is an existing 203 mm diameter watermain, that runs the entire length of the property along Argyle Avenue. There are three public hydrants within 150 m of the site, as discussed in Section 4.2.

4.2 Proposed Watermain

It is proposed to service the proposed building addition through the existing building. A mechanical consultant will need to review and confirm whether upgrades to the existing building are required to accommodate the addition.

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

Table 1: Water Supply Design Criteria

Site Area	0.053 ha
Residential	280 L/day/person
Residential Apartment - Bachelor	1.4 person/unit
Max Day Peaking Factor - Residential	9.5 x avg. day
Peak Hour Peaking Factor - Residential	14.3 x avg. day
Commercial/Office Space	28,000 L/gross ha/d
Max Day Peaking Factor - Commercial	1.5 x avg. day
Peak Hour Peaking Factor - Commercial	1.8 x max. day

The water analysis results have been summarized in Table 2, below. The fire flow demand accounted for both the existing above-ground floor area and the proposed area.

Table 2: Summary of Estimated Water Demand

Design Parameter	Total Flow (L/s) Existing	Total Flow (L/s) Proposed	Total Flow (L/s) Total
Average Daily Demand	0.008	0.06	0.07
Max Day Demand	0.013	0.62	0.63
Max Day + Fire Flow Demand (200 L/s)	-	-	200.63
Peak Hour Demand	0.023	0.93	0.95

The following parameters were coordinated with the architect:

- Type of construction – Wood Frame Construction for FUS, Combustible Construction for OBC;
- Occupancy type – Limited Combustibility;
- Sprinkler Protection – Non-Sprinklered.

The results of the calculations yielded a required fire flow of 200 L/s (12,000 L/min) for the FUS and 45 L/s (2,700 L/min) for the OBC. In accordance with Technical Bulletin ISTB-2021-03, the OBC calculation shall be applied when the calculated value yields a fire flow less than 9,000 L/min. The detailed calculations can be found in Appendix C.

The City provided the estimated water pressures at both for the average day scenario, peak hour scenario and the max day plus fire flow scenario for the demands indicated by the correspondence in Appendix C. The resulting pressures for the boundary conditions results are shown in Table 3, below.

Table 3: Boundary Conditions Results

Scenario	Proposed Demands (L/s)	Connection 1 HGL (m H_2O)* / kPa
Average Day Demand	0.07	45.9 / 450.3
Maximum Daily + Fire Flow Demand	45.63	38.6 / 378.7
Peak Hourly Demand	0.95	36.9 / 362.0
* Adjusted for an estimated ground elevation of 69.4m above the connection point for connection.		

The normal operating pressure range is anticipated to be 362 kPa to 450 kPa and will not be less than 275 kPa (40 psi) or exceed 689 kPa (100 psi). The proposed watermains will meet the minimum required 20 psi (140 kPa) from the Ottawa Water Guidelines at the ground level under maximum day demand and fire flow conditions.

To confirm the adequacy of fire flow to protect the proposed development, public fire hydrants within 150 m of the proposed building were accounted for per ISTB 2018-02 Appendix I. Based on City guidelines the existing hydrants located in the vicinity can provide adequate fire protection to the site for both the OBC and FUS demands. As demonstrated by Table 4, below.

Table 4: Fire Protection Confirmation

Fire Flow Demand (L/min.)	Fire Hydrant(s) within 75m	Fire Hydrant(s) within 150m	Combined Fire Flow (L/min)
12,000 L/min (200 L/s)	1 public	2 public	12,900 (215 L/s)

5.0 SANITARY DESIGN

5.1 Existing Sanitary Sewer

The subject site lies within the Rideau Canal Interceptor combined sewer area and therefore, tributary to ROPEC. There is an existing 525 mm diameter combined sewer within Argyle Street which discharges to the Rideau River Interceptor sewer approximately 140 m downstream.

5.2 Proposed Sanitary Sewer

It is proposed to service the proposed building addition through the existing building. A mechanical consultant will need to review and confirm whether upgrades to the existing building are required to accommodate the addition. The existing sanitary service was assessed with a CCTV camera, and it was determined there are no major deficiencies in the existing service.

Based on coordination with the environmental engineer, contaminated groundwater is not anticipated. As a result, an additional flow for groundwater has not been applied.

Table 5, below, summarizes the wastewater design criteria identified by the Ottawa Sewer Guidelines.

Table 5: Sanitary Design Criteria

Design Parameter	Value
Residential Apartment – Bachelor	1.4 persons/unit
Average Daily Demand – Residential	280 L/day/person
Peaking Factor – Residential	3.71
Average Daily Demand – Commercial	28,000 L/gross ha/d
Peaking Factor – Commercial	1.5
Extraneous Flow Allowance	0.33 L/s/ha

Table 6, below, summarizes the estimated wastewater flow from the proposed development. Refer to Appendix D for detailed calculations.

Table 6: Summary of Estimated Sanitary Flow

Design Parameter	Total Flow Existing (L/s)	Total Flow Proposed Addition (L/s)	Total Flow (L/s)
Total Estimated Average Dry Weather Flow	0.011	0.07	0.08
Total Estimated Peak Dry Weather Flow	0.015	0.24	0.26
Total Estimated Peak Wet Weather Flow	0.030	0.26	0.27

6.0 STORM SEWER & STORMWATER MANAGEMENT DESIGN

6.1 Existing Storm Sewers

Stormwater runoff from the site is currently tributary to the Rideau River Interceptor combined sewer area. There is an existing 525 mm diameter combined sewer within Argyle Street, tributary to the Rideau River Interceptor sewer approximately 140 m downstream.

6.2 Proposed Storm Sewers

A new 200 mm diameter storm service is proposed to be extended from the proposed building addition to the existing catch basin located within 229 Argyle Avenue. The existing catch basin system is tributary to the 525 mm diameter combined sewer within Argyle Avenue. As discussed in Section 7.0 of this report, stormwater drainage is currently tributary to the catch basin system and is therefore not anticipated to cause significant impacts.

Foundation drainage is proposed to be connected to the existing building drainage systems. The internal servicing layout is to be reviewed by the mechanical engineer.

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

See CCO-22-1648 - POST include in Appendix F of this report for more details. The Stormwater Management design for the subject property will be outlined in Section 7.0 of this report.

7.0 STORMWATER MANAGEMENT

7.1 Design Criteria and Methodology

The following design criteria will need to be employed to develop the stormwater management design for the site, as directed by the City:

Quality Control

- Quality controls are not required for this site as the development due to the combined sewer outlet.

Quantity Control

- Post-development to be restricted to the 2-year storm event, based on a calculated time of concentration greater than 10 minutes and a rational method coefficient of 0.40. Refer to Section 7.2 for further details.

7.2 Quality Control

7.2.1 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
Undeveloped and Grass	0.20

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

The time of concentration (Tc) used for pre-development shall be calculated and no less than 10 minutes and post-development flows shall be calculated and no less than 10 minutes.

Based on the criteria listed in Section 7.2.1, the development will be required to restrict flow to the 2-year storm event. It is estimated that the target release rate during the 100-year event will be 2.87 L/s, based on the construction limit of 0.034 ha.

7.3 Pre-Development Drainage

A pre-development drainage area plan has been prepared for the site. As noted by drawing CCO-22-1648 – PRE, included in Appendix E of this report, there are two drainage patterns observed.

Runoff within Area A1 (0.016 ha) runs east overland from the rear asphalt parking lot towards the catch basin located within 229 Argyle Avenue. The catch basin is tributary to the 525 mm diameter combined sewer within Argyle Avenue.

Runoff within Area A2 (0.018 ha) runs west overland from the rear asphalt parking lot towards the catch basin located within 237 Argyle Avenue. In addition, rooftop drainage from the existing building is tributary to the existing catch basin, as shown by drawing PRE. The catch basin is tributary to the 525 mm diameter combined sewer within Argyle Avenue.

It has been assumed that the existing development contained no stormwater management controls for flow attenuation. The estimated pre-development peak flows for the 5 and 100-year events are summarized below in Table 7. See CCO-22-1648 - PRE in Appendix E and Appendix G for calculations.

Table 7: Pre-Development Runoff Summary

Drainage Area	Area (ha)	Q (L/s)	
		5-Year	100-Year
A1	0.016	4.16	7.92
A2	0.018	4.45	8.49
Total	0.034	8.61	16.41

7.4 Post-Development Drainage

To meet the stormwater objectives the development will contain rooftop control.

Based on the criteria listed in Section 7.2.1, the development will be required to restrict flow to the 2-year storm event. It is estimated that the target release rate during the 100-year event will be 2.87 L/s based on the construction limit of 0.034 ha.

The proposed site drainage limits are demonstrated on the Post-Development Drainage Area Plan. See CCO-22-1648 - POST in Appendix F of this report for more details. A summary of the Post-Development Runoff Calculations can be found below.

Table 8: Post-Development Runoff Summary

Drainage Area	Area (ha)	5-year Peak Flow (L/s)	100-year Peak Flow (L/s)	100-year Storage Required (m^3)	100-year Storage Available (m^3)
B1	0.011	1.81	3.53	-	-
B2	0.005	1.09	2.10	-	-
B3	0.017	0.38	0.69	6.97	6.97
Total	0.034	3.29	6.32	6.97	6.97

The flow from Area B1 will continue to flow overland towards existing outlet A1. Area B1 is 0.011 ha and will direct stormwater at a rate of 3.53 L/s during a 100-year storm event. Controls within the rear yard of B1 were explored to further reduce drainage flow rates. Since the area is mainly comprised of landscaping, the uncontrolled flow rate of 0.84 L/s was estimated. As a result, controls were not deemed possible. In addition, controls for stormwater falling on the proposed walkway east of the proposed addition were deemed to be not feasible due to the proximity to the building and risk of ponding near the building foundation. Refer to Appendix G for detailed calculations and drawing POST.

Runoff for area B3 will be stored on the roof of the proposed building addition and restricted using one Watts Accutrol roof drain (or equivalent product) to a maximum release rate of 0.69 L/s and will provide up to 6.97 m^3 of storage. As discussed in Section 7.3, the estimated flow rate towards outlet A1 during a 100-year storm event is 7.92 L/s. The combined flow rate from both Area B1 and B3 during the same storm event is 4.22 L/s. As a result, there is a proposed reduction of 47% from existing conditions and therefore is not anticipated to have a significant impact to outlet A1.

The flow from Area B2 will continue to flow overland towards existing outlet A2. Area B2 is 0.005 ha and will direct stormwater at a rate of 2.10 L/s during a 100-year storm event. As discussed in Section 7.3, the estimated flow rate towards outlet A2 during a 100-year storm event is 8.49 L/s. As a result, there is a proposed reduction of 75% from existing conditions and therefore is not anticipated to have a significant impact to outlet A2. Refer to Appendix G for detailed calculations and drawing POST.

Foundation drainage will either be connected to the existing building drainage systems or pumped to surface. The internal servicing layout is to be reviewed by the mechanical engineer.

The remaining site area will be undisturbed.

8.0 EROSION AND SEDIMENT CONTROL

8.1 Temporary Measures

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

Silt fences will be installed where shown on the final engineering plans, specifically along the downstream property limits. The Contractor, at their discretion or at the instruction of the City, Conservation Authority or the Contract Administrator shall increase the quantity of sediment and erosion controls on-site to ensure that the site is operating as intended and no additional sediment finds its way off site. The rock flow, straw bale & silt fence check dams and barriers shall be inspected weekly and after rainfall events. Care shall be taken to properly remove sediment from the fences and check dams as required. Fibre roll barriers are to be installed at all existing curb inlet catch basins and filter fabric is to be placed under the grates of all existing catch basins and manholes along the frontage of the site and any new structures immediately upon installation. The measures for the existing/proposed structures 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 and Sediment & Erosion Control Plan for additional details regarding the temporary measures to be installed and their appropriate OPSD references.

8.2 Permanent Measures

It is expected that the Contractor will promptly ensure that all disturbed areas receive topsoil and seed/sod and that grass be established as soon as possible. Any areas of excess fill shall be removed or levelled as soon as possible and must be located a sufficient distance from any watercourse to ensure that no sediment is washed out into the watercourse. As the vegetation growth within the site provides a key component to the control of sediment for the site, it must be properly maintained once established. Once the construction is complete, it will be up to

the landowner to maintain the vegetation and ensure that the vegetation is not overgrown or impeded by foreign objects.

9.0 SUMMARY

- The proposed development incorporates a building addition to the existing building within 233 Argyle Avenue. The Site Plan proposes 14 units to the existing office space with street access from Argyle Avenue. The development is proposed within 0.034 ha of the site.
- The OBC method estimated fire flow indicated that 2,700 L/min is required for the proposed development;
- The development is estimated to have a combined peak wet weather flow of 0.27 L/s;
- Based on City of Ottawa guidelines, the development will be required to attenuate post-development 5 and 100-year flows to the 2-year release rate of 2.87 L/s. This flow rate is based on the limit of work area of 0.034 ha;
- To meet the stormwater objectives the development will contain rooftop control. 6.97 m^3 of rooftop storage will be required to attenuate flow to the established release rate; and
- Quality controls are not required for this site as the development due to the combined sewer outlet.

10.0 RECOMMENDATION

Based on the information presented in this report, we recommend that City of Ottawa approve this Servicing and Stormwater Management report in support of the proposed development at 233 Argyle Avenue.

This report is respectfully being submitted for approval.

Regards,

McIntosh Perry Consulting Engineers Ltd.

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11.0 STATEMENT OF LIMITATIONS

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

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

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

APPENDIX A
KEY PLAN

McINTOSH PERRY

LEGEND

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

600 300 0 600

Scale 1:25,000 Metres

REFERENCE

GIS data provided by the Ontario Ministry of Natural Resources and Forestry, 2021.

CLIENT: SMART LIVING PROPERTIES

PROJECT: 233 ARGYLE AVENUE, OTTAWA, ON

TITLE: SITE LOCATION PLAN

McINTOSH PERRY
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www.mcintoshperry.com

PROJECT NO:	CCO-22-1647
Date	Aug., 23, 2021
GIS	EU
Checked By	AG

FIGURE: 1

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APPENDIX B
BACKGROUND DOCUMENTS

McINTOSH PERRY

Pre-consultation Site Plan Control & Zoning By-Law Amendment Applications

233 Argyle Ave and 330 Mcleod Street

Applicant: Jeremy Silburt
Owner: SMART LIVING ON 233 ARGYLE INC and SMART LIVING ON MCLEOD STREET INC.
Meeting Date: February 10, 2021

Attendees: **Applicant Team**
Jeremy Silburt, Smart Living Properties
Kris Benes, Architect, Open Plan Architects
Lisa Dalla Rosa, Planner, Fotenn Consultants
Rakan Abushaar, Smart Living Properties
Tamer Abaza, Smart Living Properties

City of Ottawa
Kimberley Baldwin, Development Review Planner
Christopher Moise, Urban Designer
John Wu, Civil Engineering
Luis Juarez, Heritage Planner
Mark Richardson, Forester
Shukufa Sultonmamad, Planning Assistant

Centretown Citizens Community Association
Jack Hanna

Meeting Notes & Comments

*Proposal***:** To extend the current buildings on 233 Argyle Ave and 330 McLeod St toward the rear of the lots.

- 233 Argyle Ave – Proposal to construct a 3-storey rear yard addition to the existing 3-storey office building; addition will contain 13 bachelor residential units.
- 330 McLeod St – Proposal to construct a rear yard addition to the existing 5-storey rooming house; addition will contain 30 additional rooming units.

Development Review Processes (File lead: Kimberley Baldwin)

- Zoning By-law Amendment application
  - We could look at these two developments under one Zoning Bylaw amendment application.
- Site Plan Control Applications
  - We advise filing two site plan control applications, one for each property
    - 330 McLeod St – Site Plan Complex, Manager Approval, Public Consultation
    - 233 Argyle Ave – Site Plan application type to be confirmed.
      - What will be the proposed size this building post-development?

Heritage Process (Fie lead: Luis Juarez)

- The two additions will not function as a single development, and therefore a heritage permit application for each new addition is requested.
- The 'Council-level authority – Minor Application' type and fee of $ $2,243.00 is applicable for each addition and must be provided with the heritage permit application submission.

Application Requirements

- Application Form and Payment;
- Detailed description of the Proposed Work including total GFA stats and proposed restoration work;
- Site Plan and Landscape Plan;
- Coloured Elevations – measured, with materials indicated, including the windows, and heights of adjacent buildings illustrated; and,
- A coloured streetscape rendering demonstrating the visual impact, if any, of the additions on the contributing property's streetscape (along Argyle Avenue).
- Based on the proposal, a Cultural Heritage Impact Statement will not be necessary for this application. A description and rationale should be provided to demonstrate how the addition meets the Centretown HCD Guidelines and the Centretown Community Development Plan Heritage policies (Section 6.5) from the Applicant's perspective.

Engineering Comments - John Wu

- This site is located at the combined sewer areas, it has to follow the combined sewer area storm water management requirement, and the ECA will be required. Typical storm water management will require control its storm water on site, using 2 year's storm and a C value of 0.4 to control up to 100 years' storm event.
- We also need a servicing study,
- Geotechnical study is required, phase one ESA will be required, possible Phase two ESA may be required depending on the result of phase one ESA study.
- A noise study may be required, it is within 100 meters to Bank Street, and within 500 meters from Highway 417.

Planning Comments – Kimberley Baldwin

- General comment is that we'll primarily be assessing each addition individually, as they appear as separate projects with no shared elements.
  - The applicant indicated that a shared bicycle storage facility is proposed in 330 Mcleod, to be used by both properties
  - Planning staff expressed a preference to see bicycle, waste storage provided for each individual property.

- Properties are designated General Urban Area in the Official Plan
  - Support for intensification in the General Urban Area where it complements the existing pattern and scale of development and planned function of the area.
  - Staff assess how new development enhances and builds upon desirable established patterns of built form and open spaces
    - There is an opportunity here to extend the existing soft landscape buffer that runs along the rear of adjacent properties.
    - It is also important to maintain adequate open space between properties, especially at the rear.
  - General Urban policies look how new development contributes to the balance of housing types and tenures to provide a full range of housing for a variety of demographic

profiles. In that regard, we encourage a mix of unit sizes, rather than all bachelor and rooming units.
    - The applicant noted that buildings containing rooming units are not allowed to provide a mix of units within the same building.

- Properties are also located within the *Centretown Secondary Plan*
  - Central Character Area - 'Residential Mixed Use Designation'
  - Low-rise apartment buildings are permitted uses in this designation
  - Commercial uses are limited to the first two floors of a building [check that the offices currently on the 3rd floor of the 233 Argyle were legally established]
  - 233 Argyle is identified as a Heritage Building in this plan.

- Zoning – Residential Fourth Density Zone, Subzone UD, Urban Exception 479 with a Heritage Overlay and Mature Neighbourhoods Overlay. [R4UD(479)]
  - From a zoning perspective, the built form of both additions suggests an overdevelopment of these lots.
  - Both sites are deficient in providing adequate rear yard and side yard setbacks.
  - Space between the proposed additions should not be viewed as a shared space. As such please provide appropriate rear yard setbacks on each property.
  - Greater rear yard setbacks would the following benefits:
    - Allow for existing trees at the rear to be preserved and new soft landscaping to be established, creating a desirable amenity areas at grade for both future tenants as well as for the neighbouring properties in this block.
    - Allow for more of the units to be oriented towards the rear, rather than the side yards, improving the livability of each unit.
    - Respect privacy and provide adequate separation from existing amenity areas (balconies) on adjacent properties

- *Waste Management*

  233 Argyle:
  - The adjacent apartment building to the east cantileavers over the driveway. There is also a short retaining wall at the side of the lot. These existing characteristics would present challenges for managing waste (with a large vehicle) on site.

  330 Mcleod
  - Narrow driveway, which could present challenges to on-site waste management
  - How many existing rooms? Where is the existing waste storage for those units?

  - In the planning rationale for each development, please look at the needs of existing and proposed uses and demonstrate that an adequate waste management plan is provided.

- Amenity area and bicycle parking – Similarly, existing units should be taken into consideration in designing the amenity area and bicycle parking requirements for each building.

- If no vehicular parking is provided, demonstrate how alternative modes of transportation are being provided [eg. provide more bicycle parking storage, ideally at a 1:1 ratio (1 unit=1 bicycle parking space)]

Urban Design Comments- Christopher Moise

- This proposal exists within one of the City's Design Priority Areas and must attend the City's UDRP. Please consult the City's website for details regarding the UDRP schedule;

Comments/questions/concerns:

- Rear yard set-back/Block pattern reduction is a major concern. It would be helpful to illustrate the line of required set-back to show how much of that is being encroached upon by this proposal. Thirty percent of the lot is required. We recommend that the full rear yard set-back be provided to maintain the block pattern, access to day-light for the existing and future residents and for the residents of neighbouring buildings;
- The proposed units rely on side yards for light and views and when replicability of this proposal is considered (when neighbouring lots proposal similar reductions in set-backs), the resulting condition may further compromise exposure to day-light and negatively impact the proposed buildings;
- Roof top amenity: we question the quality of space proposed and should be further illustrated as over-look and privacy issues arise when adjacent to neighbouring mid and high-rise built form;
- Amenity provided at grade and in the rear yard is important to keep the middle of the block open for access to day-light and views and for new landscaping for this and adjacent buildings;
- Shared uses between buildings is concerning as each property is to provide required bike parking (to support relief from vehicular parking), garbage storage, amenity, etc. especially if ownership of the properties changes in the future;
- No concern about removing the at grade parking, but would recommend that the existing building green the parking lot and provide amenity and soft landscaping at grade instead of asphalt or built form;
- Once the footprint and massing of the proposal has been resolved then the issues of materiality and contextual relationships can be further addressed;
- A Design Brief is a required submittal for all Site Plan/Re-zoning applications. Please see the Design Brief Terms of Reference provided.

This is an exciting project in an area full of potential. We look forward to helping you achieve its goals with the highest level of design resolution. We are happy to assist and answer any questions regarding the above. Good luck.

Heritage Planning Comments – Luis Juarez

The subject properties are located within the Centretown Heritage Conservation District (HCD) and are designated under Part V of the *Ontario Heritage Act*.

- 233 Argyle Avenue is a category 2 property and is considered a 'contributing' property to the cultural heritage value of the Centretown HCD, whereas 330 McLeod Street is a category 4 property and is considered a 'non-contributing' property.
- As per the design brief submitted for the Pre-Consultation meeting, the proposed works include an extension of both buildings towards the rear of the lots for a total of 33 additional residential units (13 on Argyle, and 20 on McLeod).
- A new Centretown Heritage Conservation District Plan is being drafted. The application may be impacted by the new plan and the application will be subject to either the new or the old plan depending on the applications date of submission.
- Staff have provided preliminary comments based on the submitted materials. Should additional drawings or details be provided or should the design change, Staff may require further review and provide additional comments at that time.

Preliminary Comments on the Proposal

- Please review the Centretown HCD Plan guidelines, Section 3.7 of the Centretown Secondary Plan, and Section 6.5 of the Centretown CDP for direction on how additions to

these properties can be compatible within the context of the HCD (Centretown HCD guidelines attached).
- Heritage Staff are conceptually supportive of infill development on these properties. Notwithstanding, Heritage Staff mirror Development Review and Urban Design comments related to the reduction in massing and proper provision of amenity space for each addition to ensure that the proposed infill development is compatible with the character of the HCD.

Massing
- The additions should be distinguishable, secondary and complimentary to the existing buildings.
- The proposed rooftop utilities and/or mechanical penthouse on the Argyle addition exceeds the height of the existing roofline. The applicant will need to demonstrate if additions have a visual impact on the contributing property's streetscape (along Argyle Avenue).

Conservation and Maintenance of Contributing Properties
- Staff encourage restoration of existing heritage attributes for 233 Argyle Avenue as part of this application. Please refer to Section VII.5.3 of the HCD guidelines (The Conservation and Restoration of Heritage Residential Properties) for guidance on proper restoration of building elements.
- Examples of heritage restoration projects for this site include but are not limited to the restoration of wood features including the second-floor balcony and third floor dormer; windows, soffit, and cornice.
- Restoration work may be eligible for a heritage restoration grant of up to $10,000 (available on a matching basis). Refer to the Built Heritage Funding page for information on the City's grant program and to review the program guidelines. Heritage grants are available even if the Applicant does not proceed with the proposed development.

Cladding
- The HCD guidelines suggest brick veneer as the primary cladding for infill development, however given that the additions will not be visible from the street, the applicant could consider using a type of horizontal cladding. Possible materials include wood clapboard or composite cladding (i.e. fibre cement board with paint finish) that is distinct but complementary to the original brick of the two existing buildings.

Forester Comments – Mark Richardson

TCR requirements:
- Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
  - an approved TCR is a requirement of Site Plan approval.
- As of January 1 2021, any removal of privately or publicly (City) owned trees 10cm or larger in diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
- The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
  - If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester
  - Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit
- the TCR must list all trees on site by species, diameter and health condition
- the TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site
- If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained

- All retained trees must be shown and all retained trees within the area impacted by the development process must be protected as per City guidelines available at Tree Protection Specification or by searching Ottawa.ca
    - securities may be required for retained trees
    - the location of tree protection fencing must be shown on a plan
    - show the critical root zone of the retained trees
    - if excavation will occur within the critical root zone, please show the limits of excavation
- the City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.
- For more information on the process or help with tree retention options, contact Mark Richardson mark.richardson@ottawa.ca or on City of Ottawa

LP tree planting requirements:
For additional information on the following please contact Tracy.Smith@Ottawa.ca

Minimum Setbacks
- Maintain 1.5m from sidewalk or MUP/cycle track.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.
- Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

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

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

Soil Volume
- Please ensure adequate soil volumes are met:

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

Conifer	25	15

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

Sensitive Marine Clay

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

Community Association Comments (Jack Hanna, CCCA)

- In favour of density, as Centretown is in desperate need in affordable units
- Maintaining heritage is also good
- If vehicular parking is not provided, and future tenants won't be using cars, what will they be using? These proposal are deficient in providing bicycle parking
- Providing no vehicular parking will probably be a concern for surrounding community.
- Consider providing a car sharing space
- We want more units, but developers have a responsibility to give their tenants some nice amenity space on site. Rooftop amenity not a desirable approach.
- The community will look at Tree Conservation Report very closely
- The walkway to access the 330 McLeod units appears to be a bit of a canyon. Will the people using this walkway be walking past windows?
- Please hold a meeting with community to discuss building materials
- Consider providing space on site for e-scooters, which are becoming a popular alternate method of transportation downtown.

Application Submission Information

For information on Site Plan Control Thresholds under the Site Plan Control By-law, please visit: https://documents.ottawa.ca/sites/documents/files/siteplan_thresholds_en.pdf

For information on Applications, including fees, please visit: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/fees-and-funding-programs/development-application-fees

The application processing timeline generally depends on the quality of the submission. For more information on standard processing timelines, please visit: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/development-application-forms#site-plan-control

Prior to submitting a formal application, it is recommended that you pre-consult with the Ward Councillor.

Application Submission Requirements

For information on the preparation of Studies and Plans and the City's Planning and Engineering requirements, please visit: https://ottawa.ca/en/city-hall/planning-and-development/information-

developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans

Please provide electronic copy (PDF) of all plans and studies required.

All plans and drawings must be produced on A1-sized paper and folded to 21.6 cm x 27.9 cm (8½“x 11”).

Note that many of the plans and studies collected with this application must be signed, sealed and dated by a qualified engineer, architect, surveyor, planner or designated specialist.

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Legend: **S** indicates that the study or plan is required with application submission.
A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

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

S/A	Number of copies	ENGINEERING		S/A	Number of copies
S	15	1. Site Servicing Plan	2. Site Servicing Study / Assessment of Adequacy of Public Services		3
S	15	3. Grade Control and Drainage Plan	4. Geotechnical Study / Slope Stability Study	S	3
	2	5. Composite Utility Plan	6. Groundwater Impact Study		3
	3	7. Servicing Options Report	8. Wellhead Protection Study		3
	9	9. Transportation Impact Assessment (TIA)	10.Erosion and Sediment Control Plan / Brief	S	3
S	3	11.Storm water Management Report / Brief	12.Hydro geological and Terrain Analysis		3
	3	13.Hydraulic Water main Analysis	14.Noise / Vibration Study	S	3
	PDF only	15.Roadway Modification Functional Design	16.Confederation Line Proximity Study		3

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
	15	17.Draft Plan of Subdivision	18.Plan Showing Layout of Parking Garage		2
	5	19.Draft Plan of Condominium	20.Planning Rationale	S	3
S	15	21.Site Plan	22.Minimum Distance Separation (MDS)		3
	15	23.Concept Plan Showing Proposed Land Uses and Landscaping	24.Agrology and Soil Capability Study		3
	3	25.Concept Plan Showing Ultimate Use of Land	26.Cultural Heritage Impact Statement		3
S	15	27.Landscape Plan (can combine with site plan)	28.Archaeological Resource Assessment Requirements: **S** (site plan) **A** (subdivision, condo)		3
S	2	29.Survey Plan	30.Shadow Analysis		3
S	3	31.Architectural Building Elevation Drawings (dimensioned)	32.Design Brief (includes the Design Review Panel Submission Requirements)	S	Available online
	3	33.Wind Analysis			

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
S	3	34.Phase 1 Environmental Site Assessment	35.Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		3
S	3	36.Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37.Assessment of Landform Features		3
	3	38.Record of Site Condition	39.Mineral Resource Impact Assessment		3
S	3	40.Tree Conservation Report	41.Environmental Impact Statement / Impact Assessment of Endangered Species		3
	3	42.Mine Hazard Study / Abandoned Pit or Quarry Study	43.Integrated Environmental Review (Draft, as part of Planning Rationale)		3

S/A	Number of copies	ADDITIONAL REQUIREMENTS		S/A	Number of copies
S	1	44. Applicant's Public Consultation Strategy (may be provided as part of the Planning Rationale)	45.Site Lighting Plan and Certification Letter	S	3

Meeting Date: February 10, 2021

Application Type: *Site Plan Control /Zoning By-Law Amendment*

File Lead (Assigned Planner): Kimberley Baldwin

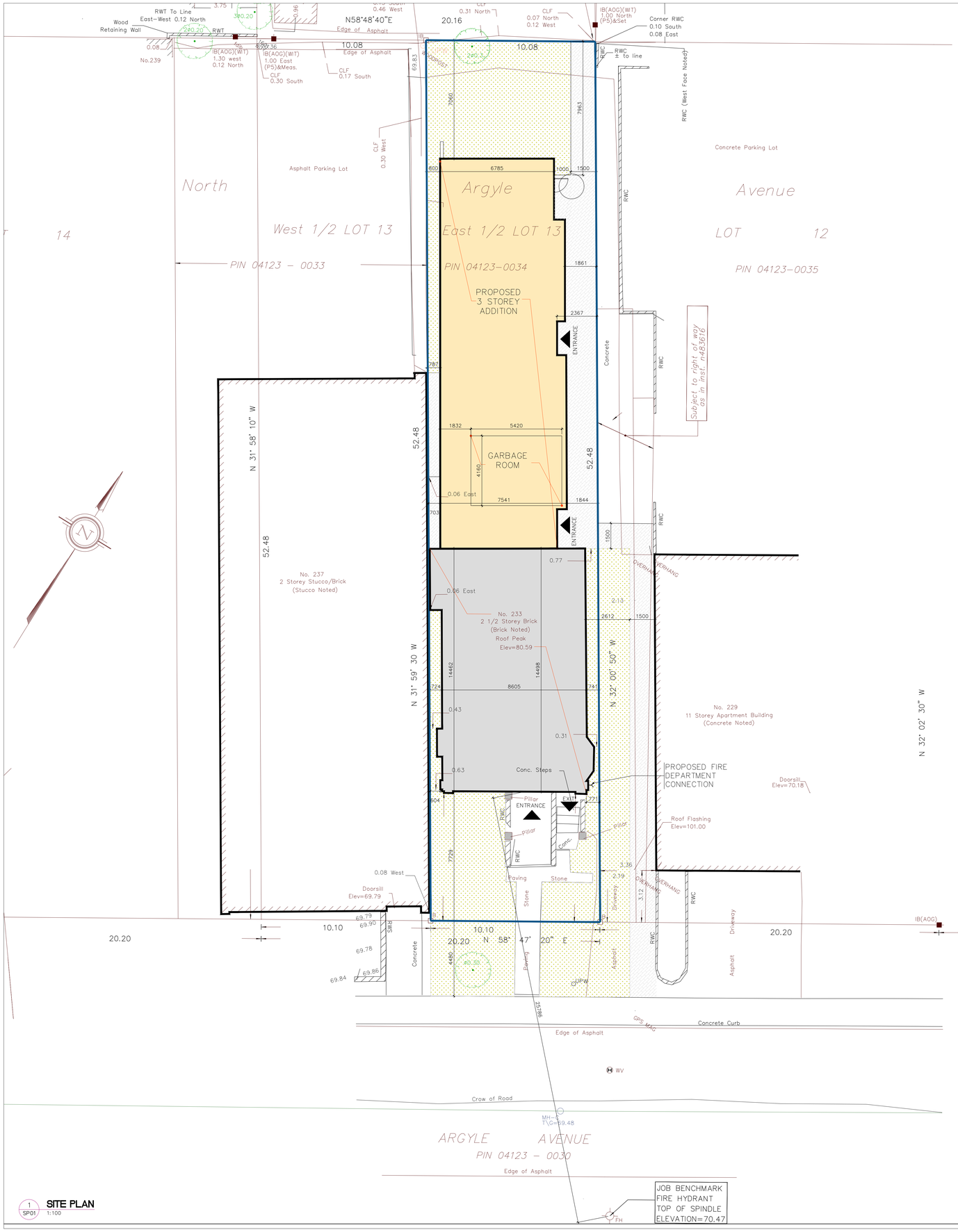
Infrastructure Approvals Project Manager: John Wu

Site Address (Municipal Address): 233 Argyle Ave and 330 Mcleod Street

*Preliminary Assessment: 1☐ 2☐ 3☐ 4☐ 5

*One (1) indicates that considerable major revisions are required before a planning application is submitted, while five (5) suggests that 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.**

It is important to note that the need for additional studies and plans may result during application review. If following the submission of your application, it is determined that material that is not identified in this checklist is required to achieve complete application status, in accordance with the Planning Act and Official Plan requirements, the* Planning, Infrastructure and Economic Development Department *will notify you of outstanding material required within the required 30 day period. Mandatory pre-application consultation will not shorten the City's standard processing timelines, or guarantee that an application will be approved. It is intended to help educate and inform the applicant about submission requirements as well as municipal processes, policies, and key issues in advance of submitting a formal development application. This list is valid for one year following the meeting date. If the application is not submitted within this timeframe the applicant must again pre-consult with the Planning, Infrastructure and Economic Development Department.



1 SP01 **SITE PLAN** 1:100

ALL SITE SERVICE, GRADING AND DRAINAGE RELATED ALTERATION, REFER TO CIVIL ENGINEERS DRAWINGS.

ALL SURVEY INFORMATION TAKEN FROM TOPOGRAPHIC SURVEY AS PREPARED BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. DATED ON THE 1st DAY OF DECEMBER 2021.

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
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.

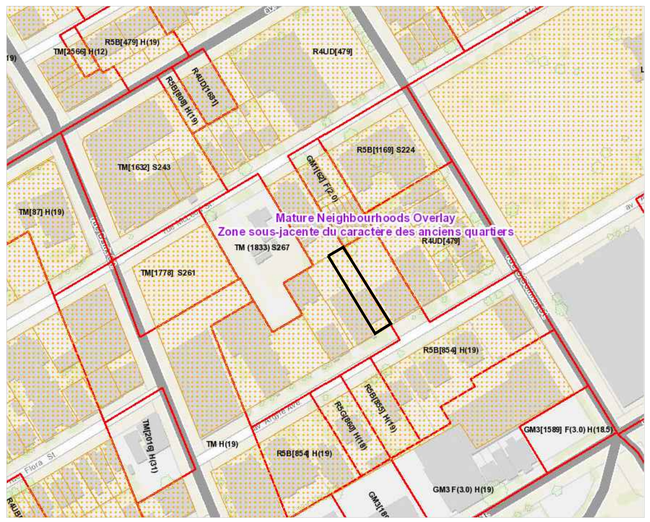
Bearings are astronomic and are referred to the easterly limit of Russell Avenue shown to be N31°21'45"W on Plan 4R-5785.
For comparison purposes, a rotation of 9°59'45" counter clockwise was applied to bearings on plan P1.

LEGEND:

- EXISTING BUILDING
- PROPOSED ADDITION
- E. M.H. MANHOLE, REFER TO CIVIL
- NEW INTERLOCK/PAVERS
- NEW SOD
- FIRE DEPARTMENT CONNECTION
- FIRE HYDRANT, REFER TO CIVIL
- C.B. CATCH BASIN, REFER TO CIVIL
- BUILDING ENTRANCE
- DIRECTIONAL ARROW
- PROPERTY LINE
- SIDE YARD BACK
- EXISTING CITY LIGHT STANDARD
- 20.17 NEW LIGHT STANDARD
- FIRE ROUTE SIGN
- STOP SIGN
- CENTERLINE
- EXISTING TREES TO BE REMOVED
- PROPOSED TREE
- CONCRETE FLOOR

233 ARGYLE (OTTAWA) - 20221018

LEVEL	UNIT	G.F.A SQ FT EXISTING (OFFICE)	SQ FT NEW (RESIDENTIAL)	SQ FT TOTAL	SQ M EXISTING (OFFICE)	SQ M NEW (RESIDENTIAL)	SQ M TOTAL
MECHANICAL	0	0	0	0	0	0	0
BASEMENT	1						
	2	0	1036	1036	0	96	96
	3						
MAIN LEVEL	101						
	102	893	872	1765	83	81	164
	103						
2	201						
	202	1044	1087	2131	97	101	198
	203						
	204						
3	301						
	302	876	1087	1963	81	101	182
	303						
	304						
TOTAL	14	2 813	4 082	6 895	261	379	641



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

KEY PLAN

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

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

DO NOT SCALE DRAWINGS.

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

#	Description	DD/MM/YR
2	ISSUED FOR APPROVAL	10/17/22
1	ISSUED FOR REVIEW	17/06/22

PLANNER:
FOTENN

CLIENT:
SMART LIVING PROPERTIES
226 ARGYLE AVE., OTTAWA, ON K2P 1B9

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

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

CLIENT:

PROJECT:
233 ARGYLE
OTTAWA - ON

DRAWING:
SITE PLAN

DATE: 13/05/2022	JOB NO.: 2211 - B
SCALE: 1:100	DRAWING No.: SP01
DRAWN BY: JG	
REVIEWED BY: RW	

Sewerteks Inc.

Sewerteks Inc.
INDUSTRY LEADERS

McINTOSH PERRY

SANITARY AND STORM SEWER CCTV CONDITION ASSESSMENT AND LOCATES

JOB LOCATION:

233 ARGYLE STREET OTTAWA, ONTARIO

JOB DATE:

Tuesday, October 18, 2022

Sewerteks Inc.

Sewerteks Inc.
INDUSTRY LEADERS

Sewerteks Inc.

Sewerteks Inc.
INDUSTRY LEADERS

TABLE OF CONTENT

Sewerteks Inc.

Sewerteks Inc.
INDUSTRY LEADERS

PROJECT SUMMARY

The following is the result from the camera inspections of the sanitary and storm sewers located at 233 Argyle Avenue Ottawa, Ontario.

CLEANING

The lines were not cleaned prior to the CCTV condition assessment.

PLR

Each inspected pipe segment has a unique identification ID. This unique ID is the Pipe Line Reference ID or PLR. All the IDs are labeled in the map.

REPORT NAVIGATION

The PLR is used to navigate this report online. It's a link to the video inspection and video file. You can jump from the Summary to the actual inspection details by clicking the PLR link. The report also has a table of contents that are also link to each section of the report.
In addition, the report has a link to re-direct you to the table of contents in every page.

DVD/USB DRIVE

The DVD or USB drive contains the digital report and videos.

STRUCTURAL AND OPERATIONAL DEFECTS

The following table#1 below describes the structural and operational defects of each individual pipe segment inspected identified by its unique ID or PipeLine Reference ID. The comments depict any additional information about each segment inspected.

Table#1 below describes the structural and operational defects of each individual sanitary pipe segment inspected identified by its unique ID or PipeLine Reference ID.

PIPELINE REF. ID (PLR)	STRUCTURAL DEFECTS	OPERATIONAL DEFETCS	COMMENTS
STM1	None	None	10% water lelwith silt under water was observed. There is no seal gaskets around the inlet and outlet of CB1. Instead, hohes are visible. The 100 mm PVC pipe ended at the city main line at 44.6 meters from the access point.
STM2R	None	DES	20% debris silt and a concrete CAP was observed in the line. As a result, inspection was abandoned at 0.6 meters from the access point.
SAN1	CL, SSL	EL	A crack longitudinal, Encrustation light at the joint and surface spalling (chipped joint were observed in the clay pipe. The is Pipe made of Cast Iron, Clay and PVC. The inspection ended at the city main line connection at 22.2 meters from the top of the access point.

Sewerteks Inc.

Sewerteks Inc.
INDUSTRY LEADERS

Date	10/18/2022	Sewer Type	STORM	Pipe Size (mm)	100MM
Client	McINTOSH PERRY			Work order	501
Contact	ALISON GOSLING			Pipe Material	PVC
Start	CATCH BASIN 1 (CB1)			Camera Direction	With Flow
End	CITY MAIN LINE			DVD#/USB#	1
Further Location Details	THE ACCESS CATCH BASIN 1 IS LOCATED IN THE BACK APRKING LOT AS SHOWN IN THE MAP OF THIS REPORT.			Video name (PLR)	STM1.mpg
				Report No	1
Job Address	233 ARGYLE STREET OTTAWA, ONTARIO			Operator	Saul Cerna
Comments	10% water lelwith silt under water was observed. There is no seal gaskets around the inlet and outlet of CB1. Instead, hohes are visible. The 100 mm PVC pipe ended at the city main line at 44.6 meters from the access point.				

DISTANCE (m)	CODE DESCRIPTION	%	SIZE (mm)	LENGTH (m)	CLOCK FROM	CLOCK TO	REMARKS
0.0	Start of inspection						Start at access point CATCH BASIN 1 (CB1)
0.0	Water Level	0					
3.0	Water Level	10					
4.6	Water Level	20					
6.2	Water Level	10					Silt under water
7.2	Water Level	0					
20.2	General observation						Clean pipe and 0% water level
31.0	General observation						0% water level and clean pipe
43.0	Line deviates down						Gradually
43.2	Line deviates down						Gradually
44.2	General observation						main line connection
44.6	Finish Survey						End at CITY MAIN LINE.

Sewerteks Inc.

Sewerteks Inc.
INDUSTRY LEADERS

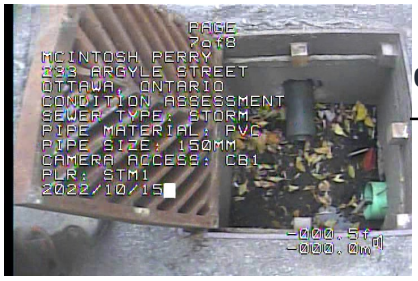
PROJECT NAME

SANITARY AND STORM SEWER CCTV CONDITION ASSESSMENT AND LOCATES

VIDEO NAME

STM1

Figure#1: Start of inspection at access point CATCH BASIN 1 (CB1)

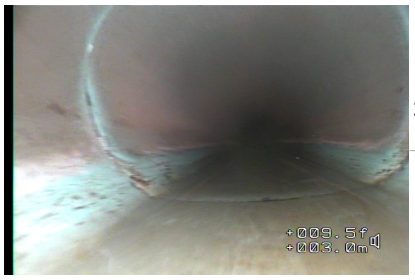


0.0 m

Figure#2: A view to the 0% water level at 0 meters from the top of CATCH BASIN 1 (CB1).

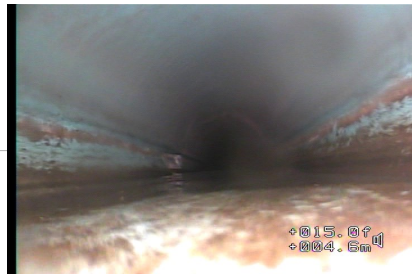
0.0 m

Figure#3: A view to the 10% water level at 3 meters from the top of CATCH BASIN 1 (CB1).



3.0 m

Figure#4: A view to the 20% water level at 4.8 meters from the top of CATCH BASIN 1 (CB1).



4.8 m

Figure#5: A view to the 10% water level and silt under water at 6.2 meters from the top of CATCH BASIN 1 (CB1).

6.2 m

Figure#6: A view to the 0% water level at 7.2 meters from the top of CATCH BASIN 1 (CB1).

7.2 m

PROJECT NAME

SANITARY AND STORM SEWER CCTV CONDITION ASSESSMENT AND LOCATES

VIDEO NAME

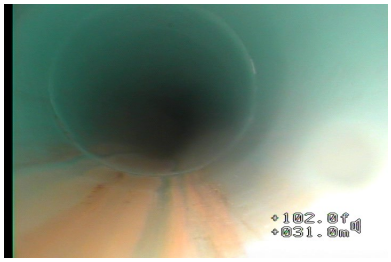
STM1

Figure#7: A view to the Clean pipe and 0% water level at 20.2 meters from the top of CATCH BASIN 1 (CB1).

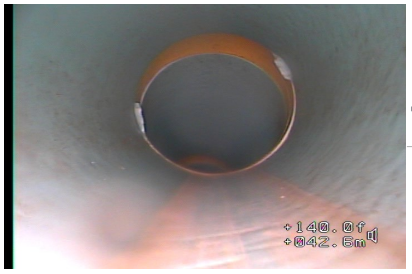
20.2 m

Figure#8: A view to the 0% water level and clean pipe at 31 meters from the top of CATCH BASIN 1 (CB1).

31.0 m



Figure#9: A view to the line deviation downwards gradually at 42.6 meters from the top of CATCH BASIN 1 (CB1).



42.6 m

Figure#10: A view to the line deviation downwards Gradually at 43.2 meters from the top of CATCH BASIN 1 (CB1).

43.2 m

Figure#11: A view to the main line connection at 43.6 meters from the top of CATCH BASIN 1 (CB1).

43.6 m

Figure#12: A view to the end point CITY MAIN LINE at 44.6 meters from the top of CATCH BASIN 1 (CB1).

44.4 m

Date	10/18/2022	**Sewer Type**	SANITARY	**Pipe Size (mm)**	100MM
Client	McINTOSH PERRY			**Work order**	501
Contact	ALISON GOSLING			**Pipe Material**	ABS/PVC
Start	CATCH BASIN 1 (CB1)			**Camera Direction**	Against Flow
End	CAP			**DVD#/USB#**	1
Further Location Details	THE ACCESS TOILET FLANGE IS LOCATED IN THE BUILDING'S BASEMENT WASHROOM AS SHOWN IN THE MAP OF THIS REPORT.			**Video name (PLR)**	STM2R.mpg
				Report No	1
Job Address	233 ARGYLE STREET OTTAWA, ONTARIO			**Operator**	Saul Cerna
Comments	20% debris silt and a concretge CAP was observed in the line. As a result, inspection was abandoned at 0.6 meters from the access point.				

DISTANCE (m)	CODE DESCRIPTION	%	SIZE (mm)	LENGTH (m)	CLOCK FROM	CLOCK TO	REMARKS
0.0	Start of inspection						Start at access point CATCH BASIN 1 (CB1)
0.0	Water Level						
0.0	Debris Silt	20		0.3			Dry silt
0.6	Camera Above Water						Concrete CAP
0.6	Survey Abandoned						the line is CAP.

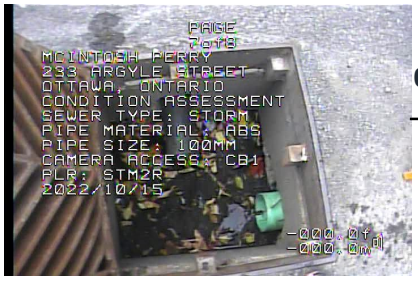
PROJECT NAME

SANITARY AND STORM SEWER CCTV CONDITION ASSESSMENT AND LOCATES

VIDEO NAME

STM1R

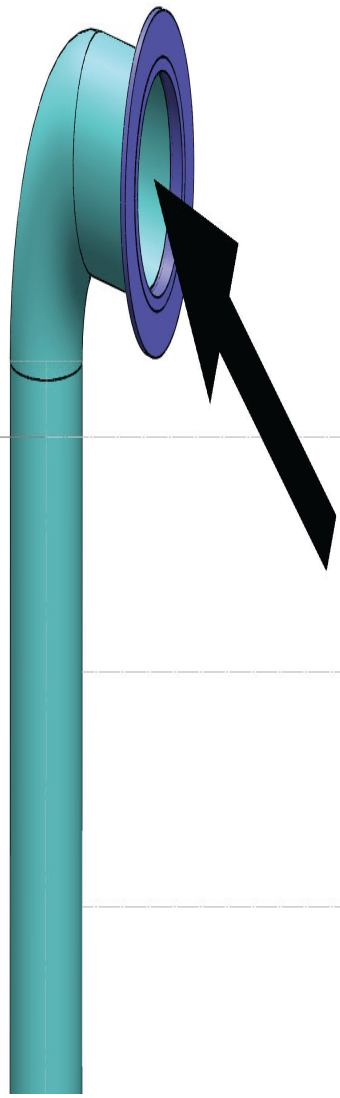
Figure#1: Start of inspection at access point CATCH BASIN 1 (CB1)



0.0 m

Figure#2: A view to the % water level at 0 meters from the top of CATCH BASIN 1 (CB1).

0.0 m



Figure#3: A view to the 10% Debris Silt Dry silt at 0.2 meters from the top of CATCH BASIN 1 (CB1).

0.2 m

Figure#4: A view to the % of the pipe's surface area lost due to the deformed pipe at 0.6 meters from the top of

0.6 m

m

m

Date	10/18/2022	Sewer Type	SANITARY	Pipe Size (mm)	100MM
Client	McINTOSH PERRY			Work order	501
Contact	ALISON GOSLING			Pipe Material	ABS/PVC
Start	TOILET FLANGE (TF1)			Camera Direction	With Flow
End	CITY MAIN LINE			DVD#/USB#	1
Further Location Details	THE ACCESS CO IS LOCATED IN THE BUILDING'S BASEMENT NEX TO THE STAIRS AS SHOWN IN THE MAP OF THIS REPORT.			Video name (PLR)	SAN1.mpg
				Report No	1
Job Address	233 ARGYLE STREET OTTAWA, ONTARIO			Operator	Saul Cerna
Comments	A crack longitudinal, Encrustation light at the joint and surface spalling (chipped joint were observed in the clay pipe. The Pipe is made of Cast Iron, Clay and PVC. The inspection ended at the city main line connection at 22.2 meters from the top of the access point.				

DISTANCE (m)	CODE DESCRIPTION	%	SIZE (mm)	LENGTH (m)	CLOCK FROM	CLOCK TO	REMARKS
0.0	Start of inspection						Start at access point TOILET FLANGE (TF1
0.0	Line deviates down			1.0			Drop into the line.
1.0	Water Level	0					
4.0	Crack Longitudinal			0.4	12		
5.0	Water Level	5					
9.2	Encrustation Light				7	5	At joint
10.0	Surface Spalling Medium						At joint
11.6	Line Deviates Right						
11.6	Dimesion of Sewer Changes						
11.6	Material Change						PVC
19.6	Line Deviates Right Down						
21.4	Line deviates down						Gradually
22.0	Line Deviates Left Down						
22.2	Finish Survey						End at CITY MAIN LINE.

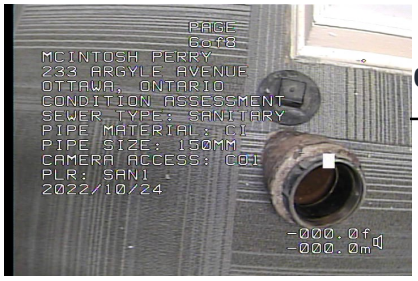
PROJECT NAME

SANITARY AND STORM SEWER CCTV CONDITION ASSESSMENT AND LOCATES

VIDEO NAME

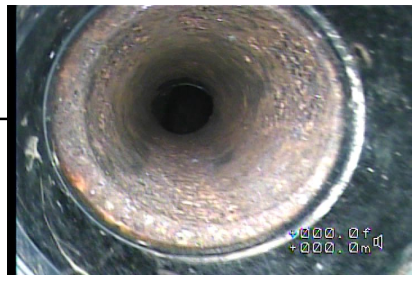
SAN1

Figure#1: Start of inspection at access point TOILET FLANGE (TF1)



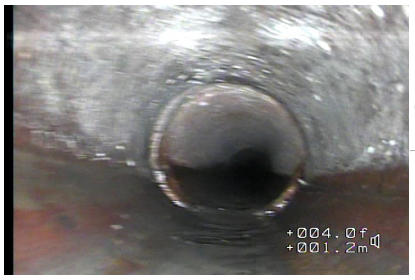
0.0 m

Figure#2: A view to the line deviation downwards at 0.0 meters from the top of TOILET FLANGE (TF1).



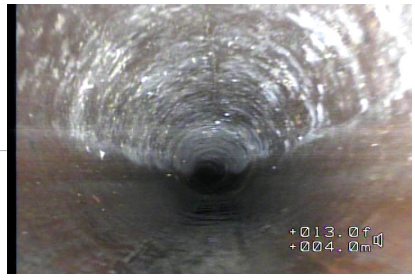
0.0 m

Figure#3: A view to the 0% water level and material change to c;lay at 1.2 meters from the top of TOILET FLANGE



1.2 m

Figure#4: A view to the longitudinal crack at 12 o'clock at 4.0 meters from the top of the access point.



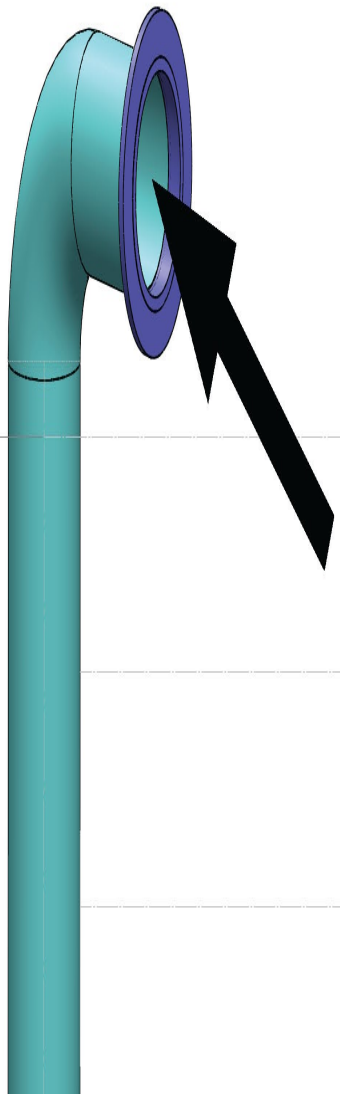
4.0 m

Figure#5: A view to the 5% water level at 5 meters from the top of TOILET FLANGE (TF1).

5.0 m

Figure#6: A view to the light encrustation at 9.2 meters from the top of TOILET FLANGE (TF1).

9.2 m



PROJECT NAME

SANITARY AND STORM SEWER CCTV CONDITION ASSESSMENT AND LOCATES

VIDEO NAME

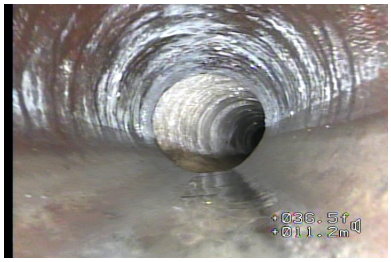
SAN1

Figure#7: A view to the chipped joint at 10.0 meters from the top of the access point.

10.0 m

Figure#8: A view to the right line deviation abd diameter changfe to 150 mm at 11.2 meters from the top of

11.2 m



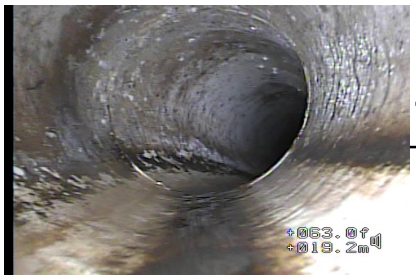
Figure#9: A view to the diameter and material change to 150 mm and PVC at 11.4 meters from the top of (TF1).

11.6 m

Figure#10: A view to the material change to PVC at 11.6 meters from the top of TOILET FLANGE (TF1).

11.6 m

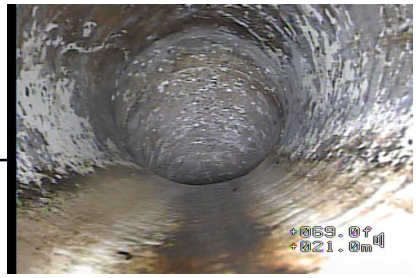
Figure#11: A view to the right deviation downwards at 19.2 meters from the top of TOILET FLANGE (TF1).



19.2 m

Figure#12: A view to the line deviation downwards gradually at 21.0 meters from the top of TOILET FLANGE (TF1).

21.0 m



PROJECT NAME

SANITARY AND STORM SEWER CCTV CONDITION ASSESSMENT AND LOCATES

VIDEO NAME

SAN1

Figure#13: A view to the left deviation downwards at 21.8 meters from the top of TOILET FLANGE (TF1).

Figure#14: A view to the end point CITY MAIN LINE at 22.2 meters from the top of TOILET FLANGE (TF1).

21.6 m

22.2 m

m

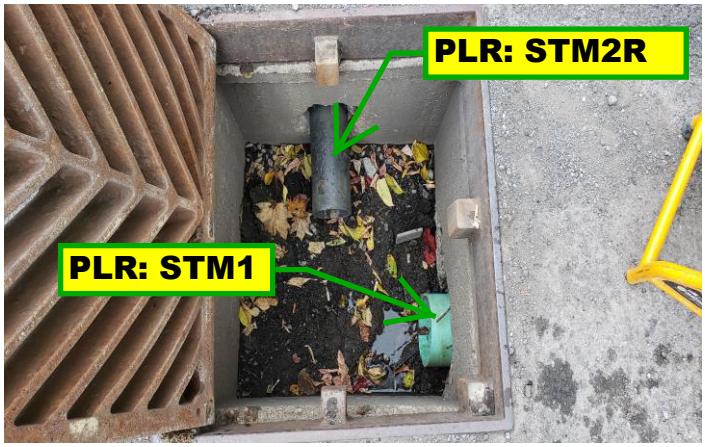
m

m

m

233 ARGYLE STREET STORM SEWER -LINE TRACING PICTURES

Figure#1 A view to CB1 and pipe orientation in the back of the back parking lot**.** The ABS pipe is cap at0.6 meters**.**



Figure#2 A view to line STM1orientation and depth in the alley. 2 feet and 10 inches deep.

Figure#3 A view to line STM1orientation and depth in the alley. 3 feet and 7 inches deep.

Figure#4 A view to line STM1orientation and depth in the alley. 3 feet and 11 inches.

233 ARGYLE STREET STORM SEWER -LINE TRACING PICTURES

Figure#5 A view to line STM1orientation and depth in the alley. 4 feet and 6 inches.

Figure#6 A view to the pipe and depth direction of line STM2. 6 feet deep close to the sidewalk.

Figure#7 A view to the line STM2 in Argyle Street. It is 7 feet in the middle then drops to 9.5 to 10 feet the main line.

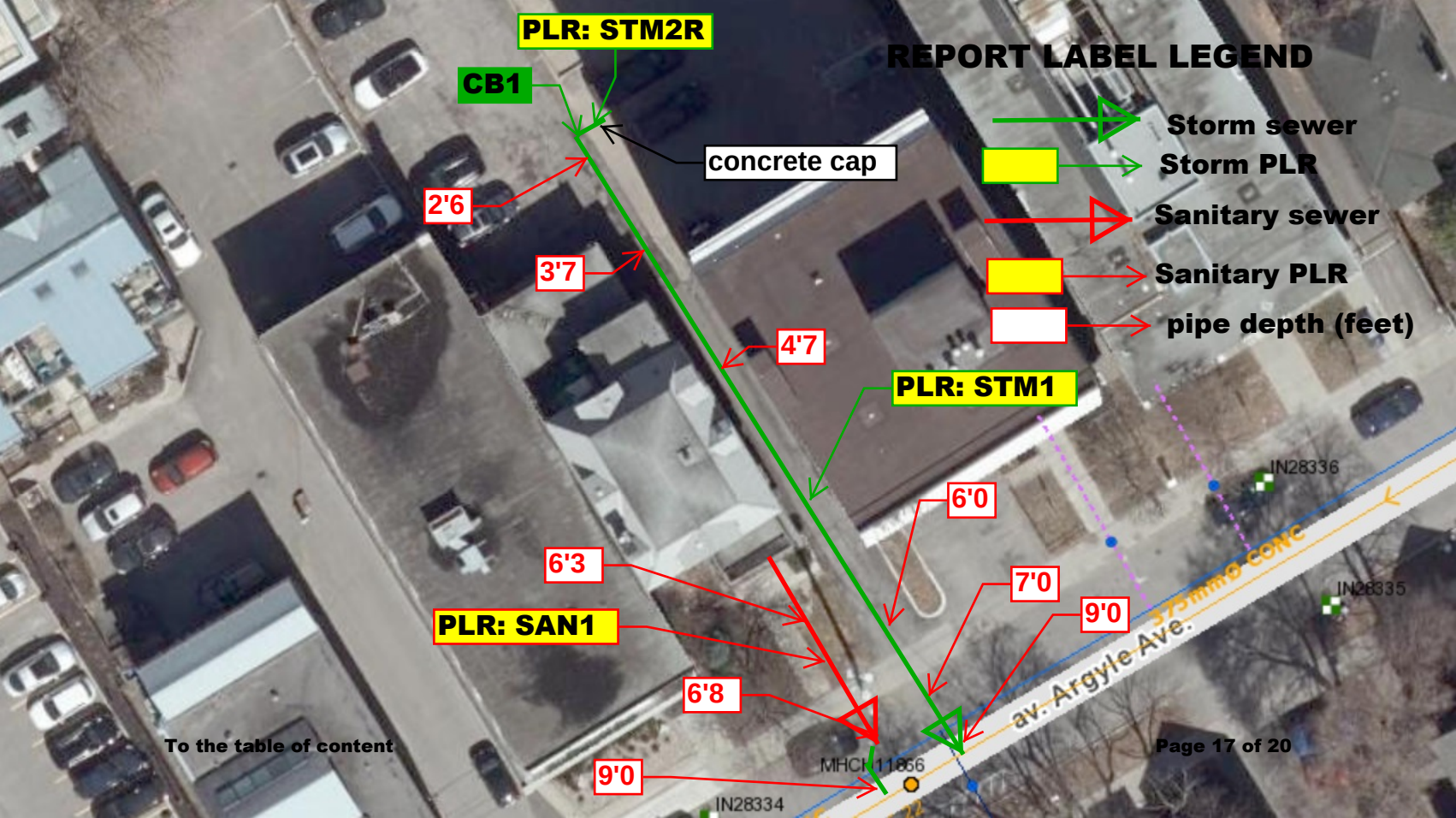
Figure#8 A view to the water meter. The water main is 1 inch diameter.

233 ARGYLE STREET SANITARY SEWER -LINE TRACING PICTURES

Figure#9: A view to the sanitary line exit the building. The depth is about 6 feet and 3 inches.

Figure#10: A view to the sanitary line in the grass and sidewalk. The depth is about 6 feet and 3 inches.

Figure#11 A view to the sanitary sewer connecting to the maion line in Argyle Street. The depth is about 7 in the middle and 9 feet at the main line.


PLR: STM2R
CB1
concrete cap
2'6
3'7
4'7
PLR: STM1
6'0
6'3
PLR: SAN1
7'0
9'0
6'8
9'0
REPORT LABEL LEGEND
Storm sewer
Storm PLR
Sanitary sewer
Sanitary PLR
pipe depth (feet)
IN28336
IN28335
375mm Ø CONC
av. Argyle Ave.
MHCB11666
IN28334

Observations

Problem

Structural Condition - Brickwork

DB – Displaced Bricks
DI – Dropped Invert
MB – Missing Bricks

Structural Condition – Mortar Missing

MM - Mortar missing medium
MS – Mortar missing slight
MT – Mortar missing total

Structural Condition – Surface damage

SSL - Spalling large
SSM - Spalling medium
SSS – Spalling slight
SWL – Wear large
SWM – Wear medium
SWS – Wear slight

Structural Condition – Joint Displaced

JDL – Joint Displaced Large
JDM – Joint Displaced Medium

Structural Condition – Open Joint

OJL – Open Joint Large
OJM – Open Joint Medium

Structural Condition – Cracked

CC – Crack Circumferential
CL – Crack Longitudinal
CM – Crack multiple

Structural Condition – Fractured

FC – Fracture Circumferential
FL – Fracture Longitudinal
FM – Fracture Multiple

Structural Condition – Broken (pipe sewers)

B- Broken
H – Hole

Structural Condition – Deformed

D – Deformed Sewer

Structural Condition – Collapsed

X – Collapsed

Construction Features – Connection

CN – Connection
CNI – Connection intruding
CX – Connection defective
CXI – Connection defective intruding
WYE - End point connection / End of a line

Construction Features – Junction

JN – Junction
JX – Junction Defective

Construction Features – Lining defect

LN – Lining defect

Construction Features – Major branch

BR – Branch major

Construction Features – Manhole/node

MH – Manhole/Node

Miscellaneous Features

CU – Camera underwater
DC – Dimension of sewers changes
GO – General Observation
GP – General Photograph
LC – Lining Change
MC – Material change
PC – Pipe length change
SC – Shape change
V – Vermin (rats and/or mice)
WL – Water Level

Service Defects – Roots

RF – Roots fine
RFJ – Roots fine at joint
RM – Roots mass
RMJ – roots mass at joint
RT – Roots tap
RJ – Roots tap at joint

Service Defects – Infiltration

ID – Infiltration dripper
IDJ – Infiltration dripper at joint
IG – Infiltration gusher
IGJ – Infiltration gusher at joint
IR – Infiltration runner
IRJ – Infiltration runner at joint
IS – Infiltration seeper
ISJ – Infiltration seeper at joint

Service Defects – Encrustation

EH – Encrustation heavy
EHJ – Encrustation heavy at joint
EL – Encrustation light
ELJ – Encrustation light at joint
EM – Encrustation medium
EMJ – Encrustation medium at joint

Service Defects – Debris

DE – Debris
DEG – Debris grease
DES – Debris silt

Service Defects – Line

LD – Line deviates down
LL – Line deviates left
LR – Line deviates right
LU – Line deviates up

Service Defects – Obstruction

OB – Debris grease

Other Codes

Inspections

CID – Continue inspection downstream
CIU – Continue inspection upstream
FH – Finish Survey
SA – Survey abandoned
ST – Start of Survey

Weather

1- Dry
2- Heavy Rain
3- Light Rain
4- Showers
5- Snow

Reasons & Purpose

A- Structural or service condition defects
B- Infiltration
C- Assessment of complete remedial or renovation works
D- Pre-adoption
E- Pre-acceptance
F- Sample survey to determine asset condition
G- Associated with future capital scheme including drainage area planning
H- Resurvey for any reason
X- Other
Z- Not known

Surface Type & Location

A- Main road (urban)
B- Main road (suburban/rural)
C- Light road
D- Footpath or verge (within the highway boundary)
E- Fields (farmland and public open space)
F- Gardens (within private property)
G- Woodland
X- Difficult access (motorway, railway, watercourse, inside building)

Pipe Type

AC – Alkathene
AK – Alkathene
BR – Brick
CC – Concrete box culvert
CI – Cast Iron
CO – Concrete
CSB – Concrete segments (bolted)
CSU – Concrete segments (unbolted)
DI – Ductile Iron
GRC – Glass reinforced cement
GRP – Glass reinforced plastic
MAC – Masonry (in regular courses)
MAR – Masonry (randomly coursed)
PE – Polyethylene
PF – Pitch fibre
PP – Polypropylene
PSC – Plastic/steel composite
PVC – Polyvinyl chloride
RPM – Reinforced plastic matrix
SI – Spun (grey) iron
ST – Steel
TRA - Transite
VC – Vitrified clay
XXX – Other
ZZZ – Not known

Pipe Shape

A- Arched (with flat bottom)
B- Barrel
C- Circular
E- Egg shaped
H- Horseshoe
O- Oval
R- Rectangular
S- Square
T- Trapezoidal
U- U-shaped with flat top
X- Other

Use of Sewer

A- Combined
F- Foul
S- Surface water
T- Trade effluent
W- Watercourse (culverted)
X- Other
Z- Not known

Lining Method

BL – Bitumen
CL – Cement
CPP – Cured in place
IS – Soft inversion type liner
PL – Plastic
RL – Resin
XXX – Other
ZZ – Not known

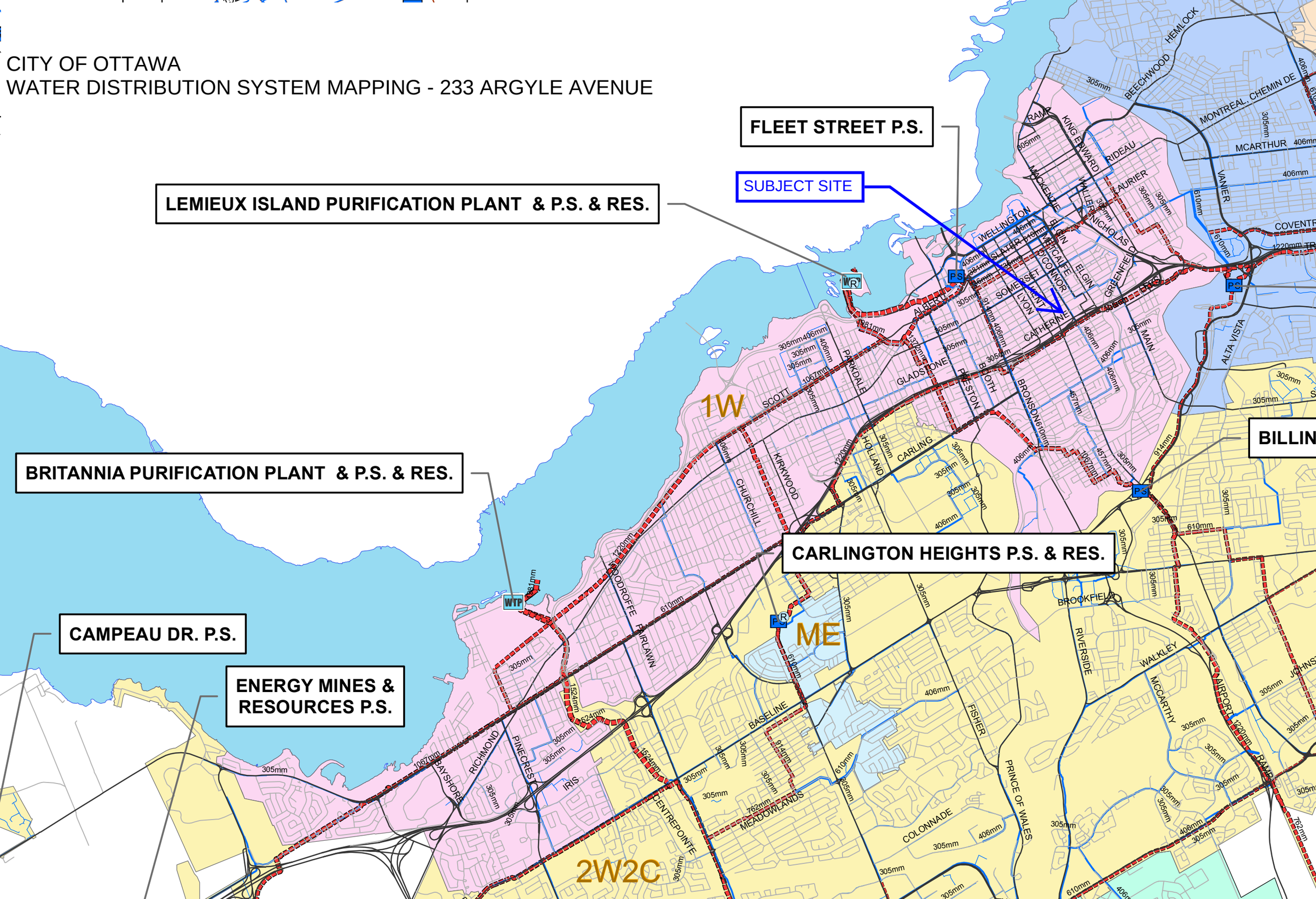
Pre-Cleaning

N- No pre-cleaning
Y- Pre-cleaning was carried out
Z- Not known

APPENDIX C
WATERMAIN CALCULATIONS

McINTOSH PERRY

CITY OF OTTAWA
WATER DISTRIBUTION SYSTEM MAPPING - 233 ARGYLE AVENUE



McINTOSH PERRY

CO-22-1648 - 233 Argyle Avenue - Existing Water Demands

Project:	233 Argyle Avenue
Project No.:	CO-22-1648
Designed By:	AJG
Checked By:	AJG
Date:	November 18, 2022
Site Area:	0.053 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		units	1.4	persons/unit
1 Bedroom Apartment		units	1.4	persons/unit
2 Bedroom Apartment		units	2.1	persons/unit
3 Bedroom Apartment		units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit

Total Population 0 persons

Commercial/Office 261 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	0.00	L/s
	Commerical/ Industrial/ Institutional	0.008	L/s

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info@mcintoshperry.com | www.mcintoshperry.com

MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	0.00	L/s
	Commerical/ Industrial/ Institutional	0.013	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	0.00	L/s
	Commerical/ Industrial/ Institutional	0.023	L/s

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

AVERAGE DAILY DEMAND	0.008	L/s
MAXIMUM DAILY DEMAND	0.013	L/s
MAXIMUM HOUR DEMAND	0.023	L/s

McINTOSH PERRY

CO-22-1648 - 233 Argyle Avenue - Proposed Water Demands

Project:	233 Argyle Avenue
Project No.:	CO-22-1648
Designed By:	AJG
Checked By:	AJG
Date:	November 18, 2022
Site Area:	0.053 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	14	units	1.4	persons/unit
1 Bedroom Apartment		units	1.4	persons/unit
2 Bedroom Apartment		units	2.1	persons/unit
3 Bedroom Apartment		units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit
Total Population	20	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 Parks 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	
Othe Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	Residential	0.06	L/s
	Commerical/ Industrial/ Institutional	0.00	L/s

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MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	0.62	L/s
	Commerical/ Industrial/ Institutional	0.00	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	0.93	L/s
	Commerical/ Industrial/ Institutional	0.00	L/s

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

AVERAGE DAILY DEMAND	0.06	L/s
MAXIMUM DAILY DEMAND	0.62	L/s
MAXIMUM HOUR DEMAND	0.93	L/s

McINTOSH PERRY

CO-22-1648 - 233 Argyle Avenue - Combined Water Demands

Project:	233 Argyle Avenue
Project No.:	CO-22-1648
Designed By:	AJG
Checked By:	AJG
Date:	November 18, 2022
Site Area:	0.053 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	14	units	1.4	persons/unit
1 Bedroom Apartment		units	1.4	persons/unit
2 Bedroom Apartment		units	2.1	persons/unit
3 Bedroom Apartment		units	3.1	persons/unit
Average Apartment		units	1.8	persons/unit
Total Population	20	persons		
Commercial	279	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 Parks 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	
Othe Commercial	28,000	L/gross ha/d	
AVERAGE DAILY DEMAND	Residential	0.06	L/s
	Commerical/ Industrial/ Institutional	0.01	L/s

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MAXIMUM DAILY DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	9.5	x avg. day	L/c/d
Industrial	1.5	x avg. day	L/gross ha/d
Commercial	1.5	x avg. day	L/gross ha/d
Institutional	1.5	x avg. day	L/gross ha/d
MAXIMUM DAILY DEMAND	Residential	0.62	L/s
	Commerical/ Industrial/ Institutional	0.01	L/s

MAXIMUM HOUR DEMAND

DEMAND TYPE	AMOUNT		UNITS
Residential	14.3	x avg. day	L/c/d
Industrial	1.8	x max. day	L/gross ha/d
Commercial	1.8	x max. day	L/gross ha/d
Institutional	1.8	x max. day	L/gross ha/d
MAXIMUM HOUR DEMAND	Residential	0.93	L/s
	Commerical/ Industrial/ Institutional	0.02	L/s

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

AVERAGE DAILY DEMAND	0.07	L/s
MAXIMUM DAILY DEMAND	0.63	L/s
MAXIMUM HOUR DEMAND	0.95	L/s

McINTOSH PERRY

CO-22-1648 - 233 Argyle Avenue - OBC Fire Calculations

Project:	233 Argyle Avenue
Project No.:	CO-22-1648
Designed By:	AJG
Checked By:	AJG
Date:	November 18, 2022

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

Water Supply for Fire-Fighting - Residential

Building is classified as Group : C (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	23	(from Table 1 pg A-31) (Worst case occupancy {E/ F2} 'K' value used)
V	1,326	(Total building volume in m³.) * Assumed 8ft high ceilings
Stot	2.0	(From figure 1 pg A-32)
Q =	61,018.52 L	

From Figure 1 (A-32)

Shorth	4.9	m	0.5
Seast	0.3	m	0.5
Ssouth	7.2	m	0.3
Swest	0.0	m	0.5

* approximate distances

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

2700 L/min if Q < 108,000 L

713 gpm

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McINTOSH PERRY

CO-22-1648 - 233 Argyle Avenue - Fire Underwriters Survey

Project:	233 Argyle Avenue
Project No.:	CO-22-1648
Designed By:	RRR
Checked By:	AJG
Date:	November 18, 2022

From the Fire Underwriters Survey (2020)

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

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

F = 220 x C x √A Where: F = Required fire flow in liters per minute
C = Coefficient related to the type of construction.
A = The total floor area in square meters (including all storey's, but excluding basements at least 50 percent below grade) in the building being considered.

Construction Type Wood Frame

C	1.5	A	544.0 m^2	
	Total Floor Area (per the 2020 FUS Page 20 - Total Effective Area)		544.0 m^2	* Unprotected Vertical Openings

Calculated Fire Flow	7,696.9 L/min
	8,000.0 L/min

B. REDUCTION FOR OCCUPANCY TYPE (No Rounding)

From Page 24 of the Fire Underwriters Survey:

Limited Combustible	-15%

Fire Flow	6,800.0 L/min

C. REDUCTION FOR SPRINKLER TYPE (No Rounding)

Non-Sprinklered	0%

Reduction	0.0 L/min

D. INCREASE FOR EXPOSURE (No Rounding)

	Separation Distance (m)	Cons.of Exposed Wall	Length Exposed Adjacent Wall (m)	Height (Stories)	Length-Height Factor	
Exposure 1	10.1 to 20	Fire Resistive - Non Combustible (Unprotected Openings)	9	4	36.0	4%
Exposure 2	3.1 to 10	Fire Resistive - Non Combustible (Unprotected Openings)	50	11	550.0	11%
Exposure 3	Over 30 m	Wood frame	9	3	27.0	0%
Exposure 4	0 to 3	Wood frame	33	2	66.0	23%
					% Increase*	38%

Increase*	2,584.0 L/min

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

Fire Flow	9,384.0 L/min
Fire Flow Required**	9,000.0 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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McINTOSH PERRY

CO-22-1648 - 233 Argyle Avenue - Boundary Condition Unit Conversion

Project:	233 Argyle Avenue
Project No.:	CO-22-1648
Designed By:	AJG
Checked By:	AJG
Date:	November 18, 2022

Boundary Conditions Unit Conversion

ARGYLE AVENUE

Scenario	Height (m)	Elevation (m)	m H_2O	PSI	kPa
Avg. DD	115.3	69.4	45.9	65.3	450.3
Fire Flow (83.33 L/s)	108.0	69.4	38.6	54.9	378.7
Peak Hour	106.3	69.4	36.9	52.5	362.0

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Alison Gosling

From: Wu, John <John.Wu@ottawa.ca>
Sent: September 7, 2021 1:27 PM
To: Alison Gosling
Subject: RE: 22-1648 233 Argyle Avenue - Boundary Condition Request
Attachments: 233 Argyle Street September 2021.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi, Allison:

Here is the result:

******The following information may be passed on to the consultant, but do NOT forward this e-mail directly.******

The following are boundary conditions, HGL, for hydraulic analysis at 233 Argyle Street (zone 1W) assumed connected to the 203 mm watermain on Argyle Street (see attached PDF for location).

Minimum HGL: 106.3 m

Maximum HGL: 115.3 m

Max Day + FF (83.3 L/s): 108.0 m

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

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

John

From: Alison Gosling <a.gosling@mcintoshperry.com>
Sent: August 31, 2021 11:33 AM
To: Wu, John <John.Wu@ottawa.ca>
Subject: 22-1648 233 Argyle Avenue - Boundary Condition Request

Good morning John,

We would like to request Boundary Conditions for the proposed site located at 233 Argyle Avenue. The proposed development consists of a 3-storey building addition containing 13 units to the existing building currently being used as office space. The proposed connection will be to the existing 203mm dia. watermain within Argyle Avenue.

- The estimated fire flow is 5,000 L/min based on the FUS
- The estimated fire flow is 2,700 L/min based on the OBC
- Average daily demand: 0.06 L/s OR 0.07 L/s with the existing building
- Maximum daily demand: 0.58 L/s OR 0.60 L/s with the existing building
- Maximum hourly daily demand: 0.88 L/s OR 0.90 L/s with the existing building

Attached is a map showing the proposed connection location along with the calculations prepared for the demands listed above.

Please let me know if you have any questions.

Thank you,

Alison Gosling, P.Eng.
Project Engineer, Land Development
115 Walgreen Road, Carp, ON, K0A 1L0
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a.gosling@mcintoshperry.com | www.mcintoshperry.com
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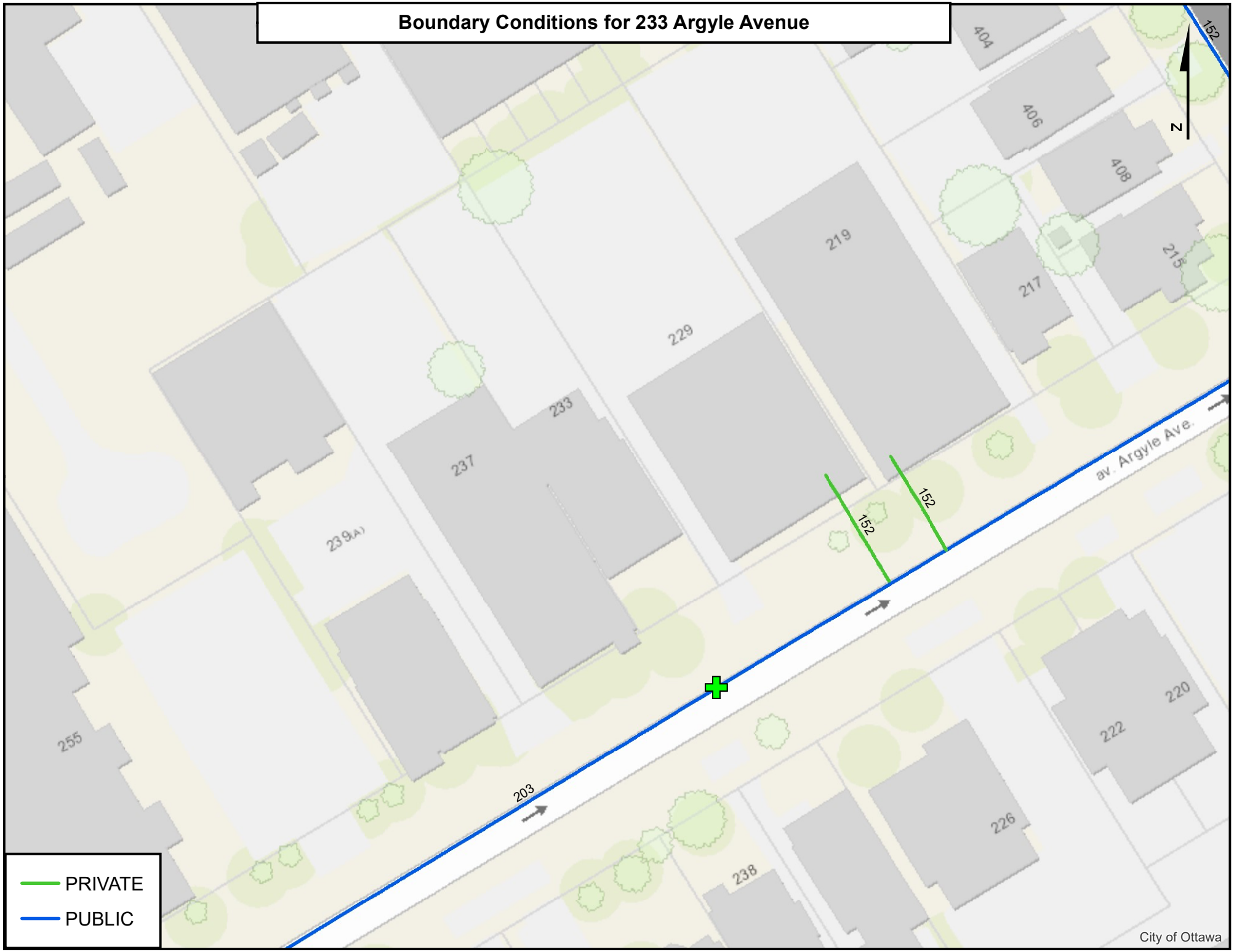
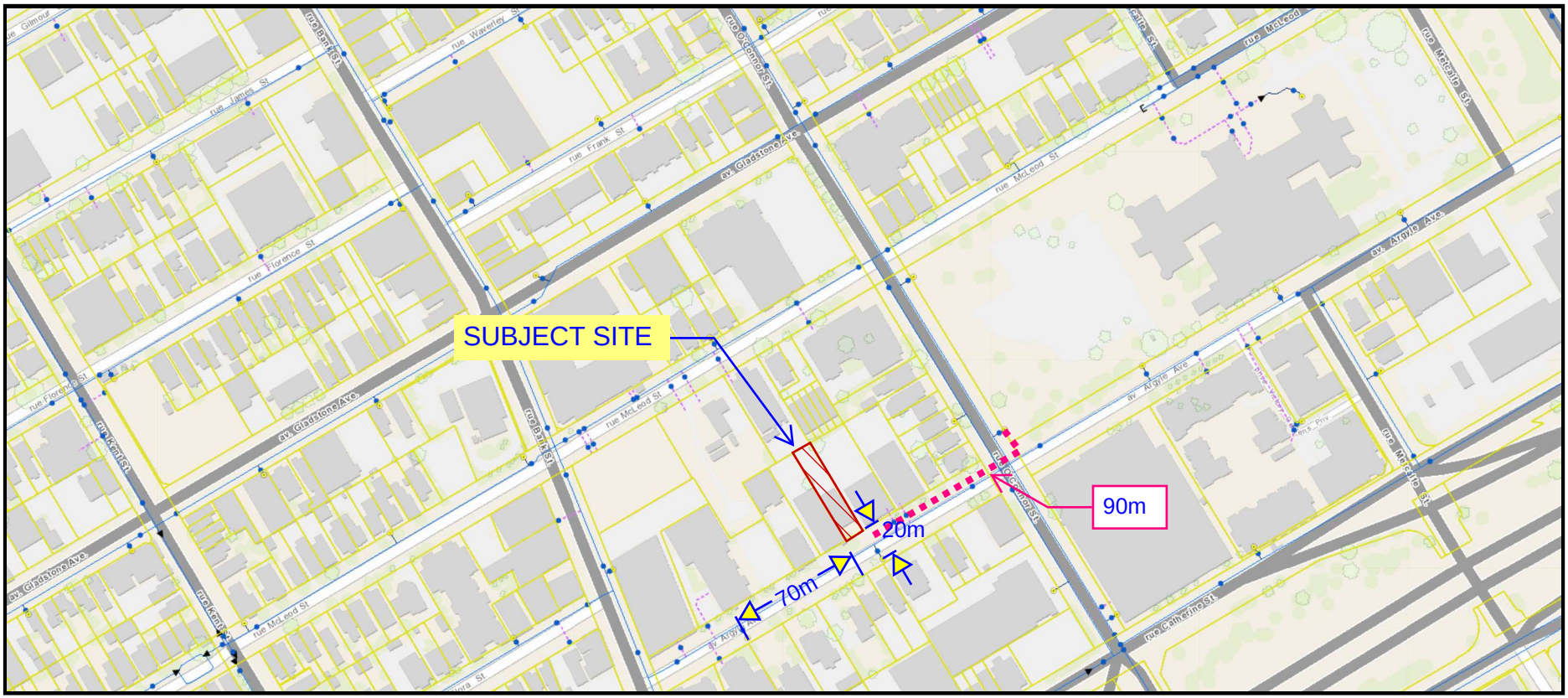
Turning Possibilities Into Reality

'

Boundary Conditions for 233 Argyle Avenue



233 Argyle Avenue
Hydrant Coverage Figure



https://maps.ottawa.ca/geoOttawa/

2021-09-17

APPENDIX D
SANITARY CALCULATIONS

McINTOSH PERRY

McINTOSH PERRY

CO-22-1648 - 233 Argyle Avenue - Sanitary Demands - Total

Project:	233 Argyle Avenue
Project No.:	CO-22-1648
Designed By:	AJG
Checked By:	AJG
Date:	November 18, 2022

Site Area	0.053	Gross ha	
Bachelor	14	1.40	Persons per unit
Total Population	20	Persons	
Commercial Area	261.00	m^2	

DESIGN PARAMETERS

Institutional/Commercial Peaking Factc	1.5	
Residential Peaking Factor	3.70	* 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	0.003
Wet	0.015
Total	0.017

AVERAGE DAILY DEMAND

DEMAND TYPE	AMOUNT	UNITS	POPULATION / AREA	Flow (L/s)
Residential	280	L/c/d	20	0.065
Industrial - Light**	35,000	L/gross ha/d		0
Industrial - Heavy**	55,000	L/gross ha/d		0
Commercial / Amenity	2,800	L/(1000m²/d)	261.00	0.008
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

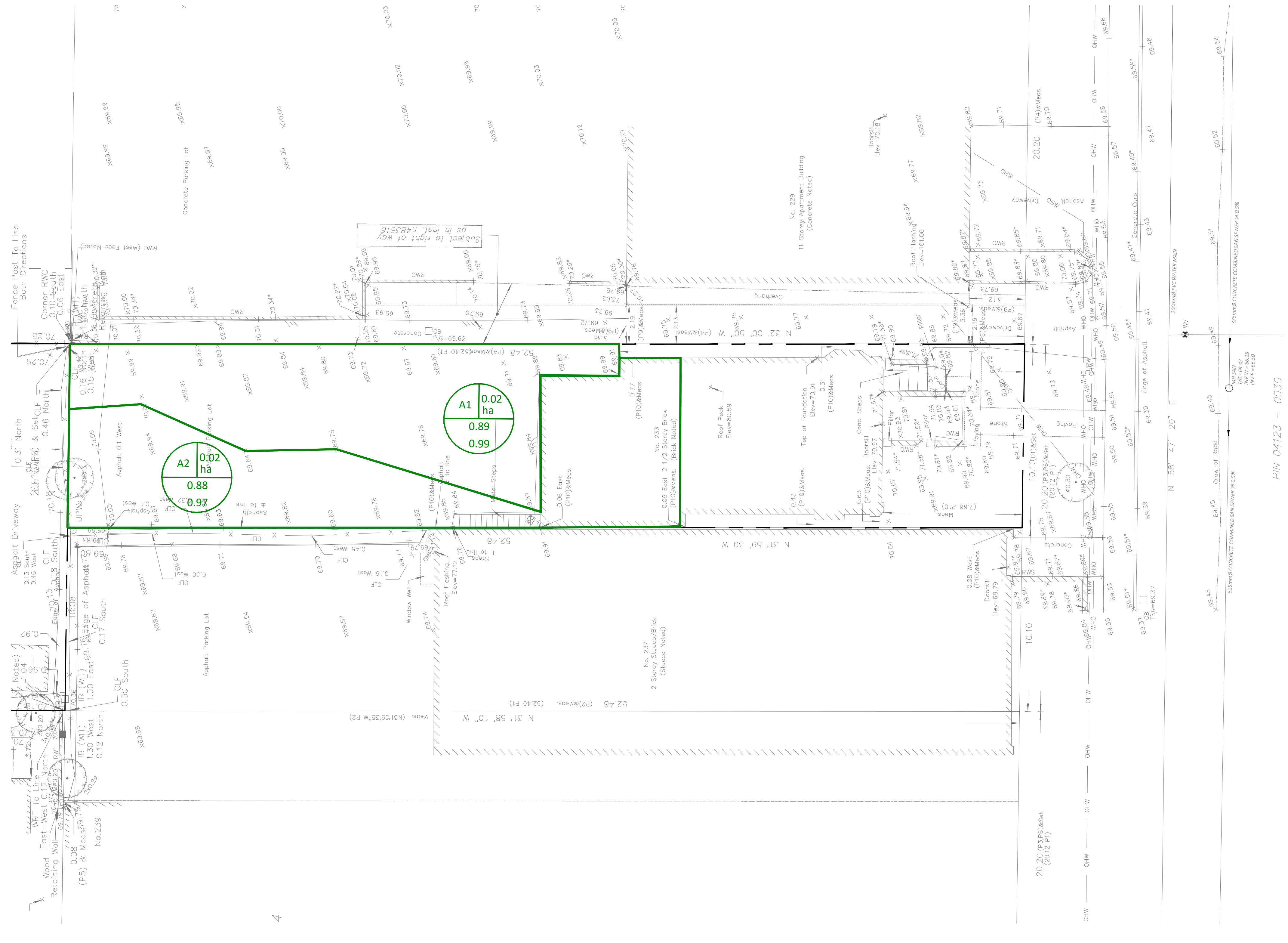
AVERAGE RESIDENTIAL FLOW	0.06	L/s
PEAK RESIDENTIAL FLOW	0.24	L/s
AVERAGE ICI FLOW	0.008	L/s
PEAK INSTITUTIONAL/ COMMERCIAL FLOW	0.013	L/s
PEAK INDUSTRIAL FLOW	0.000	L/s
TOTAL PEAK ICI FLOW	0.013	L/s

TOTAL SANITARY DEMAND

TOTAL ESTIMATED AVERAGE DRY WEATHER FLOW	0.08	L/s
TOTAL ESTIMATED PEAK DRY WEATHER FLOW	0.26	L/s
TOTAL ESTIMATED PEAK WET WEATHER FLOW	0.27	L/s

APPENDIX E
PRE-DEVELOPMENT DRAINAGE PLAN

McINTOSH PERRY



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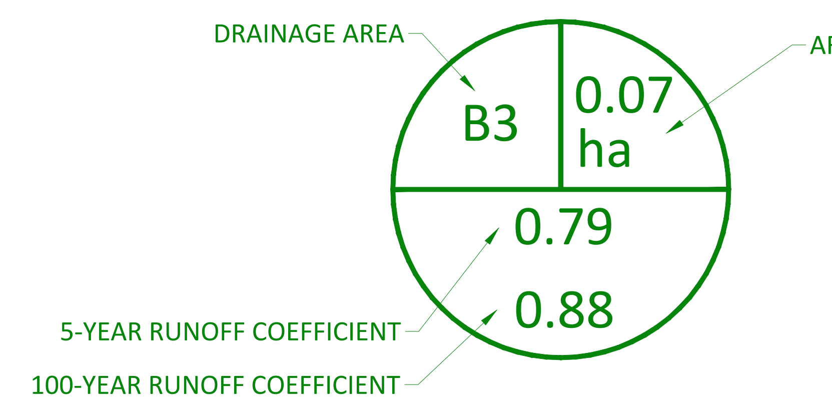
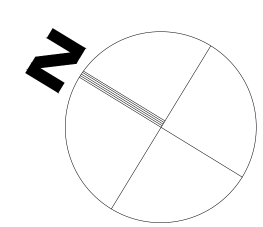


SCALE 1 : 200

0 10 20 Metres



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Client:	SMART LIVING PROPERTIES 226 ARGYLE AVE OTTAWA, ON K2P1 B1
Project:	SMART LIVING APARTMENTS 233 ARGYLE AVE
Drawing Title:	PRE-DEVELOPMENT DRAINAGE AREA PLAN

Drawn by:	Checked By:
R.R.R.	A.J.G.
Scale: 1:200	Project Number: CCO-22-1648

No.	Revisions	Date
4	ISSUED FOR REVIEW	NOV 21, 2022
3	ISSUED FOR REVIEW	JULY 15, 2022
2	ISSUED FOR REVIEW	JUNE 16, 2022

Drawing Number: PRE

FILENAME: U:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CCO-22-1648 Smart Living_Apartment_233 Argyle Avenue\12 - Drawings\CCO-22-1648_Presentation.dwg
LAST SAVED: Monday, November 14, 2022 LAST SAVED BY: r.robineau
LAST PLOTTED: Friday, November 18, 2022 CTB FILE USED: ----

APPENDIX F
POST-DEVELOPMENT DRAINAGE PLAN

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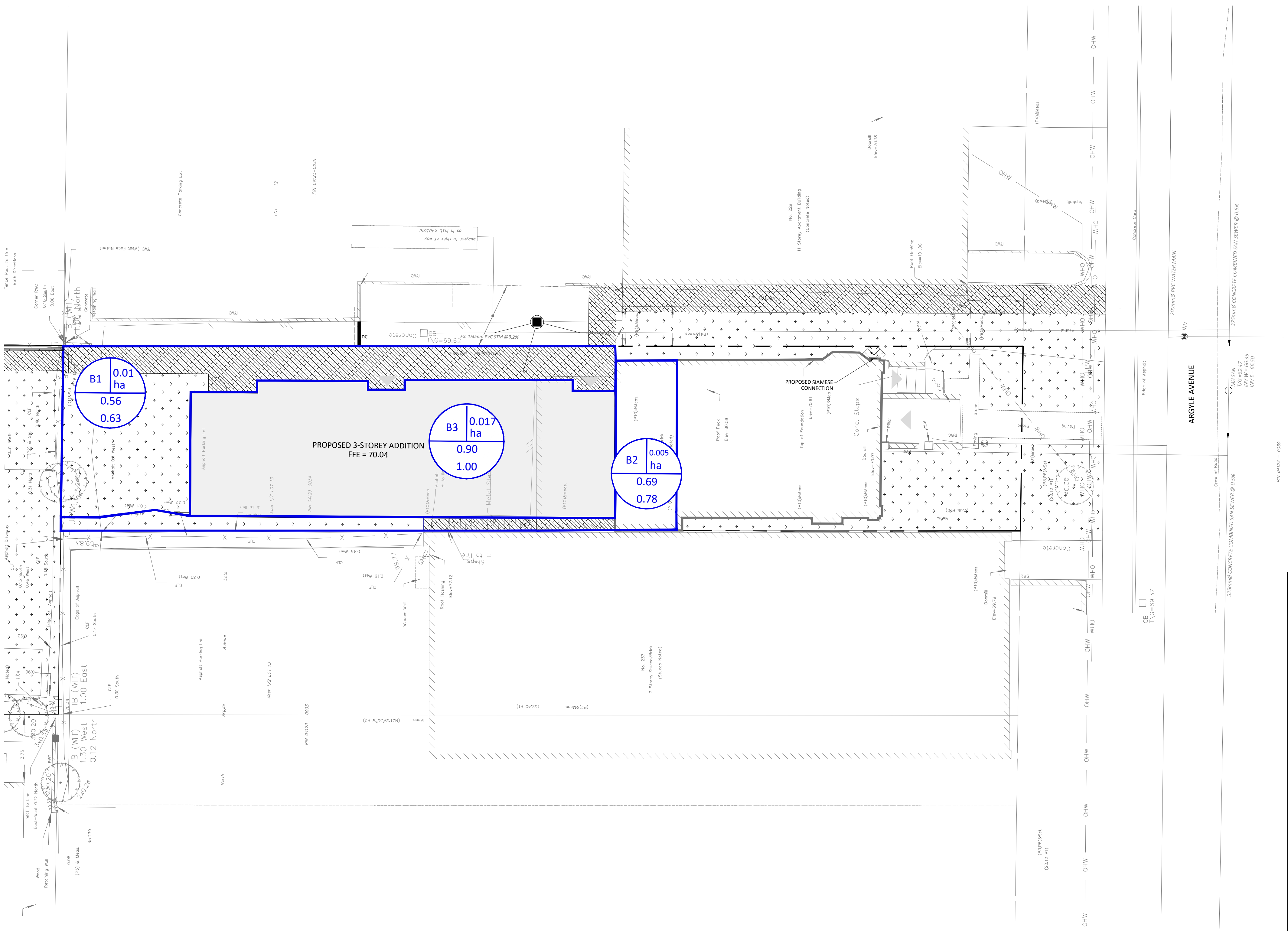

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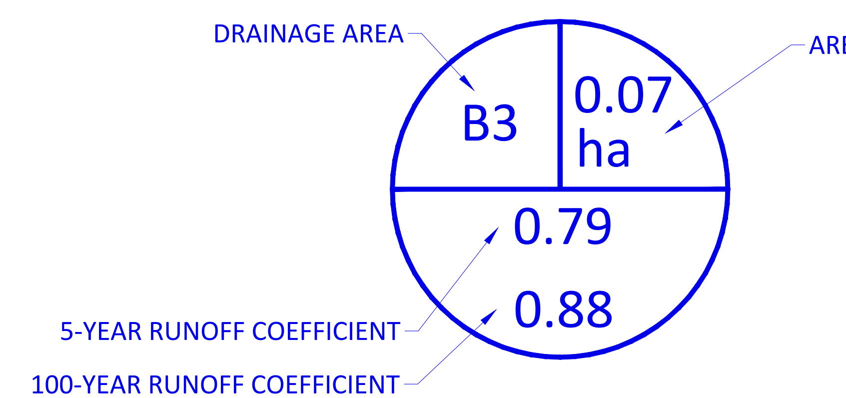
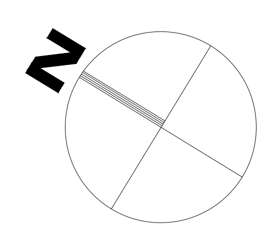


SCALE 1 : 200

0 10 20 Metres



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Client: SMART LIVING PROPERTIES
226 ARGYLE AVE OTTAWA, ON K2P1 B1

Project: SMART LIVING APARTMENTS
233 ARGYLE AVE

Drawing Title: POST-DEVELOPMENT DRAINAGE AREA PLAN

Drawn by:	Checked By:
R.R.R.	A.J.G.
Scale: 1:200	Project Number: CCO-22-1648

No.	Revisions	Date
4	ISSUED FOR REVIEW	NOV 21, 2022
3	ISSUED FOR REVIEW	JULY 15, 2022
2	ISSUED FOR REVIEW	JUNE 16, 2022

Drawing Number: POST

FILENAME: U:\Ottawa\01 Project - Proposals\2022 Jobs\CCO\CCO-22-1648 Smart Living_Apartment_233 Argyle Avenue\12 - Drawings\CCO-22-1648_Presentation.dwg
LAST SAVED: Tuesday, November 22, 2022 LAST SAVED BY: r.robineau
LAST PLOTTED: Tuesday, November 22, 2022 CTB FILE USED: ----

APPENDIX G
STORMWATER MANAGEMENT CALCULATIONS

McINTOSH PERRY

CCO-22-1648 - 233 Argyle Avenue - Runoff Calculations

Pre-Development Runoff Coefficient

Drainage Area	Area (ha)	Impervious Area (m^2)	C	Gravel Area (m^2)	C	Pervious Area (m^2)	C	C_{AVG} 2/5-Year	C_{AVG} 100-Year
A1	0.016	159.28	0.90	0.00	0.60	1.21	0.20	0.89	0.99
A2	0.018	169.46	0.90	0.00	0.60	6.11	0.20	0.88	0.97

Pre-Development Runoff Calculations

Drainage Area	Area (ha)	C 5-Year	C 100-Year	Tc (min)	I (mm/hr)			Q (L/s)		
					2-Year	5-Year	100-Year	2-Year	5-Year	100-Year
A1	0.016	0.89	0.99	10	76.8	104.2	178.6	3.1	4.16	7.92
A2	0.018	0.88	0.97	10	76.8	104.2	178.6	3.3	4.45	8.49
Total	0.034							6.35	8.61	16.41

Post-Development Runoff Coefficient

Drainage Area	Area (ha)	Impervious Area (m^2)	C	Gravel Area (m^2)	C	Pervious Area (m^2)	C	C_{AVG} 2/5-Year	C_{AVG} 100-Year
B1	0.011	57.36	0.90	0.00	0.60	55.17	0.20	0.56	0.63
B2	0.005	38.31	0.90	0.00	0.60	16.16	0.20	0.69	0.78
B3	0.017	169.06	0.90	0.00	0.60	0.00	0.20	0.90	1.00

Post-Development Runoff Calculations

Drainage Area	Area (ha)	C 2/5-Year	C 100-Year	Tc (min)	I (mm/hr)		Q (L/s)	
					5-Year	100-Year	5-Year	100-Year
B1	0.011	0.56	0.63	10	104.2	178.6	1.81	3.53
B2	0.005	0.69	0.78	10	104.2	178.6	1.09	2.10
B3	0.017	0.90	1.00	10	104.2	178.6	4.41	8.39
Total	0.034						7.31	14.03

Required Restricted Flow

Drainage Area	Area (ha)	C 2-Year	Tc (min)	I (mm/hr)	Q (L/s)
				2-Year	2-Year
A1	0.016	0.40	10	76.8	1.37
A2	0.018	0.40	10	76.8	1.50
Total	0.034				2.87

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	1.81	3.53	1.81	3.53					Unrestricted
B2	1.09	2.10	1.09	2.10					Unrestricted
B3	4.41	8.39	0.38	0.69	3.65	6.97	3.80	6.97	Restricted
Total	7.31	14.03	3.29	6.32	3.65	6.97	3.80	6.97	

Storage Requirements for Area B3

5-Year Storm Event

Tc (min)	I (mm/hr)	B1 Runoff (L/s)	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	104.2	4.41	0.38	4.03	2.42
20	70.3	2.97	0.38	2.59	3.11
30	53.9	2.28	0.38	1.90	3.42
40	44.2	1.87	0.38	1.49	3.57
50	37.7	1.59	0.38	1.21	3.64
60	32.9	1.39	0.38	1.01	3.65
70	29.4	1.24	0.38	0.86	3.62
80	26.6	1.12	0.38	0.74	3.57
90	24.3	1.03	0.38	0.65	3.50
100	22.4	0.95	0.38	0.57	3.41

Maximum Storage Required 5-Year (m^3) =	3.65

100-Year Storm Event

Tc (min)	I (mm/hr)	B1 Runoff (L/s)	Allowable Outflow (L/s)	Runoff to be Stored (L/s)	Storage Required (m^3)
10	178.6	8.39	0.69	7.70	4.62
20	120.0	5.64	0.69	4.95	5.94
30	91.9	4.32	0.69	3.63	6.53
40	75.1	3.53	0.69	2.84	6.82
50	64.0	3.01	0.69	2.32	6.95
60	55.9	2.63	0.69	1.94	6.97
70	49.8	2.34	0.69	1.65	6.93
80	45.0	2.11	0.69	1.42	6.84

Maximum Storage Required 100-Year (m^3) =	6.97

Storage Occupied In Area B3

5-Year Storm Event

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	126.79	0.030	3.80
		Total	3.80

Storage Available (m^3) =	3.80
Storage Required (m^3) =	3.65

100-Year Storm Event

Roof Storage			
Location	Area*	Depth	Volume (m^3)
Roof	126.79	0.055	6.97
		Total	6.97

Storage Available (m^3) =	6.97
Storage Required (m^3) =	6.97

* Storage 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	1	
	5-Year	100-Year
Rooftop Storage (m^3)	3.80	6.97
Storage Depth (m)	0.030	0.055
Flow (Per Roof Drain) (L/s)	0.38	0.69
Total Flow (L/s)	0.38	0.69

Flow Rate Vs. Build-Up (One Weir)	
Depth (mm)	Flow (L/s)
15	0.19
20	0.25
25	0.32
30	0.38
35	0.44
40	0.50
45	0.57
50	0.63
55	0.69

* Roof Drain model to be Accutrol Weirs, See attached sheets

* Roof Drain Flow information taken from Watts Drainage website

CALCULATING ROOF FLOW EXAMPLES

2 roof drains during a 5 year storm
elevation of water = 30mm
Flow leaving 2 roof drains = (2 x 0.36 L/s) = 0.72 L/s

2 roof drains during a 100 year storm
elevation of water = 45mm
Flow leaving 2 roof drains = (2 x 0.54 L/s) = 1.08 L/s

	Roof Drain Flow		
	Flow (l/s)	Storage Depth (mm)	Drains Flow (l/s)
	0.19	15	0.19
	0.25	20	0.25
	0.32	25	0.32
5-Year	0.38	30	0.38
	0.44	35	0.44
	0.50	40	0.50
	0.57	45	0.57
	0.63	50	0.63
100-Year	0.69	55	0.69
	0.76	60	0.76
	0.82	65	0.82
	0.88	70	0.88
	0.95	75	0.95
	1.01	80	1.01
	1.07	85	1.07
	1.13	90	1.13
	1.20	95	1.20
	1.26	100	1.26
	1.32	105	1.32
	1.39	110	1.39
	1.45	115	1.45
	1.51	120	1.51
	1.58	125	1.58
	1.64	130	1.64
	1.70	135	1.70
	1.76	140	1.76
	1.83	145	1.83
	1.89	150	1.89

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

Time of Concentration Pre-Development

Drainage Area ID	Sheet Flow Distance (m)	Slope of Land (%)	Tc (min) (5-Year)	Tc (min) (100-Year)
A1	65	1.20	5	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

WATTS®	Adjustable Accutrol Weir Tag: _____	Adjustable Flow Control for Roof Drains

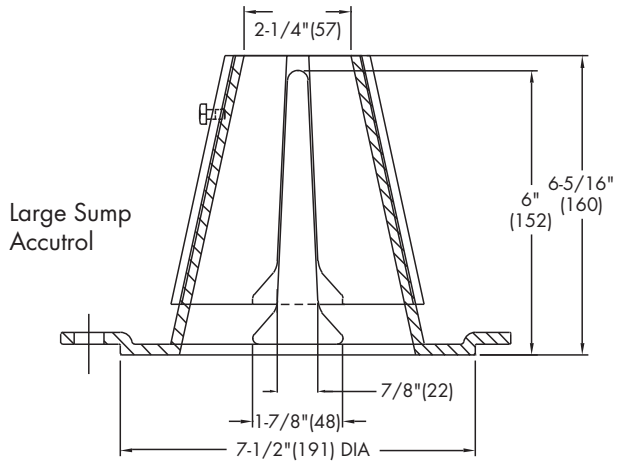
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

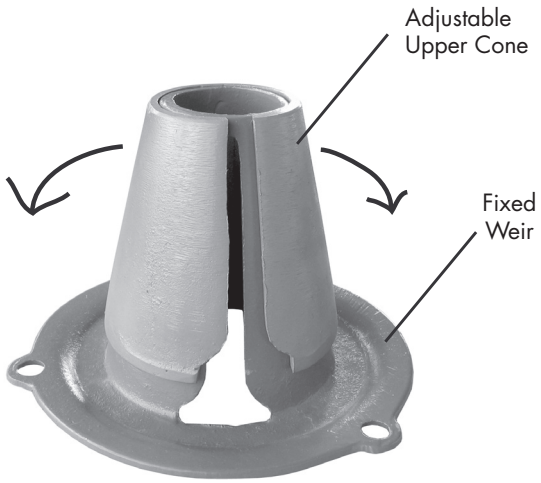
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the flow rate for depths over 2" of head, set the slot in the adjustable upper cone according to the flow rate required. Refer to Table 1 below.
Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

For example, if the adjustable upper cone is set to cover 1/2 of the weir opening, flow rates above 2"of head will be restricted to 2-1/2 gpm per inch of head.

Therefore, at 3"of head, the flow rate through the Accutrol Weir that has 1/2 the slot exposed will be:
[5 gpm (per inch of head) x 2 inches of head] + 2-1/2 gpm (for the third inch of head) = 12-1/2 gpm.





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

Weir Opening Exposed	1"	2"	3"	4"	5"	6"
	Flow Rate (gallons per minute)					
Fully Exposed	5	10	15	20	25	30
3/4	5	10	13.75	17.5	21.25	25
1/2	5	10	12.5	15	17.5	20
1/4	5	10	11.25	12.5	13.75	15
Closed	5	5	5	5	5	5

Job Name _____ Contractor _____

Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

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APPENDIX H
CITY OF OTTAWA DESIGN CHECKLIST

McINTOSH PERRY

City of Ottawa

4. Development Servicing Study Checklist

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

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

4.1 General Content

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

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

4.2 Development Servicing Report: Water

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

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

4.3 Development Servicing Report: Wastewater

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

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

4.4 Development Servicing Report: Stormwater Checklist

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

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

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

4.5 Approval and Permit Requirements: Checklist

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

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

4.6 Conclusion Checklist

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