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170 Slater Street

Servicing and Stormwater Management Report

Prepared for: GWL Realty Advisors

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170 Slater Street

Ottawa, ON

Servicing and Stormwater Management Report

Prepared By:

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July 5, 2023
Revised: December 1, 2023
Revised: March 8, 2024
Revised: April 26, 2024

Novatech File: 123013
Ref: R-2024-049

April 26, 2024

Planning, Real Estate and Economic Development
Development Review – Central Branch
City of Ottawa
110 Laurier Ave W
Ottawa, ON K1P 1J1

Attention: Nishant Jhamb, P.Eng.

Reference: 170 Slater Street Development
Servicing and Stormwater Management Report
Our File No.: 123013

Please find enclosed the 'Servicing and Stormwater Management Report' for the above noted project. This report has been prepared in support of a Site Plan Application and is submitted for your review and approval. In response to City comments dated April 15, 2024, this report is being updated to include revisions to the drawings. There have been no changes to the text, analysis, or conclusions of the report.

Should you have any questions or require additional information, please contact us.

Yours truly,

NOVATECH

Alex McAuley, P.Eng.
Senior Project Manager | Land Development Engineering

Cc: Nikola Parenta, GWL Realty Advisors

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1.0 INTRODUCTION

Novatech has been retained to prepare a Servicing and Stormwater Management Report for the proposed development of 170 Slater Street, Ottawa, Ontario. This report is prepared to support a Site Plan Application for the subject development and has been revised to address City comments dated July 14, 2023, January 23, 2024, and April 15, 2024. A response to civil engineering comments is included in **Appendix A.** Refer to **Figure 1** for the site location.

1.1 Existing Conditions

The site is approximately 0.43 hectares and currently contains a multi-level parking garage. An existing laneway which serves as an access to the parking garage as well as the adjacent site to the west (269 Laurier Avenue W) runs along the west property line of the site. The underground services (water, sanitary and storm sewers) for 269 Laurier Avenue W are also within the limits of the existing laneway on the 170 Slater Street property.

Refer to Existing Conditions, Removals and Reinstatement Plan (**123013-RP**) for the existing site conditions.

1.2 Proposed Development

The existing parking garage on the site would be demolished, and any existing services for the parking garage would be abandoned. The existing laneway on the west side of the property would remain in place, including the services for the 269 Laurier Ave W site.

The proposed development includes two residential towers (26-storeys and 25-storeys) with a shared 7-storey podium. The total development would include 586 apartment units and approximately 1,100m^2 of commercial space. Entrances to the building would be from both Slater Street and Laurier Avenue W. The development would include a two-level underground parking garage.

It is proposed to construct the development in phases, with the south tower fronting on Laurier Avenue W being Phase 1 and the north tower fronting on Slater Street being Phase 2. As part of the construction of the Phase 1, an interim gravel surface area and landscape area would be constructed in the area of the future Phase 2 tower.

Refer to the **Site Plans** for the proposed Phase 1 and Phase 2 site layouts.

Pre-consultation meeting notes with the City of Ottawa are included in **Appendix A** for reference.

2.0 WATER SUPPLY

The site can be serviced from the existing 375mm diameter watermain on Slater Street or the 300mm diameter watermain on Laurier Avenue W. In accordance with City design guidelines for residential facilities with a basic day demand greater than 50 m^3/day, two water service connections are proposed for the development.

As part of Phase 1, it is proposed to connect two services to the Laurier Avenue W watermain which would service the south tower. As part of Phase 2, one water service on Laurier Avenue W would be decommissioned and single water service would be provided on Slater Street. The north and south towers would be serviced together by the single water service on Laurier Avenue W and the single water service on Slater Street, with each service being interconnected through the buildings.

Refer to the General Plan of Services (**123013-GP and 123013-GP2**) for the water servicing locations.

2.1 Domestic Demand

City of Ottawa Water Distribution Design Guidelines were used to calculate the theoretical water demand for the proposed development and are outlined below.

- Average Day Demand = 3.48 L/s
- Maximum Day Demand = 8.64 L/s
- Peak Hour Demand = 19.0 L/s

The proposed water demand was submitted to the City to obtain boundary conditions provided from the City's water model. The boundary conditions were used to confirm that the existing water infrastructure would meet the required pressures in the average day and peak hour conditions. Refer to **Table 2.1** for a summary of the estimated available pressures at the ground floor, based on the boundary conditions provided by the City. Correspondence with the City and calculations are included in **Appendix B.**

Table 2.1 Water Demand Summary

Condition	Demand (L/s)	Allowable Operating Pressures (psi)	Estimated Available Pressure (psi)
High Pressure (Average Day)	3.48	80psi (Max)	61.6
Peak Hour (Average Day)	19.0	40psi (Min)	49.4
Maximum Day + Fire Flow	167	20psi (Min)	52.5

Therefore, the existing watermains on Slater Street and Laurier Avenue W can provide adequate pressures for domestic use. The use of booster pumps within the build is expected to provide the required the water pressures on the upper floors of the towers.

2.2 Fire Demand and Fire Protection

The required fire demand for the proposed development is calculated using the Fire Underwriters Survey (FUS) Guidelines to be 167L/s (10,000L/min). The City provided boundary conditions indicate a pressure of approximately 55 psi in the maximum day plus fire flow condition which is greater than the minimum City requirement of 20 psi.

The proposed development would be sprinklered with Siamese connections located near the building entrances on Slater Street and Laurier Avenue W. There are existing fire hydrants within the vicinity of the site on both Slater Street and Laurier Avenue W, as well as on O'Connor Street to the east which would provide fire protection for the site. Refer to **Figure 2** for the existing hydrant locations.

Per the City of Ottawa *Technical Bulletin ISTB-2018-02 Appendix I*, the aggregate fire flow of all contributing fire hydrants within 150m of the site should not be less than the required fire flow. In the case of the proposed development there are two class AA (blue top) hydrants within 75m of the site and two additional class AA hydrants within 150m of the site.

Per "*Table 1 Maximum flow to be considered from a given hydrant*"(*ISTB-2018-02)*, the combined flows from the existing hydrants are summarized in **Table 2.2**.

Table 2.2: Combined Hydrant Flow Summary

Class	Fire Hydrants < 75m from Building	Fire Hydrants > 75m < 150m from Building	Combined Fire Flow
AA	2 x 5,700 L/min	2 x 3,800 L/min	19,000 L/min
Total			**19,000 L/min**

Therefore, the combined fire flow from the existing hydrants of 19,000 L/min exceeds the required fire flow of 10,000 L/min.

Based on the boundary condition information provided by the City and the existing fire hydrants in the area, the existing watermain infrastructure can provide adequate flow and pressure for domestic demand and fire protection for the proposed development. Refer to **Appendix B** for water demands, fire flow calculations, boundary conditions, and hydraulic analysis calculations.

3.0 SANITARY SERVICING

3.1 Proposed Sanitary Servicing

The development is proposed to have two sanitary service connections, one for each tower. It is proposed to connect the north tower to the 1200mm by 950mm sanitary box sewer on Slater Street and the south tower to the 375mm sanitary sewer on Laurier Avenue W. Refer to the General Plan of Services (**123013-GP and 123013-GP2**) for details.

The proposed peak sanitary flow rates to Slater Street and Laurier Avenue W are approximately 5.5L/s and 6.6L/s respectively. Refer to **Appendix C** for peak flow calculations.

A downstream analysis was completed of the existing sanitary sewers on Slater Street and Laurier Avenue W that the development would connect into. This analysis indicates that the peak flow from the site represents only 0.2% and 4.4% of the capacity of the exiting Slater Street and Laurier Avenue W sanitary sewers, respectively. Therefore, sufficient capacity should be available in the existing downstream sanitary sewer to service the proposed development. The City of Ottawa has indicated that they will review and confirm downstream capacity (see **Appendix A)**. A summary of the sanitary servicing analysis is provided in **Table 3.1** below. Refer to **Appendix C** for the existing sanitary sewer design sheet.

Table 3.1: Sanitary Servicing Analysis Summary

Street	Proposed Sanitary Peak Flow (L/s)	Approximate Existing Sanitary Sewer Capacity (L/s)	Proposed Flow as % of Existing Capacity
Slater Street	5.5	2306	0.2
Laurier Avenue W	6.6	151.7	4.4

4.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

4.1 Existing Site Drainage

Based on topographic survey shown on the Grading Plan, the majority of the existing site drains overland to Slater Street. Drainage from the existing lane way on the west side of the property is collected by the existing storm sewer system in the lane way, as part of the adjacent 269 Laurier Avenue W site, and outlets to the 900mm diameter storm sewer on Laurier Avenue W. The storm sewer in the lane way also captures roof and parking lot drainage from the existing site to the west. A 450mm diameter storm sewer is on Slater Street. Refer to the Pre-Development Storm Drainage Area Plan (**Figure 3**) for details.

4.2 Stormwater Management Criteria

The following stormwater management criteria was outlined by the City for this development (see **Appendix A)**:

Stormwater Quality Control

- No stormwater quality control is required for this site.

Stormwater Quantity Control (Allowable Release Rate)

- The allowable release rate is based on a 2-year storm event, with a maximum pre-development runoff coefficient of 0.50.
- Control post-development peak flows from the site to the Allowable Release Rate for all storms up-to and including the 100-year storm event.

The allowable release rate of stormwater runoff from the site is based on the above criteria is 39.4 L/s. Refer to **Appendix D** for allowable release rate calculations. As post-development peak flows would exceed the allowable release rate, stormwater management (quantity control) is required.

4.3 Proposed Storm Drainage System

Existing Lane Way

The existing lane way along the west of the property would be maintained and the existing storm sewer would continue to convey drainage from the laneway and the adjacent site to the west to the storm sewer on Laurier Avenue W. For the purposes of stormwater management, the existing laneway has been excluded since it services the adjacent site and would continue to drain per existing conditions.

Directing the majority of the site drainage to the Slater Street storm sewer and maintaining the drainage and storm sewer in the existing lane way generally aligns with pre-development drainage patterns.

Uncontrolled Areas

Portions of the site, generally between the face of the building and the municipal sidewalks would flow uncontrolled to the existing right-of-way, similar to existing conditions.

Stormwater Management (SWM) Tank

Based on the proposed building design, with multiple roof levels, rooftop appurtenances and active usage of the rooftop space, flow-controlled roof drains are not proposed as part of the stormwater management for the site. It is proposed to direct all building roof runoff, which represents the majority of the site, into an underground SWM tank at the northwest corner of the site. The SWM tank would outlet to the existing 450mm diameter storm sewer on Slater Street. Backflow preventers would be provided at both the outlet to Slater Street and on the building services.

The sizing and release rate requirements for the SWM tank are based on adhering to the remaining allowable release rate from the site. The SWM tank elevations, depths, and volumes are shown on **Table 4.1** below. The active storage is provided below the top of the overflow pipe (70.87 m). The total storage provided includes the freeboard to the top of the tank. Refer to General Plan of Services (**123013-GP and 123013-GP2**).

Table 4.1: Storage Volumes Provided in SWM Tank

Station	Bottom – Top Elevations	Storage Depth	Storage Volume Provided
Sump	*68.22 m – 68.72 m*	*0.50 m*	*N/A*
Storage Below Orifice	68.72 m – 69.42 m	0.70 m	43.8 m^3
Storage Above Orifice	69.42 m – 70.87 m	1.45 m	90.8 m^3
Freeboard	70.87 m – 71.02 m	0.15 m	9.4 m^3
TOTAL	**68.72 m – 71.02 m**	**2.30 m**	**144.0 m^3 Total** ***(134.6 m^3 Active)***

**Storage Area of SWM Tank = 62.6 m^2 (10.44 m x 6.00 m); Orifice Elevation = 69.42 m*

Interim Parking Lot

As part of Phase 1, an interim gravel surface area and landscape area is proposed in the location of the future Phase 2 (North Tower) tower. Drainage from the gravel surface area would be collected by a grassed swale and catch basins in the landscaped area and directed to the SWM tank. The catch basins and connection to the SWM tank would be removed as part of the Phase 2 (North Tower) works. Refer to General Plan of Services (**123013-GP and 123013-GP2**).

4.4 Hydrologic & Hydraulic Modelling

A PCSWMM (hydrologic / hydraulic) stormwater management model was developed based on the Post-Development Storm Drainage Area Plan (**Figure 4**). The PCSWMM model was used to:

- Estimate peak flows and runoff volumes from the uncontrolled areas and rooftop.
- Determine the storage and release rates from the on-site management system.
- Ensure the site adhered to the overall allowable release rate.

Modelling was completed based on the fully developed (Phase 2) site condition. The PCSWMM model schematic and 100-year output data is provided in **Appendix D**.

4.4.1 PCSWMM Model Parameters

4.4.1.1 Design Storms

The hydrologic analysis was completed using the following synthetic design storms.

Chicago Storms

2-year, 3-hour Chicago Storm
5-year, 3-hour Chicago Storm
100-year, 3-hour Chicago Storm

SCS Storms

2-year, 12-hour SCS Storm
5-year, 12-hour SCS Storm
100-year, 12-hour SCS Storm

The IDF parameters used to generate the design storms were taken from the *City of Ottawa Sewer Design Guidelines (2012)*.

The 3-hour Chicago storm distribution was found to generate the highest peak flows and storage requirements and was selected as the critical storm distribution. The peak flow results from the 3-hour Chicago storm distribution closely resembled the peak flows estimated when comparing with the Rational Method.

Historical Storms and Stress Test

The performance of the stormwater management system was evaluated using the following historical storms:

- July 1, 1979
- August 4, 1988
- August 8, 1996

The storm drainage system was also stress tested using a 100-year (+20%) design storm, which has a 20% higher intensity and total volume compared to the 100-year storm event.

4.4.1.2 Subcatchment Parameters

The post-development subcatchments provided in **Table 4.2** are based on the Post-Development Storm Drainage Area Plan (**Figure 4**). The subcatchment areas represent the building rooftop (Area A-01) and the two (2) uncontrolled areas (Areas A-02 & A-03). The building rooftop outlets to a storage node representing the SWM tank. The uncontrolled areas outlet to separate outfalls.

Table 4.2: Subcatchment Parameters

Area ID	Catchment Area (ha)	Runoff Coefficient (C)	Percent Impervious (%)	No Depression (%)	Equivalent Width (Flow Length) (m)	Average Slope (%)
Controlled via Stormwater Management (SWM) Tank						
A-01 (Roof/Building)	0.355	0.90	100%	100%	88.75 (40)	1.5
Uncontrolled Areas						
A-02 (Slater Uncontrolled)	0.009	0.90	100%	0%	18 (5)	1.5
A-03 (Laurier Uncontrolled)	0.005	0.90	100%	0%	12.5 (4)	1.5
TOTAL (uncontrolled)	**0.014**	**0.90**	**100%**	**0%**	**-**	**-**
Overall Total						
TOTAL (overall)	**0.369**	**0.90**	**100%**	**-**	**-**	**-**

Infiltration

Infiltration losses for all subcatchments were modeled using Horton's infiltration equation, which defines the infiltration capacity of soil over the duration of a precipitation event using a decay function that ranges from an initial maximum infiltration rate to a minimum rate as the storm progresses. The default values for the City of Ottawa were used for all catchments.

Horton's Equation:	Initial infiltration rate:	f_o = 76.2 mm/hr
$f(t) = f_c + (f_o - f_c)e^{-k(t)}$	Final infiltration rate:	f_c = 13.2 mm/hr
	Decay Coefficient:	k = 4.14 /hr

Depression Storage

The default values for depression storage in the City of Ottawa were used for all catchments. Rooftops were assumed to provide no depression storage (zero-impervious parameter).

Depression Storage (pervious areas):	4.67 mm
Depression Storage (impervious areas):	1.57 mm

Equivalent Width

'Equivalent Width' refers to the width of the subcatchment flow path. This parameter is calculated as described in Section 5.4.5.6 of the City of Ottawa Sewer Design Guidelines (October 2012).

Impervious Values

Runoff coefficients for each subcatchment were determined based on the proposed site plan. Refer to the Post-Development Storm Drainage Area Plan (**Figure 4**) for details. Percent impervious values were calculated based on the runoff coefficient (C) using the following equation:

$$\%imp = (C - 0.20) / 0.70$$

4.4.2 PCSWMM Model Results

The PCSWMM model was used to estimate peak flows from the uncontrolled areas, size the SWM tank and release rate, and 'stress test' the SWM tank.

The PCSWMM model output for the 100-year 3-hour Chicago Storm is provided in **Appendix D**.

4.4.2.1 Peak Flows from Uncontrolled Areas

There are two (2) uncontrolled areas from the site:

- Area A-02 (area fronting Slater Street)
- Area A-03 (area fronting Laurier Ave W)

Table 4.3 presents the estimated peak flows from the uncontrolled areas during the 2-year, 5-year, and 100-year storm events.

Table 4.3: Peak Flows from Uncontrolled Areas

Area ID	Peak Flow (L/s)		
	2-year	5-year	100-year
A-02	1.9	2.6	4.5
A-03	1.1	1.5	2.5
TOTAL (uncontrolled)	**3.0**	**4.1**	**7.0**

**3-hour Chicago storm distribution*

The total 100-year peak flow from the uncontrolled areas is 7.0 L/s; therefore, the remaining 100-year allowable release rate from the SWM tank is 32.4 L/s.

4.4.2.2 Controlled Peak Flows from SWM Tank

It is proposed to provide onsite stormwater quantity control via an underground SWM tank with a maximum storage volume provided of 144.0 m^3, of which 134.6 m^3 is available for active storage before the overflow pipe. The outlet of the SWM tank would contain a 102 mm diameter inlet-control-device (ICD), a duplex pump system (two 7.0 L/s pumps that alternate) and an emergency overflow. The stormwater management system would reduce post-development peak flows to the Slater Street storm sewer to the allowable release rate.

The pumps are required as a portion of the SWM tank would be below the invert of the municipal storm sewer due to physical constraints on site and the shallow storm sewer on Slater Street. Approximately 1.45 m of storage would be available above the invert elevation which would be able to drain via gravity through the orifice control. There would be approximately 0.70 m of depth in the tank below the orifice control which would be pumped.

The required storage and controlled peak flows via the orifice and pump(s) to the Slater Street storm sewer system are shown in **Table 4.4**. The total 100-year controlled peak flow that would be released from the SWM tank system is 31.8 L/s. The total 100-year storage required is slightly less than the total active storage provided below the overflow pipe. Runoff volumes that exceed the active storage capacity would outlet through the vertical overflow pipe in the SWM tank.

Table 4.4: Required Storage and Controlled Peak Flows (SWM Tank)

Storm Event	Controlled Post-Development Release Rate (L/s)				Hydraulic Grade Line Elevation (m)	Stormwater Storage Required (m^3)	Stormwater Storage Provided (m^3)
	Pump(s)	102mm ICD	OVF	TOTAL			
2-year	7.0	6.6	0	13.6	69.60	55	144.0 *(Total)*
5-year	7.0	13.3	0	20.3	69.90	72	
100-year	7.0	24.8	0	31.8	70.85	134	134.6 *(Active)*

**3-hour Chicago storm distribution; 'Normal' outfall condition.*

4.4.2.3 Peak Flow Comparison

A comparison of the total post-development peak flows to the allowable release rate is shown in **Table 4.5**. The total 100-year uncontrolled and controlled peak flow from the site (38.8 L/s) is less than the allowable release rate (39.4 L/s).

Table 4.5: Peak Flow Comparison

Outlet	Post-Development Peak Flow (L/s)			Allowable Release Rate (L/s)
	2-year	5-year	100-year	
Uncontrolled	3.0	4.1	7.0	39.4
Controlled	13.6	20.3	31.8	
TOTAL (Overall)	**16.6**	**24.4**	**38.8**	**39.4**

**3-hour Chicago storm distribution*

4.4.2.4 Emergency Overflow (Stress Test)

The system was stress-tested using a 100-year (+20%) 3-hour Chicago storm. This theoretical design storm has a 20% higher intensity and total volume compared to the 100-year storm event. This storm event was used to assess the hydraulic grade line (HGL) elevation in the SWM tank.

A downstream boundary condition (i.e. fixed outfall) elevation of 69.51 m (i.e. obvert elevation of 450mm storm sewer on Slater Street) was used for the ‘stress test’ scenario. The resulting HGL elevation in the SWM tank for this scenario was 71.02 m, which is the underside top of tank elevation (71.02 m).

During extreme events that exceed the storage capacity of the SWM tank, stormwater will spill out of the top of the perforated grates (71.73 m) and will drain along the major system overland flow route.

4.5 Major Overland Flow Route

Major overland flow from the site would be directed to Slater Street and Laurier Avenue W. The majority of major overland drainage flow from the existing lane way would spill to Slater Street at the north end of the lane way with the south potion of the laneway spilling to Laurier Avenue W, per the current pre-development conditions. Refer to the Grading, Erosion and Sediment Plans (**123013-GR and 123013-GR2**) for major overland flow directions.

4.6 Stormwater Quality Control

No stormwater quality control is required for this site in the ultimate (Phase 2) condition. Refer to correspondence with the City of Ottawa in **Appendix A**.

In the interim, the temporary granular area would require a basic level of stormwater quality control. A combination of “Best Management Practices” (BMPs) and conveyance controls would be implemented to provide quality control. BMPs would include minimizing grades on the site and directing the granular area to landscaped areas where possible. These practices will promote infiltration and reduce surface runoff. Conveyance controls would include designing the interim swale as a water quality swale. The stormwater storage tank will also provide a level of quality control through the detention of runoff which will promote settling of suspended solids.

Grassed Swale Design Criteria

Although grassed swales are generally used for the conveyance of storm water, under the appropriate conditions they permit significant amounts of total suspended solid (TSS) removal.

The on-site swale would be designed as a water quality swale, using criteria outlined in section 4.5.9 of the "Stormwater Management Planning and Design Manual" (MOE, March 2003). The MOE Manual states that "Grassed swales are most effective for stormwater treatment when depth of flow is minimized, bottom width is maximized (≥ 0.75 m) and channel slope is minimized (e.g., ≤ 1%)". The recommended design criteria are summarized in **Table 4.6**.

Grassed Swale Proposed Design

The design characteristics of the proposed swale are outlined in **Table 4.6** and meet the recommended design criteria.

Table 4.6 – Water Quality Design for Grassed Swales

Criteria	Recommended	Design
Drainage Area	≤ 1.5 ha	0.09 ha
Channel Slope	≤ 1%	0.9%
Bottom Width	≥ 0.75 m	0.75m
Side Slopes (H:V)	≥ 2.5:1	3:1

Maintenance and Effectiveness

Case studies on the effectiveness of grassed ditches and swales for water quality control have provided variable results, which precludes the ability to precisely calculate pollutant removal efficiencies. However, properly designed grassed channels can provide in excess of 80% long-term TSS removal, which meets the requirements for an Enhanced level of quality control as per the MOE guidelines.

Both dry and wet swales demonstrate good pollutant removal, with dry swales providing significantly better performance for metals and nitrate. Dry swales typically remove 65 percent of total phosphorus (TP), 50 percent of total nitrogen (TN), and between 80 and 90 percent of metals. Wet swale removal rates are closer to 20 percent of TP, 40 percent of TN, and between 40 and 70 percent of metals. The total suspended solids (TSS) removal for both swale types is typically between 80 and 90 percent.

The majority of contaminants would come from the interim granular area of the site. Storm runoff from grassed areas and roofs typically does not require any quality treatment.

The proposed swale meet all of the criteria outlined in **Table 4.6**. Therefore, the grassed swales are able to provide water quality control.

In addition, Best Management Practices (BMPs) will be implemented including:

- Surface drainage via grassed swale.
- Infiltration via subdrain under the swale.
- Swale at minimal slopes.
- 600mm deep sumps in the proposed catch basin.

Therefore, the combination of BMPs and conveyance controls is able to provide water quality control.

5.0 EROSION AND SEDIMENT CONTROL

5.1 Temporary Measures

Temporary erosion and sediment control measures would be implemented during construction. Erosion and sediment control measures would include silt bags and filter cloth in catch basins and the trench drain and could also include perimeter silt fence.

Erosion and sediment control measures should be inspected daily and after every rain event to determine maintenance, repair, or replacement requirements. Sediments or granular material that enter site sewers shall be removed immediately by the contractor. These measures would be implemented prior to the commencement of construction and maintained in good order until vegetation has been established.

Refer to the Grading, Erosion and Sediment Control Plans (**123013-GR and 123013-GR2**) for additional information.

6.0 CONCLUSIONS

- Water servicing for the proposed development would be provided by connecting to the existing watermains on Slater Street and Laurier Avenue W. The existing watermain infrastructure can provide adequate flow and pressure for domestic use.
- The multiple existing fire hydrants within the vicinity of the proposed development would provide adequate flow and pressure for fire protection.
- The sanitary services for the proposed buildings would connect to the existing sanitary sewers on Slater Street and Laurier Avenue W. Sufficient capacity should be available in the existing downstream sanitary sewer to service the proposed development. The City of Ottawa has indicated that they will review and confirm downstream capacity.
- Quantity control of stormwater would be provided through storage of stormwater within an underground SWM tank at the northwest corner of the site. An inlet control device and pump system would be used to control the release of stormwater to the allowable release rate prior to out-letting to the City storm sewer system.
- The City of Ottawa indicated that quality control of stormwater is not required in the ultimate condition.
- A grassed swale would provide quality control in the interim condition.
- An overland flow route is provided.
- Erosion and sediment control measures would be implemented prior to and during construction.

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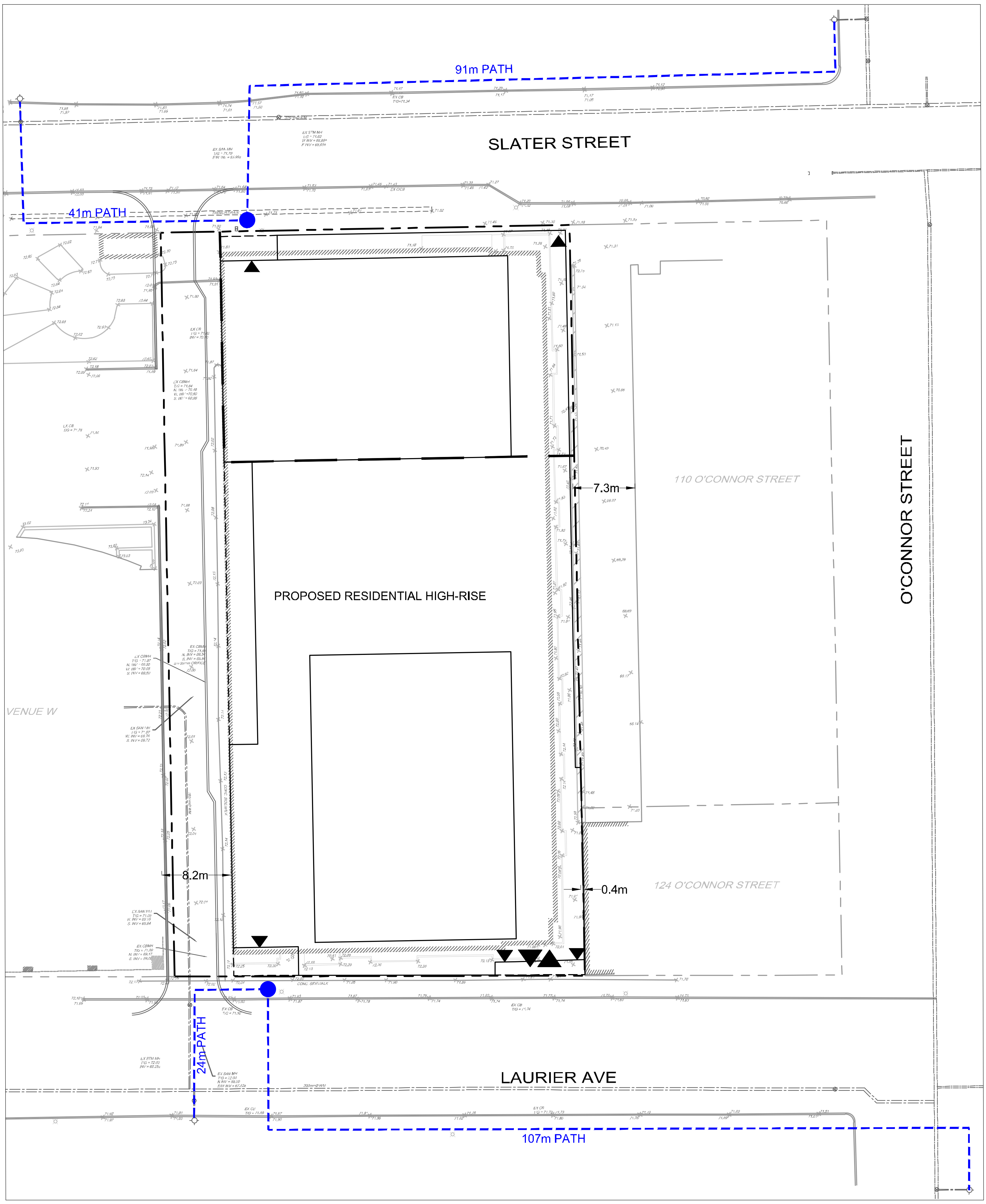
170 SLATER STREET
CITY OF OTTAWA

KEY PLAN

DATE	JOB	FIGURE
JUL 2023	123013	1

SHT8X11.DWG - 216mmx279mm



M:\2023\123013\CAD\Civil\Figures\123013-FH.dwg, HYDRANT, Jul 04, 2023 - 2:40pm, arongve

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6

Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LEGEND

ROUTE FROM PROPOSED BUILDING TO HYDRANT

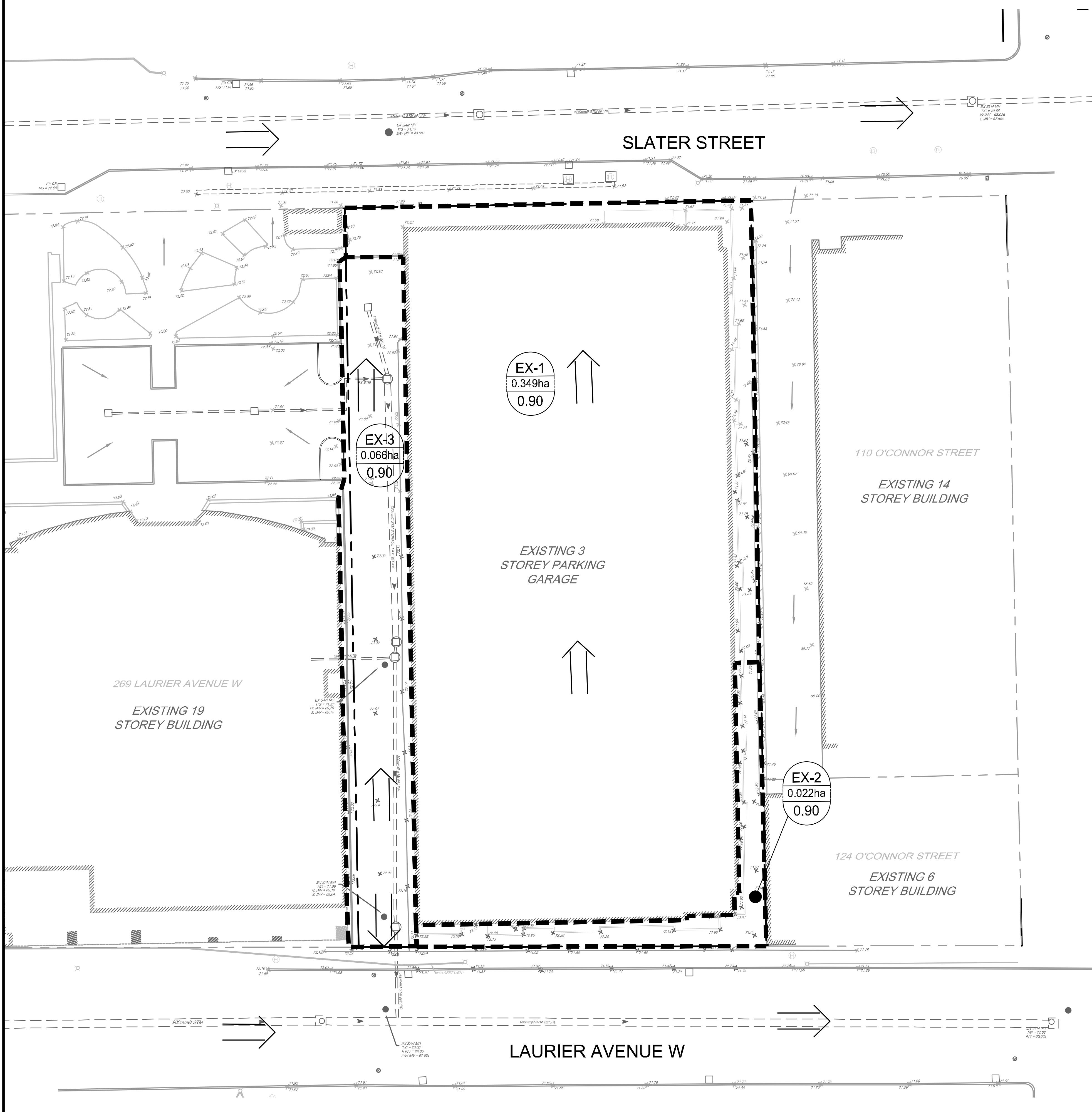
8.2m DISTANCE TO ADJACENT BUILDING

170 SLATER STREET

FIRE HYDRANT COVERAGE PLAN

SCALE	DATE	JOB	FIGURE
1 : 500	JUL 2023	123013	2

SHT11X17.DWG - 279mmX432mm



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LEGEND

EX-1	DRAINAGE AREA ID
0.349ha	DRAINAGE AREA (ha)
0.90	RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

PROPERTY BOUNDARY

EXISTING DRAINAGE DIRECTION

MAJOR OVERLAND DRAINAGE ROUTE

170 SLATER STREET

PRE-DEVELOPMENT DRAINAGE AREA PLAN

SCALE	DATE	JOB	FIGURE
1 : 500 (0, 5m, 10m, 20m)	MAR 2024	123013	3

SHT11X17.DWG - 279mmX432mm

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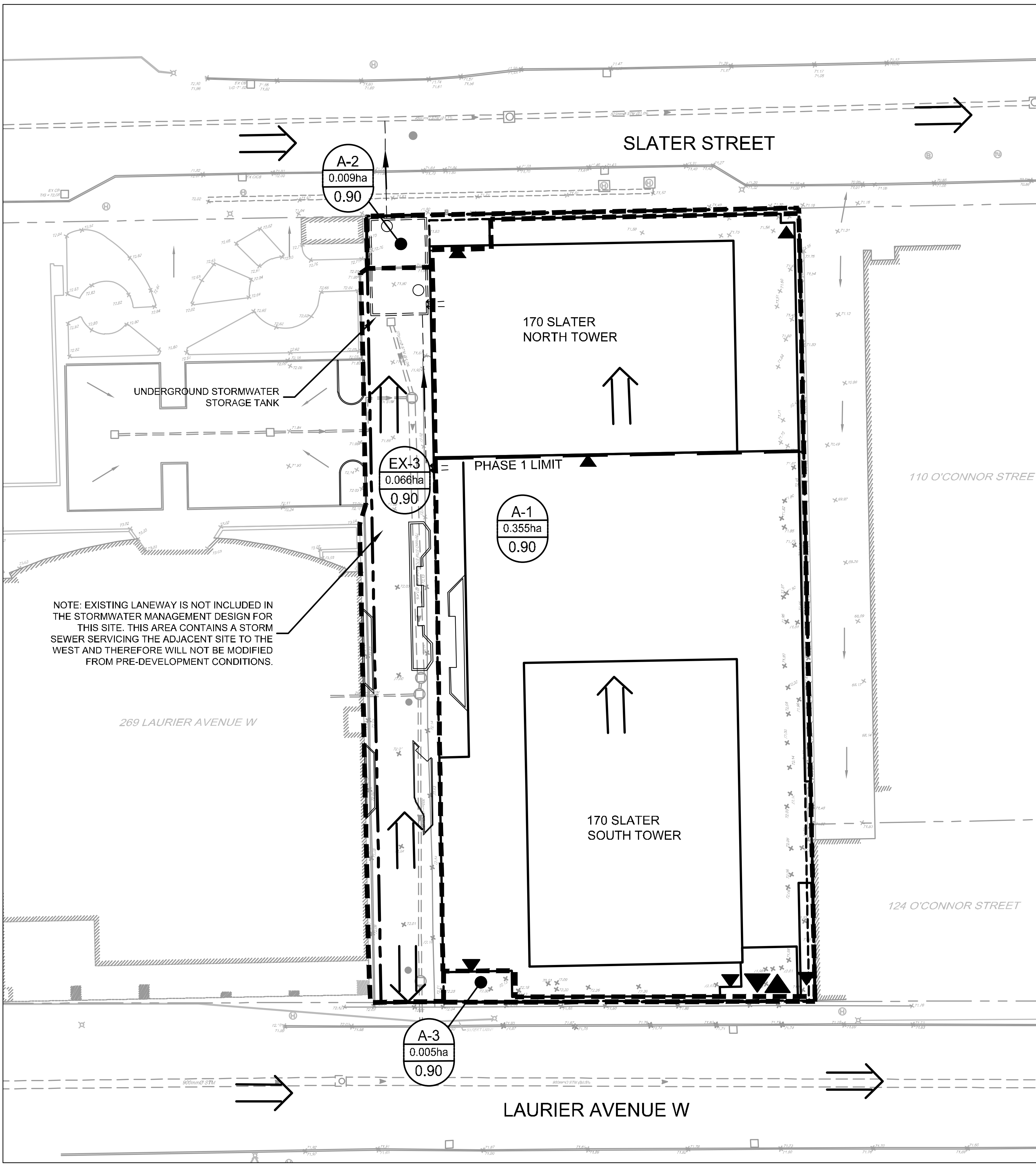

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LEGEND

A-1 / 0.067ha / 0.45 — DRAINAGE AREA ID, DRAINAGE AREA (ha), RUNOFF COEFFICIENT

DRAINAGE AREA BOUNDARY

PROPERTY BOUNDARY

EXISTING DRAINAGE DIRECTION

MAJOR OVERLAND DRAINAGE ROUTE

170 SLATER STREET

POST-DEVELOPMENT DRAINAGE AREA PLAN

SCALE 1 : 500 (0, 5m, 10m, 20m)

DATE	JOB	FIGURE
MAR 2024	123013	4

SHT11X17.DWG - 279mmX432mm

Appendix A – Correspondence

Pre-Application Consultation Meeting Notes- Infrastructure
Property Address: 170 Slater Street- for proposed two towers, one fronting Slater Street (23-storeys) and one fronting Laurier Avenue West (26-storeys).
Date January 12th 2023

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

General:

- If there are any utilities being installed parallel within the existing Right of Way or a road modification within the existing Right of Way, or a shoring system with tie backs encroaching the ROW then a Municipal Consent Circulation would be required. The installation of any structure, structure footing, geo-membrane or perforated pipe encroaching into the existing ROW is not permitted without a separate Municipal Consent Approval.
- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided and all easements shall be shown on the engineering plans.
- A **Record of Site Condition (RSC) in accordance with O.Reg.** 153/04 will be required to be filed and acknowledged by the Ministry prior to issuance of a building permit due to a change to a more sensitive property use.
- All underground and above ground building footprints and permanent walls need to be shown on the plans to confirm that any permanent structure does not extend either above or below into the existing property lines and sight triangles.

- Reference documents for information purposes :
  - Ottawa Sewer Design Guidelines (October 2012)
  - Technical Bulletin PIEDTB-2016-01
  - Technical Bulletins ISTB-2018-01, ISTB-2018-02 and ISTB-2018-03.
  - Ottawa Design Guidelines - Water Distribution (2010)
  - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (2007)
  - City of Ottawa Slope Stability Guidelines for Development Applications (revised 2012)
  - City of Ottawa Environmental Noise Control Guidelines (January 2016)
  - City of Ottawa Accessibility Design Standards (2012) (City recommends development be in accordance with these standards on private property)
  - Ottawa Standard Tender Documents (latest version)
  - Ontario Provincial Standards for Roads & Public Works (2013)
  - Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at InformationCentre@ottawa.ca or by phone at (613) 580-424 x.44455).

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

Stormwater Management Criteria and Information:

- **Water Quantity Control:** In the absence of area specific SWM criteria please control post-development runoff from the subject site, up to and including the **100-year storm event**, to **a 2-year pre-development level.** The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.5. [**If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.5**]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations*].
- Any storm events greater than the established **2-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on-site. The SWM measures required to avoid impact on downstream sewer system will be subject to review.
- Document how any foundation drainage system will be integrated into the servicing design and show the positive outlet on the plan. Foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. **It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.**
- **Water Quality Control:** Please consult with the local conservation authority (RVCA) regarding water quality criteria prior to submission of a Site Plan Control Proposal application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.
- **Underground Storage:** Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

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

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

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

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

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

- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.
- Please provide a **Pre-Development Drainage Area Plan** to define the pre-development drainage areas/patterns. **Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution**.
- **If rooftop control** and storage is proposed as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.
- Street catchbasins are not to be located at any proposed entrances.

Sanitary Sewer:

- Please provide the new Sanitary sewer discharge rate to confirm if sanitary sewer main has the capacity.
- Please apply the wastewater design flow parameters *in Technical Bulletin PIEDTB-2018-01.*
- Sanitary sewer monitoring maintenance hole is required to be installed at the property line (on the private side of the property) as per City of Ottawa Sewer-Use By-Law 2003-514 (14) *Monitoring Devices*.

Water :

- Existing residential service to be blanked at the main.
- **Water Supply Redundancy:** Residential buildings with a basic day demand greater than 50m^3/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the *Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration.* The basic day demand for this site not expected to exceed 50m^3/day.
- Please **review Technical Bulletin ISTB-2018-02**, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A **hydrant coverage figure** shall be provided and **demonstrate there is adequate fire protection for the proposal**.
- Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.
    - Type of Development and Units
    - Site Address
    - A plan showing the proposed water service connection location.

- **Average Daily Demand** (L/s)
- **Maximum Daily Demand** (L/s)
- **Peak Hour Demand** (L/s)
- **Fire Flow** (L/min)

[*Fire flow demand requirements shall be based on* ***ISTB-2021-03***]
Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).

Other Construction project-

Watermain Renewal and Streetscpaing	On Slatter Street between Elgin street and Bay Street	In 2-3 years

Severance:

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

Required Engineering Plans and Studies:
PLANS:

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

REPORTS:

- Site Servicing and Stormwater Management Report
- Geotechnical Study/Investigation
- Slope Stability Assessment Reports (if required, please see requirements below)
- Noise Control Study
- Phase I ESA
- Phase II ESA (Depending on recommendations of Phase I ESA)
- RSC (Record of the site Conditions)
- Site lighting certificate
- Wind analysis

Please refer to the **City of Ottawa Guide to Preparing Studies and Plans [Engineering]:**
Specific information has been incorporated into both the Guide to Preparing Studies and Plans for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.
Added to the general information for servicing and grading plans is a note that an O.L.S. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an O.L.S. for development projects is emphasized.

RSC (Record of the site Conditions)

- A RSC is required when changing the land use (zoning) of a property to a more sensitive land use and **a memorandum prepared by an environmental consultant confirming that no potential contaminating activities have taken place within the RSC area since the filling of the RSC.**

Submitting a record of site condition | Ontario.ca

Geotechnical Investigation:

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

https://documents.ottawa.ca/sites/default/files/documents/cap137602.pdf

Slope Stability Assessment Reports

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

Noise Study:

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

Wind analysis:

When greater than 9 storey in height Wind Study for all buildings/dwellings.

- A wind analysis must be prepared, signed and stamped by an engineer who specializes in pedestrian level wind evaluation. Where a wind analysis is prepared by a company which do not have extensive experience in pedestrian level wind evaluation, an independent peer review may be required at the expense of the proponent.

Terms of Reference: Wind Analysis (ottawa.ca)

Exterior Site Lighting:

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

Fourth (4th) Review Charge:

Please be advised that a flat fee will be charged for additional reviews , after the 3rd review.

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

Please note that these comments are considered preliminary based on the information available to date and therefore maybe amended as additional details become available and presented to the City. It is the responsibility of the applicant to verify the above information. The applicant may contact me for follow-up questions related to engineering/infrastructure prior to submission of an application if necessary.

If you have any questions or require any clarification, please let me know.

Regards,

Nishant Jhamb, P.Eng
Project Manager |Gestionnaire de projet
Planning, Infrastructure and Economic Development Department - Services de la planification, de l’infrastructure et du développement économique
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 23112, nishant.jhamb@ottawa.ca

Aden Rongve

From:	Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent:	May 29, 2023 3:36 PM
To:	Alex McAuley
Cc:	Aden Rongve; Mitch Parker
Subject:	RE: 170 Slater - stormwater quality (123013)

Hello Alex, I can confirm that stormwater quality control is not required for the proposed development.

Thanks

Nishant Jhamb, P.Eng
Project Manager |Gestionnaire de projet
Planning, Real Estate and Economic Development Department
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 23112, nishant.jhamb@ottawa.ca

From: Alex McAuley <a.mcauley@novatech-eng.com>
Sent: May 25, 2023 1:32 PM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Cc: Aden Rongve <a.rongve@novatech-eng.com>; Mitch Parker <m.parker@novatech-eng.com>
Subject: RE: 170 Slater - stormwater quality (123013)

Hi Nishant,
Attached is the Conceptual Site Plan (123013-CSP, May 2023) , and Post-Development Drainage Area Plan (123013-POST, draft May 25, 2023). The Site Plan maintains the existing driveway for the adjacent 269 Laurier building, this drainage would be maintained.

The proposed drainage would generally be controlled rooftop drainage, with some uncontrolled sidewalk runoff. Since rooftop drainage is generally considered clean, and would outlet to the existing City storm sewers, we are suggesting that treatment of stormwater runoff would now be required for the proposed development.

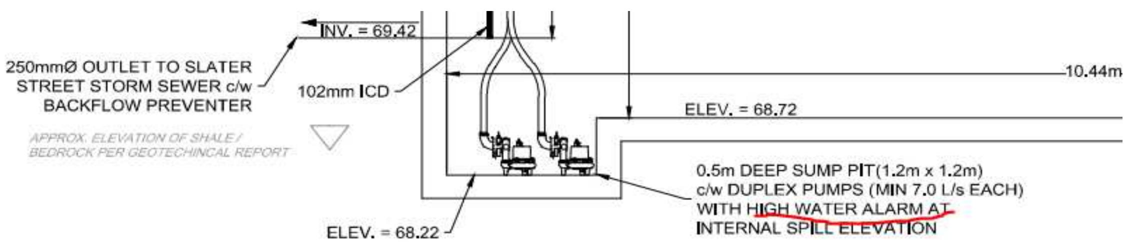
Please confirm that stormwater quality control is not required for this site.

Thank you,

Alex McAuley, P.Eng., Project Manager | Land Development Engineering
NOVATECH

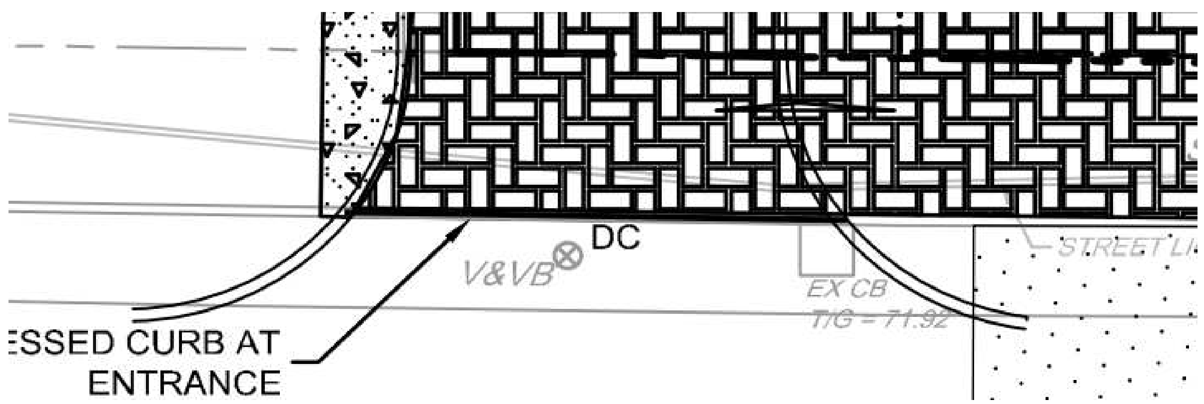
![FOTENN]

170 Slater Street - Response to Technical Circulation Comments
Phase 2 Comments - July 14, 2023
NOVATECH RESPOSNE TO ENGINEERING COMMENTS - DECEMBER 1, 2023

	Comment	Responsibility	Response	Status
	Engineering			
32	Please note these are high level comments, detailed comments will be provided during the Phase 3 of Pre-Consultation.	Fotenn	Noted.	No Action
33	Provide Interim Condition plans for Grading, Servicing, Erosion and Sediment Control for the Phased construction.	Novatech	Grading and Servicing Plans are now provided for Phase 1 (Interim) and Phase 2 (Ultimate) conditions.	Updated Phased Drawings Provided
34	Existing 750mm Storm pipe is very close to the proposed building, how will this infrastructure be protected during the demolition and construction work of the proposed building.	Novatech	The existing storm sewer is 1.5m from the edge of the proposed foundation. Additional detail and notes have been provided on the General Plan of Services.	General Plan of Services Updated
35	Ensure that proposed 250mm storm pipe in the lane way is 1 meter away from proposed building.	Novatech	Proposed 250mmØ storm pipe is 1m away from the building. Refer to detail on the General Plan of Services.	General Plan of Services Updated
36	Please show one water service connection on Slater Street and one Laurier Avenue W. The services should be connected through internal plumbing.	Novatech	Phase 1 (Interim Condition) is to include two water service connections on Laurier Avenue. An additional water service will be added on Slater Street and one water service removed on Laurier Avenue as part of the Phase 2 (Ultimate Condition) works. Refer to General Plan of Services drawings. Mechanical to provide connection between two services in ultimate condition.	Updated Phased Drawings Provided
37	Show the Roof/area drain location and drainage arrows on all the roofs/catchment areas. Include those details in the grading plan and post development drainage area plan.	Novatech	Stormwater management design does not rely on rooftop storage or controls, and for purposes of stormwater management the roof is considered one drainage area. Refer to mechanical/architectural drawings for roof drain locations.	No Action
38	Provide more details on the Pump alarm, when will be the pumps activate? What will be the total release rate from pump and the ICD. 	Novatech	Pump control elevations have been added to the Stormwater Storage Tank Detail on the General Plan of Services. The total release rates from the pump and ICD for various storm events are outlined in Table 4.4 of the Servicing and Stormwater Management Report.	General Plan of Services Updated

FOTENN

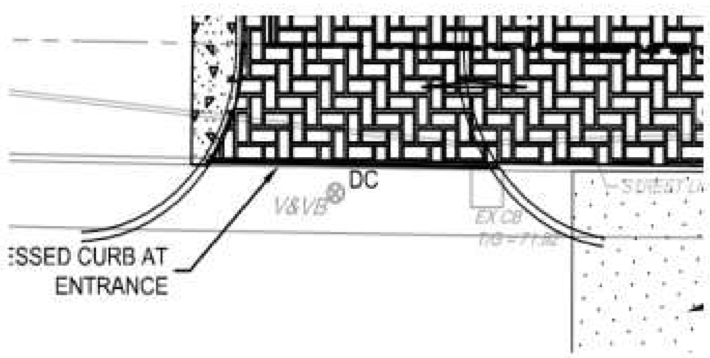
170 Slater Street - Response to Technical Circulation Comments
Phase 3 Comments - January 23, 2024
NOVATECH RESPONSE TO ENGINEERING COMMENTS - MARCH 8, 2024

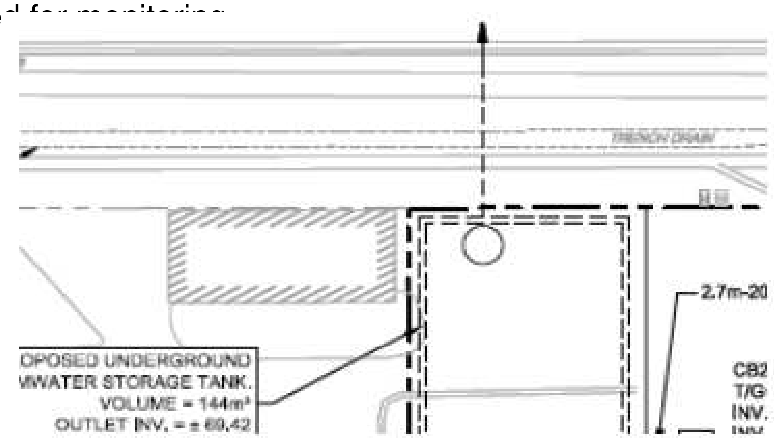
	Comment	Responsibility	Response
	Engineering		
	Existing Conditions, Removals and Reinstatement Plan		
1	There are no notes regarding blanking and capping water and sewer laterals as required for abandonment of existing services. Please revise.	Novatech	Refer to General Note #3 which has been added to the General Plans of Servicing indicating locationing, blanking and capping existing services.
2	Show full width asphalt resurfacing, ensure resurfacing does not stop mid lanes.	Novatech	Asphalt reinstatement limits have been revised to include full road width.
3	Reinstate to existing conditions only. These changes are not permitted.  	Novatech	The drawings have been revised to match existing conditions and improvements per the site plan.
	General Plan of Services		
1	Quality Control measure is required for the proposed Surface parking lot, add required details on the plans and in the SWM report.	Novatech	The proposed surface parking lot has been revised to a mix of granular surface and landscaped area. A grassed swale has been provided for water quality in the interim.
2	A Sanitary Monitoring MH is required inside the PL. Refer to Section 13 of the Sewer Use Bylaw 2003-514A Storm Monitoring MH is required inside the PL. Refer to Section 13 of the Sewer Use Bylaw 2003-514. If storage tank access is to be used for monitoring, please add a note on the plan.	Novatech	Due to site constraints sanitary monitoring manholes there is insufficient room between the property line and the foundation. Sanitary monitoring ports within the building would be provided on each service as an 'alternate device' per the Sewer Use By-Law. The stormwater storage tank will be used for monitoring, a note has been added to the Servicing Plans.
3	Valve Box can not be placed in ROW and should be placed at the PL. Revise on both Slater Ave and Laurier Ave W.	Novatech	Valve boxes have been shifted to the property lines
4	Show thrust blocks where required.	Novatech	Thrust blocks have been added to the water service connections.
5	Plan and Project number will be provided once the application is deemed complete.	Novatech	Noted.

6	Designated Substance Report will be required before demolition of Existing building	Novatech	This would be provided by others as part of the demolition permit for the existing building.
7	Shoring plan will be required as a condition of approval with details on how 750mm storm sewer (shared infrastructure) will be protected during the construction and excavation of proposed development.	Novatech	The details of supporting the exsiting shared storm sewer during the excavation of the proposed building foundation would be provided as part of the detailed foundation construction plans at the time of building permit, once details of the foundation are known.
8	As the existing services of 269 Laurier Avenue West cross the Property line, following conditions will be included in the condition of SPC approval: The Owner shall, prior to the registration of SPC agreement, at its own cost and expense: 1. Obtain Environmental Compliance Approval ("ECA") from the Ministry of the Environment, Conservation and Parks; 2. Provide in-preparation Transfer Easement documents for any easement(s) required, in the sole opinion of the General Manager, Planning, Real Estate and Economic Development, to facillitate access to and maintenance of the water, sanitary, and/or storm sewer services 3. Register on title to the Subject Lands a Joint Use, Maintenance and Liability Agreement that is binding upon all Owners of the whole or any part of the Subject lands and deals with the joint use, maintenance and liability of all water, sanitary, and/or storm sewer services on the Subject Lands to the satisfaction of the General Manager, Planning, Real Estate and Econnomic Development	Novatech	Noted.
	Grading, Erosion and Sediment Control Plans		
1	Provide post development drainage plan showing every catchment area, including location of area drains, roof drain, drainage arrows. Indicate emergency rooftop scupper locations and outlet elevation on the plan. Obtain such infosrmation from the mechanical engineer. Shall not spillover any public areas (sidewalks, entrances, etc) and not neatively impact the ROW.	Novatech	Roof design and area drains not available at time of site plan application. Mechnical and architectural to provide details at time of building permit.
2	Show Offsite areas that drain to subject property. Please note that City of Ottawa does not accept any restrictions on the existing drainage patterns.	Novatech	Storm Drainage Area Plan has been revised to show offsite drainage onto property. Existing drainage patterns are maintained.

FOTENN

170 Slater Street - Response to Technical Circulation Comments
Phase 3 Comments - 15 April, 2024
NOVATECH RESPONSE TO COMMENTS - APRIL 26, 2024

	Comment	Responsibility	Response
	Planning		
	Deficiencies		
3	The proposed Phase 1 granular surface shown on the Site Plans and Landscape Plans in the location of the proposed tower should be replaced with a sod condition to aid in stormwater runoff and to avoid spillover to adjacent rights-of way and paths of travel. The same comment for all engineering drawings: Currently, the granular surface is indicated on all engineering drawings instead of sod for Phase 1 condition in the interim.	Novatech	The Grading and Servicing plans show that runoff from the interim granular surface would be captured via a landscaped swale and conveyed to the stormwater storage tank. This has been accounted for as part of the Phase 1 Stormwater Management design.
	Engineering		
	Comments		
18	Show approximate location of existing water, storm and sanitary service on the plans.	Novatech	Approximate water, storm and sanitary service locations have been provided by the site property manager and have been added to the drawings. Contractor is to verify locations prior to construction.
19	Reinstate to existing conditions only. These changes are not permitted. 	Novatech	The 123013-RP plan has been revised to reinstate to existing conditions.
20	No Response Required- Shoring plan will be required as a condition of approval before issuance of Building permit with details on how 750mm storm sewer (shared infrastructure) will be protected during the construction and excavation of proposed development.	Novatech	Noted.

21	No Response Required -As the existing services of 269 Laurier Avenue West cross the Property line, following conditions will be included in the condition of SPC approval. The Owner shall, prior to the registration of SPC agreement, at its own cost and expense: **i**. Obtain Environmental Compliance Approval ("ECA") from the Ministry of the Environment, Conservation and Parks; **ii**. Provide in-preparation Transfer Easement documents for any easement(s) required, in the sole opinion of the General Manager, Planning, Real Estate and Economic Development, to facilitate access to and maintenance of the water, sanitary, and/or storm sewer services **iii**. Register on title to the Subject Lands a Joint Use, Maintenance and Liability Agreement that is binding upon all Owners of the whole or any part of the Subject lands and deals with the joint use, maintenance and liability of all water, sanitary, and/or storm sewer services on the Subject Lands to the satisfaction of the General Manager, Planning, Real Estate and Economic Development	Novatech	Noted.
22	A Sanitary Monitoring MH is required inside the PL Refer to Section 13 of the Sewer use Bylaw 2003-514 https://ottawa.ca/en/living-ottawa/laws-licences-and permits/laws/laws-z/sewer-use-law-no-2003-514 Please look at ways to locate sanitary inspection chamber inside the Mechanical room with access from outside (inside the PL) for Both Phase 1 and Phase 2 connections.	Novatech	Further details on the sanitary inspection port would be provided at the time of building permit in coordination with the mechanical engineer.
23	A storm Monitoring MH is required inside the PL Refer to Section 13 of the Sewer use Bylaw 2003-514. If storage tank access is to be used for Monitoring, please mark it on the plan showing which access cover will be use 	Novatech	The monitoring access cover for the stormwater storage tank has been labelled on the General Plan of Services drawings (123013-GP and 123013-GP2).
25	Servicing and Stormwater Management Report - No Comments	Novatech	Noted.

Appendix B – Water Supply

Aden Rongve

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: May 19, 2023 1:18 PM
To: Aden Rongve
Cc: Alex McAuley; Mitch Parker
Subject: RE: Boundary Condition Request - 170 Slater Street (123013)
Attachments: 170 Slater Street May 2023.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hello Aden

The following are boundary conditions, HGL, for hydraulic analysis at 170 Slater Street, (zone 1W) assumed to be connected to the 305 mm watermain on Laurier Street and the 381 mm watermain on Slater Street (see attached PDF for location).

Slater Street Connection:

Min HGL: 106.9 m

Max HGL: 115.5 m

Max Day + FF (166.7 L/s): 109.1 m

Laurier Street Connection:

Min HGL: 106.8 m

Max HGL: 115.5 m

Max Day + FF (166.7 L/s): 109.1 m

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

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

Nishant Jhamb, P.Eng
Project Manager |Gestionnaire de projet
Planning, Real Estate and Economic Development Department
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 23112, nishant.jhamb@ottawa.ca

From: Jhamb, Nishant
Sent: April 27, 2023 1:08 PM
To: Aden Rongve <a.rongve@novatech-eng.com>
Cc: Alex McAuley <a.mcauley@novatech-eng.com>; Mitch Parker <m.parker@novatech-eng.com>
Subject: RE: Boundary Condition Request - 170 Slater Street (123013)

Hello Aden,

I have requested the BC from Water department, please note it may take upto 2 weeks.

Thank you

Nishant Jhamb, P.Eng
Project Manager |Gestionnaire de projet
Planning, Real Estate and Economic Development Department
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 23112, nishant.jhamb@ottawa.ca

From: Aden Rongve <a.rongve@novatech-eng.com>
Sent: April 27, 2023 12:58 PM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Cc: Alex McAuley <a.mcauley@novatech-eng.com>; Mitch Parker <m.parker@novatech-eng.com>
Subject: RE: Boundary Condition Request - 170 Slater Street (123013)

Nishant,

We have made minor revisions to the demand calculations below. Supporting calculations for Peak Hour Demand and Fire Flow are attached. Please provide boundary conditions based on the following:

- Average Day Demand – 3.20 L/s
- Maximum Day Demand – 7.94 L/s
- Peak Hour Demand – 17.43 L/s
- Fire Flow – 10,000 L/min

A severance is not proposed for the site at this time. Please let us know if you require any additional information.

Thank you.

Aden Rongve, B.Sc., EIT
NOVATECH

Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 ext 324

From: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Sent: Wednesday, April 12, 2023 10:47 AM
To: Aden Rongve <a.rongve@novatech-eng.com>
Cc: Alex McAuley <a.mcauley@novatech-eng.com>; Mitch Parker <m.parker@novatech-eng.com>
Subject: RE: Boundary Condition Request - 170 Slater Street (123013)

Hello Aden,

Can you please include the Peak Hour demand and FUS calculations for both the towers.

Also can you please confirm if severance if proposed?

Thanks
Nishant Jhamb, P.Eng
Project Manager |Gestionnaire de projet
Planning, Real Estate and Economic Development Department
Development Review - Central Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2424 ext./poste 23112, nishant.jhamb@ottawa.ca

Thanks
Nishant

From: Aden Rongve <a.rongve@novatech-eng.com>
Sent: April 12, 2023 10:27 AM
To: Jhamb, Nishant <nishant.jhamb@ottawa.ca>
Cc: Alex McAuley <a.mcauley@novatech-eng.com>; Mitch Parker <m.parker@novatech-eng.com>
Subject: Boundary Condition Request - 170 Slater Street (123013)

Hi Nishant,

We are working on the detailed servicing for a proposed site plan at 170 Slater Street with two residential towers and shared podium (total of 632 residential units and 1,079m^2 of commercial space). We are proposing connecting to both the 375mmØ watermain on Slater Street and to the 300mmØ watermain on Laurier Avenue. Please find a location plan attached for reference.

We are requesting water boundary conditions for both Laurier and Slater based on the following.

- Average Day Demand – 3.64L/s
- Maximum Day Demand – 8.67 L/s

- Peak Hour Demand – 17.07 L/s
- Fire Flow – 10,000 L/min

Please let us know if you have any questions.

Thank you,

Aden Rongve, B.Sc., EIT
NOVATECH
Engineers, Planners & Landscape Architects
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 ext 324

'

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'

170 SLATER STREET
PROPOSED HIGH-RISE RESIDENTIAL BUILDING - HYDRAULIC ANALYSIS

JOB #: 123013
DATE: July 2023

CALCULATED WATER DEMNADS:

PROPOSED DEVELOPMENT (25 STOREY & 26 STOREY RESIDENTIAL TOWERS WITH SHARED 7 STOREY PODIUM)

AVERAGE DAY =	3.48	L/s
MAXIMUM DAY =	8.64	L/s
PEAK HOUR =	18.97	L/s
MAX DAY + FIRE =	184.64	L/s

CITY OF OTTAWA BOUNDARY CONDITIONS:

BOUNDAY CONDITIONS BASED ON (ZONE 1W) CONNECTION TO 300mm DIA. LAURIER AVENUE W

MINIMUM HGL =	106.9	m
MAXIMUM HGL =	115.5	m
MAX DAY + FIRE =	109.1	m

WATERMAIN ANALYSIS:

LAURIER AVENUE WATERMAIN CONNECTION

FINSIHED FLOOR GROUND ELEVATION = 72.15 m

HIGH PRESSURE TEST = MAX HGL - AVG GROUND ELEV x 1.42197 PSI/m < 80 PSI

HIGH PRESSURE = 61.6 PSI

LOW PRESSURE TEST = MIN HGL - AVG GROUND ELEV x 1.42197 PSI/m > 40 PSI

LOW PRESSURE = 49.4 PSI

MAX DAY + FIRE TEST = MAX DAY + FIRE - AVG GROUND ELEV x 1.42197 PSI/m > 20 PSI

LOW PRESSURE = 52.5 PSI

`

FUS - Fire Flow Calculations

As per 2020 Fire Underwriter's Survey Guidelines

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #:	123012
Project Name:	170 Slater Street
Date:	July 2023
Input By:	MNP
Reviewed By:	ARM

Legend: Input by User; No Information or Input Required

Building Description: 26 STOREY TOWER AND 25 STOREY TOWER WITH SHARED 8 STOREY PODIUM

Step			Choose		Value Used	Total Fire Flow (L/min)
	Base Fire Flow					
1	**Construction Material**			**Multiplier**		
	Coefficient related to type of construction C	Type V - Wood frame		1.5	0.6	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction		0.8		
		Type I - Fire resistive construction (2 hrs)	Yes	0.6		
2	**Floor Area**					
	A	Lower Podium Level Footprint (m^2)	3522			
		Total Floors/Storeys (Lower Podium)	1			
		Upper Podium Level Footprint (m^2)	2465			
		Total Floors/Storeys (Upper Podium)	7			
		Protected Openings (1 hr)	Yes			
		A, Total Effective Floor Area (m^2)			**4,755**	
	F	**Base fire flow without reductions** $F = 220\ C\ (A)^{0.5}$				**9,000**
	Reductions or Surcharges					
3	**Occupancy hazard reduction or surcharge**		**FUS Table 3**	**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**7,650**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction**		**FUS Table 4**	**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-3,825**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System	Yes	-10%	-10%	
				Cumulative Sub-Total	**-50%**	
		Area of Sprinklered Coverage (m²)	20777	100%		
				Cumulative Total	**-50%**	
5	**Exposure Surcharge per**		**FUS Table 5**		**Surcharge**	
	(3)	North Side	10.1 - 20 m		15%	**5,738**
		East Side	0 - 3 m		25%	
		South Side	10.1 - 20 m		15%	
		West Side	3.1 - 10 m		20%	
				Cumulative Total	**75%**	
	Results					
6	(1) + (2) + (3)	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**10,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**167**
				or	USGPM	2,642
7	**Storage Volume**	Required Duration of Fire Flow (hours)			Hours	2
		Required Volume of Fire Flow (m^3)			m^3	1200

170 SLATER STREET
HYDRAULIC ANALYSIS

Water Demand Calculations

Node	Residential Population						Commercial	Residential Demand (L/s)			Commercial Demand (L/s)			Total Demand (L/s)		
	Units							Avg Day	Max. Daily	Peak Hour	Avg Day	Max. Daily	Peak Hour	Avg Day	Max. Daily	Peak Hour
	Bachelor Apartments	1 Bedroom Apartments	2 Bedroom Apartments	3 Bedroom Apartments	Total Population (1.8 avg)	Total Population (by bedroom)	Floor Area (m^2)									
Building #1 (North)	15	137	39	9	360	273.7		1.17	2.92	6.42				1.17	2.92	6.42
Building #2 (South)	15	138	43	12	374	283.5		1.21	3.03	6.67				1.21	3.03	6.67
Podium	31	113	33	1	320	230.6		1.04	2.60	5.71				1.04	2.60	5.71
1st Floor							1079				0.06	0.09	0.17	0.06	0.09	0.17
	61	388	115	22	1055	788							Site Total	3.48	8.64	18.97

Design Parameters:

- Average Apartment = 1.8 persons/unit		
- Stores	5	L/m^2 floor space
Section 4.0 Ottawa Water Distribution Design Guidelines		
- Average Domestic Flow	280	L/Day
Peaking Factors: Table 3-3 Moe Guideline for Drinking Water systems (pop < 500)		
Max. Daily Demand:		
- Residential	2.5	x Avg.Day
Peak Hourly Demand:		
- Residential	2.2	x Max Day
Commercial Peaking Factor (Section 4.0 Ottawa Water Distribution Design Guidelines)		
Max. Daily Demand:	1.5	x Avg. Day
Peak Hourly Demand:	1.8	x Max. Day

Appendix C – Sanitary Servicing

NOVATECH
Engineers, Planners & Landscape Architects

PROPOSED SANITARY FLOWS

	RESIDENTIAL						COMMERCIAL			INFILTRATION		Total Flow (L/s)
	# of Units						TOTAL					
	1 Bed / Bachelor	2 Bed Units	3 Bed Units	Accum. Pop.	Peak Factor	Peak Flow (L/s)	Retail Space (m^2)	Peak Factor	Peak Flow (L/s)	Total Area (ha)	Infilt. Flow (L/s)	
South Tower - Outlet to Laurier Ave. (Phase 1)	249	65	13	589	3.3	6.39	1079	1.0	0.06	0.37	0.11	6.6
North Tower - Outlet to Slater Street (Phase 2)	200	50	9	466	3.4	5.12	1080	0.0	0.00	1.37	0.41	5.5

Notes: Analysis assumes 1/3 of podium units allocated to Laurier Ave and 2/3 of units allocated to Slater Street

EXISTING SANITARY SEWER CAPACITY

	PIPE			
	Size (mm)	Slope (%)	Length (m)	Capacity (l/s)
Laurier Avenue	375	0.75%	68.0	151.7
Slater Street	950x1200	0.35%	68.0	2306.0

Note: 950mmx1200mm box sewer capacity based on equivalent cross sectional area of a 1200mmØ sewer

Design Parameters:

Section 4.0 Ottawa Sewer Design Guidelines

- Average Apartment	1.8	persons/unit
- Residential	280	L/person/day
- Commercial Retail Space	5	L/m^2/day
- Extraneous Flows	0.3	L/s/ha
Residential Peaking Factor	Harmon Equation	
Commerical Peaking Factor	1.0	

Appendix D – Storm Servicing and Stormwater Management

TABLE D1: Allowable Stormwater Release Rate

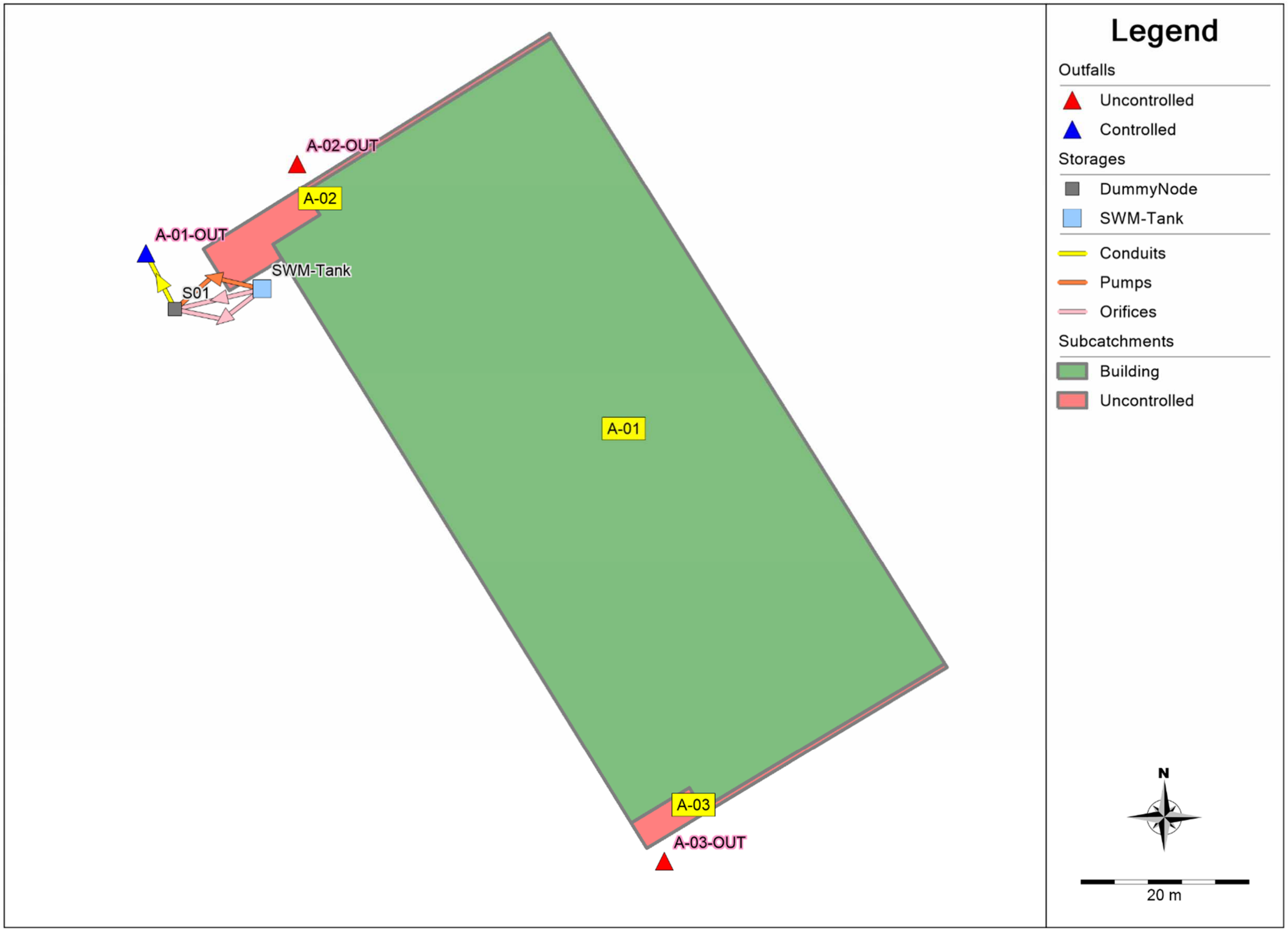
Area (ha)	"C"	Tc (min)	Q_{Allow} (L/s)
0.369	0.50	10	39.4

Time of Concentration	Tc=	10	min
Intensity (2 Year Event)	I_2=	76.81	mm/hr

2 year Intensity = 732.951 / (Time in min + 6.199) $^{0.810}$

170 Slater Street (123013)
PCSWMM Model Schematic

Overall Model Schematic



Date: 2023-07-04
M:\2023\123013\DATA\Calculations\SWM\PCSWMM\PCSWMM Model Schematic-Output\123013-PCSWMM Model Schematic.docx

EPA STORM WATER MANAGEMENT MODEL - VERSION 5.2 (Build 5.2.3)

```
*************
Element Count
*************
Number of rain gages ...... 1
Number of subcatchments ... 3
Number of nodes ........... 5
Number of links ........... 4
Number of pollutants ...... 0
Number of land uses ....... 0
```

```
****************
Raingage Summary
****************
```

Name	Data Source	Data Type	Recording Interval
Raingage1	C3hr-100yr	INTENSITY	10 min.

```
********************
Subcatchment Summary
********************
```

Name	Area	Width	%Imperv	%Slope	Rain Gage	Outlet
A-01	0.35	88.75	100.00	1.5000	Raingage1	SWM-Tank
A-02	0.01	18.00	100.00	1.5000	Raingage1	A-02-OUT
A-03	0.01	12.50	100.00	1.5000	Raingage1	A-03-OUT

```
************
Node Summary
************
```

Name	Type	Invert Elev.	Max. Depth	Ponded Area	External Inflow
A-01-OUT	OUTFALL	69.29	0.25	0.0	
A-02-OUT	OUTFALL	71.00	0.00	0.0	
A-03-OUT	OUTFALL	71.00	0.00	0.0	
S01	STORAGE	69.42	1.60	0.0	
SWM-Tank	STORAGE	68.72	3.01	0.0	

```
************
Link Summary
************
```

Name	From Node	To Node	Type	Length	%Slope	Roughness
Outlet-Pipe	S01	A-01-OUT	CONDUIT	10.9	1.1927	0.0130
Pump	SWM-Tank	S01	TYPE3 PUMP			
Orifice	SWM-Tank	S01	ORIFICE			
OVF-Pipe	SWM-Tank	S01	ORIFICE			

```
*********************
Cross Section Summary
*********************
```

Conduit	Shape	Full Depth	Full Area	Hyd. Rad.	Max. Width	No. of Barrels	Full Flow
Outlet-Pipe	CIRCULAR	0.25	0.05	0.06	0.25	1	64.95

```
****************
Analysis Options
****************
Flow Units ............... LPS
Process Models:
  Rainfall/Runoff ........ YES
  RDII ................... NO
  Snowmelt ............... NO
  Groundwater ............ NO
  Flow Routing ........... YES
  Ponding Allowed ........ NO
  Water Quality .......... NO
Infiltration Method ...... HORTON
Flow Routing Method ...... DYNWAVE
```

```
Surcharge Method ......... EXTRAN
Starting Date ............ 06/09/2023 00:00:00
Ending Date .............. 06/10/2023 00:00:00
Antecedent Dry Days ...... 0.0
Report Time Step ......... 00:01:00
Wet Time Step ............ 00:05:00
Dry Time Step ............ 00:05:00
Routing Time Step ........ 2.00 sec
Variable Time Step ....... YES
Maximum Trials ........... 8
Number of Threads ........ 1
Head Tolerance ........... 0.001500 m


*********************
Control Actions Taken
*********************


**************************        Volume         Depth
Runoff Quantity Continuity     hectare-m            mm
**************************     ---------       -------
Total Precipitation ......         0.026        71.667
Evaporation Loss .........         0.000         0.000
Infiltration Loss ........         0.000         0.000
Surface Runoff ...........         0.027        72.049
Final Storage ............         0.000         0.060
Continuity Error (%) .....        -0.618


**************************        Volume        Volume
Flow Routing Continuity        hectare-m      10^6 ltr
**************************     ---------     ---------
Dry Weather Inflow .......         0.000         0.000
Wet Weather Inflow .......         0.027         0.266
Groundwater Inflow .......         0.000         0.000
RDII Inflow ..............         0.000         0.000
External Inflow ..........         0.000         0.000
External Outflow .........         0.027         0.266
Flooding Loss ............         0.000         0.000
Evaporation Loss .........         0.000         0.000
Exfiltration Loss ........         0.000         0.000
Initial Stored Volume ....         0.000         0.000
Final Stored Volume ......         0.000         0.000
Continuity Error (%) .....         0.000


***************************
Time-Step Critical Elements
***************************
None


********************************
Highest Flow Instability Indexes
********************************
All links are stable.


*********************************
Most Frequent Nonconverging Nodes
*********************************
Convergence obtained at all time steps.


*************************
Routing Time Step Summary
*************************
Minimum Time Step           :     1.50 sec
Average Time Step           :     2.00 sec
Maximum Time Step           :     2.00 sec
% of Time in Steady State   :     0.00
Average Iterations per Step :     2.00
% of Steps Not Converging   :     0.00
Time Step Frequencies       :
    2.000 -  1.516 sec      :   100.00 %
    1.516 -  1.149 sec      :     0.00 %
    1.149 -  0.871 sec      :     0.00 %
    0.871 -  0.660 sec      :     0.00 %
    0.660 -  0.500 sec      :     0.00 %
```

****
Subcatchment Runoff Summary
****

Subcatchment	Total Precip mm	Total Runon mm	Total Evap mm	Total Infil mm	Imperv Runoff mm	Perv Runoff mm	Total Runoff mm	Total Runoff 10^6 ltr	Peak Runoff LPS	Runoff Coeff
A-01	71.67	0.00	0.00	0.00	72.12	0.00	72.12	0.26	176.01	1.006
A-02	71.67	0.00	0.00	0.00	70.17	0.00	70.17	0.01	4.46	0.979
A-03	71.67	0.00	0.00	0.00	70.17	0.00	70.17	0.00	2.48	0.979

****
Node Depth Summary
****

Node	Type	Average Depth Meters	Maximum Depth Meters	Maximum HGL Meters	Time of Max Occurrence days hr:min	Reported Max Depth Meters
A-01-OUT	OUTFALL	0.02	0.12	69.41	0 01:24	0.12
A-02-OUT	OUTFALL	0.00	0.00	71.00	0 00:00	0.00
A-03-OUT	OUTFALL	0.00	0.00	71.00	0 00:00	0.00
S01	STORAGE	0.02	0.15	69.57	0 01:24	0.15
SWM-Tank	STORAGE	0.17	2.13	70.85	0 01:24	2.13

****
Node Inflow Summary
****

Node	Type	Maximum Lateral Inflow LPS	Maximum Total Inflow LPS	Time of Max Occurrence days hr:min	Lateral Inflow Volume 10^6 ltr	Total Inflow Volume 10^6 ltr	Flow Balance Error Percent
A-01-OUT	OUTFALL	0.00	31.84	0 01:24	0	0.256	0.000
A-02-OUT	OUTFALL	4.46	4.46	0 01:05	0.00631	0.00631	0.000
A-03-OUT	OUTFALL	2.48	2.48	0 01:05	0.00351	0.00351	0.000
S01	STORAGE	0.00	31.84	0 01:24	0	0.256	0.001
SWM-Tank	STORAGE	176.01	176.01	0 01:10	0.256	0.256	-0.003

****
Node Surcharge Summary
****

No nodes were surcharged.

****
Node Flooding Summary
****

No nodes were flooded.

****
Storage Volume Summary
****

Storage Unit	Average Volume 1000 m³	Avg Pcnt Full	Evap Pcnt Loss	Exfil Pcnt Loss	Maximum Volume 1000 m³	Max Pcnt Full	Time of Max Occurrence days hr:min	Maximum Outflow LPS
S01	0.000	1.2	0.0	0.0	0.000	9.6	0 01:24	31.84
SWM-Tank	0.011	7.5	0.0	0.0	0.134	92.5	0 01:24	31.84

****

Outfall Loading Summary
****

Outfall Node	Flow Freq Pcnt	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr
A-01-OUT	21.43	13.83	31.84	0.256
A-02-OUT	11.74	0.62	4.46	0.006
A-03-OUT	11.62	0.35	2.48	0.004
System	14.93	14.80	33.45	0.266

****
Link Flow Summary
****

Link	Type	Maximum |Flow| LPS	Time of Max Occurrence days hr:min	Maximum |Veloc| m/sec	Max/ Full Flow	Max/ Full Depth
Outlet-Pipe	CONDUIT	31.84	0 01:24	1.14	0.49	0.56
Pump	PUMP	7.00	0 00:29		1.00	
Orifice	ORIFICE	24.84	0 01:24			1.00
OVF-Pipe	ORIFICE	0.00	0 00:00			

****
Flow Classification Summary
****

Conduit	Adjusted /Actual Length	Dry	Up Dry	Down Dry	Sub Crit	Sup Crit	Up Crit	Down Crit	Norm Ltd	Inlet Ctrl
		---------- Fraction of Time in Flow Class ----------								
Outlet-Pipe	1.00	0.01	0.00	0.00	0.78	0.21	0.00	0.00	0.78	0.00

****
Conduit Surcharge Summary
****

No conduits were surcharged.

****
Pumping Summary
****

Pump	Percent Utilized	Number of Start-Ups	Min Flow LPS	Avg Flow LPS	Max Flow LPS	Total Volume 10^6 ltr	Power Usage Kw-hr	% Time Off Pump Curve Low	% Time Off Pump Curve High
Pump	21.27	1	0.00	6.81	7.00	0.125	0.18	0.0	0.0

Analysis begun on: Tue Jul 4 11:41:25 2023
Analysis ended on: Tue Jul 4 11:41:26 2023
Total elapsed time: 00:00:01

Appendix E – Development Servicing Study Checklist

4. Development Servicing Study Checklist

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

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

4.1 General Content

N/A ☐ Executive Summary (for larger reports only).

☐ Date and revision number of the report.

☒ Location map and plan showing municipal address, boundary, and layout of proposed development.

☒ Plan showing the site and location of all existing services.

☐ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.

☒ Summary of Pre-consultation Meetings with City and other approval agencies.

N/A ☐ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.

☒ Statement of objectives and servicing criteria.

☒ Identification of existing and proposed infrastructure available in the immediate area.

N/A ☐ Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).

☒ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.

N/A ☐ Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.

N/A ☐ Proposed phasing of the development, if applicable.

☒ Reference to geotechnical studies and recommendations concerning servicing.

☒ All preliminary and formal site plan submissions should have the following information:

- Metric scale
- North arrow (including construction North)
- Key plan
- Name and contact information of applicant and property owner
- Property limits including bearings and dimensions
- Existing and proposed structures and parking areas
- Easements, road widening and rights-of-way
- Adjacent street names

4.2 Development Servicing Report: Water

N/A ☐ Confirm consistency with Master Servicing Study, if available

☒ Availability of public infrastructure to service proposed development

N/A ☐ Identification of system constraints

☒ Identify boundary conditions

☒ Confirmation of adequate domestic supply and pressure

☒ Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.

☒ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.

N/A ☐ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design

☒ Address reliability requirements such as appropriate location of shut-off valves

N/A ☐ Check on the necessity of a pressure zone boundary modification.

☒ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range

☒ Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.

☒ Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.

☒ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.

N/A ☐ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

4.3 Development Servicing Report: Wastewater

☒ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).

N/A ☐ Confirm consistency with Master Servicing Study and/or justifications for deviations.

N/A ☐ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.

☒ Description of existing sanitary sewer available for discharge of wastewater from proposed development.

☒ Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)

N/A ☐ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix ‘C’) format.

☒ Description of proposed sewer network including sewers, pumping stations, and forcemains.

N/A ☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).

N/A ☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.

N/A ☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.

N/A ☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.

N/A ☐ Special considerations such as contamination, corrosive environment etc.

4.4 Development Servicing Report: Stormwater Checklist

☒ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)

N/A ☐ Analysis of available capacity in existing public infrastructure.

☒ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.

☒ Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.

☒ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.

☒ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.

N/A ☐ Set-back from private sewage disposal systems.

N/A ☐ Watercourse and hazard lands setbacks.

N/A ☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.

N/A ☐ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.

☒ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).

N/A ☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.

☒ Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.

N/A ☐ Any proposed diversion of drainage catchment areas from one outlet to another.

☒ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.

N/A ☐ If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.

N/A ☐ Identification of potential impacts to receiving watercourses

N/A ☐ Identification of municipal drains and related approval requirements.

☒ Descriptions of how the conveyance and storage capacity will be achieved for the development.

☒ 100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.

N/A ☐ Inclusion of hydraulic analysis including hydraulic grade line elevations.

☒ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.

N/A ☐ Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.

N/A ☐ Identification of fill constraints related to floodplain and geotechnical investigation.

4.5 Approval and Permit Requirements: Checklist

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

☒ Conservation Authority as the designated approval agency for modification of floodplain, potential impact on fish habitat, proposed works in or adjacent to a watercourse, cut/fill permits and Approval under Lakes and Rivers Improvement Act. The Conservation Authority is not the approval authority for the Lakes and Rivers Improvement Act. Where there are Conservation Authority regulations in place, approval under the Lakes and Rivers Improvement Act is not required, except in cases of dams as defined in the Act.

N/A ☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.

N/A ☐ Changes to Municipal Drains.

N/A ☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)

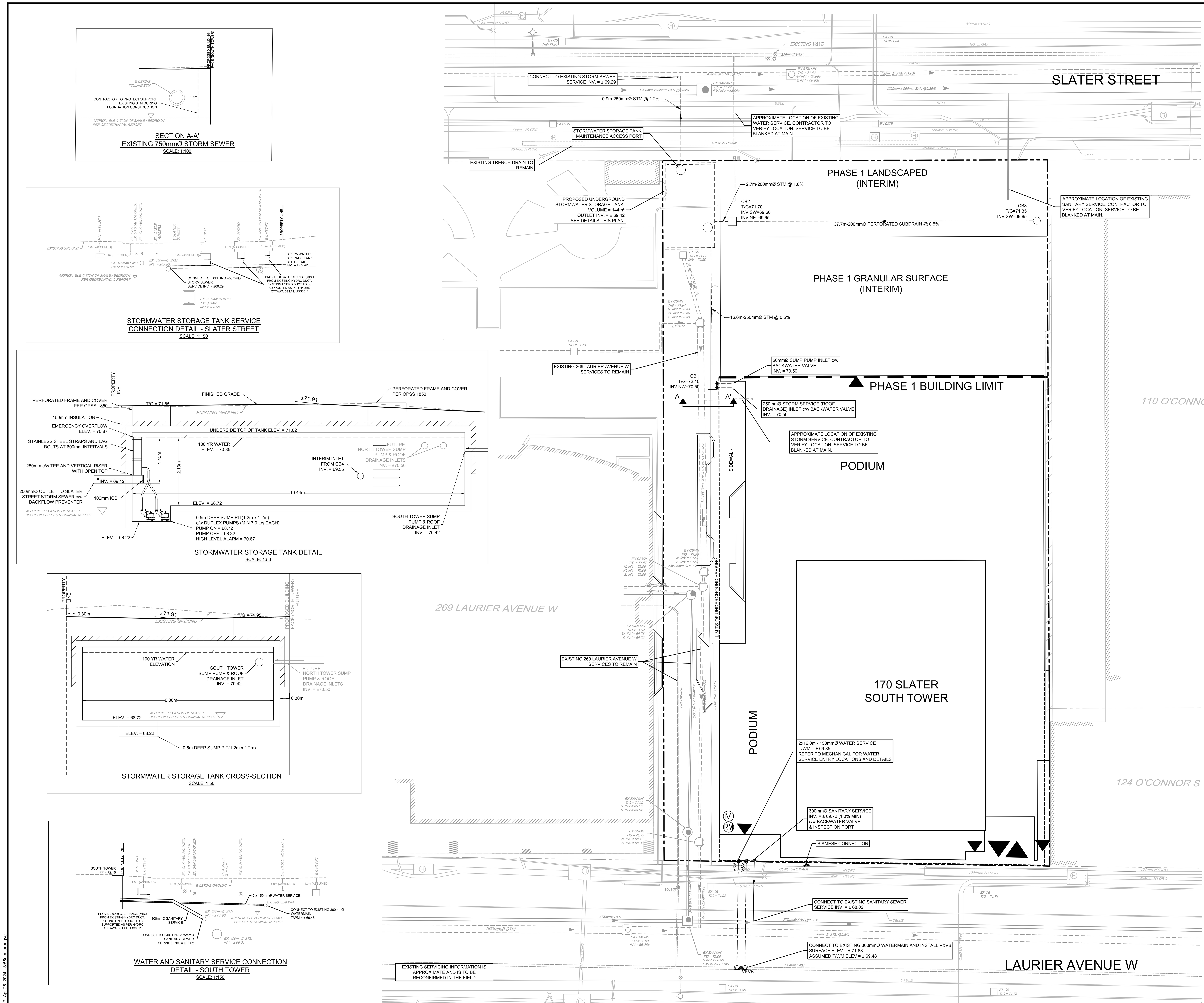
4.6 Conclusion Checklist

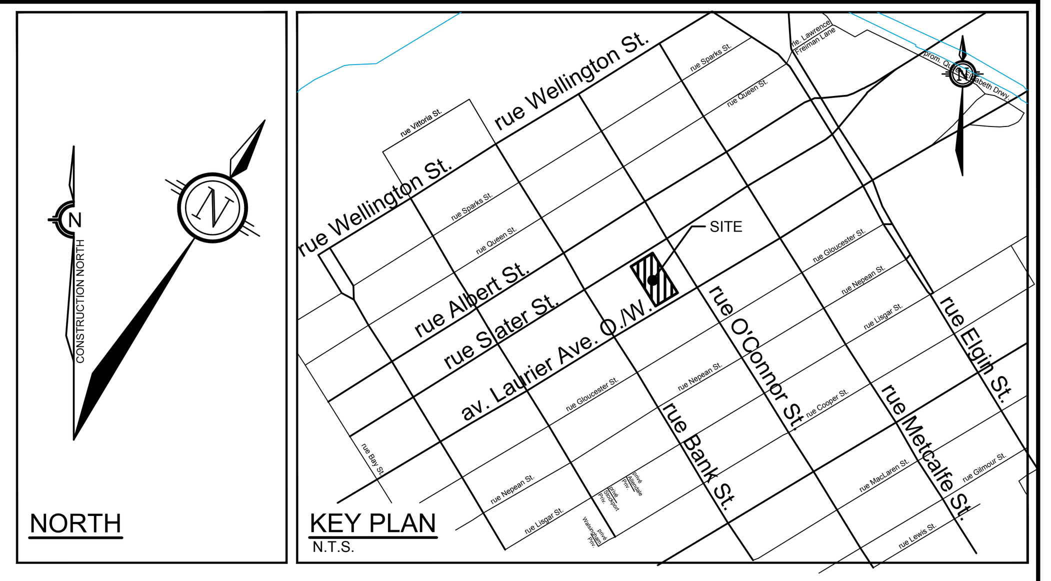
☒ Clearly stated conclusions and recommendations

N/A ☐ Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.

☒ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario

Drawings





LEGEND

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- PROPOSED CURB
- DC PROPOSED DEPRESSED CURB
- V&VB PROPOSED VALVE AND VALVE BOX
- PROPOSED CAP
- RM PROPOSED REMOTE METER
- M PROPOSED WATER METER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SERVICE
- PROPOSED STORM SERVICE
- PROPOSED WATER SERVICE
- PROPOSED BUILDING ENTRANCE
- DIRECTION OF FLOW
- PROPOSED CATCHBASIN MANHOLE (CBMH)
- PROPOSED CATCH BASIN
- PROPOSED LANDSCAPE CATCH BASIN
- SIAMESE CONNECTION
- EXISTING UTILITY POLE C/W GUY WIRES
- VAVB EXISTING WATERMAIN C/W VALVE & VALVE BOX
- EXISTING HYDRANT C/W VALVE & LEAD
- SAN MH EXISTING SANITARY MANHOLE & SEWER
- STM MH EXISTING STORM MANHOLE & SEWER
- CB EXISTING CATCHBASIN
- EXISTING ABANDONED INFRASTRUCTURE

GENERAL NOTES:

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2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. ALL EXISTING WATER AND SEWER SERVICES SERVICING THE EXISTING SITE ARE TO BE LOCATED PRIOR TO CONSTRUCTION. EXISTING SERVICES ARE TO BE ABANDONED INCLUDING BLANKING AND CAPPING.
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5. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
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8. ALL ELEVATIONS ARE GEODETIC.
9. REFER TO GEOTECHNICAL DESKTOP STUDY (No. 23592402-001, DATED MARCH 27, 2023), PREPARED BY WSP FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
10. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS.
11. REFER TO STORMWATER MANAGEMENT REPORT(R-2023-014) PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
12. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
13. PROVIDE LINE/PARKING PAINTING.
14. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

SEWER NOTES:

1. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
CATCHBASIN (600x600mm)	705.010	OPSD
CB, FRAME & COVER	400.020	OPSD
SEWER TRENCH	S6 & S7	CITY OF OTTAWA
STORM SEWER	PVC DR 35	CITY OF OTTAWA
SANITARY SEWER	PVC DR 35	CITY OF OTTAWA
SEWER TRENCH - BEDDING (GRANULAR A) COVER (GRANULAR A OR GRANULAR B TYPE I, WITH MAXIMUM PARTICLE SIZE=25mm		
THERMAL INSULATION	1109.030	OPSD

2. SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
3. PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
4. FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-N-SEAL, PSX: POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
5. THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSS 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
6. STORM MANHOLES AND CBMHS ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
7. CONTRACTOR TO TELEVISE (CCTV) ALL PROPOSED SEWERS, 200mmØ OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES.
8. INSULATE ALL STORM AND SANITARY SEWERS THAT HAVE LESS THAN 2.0m OF COVER.
9. BACK FLOW VALVES FOR STORM SERVICE CONNECTIONS ARE REQUIRED. REFER TO MECHANICAL DRAWINGS.

WATERMAIN NOTES:

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WATERMAIN TRENCHING	W17	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER	W25	CITY OF OTTAWA
WATERMAIN	PVC DR 18	
WATERMAIN VALVE & VALVE BOX	W24	CITY OF OTTAWA

2. SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND RESTORATION OF ALL WATERMAINS BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND CHLORINATION OF THE WATER SYSTEM SHALL BE PERFORMED BY CITY OFFICIALS.
3. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. INSULATION BE PROVIDED PER CITY OF OTTAWA DETAIL W22, IF 2.4m DEPTH CANNOT BE PROVIDED.
4. PROVIDE MINIMUM 0.3m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS.
5. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

SOURCE REFERENCE:

SITE PLAN: *NEUF ARCHITECTS / SITE PLAN - SPA_A103, REVISION 3*
NEUF ARCHITECTS / SITE PLAN (PHASE 1) - SPA_A104, REVISION 3

EXISTING WATER, SEWER, AND UTILITIES APPROXIMATE LOCATION: *CITY OF OTTAWA UCC CAD FILE PROVIDED BY CITY OF OTTAWA MARCH 3, 2023*

EXISTING WATER AND SEWER APPROXIMATE ELEVATIONS: *CITY OF OTTAWA RECORD DRAWINGS E-35, SHEET 4 OF 4, DRAWING J-34 SHEET 6 OF 10, DRAWING NO. 3071 SHEET2, DRAWING NO. PP4, ISD14-2036 (STANTEC)*

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
6.	REVISED PER COMMENTS	APR 26/24	ARM
5.	REVISED PER COMMENTS	MAR 8/24	ARM
4.	ISSUED FOR COORDINATION	DEC 1/23	ARM
3.	ISSUED FOR COORDINATION	NOV 24/23	ARM
2.	ISSUED FOR REVIEW	JULY 5/23	ARM
1.	ISSUED FOR COORDINATION	JUNE 15/23	ARM

SCALE 1:200

DESIGN MNP
CHECKED ARM
DRAWN MNP
CHECKED ARM
APPROVED XXX

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER A. A. RONGVE 100616298 April 26, 2024 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER A.R. MCAULEY 100141256 April 26, 2024 PROVINCE OF ONTARIO

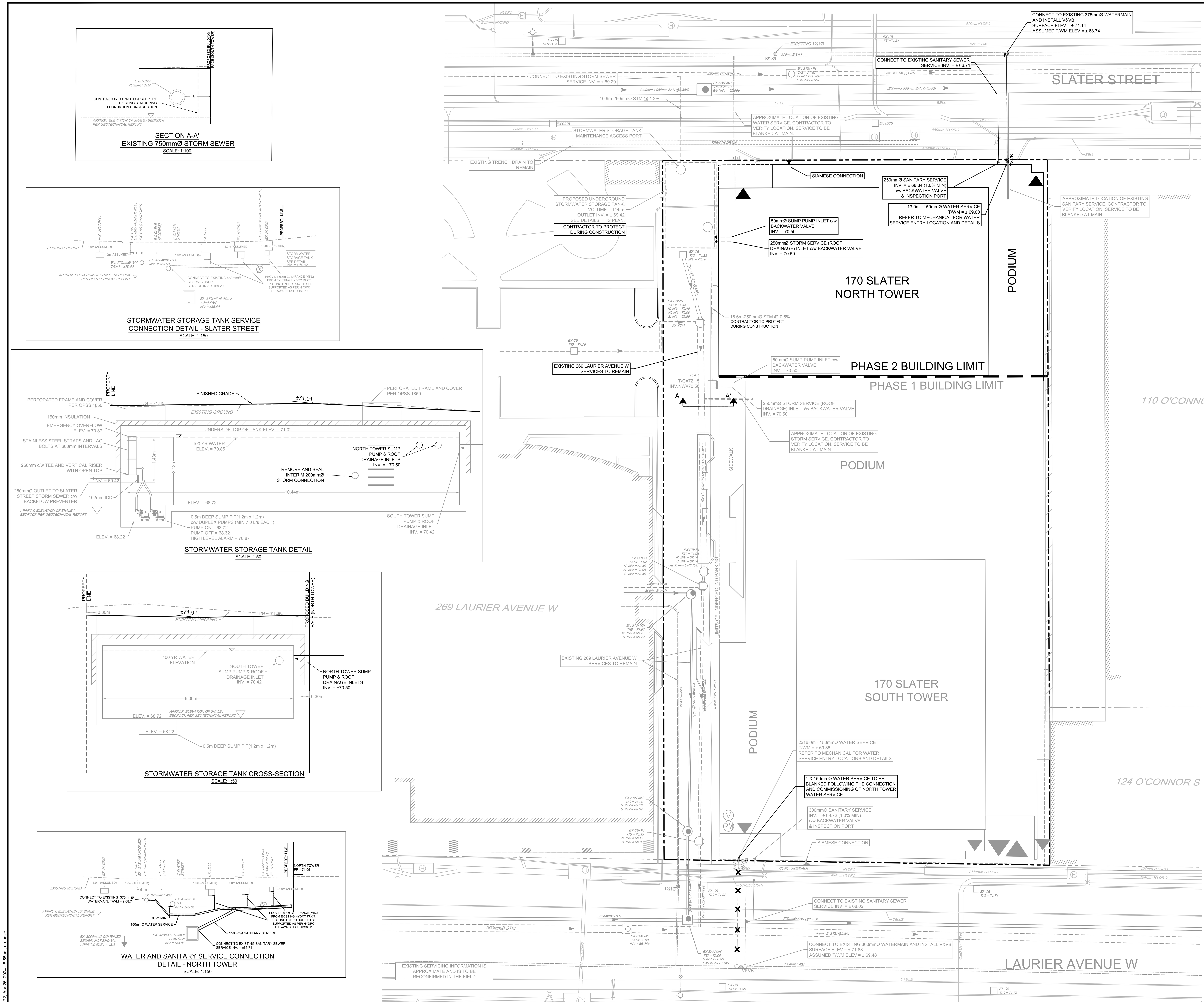
NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

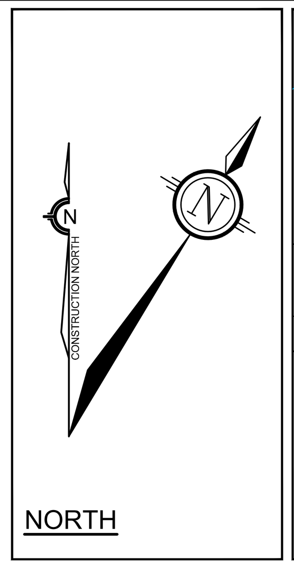
LOCATION
170 SLATER STREET, CITY OF OTTAWA
PROPOSED RESIDENTIAL HIGH-RISE

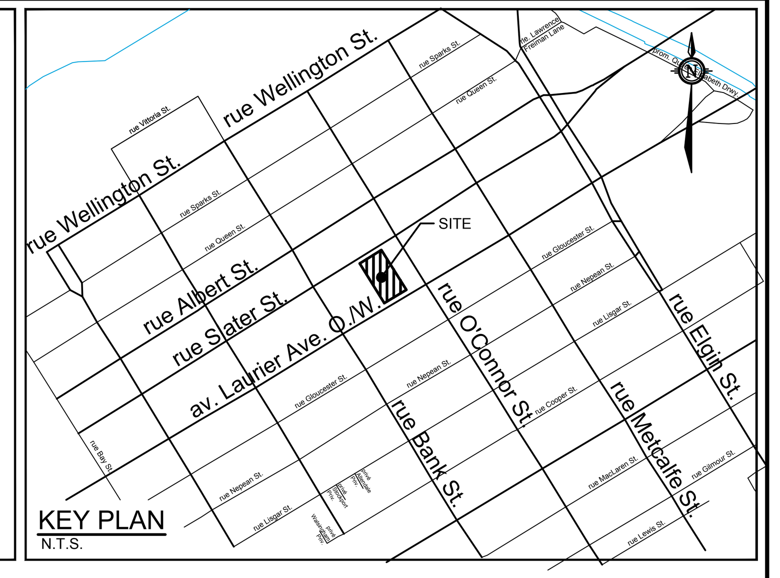
DRAWING NAME
GENERAL PLAN OF SERVICES - PHASE 1 (SOUTH TOWER)

PROJECT No. 123013
REV # 6
DRAWING No. 123013-GP

PLANB1.DWG - 1000mmx707mm







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3. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED. INSULATION BE PROVIDED PER CITY OF OTTAWA DETAIL W22, IF 2.4m DEPTH CANNOT BE PROVIDED.
4. PROVIDE MINIMUM 0.3m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS.
5. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

SOURCE REFERENCE:

SITE PLAN: *NEUF ARCHITECTS / SITE PLAN - SPA_A103, REVISION 3*
NEUF ARCHITECTS / SITE PLAN (PHASE 1) - SPA_A104, REVISION 3

EXISTING WATER, SEWER, AND UTILITIES APPROXIMATE LOCATION: *CITY OF OTTAWA UCC CAD FILE PROVIDED BY CITY OF OTTAWA MARCH 3, 2023*

EXISTING WATER AND SEWER APPROXIMATE ELEVATIONS: *CITY OF OTTAWA RECORD DRAWINGS E-35, SHEET 4 OF 4, DRAWING J-34 SHEET 6 OF 10, DRAWING NO. 3071 SHEET2, DRAWING NO. PP4, ISD14-2036 (STANTEC)*

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
4.	REVISED PER COMMENTS	APR 26/24	ARM
3.	REVISED PER COMMENTS	MAR 8/24	ARM
2.	ISSUED FOR COORDINATION	DEC. 1/23	ARM
1.	ISSUED FOR COORDINATION	NOV 24/23	ARM

SCALE 1:200

DESIGN	MNP
CHECKED	ARM
DRAWN	MNP
CHECKED	ARM
APPROVED	XXX

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER A. A. RONGVE 100616298 April 26, 2024 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER A.R. MCAULEY 100141256 April 26, 2024 PROVINCE OF ONTARIO

NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

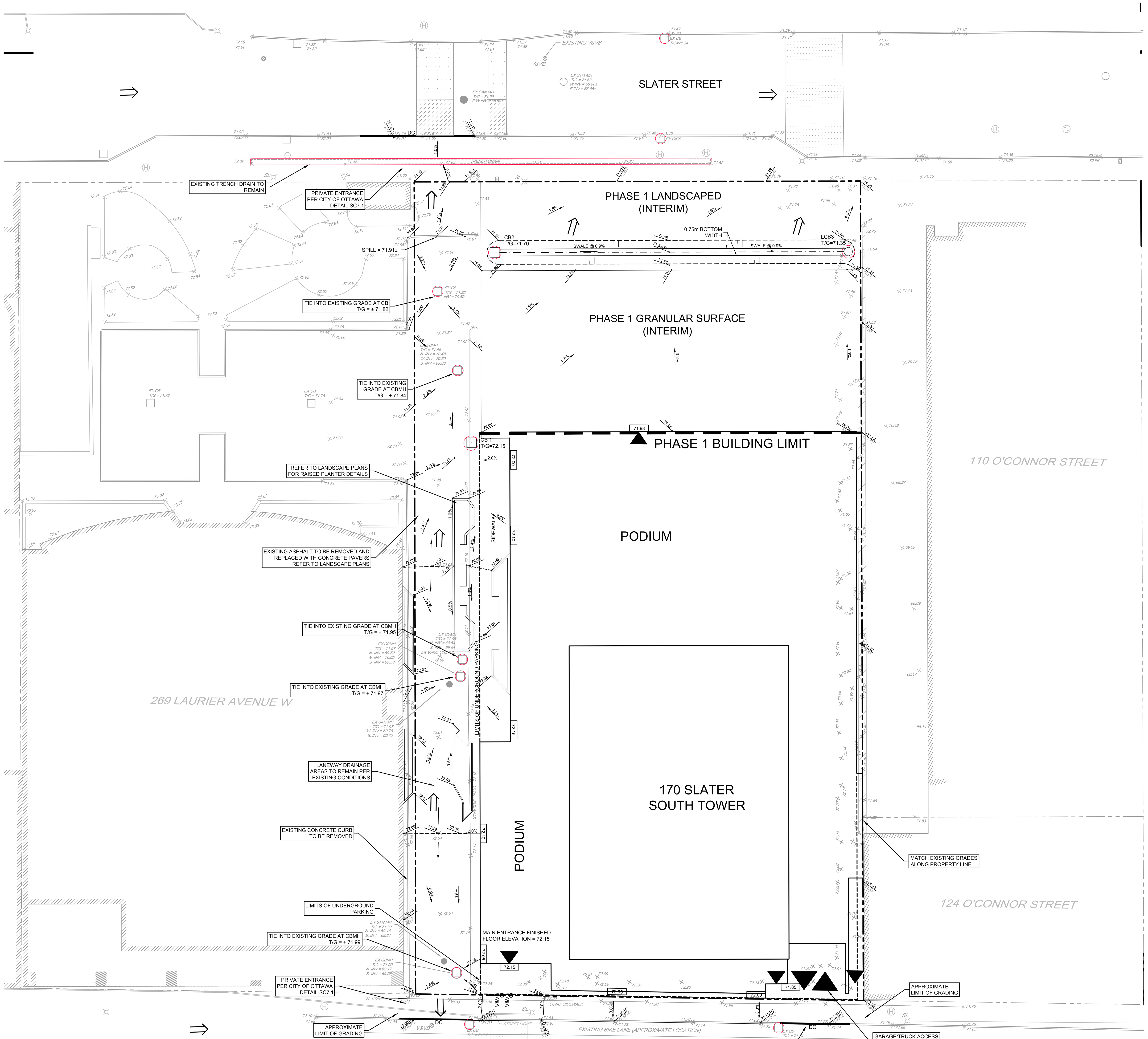
LOCATION
170 SLATER STREET, CITY OF OTTAWA
PROPOSED RESIDENTIAL HIGH-RISE

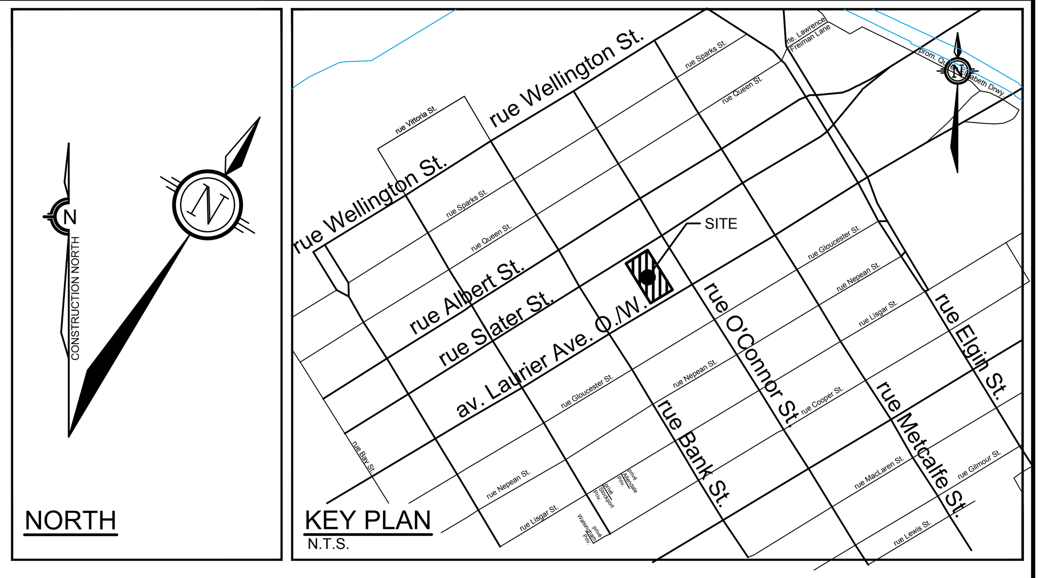
DRAWING NAME
GENERAL PLAN OF SERVICES - PHASE 2 (NORTH TOWER)

PROJECT No. 123013
REV: REV # 4
DRAWING No. 123013-GP2

PLANB1.DWG - 1000mmx707mm

M:\2023\123013\CAD\Civil\123013-GP.dwg, GP2, Apr 26, 2024 - 8:55am, aronqve





LEGEND

- PROPERTY LINE
- DC — PROPOSED DEPRESSED CURB
- DC — EXISTING DEPRESSED CURB
- 78.00 — PROPOSED ELEVATION; 78.00 — EXISTING ELEVATION
- 78.00(S) — PROPOSED SWALE INVERT ELEVATION
- 78.15TC — PROPOSED TOP OF CURB ELEVATION
- 77.15TD — PROPOSED TRENCH DRAIN ELEVEATION
- 77.73 — EXISTING ELEVATION
- PROPOSED BUILDING ENTRANCE
- 2.0% — SLOPE AND DIRECTION
- DIRECTION OF MAJOR OVERLAND FLOW
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED LANDSCAPE CATCHBASIN
- SILT BAG REQUIRED DURING CONSTRUCTION
- FILTER CLOTH REQUIRED DURING CONSTRUCTION
- V&VB — *EXISTING VALVE & VALVE BOX*
- *EXISTING HYDRANT*
- SAN MH — *EXISTING SANITARY MANHOLE*
- STM MH — *EXISTING STORM MANHOLE*
- CB — *EXISTING CATCHBASIN*
- CBMH — *EXISTING CATCHBASIN MANHOLE*
- SL — *EXISTING STREETLIGHT*
- H — *EXISTING HYDRO MANHOLE*
- H — *EXISTING HYDRO HANDHOLE*
- B — *EXISTING BELL HANDHOLE*
- 79.00 — PROPOSED TERRACE ELEVATION AT BUILDING
- ASPHALT REINSTATEMENT AREA REFER TO DRAWING 123013-RP
- CONCRETE PAVING REINSTATEMENT AREA REFER TO DRAWING 123013-RP
- PROPOSED SWALE
- GRADING @ 3:1 MAXIMUM

GENERAL NOTES:

1. COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
2. DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
3. OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
4. BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR $5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
5. RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
6. REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
7. ALL ELEVATIONS ARE GEODETIC.
8. REFER TO GEOTECHNICAL DESKTOP STUDY (No. 23592402-001, DATED MARCH 27, 2023), PREPARED BY WSP FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
9. REFER TO ARCHITECT'S AND LANDSCAPE ARCHITECT'S DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS.
10. REFER TO STORMWATER MANAGEMENT REPORT(R-2023-104) PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
11. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
12. PROVIDE LINE/PARKING PAINTING.
13. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVICING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T/G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T/WM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

GRADING NOTES:

1. ALL TOPSOIL, ORGANIC OR DELETERIOUS MATERIAL MUST BE ENTIRELY REMOVED FROM BENEATH THE PROPOSED PAVED AREAS AS DIRECTED BY THE SITE ENGINEER OR GEOTECHNICAL ENGINEER.
2. EXPOSED SUBGRADES IN PROPOSED PAVED AREAS SHOULD BE PROOF ROLLED WITH A LARGE STEEL DRUM ROLLER AND INSPECTED BY THE GEOTECHNICAL ENGINEER PRIOR TO THE PLACEMENT OF GRANULARS.
3. ANY SOFT AREAS EVIDENT FROM THE PROOF ROLLING SHOULD BE SUB-EXCAVATED AND REPLACED WITH SUITABLE MATERIAL THAT IS FROST COMPATIBLE WITH THE EXISTING SOILS AS RECOMMENDED BY THE GEOTECHNICAL ENGINEER.
4. THE GRANULAR BASE SHOULD BE COMPACTED TO AT LEAST 100% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE. ANY ADDITIONAL GRANULAR FILL USED BELOW THE PROPOSED PAVEMENT SHOULD BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY VALUE.
5. MINIMUM OF 2% GRADE FOR ALL GRASS AREAS UNLESS OTHERWISE NOTED.
6. MAXIMUM TERRACING GRADE TO BE 3:1 UNLESS OTHERWISE NOTED.
7. ALL GRADES BY CURBS ARE EDGE OF PAVEMENT GRADES UNLESS OTHERWISE INDICATED.
8. ALL CURBS SHALL BE BARRIER CURB (150mm) UNLESS OTHERWISE NOTED AND CONSTRUCTED AS PER CITY OF OTTAWA STANDARDS (SC1.1).
9. REFER TO LANDSCAPE PLAN FOR PLANTING AND OTHER LANDSCAPE FEATURE DETAILS.

13. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES:

1. THE OWNER AGREES TO PREPARE AND IMPLEMENT AN EROSION AND SEDIMENT CONTROL PLAN TO THE SATISFACTION OF THE CITY OF OTTAWA, APPROPRIATE TO THE SITE CONDITIONS, PRIOR TO UNDERTAKING ANY SITE ALTERATIONS (FILLING, GRADING, REMOVAL OF VEGETATION, ETC.) AND DURING ALL PHASES OF SITE PREPARATION AND CONSTRUCTION IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL SUCH AS BUT NOT LIMITED TO INSTALLING FILTER CLOTHS ACROSS MANHOLE/CATCHBASIN LIDS TO PREVENT SEDIMENTS FROM ENTERING STRUCTURES AND INSTALL AND MAINTAIN A LIGHT DUTY SILT FENCE BARRIER AS REQUIRED.
2. THE CONTRACTOR SHALL PLACE FILTER BAGS UNDER THE CATCHBASIN AND MANHOLE GRATES FOR THE DURATION OF CONSTRUCTION AND WILL REMAIN IN PLACE DURING ALL PHASES OF CONSTRUCTION.
3. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

SOURCE REFERENCE:

SITE PLAN: *NEUF ARCHITECTS / SITE PLAN - SPA_A103, REVISION 3*
NEUF ARCHITECTS / SITE PLAN (PHASE 1) - SPA_A104, REVISION 3

LEGAL & TOPOGRAPHIC INFORMATION: *TOPOGRAPHIC PLAN OF SURVEY OF LOTS 39, 40 AND 41 PART OF LOTS 38 AND 42 (SOUTH SLATER STREET) LOTS 39, 40 AND 41 PART OF LOTS 38 AND 42 (NORTH LAURIER AVENUE) REGISTERED PLAN 3922 CITY OF OTTAWA / ANNIS, O'SULLIVAN, VOLLEBEKK LTD. / FEBRUARY 24, 2023 / CENTRAL MERIDIAN OF MTM ZONE 9 NAD-83*

Minimum Erosion and Sediment Control Responsibilities:

	ESC Measure	Symbol	OPSD No.	During Construction: Installation Responsibility	During Construction: Inspection Responsibility	After Construction Prior to Final Acceptance: Inspection/Maintenance Responsibility	After Construction Prior to Final Acceptance: Removal Responsibility	After Final Acceptance: Inspection/Maintenance Responsibility
Temporary Measures	Silt Bag		Erosion and Sediment Control Notes & Details	Developer's Contractor	Developer's Contractor	Developer	Developer's Contractor	N/A
	Filter Cloth (Trench Drain)		219.110	Developer's Contractor	Developer's Contractor	Developer	Developer's Contractor	N/A

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

No.	REVISION	DATE	BY
5.	REVISED PER COMMENTS	APR 26/24	ARM
4.	REVISED PER COMMENTS	MAR 8/24	ARM
3.	ISSUED FOR COORDINATION	NOV 24/23	ARM
2.	ISSUED FOR REVIEW	JULY 5/23	ARM
1.	ISSUED FOR COORDINATION	JUNE 15/23	ARM

SCALE 1:200

1:200
0 2 4 6 8

DESIGN MNP
CHECKED ARM
DRAWN MNP
CHECKED ARM
APPROVED XXX

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
A. A. RONGVE
100616298
April 26, 2024
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
A.R. MCAULEY
100141256
April 26, 2024
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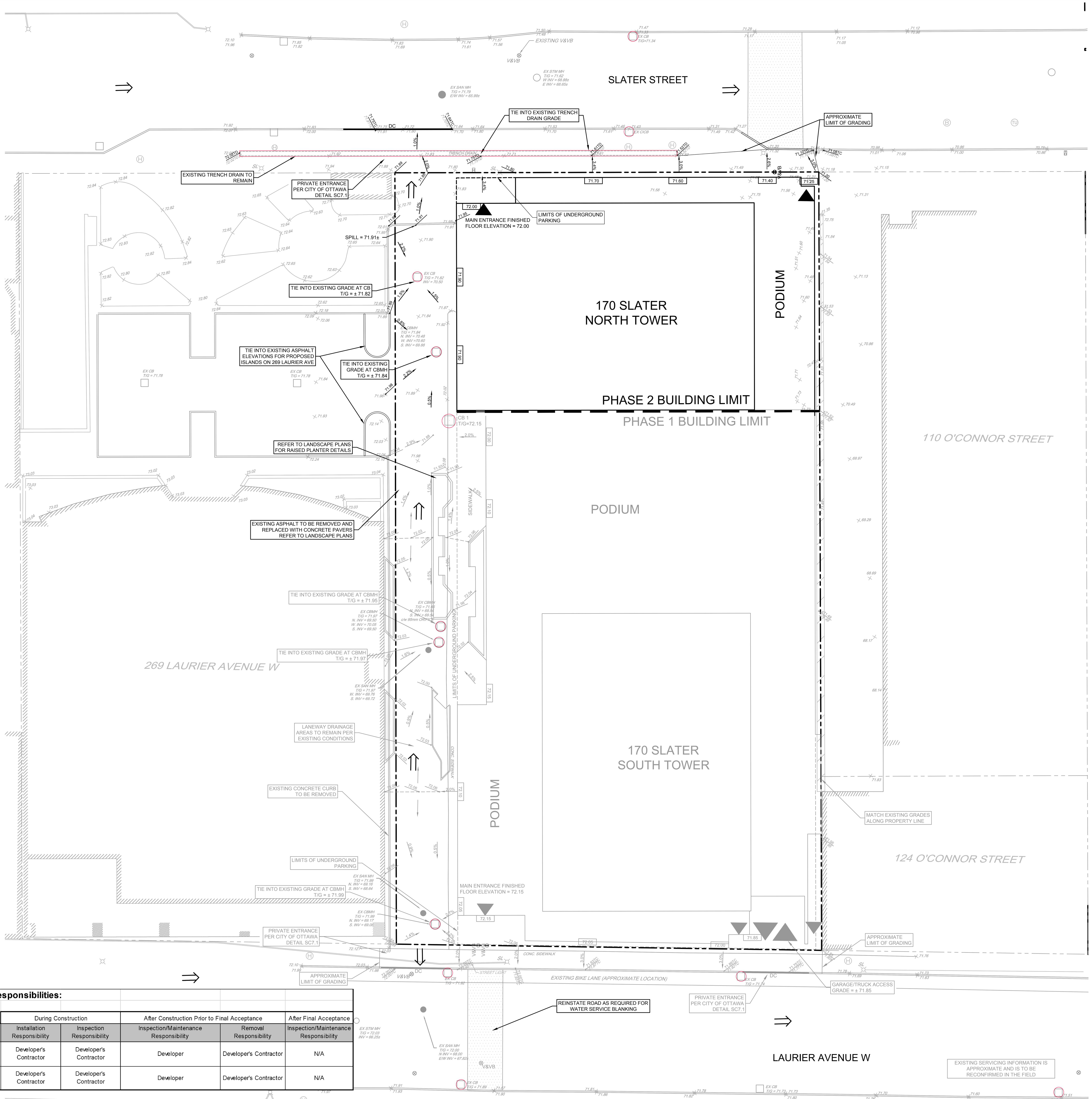
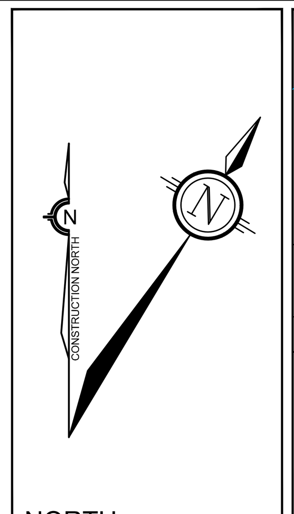
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
170 SLATER STREET, CITY OF OTTAWA
PROPOSED RESIDENTIAL HIGH-RISE

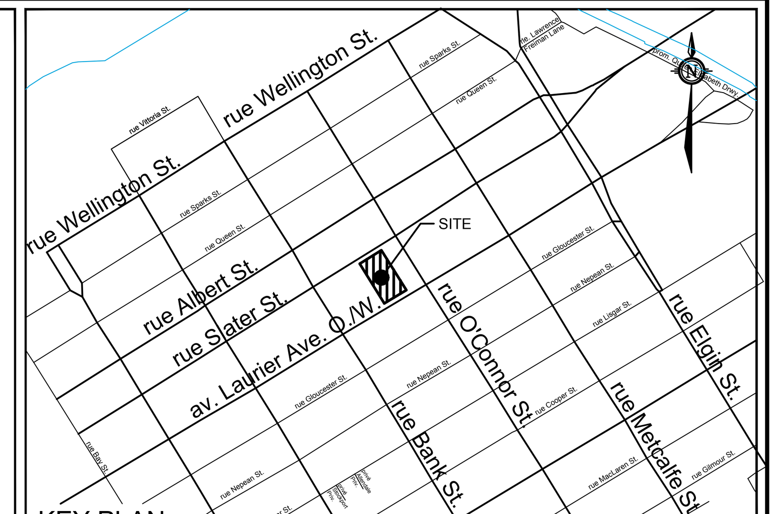
DRAWING NAME
GRADING, EROSION AND SEDIMENT CONTROL PLAN - PHASE 1 (SOUTH TOWER)

PROJECT No. 123013
REV REV # 5
DRAWING No. 123013-GR





NORTH



KEY PLAN
N.T.S.

LEGEND

- PROPERTY LINE
- DC PROPOSED DEPRESSED CURB
- DC EXISTING DEPRESSED CURB
- 78.00 PROPOSED ELEVATION / 78.00 EXISTING ELEVATION
- 78.15TC PROPOSED TOP OF CURB ELEVATION
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- 77.73 EXISTING ELEVATION
- PROPOSED BUILDING ENTRANCE
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- DIRECTION OF MAJOR OVERLAND FLOW
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- 79.00 PROPOSED TERRACE ELEVATION AT BUILDING
- ASPHALT REINSTATEMENT AREA REFER TO DRAWING 123013-RP

GENERAL NOTES:

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SOURCE REFERENCE:

SITE PLAN: *NEUF ARCHITECTS / SITE PLAN - SPA_A103, REVISION 3*
NEUF ARCHITECTS / SITE PLAN (PHASE 1) - SPA_A104, REVISION 3

LEGAL & TOPOGRAPHIC INFORMATION: *TOPOGRAPHIC PLAN OF SURVEY OF LOTS 39, 40 AND 41 PART OF LOTS 38 AND 42 (SOUTH SLATER STREET) LOTS 39, 40 AND 41 PART OF LOTS 38 AND 42 (NORTH LAURIER AVENUE) REGISTERED PLAN 3922 CITY OF OTTAWA / ANNIS, O'SULLIVAN, VOLLEBEKK LTD. / FEBRUARY 24, 2023 / CENTRAL MERIDIAN OF MTM ZONE 9 NAD-83*

Minimum Erosion and Sediment Control Responsibilities:

				During Construction		After Construction Prior to Final Acceptance		After Final Acceptance
	ESC Measure	Symbol	OPSD No.	Installation Responsibility	Inspection Responsibility	Inspection/Maintenance Responsibility	Removal Responsibility	Inspection/Maintenance Responsibility
Temporary Measures	Silt Bag		Erosion and Sediment Control Notes & Details	Developer's Contractor	Developer's Contractor	Developer	Developer's Contractor	N/A
	Filter Cloth (Trench Drain)		219.110	Developer's Contractor	Developer's Contractor	Developer	Developer's Contractor	N/A

NOTE:
THE POSITION OF ALL POLE LINES, CONDUITS, WATERMAINS, SEWERS AND OTHER UNDERGROUND AND OVERGROUND UTILITIES AND STRUCTURES IS NOT NECESSARILY SHOWN ON THE CONTRACT DRAWINGS, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS NOT GUARANTEED. BEFORE STARTING WORK, DETERMINE THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES AND ASSUME ALL LIABILITY FOR DAMAGE TO THEM.

M:\2023\123013\CAD\Civil\123013-GR.dwg, GR2, Apr 25, 2024 - 6:17pm, arongve

No.	REVISION	DATE	BY
3.	REVISED PER COMMENTS	APR 26/24	ARM
2.	REVISED PER COMMENTS	MAR 8/24	ARM
1.	ISSUED FOR COORDINATION	NOV 24/23	ARM

SCALE 1:200

DESIGN MNP
CHECKED ARM
DRAWN MNP
CHECKED ARM
APPROVED XXX

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER A. A. RONGVE 100616298 April 26, 2024 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER A.R. MCAULEY 100141256 April 26, 2024 PROVINCE OF ONTARIO

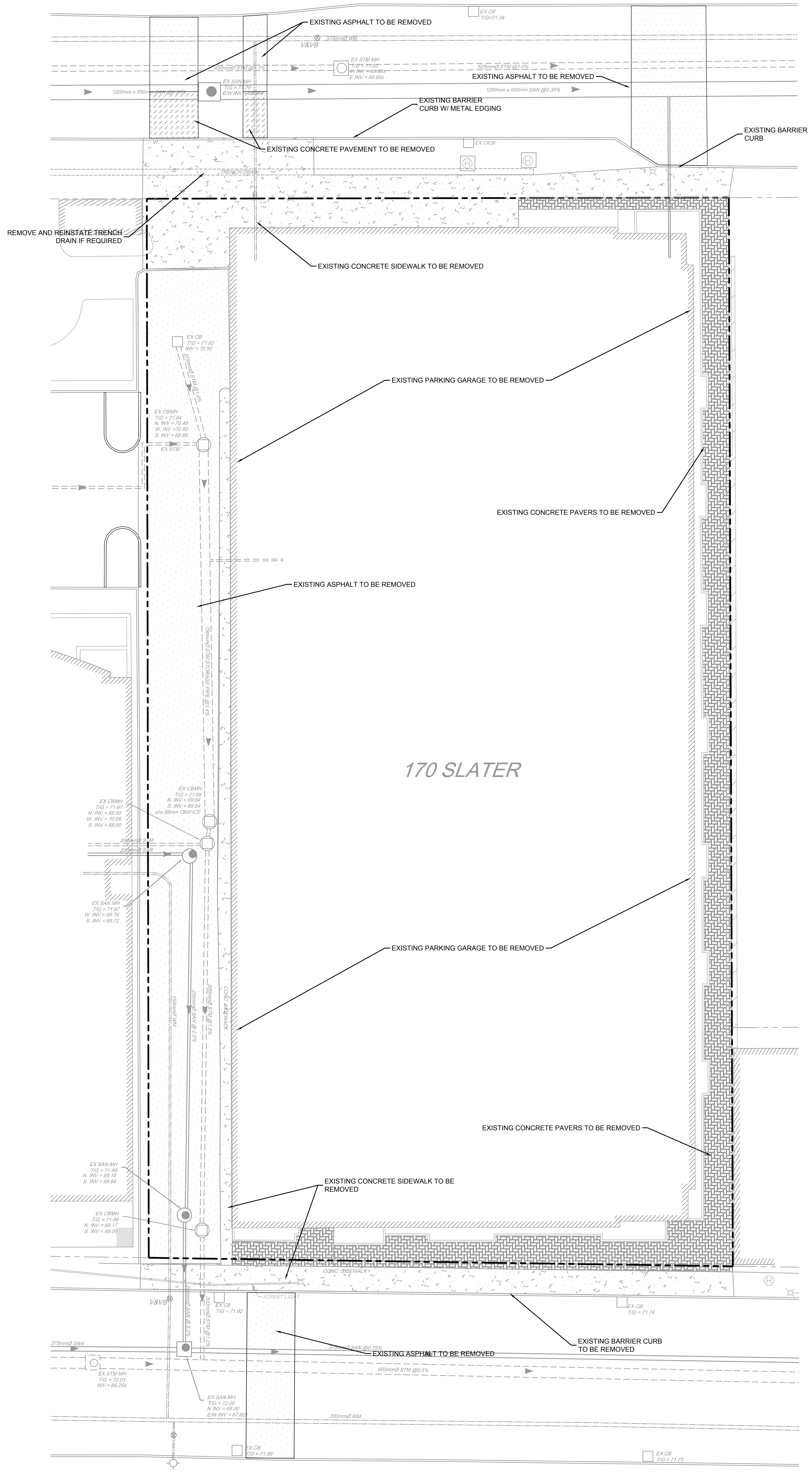
NOVATECH
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
170 SLATER STREET, CITY OF OTTAWA
PROPOSED RESIDENTIAL HIGH-RISE

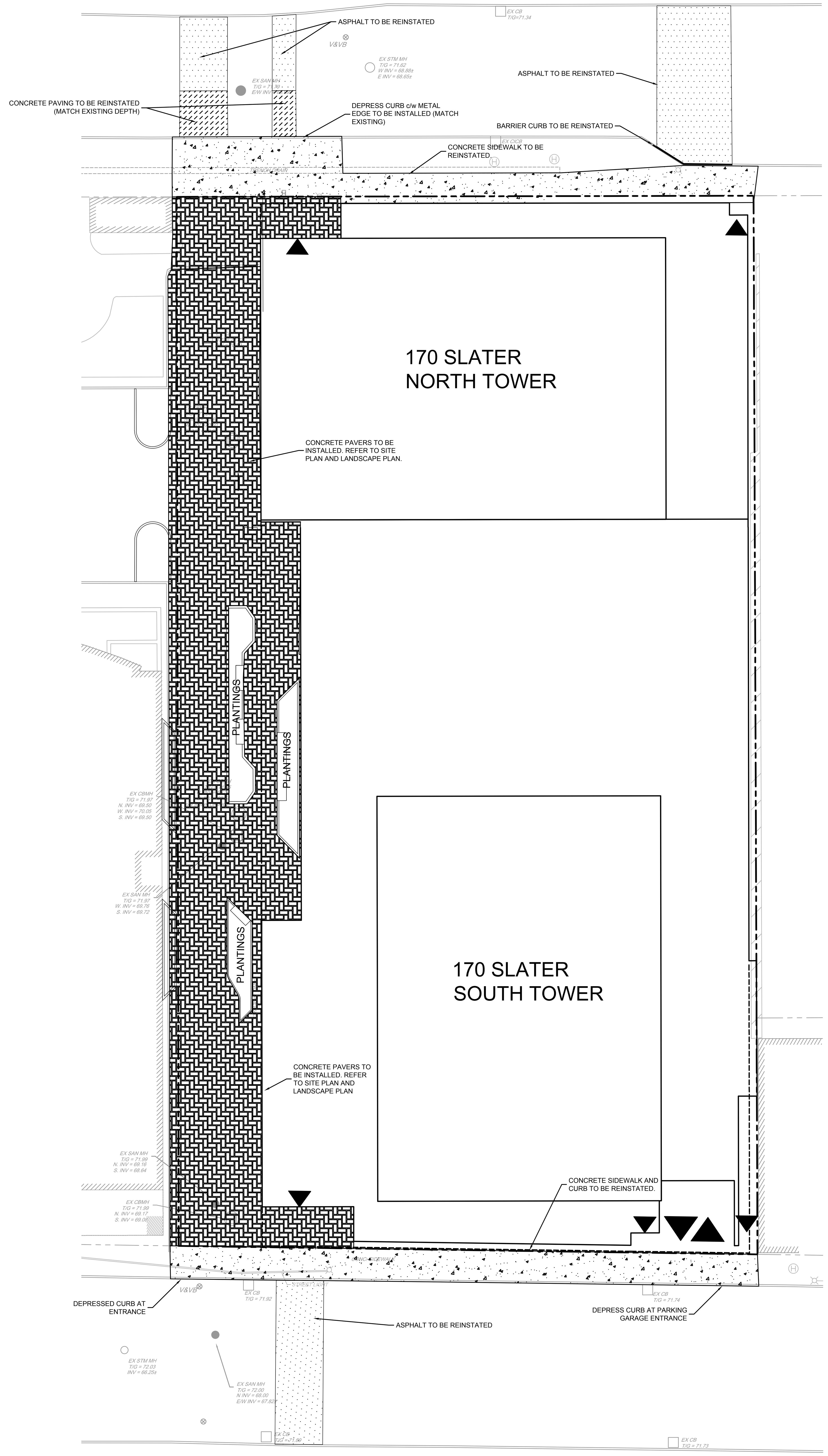
DRAWING NAME
GRADING, EROSION AND SEDIMENT CONTROL PLAN - PHASE 2 (NORTH TOWER)

PROJECT No. 123013
REV REV # 3
DRAWING No. 123013-GR2

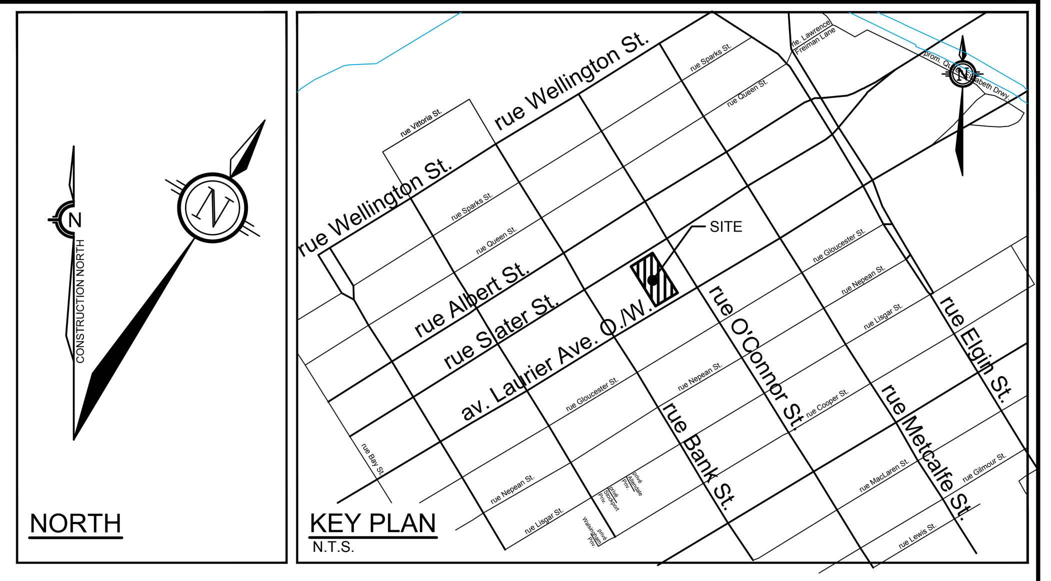
PLANB1.DWG - 1000mmx707mm



EXISTING CONDITIONS AND REMOVALS



ROAD AND SIDEWALK REINSTATMENT



LEGEND

- LIMITS OF EXISTING ASPHALT TO BE REMOVED
- LIMITS OF EXISTING CONCRETE SIDEWALK TO BE REMOVED
- LIMITS OF EXISTING CONCRETE PAVERS TO BE REMOVED
- LIMITS OF EXISTING CONCRETE PAVEMENT TO BE REMOVED
- LIMITS OF ASPHALT REINSTATMENT
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2.	REVISED PER COMMENTS	MAR 8/24	ARM
1.	ISSUED FOR REVIEW	JULY 5/23	ARM

SCALE 1:200

1:200 (0 2 4 6 8)

DESIGN	MNP
CHECKED	ARM
DRAWN	MNP
CHECKED	ARM
APPROVED	XXX

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A. A. RONGVE
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April 26, 2024
PROVINCE OF ONTARIO

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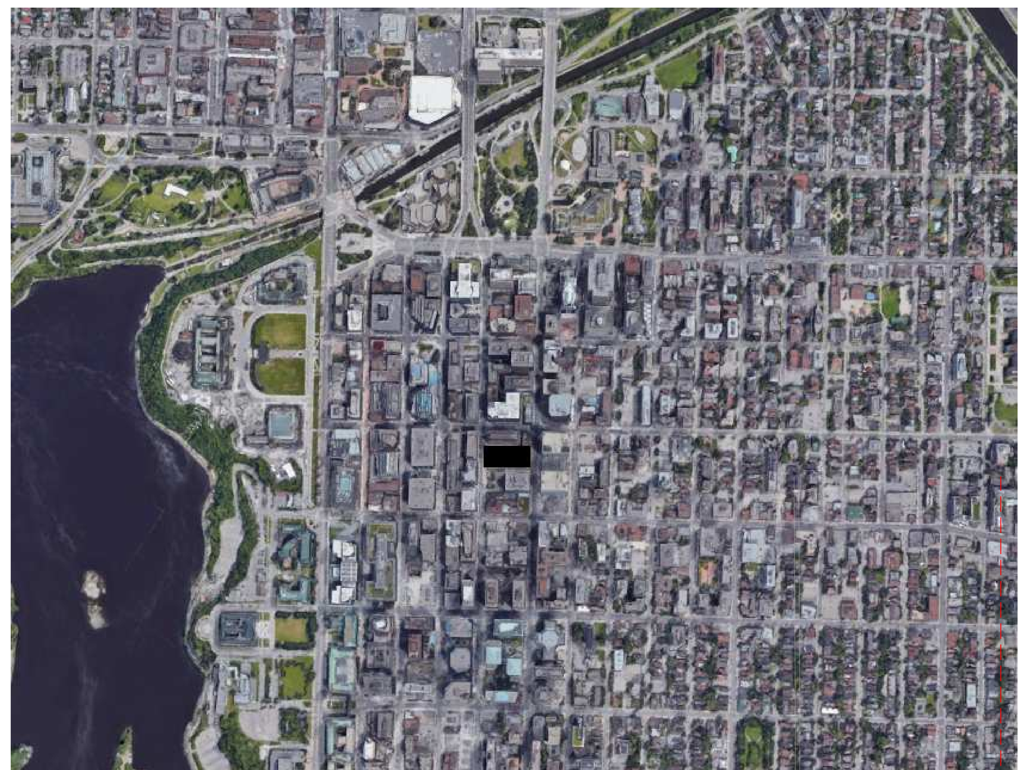
Engineers, Planners & Landscape Architects
Suite 200, 240 Michael Cowpland Drive
Ottawa, Ontario, Canada K2M 1P6
Telephone (613) 254-9643
Facsimile (613) 254-5867
Website www.novatech-eng.com

LOCATION
170 SLATER STREET, CITY OF OTTAWA
PROPOSED RESIDENTIAL HIGH-RISE

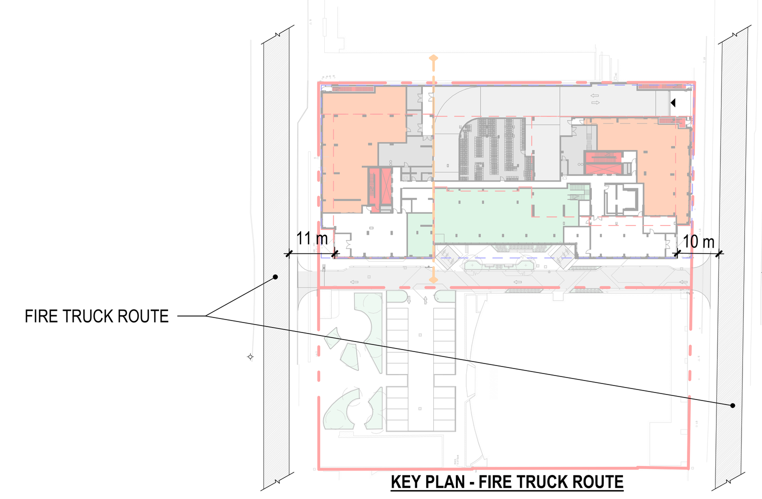
DRAWING NAME
EXISTING CONDITIONS, REMOVALS AND REINSTATMENT PLAN

PROJECT No. 123013
REV: REV # 3
DRAWING No. 123013-RP

PLANB1.DWG - 1000mmx707mm



KEY PLAN



KEY PLAN - FIRE TRUCK ROUTE

SYMBOL LEGEND

NORTH INDICATOR	SCOPE OF WORK / UNDERGROUND PARKING LIMIT
BUILDING ENTRANCE	PROPERTY LINE
ENTRY AND EXITS	

1m 2m 5m 10m

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Part of lots 38 and 42 (South Slater street)
Lots 39,40 and 41
Part of lots 38 and 42 (North Laurier avenue)
Registred plan 3922, City of Ottawa

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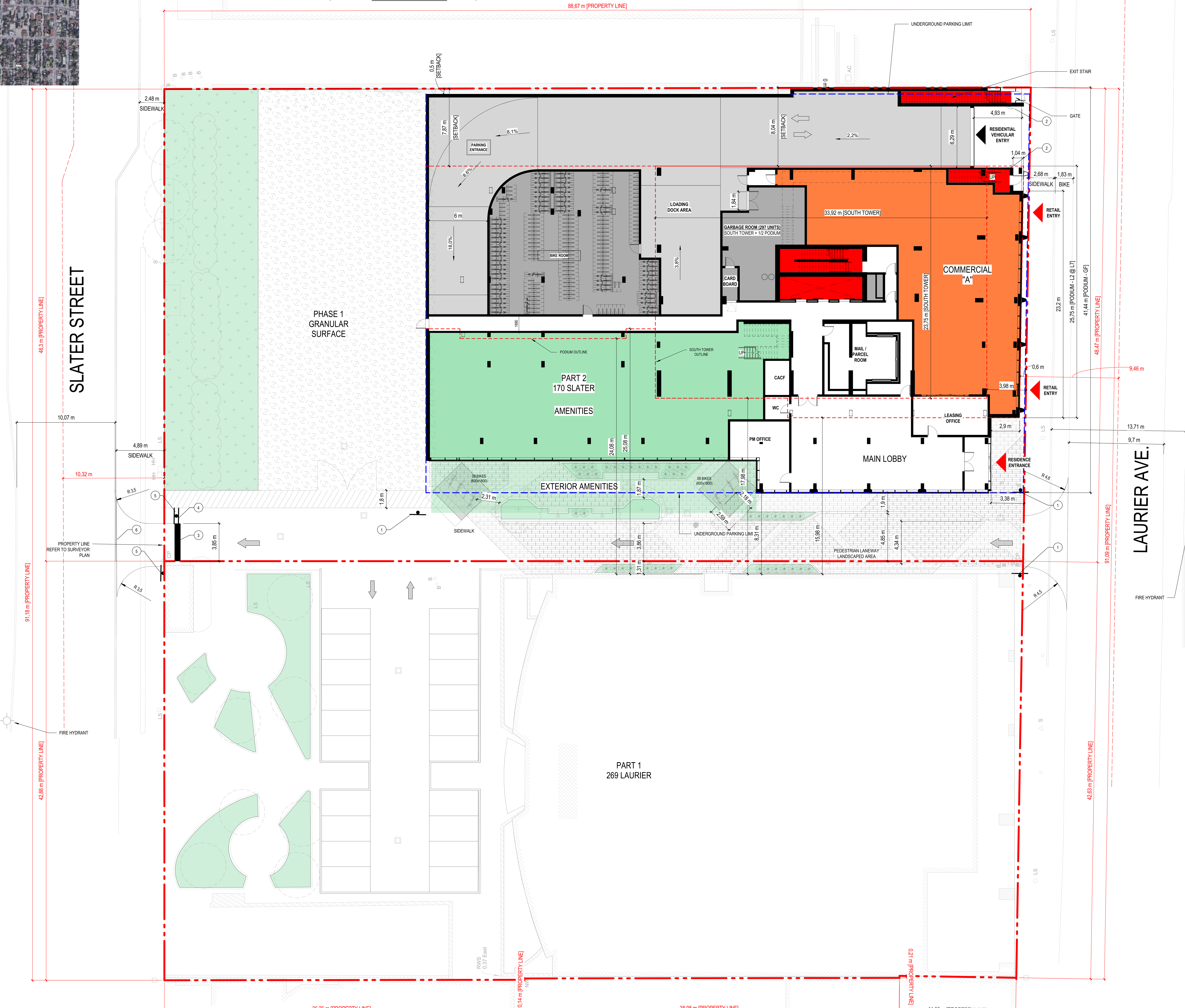

SITE PLAN
1 : 140

SIGNAGE LEGEND

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2. CONVEX MIRRORS
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4. SIGNAGE: STOP
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6. PROPOSED ACCESS (EXISTING CURB DEMO)

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NEUF ARCHITECT(E)S

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CLIENT / CLIENT
GWL REALTY ADVISORS

PROJECT / OUVRAGE
170 SLATER

LOCATION / EMPLACEMENT	PROJECT NO. / NO. PROJET
OTTAWA	12980.00

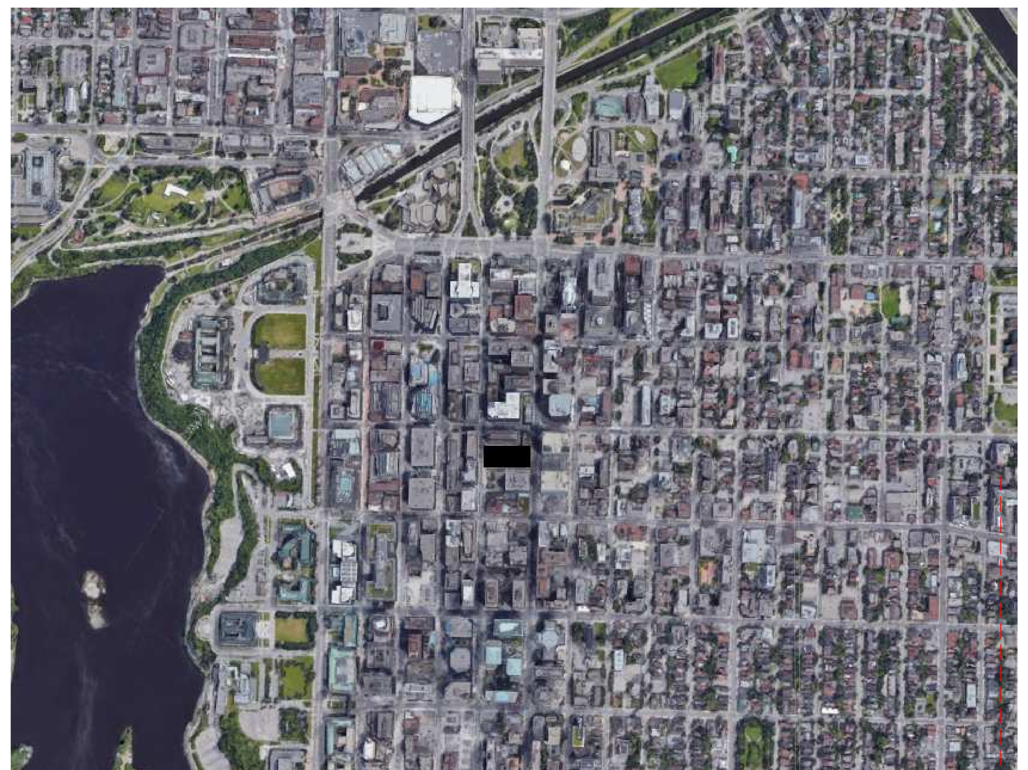
NO	REVISION / RÉVISION	DATE (yy-mm-dd / aa-mm-jj)
0	FOR COMMENTS	2023.06.27
1	SITE PLAN APPROVAL	2023.07.10
2	SITE PLAN APPROVAL - R1	2023.12.07
3	SITE PLAN APPROVAL - R2	2024.03.11

Préliminaire
NE PAS UTILISER POUR CONSTRUCTION

DRAWN BY / DESSINÉ PAR	CHECKED BY / VÉRIFIÉ PAR
AT/UB/SM	BSJ
DATE (yy.mm.dd / aa.mm.jj)	SCALE / ÉCHELLE
23.05.02	As indicated

DRAWING TITLE / TITRE DU DESSIN
SITE PLAN (PHASE 1)

REVISION / RÉVISION	DRAWING NO. / NO. DESSIN
3	SPA_A104



KEY PLAN

GROSS FLOOR AREA (BY-LAW 2008-326)		
Level	Area	
	Podium	
LEVEL Ground floor	789,5 m²	
LEVEL 2	1 033,9 m²	
LEVEL 3	1 727,5 m²	
LEVEL 4	1 727,5 m²	
LEVEL 5	1 727,5 m²	
LEVEL 6	1 727,5 m²	
LEVEL 7	1 721,2 m²	
	North tower	South tower
LEVEL 8	621,8 m²	621,8 m²
LEVEL 9	621,8 m²	621,8 m²
LEVEL 10	621,8 m²	621,8 m²
LEVEL 11	621,8 m²	621,8 m²
LEVEL 12	621,8 m²	621,8 m²
LEVEL 13	621,8 m²	621,8 m²
LEVEL 14	621,8 m²	621,8 m²
LEVEL 15	621,8 m²	621,8 m²
LEVEL 16	621,8 m²	621,8 m²
LEVEL 17	621,8 m²	621,8 m²
LEVEL 18	621,8 m²	621,8 m²
LEVEL 19	621,8 m²	621,8 m²
LEVEL 20	621,8 m²	621,8 m²
LEVEL 21	621,8 m²	621,8 m²
LEVEL 22	621,8 m²	621,8 m²
LEVEL 23	633 m²	633 m²
LEVEL 24	633 m²	633 m²
LEVEL 25	377,9 m²	633 m²
LEVEL 26		377,9 m²

Grand Total 33 029, 4 m²

AMENITY AREA	
Level	Area
COMMUNAL INTERIOR:	***1144,4 m²***
LEVEL Ground floor	516,5 m²
LEVEL 2	DOG SPA → 48,1 m² COMMUNAL → 579,8 m²
COMMUNAL EXTERIOR:	***1042,5 m²***
LEVEL Ground floor	175,1 m²
LEVEL 2	EAST → 373,3 m² WEST → 494,1 m²
COMMUNAL TOTAL:	*1144,4 m² + 1042,5 m² =* ***2186,9 m²***
PRIVATE	
TERRACE / BALCONY / LOGGIA	1545,7 m²
PRIVATE TOTAL	***1545,7 m²***
GRAND TOTAL:	***2186,9 m² + 1545,7 m² = 3732,6***

LANDSCAPE AREA (BY-LAW 2014-94) (BY-LAW 2020-289)	
LEVEL 2 and Ground floor	195 m2 ²

ZONING MECHANISM	REQUIRED	PROPOSED	COMPLIANCE
MIN. LOT AREA & WIDTH	NO MIN.		√
MIN. SETBACKS	NO MIN. ON ALL SIDES	A - 0.00 m B - 0.50 m C - 7.37 m D - 7.87 m E - 8.04 m	√
BUILDING HT.	PER SCHEDULE 33 - 148 m~ 155,1 m	150,7 m to 153,7m	√

MIN. PARKING	REQUIRED	PROPOSED	COMPLIANCE
AREA Z ON SCHEDULE 1A RESIDENTIAL: NO PARKING REQUIRED. VISITOR: 0.1/ UNIT, EXCL. THE FIRST 12 UNIT; MAX 30 COMMERCIAL: NO PARKING REQUIRED	RESIDENTIAL: 0 VISITOR: 30 SPACES COMMERCIAL: 0	98 30 0	√ X √
MAX. PARKING RESIDENTIAL: 1.5 SPACES/ UNIT	879	128	√
PARKING SPACE DIMENSION	WIDTH: 2.6m ~ 3.1m LENGTH: 5.2m UP TO 40% OF THE SPACES MAY BE REDUCED TO A WIDTH OF 2.4m	REFER TO PLANS	√
PERCENTAGE OF SMALL SPACES	MAX. 40% OF SPACES MAY BE 2.4M X 4.6M	24%	√
ACCESSIBLE PARKING REQUIREMENTS ACCESSIBLE PARKING TYPE A SPACE (3.2mX5.2m) ACCESSIBLE PARKING TYPE B SPACE (2.4mX5.2m) 1.5m AISLE BTWN ACCESSIBLE SPACE	3 3	3 3 REFER TO PLANS	√ √ √
DRIVEWAY WIDTH	MIN. TWO-WAY: 6m MAX. 6.7m	TWO-WAY ACCESS: 6m	√

ZONING MECHANISM	REQUIRED	PROPOSED	COMPLIANCE
AISLE WIDTH	TWO-WAY MIN.: 6m NOT IN PARKING LOT OR GARAGE: 2.6m	6m	√
BICYCLE PARKING RESIDENTIAL: 0.5 SPACES PER UNIT 50% CAN BE VERTICAL; 25% MUST BE INDOORS	RESIDENTIAL: 293 SPACES RETAIL: 2 SPACE MAX. 146 VERTICAL	RESIDENTIAL: 293 VISITORS : 4	√
BICYCLE PARKING DIMENSIONS	HORIZONTAL: 0.6m(W)x1.8(L) VERTICAL: 0.5m(W) x 1.5 (L) MUST BE ACCESSED VIA AN AISLE AT LEAST 1.5M	REFER TO PLANS	√
LOADING SPACE	NONE	1	
LOADING SPACE DIMENSIONS	7m (L) x 3.5M (W) DRIVEWAY WIDTH: 6m ACCESS AISLE WIDTH: 5~9m	REFER TO PLANS	√
AMENITY AREA 6 m² PER UNIT ,MIN. 50% OF THE AREA MUST BE COMMUNAL WITH AT LEAST ONE AREA 54m² IN SIZE	3 516 m² 1 758 m² AS COMMUNAL AREA	3 732,6 m² 2 186,9 m²	√ √
PERMITTED PROJECTIONS OVER THE HEIGHT LIMIT	NOT PERMITTED BY SCHEDULE 33	NO PROJECTION	√

DEVELOPMENT INFORMATION	PROPOSED
TOTAL LOT AREA (PART 1 + PART 2)	8 010,7 m²
GFA PART 1 (269 LAURIER) :	28 874 m²
GFA PART 2 (170 SLATER) :	33 029,4 m²
TOTAL GFA	61 903,4 m²
MAXIMUM GFA PERMITTED	71 301,0 m²

LOT AREA (SCOPE OF WORK)	3 379 m²
PROPOSED LOT COVERAGE - FOOTPRINT (BY-LAW 2016-356)/ LOT	79,11%
LANDSCAPING PERCENTAGE WITHIN ALL PARKING LOTS	N/A
LANDSCAPING PERCENTAGE OVER LOT AREA	4.5 %
MID BLOCK PEDESTRIAN LINK AND SHORT TERM PARKING	14,3 %
SIDEWLAK WIDENING AND TERRACE EXITING	2,09 %
STOREY	25 and 26

NO. OF RESIDENTIAL UNITS						
STUDIO	1BR	1BR+D	2BR	2BR+D	3BR	TOTAL
61	351	37	108	7	22	586

NUMBER OF SUITES REQUIRED TO BE BARRIER-FREE :
586 UNITS x 15% = **88 UNITS** HAVE TO BE BARRIER-FREE
THEY WILL BE DISTRIBUTED THROUGHOUT THE 26 FLOORS

Gross floor area means the total area of each floor whether located above, at or below grade, measured from the interiors of outside walls and including floor area occupied by interior walls and floor area created by bay windows, but excluding;

1. floor area occupied by shared mechanical, service and electrical equipment that serve the building (By-law 2008-326)
2. common hallways, corridors; stairwells, elevator shafts and other voids, steps and landings; (By-law 2008-326) (By-law 2017-302)
3. bicycle parking; motor vehicle parking or loading facilities;
4. common laundry, storage and washroom facilities that serve the building or tenants;
5. common storage areas that are accessory to the principal use of the building; (By-law 2008-326)
6. common amenity area and play areas accessory to a principal use on the lot; and (By-law 2008-326)
7. living quarters for a caretaker of the building. (surface de plancher hors oeuvre brute)

Footprint means the area of the ground floor of a building, measured from the exterior of the outermost walls, including an attached garage but excluding any projections. (l'empreinte) (By-law 2016-356)

Source: *https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/laws-z/part-1-administration-interpretation-and-definitions-sections-1-54#section-56529b37-0e63-4b6a-b2cb-e764481046f1*

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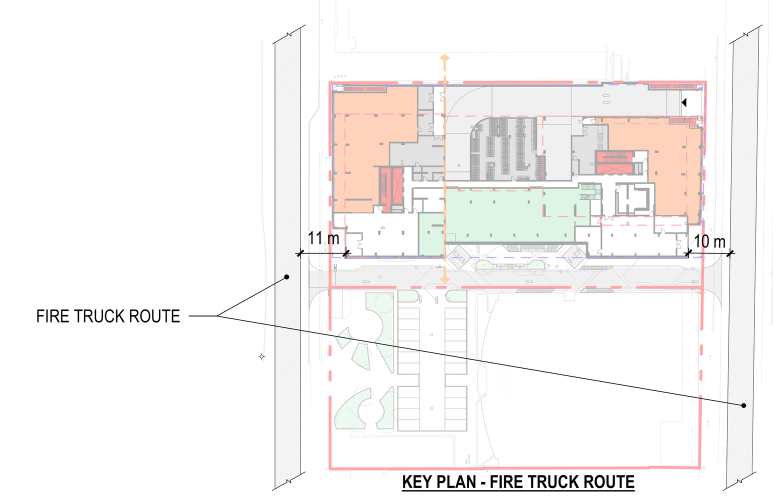

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- NORTH INDICATOR
- BUILDING ENTRANCE
- ENTRY AND EXITS
- SCOPE OF WORK / UNDERGROUND PARKING LIMIT
- PROPERTY LINE

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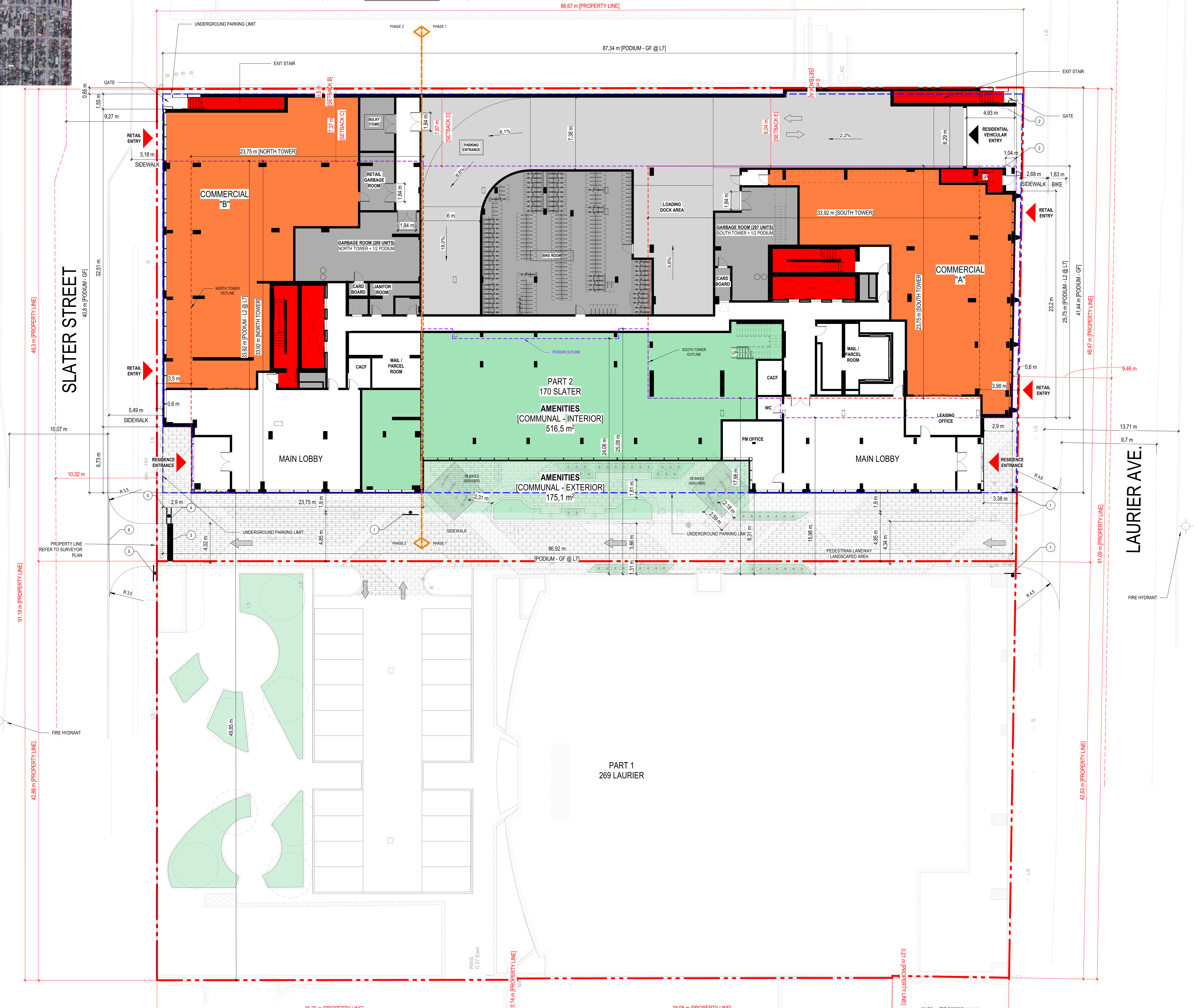

SITE PLAN
1 : 140

GENERAL NOTES / NOTES GÉNÉRALES

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3. The architect must be notified of all errors, omissions and discrepancies between these documents and those of the others professionnals. / Veuillez aviser l'architecte de toute dimension erreur et/ou divergence entre ces documents et ceux des autres professionnels.
4. The dimensions on these documents must be read and not measured. / Les dimensions sur ces documents doivent être lues et non mesurées.

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DRAWN BY / DESSINÉ PAR: AT/UB/SM
CHECKED BY / VÉRIFIÉ PAR: BSJ
DATE (yy.mm.dd / aa.mm.jj): 23.05.02
SCALE / ÉCHELLE: As indicated

DRAWING TITLE / TITRE DU DESSIN
SITE PLAN

REVISION / RÉVISION: 3
DRAWING NO. / NO. DESSIN: SPA_A103