

July 2026

UD25-052

Functional Servicing and Stormwater Management Report



Project: 3 Silkirk Street, OT,
Ottawa Silkirk & Main Developments Inc.

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Issues and Revisions Registry

Identification	Date	Description of issued and/or revision
FSR/SWM Report	02-18-2026	Issued for ZBA/SPA
FSR/SWM Report	07-17-2026	Issued for ZBA/SPA

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Executive Summary

Lithos Group Inc. (Lithos) was retained by Selkirk & Main Development Inc. (the “Owner”) to prepare a Functional Servicing and Stormwater Management Report in support of a Site Plan Application for a proposed residential development located at 3 Selkirk Street (K1L 8E3), in the City of Ottawa (the “City”). This Functional Servicing and Stormwater Management Report provides a detailed design analysis of Phase II, since the proposed development will be part of a greater development that will be constructed in three (3) Phases.

The following summarizes our conclusions:

Storm Drainage

The subject property will be constructed under Phase II of the proposed development. More specifically, Phase II will consist of a 2 and 4-storey podium with above ground parking area and with a high-rise 32-storey tower (Tower B). In addition, Phase II will be facilitated by one underground parking level (P1 level). Stormwater flow from Phase II will be discharged into the existing 300mm diameter storm sewer on Selkirk Street, through one (1) 200mm diameter storm connection with a minimum grade of 1.00% (or equivalent design).

Post-development storm flows from the proposed development (Phase II), will meet the 5-year pre-development flow. In order to achieve the target flows and meet the City’s Regulations, quantity controls will be utilized up to 132.4 m³ of total on site storage will be required for Phase II.

The stormwater management (SWM) system will be designed to provide enhanced level (Level 1) protection as specified by the Ministry of the Environment, Conservation and Parks (MECP). Quality control will be provided for the subject site by rooftops/terraces for a minimum total suspended solids (TSS) removal of 80%.

Sanitary Sewers

Phase II will consist of a 2 and 4-storey podium with above ground parking area and with a high-rise 32-storey tower (Tower B). The proposed development (Phase II) will be serviced by one (1) 200mm diameter sanitary lateral connection to the 1950mm diameter trunk sanitary sewer on North River Road, with a minimum grade of 2.00% (or equivalent design).

The additional discharge flow from the proposed development (Phase II) towards the sanitary network, is anticipated at approximately 6.53 L/s. According to the information provided by the City, the existing infrastructure has the capacity to support the additional sanitary flow, from the proposed development.

Water Supply

Water supply for the proposed development (Phase II) will be provided by two (2) water connections towards the existing 150 mm diameter watermain running along the centerline of Selkirk Street.

It is anticipated that a total design flow of 88.61 L/s will be required to support Phase II. Based on the boundary conditions received from the City, it is revealed that the existing water infrastructure can support the proposed development.

Site Grading

The proposed grades will improve the existing drainage conditions to meet the City’s/Regional requirements. Grades will be maintained along the property line wherever feasible and emergency overland flow will be gravity driven to the adjacent right-of-way’s (ROW).

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1.0 Introduction

Lithos Group Inc. (Lithos) was retained by Selkirk & Main Development Inc. (the “Owner”) to prepare a Functional Servicing and Stormwater Management Report in support of a Site Plan Application for a proposed residential development located at 3 Selkirk Street (K1L 8E3), in the City of Ottawa (the “City”). The proposed development will be a part of a greater development, as per the 2 Montreal Road & 300 Montgomery Street-FSR SWM Report approved on September 28, 2022, which will be constructed in three (3) Phases. This Functional Servicing and Stormwater Management Report studies the detailed design of Phase II.

The purpose of this report is to provide site-specific information for the City’s review with respect to infrastructure required to support the proposed development. More specifically, the report will present details on sanitary discharge, water supply and an outline of the storm drainage pattern.

We contacted the City’s engineering department to obtain existing information in preparation of this report. The following documents were available for our review:

- Servicing maps of:
 - North River Road, Montreal Road and Montgomery Street, drawing No. D-16-22, dated August, 2016;
 - Montgomery and Selkirk Street, drawing No. D-16-29, dated November, 2012.
- Plan and Profiles of:
 - Selkirk Street, drawing No. 980605-P3, dated July, 1998;
 - North River Road, drawing No. 05-2050-003, dated January, 2006.
- Site Plan (Phase II & Overall) prepared by Roderick Lahey Architect Inc., dated July 09, 2026;
- Hydrogeological Report prepared by Paterson Group dated July 22, 2022;
- Topographical sketch prepared by Annis, O’Sullivan, Vollebekk Ltd., dated November 28, 2025;
- Topographical Survey prepared by Annis, O’Sullivan, Vollebekk Ltd., dated March 06, 2020; and,
- Geotechnical Investigation prepared by Paterson Group dated March 26, 2022.

2.0 Site Description

The total existing site area is approximately 1.693 hectares site and is comprised of one (1) single-storey commercial building with outdoor parking area. The site is located at 3 Selkirk Street (K1L 8E3), in the City of Ottawa and will be comprised by three (3) Phases. Phase II is approximately 0.339ha and is bound by North River Road to the west and by Selkirk Street to the south. Refer to **Figures 1** and **2** following this report and site photographs in **Appendix A**.

3.0 Site Proposal

The proposed site (Phase II) will be a residential development with a total area of 0.339 hectares, comprised by one (1) ownership. More specifically, Phase II will consist of a 2 and 4-storey podium with above ground parking area and with a high-rise 32-storey tower (Tower B). It will be facilitated by one (1) underground parking level (P1 level) and will be comprised of 414 units. Please refer to **Appendix B** for proposed site plan and building site statistics.

The proposed site will be part of a greater development which will consist of three (3) Phases, as per Functional Servicing and Stormwater Management Report of 2 Montreal Road & 300 Montgomery Street - FSR SWM Report, submitted and approved on September 28, 2022.

4.0 Terms of Reference and Methodology

4.1. Terms of Reference

The following references and technical guidelines were consulted in the present study:

- **City of Ottawa Servicing Study Guidelines**, online edition,
- **City of Ottawa Sewer Design Guidelines**, (2025),
- **City of Ottawa Design Guidelines – Water Distribution**, (2026),
- **Technical Bulletin ISTB-2018-2**;
- **Ministry of Environment, Conservation and Parks (MECP) Guidelines for the Design of Water Systems** (2008)
- **MECP Guidelines for the Design of Sanitary Sewage Systems** (2008)
- **MECP Stormwater Planning and Design Manual** (2003)
- **Ontario Building Code** (2024).

4.2. Methodology: Stormwater Drainage and Management

This report provides a detailed Stormwater Management (SWM) review of the pre-development and post-development conditions and comments on opportunities to reduce peak flows, as per the City of Ottawa guidelines.

The stormwater management criteria for this development are based on the City of Ottawa Sewer Design Guidelines, as well as the Ministry of Environment, Conservation and Parks (MECP) 2003 Stormwater Management Planning and Design Manual (SWMPD). The following design criteria will be reviewed:

- Post-development peak flow for the 100-year storm event from the site should be controlled to the 5-year target flow. A 20-minute time of concentration and a 10 min inlet time derived from City of Ottawa IDF curves, were considered for connection to a dedicated storm sewer;
- For connection to a dedicated storm sewer, when the imperviousness of the existing property is greater than 50%, the maximum value of the runoff coefficient, “c”, used in calculating the pre-development peak runoff rate is limited to 0.50;
- A safe overland flow will be provided for all flows in excess of the 100-year storm event.

4.3. Methodology: Sanitary Discharge

The sanitary sewage discharge from the site will be determined using sanitary sewer design sheets that incorporate the land use and building statistics as supplied by the design team. The calculated values provide peak sanitary flow discharge that considers infiltration.

The estimated sanitary discharge flows from the proposed site will be calculated based on the criteria shown **Table 4-1**. (Sections 4 and 6 of the City of Ottawa Sewer Design Guidelines).

Table 4-1 – Sanitary Design Criteria

Design Parameter	Value
Residential Units (1-Bedroom)	1.4 people/unit
Residential Units (2-Bedroom)	2.1 people/unit
Residential Units (3-Bedroom)	3.1 people/unit
Average Daily Residential Flow	280 L/person/day
Residential Peak Factor	$PF = 1 + ((14/(4+(P/1000)^{1/2})) * K$
Commercial Floor Space	28000 L/ha/day
Commercial Peaking Factor	1.5 if commercial contribution >20%, otherwise 1.0
Infiltration and Inflow Allowance	0.28 L/s/ha
Sanitary sewers are to be sized employing the Manning's Equation	$Q = \frac{1}{n} AR^{2/3} S^{1/2}$
Minimum Manning's 'n'	0.013
Minimum Depth of Cover	1.5 m from crown of sewer to grade
Minimum Full Flowing Velocity	0.6 m/s
Maximum Full Flowing Velocity	3.0 m/s

4.4. Methodology: Water Usage

The fire flow requirements were estimated using the method prescribed by the Fire Underwriters Survey (FUS). This method is based on the floor area of the building to be protected, the type and combustibility of the structural frame and the separation distances with adjoining building units.

Part 3 of the City Design guidelines for water distribution provides guidance for determining the method for estimating Fire Demand. As indicated, the requirements for levels of fire protection on private property are covered in the Ontario Building Code. Section 7.2.11 of the OBC addresses the installation of water service pipes and fire service mains. Part 3 of the OBC outlines the requirement for Fire Protection, Occupant Safety, and Accessibility; and subsection A-3.2.5.7 provides the provisions for firefighting.

Based on trained personnel responding to the emergency, and water supply being delivered through a municipal, the required minimum provision for water supply flow rates shall not be less than 2,700L/min or greater than 9,000L/min (OBC Section A.3.2.5.7, Table 2). The City of Ottawa was contacted in February 2021 to obtain boundary conditions based on an estimated water demand.

The domestic water usage was calculated based on the City of Ottawa Guidelines – Water Distribution outlined in [Table 4-2](#) that follows.

Table 4-2 – Water Usage

Design Parameter	Value
Average Residential Day Demand	280 L/person/day
Maximum Residential Day Demand	2.5 x Average Day Demand
Maximum Residential Hour Demand	2.2 x Max Day Demand
Average Commercial Day Demand	2.5 L/m ² /d
Maximum Commercial Day Demand	1.5 x Average Day Demand
Maximum Commercial Hour Demand	1.8 x Max Day Demand
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
During Peak Hour Demand desired operating pressure is within	350kPa and 480KPa
Minimum pressure during normal operating conditions (average day to maximum hour demand)	275kPa
During normal operating conditions, pressure must not exceed	552kPa
Minimum pressure during fire flow plus maximum day demand	140kPa

5.0 Stormwater Management and Drainage

5.1. Existing Conditions

The existing total site area is currently occupied by one (1) single-storey commercial building with outdoor parking area.

According to available records, there are two (2) storm sewers abutting the subject property. More specifically:

- A 300mm diameter storm sewer on North River Road flowing north; and
- A 300mm diameter storm sewer on Selkirk Street flowing east.

Phase II drains towards Selkirk Street. No external areas drain towards the subject property. Under major storm events, storm flow from the property is directed overland towards North River Road and Selkirk Street.

The existing site is primarily covered by impermeable areas, thus there is no significant infiltration onsite. Although the existing run-off composite coefficient is estimated at 0.90, the City of Ottawa Guidelines require target flow calculations based on a run-off coefficient of 0.50.

Table 5-1 shows the input parameters for Phase II which are illustrated on the pre-development drainage area plan in **Figure DAP-1** in **Appendix C**.

Table 5-1 – Target Input Parameters – Phase II

Catchment	Drainage Area (ha)	Actual "C"	Design "C"	Tc (min.)
A1 Pre (Phase II)	0.339	0.90	0.50	20

Peak flows calculated for the existing conditions for Phase II are shown in **Table 5-2**. Detailed calculations can be found in **Appendix C**.

Table 5-2 – Target Peak Flows – Phase II

Catchment	Peak Flow Rational Method (L/s)		
	2-year	5-year	100-year
A1 Pre (Phase II)	24.5	33.1	56.5

As shown on **Table 5-2**, post-development flows from Phase III towards Selkirk Street will need to be controlled to the target flows of 33.1 L/s.

5.2. Proposed Conditions

In order to meet the City's Stormwater Management criteria, the development flow rate is to be controlled to the five (5)-year target flow established in **Section 5.1**. Overland flow from the site will be directed towards the adjacent public right-of-ways (ROWs).

Phase II consists of three (3) internal drainage areas:

1. A1 Post (Phase II) – Storm runoff from the rooftops and terraces of Tower B, the Podium's terraces and walkways, controlled in the underground storage tank located into P1 level on the south-east side of the property,
2. A2 Post (Phase II) – Storm runoff from the driveway of Tower B, controlled in the underground storage tank located into P1 level on the south-east side of the property;
3. A3 Post (Phase II) – Storm runoff, draining uncontrolled towards the public ROW; and,

The post-development drainage areas and runoff coefficients for Phase II are indicated in **Figure DAP-2**, located in **Appendix C** and summarized in **Table 5-3** below.

Table 5-3 – Post-development Input Parameters – Phase II

Drainage Area	Drainage Area (ha)	Drainage Area Atot (ha)	"C"	Tc (min.)
A1 Post (Rooftops/Terraces/Walkways)	0.246	0.339	1.00*	10
A2 Post (Driveway/Walkways)	0.092		0.98*	10
A3 Post (Uncontrolled)	0.001		1.00*	10

5.2.1. Quantity Controls

Using the City's intensity-duration-frequency (IDF) data, modified rational method calculations were undertaken to determine the maximum storage required during each storm event. Results for the 2, 5, and 100-year storm events are provided in **Table 5-4** below. The detailed post-development quantity control calculations are provided in **Appendix C**.

Table 5-4 - Post-development Quantity Control as Per City Requirements – Phase II

Storm Event	Target Controlled Release Rate (L/s)	Uncontrolled Flow (L/s)	Required Storage Tank Volume (m ³)	Groundwater Release Rate (L/s)	Total Controlled Release Rate of the Tank (L/s)	Total Site Release Rate (L/s)
2-year	33.1	0.3	41.2	1.0	17.5	18.8
5-year		0.4	58.4	1.0	20.8	22.2
100-year		0.7	132.4	1.0	31.4	33.1

As shown in **Table 5-4** in order to control post-development flows to the 5-year pre-development conditions, a target flow of 33.1 L/s is to be satisfied. The required on-site storage is accommodated by one (1) underground storage tank, located at P1 level. **Table 5-4** illustrates the minimum required storage to be retained on-site, which is 132.4 m³ for the 100-year storm event.

The stormwater flow released from the rooftops and terraces of Tower B, the Podium's terraces, walkways and driveway (**Drainage Areas A1 Post and A2 Post**) will be gravity driven into the underground storage tank at the south side of the property, located at P1 Level. Please refer to engineering drawing **Site Servicing Plan Phase II (SS-01)** submitted separately) for details.

5.2.2. Underground Storage Tank

An underground storage tank is proposed to meet the quantity control requirements, set forth by the City's WWFMG Guidelines. Controlled stormwater flows from the rooftops and terraces of Tower B, the Podium's terraces, walkways and driveway (**Drainage Areas A1 Post and A2 Post**) will be gravity driven into the proposed underground storage tank located at P1 level.

The proposed underground storage tank for Phase II will have an active storage depth of 1.21m above the inlet of the outlet pipe, accounting for a quantity control maximum storage of 132.4 m³, during the hundred - year storm event. Stormwater from the underground storage tank will outlet through a **100mm diameter orifice tube** with a maximum release rate of 31.4 L/s and will be gravity driven to the existing 300mm diameter storm sewer along Selkirk Street.

The proposed storage tank will have a total footprint area of 109.8 m². Refer to **Figure 3**, included in **Appendix C**, for the minimum tank design requirements. Additional details of the tank design will also be provided by the mechanical engineer at detailed design stage.

A maximum control stormwater release rate from the storage tank of 31.4 L/s, along with the uncontrolled storm flows' release rate of 0.7 L/s (**Drainage Area A3 Post**), and a pumped groundwater flow of 1.0 L/s results to a post-development total release rate of 33.1 L/s, for the 100-year event. For over 100-year storm events, the storm tank will also include a perforated access hatch and in case of emergency will overflow towards the adjacent right-of-way (ROW).

Consequently, the proposed SWM plan retains enough runoff volume, to reduce the post-development peak flows for each storm event to the extent possible and approach the required target flow.

5.2.3. Major Overland Flow Route and Emergency Overland Flow Route

Grading design and stormwater management techniques for this property have been designed to maintain as much as possible the existing storm minor and major drainage patterns, improve the existing servicing conditions and provide flood protection of the proposed development, during all storm events.

Existing Conditions

Under existing conditions, storm flow from the property drains towards Selkirk Street. Under major storm events, storm flow from the property is directed overland towards Selkirk Street.

Proposed Conditions

Under proposed conditions, the grading design has been prepared to maintain the existing major overland flow route to the extent possible.

More specifically, for storm flows over a 100 - year event or under a catch basin clogging condition, the west side of the site area will drain overland towards North River Road, while the southeast portion of the property (driveway area) will drain overland towards Selkirk Street. Please refer to engineering drawing **Site Grading Plan (SG-01)**, submitted separately).

In addition, according to our stormwater management calculations (found in **Appendix C**) the 100-year elevation obtained within the underground storage tank is calculated at 55.78 m, which is translated into a water elevation of minimum 0.57 m below the top of the proposed catch basins and trench drain. Please refer to engineering drawings **Site Servicing Plan – Phase II** and **Servicing Sections (SS-01 and SS-02)** drawings, submitted separately). Hence, no surface ponding occurs on site under the 2-year, 5-year and 100-year storm events.

Furthermore, grading plan has been to ensure emergency overland flow from the property will be directed towards Selkirk Street and North River Road, without impacting any portion of the buildings' envelope. More specifically, for all events up to the stress-test event (100 – year +20%), spill elevations along North River Road and Montgomery Street will have a minimum of 5cm vertical clearance from any portion of the building envelope. Please refer to **Site Grading Plan – Phase II (SG-01)** drawing, submitted separately) and **Figure 4**, found in **Appendix C**.

Therefore, the proposed development's grading design has been designed to secure a safe overland flow route direction for all events over the stress test event (100yr + 20%).

5.2.4. Quality Control

For MECP Enhanced Level protection, the removal of 80% total suspended solids (TSS) is required. Stormwater discharged from the proposed development's rooftop area that will not be polluted by car waste, is considered "clean" and will be driven into the underground storage tank. Contaminated water from the Driveway Area, will be driven into the manufactured treatment device (Stormfilter SFPD 0608 with four (4) 12 in perlite cartridges) before being pumped into the storage tank at the south east portion of the site. The detailed quality control calculations can be found in **Appendix C**. A summary of the site quality control is included in **Table 5-5** below.

Table 5-5 – Site TSS Removal – Phase II

Drainage Area	Drainage Area (ha)	% Area of Controlled Site	Effective TSS Removal	Additional Quality Control Required
Rooftops/Terraces/Walkways	0.264	73%	80%	Inherent
Driveway Area	0.092	27%	80%	SFPD 0608 with 4 perlite cartridges
Total	0.338	100%	-	-

5.2.5. Proposed Storm Connection

Phase II will connect to the existing 300mm diameter storm sewer along Selkirk Street via a 200 mm diameter storm sewer service connection with a minimum grade of 1.00% (or equivalent pipe design). Refer to engineering drawing "**SS-03**" (submitted separately) for details.

The post-development 100-year storm flow has been designed to match the five (5)-year pre-development storm flow. Therefore, this development will not adversely affect flow conditions downstream and the existing infrastructure on Selkirk Street will be adequate to service this development.

Flows above the 100-year event will be conveyed within pipes and overland to the adjacent municipal right-of-way (ROW). Refer to engineering drawing **Site Grading Plan - Phase II (SG-01)** drawing submitted separately) for overland flow in excess of the 100-year storm event.

5.2.6. Phases I, III and Parkland Area

Phase I

For Phase I, in order to control post-development flows to the 5-year pre-development conditions, a target flow of 77.6 L/s is to be satisfied, as per the 2 Montreal Road & 3 Selkirk Street-FSR SWM Report, approved on September 28, 2022. The required on-site storage is accommodated by the use of one (1) suspended underground storage tank, located at P1 level. The controlled and uncontrolled storm flows, along with the groundwater discharge release rate, result into a post-development total release rate of 77.1 L/s, for the 100-year event.

An oil & grit treatment device (SFPD 0816 with twenty – nine (29) 18in perlite cartridges) has been installed to receive and clean storm flows from the driveway area, which is polluted by car waste. Please refer to engineering drawing **Site Servicing Plan Phases I-II-III ("SS-03")**, submitted separately) for details.

Phase I is serviced by a 200mm storm sewer connection towards to the existing 450mm diameter storm sewer along Montgomery Street with an approximate grade of 1.00%. Please refer to engineering drawing **Site Servicing Plan Phases I-II-III ("SS-03")**, submitted separately) for details.

Phase III

For Phase III, in order to control post-development flows to the 5-year pre-development conditions, a target flow of 36.9 L/s is to be satisfied, as per the 2 Montreal Road & 3 Selkirk Street-FSR SWM Report, approved on August 19, 2025. The required on-site storage is accommodated by the use of one (1) underground storage tank, located at the south side of the property. The controlled and uncontrolled storm flows, along with the groundwater discharge release rate, result into a post-development total release rate of 33.6 L/s, for the 100-year event.

Phase II is serviced by a 200 mm diameter storm sewer service connection to the existing 300mm diameter storm sewer along Selkirk Street with an approximate grade of 1.00%. Please refer to engineering drawing **Site Servicing Plan Phases I-II-III ("SS-03")**, submitted separately) for details.

Parkland Dedication Area

As per the 2 Montreal Road & 3 Selkirk Street-FSR SWM Report approved on September 28, 2022, under post-development conditions storm flow from the Parkland Dedication area decreases significantly, as the C value of this site has reduced from paved surface (0.9) to grass area (0.25). Hence, as far as stormwater management is concerned, no other measures are required for the Parkland Dedication Area. Storm flow from the site will be running uncontrolled towards Selkirk Street, as the target release rate of 28.2 L/s for the subject parkland is achieved.

6.0 Sanitary Drainage System

6.1. Existing Sanitary Drainage System

The existing site is comprised of one (1) single-storey commercial building with parking area. According to available records, there is one (1) sanitary sewer abutting the subject property and more specifically, a 1950mm diameter trunk sewer on North River Road flowing north.

6.2. Existing Sanitary Flows

The sanitary flow generated by the proposed development of Phase II of the Riverain development was compared to the existing flow in order to quantify the net increase in the sanitary sewer.

Using the design criteria outlined in [Section 4.3](#) and existing site information, the sanitary discharge flow from the total existing site towards the existing 600mm diameter sanitary sewer along Montreal Street, which is upstream of the existing 1950mm diameter sanitary trunk sewer along North River Road, is estimated at 0.84 L/s.

6.3. Proposed Sanitary Flows

6.3.1. Sanitary Flows

According to the 2 Montreal Road & 3 Selkirk Street-FSR SWM Report approved on September 28, 2022, Tower A (Phase I) and Tower C (Phase III) were estimated to discharge a sanitary flow of 6.27 L/s and 6.44 L/s to the existing sanitary network along Montgomery Street, respectively, while Tower B (Phase II) was estimated to discharge 7.60 L/s to the existing sanitary network along North River Road.

Using the design criteria and the proposed development statistics to calculate the proposed population, Tower B (Phase II) will discharge a sanitary flow of 6.53L/s ($6.53\text{L/s} < 7.60\text{L/s}$) to the existing sanitary network along North River Road. The total net sanitary flow from the proposed development to the connected municipal sanitary network is estimated at 19.21 L/s. For detailed calculations refer to the sanitary sewer design sheets in [Appendix D](#).

6.4. Proposed Sanitary Connections

The proposed development (Phase II) will connect to the existing 1950mm diameter trunk sanitary sewer on North River Road via a 200mm diameter lateral. The municipal service connection will be at a minimum grade of 2.00% (or equivalent pipe design).

Phases I, III and Parkland Area

Tower A (Phase I) has been connected to the existing 250mm diameter sanitary sewer on Montgomery Street via a 200mm diameter lateral while Tower C (Phase III) has been connected to the existing 250mm diameter sanitary sewer on Montgomery Street via a 200mm diameter lateral at a grade of 2.00% and 1.00% respectively.

The parkland dedication area will connect to the existing 200mm diameter sanitary sewer on Selkirk Street via a 200mm diameter lateral of a minimum grade of 2.00% (or equivalent pipe design).

Refer to engineering drawings [Site Servicing Plan-Phase II](#) and [Site Servicing Plan-Phase I-II-III \(SS-01 and SS-03\)](#), submitted separately) for details.

6.5. Conclusions

After taking into consideration all the above, we provided the required calculations to the City, in order to review how the additional flow from the proposed development will affect the municipal networks downstream. According to the information provided, the sanitary sewer infrastructure along Montgomery Street and Selkirk Street has adequate capacity to accommodate the total additional flows of 19.21 L/s from the proposed development and, thus, they can support it. Refer to [Appendix B](#) for email correspondence with the City.

Considering the fact that the proposed sanitary flow of 6.53 L/s for Phase II is smaller than the approved by the City (7.60 L/s), the municipal sanitary infrastructure will be able to accommodate the subject proposed flow. For detailed calculations refer to the sanitary sewer design sheet in [Appendix D](#).

7.0 Groundwater Flows

Phase II of the proposed development will be serviced by one (1) underground parking level and the lowest basement slab design depth will be approximately 4.0 m below surface or 52.8 masl (FFE of P1 Level). Based on the Hydrogeological Report prepared by Paterson Group dated July 22, 2022 (can be found in [Appendix B](#)) the building and basement level will be founded above the long-term groundwater table, which ranges between 6m to 7m deep.

According to the Geotechnical Investigation prepared by Paterson Group dated March 26, 2022 water carried by the foundation and underfloor drainage system will generally consist of surface water and will not consist of groundwater/long-term dewatering of the groundwater table. Under post-remediation process, the water collected by the foundation drain, should be 'clean' by the time it will be discharged into the City's storm sewer network via a sump pit. Therefore, no treatment should be necessary. The record of site condition can be found in [Appendix B](#).

7.1. Short-Term Groundwater Dewatering

According to the Hydrogeological Report prepared by Paterson Group dated July 22, 2022 (can be found in [Appendix B](#)) site dewatering during construction is estimated at more than 2,000 m³/day, translated into 2,000,000 L/day. Detailed information regarding the short-term groundwater discharge rate for Phase III will be provided on a later stage.

7.2. Long-Term Groundwater Dewatering

Phase II will have one (1) underground level and the lowest basement's elevation will be approximately 4.0m below surface or 52.80 masl (FFE of P1 Level) below grade elevation. According to the Geotechnical Investigation prepared by Paterson Group dated March 26, 2022, (can be found in [Appendix B](#)) it is recommended that 150mm diameter sleeves at 3m centres be cast in the footing or at the foundation wall/footing interface to allow the infiltration of water to flow to the interior perimeter drainage pipe.

The sleeves should be connected to openings in the HDPE face of the drainage board layer. The perimeter drainage pipe and underfloor drainage system should direct water to sump pit(s) within the lower basement area.

Groundwater sump pump will be sized, based on the estimated long-term discharge rate of 30,000 L/day due to surface water infiltration, as per the Geotechnical Investigation prepared by Paterson Group dated March 26, 2022, which can be found in [Appendix B](#). Assuming that the groundwater pump will run for approximately 8 hours per day, the peak groundwater discharge rate is estimated at 1.0 L/s.

8.0 Water Supply System

8.1. Existing System

The subject property lies within the City of Ottawa 1E pressure zone. The existing watermain system abutting the proposed development consists of a 200 mm diameter watermain on the east side of North River Road and a 150 mm diameter watermain on the centerline of Selkirk Street.

8.2. Proposed Water Supply Requirements

The estimated water consumption was calculated based on the occupancy rates shown on [Table 4-2](#), according to the City's watermain design criteria.

It is anticipated that an average domestic water consumption of approximately 1.92 L/s (165,888 L/day), a maximum daily consumption of 5.28 L/s (456,192L/day) and a peak hourly demand of 7.94 L/s (28,584 L/hr) will be required to service Phase II.

The fire flow requirements we estimated using the method prescribed by the Fire Underwriters Survey (FUS) be undertaken to assess the minimum requirement for fire suppression. The fire flow calculations are normally conducted for the largest storey, by area, and for the two immediately adjacent storeys.

As a result to the above-mentioned method, we have selected the total area of Level 4 and the immediately adjoining storeys, which are Levels 3 and 5.

Table 8-1 below illustrates the input parameters used for the FUS calculations. According to our calculations, a minimum fire suppression flow of approximately 83.33 L/s (1,321 USGPM) will be required to service Tower B (Phase II). Detailed calculations can be found in **Appendix E**.

Table 8-1 - Fire Flow Input Parameters – Tower B (Phase II)

Parameter	Frame used for Building	Combustibility of Contents	Presence of Sprinklers	Separation Distance			
				North	East	South	West
Value according to FUS options	Non-Combustible Construction	Limited-Combustible	Yes	0.0m to 3m	20.1m to 30m	Road	Road
Surcharge/reduction from base flow	0.8	15%	30%	25%	10%	0%	0%

In summary, the required design flow is the sum of ‘the minimum fire suppression flow’ and ‘maximum daily demand’ ($83.33 + 5.28 = 88.61$ L/s, 1,405 USGPM).

Table 8-2 below summarizes the anticipated water demand for Phase II on the City of Ottawa Guidelines – Water Distribution.

Table 8-2 – Water Demand – Tower B (Phase II)

Design Parameter	Anticipated Demand (L/min)
Average Day Demand	141
Max Day + Fire Flow	$387.6 + 4,999.8 = 5,387.4$
Max Hour Demand	582

Phases I and III

According to the 2 Montreal Road & 3 Selkirk Street and 300 Montgomery Street-FSR SWM Reports, approved on September 28, 2022 and August 19, 2025 respectively, were estimated with a required design flow of approximately 121.86 L/s (1,932 USGPM) and 72.12 L/s (1,143 USGPM), respectively.

8.3. Watermain Analysis Results

Upon completion of the detailed calculations in order to determine the anticipated domestic water consumption and the required minimum fire flow for the proposed development, the calculation results were provided to the City of Ottawa. As a result, the above noted values were used to generate the municipal watermain network boundary conditions.

Table 8-3 that follows summarizes the boundary conditions provided by the City of Ottawa for the existing municipal watermain network along Selkirk Street.

Table 8-3– Boundary Conditions Provided by the City

Municipal Watermain Boundary Condition	Selkirk Street (Phase II)
Minimum HGL	109.5
Maximum HGL	118.4

Table 8-4 summarizes the calculated water demands for the proposed development under the various operating conditions and compares the anticipated operating pressures at the watermains to the normal operating pressures outlined in the City of Ottawa Design Guidelines.

Table 8-4- Watermain Analysis Results – Domestic Flow

Watermain Connection	Design Parameter	Anticipated Demand (L/s)	Approximate Design Operating Pressures (psi) / Relative Head (m)	Normal Municipal Operating Pressures (psi)
Selkirk Street – Phase II	Average Demand	1.92	88 psi (61.6m)	50-70 psi
	Peak Hour Demand	7.94	75 psi (52.7m)	40-70 psi
	Max Day + Fire Flow	88.61	75 psi (52.7m)	20 psi (min)

According to **Table 8-4** and the information provided by the City of Ottawa, the water pressure for the average demand result in greater values than the maximum allowed by the City's Guidelines. Hence, pressure reducing valves are required, as well as a pressure check at the completion of construction to determine whether a pressure control is required for the proposed development at 3 Selkirk Street.

Table 8-5- Watermain Analysis Results – Fire Flow Phase II

Watermain Connection	Required Fire Flow (L/s)
Selkirk Street – Phase II	88.61

Taking into consideration the fact that the current maximum daily consumption has been reduced in comparison to the maximum daily consumption of the latest boundary condition, as well as the result indicated in **Table 8-5**, the required fire flow along Selkirk Street, is lesser than the available fire flow of the corresponding. Thus, the existing water infrastructure will be able to support Phase II of the proposed development. The boundary conditions and the multi hydrant analysis results received by the City of Ottawa can be found in **Appendices B and E**.

As far as the sufficiency of the fire hydrants is concerned, **Table 8-6** below represents the available fire flow at 20 psi, as per Table 1 of the Technical Bulletin ISTB 2018-02 of the existing fire hydrants in the adjacent roads of the proposed development.

As displayed in **Figure 5** (found in **Appendix E**), the proposed buildings are within a radius of 75m of at least one Class-AA fire hydrant. According to **Table 8-6** the existing fire hydrants are adequate to service the fire flow demand for the proposed development.

Table 8-6 – Fire flow requirements and Available Fire Flow

Building	Fire Flow Demand (L/min)	Fire Hydrants in a distance ≤75m / Hydrant Class	Fire Hydrants in a distance >75m and ≤150m / Hydrant Class	Maximum Available Fire Flow per Table 1 of ISTB 2018-2 (L/min)	Available Fire Flow according to the information provided by the City of Ottawa (L/min)
Tower B	5,000	2 – Class AA	3– Class AA	11,400	7,095

8.4. Proposed Watermain Connection

Phase II will be serviced by two (2) 150 mm diameter water laterals, which will connect to the 150mm diameter existing watermain on Selkirk Street. Refer to engineering drawing **Site Servicing Plan-Phase III (SS-01)** drawing submitted separately) for details.

Phases I, III and Parkland Area

The water lateral of Phase I is connected to the 150mm diameter existing watermain on Montgomery Street while the water laterals for Phase III will connect to the 150mm diameter existing watermain on Selkirk Street and to the 150mm diameter existing watermain on Montgomery Street. The Parkland Dedication Area will be connected to the 150mm diameter existing watermain on Selkirk Street via a 50mm diameter waterline. According to City standards, the watermains are insulated. Refer to engineering drawing **Site Servicing Plan-Phase I-II-III (SS-03)** drawing, submitted separately) for details.

9.0 Erosion and Sediment Control

Soil erosion occurs naturally and is a function of soil type, climate topography. The extent of erosion losses is exaggerated during construction where vegetation has been removed and the top layer of soil becomes agitated.

Prior to topsoil stripping, earthworks or underground construction, erosion and sediment controls will be implemented and will be maintained throughout construction.

Silt fence will be installed around the perimeter of the site and will be cleaned and maintained throughout construction.

Catch basins will have filter fabric installed under the grate during construction to protect from silt entering the storm sewer system.

A mud mat will be installed at the construction access in order to prevent mud tracking onto adjacent roads.

Erosion and sediment controls must be in place during construction. The following recommendations to the contractor will be included in contract documents.

- Limit extend of exposed soils at any given time.
- Re-vegetate exposed areas as soon as possible.
- Minimize the area to be cleared and grubbed.
- Protect exposed slopes with plastic or synthetic mulches.
- Install silt fence to prevent sediment from entering existing ditches.
- No refueling or cleaning of equipment near existing watercourses.
- Provide sediment traps and basins during dewatering.
- Install temporary silt sack type sediment traps at catch basins.
- Plan construction at proper time to avoid flooding.

Establish material stockpiles away from watercourses, so that barriers and filters may be installed.

The contractor will, at every rainfall, complete inspections and guarantee proper performance. The inspection is to include:

- Verification that water is not following under silt barriers.

- Clean and change silt sack type sediment traps at catch basins.

10.0 Site Grading

10.1. Existing Grades

The existing site is approximately 1.693 hectares and is currently occupied by one (1) single-storey commercial building and by outdoor parking area. Moreover, it is located between North River Road, Selkirk Street, Montgomery Street and Montreal Road, in the City of Ottawa. The site drains into the existing stormwater system inside the property and overland towards the adjacent right of ways (ROW).

10.2. Proposed Grades

The proposed grades will improve the existing drainage conditions to meet the City's/Regional requirements. Grades will be maintained along the property line wherever feasible and emergency overland flow will be directed towards the public ROWs. Existing drainage patterns on adjacent properties will not be altered and stormwater runoff from the subject development will not affect the adjacent properties.

11.0 Conclusions and Recommendations

Based on our investigation, we conclude the following:

Storm Drainage

The subject property will be constructed under Phase II of the proposed development. More specifically, Phase II will consist of a 2 and 4-storey podium with above ground parking area and with a high-rise 32-storey tower (Tower B). In addition, Phase II will be facilitated by one underground parking level (P1 level). Stormwater flow from Phase II will be discharged into the existing 300mm diameter storm sewer on Selkirk Street, through one (1) 200mm diameter storm connection with a minimum grade of 1.00% (or equivalent design).

Post-development storm flows from the proposed development (Phase II), will meet the 5-year pre-development flow. In order to achieve the target flows and meet the City's Regulations, quantity controls will be utilized up to 132.4 m³ of total on site storage will be required for Phase II.

The stormwater management (SWM) system will be designed to provide enhanced level (Level 1) protection as specified by the Ministry of the Environment, Conservation and Parks (MECP). Quality control will be provided for the subject site by rooftops/terraces for a minimum total suspended solids (TSS) removal of 80%.

Sanitary Sewers

Phase II will consist of a 2 and 4-storey podium with above ground parking area and with a high-rise 32-storey tower (Tower B). The proposed development (Phase II) will be serviced by one (1) 200mm diameter sanitary lateral connection to the 1950mm diameter trunk sanitary sewer on North River Road, with a minimum grade of 2.00% (or equivalent design).

The additional discharge flow from the proposed development (Phase II) towards the sanitary network, is anticipated at approximately 6.53 L/s. According to the information provided by the City, the existing infrastructure has the capacity to support the additional sanitary flow, from the proposed development.

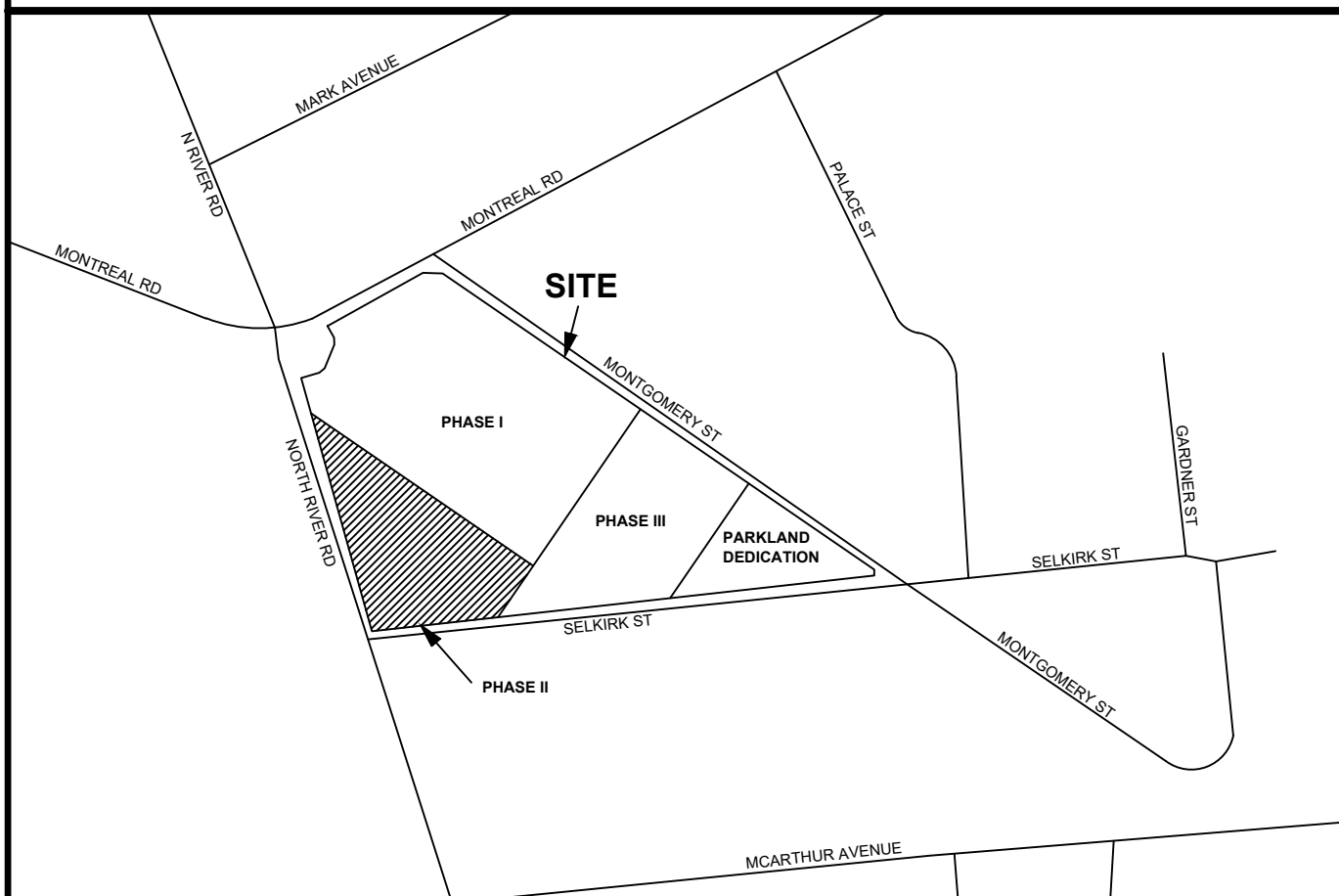
Water Supply

Water supply for the proposed development (Phase II) will be provided by two (2) water connections towards the existing 150 mm diameter watermain running along the centerline of Selkirk Street.

It is anticipated that a total design flow of 88.61 L/s will be required to support Phase II. Based on the boundary conditions received from the City, it is revealed that the existing water infrastructure can support the proposed development.

Site Grading

The proposed grades will improve the existing drainage conditions to meet the City's/Regional requirements. Grades will be maintained along the property line wherever feasible and emergency overland flow will be gravity driven to the adjacent right-of-way's (ROW).



150 Bermondsey Road, Toronto, Ontario, M4A-1Y1

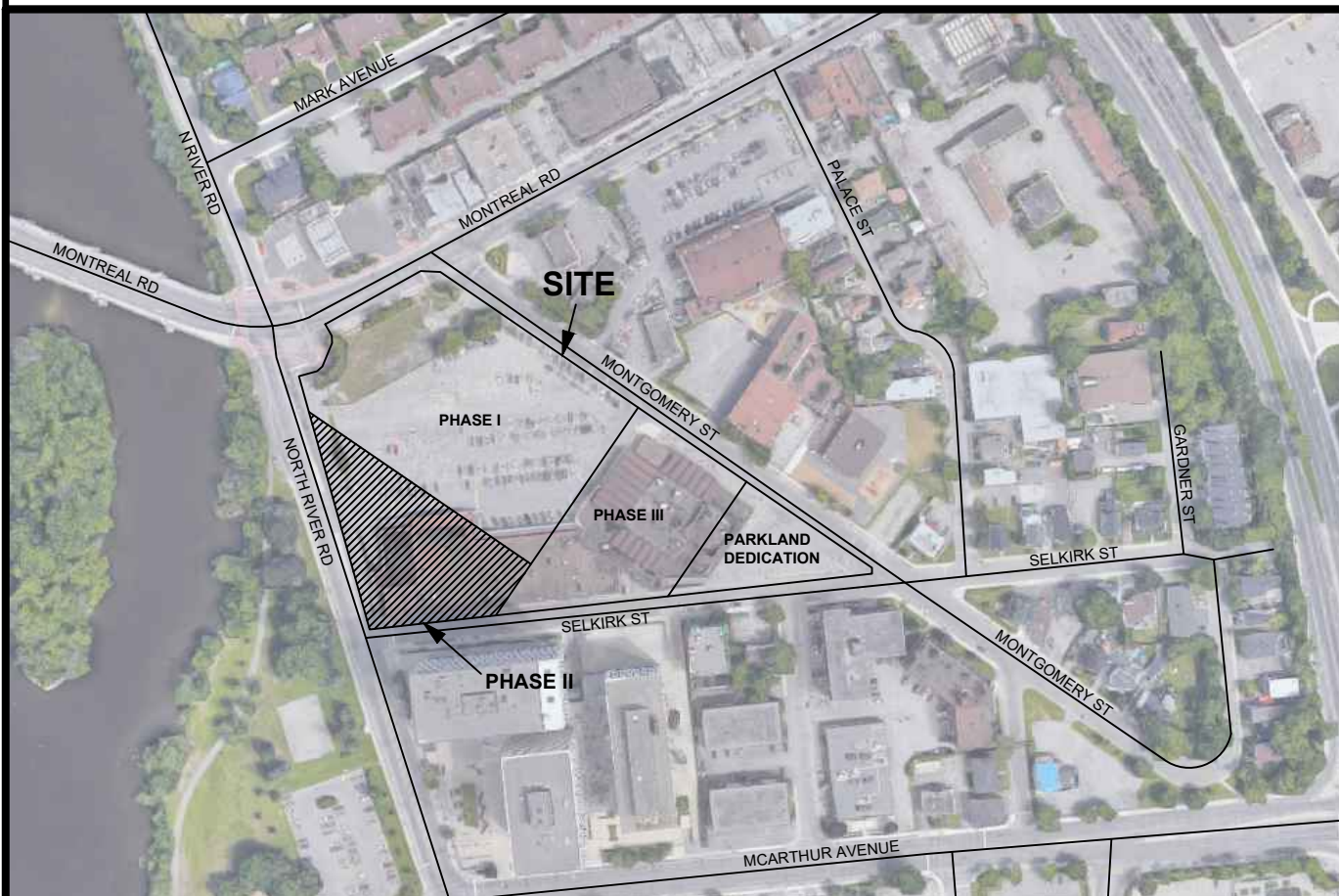
LOCATION PLAN
RESIDENTIAL USE DEVELOPMENT
3 SELKIRK STREET
OTTAWA, ONTARIO

DATE: JULY 2026

SCALE: N.T.S.

PROJECT No: UD25-052

FIGURE No: FIG 1



AERIAL PLAN
RESIDENTIAL USE DEVELOPMENT
3 SELKIRK STREET
OTTAWA, ONTARIO

150 Bermondsey Road, Toronto, Ontario, M4A-1Y1

DATE: JULY 2026

SCALE: N.T.S.

PROJECT No: UD25-052

FIGURE No: FIG 2

Appendix A

Site Photographs



North-West Corner of Property – Facing South-East



North-East Corner of Property – Facing South-West



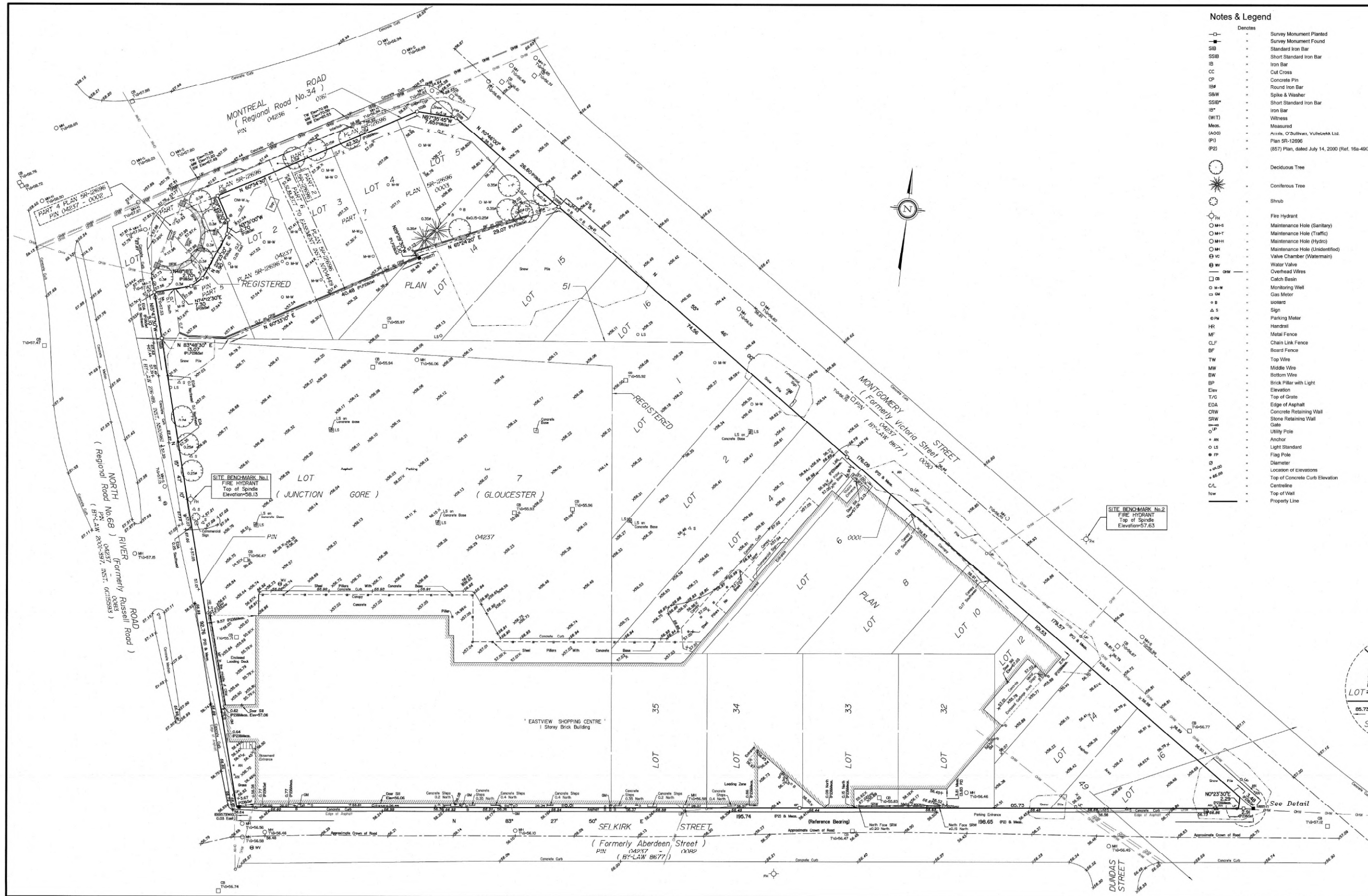
South-East Corner of Property – Facing North-West



South-West Corner of Property – Facing North-East

Appendix B

Background Information



- Notes & Legend**
- Densities**
- Survey Monument Planted
 - Survey Monument Found
 - SIB— Standard Iron Bar
 - SSIB— Short Standard Iron Bar
 - IB— Iron Bar
 - CC— Cut Cross
 - CP— Concrete Pin
 - RIB— Round Iron Bar
 - SAW— Spike & Washer
 - SSIB*— Short Standard Iron Bar
 - IB*— Iron Bar
 - (WIT)— Witness
 - Meas.— Measured
 - (AO)— Anns, O'Sullivan, Vollebakk Ltd.
 - (PI)— Plan SR-12096
 - (P2)— (857) Plan, dated July 14, 2000 (Ref. 16a-49GR)
- Deciduous Tree**
- Coniferous Tree**
- Shrub**
- Fire Hydrant**
- Maintenance Hole (Sanitary)**
- Maintenance Hole (Traffic)**
- Maintenance Hole (Hydro)**
- Maintenance Hole (Underside)**
- Valve Chamber (Watermain)**
- Water Valve**
- Overhead Wires**
- Catch Basin**
- Monitoring Well**
- Gas Meter**
- Isoland**
- Sign**
- Parking Meter**
- Handrail**
- Metal Fence**
- Chain Link Fence**
- Board Fence**
- Top Wire**
- Middle Wire**
- Bottom Wire**
- Brick Pillar with Light**
- Elev.**
- Top of Grate**
- Edge of Asphalt**
- Concrete Retaining Wall**
- Stone Retaining Wall**
- Gate**
- Utility Pole**
- Anchor**
- Light Standard**
- Flag Pole**
- Diameter**
- Location of Elevations**
- Top of Concrete Curb Elevation**
- Top of Wall**
- Centreline**
- Top of Wall**
- Property Line**

TOPOGRAPHICAL PLAN OF SURVEY OF

LOTS 2, 4, 6, 8, 10, 12, 14, 16, 32, 33, 34, 35 AND PART OF LOT 1 REGISTERED PLAN 49 AND

LOTS 14, 15, 16 AND PART OF LOTS 1, 2, 3, 4, AND 5 REGISTERED PLAN 51 AND

PART OF LOT 7 JUNCTION GORE

GEOGRAPHIC TOWNSHIP OF GLOUCESTER

CITY OF OTTAWA

Prepared by Anns, O'Sullivan, Vollebakk Ltd.
Field Work Completed March 6, 2020.

Scale 1 : 300

12 6 3 0 3 6 12 Metres

Metric

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

Surveyor's Certificate

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Land Titles Act and the regulations made under them.

2. The survey was completed on the 6th day of March, 2020.

Date: *March 12/20*

V. Anns, O'Sullivan, Vollebakk Ltd.
Ontario Land Surveyor

Bearing Note

Bearings are given, derived from the northerly limit of Selkirk Street having a bearing of N83°27'50"E as shown on a Plan by (857) dated July 14, 2000 and are referenced to the Central Meridian of MTM Zone 9 (18°31' West Longitude) NAD83 (original).

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum, derived from City of Ottawa benchmark No. 3465 having an elevation of 70.114 m above sea level.

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 its relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

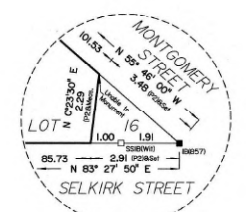
1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.

2. Only visible surface utilities were located.

3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

SITE AREA = 16931.9 m²

Topographic data was collected under Winter Conditions. Snow cover and ice preclude determining location and elevation of some topographical data that is otherwise visible.



Detail Scale 1:100

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2121743

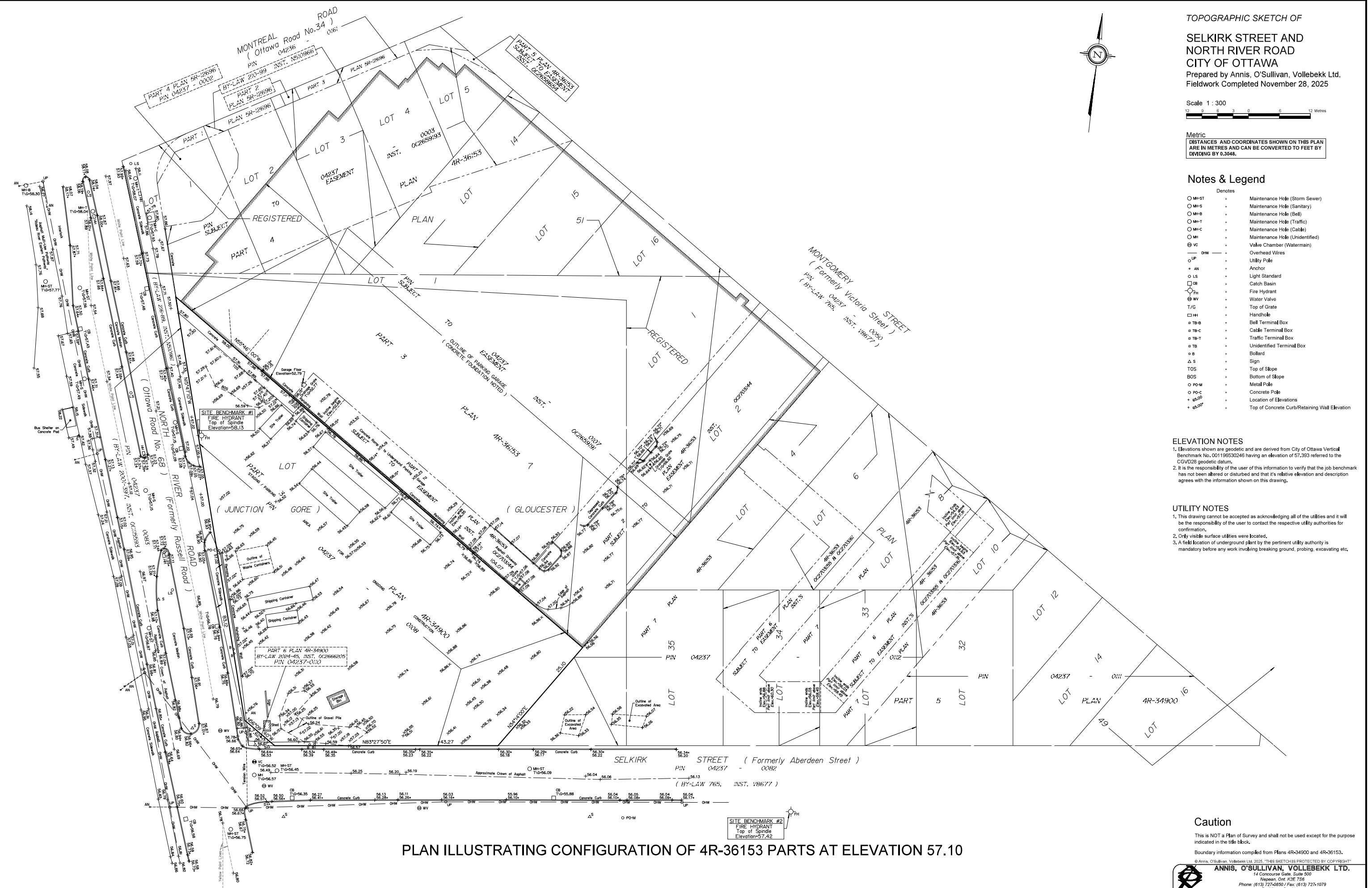
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ANNS, O'SULLIVAN, VOLLEBEKK LTD.

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Email: info@annso.com

Can. Pat. 2,093,201 / U.S. Pat. 5,335,840 / Int. Pat. 14, 895,117



TOPOGRAPHIC SKETCH OF

SELKIRK STREET AND
NORTH RIVER ROAD
CITY OF OTTAWA

Prepared by Annis, O'Sullivan, Vollebek Ltd.
Fieldwork Completed November 28, 2025

Scale 1 : 300
Metric
DISTANCES AND COORDINATES SHOWN ON THIS PLAN
ARE IN METRES AND CAN BE CONVERTED TO FEET BY
DIVIDING BY 0.3048.

Notes & Legend

Denotes	
○ MH-ST	Maintenance Hole (Storm Sewer)
○ MH-S	Maintenance Hole (Sanitary)
○ MH-B	Maintenance Hole (Bell)
○ MH-T	Maintenance Hole (Traffic)
○ MH-C	Maintenance Hole (Cable)
○ MH	Maintenance Hole (Unidentified)
⊗ VC	Valve Chamber (Watermain)
— OHW	Overhead Wires
○ LP	Utility Pole
• AN	Anchor
○ LS	Light Standard
□ CB	Catch Basin
○ FH	Fire Hydrant
⊗ WV	Water Valve
T/G	Top of Grate
□ HH	Handhole
⊗ TB-B	Bell Terminal Box
⊗ TB-C	Cable Terminal Box
⊗ TB-T	Traffic Terminal Box
⊗ TB	Unidentified Terminal Box
△ B	Bollard
△ S	Sign
TOS	Top of Slope
BOS	Bottom of Slope
○ PO-M	Metal Pole
○ PO-C	Concrete Pole
+ 45.50	Location of Elevations
+ 45.50	Top of Concrete Curb/Retaining Wall Elevation

ELEVATION NOTES

- Elevations shown are geodetic and are derived from City of Ottawa Vertical Benchmark No. 001196530246 having an elevation of 57.393 referred to the CGVD28 geodetic datum.
- It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that its relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

- This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
- Only visible surface utilities were located.
- A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Caution

This is NOT a Plan of Survey and shall not be used except for the purpose indicated in the title block.

Boundary information compiled from Plans 4R-34900 and 4R-36153.

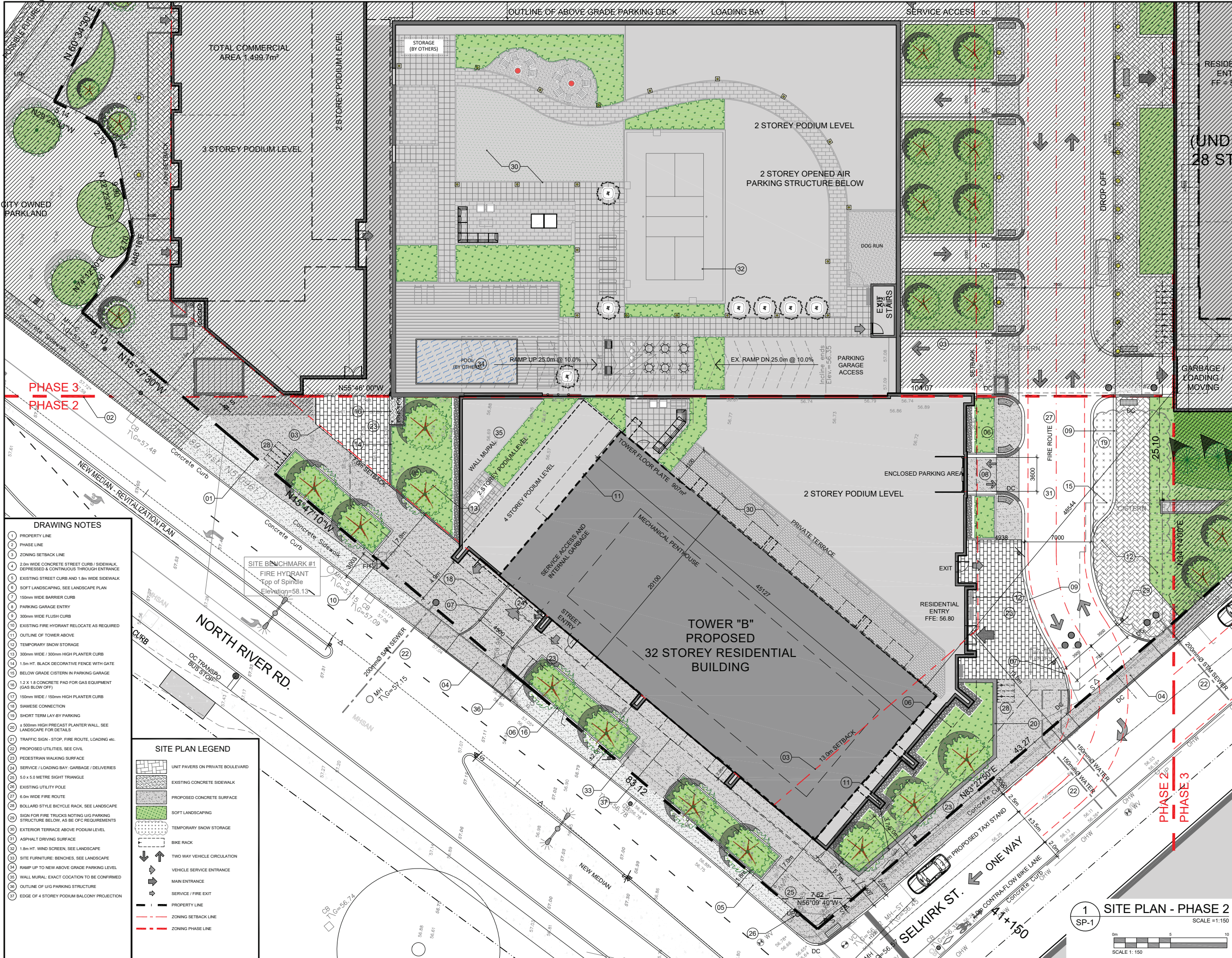
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Ontario
Land Surveyors
Lic. No. 25875-25 Member Selkirk St. & N. River Rd. T. F.



- DRAWING NOTES**
- PROPERTY LINE
 - PHASE LINE
 - ZONING SETBACK LINE
 - 2.0m WIDE CONCRETE STREET CURB / SIDEWALK, DEPRESSION & CONTINUOUS THROUGH ENTRANCE
 - EXISTING STREET CURB AND 1.8m WIDE SIDEWALK
 - SOFT LANDSCAPING, SEE LANDSCAPE PLAN
 - 150mm WIDE BARRIER CURB
 - PARKING GARAGE ENTRY
 - 300mm WIDE FLUSH CURB
 - EXISTING FIRE HYDRANT RELOCATE AS REQUIRED
 - OUTLINE OF TOWER ABOVE
 - TEMPORARY SNOW STORAGE
 - 300mm WIDE / 300mm HIGH PLANTER CURB
 - 1.5m HT. BLACK DECORATIVE FENCE WITH GATE
 - BELOW GRADE CISTERN IN PARKING GARAGE
 - 1.2 x 1.8 CONCRETE PAD FOR GAS EQUIPMENT (GAS BLOW OFF)
 - 150mm WIDE / 150mm HIGH PLANTER CURB
 - SIAMSE CONNECTION
 - SHORT TERM LAY-BY PARKING
 - 4 500mm HIGH PRECAST PLANTER WALL, SEE LANDSCAPE FOR DETAILS
 - TRAFFIC SIGN - STOP, FIRE ROUTE, LOADING etc.
 - PROPOSED UTILITIES, SEE CIVIL
 - PEDESTRIAN WALKING SURFACE
 - SERVICE / LOADING BAY: GARBAGE / DELIVERIES
 - 5.0 x 5.0 METRE SIGHT TRIANGLE
 - EXISTING UTILITY POLE
 - 6.0m WIDE FIRE ROUTE
 - BOLLARD STYLE BICYCLE RACK, SEE LANDSCAPE
 - SIGN FOR FIRE TRUCKS NOTING U/G PARKING STRUCTURE BELOW, AS PER OFC REQUIREMENTS
 - EXTERIOR TERRACE ABOVE PODIUM LEVEL
 - ASPHALT DRIVING SURFACE
 - 1.8m HT. WIND SCREEN, SEE LANDSCAPE
 - SITE FURNITURE: BENCHES, SEE LANDSCAPE
 - RAMP UP TO NEW ABOVE GRADE PARKING LEVEL
 - WALL MURAL: EXACT COLOCATION TO BE CONFIRMED
 - OUTLINE OF U/G PARKING STRUCTURE
 - EDGE OF 4 STOREY PODIUM BALCONY PROJECTION

- SITE PLAN LEGEND**
- UNIT PAVERS ON PRIVATE BOULEVARD
 - EXISTING CONCRETE SIDEWALK
 - PROPOSED CONCRETE SURFACE
 - SOFT LANDSCAPING
 - TEMPORARY SNOW STORAGE
 - BIKE RACK
 - TWO WAY VEHICLE CIRCULATION
 - VEHICLE SERVICE ENTRANCE
 - MAIN ENTRANCE
 - SERVICE / FIRE EXIT
 - PROPERTY LINE
 - ZONING SETBACK LINE
 - ZONING PHASE LINE

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT. ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS. THIS DRAWING MAY NOT BE USED FOR CONSTRUCTION UNTIL SIGNED BY THE ARCHITECT. DO NOT SCALE DRAWINGS. COPYRIGHT RESERVED.

NOTATION SYMBOLS:

- INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
- INDICATES ASSEMBLY TYPE, REFER TO TYPICAL ASSEMBLIES SCHEDULE.
- INDICATES WINDOW TYPE, REFER TO WINDOW ELEVATIONS AND DETAILS ON A500 SERIES.
- INDICATES DOOR TYPE, REFER TO DOOR SCHEDULE AND DETAILS ON A500 SERIES.
- DETAIL NUMBER
- TITLE
- SCALE
- DETAIL REFERENCE PAGE
- DETAIL CROSS REFERENCE PAGE

NO.	DESCRIPTION	DATE
1	ISSUED FOR OWNER / CONSULTANT REVIEW	July 09, 2026
2	ISSUED FOR OWNER / CONSULTANT REVIEW	June 19, 2026
3	ISSUED FOR SITE PLAN CONTROL APPLICATION	Feb. 13, 2026
4	ISSUED FOR COORDINATION	Feb. 10, 2026
5	ISSUED FOR OWNER / CONSULTANT REVIEW	Jan. 28, 2026

ARCHITECT SEAL: **ONTARIO ASSOCIATION OF ARCHITECTS** (Seal of Roderick Lahey, License No. 8867)

CLIENT: **main+main** Riverain Developments Inc.

ARCHITECT: **rla / architecture** roderick lahey architect inc. 56 beech street, ottawa, ontario K1S 3J6 1.613.724.9932 1.613.724.1209 rlaarchitecture.ca

PROJECT TITLE: **MAISON RIVERAIN** 2 MONTREAL ROAD, 3 SELKIRK STREET 300 MONTGOMERY STREET OTTAWA ONTARIO

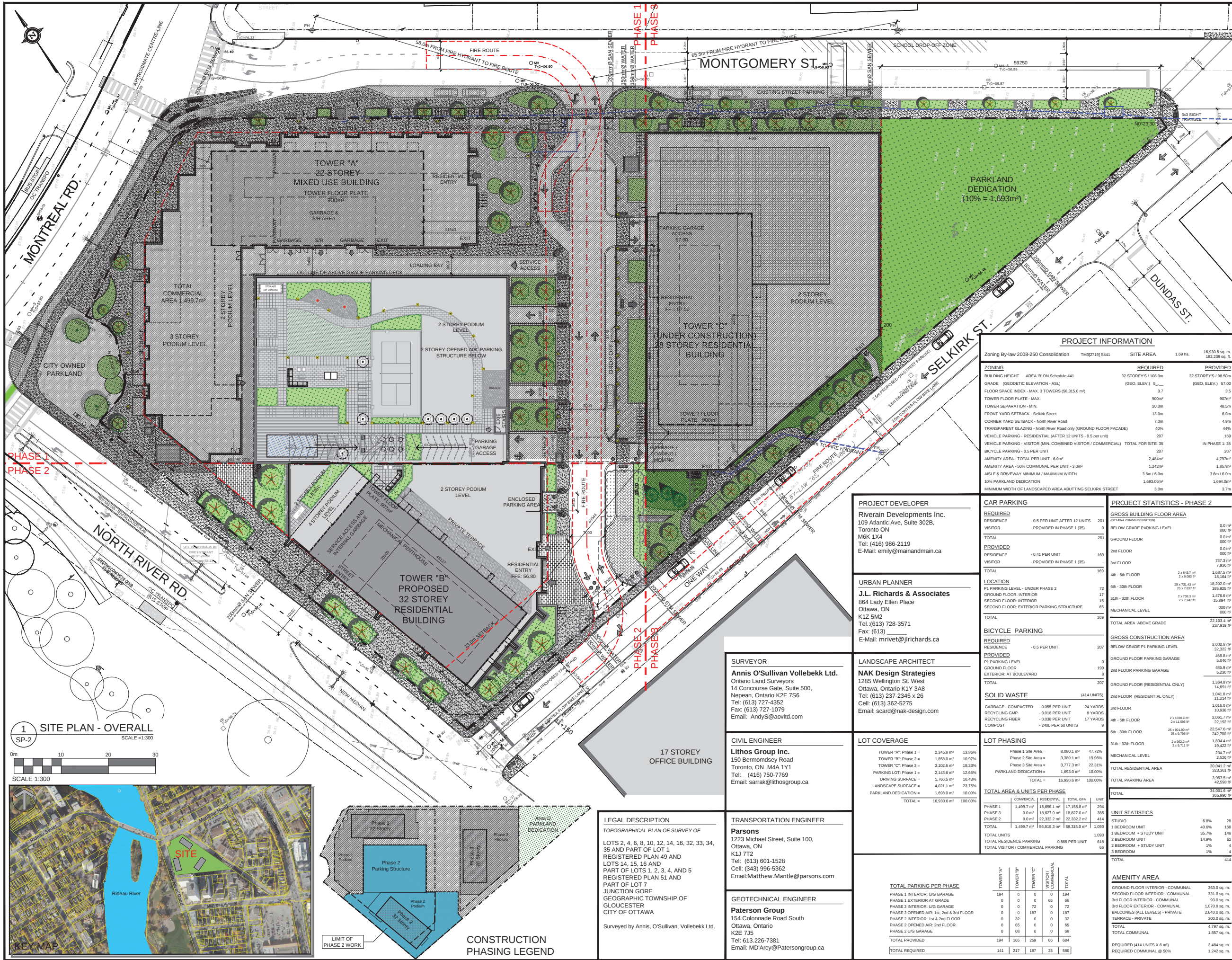
SHEET TITLE: **SITE PLAN** 3 SELKIRK STREET **TOWER 'B' - PHASE 2**

DRAWN: RV	CHECKED: R.D.
SCALE: 1:150	SHEET NO. SP-1
PROJECT NO. 2511	

1 SITE PLAN - PHASE 2 SCALE 1:150

0m 5m 10m SCALE 1:150

PAPER SIZE: ISO_B1 (707.00_x_1000.00_MM) PLOT DATE: Thursday, July 09, 2026 PLOT SCALE: 1:1 PEN STYLE: 0-RLA-MASTER-100%.ctb F:\2025\2511 - 3 Selkirk (Riverain Ph 3)\01 Design Development\01 Site Plan\2511 Riverain Site Plan Ph-2.dwg Plan No.: #



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ALL CONTRACTORS MUST COMPLY WITH ALL PERTINENT CODES AND BY-LAWS.

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- INDICATES WINDOW TYPE, REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
- INDICATES DOOR TYPE, REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.
- DETAIL NUMBER
- TITLE
- SCALE
- DETAIL REFERENCE PAGE
- DETAIL CROSS REFERENCE PAGE

REVISIONS	DATE
REVISED WITH GENERAL UPDATES	July 09, 26
ISSUED FOR OWNER / CONSULTANT REVIEW	June 19, 26
ISSUED FOR SITE PLAN CONTROL APPLICATION	Feb. 13, 26
ISSUED FOR COORDINATION	Feb. 10, 26
ISSUED FOR OWNER / CONSULTANT REVIEW	Sept. 24, 25

ARCHITECT SEAL:

ONTARIO ASSOCIATION OF ARCHITECTS

SEAL DATE: STAMP DATE

CLIENT:

main+main

Riverain Developments Inc.

ARCHITECT:

rla / architecture

roderick lahey architect inc.

56 beach street, ottawa, ontario K1S 3J6

1.613.724.9932 | 1.613.724.1209 | oarchitectur.ca

PROJECT TITLE:

MAISON RIVERAIN

2 MONTREAL ROAD, 3 SELKIRK STREET

300 MONTGOMERY STREET

OTTAWA, ONTARIO

SHEET TITLE:

SITE PLAN

3 SELKIRK STREET

(PHASE 2)

OVERALL

ORIGIN:

RV

CHECKED:

R.D.

SCALE:

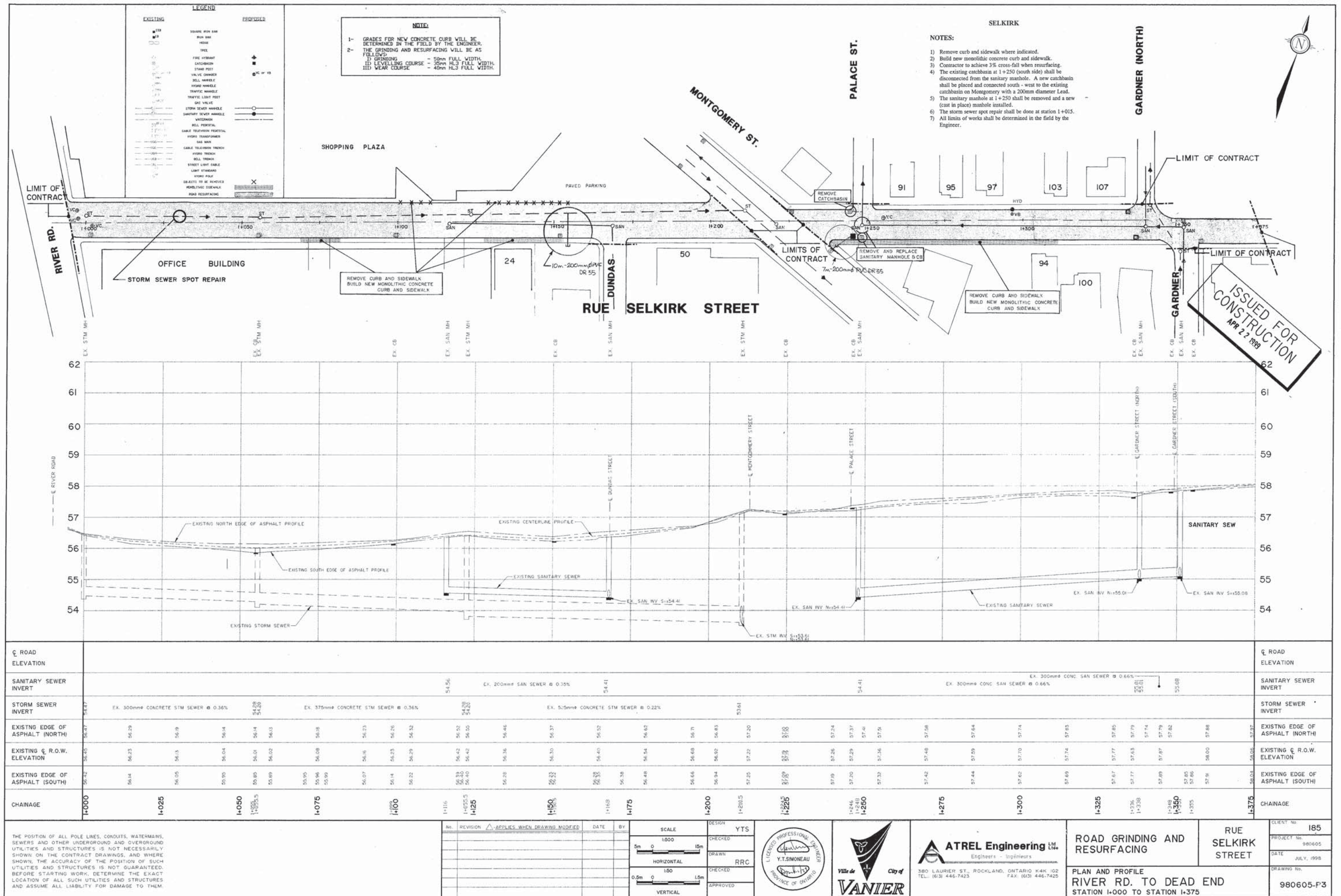
1:300

SHEET No.

PROJECT No.

2511

SP-2

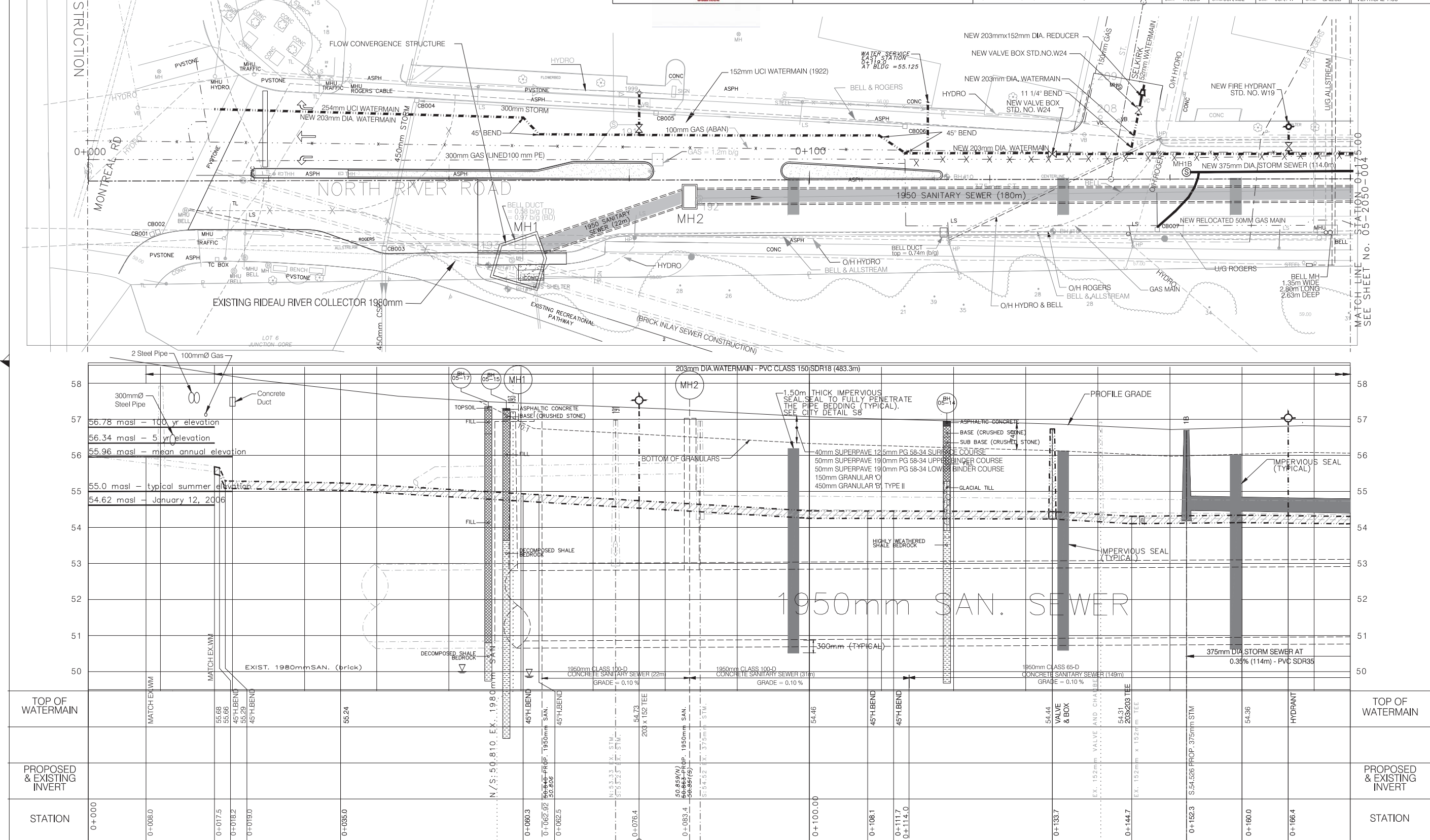


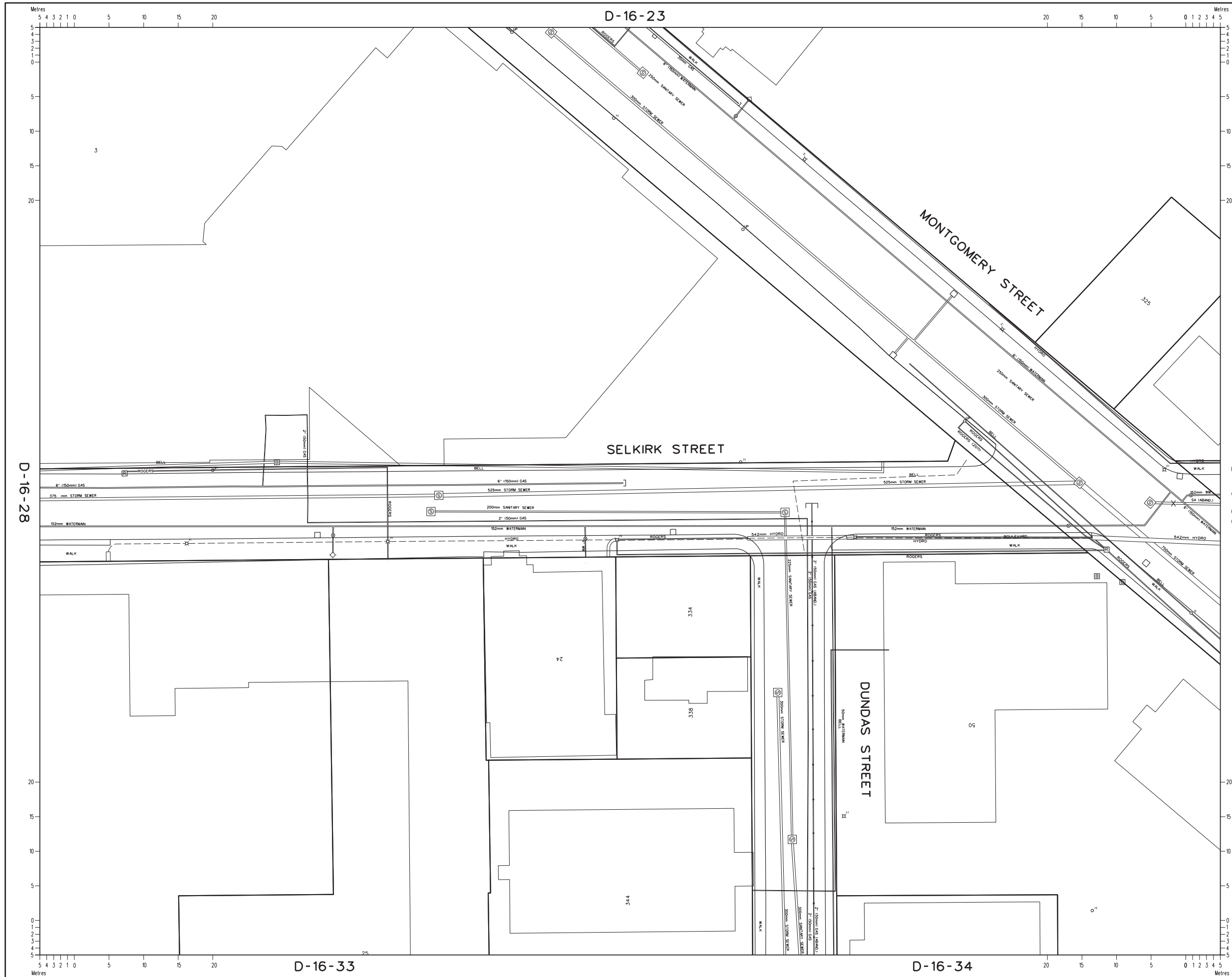

CONTRACT NO. ISB05-2050
DWG. NO. 05-2050-003
SHEET 3 OF 12
Date: JANUARY 2006
Scale: HORIZONTAL 1:250 VERTICAL 1:50

The location of the utilities is approximate only, the exact location should be determined by consulting the municipal authorities and utility companies concerned.

The contractor shall prove the location of utilities and shall be responsible for adequate protection from damage.

W. BENNETT, P.ENG.
Manager Construction Services





REVISIONS / RÉVISIONS	DATE	BY
NO EXISTING UTILITY PLAN NEW UTILITY PLAN CREATED	JULY 2009	JH
060505-P3-SELKIRK (JULY 1998) UPDATED SAN STORM AND WATER ON SELKIRK	JUNE 2009	JH
870208-05-MONTGOMERY (APR 1994) SAN STORM AND WATER ON MONTGOMERY	JUNE 2009	JH
ROG00701 SELKIRK/MONTGOMERY (JULY 2010) ROGERS CONDUIT ADDED	NOV 2012	ZB
HYDRO/BELL/INNOV8/ROGERS, CITY SEWER, WATER, TRAFFIC, SL COMPILED/DIGITIZED FROM UTILITY/CITY DATA	NOV 2012	ZB

LEGEND

Water Valve, Valve Chamber, Fire Hydrant	  
Sewer Manhole, Catch Basin Manhole	 
Catch Basin / Drainage, Wing Wall, Head Wall	  
Pole, Pole w/ Light, Decorative, Lawn Light	   
Power Supply, Panel, Pedestal, Transformer, Tower, Regulator	     
Amp, Hand Hole, Vault, Gas Valve	   
OC Transpo: Bus Shelter- No Power, Energized, Isolated	  
Streetscape: Planter Box, Grate Square, Eng. Sol	  
Traffic Connect Box / Disconnect Box, SL Disconnect	  
R/L Hand Hole, R/L, Camera	  
Scads: Hand Hole, Monitoring Panel	 
Reducer	
Pipe, Duct, Conduit, Lateral	
Culvert	
Abandoned	
Capped	
Buried Cable	
Property Line	
Install Year	

(2015)

TELECOM GLOSSARY

A.....	Allstream	P.....	Prismus
AT.....	Atia	P2P.....	Canadian P2P Fibre
B.....	Bell	R.....	Rogers
BH.....	Birch Hill	S.....	Sprint
F.....	Fibre Nor	SL.....	Street Lighting
G.....	Globility	T.....	Traffic
GT.....	Group Telecom	TO.....	Telecom Ottawa
H.....	Hydro Ottawa	TU.....	Telus
H1.....	Hydro One	V.....	Videotron
L / L3.....	Level 3	Z.....	Zayo

GLOSSARY - OTHER

DD: ..Dept. of Defence	PED: ..Pedestal (owner unknown)
MH: ..Manhole (owner unknown)	PW: ..Public Works
O/C: ..OCTranspo	UP: ..Utility Pole (owner unknown)
SCD: ..Scada	

CAUTION/ATTENTION

Although utility locations are established using the best available information, they cannot be guaranteed.
Property lines were compiled from plans and documents recorded in the Land Registry System and are for indexing purposes only.

Bien que l'emplacement des services publics soient établis en utilisant la meilleure information disponible, ils ne peuvent pas être garantis.
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Right of Way, Heritage, and Urban Design Services /
Gestionnaire, Services des emprises, du patrimoine, et du design urbain
Planning, Infrastructure and Economic Development Department /
Direction générale de la planification, de l'infrastructure et du développement économique
100 Constellation Cres., 6th Floor East / 6ème Étage Est, Ottawa, ON K2G 6J8

OTTAWA UTILITY COORDINATING COMMITTEE
CENTRAL REGISTRY
COMITÉ DE COORDINATION DES SERVICES PUBLICS D'OTTAWA
ENREGISTREMENT CENTRAL

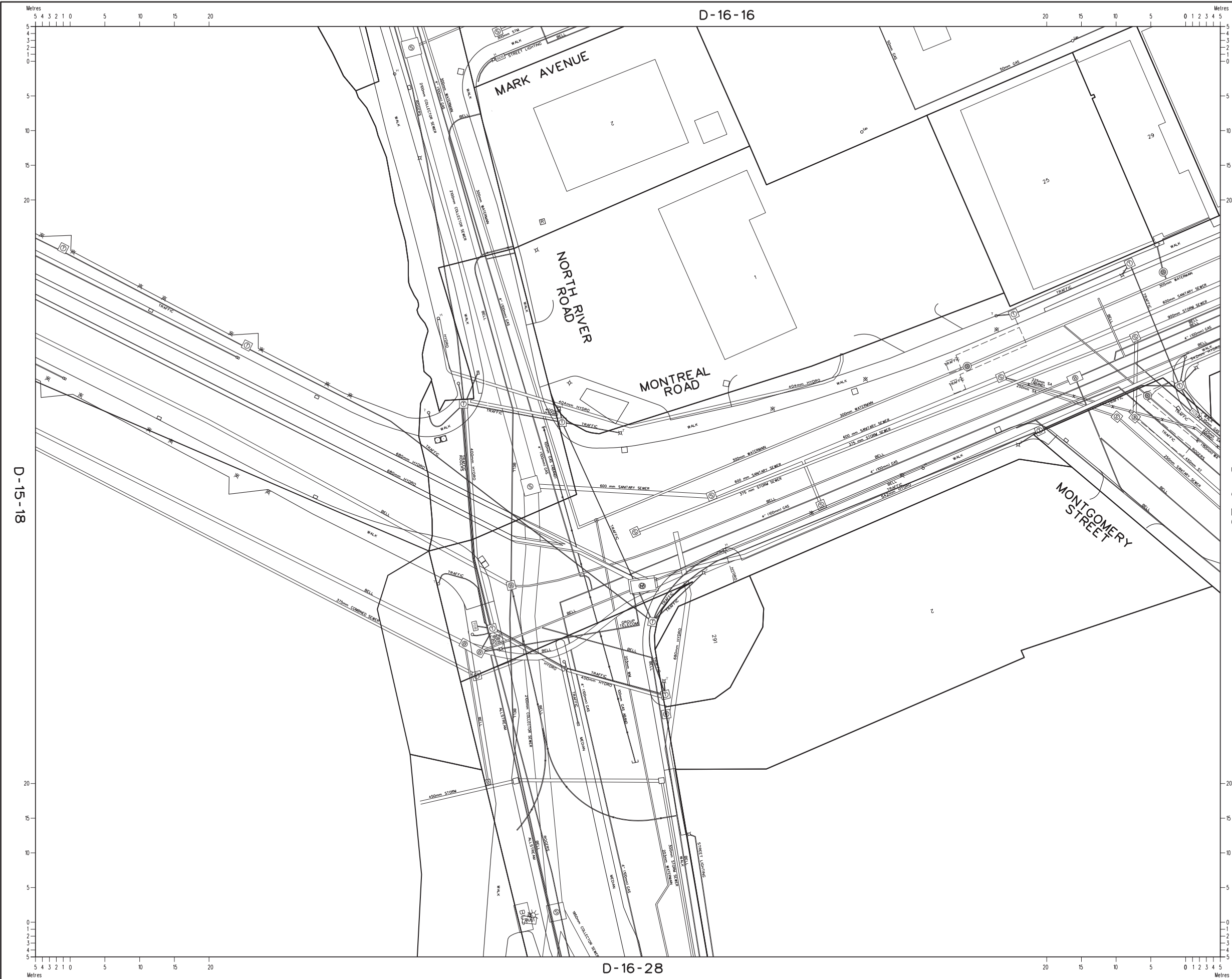


PRODUCED BY: GIS & DATA MANAGEMENT BRANCH
INFORMATION CENTRE UNIT

SCALE: 1:250

SHEET NUMBER

D-16-29



D-16-16

D-16-28

REVISIONS / RÉVISIONS	DATE	BY
91-04-5-03-MONTREAL SAN MAY 1990 UPDATED SAN STORM AND WATER ON MONTREAL	JUNE 2009	JH
0150401 SEPTEMBER 2004 BUS SHELTER ADDED ON NORTH RIVER	JULY 01/09	JH
09C-M/A BELL PL 29-1 AUGUST 1978 MODIFIED BELL DUCTS AT MONTREAL & RIVER	JULY 01/09	JH
09C-M/A BELL PL 29 3975 MODIFIED BELL DUCTS AT MONTREAL & RIVER	JULY 01/09	JH
13004-CITY OF OTTAWA JAN 2006 UPDATED SAN STORM AND WATER ON RIVER	NOV 2010	JM
10-0201079-TELECOM OTTAWA INDY 021 CONDUIT ADDED ON RIVER ROAD	NOV 2010	JM
011414001-FIBRE NOIR JAN 2003 CONDUIT ADDED TO NORTH RIVER	AUG 2016	JM
HYDRO-BELLENRODGE-ROGERS, CITY SEWER, WATER, TRAFFIC, SL COMPILED/DIGITIZED FROM UTILITY/CITY DATA	AUG 2016	JM

LEGEND

Water Valve, Valve Chamber, Fire Hydrant	
Sewer Manhole, Catch Basin Manhole	
Catch Basin / Drainage, Wing Wall, Head Wall	
Pole, Pole w/ Light, Decorative, Lawn Light	
Power Supply, Panel, Pedestal, Transformer, Tower, Regulator	
Amp, Hand Hole, Vault, Gas Valve	
OC Transpo: Bus Shelter-No Power, Energized, Isolated	
Streetscape: Planter Box, Grate Square, Eng. Soil	
Traffic: Connect Box / Disconnect Box, SL Disconnect	
R/L Hand Hole, R/L Camera	
Scada: Hand Hole, Monitoring Panel	
Reducer	
Pipe, Duct, Conduit, Lateral	
Culvert	
Abandoned	
Capped	
Buried Cable	
Property Line	
Install Year	(2015)

TELECOM GLOSSARY

A.....Allstream	P.....Prymus
AT.....Astia	P2P.....Canadian P2P Fibre
B.....Bell	R.....Rogers
BH.....Birch Hill	S.....Sprint
F.....Fibre Noir	SL.....Street Lighting
G.....Globility	T.....Traffic
GT.....Group Telecom	TO.....Telecom Ottawa
H.....Hydro Ottawa	TU.....Telus
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Property lines were compiled from plans and documents recorded in the Land Registry System and are for indexing purposes only.
Bien que l'emplacement des services publics soient établis en utilisant la meilleure information disponible, ils ne peuvent pas être garantis.
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Planning, Infrastructure and Economic Development Department /
Direction générale de la planification, de l'infrastructure et du développement économique
100 Constellation Cres., 6th Floor East / 6ème Étage Est, Ottawa, ON K2G 6J8

OTTAWA UTILITY COORDINATING COMMITTEE
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ENREGISTREMENT CENTRAL

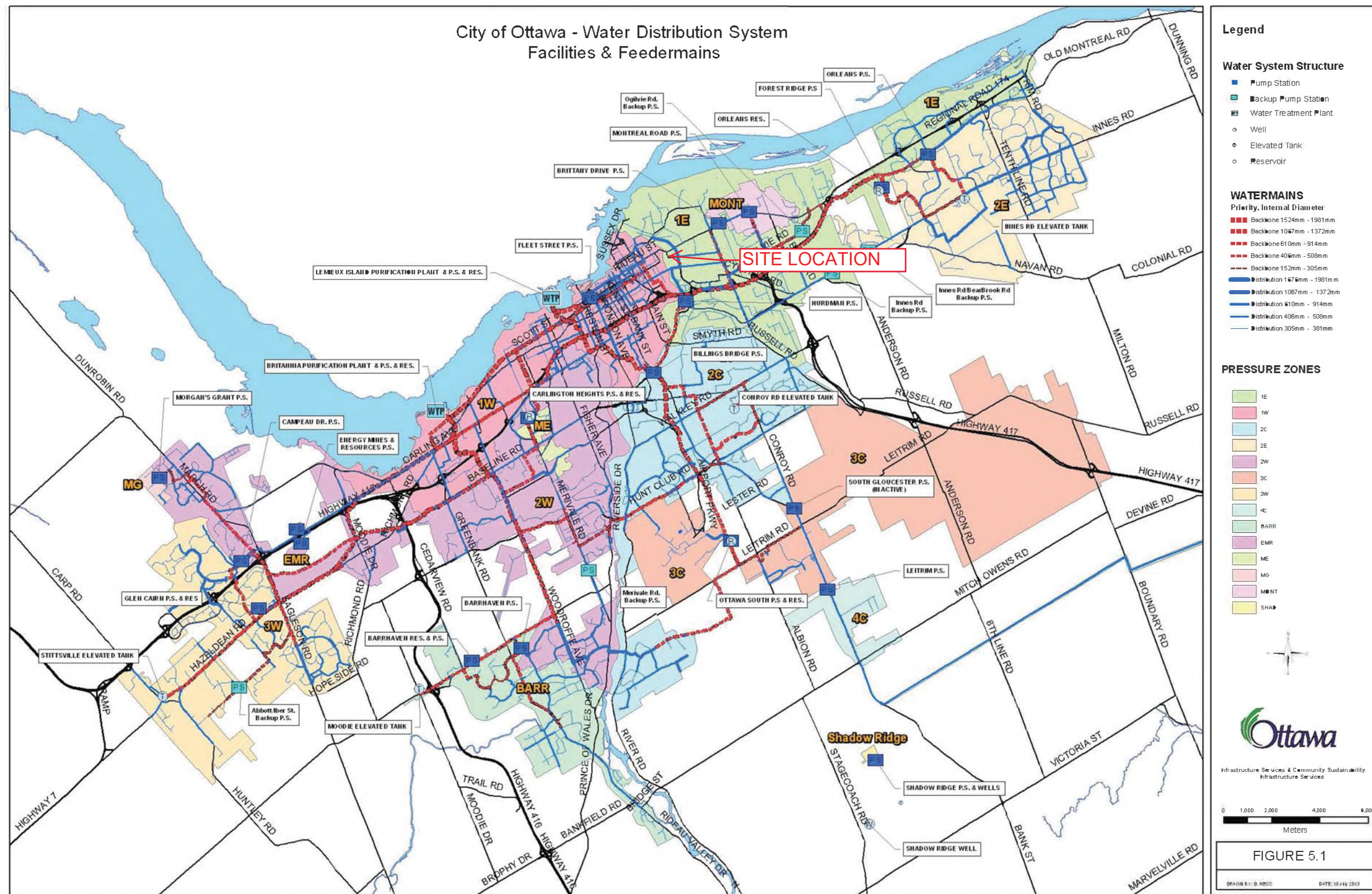


PRODUCED BY: GIS & DATA MANAGEMENT BRANCH
INFORMATION CENTRE UNIT

SCALE: 1:250

SHEET NUMBER

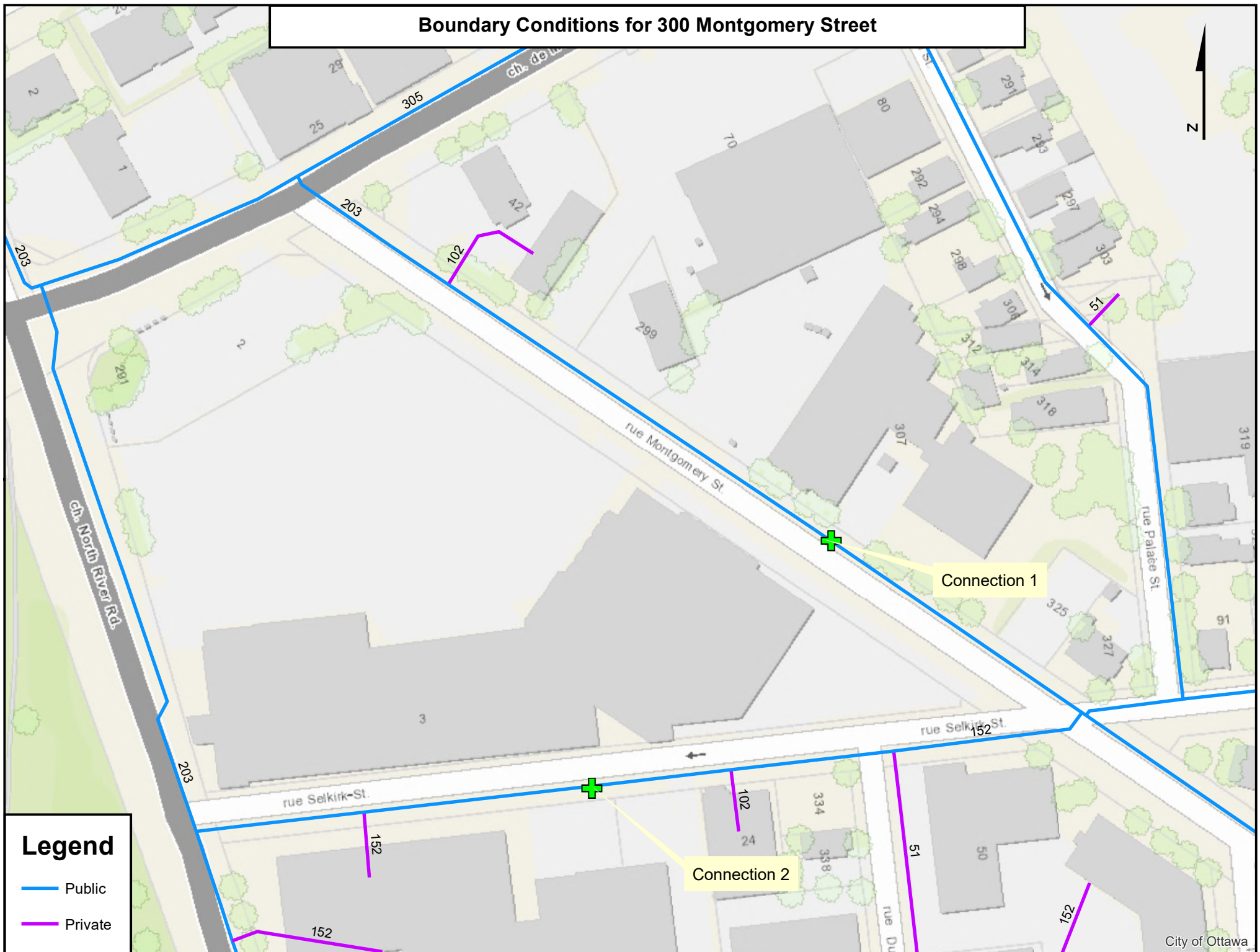
D-16-22



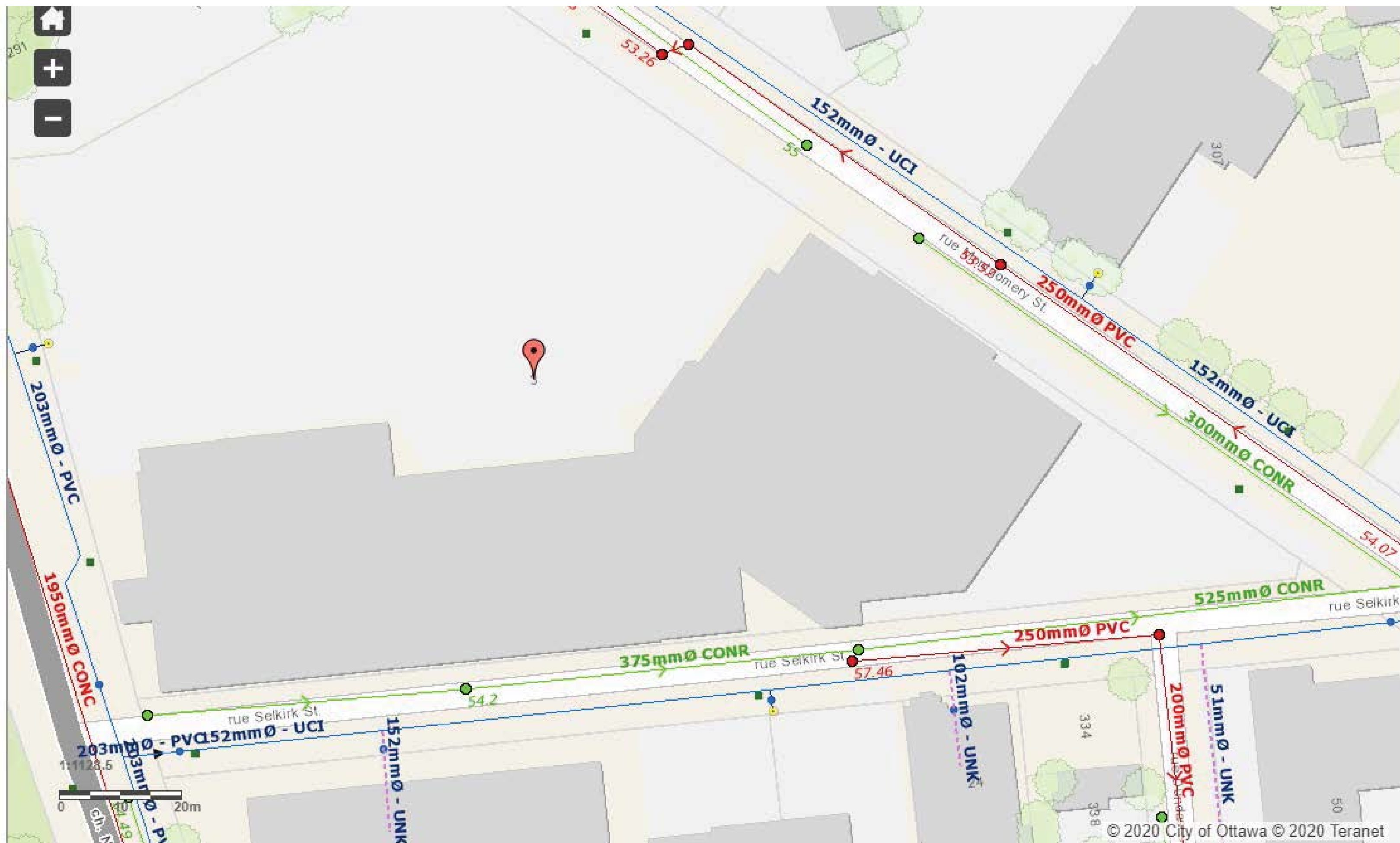
Source: City of Ottawa GIS infrastructure database

Figure 5.1: City of Ottawa Water Distribution System, Facilities and Feeder mains

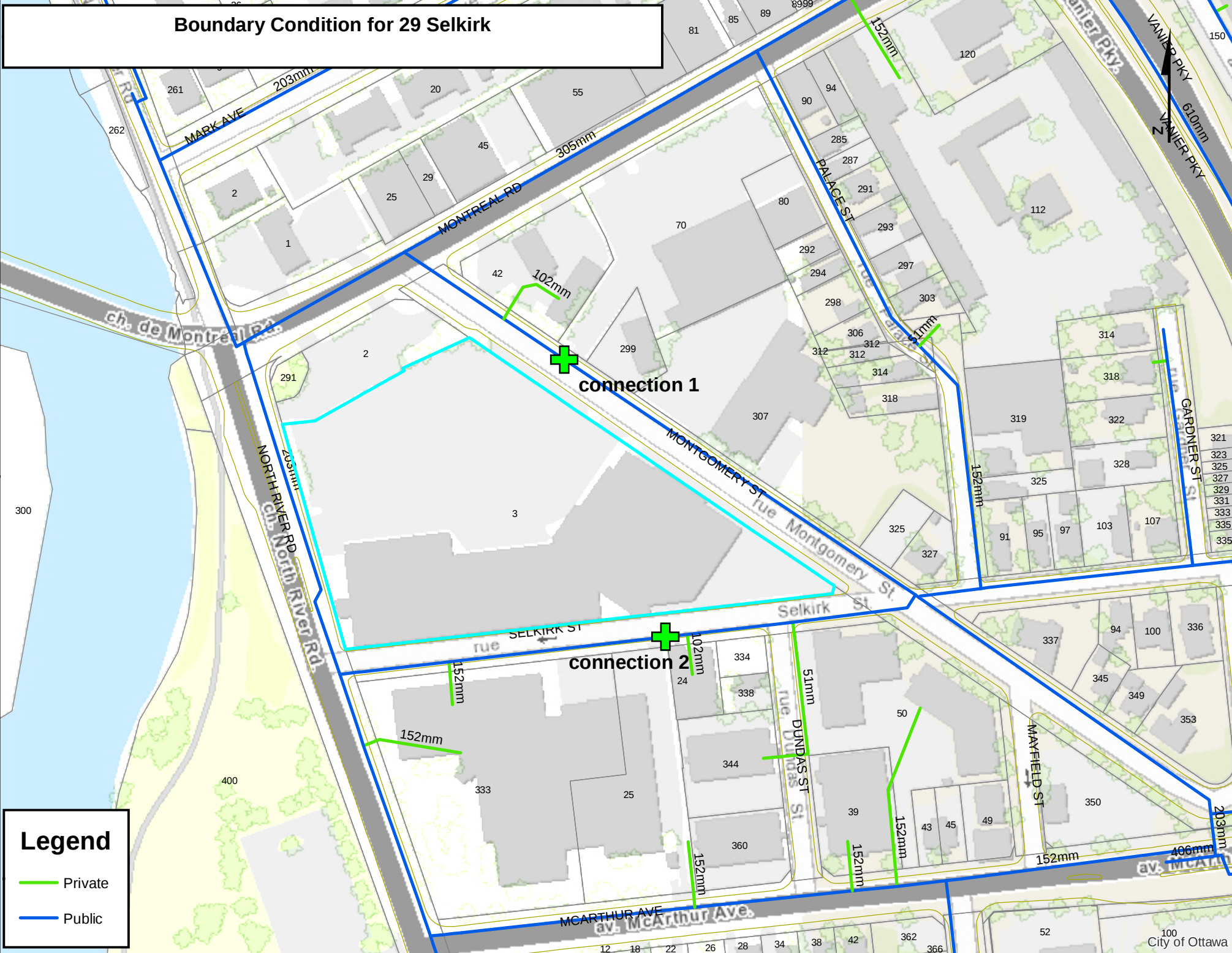
Boundary Conditions for 300 Montgomery Street







Boundary Condition for 29 Selkirk



Legend

Private

Public

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Thursday, February 26, 2026 5:30 PM
To: sarrak <sarrak@lithosgroup.ca>
Cc: Hughes, Brett <brett.hughes@ottawa.ca>
Subject: Re: Phase II of Riverain - boundary conditions 2 Montreal Rd & 3 Selkirk

Good evening, Sarra.

Please find BC, as per your request, below and attached.

The following are boundary conditions, HGL, for hydraulic analysis at 3 Selkirk Street (zone 1E) assumed to be dually connected to the 152mm watermain on Selkirk Street: (see attached PDF for location).

Minimum HGL = 109.5 m
Maximum HGL = 118.4 m
Max Day + Fire Flow (83.33 L/s) = 93.2 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. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji

Pronouns: he/him | Pronom: il

Project Manager - Infrastructure Approvals

Gestionnaire de projet – Approbation des demandes d’infrastructures

Development Review Central Branch | Direction de l'examen des projets d'aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du
bâtiment (DGSPAB)

City of Ottawa | Ville d'Ottawa

110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1

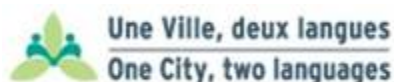
(613) 580 2424 Ext. | Poste 33017

Int. Mail Code | Code de Courrier Interne 01-14

shawn.wessel@ottawa.ca

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Out of Office Alert :



Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

From: sarrak@lithosgroup.ca <sarrak@lithosgroup.ca>

Sent: Wednesday, February 18, 2026 5:49 AM

To: Wessel, Shawn <shawn.wessel@ottawa.ca>

Subject: RE: Phase II of Riverain - boundary conditions 2 Montreal Rd & 3 Selkirk

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Hello Shawn,

That is correct, we have proposed two (2) 150mm diameter water services separated by an isolation valve.

Feel free to let us know of any further questions you may have.

Thank you,

Sarra Karavasili, P.E., M.A.Sc.

Project Manager

Lithos Group Inc.

150 Bermondsey Rd, Unit #200

Toronto, Ontario M4A 1Y1

T: (647) 366-9610 x1

Sarrak@LithosGroup.ca

www.LithosGroup.ca

CONFIDENTIALITY NOTE

From: Wessel, Shawn <shawn.wessel@ottawa.ca>
Sent: Tuesday, February 17, 2026 1:04 PM
To: sarrak <sarrak@lithosgroup.ca>
Subject: Fw: Phase II of Riverain - boundary conditions 2 Montreal Rd & 3 Selkirk

Hello Sarra

Can you confirm that the servicing will be a dual (twinning) service to this site, which is required if daily demand is 50 cubic m per day (0.58 L/s) is exceeded, as per below:

From Water Distribution Guidelines (2026):

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

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

Thank you

Regards,

Shawn Wessel, A.Sc.T.,rcji

Pronouns: he/him | Pronom: il

Project Manager - Infrastructure Approvals

Gestionnaire de projet – Approbation des demandes d’infrastructures

Development Review Central Branch | Direction de l’examen des projets d’aménagement, Centrale
Planning, Development & Building Services Department (PDBS) | Direction générale des services de la planification, de l’aménagement et du
bâtiment (DGSPAB)

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110 Laurier Ave. W. | 110, avenue Laurier Ouest, Ottawa ON K1P 1J1

(613) 580 2424 Ext. | Poste 33017

Int. Mail Code | Code de Courrier Interne 01-14

shawn.wessel@ottawa.ca

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Out of Office Alert :

From: Giovannitti, Terenzo <terenzo.giovannitti@ottawa.ca>
Sent: Tuesday, February 17, 2026 10:29 AM
To: sarrak <sarrak@lithosgroup.ca>; Wessel, Shawn <shawn.wessel@ottawa.ca>
Subject: FW: Phase II of Riverain - boundary conditions

Hi Sarra,

Thanks for providing this information. My colleague Shawn Wessel (included in this email) will be responsible for the infrastructure engineering review for Phase 2 of the Riverain development at 2 Montreal, and 3 Selkirk.

He will request your boundary conditions and provide you with the results.

Regards,

Terenzo Giovannitti, P.Eng

Project Manager

Development Review

Planning, Development and Building Services Department

City of Ottawa

110 Laurier Ave W. Ottawa, ON

613-580-2424 (ext. 23436)

terenzo.giovannitti@ottawa.ca

Classified as City of Ottawa - Internal / Ville d'Ottawa - classé interne

From: sarrak@lithosgroup.ca <sarrak@lithosgroup.ca>
Sent: February 17, 2026 7:16 AM
To: Giovannitti, Terenzo <terenzo.giovannitti@ottawa.ca>
Subject: Phase II of Riverain - boundary conditions

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Hello Terenzo,

I hope all is well with you.

We are currently working on the preparation of our civil materials regarding Phase II of Riverain project for submission to the City. Therefore, could you please provide us with the applicable boundary conditions, so that we prepare our FSR/SWM Report accordingly?

In order for your to be able to provide the requested boundary conditions, kindly see below information in **green**:

Phase II

1. Location of Services: **Please refer to the attached Site Servicing Plan.**
2. A sketch of the proposed water service to the city watermain: **Please refer to the attached Site Servicing Plan.**
3. Street Number & Name **3 Selkirk Street**
4. Type of development and units **445 residential units.**
5. Amount of fire flow required **83.33 l/s (Calculation as per the FUS Method).**
6. Average daily demand: **2.35 L/s residential area**
7. Maximum daily demand: **6.46 L/s**
8. Maximum hourly daily demand: **9.70 L/s**
9. Amount of wastewater calculated: **7.50 L/s**

Kindly feel free to let me know of any questions or concerns.

Thank you,

Sarra Karavasili, P.E., M.A.Sc.

Project Manager

Lithos Group Inc.

150 Bermondsey Rd, Unit #200

Toronto, Ontario M4A 1Y1

T: (647) 366-9610 x1

Sarrak@LithosGroup.ca

www.LithosGroup.ca

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Hydrogeological Report in Support of Category 3 Permit to Take Water Proposed High-Rise Complex

3 Selkirk Street and 2 Montreal Road
Ottawa, Ontario

Prepared for Riverain Developments Inc.

Report PH4590-1 dated July 22, 2022



1.0 INTRODUCTION

Paterson Group (Paterson) was commissioned by Riverain Developments Inc. to prepare a hydrogeological report in support of a Permit to Take Water Category 3 application for the proposed high-rise complex to be constructed at 2 Montreal Road and 3 Selkirk Street in Ottawa, Ontario (refer to Drawing PH4590-1 - Site Plan within Appendix 1). An Environmental Activity and Sector Registry (EASR), Registration Number R-009-1180262009 is currently registered for the subject site. The EASR will be superseded by the PTTW Category 3 upon issuance for the purpose of a groundwater remediation program within Phase 1 of the proposed development. It is understood the groundwater remediation program will be carried out upon reaching the base of the proposed excavation.

Subsurface information was obtained from the field investigations carried out by Paterson and others to determine the subsoil and groundwater conditions at the site by means of test holes.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. It contains the investigation findings and includes hydrogeological assessments pertaining to the proposed program as understood at the time of writing this report.

1.1 Proposed Project

It is understood that the proposed development of the subject site will consist of 3 high-rise buildings with one level of shared underground parking encompassing the majority of the subject site. Riverain Developments Inc. owns the property and will be the applicant for the PTTW. As such a letter of permission allowing site access for the purpose of taking water will not be required for the application.

1.2 Project Pre-Consultation

While no formal project pre-consultation was performed with the MECP, in our opinion, the application would be classified as a Category 3 taking due to the groundwater remediation program anticipated for the subject site. It is understood at the time of report preparation that consultations have been completed with the City of Ottawa as part of the site plan application submission. A public meeting was also held in support of the site plan application.

2.0 SITE CONDITIONS

2.1 Surface Conditions

The subject site is currently occupied by a one storey slab-on-grade commercial building with asphalt covered parking areas and access lanes. A gas station was previously located at 2 Montreal Road and has been demolished as part of the proposed redevelopment of the subject site. The site is bordered by Montreal Road to the north followed by low-rise commercial buildings, Montgomery Street to the east followed by low-rise commercial buildings and an education centre, Selkirk Street to the south followed by a mixture of low and high-rise residential and commercial buildings, and to the west by North River Road followed by the Rideau River. The slope across the site is generally flat and at grade with adjacent roadways and properties.

Field Investigations

Field investigations completed by Paterson for the subject site were carried out between April 3, 2019 and February 18, 2022, with a total of 24 boreholes and 18 test pits advanced to a maximum depth of 11.3 and 6.0 m, respectively, below ground surface (bgs). Historical investigations were completed by others at 2 Montreal Road between September 2014 and May 2019. At that time, a total of 26 boreholes were advanced to a maximum depth of 11.6 m bgs. The test hole locations for the field investigations are presented on Drawing PG4915-1 – Test Hole Location Plan, included in Appendix 2.

The subsurface conditions observed in the test holes were recorded in detail during the field investigations by Paterson and others. The subsurface profiles are presented on the Soil Profile and Test Data Sheets by Paterson and test hole logs by others in Appendix 2.

Surface Water

The subject site is located within the Ottawa East of Core 1 subwatershed. The only surface water feature identified within 500 m of the subject site is the Rideau River, located approximately 40 m west from the subject site.

Groundwater

Groundwater monitoring wells were installed by Paterson and others in select borehole locations to permit the monitoring of the groundwater levels. Groundwater information is discussed in Sections 3 and 4 of this report, and details are noted on the Soil Profile and Test Data Sheets by Paterson as well as test hole logs by others in Appendix 2 of this report.

2.2 Subsurface Profile

The subsurface profile at the subject site generally consists of an asphaltic pavement structure or topsoil overlying a fill layer. Glacial till was observed at select test hole locations underlying the fill material. Bedrock was encountered underlying the fill material and/or glacial till deposit. Reference should be made to the Soil Profile and Test Data Sheets and Test Hole Location Plan by Paterson and borehole logs by others included in Appendix 2 for the details of the soil profiles encountered at each test hole location.

Fill

The fill material consists of silty sand to sandy silt with varying amounts of clay, gravel, shale fragments, topsoil, and construction debris, and extends to a maximum depth of approximately 9.8 m bgs.

Glacial Till

A glacial till deposit was encountered underlying the fill material in select test hole locations to a maximum depth of 8.2 m bgs. The deposit was observed to consist of a silty sand to sandy silt matrix with varying amounts of shale fragments, gravel, cobbles, and boulders.

Bedrock

Based on the testing results completed by Paterson and others, interbedded shale and limestone bedrock was encountered at depths ranging from 2.0 to 7.6 m bgs and was observed to a maximum depth of 11.3 m bgs. The recovery values ranged from 0 to 100%, while the RQD values varied between 0 and 100%. Based on these results, the quality of the bedrock ranges from very poor to excellent.

This is generally consistent with available geological mapping, which indicates that bedrock consists of shale of the Billings formation with an approximate drift thickness of 3 to 10 m.

3.0 HYDROGEOLOGY

At the time of the field investigations, groundwater levels encountered at the borehole locations ranged between 4 and 7.5 m bgs. It should be noted that groundwater can become perched within the backfilled boreholes, which can lead to apparent elevated groundwater levels. Groundwater levels can also be estimated based on the observed moisture levels, colour and consistency of the recovered samples. Based on these observations, it is estimated that the groundwater table can be expected between 6 to 7 m bgs. Groundwater levels can also fluctuate seasonally and with precipitation events. Therefore, groundwater levels could vary at the time of construction.

On a conceptual scale, hydrogeological/hydrologic conditions at the subject site suggest that water may infiltrate the open excavation as surface water infiltration during precipitation events and as perched water transmitted above the bedrock surface within the overburden material.

Based on the anticipated excavation depth of the proposed development relative to the expected groundwater table, groundwater infiltration is not expected within the excavation during construction. However, it is understood that a trench will be excavated within the northern portion of the development and will extend from the base of the excavation to 1.5 m below the groundwater table in order to pump and treat impacted groundwater located within Phase 1 of the proposed development.

The excavation footprint related to the proposed high-rise complex at the subject site is expected to encompass an area of approximately 13,200 m². Therefore, the potential exists for a moderate to high amount of surface water to intercept the excavation footprint directly during significant precipitation events.

With respect to perched water, the overburden within the development consists of fill material overlying glacial till with a silty sand to sandy silt matrix. As such, the potential exists for moderate to high volumes of perched water to be encountered at the time of construction dependent on the time of year and the majority composition of the fill material and glacial till deposit.

Based on the field investigations completed at the subject site, groundwater flow generally trends in a northwest direction, a trend similar to that of the anticipated regional groundwater flow direction in the area. The regional groundwater flow is considered to be in a northwest direction towards the Rideau River and Ottawa River. It should be noted that groundwater levels can fluctuate based on precipitation events and seasonal variations. Therefore, groundwater levels and flow directions may vary at the time of construction.

3.1 Groundwater Inflow and Sources

Two potential sources of dewatering have been identified at the subject site. The sources consist of the excavation footprint of the underground parking structure and a source to remove impacted groundwater from below the proposed development within Phase 1 of the proposed development.

To determine surface water infiltration rate into the underground parking excavation footprint, an intensity duration frequency (IDF) curve from the Ministry of Transportation - Ontario (MTO) was obtained. The IDF curve is the graphical representation of the probability that a given average rainfall intensity will occur. For the purposes of this project, a five- year storm event with a one-hour duration was chosen as the design storm. This provides a potential rainfall intensity of 2.63×10^{-2} m of precipitation into the excavation footprint. Various duration storm events with their associated rainfall intensities are presented in the IDF Curve in Appendix 3.

Based on the anticipated excavation depth of the proposed development relative to the expected elevation of the groundwater table, groundwater infiltration is not anticipated during construction activities. Groundwater takings associated with the remediation program at the subject site will be related to the capacity of the treatment system.

Source

S1 – Building Excavation Footprint

The typical depth of excavation is expected to be approximately 4 m bgs and anticipated to be above the groundwater table. Therefore groundwater infiltration is not expected during construction activities.

With respect to the potential for surface water inflow into the excavation footprint, the proposed development is adjacent to developed land on all sides. It is therefore expected that the majority of surface water inflow into the excavation footprint will be caused by precipitation directly onto the footprint rather than runoff from other sources. Given an excavation footprint with a sizing of 13,200 m² and a precipitation depth of 2.63×10^{-2} m, a total volume of approximately 350,000 L of surface water can be expected during a 5 year - 1 hour duration precipitation event. It is expected that the contractor will direct surface water away from open excavation whenever possible.

As a precautionary measure, a maximum of 2,000,000 L/day is being request for the building excavation. This volume will account for surface water infiltration, seasonal variations, perched conditions, precipitation events above the provided design storm and unforeseen circumstances.

S2 – Impacted Groundwater (Pump and Treat)

Based on Phase II Environmental Site Assessments (ESAs) completed by Paterson and others, as well as an environmental remedial action plan prepared by Paterson, it is understood that concentrations of benzene exceed MECP Table 3 standards within the central portion of 2 Montreal Road. As such, a pump and treat system has been recommended as part of the remedial action plan for Phase 1 of the proposed development. A trench for groundwater collection and removal will be excavated approximately 1.5 m into the water table within the 2 Montreal Road property to pump and treat impacted groundwater. A portable granular activated carbon treatment unit has been recommended in combination with a tank or tanker truck to treat the accumulated groundwater. The pump and treat system will remain in place until the on-site groundwater quality is in compliance with MECP Table 3 standards.

A maximum of 500,000 L/day is being requested for the source to for multiple treatment systems/tanks remaining on site simultaneously and variability in tank size.

3.2 Water Taking Rates

The water taking rates were established at a maximum of 5,600 L/min for the building excavation and 2,800 L/min for the pump and treat system. The volumetric rate per minute is requested to allow for dewatering in a timely manner.

3.3 Water Discharge

The discharge point for the pumped water from the excavation sump is expected to be the existing City of Ottawa sanitary sewer system. It will be subject to the City of Ottawa Sewer Use Bylaws and a permit will be required to discharge the water to the sewer system.

Pumping of the sumps to prevent the collection of surface water within the excavation and during the remediation program is expected to continue intermittently for a period of approximately 5-year. However, a period of 8-years is being requested to account for unforeseen project delays and forced market conditions. Water within the excavation is not expected to be encountered immediately, but only when a large precipitation event occurs, and/or during groundwater remediation activities. Therefore, pumping is not anticipated for the entire duration of construction. It is anticipated that dewatering of the excavation sumps will be accomplished using various pumping equipment.

A reasonable flow rate has been noted in Subsection 3.2 and under the Maximum Daily Flow Rate in Section 9 of the Permit Application. Dewatering may extend up to 24 hours per day but will likely be done on an as-needed basis for shorter periods of time.

4.0 POTENTIAL IMPACTS

4.1 Adverse Effects on Adjacent Structures

The subsurface profile at the subject site is generally comprised of topsoil and/or fill material underlain by glacial till followed by bedrock. Based on field observations and measured groundwater levels, groundwater is expected within the bedrock with minimal compressibility. Furthermore, groundwater infiltration is not expected to be encountered within the proposed excavation during construction dewatering activities, with only perched water expected to be encountered within the overburden materials. Additionally, minimal pumping volumes associated with the groundwater remediation program are expected. As such, adverse effects on adjacent structures as a result of dewatering activities at the subject site are expected to be negligible.

4.2 Adverse Effects on Neighbouring Water Wells

A search of the Ontario Water Well Records online mapping database indicates there are several wells within 500 m of the site as depicted on drawing PH4590-2 included in Appendix 1. However, it is expected that these wells are either no longer in use due to both their installation dates and the developed nature of the region or are monitoring well installations. Additionally, groundwater infiltration is not expected to be encountered within the proposed excavation during construction dewatering activities, while minimal pumping volumes related to the groundwater remediation program is expected. Furthermore, the area surrounding the site is serviced by municipal water supplies. Dewatering activities at the site are therefore not expected to cause any interference to the water supply of surrounding properties or other negative impacts.

Municipal water is available in the immediate area. However, if the taking of water is shown to cause negative impacts to the water supplies of existing users/sources that were in use prior to the issuance of the PTTW for this water taking, the Permit Holder shall take action to make available a supply of water equivalent in quality and quantity of their typical takings, or shall compensate those affected for reasonable costs for doing so, or shall reduce water taking amounts to alleviate the negative impacts. The Permit Holder shall provide temporary water supplies, to those affected, to meet their typical takings or compensate such persons for reasonable costs associated to do so until permanent restoration of the affected water supply or an equivalent source.

4.3 Soil, Surface Water and Groundwater

A search of the MECP Brownfields Environmental Site Registry was conducted as part of the assessment of the site, neighbouring properties, and the general area. No brownfield sites were located within 500 m of the subject site.

Following the completion of Phase II ESAs by Paterson and others at the subject site, as well as a remedial action plan prepared by Paterson, it was concluded that soil has been impacted by petroleum hydrocarbons (PHCs), benzene, toluene, ethylbenzene and xylenes (BTEX), volatile organic compounds (VOCs), polycyclic aromatic hydrocarbons (PAHs), mercury, and metals with concentrations exceeding the MECP Table 3 standards. Groundwater within the central portion of 2 Montreal Road has been impacted by benzene with concentrations exceeding the MECP Table 3 standards. Based on the remedial action plan, impacted soil will be hauled to an approved waste disposal facility. A portable granular activated carbon treatment unit has been recommended in combination with a tank or tanker truck to treat the accumulated groundwater. The pump and treat system will remain in place until the on-site groundwater quality is in compliance with MECP Table 3 standards.

It is anticipated that the excess soil will be handled in accordance with O.Reg. 406/19 – On-site and Excess Soil Management.

With respect to nearby surface water bodies, the Rideau River is located approximately 40 m west from the subject site. However, groundwater infiltration is not expected to be encountered within the proposed excavation during construction dewatering activities, while minimal pumping volumes related to the groundwater remediation program is expected. As such, adverse effects to surface water features resulting from dewatering activities at the subject site are expected to be negligible.

The surface water and groundwater that is pumped from the site excavation must be managed in an appropriate manner. The contractor will be required to implement a water management program to dispose of the pumped water. It is expected that the treated waters will be discharged to the City of Ottawa sewer system in accordance with City Sewer Use By-Laws. Depending on the results of the baseline test to be performed for the discharge permit application, the City of Ottawa will determine the appropriate discharge location (storm versus sanitary sewer), on-site treatment or if off-site disposal is required.

4.4 Adjacent Permits to Take Water

A search of the MECP Permit to Take Water database provided no active PTTW within 500 m of the subject site. A search of the MECP Environmental Activity and Sector Registry (EASR) database provided two (2) actively registered water taking permit within a 500 m radius of the subject site. Permit Number R-009-7113143069 is located approximately 250 m north of the subject site and has been registered to 1479151 Ontario Inc. However, it is understood that water taking activities related to the proposed development have been completed. Permit number R-009-1163962695, located approximately 500 m west of the subject site, has been registered to Core Civil Construction Inc. and is located well outside any theoretical radius of influence that may develop from either site. Therefore, cumulative impacts between the subject site and the above noted EASRs are not expected.

5.0 STATEMENT OF LIMITATIONS

The recommendations provided in this report are in accordance with our present understanding of the project.

A hydrogeological review of this nature is a limited sampling of a site. The recommendations are based on information gathered at the specific test locations and can only be extrapolated to an undefined limited area around the test locations. Should any conditions at the site be encountered which differ from those at the test locations, we request notification immediately in order to permit reassessment of our recommendations.

The present report applies only to the project described in this document. Use of this report for purposes other than those described herein or by person(s) other than Riverain Developments Inc. or their agent(s) is not authorized without review by Paterson Group for the applicability of our recommendations to the altered use of the report.

Paterson Group Inc.



Nicholas Zulinski, P.Geo., géo.



Sok Kim, M.Eng.



**Geotechnical
Engineering**

**Environmental
Engineering**

Hydrogeology

**Geological
Engineering**

Materials Testing

Building Science

**Noise and Vibration
Services**

patersongroup

Geotechnical Investigation

Proposed High-Rise Complex
3-33 Selkirk Street and 2 Montreal Road
Ottawa, Ontario

Prepared For

Main and Main Developments Inc.

Paterson Group Inc.
Consulting Engineers
154 Colonnade Road South
Ottawa (Nepean), Ontario
Canada K2E 7J5

Tel: (613) 226-7381
Fax: (613) 226-6344
www.patersongroup.ca

March 26, 2022

Report PG4915-1 Revision 3

1.0 Introduction

Paterson Group (Paterson) was commissioned by Main and Main Developments Inc. to conduct a geotechnical investigation for the subject site located at 3-33 Selkirk Street and 2 Montreal Road in the City of Ottawa (refer to Figure 1 - Key Plan in Appendix 2 of this report).

The objectives of the current investigation were to:

- ☐ determine the subsurface soil and groundwater conditions based on borehole information.
- ☐ provide geotechnical recommendations for the design of the proposed development including construction considerations which may affect the design.

The following report has been prepared specifically and solely for the aforementioned project which is described herein. It contains our findings and includes geotechnical recommendations pertaining to the design and construction of the subject development as they are understood at the time of writing this report.

Investigating the presence or potential presence of contamination on the subject property was not part of the scope of work of this present investigation. Environmental information is provided under a separate cover.

2.0 Proposed Development

Based on the current conceptual drawings, it is our understanding that several multi-storey high-rise buildings will be constructed over an underground parking structure with one basement level which will occupy the majority of the subject site.

It is further expected that the proposed high-rise complex will be municipally serviced with water and sewer services. Further, it is also expected the existing structures will be demolished as part of construction of the proposed development.

4.3 Groundwater

Groundwater levels were measured in monitoring wells on April 12, 2019. The measured groundwater level (GWL) readings are presented in Table 1 below and further presented in the Soil Profile and Test Data sheets in Appendix 1. Long-term groundwater level can also be estimated based on the observed moisture levels, colour and consistency of the recovered soil samples. Based on these observations, it is estimated that the long-term groundwater table can be expected between 6 to 7 m depth. It should be noted that groundwater levels are subject to seasonal fluctuations. Therefore, the groundwater level could vary at the time of construction.

Table 1A - Summary of Groundwater Level Readings - 2022 Boreholes				
Test Hole Number	Ground Elevation, m	Groundwater Levels (m)		Recording Date
		Depth	Elevation	
BH 1-22	57.06	7.00	50.06	March 2, 2022
BH 2-22	57.05	7.01	50.04	March 2, 2022
BH 3-22	56.02	6.02	50.00	March 2, 2022
BH 4-22	56.21	6.21	50.00	March 2, 2022
BH 5-22	56.33	6.28	50.05	March 2, 2022
BH 6-22	55.99	6.04	49.95	March 2, 2022
BH 7-22	56.18	6.19	49.99	March 2, 2022
BH 8-22	56.04	6.06	49.98	March 2, 2022
Notes: The boreholes were surveyed with respect to a temporary benchmark (TBM), consisting of the top of spindle of the fire hydrant located to the east of the subject site in front of 307 Montgomery Street. A geodetic elevation of 57.63 m was assigned to the TBM.				

Table 1B - Summary of Groundwater Level Readings - 2021 Boreholes				
Test Hole Number	Ground Elevation, m	Groundwater Levels (m)		Recording Date
		Depth	Elevation	
BH 1-21	57.49	7.45	50.04	January 6, 2022
BH 2-21	57.30	7.24	50.06	January 6, 2022
BH 3-21	57.19	7.15	50.04	January 6, 2022
BH 4-21	57.02	7.00	50.02	January 6, 2022
BH 5-21	56.94	6.97	49.97	January 6, 2022
BH 6-21	56.82	6.84	49.98	January 6, 2022
Notes: The boreholes were surveyed with respect to a temporary benchmark (TBM), consisting of the top of spindle of the fire hydrant located to the east of the subject site in front of 307 Montgomery Street. A geodetic elevation of 57.63 m was assigned to the TBM.				

Table 1C - Summary of Groundwater Level Readings - 2019 Boreholes				
Test Hole Number	Ground Elevation, m	Groundwater Levels (m)		Recording Date
		Depth	Elevation	
BH 1	56.08	6.02	50.06	April 12, 2019
BH 2	56.09	5.56	50.53	April 12, 2019
BH 3	56.47	5.94	50.53	April 12, 2019
BH 4	56.50	5.95	50.55	April 12, 2019
BH 5	56.55	5.98	50.57	April 12, 2019
BH 6	56.69	5.56	51.13	April 12, 2019
BH 7	56.75	6.22	50.53	April 12, 2019
BH 8	56.70	6.16	50.54	April 12, 2019
BH 9	56.66	4.04	52.62	April 12, 2019
BH 10	57.07	6.43	50.64	April 12, 2019
Notes: The boreholes were surveyed with respect to a temporary benchmark (TBM), consisting of the top of spindle of the fire hydrant located to the east of the subject site in front of 307 Montgomery Street. A geodetic elevation of 57.63 m was assigned to the TBM.				

All test pits were dry upon completion at the time of the 2021 test pit investigation.

$$V_{s30} = \frac{Depth_{OfInterest}(m)}{\left(\frac{Depth_{Layer1}(m)}{Vs_{Layer1}(m/s)} + \frac{Depth_{Layer2}(m)}{Vs_{Layer2}(m/s)} \right)}$$

$$V_{s30} = \frac{30m}{\left(\frac{3m}{240m/s} + \frac{27m}{2,782m/s} \right)}$$

$$V_{s30} = 1,351m/s$$

Based on the results of the shear wave velocity testing, the average shear wave velocity, V_{s30} , for the proposed buildings beyond the high-rise buildings is **1,351 m/s**. Therefore, a **Site Class B** is applicable for the proposed podium buildings and parking structures, as per Table 4.1.8.4.A of the OBC 2012.

The soils underlying the subject site are not susceptible to liquefaction.

5.5 Basement Slab

With the removal of all topsoil and deleterious fill within the footprint of the proposed building, the in-situ soil and/or bedrock surfaces will be considered an acceptable subgrade upon which to commence backfilling for basement slab construction.

The recommended pavement structures noted in Subsection 5.7 will be applicable for the founding level of the proposed parking garage structure. However, if storage or other uses of the lower level will involve the construction of a concrete floor slab, the upper 200 mm of sub-slab fill consists of 19 mm clear crushed stone.

All backfill material within the footprint of the proposed building should be placed in maximum 300 mm thick loose layers and compacted to at least 98% of its SPMDD. Any soft areas should be removed and backfilled with appropriate backfill material. OPSS Granular B Type II, with a maximum particle size of 50 mm, are recommended for backfilling below the floor slab.

A sub-slab drainage system consisting of lines of perforated drainage pipes should be connected to a sump pump located within the lowest basement level. The spacing and layout of the sub-slab drainage system should be provided by the geotechnical consultant once the foundation layout has been finalized.

6.0 Design and Construction Precautions

6.1 Foundation Drainage and Backfill

Foundation Drainage

It's recommended that a perimeter foundation drainage system be provided for the proposed structure. It's expected that insufficient room will be available for exterior backfill and the foundation wall will act as a blind-sided pour against a shoring system. It is recommended that the drainage system consist of the following:

- ❑ A composite drainage membrane (DeltaDrain 6000, MiraDrain G100N or equivalent) should be placed against the shoring system and bedrock excavation face from the finished ground surface to the top of the footing.
- ❑ It is recommended that 150 mm diameter sleeves at 3 m centres be cast in the footing or at the foundation wall/footing interface to allow the infiltration of water to flow to the interior perimeter drainage pipe. The sleeves should be connected to openings in the HDPE face of the drainage board layer. The perimeter drainage pipe and underfloor drainage system should direct water to sump pit(s) within the lower basement area.

Water Infiltration Volumes

Based on the above-noted methodology, water carried by the foundation and underfloor drainage system will generally consist of surface water and will not consist of groundwater/long-term dewatering of the groundwater table. Water managed by this system will be directed to the appropriate building sump pit.

It is expected that the successful implementation of this system throughout the subject site will result in a long-term infiltration rate of less than 30,000 L/day of surface water. Peak periods of infiltration (i.e.- short-term conditions) should be anticipated during heavy rainfall and snow-melt events.



**Goodkey, Weedmark
& Associates Limited**

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R. Leonard, P.Eng.
M. Sarasin, P.Eng.

Executive Consultants
A. Bogdanowicz, P.Eng.
M.G. Carriere, C.E.T.
R.J. McIntyre, P.Eng.

January 31, 2022

VIA E-MAIL

City of Ottawa
Planning, Infrastructure and Economic Development Department
110 Laurier Avenue West, 4th Floor
Ottawa, Ontario
K1P 1J1

**ATTENTION: MS. ALLISON HAMLIN MCIP, RPP, PLANNER III
DEVELOPMENT REVIEW (URBAN SERVICES)**

**SUBJECT: SITE PLAN APPROVAL APPLICATION
2 MONTREAL ROAD AND 3 SELKIRK STREET
THREE (3) NEW APARTMENT BUILDINGS
OUR PROJECT NO. 2020-276**

Dear Madame:

SITE PLAN CONTROL AGREEMENT COMMENTS:

Please find herewith response based on the City of Ottawa's Site Plan Control Agreement comments for the above-mentioned project.

The long-term groundwater discharge flow is at 30,000L/day according to the "Geotechnical Response to City's Comments". In addition, we have assumed for the previous submission, a discharge flow of 1.04L/s for a pump that will run 8hrs/day based on the Geotechnical information provided to GWAL.

Yours very truly,

GOODKEY, WEEDMARK & ASSOCIATES LIMITED



Mark Sarasin, P.Eng.
Senior Associate
Senior Mechanical Engineer

MS/jnd

e.c.: Emily Roukhian (Riverain Development Inc.)





**Goodkey, Weedmark
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Executive Consultants
A. Bogdanowicz, P.Eng.
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R.J. McIntyre, P.Eng.

December 21, 2021

VIA E-MAIL

City of Ottawa
Planning, Infrastructure and Economic Development Department
110 Laurier Avenue West, 4th Floor
Ottawa, Ontario
K1P 1J1

**ATTENTION: MS. ALLISON HAMLIN MCIP, RPP, PLANNER III
DEVELOPMENT REVIEW (URBAN SERVICES)**

**SUBJECT: SITE PLAN APPROVAL APPLICATION
2 MONTREAL ROAD AND 3 SELKIRK STREET
THREE (3) NEW APARTMENT BUILDINGS
OUR PROJECT NO. 2020-276**

Dear Madame:

SITE PLAN CONTROL AGREEMENT COMMENTS:

Please find herewith response based on the City of Ottawa's Site Plan Control Agreement comments for the above-mentioned project.

Mechanical Comment 1 - Provide a memo from the Mechanical Engineer confirming the discharge rates of the pumps in storage tank will not exceed the allowable discharge rates of the site.

Response: Storm water discharge rates will not exceed the allowable discharge rates of the site. In case of a pump failure, the cistern will have catch basins located on the top of the cistern which will allow for the cistern to overflow at grade thus eliminating the risk of flooding the garage. The cistern pumps will also be duty/standby (redundant pump in case of a failure) and on emergency power.

Mechanical Comment 2 - The mechanical engineer needs to provide a letter (signed and sealed) confirming each building sprinkler system will meet the requirements of a fully supervised system as per the NFPA and are fully supervised by a monitored fire alarm system as per OBC.

Response: The site will be fully sprinklered in accordance with the Ontario Building Code and to NFPA 13. The system will also be fully supervised.

Yours very truly,

GOODKEY, WEEDMARK & ASSOCIATES LIMITED



Mark Sarasin, P.Eng.

Senior Associate, Senior Mechanical Engineer

MS/nh

e.c.: Emily Roukhian (Riverain Development Inc.)





September 01, 2022

Attention: Lorraine Stevens, MCIP, RPP
Planner, Development Review
110 Laurier Avenue West
Ottawa, ON K1P 1J1

Re: 2 Montreal Road and 3 Selkirk Street (D07-12-21-0123)

On behalf of our client, we are writing this memo to support the city of Ottawa's Site Plan Control request. The new development located at 2 Montreal Road and 3 Selkirk Street is comprised of 3 new high-rise mixed use residential buildings. All floor levels including the below grade parking structure will be fully sprinklered. Construction will be that of a typical reinforced concrete high rise using noncombustible materials as per the Ontario Building Code requirements. All structural members including floors, beams and columns will have a minimum of 2 hours fire rating as supported by ULC and UL Standard assemblies. This design will provide the building with a FUS occupancy class of "Limited combustible" and the Type of construction will be "Non-combustible" as defined in the appendix of the Fire Underwriters Survey (1999). Additionally, all vertical openings will be protected in accordance with the Ontario Building Code or other applicable code having jurisdiction; all vertical enclosures will have walls of non-combustible construction with a fire-resistance rating of minimum one hour, all openings will have automatic self-closing devices, and all elevator doors will be of metal or metal-covered construction that will be normally closed for operation of the elevator in keeping with the pertinent code clauses.

We trust this is satisfactory.

Sincerely,

A handwritten signature in blue ink, appearing to read 'AS', with a stylized flourish extending to the right.

Adam Stead, CCCA
Senior Project Coordinator & Certified Construction Contract Administrator

rla/architecture

56 Beech Street, Ottawa, Ontario K1S 3J6
t.613.724.9932 f.613.724.1209 www.rlaarchitecture.ca

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: March 4, 2022 3:27 PM
To: sarrak@lithosgroup.ca
Subject: 29 Selkirk Street

Good Afternoon Sarra,

Thanks for your inquiry. We offer the following comments for your consideration:

The Conservation Authority has no objection to the minor system design, provided approval is obtained from the City (pumping, mechanical, sewer capacity, maintenance (etc.)). The water quality objective is also acceptable. Have you considered other stormwater measures such as roof top storage and LID options for this site? We would also strongly encourage you to look at runoff volume control in accordance with the anticipated linear ECA process.

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



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Stormfilter Design Determining Number of Cartridges for Flow Based Systems

Echelon Environmental

55 Albert Street, Suite #200 | Markham, ON, L3P 2T4

www.echelonenvironmental.ca

info@echelonenvironmental.ca

[905-948-0000](tel:905-948-0000)

Project Name: 3 Selkirk St

Location: Ottawa, ON

OGS ID: OGS

Engineer: Lithos Group

Contact: Gina Liaropoulou, M.Arch

Report Date: 6-Jul-26

Site Data

Drainage Area, Ad	0.23 ac	(0.092 ha)
Runoff Coefficient, Rc	0.79	
Treatment storm flow rate, Q_{treat}	0.09 cfs	(2.52 L/s)
Peak storm flow rate, Q_{peak}	1.59 cfs	(45 L/s)

StormFilter System Configuration

Filtration brand	StormFilter
Cartridge height	12 in
Specific Flow Rate	2.12 gpm/ft ²
Flow rate per cartridge	11.24 gpm

Treatment Summary

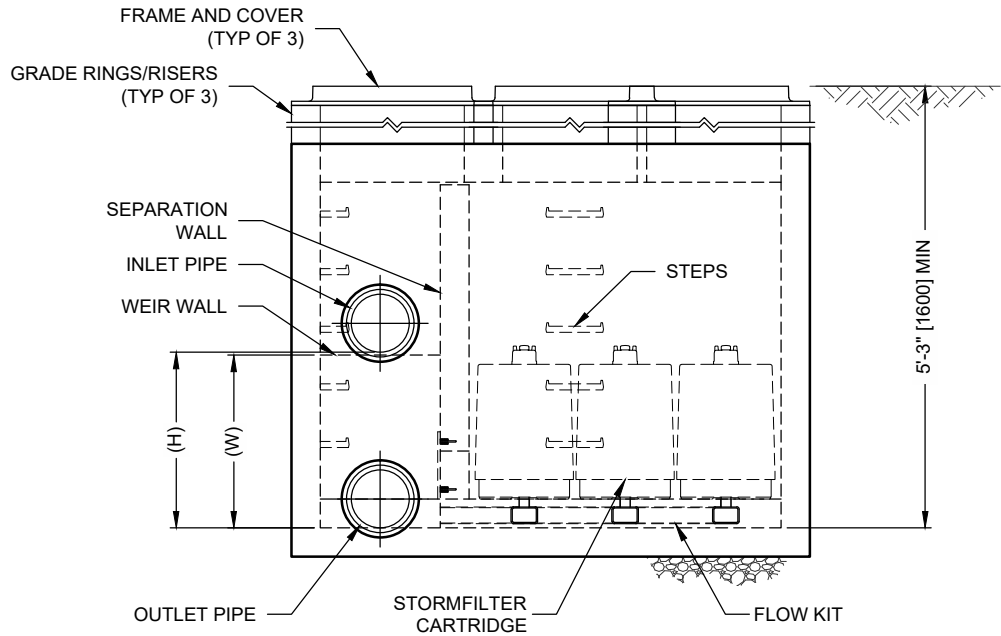
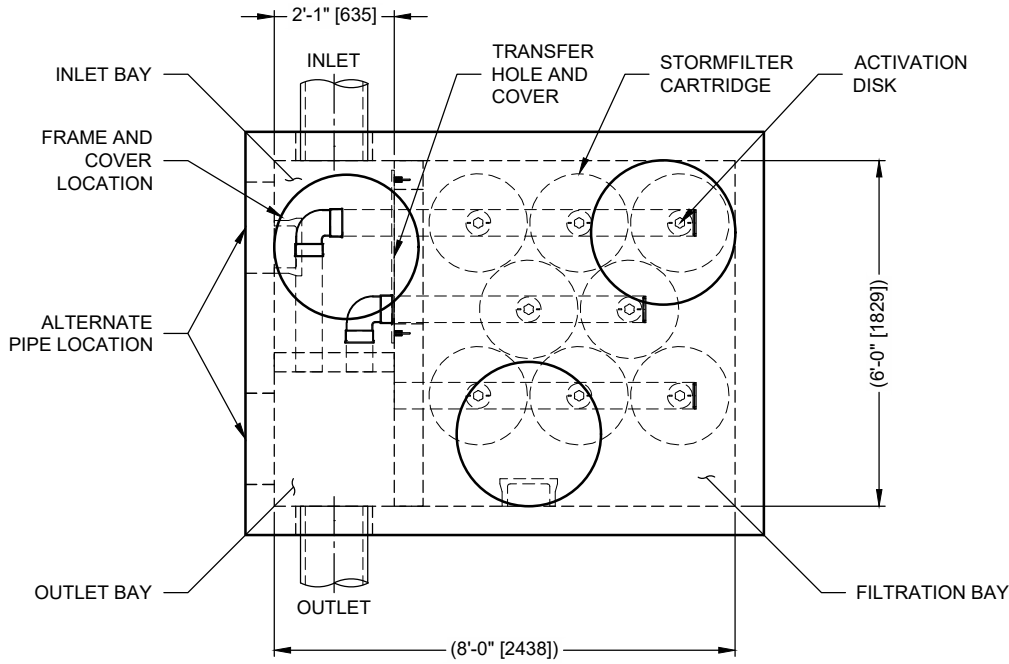
Number of Cartridges Required	4
Filter Media Type	Perlite
Event Mean Concentration (EMC)	120 mg/L
Annual TSS Removal Efficiency	80%
Percent Annual Runoff Captured	90%

Recommended Unit: Stormfilter SFPD0608 vault or CIP

*Connecting pipe sizes, materials, and orientation to be confirmed prior to design finalization.

**Refer to provided standard detail for minimum installation depths. For low cover designs reach out to Echelon Environmental for a custom proposal.

I:\STORMWATER\COMMO\PS10\STORMFILTER\40 STANDARD DRAWINGS\SF PEAK DIVERSION\DWG\SFPD0608-DTL.DWG 3/16/2022 8:10 AM



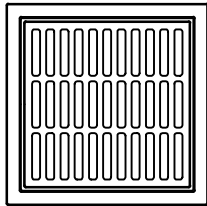
THIS PRODUCT MAY BE PROTECTED BY ONE OR MORE OF THE FOLLOWING
U.S. PATENTS: 5,322,629; 5,524,576; 5,707,527; 5,985,157; 6,027,639; 6,649,048;
RELATED FOREIGN PATENTS, OR OTHER PATENTS PENDING.

STORMFILTER DESIGN NOTES

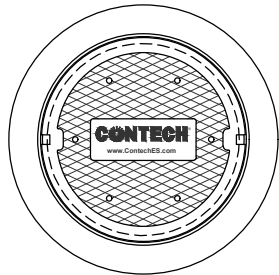
- STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD
- A 6' x 8' [1829 x 2438] PEAK DIVERSION STYLE STORMFILTER IS SHOWN WITH THE MAXIMUM NUMBER OF CARTRIDGES (8) AND IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR A RIGHT INLET CONFIGURATION
- ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS NOTED OTHERWISE

CARTRIDGE SIZE (in. [mm])	27 [686]			18 [457]			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H) (ft. [mm])	3.05 [930]			2.3 [701]			1.8 [549]		
HEIGHT OF WEIR (W) (ft. [mm])	3.00 [914]			2.25 [686]			1.75 [533]		
SPECIFIC FLOW RATE (gpm/sf [L/s/m ²])	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]	2 [1.36]	1.67* [1.13]*	1 [0.68]
CARTRIDGE FLOW RATE (gpm [L/s])	22.5 [1.42]	18.79 [1.19]	11.25 [0.71]	15 [0.95]	12.53 [0.79]	7.5 [0.47]	10 [0.63]	8.35 [0.53]	5 [0.32]

* 1.67 gpm/sf [1.13 L/s/m²] SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND GRATE
(24" SQUARE)
(NOT TO SCALE)



FRAME AND COVER
(30" ROUND)
(NOT TO SCALE)

PERFORMANCE SPECIFICATION

FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7" [178]**. FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **38 SECONDS**. SPECIFIC FLOW RATE SHALL BE **2 GPM/SF [1.36 L/s/m²] (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF [13.39 L/s/m³] OF MEDIA (MAXIMUM)**.

GENERAL NOTES

- CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
- DIMENSIONS MARKED WITH () ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
- ALTERNATE DIMENSIONS ARE IN MILLIMETERS [mm] UNLESS NOTED OTHERWISE.
- FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
- STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
- STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 10' [3048] AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES

- ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
- CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE.
- CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
- CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
- CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
- CONTRACTOR TO REMOVE THE TRANSFER OPENING COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

CONTECH
ENGINEERED SOLUTIONS LLC

www.ContechES.com

9025 Centre Pointe Dr., Suite 400, West Chester, OH 45069

800-338-1122

513-645-7000

513-645-7993 FAX

SFPD0608 (6' x 8')
PEAK DIVERSION STORMFILTER
STANDARD DETAIL

Ontario Ministry of the Environment, Conservation and Parks
Record of Site Condition # B-404-3372993666



Record of Site Condition

Summary

Under Part XV.1 of the *Environmental Protection Act*

Record of site condition number	B-404-3372993666
Date filed to environmental site registry (YYYY/MM/DD)	2025/09/03
Certification date (YYYY/MM/DD)	2024/11/28
Current property use	Commercial
Intended property use	Residential
Certificate of property use number	1784-DH3SEV
Applicable site condition standards	Full depth generic site conditions standard, Non-potable ground water, Coarse soil, for Residential property use, with RA
Property legal description	See attached lawyer's letter
Property municipal address(es)	280 MONTGOMERY ST , OTTAWA, ON, K1L 6N1 300 MONTGOMERY ST , OTTAWA, ON, K1L 7W8 2 MONTREAL RD , OTTAWA, ON, K1L 6E9 3 SELKIRK ST , OTTAWA, ON, K1L 6N1

Notice to readers concerning due diligence

This record of site condition (RSC) has been filed in the Environmental Site Registry to which the public has access and which contains a notice advising users of the Environmental Site Registry

who have dealings with any property to consider conducting their own due diligence with respect to the environmental condition of the property, in addition to reviewing information in the Environmental Site Registry.

Contents of this record of site condition

This RSC consists of this document which is available to be printed directly from the Environmental Site Registry as well as all supporting documentation indicated in this RSC to have been submitted in electronic format to the Ministry of the Environment, Conservation and Parks.

Part 1: Property Ownership, Property Information and Owner's Certifications

Information about the owner who is submitting or authorizing the submission of the RSC

Owner name	SELKIRK & MAIN HOLDINGS INC.
Ownership type	Firm, corporation or partnership
Authorized person	DANIEL BYRNE
Mailing address	109 Atlantic AVToronto Ontario
Postal Code	M6S 1Y1
Phone	(416) 566-1611
Fax	
Email address	DANIEL@MAINANDMAIN.CA

Information about other current owners

Owner name	Riverain Developments Inc.
Ownership type	Firm, corporation or partnership
Authorized person	Daniel Byrne
Mailing address	302B-109 Atlantic Avenue Toronto M6K 1X4
Postal code	M6K 1X4
Phone	4165302438
Fax	
Email address	daniel@mainandmain.ca
Owner name	2 Montreal Road Inc.
Ownership type	Firm, corporation or partnership
Authorized person	Daniel Byrne
Mailing address	302B-109 Atlantic Avenue Toronto M6K 1X4
Postal code	M6K 1X4
Phone	4165302438
Fax	

Email address	daniel@mainandmain.ca
Owner name	Equiton Residential Income Fund GP Inc. as General Partner by and on behalf of Equiton Residential Income Fund LP
Ownership type	Firm, corporation or partnership
Authorized person	Jason Roque
Mailing address	500-1111 International Boulevard Burlington L7L 6W1
Postal code	L7L 6W1
Phone	1234567890
Fax	
Email address	jroque@equiton.com
Owner name	2799338 Ontario Inc.
Ownership type	Firm, corporation or partnership
Authorized person	Daniel Byrne
Mailing address	302B-109 Atlantic Avenue Toronto M6K 1X4
Postal code	M6K 1X4
Phone	4165302438
Fax	
Email address	daniel@mainandmain.ca

Record of site condition property location information

Municipal address(es)	280 MONTGOMERY ST , OTTAWA, ON, K1L 6N1 300 MONTGOMERY ST , OTTAWA, ON, K1L 7W8 2 MONTREAL RD , OTTAWA, ON, K1L 6E9 3 SELKIRK ST , OTTAWA, ON, K1L 6N1
Municipality	OTTAWA
Legal description	See attached lawyer's letter
Assessment roll number	060921010101700 060921010101700 060921010101700 060921010101700
Property identifier number(s)	04237-0003 (LT) 04237-0107 (LT) 04237-0108 (LT) 04237-0112 (LT)
Horizontal severance	

Record of site condition property geographical references

Coordinate system	UTM
Datum	NAD 83
Zone	Zone 18
Easting	447683.32
Northing	5031215.02

Record of site condition property use information

The following types of property uses are defined by the Regulation: Agricultural or other use, Commercial use, Community use, Industrial use, Institutional use, Parkland use, and Residential use.

Current property use	Commercial
Intended property use	Residential

Certificate of property use has been issued under section 168.6 of the <i>Environmental Protection Act</i>	Yes
Certificate of property use number	1784-DH3SEV

As an owner:

☒	I acknowledge that the RSC will be submitted for filing in the Environmental Site Registry, that records of site condition that are filed in the Registry are available for examination by the public and that the Registry contains a notice advising users of the Registry who have dealings with any property to consider conducting their own due diligence with respect to the environmental condition of the property, in addition to reviewing information in the Registry.
☒	I have conducted reasonable inquiries to obtain all information relevant to this RSC, including information from the other current owners of the RSC property named in this part of the RSC and I have obtained all information relevant to this RSC of which I am aware.
☒	I have disclosed all information referred to in paragraph 2 to any qualified person named in this RSC.
☒	To my knowledge, the statements made in this part of the RSC are true as of 2025/08/26.
☒	I have ensured that access to the entire property, including the phase one property, any phase two property and the RSC property, has been afforded to the qualified person and to persons supervised by the qualified person, for purposes of conducting the site reconnaissance.

By checking the box above, I, DANIEL BYRNE am on 2025/08/26,

a.	signing this RSC as an owner;
b.	making all certifications required of the owner of the RSC property for this RSC; and
c.	confirming that I have the authority to bind, and hereby do bind SELKIRK & MAIN HOLDINGS INC..
☒ I Agree	

Part 2: List of reports, summary of site conditions and qualified person's statements and certifications

Qualified person's information

Name	Michael Beaudoin
Type of licence under <i>Professional Engineers Act</i>	Licence
Licence number	100165188
Qualified person's employer name	Paterson Group
Mailing address	9 Auriga DR Ottawa Ontario
Phone	(613) 226-7381
Fax	
Email address	mbeaudoin@patersongroup.ca

Municipal information

Local or single-tier municipality	CITY OF OTTAWA
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Ministry of the Environment Conservation and Parks District Office

District office	Ottawa
District office address	103-2430 Don Reid Drive, Ottawa ON

Phase one environmental site assessment report

Document used as the phase one environmental site assessment report and updates in submitting the RSC for filing

The date the last work on all of the records review, interviews and site reconnaissance components of the phase one environmental site assessment was done (refer to clause 28(1)(a) of Ontario Regulation (O. Reg.) 153/04)	2025/08/11
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Type of Report	Report Title	Date of Report (yyyy/mm/dd)	Author of Report	Name of Consulting Company
Phase One environmental site assessment	Phase I Environmental Site Assessment, 3-33 Selkirk Street and 2 Montreal Road, Ottawa, ON	2019/04/22	Mark D'Arcy	Paterson Group
Update to Phase One environmental site assessment report	Phase I Environmental Site Assessment Update, 280 and 300 Montgomery Street, 3 Selkirk Street, and 2 Montreal Road, Ottawa, Ontario	2025/08/11	Michael Beaudoin	Paterson Group

Reports and other documents related to the phase one environmental site assessment

Reports and other documents relied upon in certifying the information set out in section 10 of Schedule A or otherwise used in conducting the phase one environmental site assessment

Report Title	Date of Report (yyyy/mm/dd)	Author of Report	Name of Consulting Company
Phase II Environmental Site Assessment, Volume 1 of 2, 2 Montreal Road, Ottawa, ON	2014/11/28	Patricia Stelmack	exp Energy Services Ltd.

2016 Groundwater Monitoring and Sampling Report, Former Retail Fuel Outlet, 2 Montreal Road, Ottawa, Ontario	2017/01/30	Sandra Carrelas	Golder Associates Ltd.
November 2017 Groundwater Monitoring and Sampling Report, Former Retail Fuel Outlet, 2 Montreal Road, Ottawa, Ontario	2018/03/22	Sandra Carrelas	Golder Associates Ltd.
2018 Groundwater Monitoring and Sampling Report, Former Retail Fuel Outlet, 2 Montreal Road, Ottawa, Ontario	2019/02/12	Sandra Carrelas	Golder Associates Ltd.
Phase II Environmental Site Assessment, 3-33 Selkirk Street, and 2 Montreal Road, Ottawa, Ontario	2019/04/29	Mark D'Arcy	Paterson Group
Phase II Environmental Site Assessment, Former Retail Fuel Outlet, 2 Montreal Road, Ottawa, Ontario, SAPNo. 88005740	2020/01/16	Sandra Carrelas	Golder Associates Ltd.

Phase two environmental site assessment report

Document used as the phase two environmental site assessment report and updates in submitting the RSC for filing

The date the last work on all of the planning of the site investigation and conducting the site investigation components of the phase two environmental site assessment was done (refer to clause 33.5(1)(a) of O. Reg. 153/04)	2025/08/11
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Type of Report	Report Title	Date of Report (yyyy/mm/dd)	Author of Report	Name of Consulting Company
Phase Two environmental site assessment	Phase II Environmental Site Assessment, 3-33 Selkirk Street, and 2 Montreal Road, Ottawa, Ontario	2019/04/29	Mark D'Arcy	Paterson Group
Update to Phase Two environmental site assessment report	Phase II Environmental Site Assessment Update, 3 Selkirk Street, 2 Montreal Road, 280 Montgomery Street, and 300 Montgomery Street, Ottawa, Ontario	2024/08/09	Lauren Kratz	Paterson Group
Update to Phase Two environmental site assessment report	Phase II Environmental Site Assessment Update, 3 Selkirk Street, 2 Montreal Road, 280 Montgomery Street, and 300 Montgomery Street, Ottawa, Ontario	2025/08/11	Michael Beaudoin	Paterson Group

Reports and other documents related to the phase two environmental site assessment

Reports and other documents relied upon in making any certifications in the RSC for the purposes of Part IV of Schedule A or otherwise used in conducting the phase two environmental site assessment

Report Title	Date of Report	Author of Report	Name of Consulting
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	(yyyy/mm/dd)		Company
Phase II Environmental Site Assessment, Volume 1 of 2, 2 Montreal Road, Ottawa, ON	2014/11/28	Patricia Stelmack	exp Energy Services Ltd.
2016 Groundwater Monitoring and Sampling Report, Former Retail Fuel Outlet, 2 Montreal Road, Ottawa, Ontario	2017/01/30	Sandra Carrelas	Golder Associates Ltd.
November 2017 Groundwater Monitoring and Sampling Report, Former Retail Fuel Outlet, 2 Montreal Road, Ottawa, Ontario	2018/03/22	Sandra Carrelas	Golder Associates Ltd.
2018 Groundwater Monitoring and Sampling Report, Former Retail Fuel Outlet, 2 Montreal Road, Ottawa, Ontario	2019/02/12	Sandra Carrelas	Golder Associates Ltd.
Phase II Environmental Site Assessment, Former Retail Fuel Outlet, 2 Montreal Road, Ottawa, Ontario, SAPNo. 88005740	2020/01/16	Sandra Carrelas	Golder Associates Ltd.
Human Health and Ecological Risk Assessment, 3 Selkirk Street, 2 Montreal Road, 280 Montgomery Street, and 300 Montgomery Street, Ottawa, Ontario Ontario, SAPNo. 88005740	2025/03/19	Christopher Marwood	Paterson Group

Environmental condition

Section 41 applies?	No
Section 43.1 applies?	No

Site condition information

Certification date (YYYY/MM/DD)	2024/11/28
Total area of <u>RSC</u> property (in hectares)	1.52
Number of any previously filed <u>RSC</u> that applies to any part of the <u>RSC</u> property	
Number of any previously filed transition notice that applies to any part of the <u>RSC</u> property	
Soil texture	Coarse
Assessment/restoration approach	Full Depth Generic
Is there soil present that is sufficient to investigate, sample and analyze soil on, in or under the property in accordance with s. 6, Schedule E of <u>O.</u> <u>Reg.</u> 153/04?	Yes
Was investigation, sampling and analysis of soil on, in or under the property already undertaken in such a way that it can be used as part of the phase two environmental site assessment?	Yes
Site investigation includes the investigation, sampling and analysis of ground water?	Yes
Name of the laboratory used to analyze any samples collected of soil, ground water or sediment	Paracel Laboratories
Ground water condition (potable, non-potable)	Non-Potable
Is the property, and all other properties located, in whole or in part, within 250 meters of the boundaries of the property, are supplied by a municipal drinking water system, as defined in the <i>Safe Drinking Water Act</i> , 2002?	Yes
Is the <u>RSC</u> property located in an area designated in a municipal official plan as a well-head protection area or other designation identified in a municipal official plan for the protection of ground water?	No
Has the municipality that has authority under the Municipal Act, 2001 to pass by-laws respecting water production, treatment and storage	

consented in writing to the application of the non-potable ground water site condition standards for the property?	
Has the municipality that has authority under the Municipal Act, 2001 to pass by-laws respecting water production, treatment and storage withdrawn its consent to the application of the non-potable ground water site condition standards for the property?	
Does the property or one of the properties in the phase one study area has a well used or intended for use as a source of water for human consumption or agriculture?	No
Has the municipality that has authority under the Municipal Act, 2001 to pass by-laws respecting water production, treatment and storage consented in writing to the application of the non-potable ground water site condition standards for the property and the consent has not been withdrawn?	
Has the municipality that has authority under the Municipal Act, 2001 to pass by-laws respecting water production, treatment and storage withdrawn its consent to the application of the non-potable ground water site condition standards for the property?	
Written non-potable notification date to the municipality	2024-09-12
Did you, the owner of the property, or person authorized by the owner of the property, receive a notice of objection?	No
Did you, the owner of the property, or a person authorized by the owner of the property, receive a notice of objection that was subsequently withdrawn?	
Applicable site condition standard	TABLE 3

Risk assessment information

A risk assessment has been prepared and accepted by the Director in support of this <u>RSC</u> ?	Yes
Risk assessment identification number	<u>RA</u> 2084-22c
Risk assessment was a site specific risk assessment completed and approved in accordance with the Cleanup Guideline 1996?	No
Was a non-standard delineation conducted in accordance with section 7.1 of Schedule E as part of the phase two <u>ESA</u> ?	No

Table 1 - Maximum contaminant concentrations compared to applicable site condition standards

Measured concentration for contaminants in soil

Contaminant name		Maximum concentration		Applicable site condition	Unit of measure
1	Acetone	<	0.5	16	µg/g
2	Beryllium		1.3	4	µg/g
3	Biphenyl 1,1'-	<	0.05	0.31	µg/g
4	Bis(2-chloroethyl)ether	<	0.1	0.5	µg/g
5	Bis(2-chloroisopropyl)ether	<	0.1	0.67	µg/g
6	Bis(2-ethylhexyl)phthalate		3.88	5	µg/g
7	Boron (total)		16.2	120	µg/g
8	Bromodichloromethane	<	0.05	13	µg/g
9	Bromoform	<	0.05	0.27	µg/g
10	Bromomethane	<	0.05	0.05	µg/g
11	Cadmium		1.2	1.2	µg/g
12	Carbon Tetrachloride	<	0.05	0.05	µg/g
13	Chloroaniline p-	<	0.1	0.5	µg/g
14	Chlorobenzene	<	0.05	2.4	µg/g
15	Chloroform	<	0.05	0.05	µg/g
16	Chlorophenol, 2-	<	0.1	1.6	µg/g
17	Chromium Total		77.9	160	µg/g
18	Chromium VI		0.7	8	µg/g
19	Copper		97.5	140	µg/g
20	Dibromochloromethane	<	0.05	9.4	µg/g
21	Dichlorobenzene, 1,2-	<	0.05	3.4	µg/g
22	Dichlorobenzene, 1,3-	<	0.05	4.8	µg/g
23	Dichlorobenzene, 1,4-	<	0.05	0.083	µg/g

24	Dichlorobenzidine, 3,3'-	<	0.1	1	µg/g
25	Dichlorodifluoromethane	<	0.05	16	µg/g
26	Dichloroethane, 1,1-	<	0.05	3.5	µg/g
27	Dichloroethane, 1,2-	<	0.05	0.05	µg/g
28	Dichloroethylene, 1,1-	<	0.05	0.05	µg/g
29	Dichloroethylene, 1,2-cis-	<	0.05	3.4	µg/g
30	Dichloroethylene, 1,2-trans-	<	0.05	0.084	µg/g
31	Dichlorophenol, 2,4-	<	0.1	1.7	µg/g
32	Dichloropropane, 1,2-	<	0.05	0.05	µg/g
33	Dichloropropene, 1,3-	<	0.05	0.05	µg/g
34	Diethyl Phthalate	<	0.1	0.5	µg/g
35	Dimethylphenol, 2,4-	<	0.1	390	µg/g
36	Dimethylphthalate	<	0.1	0.5	µg/g
37	Dinitrophenol, 2,4-	<	0.1	38	µg/g
38	Dinitrotoluene, 2,4 and 2,6-	<	0.1	0.92	µg/g
39	Electrical Conductivity (mS/cm)		0.7	0.7	mS/cm
40	Ethylene dibromide	<	0.05	0.05	µg/g
41	Fluorene		23.2	62	µg/g
42	Mercury		0.27	0.27	µg/g
43	Methyl Ethyl Ketone	<	0.5	16	µg/g
44	Methyl Isobutyl Ketone	<	0.5	1.7	µg/g
45	Methyl Mercury **		0.00023	0.0084	µg/g
46	Methyl tert-Butyl Ether (MTBE)	<	0.05	0.75	µg/g
47	Methylene Chloride	<	0.05	0.1	µg/g
48	Molybdenum		6.9	6.9	µg/g
49	Pentachlorophenol	<	0.1	0.1	µg/g
50	Petroleum Hydrocarbons F4	<	200	2800	µg/g
51	Phenol	<	0.1	9.4	µg/g
52	Polychlorinated Biphenyls	<	0.35	0.35	µg/g

53	Silver		2.5	20	µg/g
54	Sodium Adsorption Ratio		5	5	unitless
55	Styrene	<	0.05	0.7	µg/g
56	Tetrachloroethane, 1,1,1,2-	<	0.05	0.058	µg/g
57	Tetrachloroethane, 1,1,2,2-	<	0.05	0.05	µg/g
58	Tetrachloroethylene	<	0.05	0.28	µg/g
59	Trichlorobenzene, 1,2,4-	<	0.1	0.36	µg/g
60	Trichloroethane, 1,1,1-	<	0.05	0.38	µg/g
61	Trichloroethane, 1,1,2-	<	0.05	0.05	µg/g
62	Trichloroethylene	<	0.05	0.061	µg/g
63	Trichlorofluoromethane	<	0.05	4	µg/g
64	Trichlorophenol, 2,4,5-	<	0.1	4.4	µg/g
65	Trichlorophenol, 2,4,6-	<	0.1	3.8	µg/g
66	Uranium		8.2	23	µg/g
67	Vanadium		62.3	86	µg/g
68	Vinyl Chloride	<	0.02	0.02	µg/g

Table 1 - Maximum contaminant concentrations compared to applicable site condition standards

Measured concentration for contaminants in ground water

Contaminant name		Maximum concentration		Applicable site condition	Unit of measure
1	Acenaphthene	<	0.05	600	µg/L
2	Acenaphthylene	<	0.05	1.8	µg/L
3	Acetone		80.1	130000	µg/L
4	Anthracene	<	0.05	2.4	µg/L
5	Antimony		1.6	20000	µg/L
6	Arsenic		3	1900	µg/L
7	Barium		181	29000	µg/L
8	Benz[a]anthracene	<	0.05	4.7	µg/L
9	Benzo[a]pyrene		0.01	0.81	µg/L
10	Benzo[b]fluoranthene	<	0.05	0.75	µg/L
11	Benzo[ghi]perylene	<	0.05	0.2	µg/L
12	Benzo[k]fluoranthene	<	0.05	0.4	µg/L
13	Beryllium	<	0.5	67	µg/L
14	Boron (total)		170	45000	µg/L
15	Bromodichloromethane	<	2.5	85000	µg/L
16	Bromoform	<	5	380	µg/L
17	Cadmium		0.2	2.7	µg/L
18	Carbon Tetrachloride	<	0.2	0.79	µg/L
19	Chlorobenzene	<	0.5	630	µg/L
20	Chloroform		1.8	2.4	µg/L
21	Chromium Total	<	0.5	810	µg/L
22	Chromium VI		5	140	µg/L
23	Chrysene	<	0.05	1	µg/L

24	Cobalt		2	66	µg/L
25	Copper		4.6	87	µg/L
26	Dibenz[a h]anthracene	<	0.05	0.52	µg/L
27	Dibromochloromethane	<	5	82000	µg/L
28	Dichlorobenzene, 1,2-	<	0.5	4600	µg/L
29	Dichlorobenzene, 1,3-	<	0.5	9600	µg/L
30	Dichlorobenzene, 1,4-	<	0.5	8	µg/L
31	Dichlorodifluoromethane	<	1	4400	µg/L
32	Dichloroethane, 1,1-	<	0.5	320	µg/L
33	Dichloroethane, 1,2-	<	0.5	1.6	µg/L
34	Dichloroethylene, 1,1-	<	0.2	1.6	µg/L
35	Dichloroethylene, 1,2-cis-	<	0.5	1.6	µg/L
36	Dichloroethylene, 1,2-trans-	<	0.5	1.6	µg/L
37	Dichloropropane, 1,2-	<	0.5	16	µg/L
38	Dichloropropene, 1,3-	<	0.5	5.2	µg/L
39	Ethylbenzene		49	2300	µg/L
40	Ethylene dibromide	<	0.2	0.25	µg/L
41	Fluoranthene	<	0.05	130	µg/L
42	Fluorene	<	0.05	400	µg/L
43	Hexane (n)		2.1	51	µg/L
44	Indeno[1 2 3-cd]pyrene	<	0.05	0.2	µg/L
45	Lead		0.6	25	µg/L
46	Mercury	<	0.1	0.29	µg/L
47	Methyl Ethyl Ketone	<	5	470000	µg/L
48	Methyl Isobutyl Ketone	<	5	140000	µg/L
49	Methylene Chloride	<	5	610	µg/L
50	Methylnaphthalene, 2-(1-) ***		1.4	1800	µg/L
51	Molybdenum		41.7	9200	µg/L
52	Naphthalene		3.8	1400	µg/L

53	Nickel		41	490	µg/L
54	Petroleum Hydrocarbons F1****		280	750	µg/L
55	Petroleum Hydrocarbons F2		140	150	µg/L
56	Petroleum Hydrocarbons F3		210	500	µg/L
57	Petroleum Hydrocarbons F4	<	200	500	µg/L
58	Phenanthrene		0.06	580	µg/L
59	Pyrene	<	0.05	68	µg/L
60	Selenium		4.1	63	µg/L
61	Silver		0.3	1.5	µg/L
62	Styrene	<	0.5	1300	µg/L
63	Tetrachloroethane, 1,1,1,2-	<	0.5	3.3	µg/L
64	Tetrachloroethane, 1,1,2,2-	<	0.5	3.2	µg/L
65	Tetrachloroethylene	<	0.5	1.6	µg/L
66	Thallium	<	0.1	510	µg/L
67	Toluene		91	18000	µg/L
68	Trichloroethane, 1,1,1-	<	0.5	640	µg/L
69	Trichloroethane, 1,1,2-	<	0.5	4.7	µg/L
70	Trichloroethylene	<	0.5	1.6	µg/L
71	Trichlorofluoromethane	<	1	2500	µg/L
72	Uranium		42.2	420	µg/L
73	Vanadium		0.8	250	µg/L
74	Vinyl Chloride	<	0.5	0.5	µg/L
75	Zinc		20	1100	µg/L

See the attached "Table 2, Maximum contaminant concentrations compared to standards specified in a risk assessment" for standards specified in a risk assessment and comparison to maximum concentrations measured on, in or under the record of site condition property.

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Remedial action and mitigation

Remediated soils

Estimated quantities of the soil, if any, originating at and remaining on the RSC property that have been remediated, at a location either on or off the property, to reduce the concentration of contaminants in the soil. Indicate the remediation process or processes used and the estimated amount of soil remediated by each identified process.

Soil remediation process	Estimated quantity of soil (in ground-volume in cubic metres)
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Description of remediation

Description of any action taken to reduce the concentration of contaminants (including soil removals) on, in or under the RSC property.

Soil or sediment removed and not returned

Estimated quantities of soil or sediment, if any, removed from and not returned to the RSC property.

Estimated quantity of soil (in ground-volume in cubic metres)	37,777
Estimated quantity of sediment (in ground-volume in cubic metres)	

Excess soil deposited at the property

Estimated quantity of excess soil, if any, being deposited at the RSC property, not including any soil that may have originated at but been remediated off the record of site condition property and that is identified in section 28 of Schedule A

Estimated quantity of soil brought to the property (in ground-volume in cubic metres)	160
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Ground water control or treatment measures

Ground water control or treatment measures that were required for the RSC property prior to the certification date for the purpose of submitting the RSC for filing.
Ground water control or treatment measures that are required for the RSC property after the certification date.

Estimated volume of ground water, if any, removed from and not returned to the RSC property.

Estimated volume of ground water (in litres)	
--	--

Other activities including risk management measures

Constructed works that prior to the certification date for the purpose of submitting the RSC for filing, were required to control or otherwise mitigate the release or movement of known existing contaminants at the RSC property.
Constructed works that after the certification date, are required to control or otherwise mitigate the release or movement of known existing contaminants at the RSC property.
Hard cap and/or soft cap barriers to soil.

Monitoring or Maintenance Soil Management Measures

Soil monitoring requirements or any requirements for care, maintenance or replacement or any monitoring or control works for known existing contaminants, if any, on the RSC property, after the certification date.
Continued inspection and monitoring of the hard cap and fill cap barriers to ensure that their integrity is not compromised.

Ground water management measures

Ground water monitoring requirements or requirements for care, maintenance or replacement of any monitoring or control works or known existing contaminants, if any, on the RSC property, after the certification date.

Remediated or removed soil, sediment or ground water from near property boundary

Has any soil, sediment or ground water at the RSC property that is or was located within 3 metres of the RSC property boundary been remediated or removed for the purpose of remediation?	Yes
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Qualified person's statements and certifications

As the qualified person, I certify that:

☒	A phase one environmental site assessment of the <u>RSC</u> property, which includes the evaluation of the information gathered from a records review, site reconnaissance, interviews, a report and any updates as required, has been conducted in accordance with the regulation by or under the supervision of a qualified person as required by the regulation.
☒	A phase two environmental site assessment of the <u>RSC</u> property, which includes the evaluation of the information gathered from planning and conducting a site investigation, a report, and any updates required, has been conducted in accordance with the regulation by or under the supervision of a qualified person as required by the regulation.
☒	The information represents the site conditions at the sampling points at the time of sampling only and the conditions between and beyond the sampling points may vary.
☒	As of 2024/11/28, in my opinion, based on the phase one environmental site assessment and the phase two environmental site assessment, and any confirmatory sampling, there is no evidence of any contaminants in the soil, ground water or sediment on, in or under the <u>RSC</u> property that would interfere with the type of property use to which the <u>RSC</u> property will be put, as specified in the <u>RSC</u> .
☒	Ground water sampling has been conducted in accordance with the regulation by or under the supervision of a qualified person as required by the regulation
☒	The <u>RSC</u> property and all other properties located, in whole or in part, within 250 metres of the boundary of the property supplied by a municipal drinking water system, as defined in the <i>Safe Drinking Water Act</i> , 2002.
☒	The <u>RSC</u> property is not located in an area mentioned in subparagraph i and I have or the owner of the property or a person authorized by the owner of the property has, within the year immediately before the submission of this record of site condition, given written notice of intention to apply non-potable ground water site condition standards to the clerk of the municipality mentioned in subsection 35 (3) of the regulation.
☒	The owner of the property has informed me that no notice of objection was received within 30 days after receiving the notice described in subparagraph 2 iii, nor have I received such a notice.
☒	As of 2024/11/28, in my opinion, based on the phase one and phase two environmental site assessments and any confirmatory sampling, the <u>RSC</u> property meets the applicable full depth generic site condition standards prescribed by section 37 of the regulation for all contaminants prescribed by the regulation in relation to the type of property use for which this <u>RSC</u> is filed, except for those contaminants (if any) specified in this <u>RSC</u> at Table 2, maximum contaminant concentrations compared to standards specified in a risk

	assessment.
☒	As of 2024/11/28, the maximum known concentration of each contaminant in soil, sediment and ground water at the <u>RSC</u> property for which sampling and analysis has been performed is specified in this <u>RSC</u> at Table 1, maximum contaminant concentrations compared to applicable site condition standards.
	In relation to any contaminant excepted from the certification mentioned in paragraph 1 of subsection (1), or if there is any other contaminant that in my opinion is likely to cause an adverse effect:
☒	A risk assessment was prepared for the contaminant with respect to the property for which the phase two environmental site assessment was conducted.
☒	The Director has accepted the risk assessment under clause 168.5 (1) (a) of the Act.
☒	As of 2024/11/28, the property for which the phase two environmental site assessment was conducted meets the standards specified in the risk assessment for the contaminant
☒	I am a qualified person and have the qualifications required by section 5 of the regulation.
☒	I have in place an insurance policy that satisfies the requirements of section 7 of the regulation.
☒	I acknowledge that the <u>RSC</u> will be submitted for filing in the Environmental Site Registry, that records of site condition that are filed in the Registry are available for examination by the public and that the Registry contains a notice advising users of the Registry who have dealings with any property to consider conducting their own due diligence with respect to the environmental condition of the property, in addition to reviewing information in the Registry.
☒	The opinions expressed in this <u>RSC</u> are engineering or scientific opinions made in accordance with generally accepted principles and practices as recognized by members of the environmental engineering or science profession or discipline practicing at the same time and in the same or similar location.
☒	I do not hold and have not held and my employer, if any, does not hold and has not held a direct or indirect interest in the <u>RSC</u> property or any property which includes the <u>RSC</u> property and was the subject of a phase one or two environmental site assessment or risk assessment upon which this <u>RSC</u> is based.
☒	To the best of my knowledge, the certifications and statements in this part of the <u>RSC</u> are true as of 2024/11/28.
☒	By signing this <u>RSC</u> , I make no express or implied warranties or guarantees.

By checking the boxes above, and entering my membership/licence number in this submission, I, Michael Beaudoin, a qualified person under section 5 of O. Reg. 153/04 am, on ,

a.	signing this RSC submission as a qualified person; and
b.	making all certifications required as a qualified person for this RSC
☒ I Agree	

Additional documentation provided by property owner or agent

The following documents have been submitted to the Ministry of the Environment, Conservation and Parks as part of the RSC

A current plan of survey
Certificate of Status or equivalent for the owner
Copy of any deed(s), transfer(s) or other document(s) by which the record of site condition property was acquired
Lawyer's letter consisting of a legal description of the property
Phase Two conceptual site model
Property Specific Standards
Table of Area(s) of potential environmental concern
Table of current and past uses of the Phase One property

Appendix C

Storm Analysis



Prepared By: Nikolaos Reptsis, P.Eng., M.A.Sc.
Reviewed by: Nick Moutzouris, P.Eng., M.A.Sc.

Rational Method Pre-Development Flow Calculation

3 Selkirk Street, OT
File No. UD25-052
City of Ottawa
Date: July 2026

Area Number	Area (ha)	Actual Coefficient	Design Coefficient
A1 Pre (Phase II)	0.339	0.90	0.50

Rational Method Calculation

Event 2-year IDF Data Set City of Ottawa a = 732.950 b= 6.199 c= 0.810

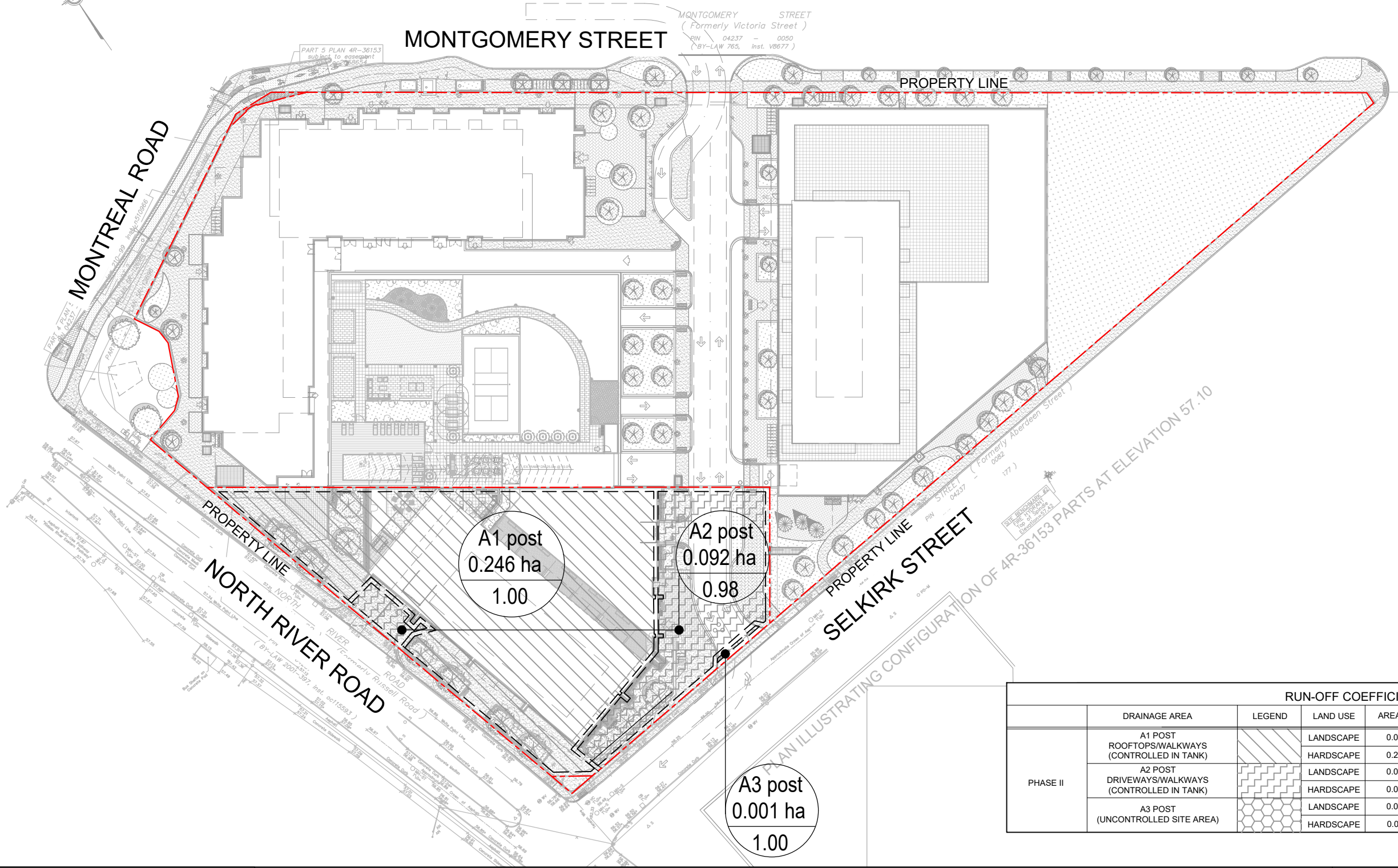
Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Phase II)	0.339	0.50	0.17	20	52.0	0.024	24.5

Event 5-year IDF Data Set City of Ottawa a = 998.071 b= 6.053 c= 0.814

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Phase II)	0.339	0.50	0.17	20	70.3	0.033	33.1

Event 100-year IDF Data Set City of Ottawa a = 1735.688 b= 6.014 c= 0.820

Area Number	A (ha)	C	AC	Tc (min.)	I (mm/h)	Q (m ³ /s)	Q (L/s)
A1 pre (Phase II)	0.339	0.50	0.17	20	120.0	0.056	56.5



RUN-OFF COEFFICIENTS							
	DRAINAGE AREA	LEGEND	LAND USE	AREA (ha)	INITIAL COEFFICIENT	COMPOSITE COEFFICIENT	TOTAL AREA (ha)
PHASE II	A1 POST ROOFTOPS/WALKWAYS (CONTROLLED IN TANK)		LANDSCAPE	0.017	0.25	1.00	0.339
			HARDSCAPE	0.229	0.90		
	A2 POST DRIVEWAYS/WALKWAYS (CONTROLLED IN TANK)		LANDSCAPE	0.016	0.25	0.98	
			HARDSCAPE	0.076	0.90		
	A3 POST (UNCONTROLLED SITE AREA)		LANDSCAPE	0.000	0.25	1.00	
			HARDSCAPE	0.001	0.90		



LEGEND

150 Bermondsey Road, Toronto, Ontario M4A 1Y1

POST-DEVELOPMENT
STORM DRAINAGE AREA PLAN
RESIDENTIAL USE DEVELOPMENT
3 SELKIRK STREET
OTTAWA, ONTARIO

DATE: JULY 2026PROJECT No: UD25-052

SCALE: N.T.S. FIGURE No: DAP 2



Modified Rational Method -
Two Year Storm - Phase II
Site Flow and Storage Summary
3 Selkirk Street, OT

Date: July 2026

Drainage Area A1 Post				Drainage Area A2 Post				Drainage Area A3 Post				Storage Tank	
Phase II - Rooftops/Walkways - Controlled in Tank				Phase II - Driveways/Walkways - Controlled in Tank OGS				Phase II - Uncontrolled				A1 Post + A2 Post + A3 Post	
Area (A1) = 0.246 ha				Area (A2) = 0.092 ha				Area (A3) = 0.001 ha				Design Controlled Release Rate (100mm orifice plate) (Tank-Phase II) = 17.5 L/s	
"C" = 0.86				"C" = 0.79				"C" = 1.00				Max. Storage Tank Size = 41.2 m³	
AC1= 0.21				AC2= 0.07				AC3= 0.00				Storage Tank footprint Area = 109.8 m²	
Tc = 10.0 min				Tc = 10.0 min				Tc = 10.0 min					
Time Increment = 5.0 min				Time Increment = 5.0 min				Time Increment = 5.0 min					
Max. Release Rate = 44.9 L/s				Max. Release Rate = 15.5 L/s				Max. Release Rate = 0.3 L/s					
												Total Site	
												Total Site Release Rate (towards Selkirk Street)= "Storage Tank"	
												5-yr Pre-Development Site Release Rate = 33.1 L/s	
												Uncontrolled Flow = 0.3 L/s	
												Groundwater release rate= 1.0 L/s	
												Allowable Controlled Release Rate = 31.8 L/s	
												Site Controlled Release Rate (Tank-Phase II) = 17.5 L/s	
												Total Site Release Rate Achieved= 18.8 L/s	
2-Year Design Storm													
Tributary Area (A1)		ha	C	Tributary Area (A2)		ha	C	Tributary Area (A3)		ha	C		
Landsc. Area (A1)		0.017	0.25	Landsc. Area (A2)		0.016	0.25	Landsc. Area (A3)		0.000	0.25		
Hardsc. Area (A1)		0.229	0.90	Hardsc. Area (A2)		0.076	0.90	Hardsc. Area (A3)		0.001	0.90		
Total		0.246	0.86	Total		0.092	0.79	Total		0.001	0.90		
Phase II													
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(7)	(8)	(9)	(10)		
Time	Rainfall Intensity	Storm Runoff (A1 Post)	Runoff Volume (A1 Post)	Storm Runoff (A2 Post)	Runoff Volume (A2 Post)	Storm Runoff (A3 Post)	Runoff Volume (A3 Post)	Total Storm Runoff Volume	Released Volume	Storage Volume	Storage Depth of Tank		
(min)	(mm/hr)	(m³/s)	(m³)	(m³/s)	(m³)	(m³/s)	(m³)	(m³)	(m³)	(m³)	(m)		
10.0	76.8	0.045	26.93	0.02	9.29	0.00	0.51	36.21	5.24	30.97	0.28		
15.0	61.8	0.036	32.48	0.01	11.20	0.00	0.49	43.68	7.86	35.82	0.33		
20.0	52.0	0.030	36.48	0.01	12.58	0.00	0.47	49.06	10.48	38.58	0.35		
25.0	45.2	0.026	39.59	0.01	13.65	0.00	0.44	53.24	13.10	40.14	0.37		
30.0	40.0	0.023	42.12	0.01	14.52	0.00	0.42	56.64	15.72	40.92	0.37		
35.0	36.1	0.021	44.25	0.01	15.26	0.00	0.39	59.51	18.34	41.17	0.37		
40.0	32.9	0.019	46.09	0.01	15.89	0.00	0.37	61.98	20.96	41.02	0.37		
45.0	30.2	0.018	47.71	0.01	16.45	0.00	0.36	64.16	23.58	40.58	0.37		
50.0	28.0	0.016	49.15	0.01	16.95	0.00	0.34	66.11	26.20	39.91	0.36		
55.0	26.2	0.015	50.46	0.01	17.40	0.00	0.33	67.87	28.82	39.05	0.36		
60.0	24.6	0.014	51.66	0.00	17.82	0.00	0.31	69.47	31.44	38.03	0.35		
65.0	23.2	0.014	52.76	0.00	18.19	0.00	0.30	70.95	34.06	36.89	0.34		
70.0	21.9	0.013	53.78	0.00	18.55	0.00	0.29	72.32	36.68	35.64	0.32		
75.0	20.8	0.012	54.73	0.00	18.87	0.00	0.28	73.60	39.30	34.30	0.31		
80.0	19.8	0.012	55.62	0.00	19.18	0.00	0.27	74.80	41.92	32.88	0.30		
85.0	18.9	0.011	56.45	0.00	19.47	0.00	0.26	75.92	44.54	31.38	0.29		
90.0	18.1	0.011	57.25	0.00	19.74	0.00	0.26	76.99	47.16	29.83	0.27		
95.0	17.4	0.010	58.00	0.00	20.00	0.00	0.25	78.00	49.78	28.22	0.26		
100.0	16.7	0.010	58.71	0.00	20.25	0.00	0.24	78.96	52.40	26.56	0.24		
105.0	16.1	0.009	59.39	0.00	20.48	0.00	0.24	79.87	55.02	24.85	0.23		
110.0	15.6	0.009	60.04	0.00	20.71	0.00	0.23	80.75	57.64	23.11	0.21		
115.0	15.0	0.009	60.66	0.00	20.92	0.00	0.23	81.59	60.26	21.32	0.19		
120.0	14.6	0.009	61.26	0.00	21.13	0.00	0.22	82.39	62.88	19.51	0.18		
125.0	14.1	0.008	61.84	0.00	21.33	0.00	0.22	83.16	65.50	17.66	0.16		
130.0	13.7	0.008	62.39	0.00	21.52	0.00	0.21	83.91	68.12	15.79	0.14		
135.0	13.3	0.008	62.93	0.00	21.70	0.00	0.21	84.63	70.74	13.89	0.13		
140.0	12.9	0.008	63.44	0.00	21.88	0.00	0.20	85.32	73.36	11.96	0.11		
145.0	12.6	0.007	63.94	0.00	22.05	0.00	0.20	86.00	75.98	10.02	0.09		
150.0	12.3	0.007	64.43	0.00	22.22	0.00	0.19	86.65	78.60	8.05	0.07		
155.0	11.9	0.007	64.90	0.00	22.38	0.00	0.19	87.28	81.22	6.06	0.06		
160.0	11.7	0.007	65.35	0.00	22.54	0.00	0.19	87.89	83.84	4.05	0.04		
165.0	11.4	0.007	65.80	0.00	22.69	0.00	0.18	88.49	86.46	2.03	0.02		
170.0	11.1	0.006	66.23	0.00	22.84	0.00	0.18	89.07	89.08	0.00	0.00		
175.0	10.9	0.006	66.65	0.00	22.99	0.00	0.18	89.64	91.70	0.00	0.00		
180.0	10.6	0.006	67.06	0.00	23.13	0.00	0.18	90.19	94.32	0.00	0.00		
185.0	10.4	0.006	67.46	0.00	23.26	0.00	0.17	90.72	96.94	0.00	0.00		
190.0	10.2	0.006	67.85	0.00	23.40	0.00	0.17	91.25	99.56	0.00	0.00		
195.0	10.0	0.006	68.23	0.00	23.53	0.00	0.17	91.76	102.18	0.00	0.00		
200.0	9.8	0.006	68.60	0.00	23.66	0.00	0.17	92.26	104.80	0.00	0.00		
205.0	9.6	0.006	68.96	0.00	23.78	0.00	0.16	92.75	107.42	0.00	0.00		
210.0	9.4	0.006	69.32	0.00	23.91	0.00	0.16	93.23	110.04	0.00	0.00		
215.0	9.2	0.005	69.67	0.00	24.03	0.00	0.16	93.69	112.66	0.00	0.00		
220.0	9.1	0.005	70.01	0.00	24.14	0.00	0.16	94.15	115.28	0.00	0.00		
225.0	8.9	0.005	70.34	0.00	24.26	0.00	0.15	94.60	117.90	0.00	0.00		
230.0	8.8	0.005	70.67	0.00	24.37	0.00	0.15	95.04	120.52	0.00	0.00		
235.0	8.6	0.005	70.99	0.00	24.48	0.00	0.15	95.48	123.14	0.00	0.00		
240.0	8.5	0.005	71.31	0.00	24.59	0.00	0.15	95.90	125.76	0.00	0.00		
245.0	8.3	0.005	71.62	0.00	24.70	0.00	0.15	96.32	128.38	0.00	0.00		
250.0	8.2	0.005	71.92	0.00	24.80	0.00	0.15	96.73	131.00	0.00	0.00		
255.0	8.1	0.005	72.22	0.00	24.91	0.00	0.14	97.13	133.62	0.00	0.00		
260.0	8.0	0.005	72.51	0.00	25.01	0.00	0.14	97.52	136.24	0.00	0.00		
265.0	7.8	0.005	72.80	0.00	25.11	0.00	0.14	97.91	138.86	0.00	0.00		
270.0	7.7	0.005	73.09	0.00	25.21	0.00	0.14	98.29	141.48	0.00	0.00		
275.0	7.6	0.004	73.37	0.00	25.30	0.00	0.14	98.67	144.10	0.00	0.00		
280.0	7.5	0.004	73.64	0.00	25.40	0.00	0.14	99.04	146.72	0.00	0.00		
285.0	7.4	0.004	73.91	0.00	25.49	0.00	0.13	99.40	149.34	0.00	0.00		
290.0	7.3	0.004	74.18	0.00	25.58	0.00	0.13	99.76	151.96	0.00	0.00		
295.0	7.2	0.004	74.44	0.00	25.67	0.00	0.13	100.11	154.58	0.00	0.00		
300.0	7.1	0.004	74.70	0.00	25.76	0.00	0.13	100.46	157.20	0.00	0.00		



Modified Rational Method -
Five Year Storm - Phase II
Site Flow and Storage Summary
3 Selkirk Street, OT

Date: July 2026

Drainage Area A1 Post Phase II - Rooftops/Walkways - Controlled in Tank											
Area (A1) = 0.246 ha											
"C" = 0.86											
AC1= 0.21											
Tc = 10.0 min											
Time Increment = 5.0 min											
Max. Release Rate = 60.9 L/s											
Drainage Area A2 Post Phase II - Driveways/Walkways - Controlled in Tank OGS											
Area (A2) = 0.092 ha											
"C" = 0.79											
AC2= 0.07											
Tc = 10.0 min											
Time Increment = 5.0 min											
Max. Release Rate = 21.0 L/s											
Drainage Area A3 Post Phase II - Uncontrolled											
Area (A3) = 0.001 ha											
"C" = 1.00											
AC3= 0.00											
Tc = 10.0 min											
Time Increment = 5.0 min											
Max. Release Rate = 0.4 L/s											
Storage Tank A1 Post + A2 Post + A3 Post											
Design Controlled Release Rate (100mm orifice plate) (Tank-Phase II) = 20.8 L/s											
Max. Storage Tank Size = 58.4 m ³											
Storage Tank footprint Area = 109.8 m ²											
Total Site Total Site Release Rate (towards Selkirk Street)= "Storage Tank"											
5-yr Pre-Development Site Release Rate = 33.1 L/s											
Uncontrolled Flow = 0.4 L/s											
Groundwater release rate= 1.0 L/s											
Allowable Controlled Release Rate = 31.6 L/s											
Site Controlled Release Rate (Tank-Phase II) = 20.8 L/s											
Total Site Release Rate Achieved= 22.2 L/s											
Phase II											
5-Year Design Storm		Tributary Area (A1)		Landsc. Area (A1)		Hardsc. Area (A1)		Tributary Area (A2)		Landsc. Area (A2)	
a= 998.07		ha		ha		ha		ha		ha	
b= 6.053		0.017		0.25		0.016		0.25		0.000	
c= 0.814		0.229		0.90		0.076		0.90		0.001	
d= a / (TC + b)c		0.246		0.86		0.092		0.79		0.001	
Total		Total		Total		Total		Total		Total	
(1)		(2)		(3)		(4)		(5)		(6)	
Time		Rainfall		Storm		Runoff		Storm		Runoff	
(min)		Intensity		Runoff (A1 Post)		Volume (A1 Post)		Runoff (A2 Post)		Volume (A2 Post)	
(mm/hr)		(m ³ /s)		(m ³)		(m ³)		(m ³ /s)		(m ³)	
10.0	104.2	0.061	36.53	0.02	12.60	0.00	0.94	0.00	49.13	6.23	42.90
15.0	93.6	0.049	43.94	0.02	15.15	0.00	0.91	0.00	59.09	9.35	49.75
20.0	70.3	0.041	49.26	0.01	16.99	0.00	0.85	0.00	66.25	12.46	53.78
25.0	60.9	0.036	53.37	0.01	18.41	0.00	0.80	0.00	71.78	15.58	56.20
30.0	53.9	0.032	56.72	0.01	19.56	0.00	0.75	0.00	76.28	18.69	57.59
35.0	48.5	0.028	59.53	0.01	20.53	0.00	0.71	0.00	80.06	21.81	58.26
40.0	44.2	0.026	61.96	0.01	21.37	0.00	0.68	0.00	83.93	24.92	58.41
45.0	40.6	0.024	64.10	0.01	22.11	0.00	0.64	0.00	86.20	28.04	58.17
50.0	37.7	0.022	66.00	0.01	22.76	0.00	0.61	0.00	88.77	31.15	57.61
55.0	35.1	0.021	67.73	0.01	23.36	0.00	0.59	0.00	91.08	34.27	56.81
60.0	32.9	0.019	69.30	0.01	23.90	0.00	0.56	0.00	93.20	37.38	55.81
65.0	31.0	0.018	70.74	0.01	24.40	0.00	0.54	0.00	95.14	40.50	54.64
70.0	29.4	0.017	72.08	0.01	24.86	0.00	0.52	0.00	96.94	43.61	53.33
75.0	27.9	0.016	73.33	0.01	25.29	0.00	0.50	0.00	98.62	46.73	51.89
80.0	26.6	0.016	74.50	0.01	25.69	0.00	0.49	0.00	100.19	49.84	50.35
85.0	25.4	0.015	75.60	0.01	26.07	0.00	0.47	0.00	101.67	52.96	48.71
90.0	24.3	0.014	76.64	0.00	26.43	0.00	0.46	0.00	103.07	56.07	46.99
95.0	23.3	0.014	77.62	0.00	26.77	0.00	0.45	0.00	104.39	59.19	45.20
100.0	22.4	0.013	78.56	0.00	27.09	0.00	0.43	0.00	105.65	62.30	43.34
105.0	21.6	0.013	79.45	0.00	27.40	0.00	0.42	0.00	106.85	65.42	41.43
110.0	20.8	0.012	80.30	0.00	27.69	0.00	0.41	0.00	107.99	68.53	39.46
115.0	20.1	0.012	81.12	0.00	27.97	0.00	0.40	0.00	109.09	71.65	37.44
120.0	19.5	0.011	81.90	0.00	28.25	0.00	0.39	0.00	110.15	74.76	35.38
125.0	18.9	0.011	82.65	0.00	28.50	0.00	0.38	0.00	111.16	77.88	33.28
130.0	18.3	0.011	83.38	0.00	28.76	0.00	0.38	0.00	112.13	80.99	31.14
135.0	17.8	0.010	84.08	0.00	29.00	0.00	0.37	0.00	113.08	84.11	28.97
140.0	17.3	0.010	84.76	0.00	29.23	0.00	0.36	0.00	113.99	87.22	26.76
145.0	16.8	0.010	85.41	0.00	29.46	0.00	0.35	0.00	114.87	90.34	24.53
150.0	16.4	0.010	86.04	0.00	29.67	0.00	0.35	0.00	115.72	93.46	22.26
155.0	15.9	0.009	86.66	0.00	29.89	0.00	0.34	0.00	116.54	96.57	19.97
160.0	15.6	0.009	87.26	0.00	30.09	0.00	0.33	0.00	117.35	99.69	17.66
165.0	15.2	0.009	87.84	0.00	30.29	0.00	0.33	0.00	118.13	102.80	15.33
170.0	14.8	0.009	88.40	0.00	30.49	0.00	0.32	0.00	118.89	105.92	12.97
175.0	14.5	0.008	88.95	0.00	30.68	0.00	0.32	0.00	119.62	109.03	10.59
180.0	14.2	0.008	89.48	0.00	30.86	0.00	0.31	0.00	120.34	112.15	8.20
185.0	13.9	0.008	90.00	0.00	31.04	0.00	0.31	0.00	121.04	115.26	5.78
190.0	13.6	0.008	90.51	0.00	31.22	0.00	0.30	0.00	121.73	118.38	3.35
195.0	13.3	0.008	91.01	0.00	31.39	0.00	0.30	0.00	122.40	121.49	0.91
200.0	13.0	0.008	91.50	0.00	31.55	0.00	0.29	0.00	123.05	124.61	0.00
205.0	12.8	0.007	91.97	0.00	31.72	0.00	0.29	0.00	123.69	127.72	0.00
210.0	12.6	0.007	92.44	0.00	31.88	0.00	0.29	0.00	124.31	130.84	0.00
215.0	12.3	0.007	92.89	0.00	32.04	0.00	0.28	0.00	124.93	133.95	0.00
220.0	12.1	0.007	93.34	0.00	32.19	0.00	0.28	0.00	125.52	137.07	0.00
225.0	11.9	0.007	93.77	0.00	32.34	0.00	0.27	0.00	126.11	140.18	0.00
230.0	11.7	0.007	94.20	0.00	32.49	0.00	0.27	0.00	126.69	143.30	0.00
235.0	11.5	0.007	94.62	0.00	32.63	0.00	0.27	0.00	127.25	146.41	0.00
240.0	11.3	0.007	95.03	0.00	32.77	0.00	0.26	0.00	127.80	149.53	0.00
245.0	11.1	0.006	95.44	0.00	32.91	0.00	0.26	0.00	128.35	152.64	0.00
250.0	10.9	0.006	95.83	0.00	33.05	0.00	0.26	0.00	128.88	155.76	0.00
255.0	10.8	0.006	96.22	0.00	33.18	0.00	0.26	0.00	129.41	158.87	0.00
260.0	10.6	0.006	96.61	0.00	33.32	0.00	0.25	0.00	129.92	161.99	0.00
265.0	10.4	0.006	96.98	0.00	33.45	0.00	0.25	0.00	130.43	165.10	0.00
270.0	10.3	0.006	97.35	0.00	33.57	0.00	0.25	0.00	130.93	168.22	0.00
275.0	10.1	0.006	97.72	0.00	33.70	0.00	0.24	0.00	131.42	171.33	0.00
280.0	10.0	0.006	98.08	0.00	33.82	0.00	0.24	0.00	131.90	174.45	0.00

<



Orifice Design - Phase II

3 Selkirk Street, OT

File No. UD25-052

Date: July 2026

Prepared By: Nikolaos Reptsis, P.Eng., M.A.Sc.

Reviewed by: Nick Moutzouris, P.Eng., M.A.Sc.

Orifice Equation for 100 mm Orifice Tube

$$Q = C \times A \times \sqrt{2 \times g \times h}$$

100 yr event

d= 100 mm
C= 0.82
A= 0.008 m²
g= 9.81 m/s²
h= 1.21 m
Q= 31.4 L/s

5 yr event

d= 100 mm
C= 0.82
A= 0.008 m²
g= 9.81 m/s²
h= 0.53 m
Q= 20.8 L/s

2 yr event

d= 100 mm
C= 0.82
A= 0.008 m²
g= 9.81 m/s²
h= 0.37 m
Q= 17.5 L/s

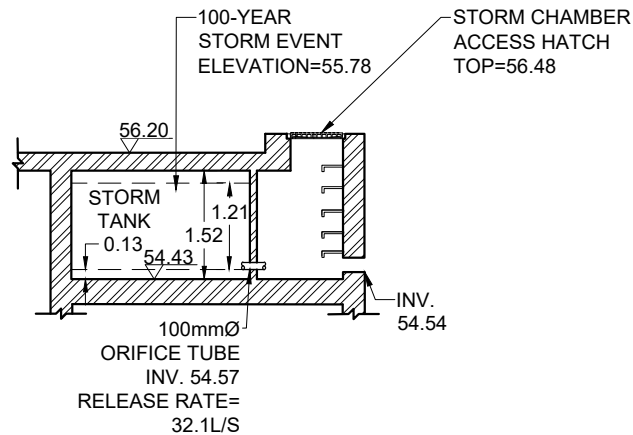
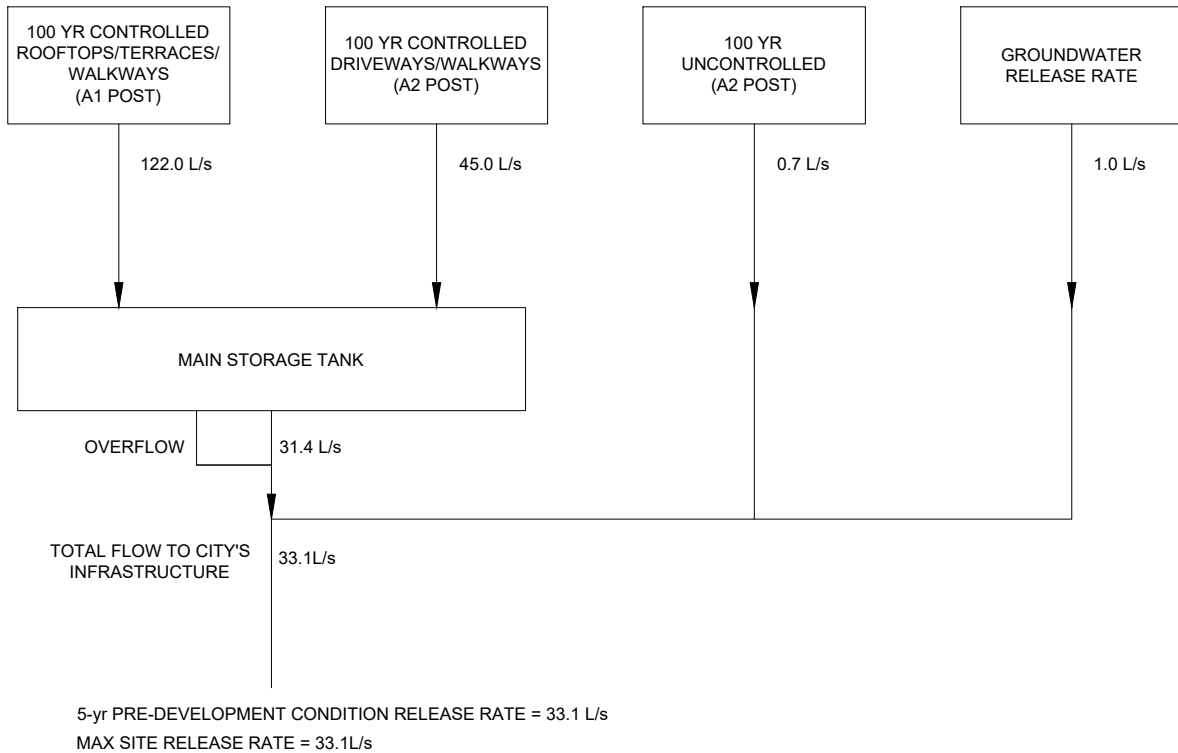


Water Quality Calculations

3 Selkirk Street, OT
File No. UD25-052
Date: July 2026

Surface	Method	Effective TSS Removal	Area (ha)	% Area of Controlled Site
Rooftop/Terraces	Inherent	80%	0.246	73%
Driveway Area	Stormfilter SFPD 0608	80%	0.092	27%
Total			0.338	100%

Note: Uncotrolled water does not account in the above calculation



QUANTITY CONTROL

Volume required for 100-year storm event = 132.4 m³

Volume of Storage Tank provided = Refer to Mechanical Engineering Drawing

Tank Size: 109.8 sq.m

NOTE: TANK DESIGN TO BE VERIFIED BY BUILDING MECHANICAL CONSULTANT



CONCEPTUAL FLOW SCHEMATIC

RESIDENTIAL USE DEVELOPMENT
3 SELKIRK STREET
OTTAWA, ONTARIO

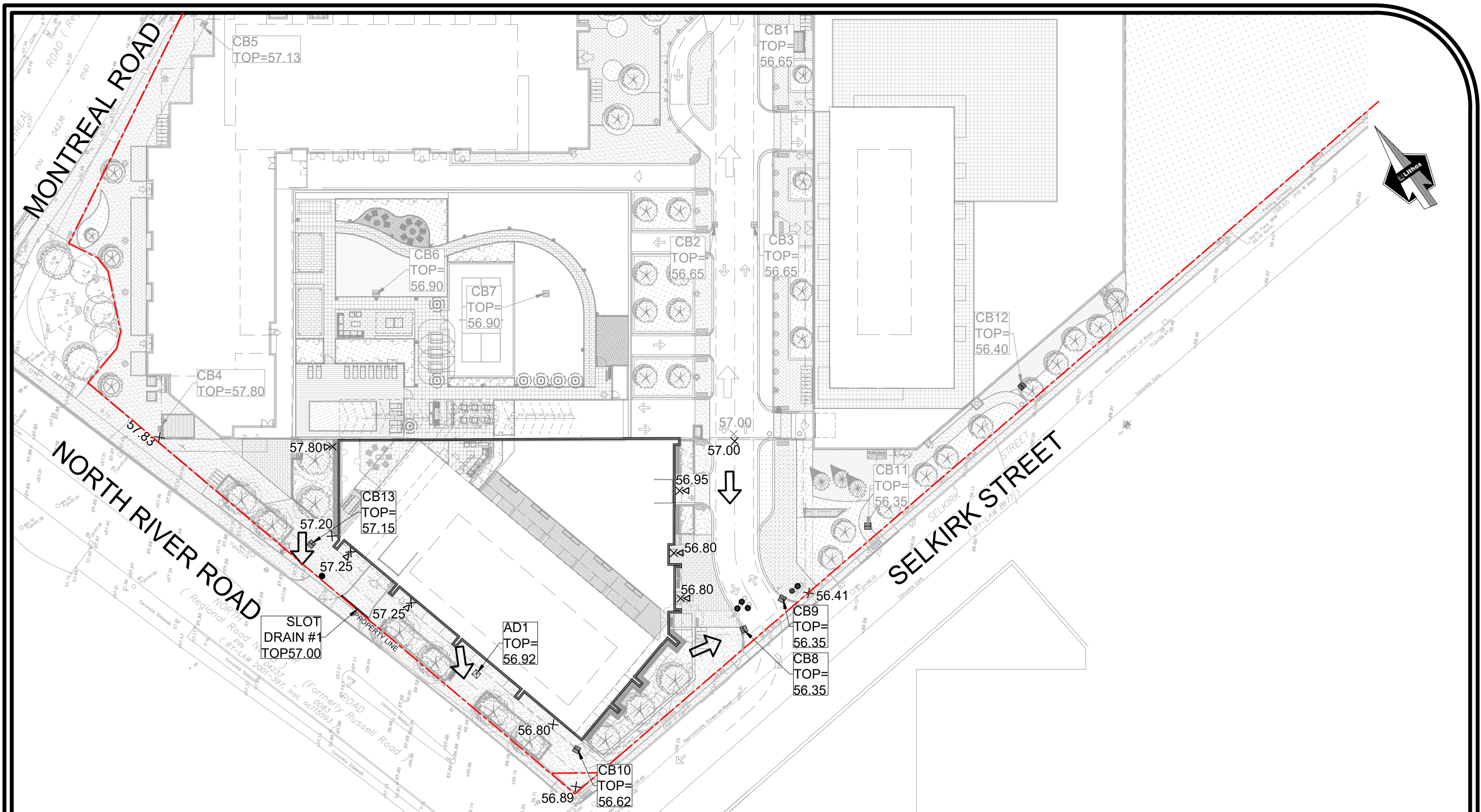
DATE: JULY 2026

PROJECT No: UD25-052

150 Bermondsey Road, Toronto, Ontario, M4A-1Y1

SCALE: N.T.S.

FIGURE No: FIG 3



150 Bermondsey Road, Toronto, Ontario M4A 1Y1

LEGEND

--- PROPERTY LINE
← OVERLAND FLOW ROUTE

57.50x PROPOSED GRADES
▷ BUILDING'S ENTRANCES

OVERLAND FLOW ROUTE
RESIDENTIAL USE DEVELOPMENT
3 SELKIRK STREET
OTTAWA, ONTARIO

DATE: JULY 2026	PROJECT No: UD25-052
SCALE: N.T.S.	FIGURE No: FIG 4

Appendix D

Sanitary Data Analysis



**SANITARY SEWER DESIGN SHEET
(towards North River Road)
RIVERAIN PHASE 2
CITY OF OTTAWA**

LOCATION			RESIDENTIAL							COMMERCIAL		INFILTRATION			SEWER DESIGN					
	SECTION (ha.)	STUDIO @1.4 ppu	1 BED @1.4 ppu	2 BED @2.1 ppu	3 BED @3.1 ppu	TOTAL RESIDENTIAL POPULATION	AVERAGE RES. FLOW @ 280 L/c/d (L/s)	HARMON PEAKING FACTOR	RES. PEAK FLOW (L/s)	COMMERCIAL/ PARK AREA (ha.)	AVERAGE COMMERCIAL FLOW @28000L/ha/d (L/s)	TOTAL ACCUM. AREA (ha.)	INFILT. @ 0.28 L/s/ha. (ha.)	TOTAL DESIGN FLOW (L/s)	PIPE LENGTH (m)	PIPE DIA. (mm)	SLOPE (%)	FULL FLOW CAPACITY n = 0.013 (L/sec)	% of DESIGN CAPACITY (%)	
column number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	
Existing Condition																				
Retail	1.693	0	0	0	0	0.00	0.00	4.00	0.00	0.64	0.37	1.69	0.47	0.84	-	-	-	-	-	
Proposed Condition																				
Tower A (Montgomery Street) Phase I (approved)	0.808	39	192	63	0	456	1.48	3.99	5.90	0.15	0.09	0.81	0.22	6.27	12.00	200	2.0%	46.38	13.52%	
Tower B (North River Road) Phase II	0.339	28	316	66	4	593	1.92	3.35	6.44	0.00	0.00	0.34	0.09	6.53	13.00	200	2.0%	46.38	14.08%	
Tower C (Montgomery Street) Phase III	0.378	74	234	77	0	489	2	3.98	6.31	0.00	0.00	0.38	0.10	6.41	11.80	200	2.0%	46.38	13.82%	
													Total =	19.21						
										NET FLOW TOWARDS MONTGOMERY STREET				18.37						
Average Residential Flow Rate - 280 Litres / capita / day						Infiltration Allowance (Dry Weather) - 0.05 Litres / s / gross ha														
Average Daily Flow Commercial - 28,000 Litres / gross ha / day						Infiltration Allowance (Wet Weather) - 0.28 Litres / s / gross ha														
Site Area: 0.339 Ha						Infiltration Allowance (Total I/I) - 0.33 Litres / s / gross ha														
						Peaking Factor = 1 + [14 / (4 + P ^{0.5})], P=Population in thousands														
						Prepared by: Nikolaos Reptsis, P.Eng., M.A.Sc.						Project: 3 Selkirk Street, OT						Sheet 1 OF 1		
						Reviewed by: Sarra Karavasili, P.Eng., M.A.Sc.						Project: UD25-052								
						Date: July 2026						City of Ottawa								

Appendix E

Water Data Analysis



FIRE FLOW DEMAND

3 Selkirk Street, OT

File No: UD25-052

Date: July 2026

Prepared by: Nikolaos Reptsis, P.Eng., M.A.Sc.

Reviewed By: Sarra Karavasili, P.Eng., M.A.Sc.

Fire Flow Calculation

1 $F = 220 C (A)^{1/2}$

Tower B

Where F= Fire flow in Lpm

C= construction type coefficient

= 0.8 Non-combustible Construction

A = total floor area in sq.m. excluding basements

Area Applied

Level 4= 843.70 m² 100%

Level 5= 843.70 m² 25%

Level 3= 737.30 m² 25%

= 1,239.0 sq.m.

F = 6,194.97 L/min $F(No.1) = 220C \sqrt{A}$

F = 6,000 L/min $F(No.1) \text{ Round to nearest } 1000 \text{ l/min}$

Note: The levels indicated, reference the floors with the largest areas (refer to architectural design)

2 Occupancy Reduction

15% reduction for limited-combustible occupancy

F = 5100 L/min $F(No.2) = F(No.1) \times \text{occupancy reduction/charge}(\%)$

3 Sprinkler Reduction

30% Reduction for NFPA Sprinkler System

F = 3570 l/min $F(No.3) = F(No.2) \times \text{sprinkler reduction}(\%)$

4 Separation Charge

0% West Road

25% North 0-3m

0% South Road

10% East 20.1-30m

35% Total Separation Charge

F = 1,785.00 L/min $F(No.4) = F(No.2) \times \text{separation charge}(\%)$

F = 5,355.00 L/min $F(tot) = F(No.3) + F(No.4)$

F = 5,000 L/min $F(tot) \text{ Round to nearest } 1000 \text{ l/min}$

83.33 L/s

F = 1321 US GPM

Domestic Flow Calculations

Population= 593 Persons

Commercial Area = 0.0 m²

Average Day Demand (Residential) = 280.0 L/person/day

Average Day Demand (Commercial) = 2.5 L/m²/day (OBC)

1 US Gallon=3.785 L

Average Residential Water Demand= 1.92 L/s

30 US GPM

1 US GPM=15.852L/s

Average Commercial Water Demand= 0.00 L/s

0 US GPM

Average Day Demand (Total) = 1.92 L/s

30 US GPM

Max. Daily Residential Demand Peaking Factor= 2.75

= 84 US GPM

Max. Daily Commercial Demand Peaking Factor = 2.75

Max. Daily Demand = 5.28 L/s

or

Max. Hourly Residential Demand Peaking Factor = 4.13

= 126 US GPM

Max. Hourly Commercial Demand Peaking Factor = 4.1

Max. Hourly Demand = 7.94 L/s

Max Daily Demand = 5.28 L/s

Fire Flow = 83.33 L/s

Required 'Design' Flow = 88.61 L/s
1405 US GPM

Note: Required 'Design' Flow is the maximum of either:

- 1) Fire Flow + Maximum Daily Demand
- 2) Maximum Hourly Demand

