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PROPOSED RESIDENTIAL DEVELOPMENT
230-232 LISGAR STREET

Development Servicing Study and
Stormwater Management Report

PROPOSED RESIDENTIAL DEVELOPMENT
230-232 LISGAR STREET

DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT

Prepared by:

NOVATECH
Suite 200, 240 Michael Cowpland Drive
Kanata, Ontario
K2M 1P6

November 11, 2022
Revised May 19, 2023

Ref: R-2022-151
Novatech File No. 122160

May 19, 2023

230 Lisgar Street Inc.
c/o The Falsetto Company Inc.
1524 Arnhem St.
Ottawa, Ontario. K2C 1V1

Attention: Mr. Albert Falsetto

Dear Sir:

Re: Development Servicing Study and Stormwater Management Report
Proposed Residential Development
230-232 Lisgar Street, Ottawa, ON
Novatech File No.: 122160

Enclosed is a copy of the revised 'Development Servicing Study and Stormwater Management Report' for the proposed residential development located at 230-232 Lisgar Street, in the City of Ottawa. This report addresses the approach to site servicing and stormwater management and is submitted in support of concurrent Zoning By-Law Amendment and Site Plan Control applications.

Please contact the undersigned, should you have any questions or require additional information.

Yours truly,

NOVATECH

François Thauvette, P. Eng.
Senior Project Manager

cc: Mohammed Fawzi (City of Ottawa)
Julien Hébert (Project 1 Studio)

Suite 200, 240 Michael Cowpland Drive, Ottawa ON K2M 1P6 Tel: 613.254.9643 www.novatech-eng.com

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1.0 INTRODUCTION

A new 9-storey residential building is being proposed by 230 Lisgar Street Inc. and Novatech has been retained to complete the site servicing, grading, and stormwater management design for this project. This report is being submitted in support of concurrent Zoning By-Law Amendment and Site Plan Control applications.

1.1 Site Description and Location

The subject sites are located at 230 and 232 Lisgar Street, in the City of Ottawa. The properties are to be merged and cover a combined area of approximately 0.069 hectares. The current properties are occupied by three-storey residential buildings and associated surface parking areas. The legal description of the subject site, as indicated on the Topographical Plan of Survey prepared by J.D. Barnes Ltd., is designated as Lot 47 (south side of Lisgar Street) on Registered Plan 12281, City of Ottawa.

Figure 1: Aerial View of the Subject Site

1.2 Pre-Consultation Information

A pre-consultation meeting was held with the City of Ottawa on July 7, 2022, at which time the client was advised of the general submission requirements. The Rideau Valley Conservation Authority (RVCA) was also consulted regarding the proposed development. Based on a review of **O. Reg. 525/98: Approval Exemptions**, a Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) will not be required for the proposed development. Refer to **Appendix A** for a summary of the correspondence related to the proposed development.

1.3 Proposed Development

The proposed development is for a new 9-storey residential building with 2 levels of underground parking. Access to the underground parking levels will be off Lisgar Street. The proposed building will be serviced by extending new laterals to the existing municipal sanitary sewer, storm sewer and watermain in Lisgar Street.

1.4 Reference Material

The following reports and studies were prepared and/or reviewed as part of the design process:

[1] The Geotechnical Investigation Report (Ref. No. PG6401-1), prepared by Paterson Group Inc. on October 26, 2022.

2.0 SITE SERVICING

The intention of the site servicing design is to provide proper sanitary sewage and storm outlets along with suitable domestic water supply and to ensure that appropriate fire protection is provided for the development. The servicing criteria, the expected sewage flows and the water demands are to conform to the requirements of the City of Ottawa municipal design guidelines for sewer and water distribution systems. The City of Ottawa Servicing Study Guidelines for Development Applications requires that a Development Servicing Study Checklist be included to confirm that each applicable item is deemed complete and ready for review by City of Ottawa Infrastructure Approvals. A completed checklist is enclosed in **Appendix B** of the report.

2.1 Sanitary Sewage

The existing buildings to be demolished are currently being serviced by the 1050mm dia. sanitary sewer in Lisgar Street. The proposed sanitary service lateral will enter the mechanical room located on the northeast side of the building. The proposed sanitary service lateral will be equipped with a backflow preventer.

The City of Ottawa design criteria were used to calculate the theoretical sanitary flows for the proposed development. The following design criteria were taken from the City of Ottawa Sewer Design Guidelines and subsequent Technical Bulletins:

Residential Use

- Residential Units (1-Bedroom or Studio): 1.4 people per unit
- Residential Units (2-Bedroom): 2.1 people per unit
- Average Daily Residential Sewage Flow: 280 L/person/day (ISTB-2018-01)
- Residential Peaking Factor = 3.77 (Harmon Equation)
- Infiltration Allowance: 0.33 L/s/ha x 0.069 ha site = 0.02 L/s (ISTB-2018-01)

Table 1 identifies the theoretical sanitary flows for the proposed development based on the above design criteria and information provided by the architect.

Table 1: Theoretical Post-Development Sanitary Flows

Residential Use	Unit Count/ Floor Area	Design Population	Average Flow (L/s)	Peaking Factor	Peak Flow (L/s)
1-Bedroom / Studio	37	52	0.17	3.77	0.64
2-Bedroom	12	25	0.08		0.30
Infiltration Allowance	-	-	0.02	-	0.02
Total for Site	**49**	**77***	**0.27***		**0.96***

*Represents rounded values

A 200mm dia. PVC sanitary service lateral at a minimum slope of 1.0% has a full flow conveyance capacity of 34.2 L/s and should have enough capacity to convey the theoretical sanitary flows from the proposed development. Refer to **Appendix C** for detailed sanitary sewage calculations.

2.2 Water Supply for Domestic Use and Firefighting

The existing buildings to be demolished are currently being serviced by the 300mm dia. ductile iron (DI) watermain in Lisgar Street. Under post-development conditions, the proposed development will continue to be serviced by the municipal watermain network in Lisgar Street. As per City of Ottawa Technical Bulletin (ISDTB-2014-02), the proposed development will require a single water service lateral as the daily water demands are less than 50m³/day (0.58 L/s). The proposed building will be sprinklered and the water meter will be located within the water entry room, with the remote meter and siamese connection on the exterior face of the building. The subject site is located within the City of Ottawa 1W watermain pressure zone.

2.2.1 Water Demands and Watermain Analysis

The theoretical water demand and fire flow calculations are based on criteria in the City of Ottawa Design Guidelines – Water Distribution. The fire flow requirements were calculated per the Fire Underwriters Survey (FUS) as indicated in City of Ottawa Technical Bulletin ISTB-2021-03, based on information provided by the architect. The following design criteria were taken from City of Ottawa Sewer Design Guidelines and subsequent Technical Bulletins:

- Residential Units (1-Bedroom or Studio): 1.4 people per unit
- Residential Units (2-Bedroom): 2.1 people per unit
- Average Daily Residential Water Demand: 280 L/person/day (ISTB-2021-03)
- Maximum Day Demand Peaking Factor = 2.5 x Avg. Day Demand (City Water Table 4.2)
- Peak Hour Demand Peaking Factor = 2.2 x Max. Day Demand (City Water Table 4.2)

Table 2 identifies the theoretical domestic water demands and fire flow requirements for the development based on the above design criteria. Refer to **Appendix D** for detailed calculations.

Table 2: **Theoretical Water Demand for Proposed Development**

Residential Use	Unit Count	Design Population	Avg. Day Demand (L/s)	Max. Day Demand (L/s)	Peak Hour Demand (L/s)	Fire Flow (L/s)
1-Bdrm/Studio	37	52	0.17	0.42	0.92	183
2-Bdrm	12	25	0.08	0.20	0.45	
Total for Site	**49**	**77***	**0.25***	**0.62***	**1.37***	**183**

*Represents rounded values

The following design criteria were taken from the City of Ottawa Design Guidelines for Water Distribution:

- Normal operating pressures are to range between 345 kPa (50 psi) and 483 kPa (70 psi) under Max Day demands
- Minimum system pressures are to be 276 kPa (40 psi) under Peak Hour demands
- Minimum system pressures are to be 140 kPa (20 psi) under Max Day + Fire Flow demands

Preliminary domestic water demands, and fire flow requirements were provided to the City of Ottawa to generate the municipal watermain network boundary conditions. **Table 2.1** summarizes the municipal watermain boundary conditions and the preliminary hydraulic analysis results based on the information provided by the City of Ottawa.

Table 2.1: Hydraulic Boundary Conditions Provided by the City (Existing Conditions)

Municipal Watermain Boundary Condition	Boundary Condition	Normal Operating Pressure Range (psi)	Anticipated WM Pressure (psi)*
Minimum HGL (Peak Hour Demand)	106.7 m	40 psi (min.)	~ 57 psi
Maximum HGL (Max Day Demand)	115.5 m	50 - 70 psi	~ 69 psi
HGL (Max Day + Fire Flow)	108.9 m	20 psi (min.)	~ 60 psi

* Based on an approximate roadway elevation of 68.9m in Lisgar Street at the service connection. Design pressure = (HGL – watermain elevation) x 1.42197 PSI/m.

As discussed with the City of Ottawa, a multi-hydrant approach to firefighting will be required to supply adequate fire flow to the proposed development. There are currently four (4) Class AA (blue bonnet) hydrants within 150m of the proposed site. Based on the City of Ottawa Technical Bulletin ISTB-2018-02, Class AA (blue bonnet) hydrants within 75m have a maximum capacity of 95 L/s while hydrants between 75m and 150m have a maximum capacity of 63 L/s (at a pressure of 20 PSI). **Table 2.2** summarizes the theoretical combined fire flow available from the nearby municipal fire hydrants and compares it to the fire flow demands based on the FUS calculations.

Table 2.2: **Theoretical Fire Protection Summary Table**

Building	FUS Fire Flow Demand (L/s)	Fire Hydrant(s) within 75m (~ 95 L/s each)	Fire Hydrant(s) within 150m (~ 63 L/s each)	Theoretical Combined Available Fire Flow (L/s)
Residential Building	**183**	2	2	**>183***

*Theoretical values exceed the FUS Fire Flow requirements and were therefore not confirmed by hydraulic analysis.

The combined maximum flow from the nearby municipal hydrants will exceed the Max Day + Fire Flow requirement of the proposed development. This multi-hydrant approach to firefighting is in accordance with the City of Ottawa Technical Bulletin ISTB-2018-02.

Based on the preliminary calculations, adequate water and system pressures will exist throughout the watermain network under the specified 'Max Day + Fire Flow' and 'Peak Hour' conditions. Booster pump(s) will be required to provide adequate water pressure to the upper floors. Refer to **Appendix D** for detailed calculations, correspondence from the City of Ottawa, a fire hydrant sketch showing the existing fire hydrant locations and the dimensions confirming the appropriate site coverage.

2.3 Storm Drainage and Stormwater Management

Under post-development conditions, on-site stormwater management (SWM) will be required to meet the requirements of the City of Ottawa. Storm flows for the site will include both uncontrolled direct runoff and controlled site flows. The proposed storm drainage and stormwater management design for the site is discussed in the following sections of the report.

2.3.1 Stormwater Management Criteria and Objectives

The stormwater management (SWM) criteria have been provided during a pre-consultation meeting with the City of Ottawa and the objectives are as follows:

- Provide a dual drainage system (i.e., minor, and major system flows).
- Control post-development storm flows, up to an including the 100-year design event, to the maximum allowable release rate calculated using the Rational Method, with a runoff coefficient equivalent to existing conditions, but in no case greater than C=0.5, a time of concentration no less than 10 minutes and a 2-year rainfall intensity from City of Ottawa IDF curves.
- Provide guidelines to ensure that site preparation and construction is in accordance with the current Best Management Practices for Erosion and Sediment Control.

The subject site is located within the jurisdiction of the Rideau Valley Conservation Authority (RVCA). Based on preliminary feedback from the RVCA, on-site stormwater quality control measures will not be required. Refer to **Appendix A** for correspondence from the City of Ottawa and RVCA.

2.3.2 Pre-Development Conditions and Allowable Release Rate

Although unknown, it is assumed that site flows are currently not being controlled prior to being released into the municipal storm sewer in Lisgar Street. As specified by the City of Ottawa, the maximum allowable release rate from the subject site is to be calculated using the Rational Method, with a runoff coefficient equivalent to existing conditions, but in no case greater than C=0.5, a time of concentration of 10 minutes and a 2-year rainfall intensity from City of Ottawa IDF curves. The maximum allowable release rate was calculated as follows:

T_c = 10 min C =0.50
I_{2yr} = 76.8 mm/hr A = 0.069 ha

Q_{allow} = 2.78 CIA
= 2.78 (0.50) (76.8) (0.069)
= 7.4 L/s

Refer to the Pre-Development Storm Drainage Area Plan (122160-STM1) and to **Appendix E** for detailed SWM calculations.

2.3.3 Post-Development Conditions

The post-development conditions will include both uncontrolled direct runoff and controlled site flows. The uncontrolled direct runoff will be from the front, east and west sides of the building. These areas will sheet drain uncontrolled towards the street, as there is no practical way to capture this drainage. The controlled flows from the building roof and rear yard will be sent directly to an internal SWM storage tank and controlled (pumped) prior to being discharged into the 1350mm dia. municipal storm sewer in Lisgar Street.

2.3.3.1 Area A-1: Direct Runoff from Subject Site

The uncontrolled post-development flow from this sub-catchment area was calculated using the Rational Method to be approximately 2.1 L/s during the 5-year design event and 4.0 L/s during the 100-year design event. Refer to the **Post-Development Storm Drainage Area Plan** (122160-STM2) and to **Appendix E** for detailed SWM calculations.

2.3.3.2 Area A-2: Controlled Site Flow

Stormwater runoff from this sub-catchment area will be captured by the main roof and rear yard drains and directed to an internal SWM storage tank. Stormwater collected within the storage tank will be pumped up to the storm service lateral and released into the existing 1350mm storm sewer in Lisgar Street. A pump (designed by the mechanical consultant) is required to control flow from the tank to a maximum rate of 3.2 L/s (51 USGPM). A “stand-by” pump will be provided for emergency and/or maintenance purposes. An emergency power supply will also be provided. CBMH 1 will provide access to the SWM storage tank as well as act as the emergency overflow from the tank to the surface on the east side of the building. The internal plumbing is to be pressure rated piping specified by the mechanical engineer. The storm service will be equipped with a backflow prevention device to protect the building from any potential sewer back-ups. Flows from the weeping tile and underslab drainage systems are to be pumped separately to the building service, by-passing the internal SWM storage system (refer to mechanical plans for details). **Table 3** summarizes the controlled post-development design flows and approximate storage volumes from area A-2 during the 2-year, 5-year and 100-year design events.

Table 3: Internal Stormwater Storage Tank and Pumped Flow

Design Event	Post-Development Conditions		
	Pumped Design Flow (L/s)	Volume Required (m^3)	Volume Provided (m^3)
2 Year	3.2 L/s	5.7 m^3	> 30 m^3
5 Year		9.1 m^3	
100 Year		23.0 m^3	
100 Year + 20% IDF increase		29.5 m^3	

As indicated in the **Table 3** above, the internal stormwater storage tank will provide sufficient storage for the 100-year design event, including an increased volume due to a 20% increase in rainfall intensity. Refer to **Appendix E** for detailed calculations.

2.3.3.3 Stormwater Flow Summary

Table 3.1 provides a summary of the total post-development flows from the site and compares them to the uncontrolled pre-development flows and to the allowable release rate specified by the City of Ottawa.

Table 3.1: Stormwater Flows Comparison Table

Design Event	Pre-Development Conditions		Post-Development Conditions			
	Uncontrolled Flow (L/s)	Allowable Release Rate (L/s)	A-1 Flow (L/s)	A-2 Flow (L/s)	Total Flow (L/s)	Reduction in Flow (L/s or %)*
2-Yr	13.3	7.4	1.5	3.2	4.7	8.6 or 65%
5-Yr	18.0		2.1		5.3	12.7 or 71%
100-Yr	34.3		4.0		7.2	27.1 or 79%

*Reduced flow compared to uncontrolled pre-development conditions from the current 0.069 ha site area.

As indicated in the table above, the post-development flows from the site will not exceed the allowable release rate specified by the City of Ottawa. Furthermore, this represents significant reductions in total site flow rate when compared to the uncontrolled pre-development conditions.

2.3.4 Stormwater Quality Control

As stated above, the subject site is located within the jurisdiction of the Rideau Valley Conservation Authority (RVCA). Based on preliminary feedback from the RVCA, landscaped areas and roof tops are considered clean for the purposes of water quality and aquatic habitat protection. In this case, since the parking will be provided underground, on-site stormwater quality control will not be required. Refer to **Appendix A** for correspondence from the RVCA.

3.0 SITE GRADING

The existing site is relatively flat, and generally slopes in a northeastern direction. Along the front of the site, the northwest property corner is approximately 71.37 m and slopes to 71.16m at the northeastern property corner. Along the back of the site, the existing grades at the southwestern corner of the property is approximately 71.63 and slopes to approximately 71.37m at the southeastern property corner. Under post-development conditions, the site will continue to slope from the back to the front. The proposed finished floor elevation (FFE) will be set at 71.50m to provide a barrier free access to the proposed building at the front entrance and the east side. The existing grades around the perimeter of the site will be maintained. Refer to the enclosed **Grading and Erosion & Sediment Control Plan** (122160-GR) for details.

4.0 GEOTECHNICAL INVESTIGATIONS

A Geotechnical Investigation Report has been prepared by Paterson Group Inc. for the proposed project. Refer to the Geotechnical Report[1] for subsurface conditions, construction recommendations and geotechnical inspection requirements.

5.0 EROSION AND SEDIMENT CONTROL

To mitigate erosion and to prevent sediment from entering the storm drainage system, temporary erosion and sediment control measures will be implemented on-site during construction in accordance with Best Management Practices for Erosion and Sediment Control. Details are provided on the Grading and Erosion and Sediment Control Plan. This includes the following measures:

- Filter bags / catchbasin inserts (sediment sacks) will be placed under the grates of nearby catchbasins and manholes and they will remain in place until vegetation has been established and construction is completed.
- Silt fencing will be placed per OPSS 577 and OPSD 219.110 along the surrounding construction limits.
- A mud mats will be installed at the site entrance.
- Street sweeping, and cleaning will be performed, as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site.
- On-site dewatering is to be directed to a sediment trap and/or gravel splash pad and discharged safely to an approved outlet as directed by the engineer.
- Any stockpiled material will be properly managed to prevent those materials from entering the sewer system and/or the downstream ditch or watercourse.

The temporary erosion and sediment control measures will be implemented prior to construction and will remain in place during all phases of construction. Regular inspection and maintenance of the erosion control measures will be undertaken.

6.0 CONCLUSION

This report has been prepared in support of concurrent Zoning By-Law Amendment and Site Plan Control applications for the proposed residential development located at 230 and 232 Lisgar Street. The conclusions are as follows:

- The proposed development will be serviced by the existing municipal infrastructure in Lisgar Street:
    - Sanitary flows will continue to be directed to the existing 1050mm dia. municipal sanitary sewer in Lisgar Street via a new 200mm dia. sanitary service lateral.
    - Storm flows from the roof and rear yard amenity area will be directed to an internal SWM tank, then pumped out to the existing municipal 1350mm dia. storm sewer in Lisgar Street via a new 250mm dia. storm service lateral. Storm flows from the front and sides of the proposed building will sheet drain uncontrolled towards the street.
    - A new 150mm dia. water service lateral will be connected to the municipal watermain network via the existing 300mm watermain in Lisgar Street. Adequate water and system pressures will exist throughout the watermain network under the specified 'Max Day + Fire Flow' and 'Peak Hour' conditions.
- The proposed 9-storey residential building will be sprinklered and the municipal watermain network, including the nearby municipal fire hydrants, will provide the necessary water for firefighting purposes.
- The post-development flow directed to the municipal storm sewer system will be approximately 4.7 L/s during the 2-year design event, 5.3 L/s during the 5-year event and 7.2 L/s during the 100-year event, which meets the allowable release rate for the site (7.4 L/s) specified by the City of Ottawa.
- Regular inspection and maintenance of the building services, roof drains, internal SWM tank and pumps is recommended to ensure that the storm drainage system is clean and operational.
- Erosion and sediment controls are to be provided during construction.

It is recommended that the proposed site servicing and stormwater management design be approved for implementation.

NOVATECH

Prepared by:

Chris Visser
Project Coordinator

Reviewed by:

François Thauvette, P. Eng.
Senior Project Manager

APPENDIX A

Project Correspondence

Pre-Application Consultation Meeting Notes

Property Address: 230-232 Lisgar Street
PC2022-0155
July 7, 2022; 1:30 PM – 2:30 PM - Microsoft Teams

Attendees:

City of Ottawa:

Nader Kadri – *File Lead, Planner II*
Christopher Moise – *Urban Design*
Luiz Juarez - *Heritage*
Mohammed Fawzi – *Infrastructure PM*
Evan Saunders – *Student Planner*

Applicants:

Jamie Posen – *Fotenn Consultants Inc.*
Nico Church – *Fotenn Consultants Inc.*
Jillian Simpson – *Fotenn Consultants Inc.*
Albert Falsetto– Owner
Chris Warden – *Heritage MTBA*
Ryan Koolwine – *Project1*
Julien Herbert – *Project1*

Community Representatives:

Daniela Veisman – Interim President – CCA
Alice Nakanishi – CCA

Regrets:

Wally Dubyk – *Transportation PM*

Subject: 230-232 Lisgar Street

Meeting notes:

Opening & attendee introduction
- Introduction of meeting attendees

Overview of Proposal

- 9-Storey Apartment Building

Planning

- Zoning: General Urban
  - Apartment neighbourhood

    - Permitted height 21 storeys.
- Proposal for 9 storeys.

Planning – Nader Kadri

- Subject to Centretown CDP and Secondary Plan.
- 9 storeys is a better approach given the site cannot accommodate a larger building without a larger land assembly.
- Heritage considerations – the applicant will need to demonstrate that the buildings can come down from a heritage perspective. See further comments from the City's Heritage Team.
- Design is appropriate in terms of scale, materiality, and architectural expression.
- Car elevator – OK – seen it done several times in Toronto. Staff willing to support parking reduction.
- The ground floor of the building needs to be improved to animate the public realm. Explore the potential to relocate the parcel room.
- Public realm approach is important – opportunity to widen sidewalk and to include additional trees and soft landscaping.
- Side wall windows – ensure that the code supports the number of windows. It's good that these are not principle windows for units, and that units have better access to sunlight through front and back windows.
- Mechanical equipment details needed.
- Explore the potential for family-sized units within the development.
- Provide amenity space details with the submission. Ensure that amenity areas offer spaces for families and for urban pets.
    - How is the rear amenity space accessed? Not clear.
- Please provide details on the project's sustainability strategy with the formal submission.

Heritage – Luis Juarez

- The following heritage application types and fees are applicable, subject to change:
    - 2 X 'Council-level authority – Demolition, Contributing': $13,683.00 X 2 (2022)
    - 1 X 'Large-scale new construction': $8,757 (2022).
- A Heritage Impact Assessment ("HIA") that:
    a) Describes the positive and adverse impacts on the heritage conservation district that may reasonably be expected to result from the proposed development;
    b) Describes the actions that may reasonably be required to prevent, minimize, or mitigate the adverse impacts;
    c) Demonstrates that the proposal will not adversely impact the cultural heritage value of the Heritage Conservation District; and,
    d) Addresses how the design consults the heritage conservation district plan (specifically the policies and guidelines outlined in Section 9.
- If the rationale for demolition is based on building condition, a building condition assessment should be submitted. As per section 5.3 and 5.5 of the HCD Plan, to support demolition, it should be prepared by a qualified heritage professional and confirm if the buildings are damaged/altered to a point where they can no longer contribute to the character of the HCD and demonstrate that alternative retention options have been considered.
- Coloured streetscape elevations, labelled with materials and clearly demonstrating the relationship between the proposed development and neighbouring properties on Lisgar.

General Comments

Demolition

- Heritage Planning has concerns over the demolition of the two existing buildings. Both houses are category 2 buildings within the Centretown Heritage Conservation District and form part of an original cluster of heritage buildings on the block. 232 Lisgar contains higher architectural integrity and relates strongly to the rest of the historic buildings, and therefore its demolition is of higher concern.
- Whilst alterations have been made to both houses that compromise their heritage integrity, both could be restored based on archival research and local examples. Some successful projects that have achieved restoration and retention of heritage buildings include 122 Daly and a newly approved project at 278-280 O'Connor Street (see image below). Both projects incorporate a considerable amount of the heritage resources.

- The two applicable demolition fees (combined $27,366) are not applicable if the proposal incorporates the existing buildings. In addition, the city offers a Heritage Community Improvement Plan tax-increment grant program to help offset the cost of restoration and adaptive re-use of buildings designated under the *Ontario Heritage Act*.

Design

- The proposal must follow guidelines and policies as they relate to new construction in Section 6.5 of the Centretown CDP and Section 9.2 and 9.3 of the Centretown Heritage Conservation District Plan.
- The historic scale and rhythm of the subject properties is visible in surviving frontages along this section of Lisgar Street. Heritage Planning does not have concerns with the proposed nine-storey height of the building, however, mirror Urban Design comments that the design should take visual clues from neighbouring heritage buildings in terms of height, details, massing, setback etc. to ensure that the historic scale is maintained.
- The existing heritage elements should act as the 'datum' for the podium, above which the massing of the larger tower should be set back on Lisgar Street.
- Please clarify the proposed building setback. The existing pattern of setbacks along this section of Lisgar Street should be maintained.
- The proposed brick cladding is a positive element of the design.

Urban Design – Christopher Moise

- This proposal resides within the City's Design Priority Area and must attend the City's UDRP;
- We have the following comments/questions on the revised design presented:
    - **Supporting the scale of the street**: Based on the 'View from Lisgar Street' perspective, have you considered a setback above the third floor to better support the scale of the remaining heritage buildings to the west?
    - **Rear yard amenity/Landscaping**: We note that landscaping will be compromised by having a parking structure below. A reduction of the extent of underground construction would increase the available land for tree planting and landscaping. It appears 1049 mm might be reduced without negatively effecting the parking layout or count. Is there a way to provide separation between the ground floor terraces and the communal amenity to help make it more usable?
    - **Trees**: Occupying the whole lot will make tree planting problematic. Has some consideration been made to allow for tree planting in the rear yard?
    - **Ground floor**: The current design of the ground floor reads as dead space. Has the material colour or type be investigated to provide a more welcoming experience? Perhaps an alternate approach might be to either raise the ground floor or provide a single form from grade to the first step-back.(However, this approach becomes more believable in the night render).
    - **Unit orientation**: This appears to be the right approach and we support this direction for this constrained site;
- A scoped Design Brief is a required submittal (and separate from any UDRP submission) for all Site Plan/Re-zoning applications and can be combined with the Planning Rationale. Please see the Design Brief Terms of Reference provided and consult the City's website for details regarding the UDRP schedule.
    - ***Note. The Design Brief submittal should have a section which addresses these pre-consultation comments;***

Infrastructure – Mohammed Fawzi

Available Infrastructure:

Lisgar Street:

Sanitary: 1050mm Conc (Install 1935)

Storm: 1350mm Conc (Install 1971)

Water: 305mm DI (Install 1974)

Water Boundary Conditions:

Will be provided at request of consultant. Requests must include the location of the service and the expected loads required by the proposed development. Please provide the following and submit Fire Flow Calculation Sheet per FUS method with the request:

- Location of service
- Type of development and amount of required fire flow (per FUS method – include FUS calculation sheet with request)
- Average Daily Demand (l/s)
- Maximum Hourly Demand (l/s)
- Maximum Daily Demand (l/s)
- Water Supply Redundancy – Fire Flow:
  Applicant to ensure that a second service with an inline valve chamber be provided where the average daily demand exceeds 50 m^3 / day (0.5787 l/s per day)

Water services larger than 19 mm require a Water Data Card. Please complete card and submit.

Stormwater Management (Quantity Control):

- Coefficient (C) of runoff determined **as per existing conditions** but in no case more than 0.5.
- TC = To be calculated, minimum 10 minutes
- Any storm events greater than 2-year, up to 100 year, and including 100-year storm event must be detained on site.
- Foundation drains are to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention.
- Roof drains are to be connected downstream of any incorporated ICD within the SWM system.

Stormwater Management (Quality Control):

- Rideau Valley Conservation Authority to provide Quality Controls.

Noise Study:

- Noise study required – due to proximity of an existing arterial road (Metcalf Street).

Phase I and Phase II ESA:

- Phase I ESA is required; Phase II ESA may be required depending on the results of the Phase I ESA. Phase I ESA must include an EcoLog ERIS Report.
- Phase I ESA and Phase II ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.

Required Studies

- Stormwater Management Report
- Site Servicing Study
- Geotechnical Study

- Phase I ESA
- Phase II ESA (depends on outcome of Phase I)
- Noise Study
- Wind Study

Required Plans

- Site Servicing Plan
- Grade Control and Drainage Plan
- Erosion and Sediment Control Plan (Can be combined with Grading Plan)
- Existing Conditions and Removals Plan
- Pre and Post Development Drainage Plans
- Roof Drainage Plan

Snow Storage:

- Any portion of the subject property which is intended to be used for permanent or temporary snow storage shall be as shown on the approved site plan and grading plan. Snow storage shall not interfere with approved grading and drainage patters or servicing. Snow storage areas shall be setback from the property lines, foundations, fencing or landscaping a minimum of 1.5m. Snow storage areas shall not occupy driveways, aisles, required parking spaces or any portion of a road allowance. If snow is to be removed from the site please indicate this on the plan(s).

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 Site Lighting Plan, and Certification (Statement) Letter from an acceptable professional engineer stating that the design is compliant.

Relevant information

1. The Servicing Study Guidelines for Development Applications are available at the following address: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans#servicing-study-guidelines-development-applications
2. Servicing and site works shall be in accordance with the following documents:
   - ⇨ Ottawa Sewer Design Guidelines (October 2012)
   - ⇨ 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 Park and Pathway Development Manual (2012)
   - ⇨ City of Ottawa Accessibility Design Standards (2012)

- ⇨ Ottawa Standard Tender Documents (latest version)
- ⇨ Ontario Provincial Standards for Roads & Public Works (2013)

3. 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) 580-2424 x.44455).
4. Any proposed work in utility easements requires written consent of easement owner.
5. 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.

Transportation – Wally Dubyk

- Lisgar Street is classified as a Local road. There are no additional protected ROW limits identified in the OP.
- The existing roadway features are to be depicted on the drawings.
- This development falls under in a DPA area. The development requires TDM measures that support achieving the area mode share targets. The consultant is to address how they plan to enable and encourage travel by sustainable modes (i.e. to make walking, cycling, transit, carpooling and telework more convenient, accessible, safe and comfortable). Please complete the City of Ottawa's TDM Measures Checklist.
- Please keep in mind that on street parking is not a viable option for tenants. Ensure that potential tenants who are not assigned a parking space are aware that on street parking is not a viable option for tenants.
- All underground and above ground building footprints and permanent walls need to be shown on the plan to confirm that any permanent structure does not extend either above or below into the sight triangles and/or future road widening protection limits.
- Permanent structures such as curbing, stairs, retaining walls, and underground parking foundation also bicycle parking racks are not to extend into the City's right-of-way limits.
- The consultant should review the sight distance to the access and any obstructions that may hinder the view of the driver.
- The concrete sidewalk should be 2.0 metres in width and be continuous and depressed through the proposed access.
- The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb and boulevard to City standards.
- No private approach shall be constructed within 0.3 metres of any adjacent property measured at the highway line, and at the curb line or roadway edge.
- No person shall construct a private approach serving any parking area with a grade exceeding 2% and the grade on the private approach shall descend in the direction of the roadway.
- The Owner acknowledges and agrees that all private accesses to Roads shall comply with the City's Private Approach By-Law being By-Law No. 2003-447 as amended https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/law-z/private-approach-law-no-2003-447 or as approved through the Site Plan control process.
- The Owner shall be required to enter into maintenance and liability agreement for all pavers, plant and landscaping material placed in the City right-of-way and the Owner shall assume all maintenance and replacement responsibilities in perpetuity.

- For any planter boxes/trees on the City's road right-of-way, an Encroachment Agreement along with a Maintenance Agreement will be required.
- Bicycle parking spaces are required as per Section 111 of the Ottawa Comprehensive Zoning By-law. Bicycle parking spaces should be located in safe, secure places near main entrances and preferably protected from the weather

Community – Daniela Veisman

- Commend the design. Very sensible to context.
- Echo need for larger units / more space for remote work.
- Considerations for accessibility units?
    - Required to provide barrier free access to building by Building Code Standards. 15% of units designed to be barrier-free.

Community – Alice Nakanishi

- Appreciative of 9 storeys instead of 21.
- Agree with city staff comments.
- Looking for family-sized units. Lots of schools nearby.
- Appreciate consideration for trees on the property.
- Look to planter in the front as a potential casual seating spot / interaction with public realm.

Conclusion and Next Steps

- Meeting meetings and comments will be circulated.
- Put together a set of meeting minutes and formal submission requirements (checklist)
- Leading up to Formal Submission – if you want to run through some changes, Christopher Moise and I would be happy to hear – reach out.
- If you have questions reach out to Nader Kadri.
- If you make updates and want to share, we can take a look before the formal submission.

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

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

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

S/A	ENGINEERING		S/A
S	1. Site Servicing Plan	2. Site Servicing Study / Assessment of Adequacy of Public Services	S
S	3. Grade Control and Drainage Plan	4. Geotechnical Study / Slope Stability Study	S
	5. Composite Utility Plan	6. Groundwater Impact Study	
	7. Servicing Options Report	8. Wellhead Protection Study	
	9. Transportation Impact Assessment (TIA)	10.Erosion and Sediment Control Plan / Brief	S
S	11.Storm water Management Report / Brief	12.Hydro geological and Terrain Analysis	
	13.Hydraulic Water main Analysis	14.Noise / Vibration Study	S
	15.Roadway Modification Functional Design	16.Confederation Line Proximity Study	
S	17. Existing Conditions and Removals Plan	18. Pre- and Post-Development Drainage Plans	S
S	19. Roof Drainage Plan	20.	

S/A	PLANNING / DESIGN / SURVEY		S/A
	21.Draft Plan of Subdivision	22.Plan Showing Layout of Parking Garage	S
	23.Draft Plan of Condominium	24.Planning Rationale	S
S	25.Site Plan	26.Minimum Distance Separation (MDS)	
	27.Concept Plan Showing Proposed Land Uses and Landscaping	28.Agrology and Soil Capability Study	
	29.Concept Plan Showing Ultimate Use of Land	30.Cultural Heritage Impact Statement	S
S	31.Landscape Plan	32.Archaeological Resource Assessment Requirements: **S** (site plan) **A** (subdivision, condo)	S
S	33.Survey Plan	34.Shadow Analysis	S
S	35.Architectural Building Elevation Drawings (dimensioned)	36.Design Brief (includes the Design Review Panel Submission Requirements)	S
S	37.Wind Analysis		

S/A	ENVIRONMENTAL		S/A
S	38.Phase 1 Environmental Site Assessment	39.Impact Assessment of Adjacent Waste Disposal/Former Landfill Site	
A	40.Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	41.Assessment of Landform Features	
	42.Record of Site Condition	43.Mineral Resource Impact Assessment	
	44.Tree Conservation Report	45.Environmental Impact Statement / Impact Assessment of Endangered Species	
	46.Mine Hazard Study / Abandoned Pit or Quarry Study	47.Integrated Environmental Review (Draft, as part of Planning Rationale)	

S/A	ADDITIONAL REQUIREMENTS		S/A
S	48. Applicant's Public Consultation Strategy (may be provided as part of the Planning Rationale)	49.Site Lighting Plan	S
A	50. Site Lighting Certification Letter	51.	

Meeting Date: July 7, 2022 Application Type: *Zoning By-law Amendment & Site Plan Control*

File Lead (Assigned Planner): Nader Kadri Infrastructure Approvals Project Manager: Mohammed Fawzi

Site Address (Municipal Address): 230-232 Lisgar Street *Preliminary Assessment: 1☐ 2☐ 3☐ 4☒ 5☐

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

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

Francois Thauvette

From: Eric Lalande <eric.lalande@rvca.ca>
Sent: Friday, August 26, 2022 11:34 AM
To: Francois Thauvette
Cc: Chris Visser
Subject: RE: 230 & 232 Lisgar Street - Residential Development - RVCA Pre-Consultation

Hi Francois

The RVCA does not have any on-site water quality control requirements for the proposed site design. Best management practices are recommended where possible.

Thanks,

Eric Lalande, MCIP, RPP
Planner, RVCA
613-692-3571 x1137

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Friday, August 26, 2022 11:32 AM
To: Eric Lalande <eric.lalande@rvca.ca>
Cc: Chris Visser <c.visser@novatech-eng.com>
Subject: 230 & 232 Lisgar Street - Residential Development - RVCA Pre-Consultation

Hi Eric,

We are working on a proposed residential development downtown in the City of Ottawa (230 & 232 Lisgar Street). The site will include a 9-storey residential building, rear yard outdoor amenity space and U/G parking (no surface parking). See attached preliminary plans for details. Based on similar developments downtown, on-site quality control measures are not typically required. Please review and confirm if our assumption is correct.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
Please note that I am working from home. Email or MS Teams are the best ways to contact me.
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

APPENDIX B

Development Servicing Study Checklist

Servicing study guidelines for development applications

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

- ☐ 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.
- ☐ 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.
- ☐ 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.
- ☐ 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.
- ☐ 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

☐ Confirm consistency with Master Servicing Study, if available
☒ Availability of public infrastructure to service proposed development
☒ 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.
☐ 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
☐ 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.
- ☒ 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).
- ☐ Confirm consistency with Master Servicing Study and/or justifications for deviations.
- ☒ 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)
- ☐ 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.
- ☐ 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).
- ☐ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.
- ☐ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.
- ☐ Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.
- ☐ 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)
- ☐ 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.
- ☐ Set-back from private sewage disposal systems.
- ☐ Watercourse and hazard lands setbacks.
- ☐ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.
- ☐ 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).
- ☐ 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.
- ☐ 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.
- ☒ 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.
- ☐ Identification of potential impacts to receiving watercourses
- ☐ 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.

- ☐ 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.
- ☐ 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.
- ☐ 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.
- ☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.
- ☐ Changes to Municipal Drains.
- ☐ 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
- ☐ 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

APPENDIX C

Sanitary Sewage Calculations

230-232 Lisgar Street - Proposed 9-Storey Residential Building
SANITARY SEWAGE ANALYSIS

Residential	Post-Development	
Number of 1-Bedroom Apartments	37	
Number of Persons per 1-Bdrm Apartment	1.4	
Number of 2-Bedroom Apartments	12	
Number of Persons per 2-Bdrm Apartment	2.1	
Design Population	77	
Average Daily Flow per resident	280	L/c/day
Peak Factor (Harmon Formula)	3.77	
Peak Residential Flow	0.94	L/s
Extraneous Flow		
Site Area	0.069	ha
Infiltration Allowance	0.33	L/s/ha
Peak Extraneous Flows	0.02	L/s
Total Peak Sanitary Flow	**0.96**	**L/s**

APPENDIX D

Water Demands, FUS Fire Flow Calculations, City of Ottawa Boundary Conditions, Hydrant Location Sketch and Correspondence from Architect

230-232 Lisgar Street: 9 Storey Residential Building
WATER ANALYSIS

DOMESTIC WATER DEMANDS

Residential Use	Post-Development	
Number of Studio / 1-Bedroom Units	37	
Persons per Studio / 1-Bedroom Unit	1.4	
Number of 2-Bedroom Units	12	
Persons per 2-Bedroom Unit	2.1	
Total Number of Units	49	
Total Design Population	77	
Average Day Demand (280 L/c/day)	**0.25**	L/s/day
Maximum Day Demand (2.5 x avg. day)	**0.62**	**L/s**
Peak Hour Demand (2.2 x max. day)	**1.37**	**L/s**
Total Average Day Demand	**0.25**	**L/s**
Total Maximum Day Demand	**0.62**	**L/s**
Total Peak Hour Demand	**1.37**	**L/s**

BOUNDARY CONDITIONS

Minimum HGL =	**106.7**	**m**
Maximum HGL =	**115.5**	**m**
Max Day + Fire Flow =	**108.9**	**m**

PRESSURE TESTS

Existing ground elevation at connection	**68.9**	**m**

Low Pressure Pressure =(Min. HGL - (Existing Ground Elevation -Watermain Elevation)) x 1.42 PSI/m (should be > 40 PSI)	**57.0**	**PSI**
High Pressure Pressure = (Max HGL - (Existing Ground Elevation -Watermain Elevation)) x 1.42 PSI/m (should be between 50- 70 PSI)	**69.0**	**PSI**
Max Day + Fire Flow Pressure = (Max Day + Fire Flow - (Existing Ground Elevation -Watermain Elevation)) x 1.42 PSI/m (should be > 20 PSI)	**60.0**	**PSI**

FUS - Fire Flow Calculations

As per 2020 Fire Underwriter's Survey Guidelines

NOVATECH
Engineers, Planners & Landscape Architects

Novatech Project #: 122160
Project Name: 230-232 Lisgar Street
Date: September 9, 2022
Input By: C. Visser
Reviewed By: F. Thauvette

Legend: Input by User; No Information or Input Required

Building Description: 9-Storey Residential Building
Type II - Non-combustible construction

Step			Input		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	0.8	
		Type IV - Mass Timber		Varies		
		Type III - Ordinary construction		1		
		Type II - Non-combustible construction	Yes	0.8		
		Type I - Fire resistive construction (2 hrs)		0.6		
2	**Floor Area**					
	A	Building Footprint (m^2)	400			
		Number of Floors/Storeys	9			
		Area of structure considered (m^2)			**3,600**	
	F	**Base fire flow without reductions**				**11,000**
		F = 220 **C** (**A**)$^{0.5}$				
Reductions or Surcharges						
3	**Occupancy hazard reduction or surcharge**			**Reduction/Surcharge**		
	(1)	Non-combustible		-25%	-15%	**9,350**
		Limited combustible	Yes	-15%		
		Combustible		0%		
		Free burning		15%		
		Rapid burning		25%		
4	**Sprinkler Reduction (100% sprinkler coverage of building used)**			**Reduction**		
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	-30%	**-3,740**
		Standard Water Supply	Yes	-10%	-10%	
		Fully Supervised System		-10%		
				Cumulative Total	**-40%**	
5	**Exposure Surcharge (cumulative %, Maximum Exposure Adjsutement Charge Used)**				**Surcharge**	
	(3)	North Side	20.1 - 30 m		10%	**5,610**
		East Side	10.1 - 20 m		15%	
		South Side	10.1 - 20 m		15%	
		West Side	3.1 - 10 m		20%	
				Cumulative Total	**60%**	
Results						
6	**(1) + (2) + (3)**	**Total Required Fire Flow, rounded to nearest 1000L/min**			**L/min**	**11,000**
		(2,000 L/min < Fire Flow < 45,000 L/min)		or	L/s	**183**
				or	USGPM	2,906
7	**Storage Volume**	Required Duration of Fire Flow (hours)			Hours	2
		Required Volume of Fire Flow (m^3)			m^3	1320

FUS Calculations

Date:	9 March 2022	
File No:	D07-12-22-0166	
Project:	230-232 Lisgar Street	
To:	Colette Gorni Planner II Planning, Real Estate and Economic Development Department City of Ottawa	
Copies:	François Thauvette	Novatech
	Julien Hébert	Project1 Studio

We are writing this memorandum on behalf of our client in relation to engineering comments for our Site Plan Control application. The proposed development situated at 230 Lisgar Street is a new 9-storey high-rise residential building comprising 49 units.

All levels of the building, including the below-grade parking structure, will be equipped with a sprinkler system. The construction of the building will adhere to the Ontario Building Code regulations and will be a typical reinforced concrete high-rise utilizing non-combustible materials.

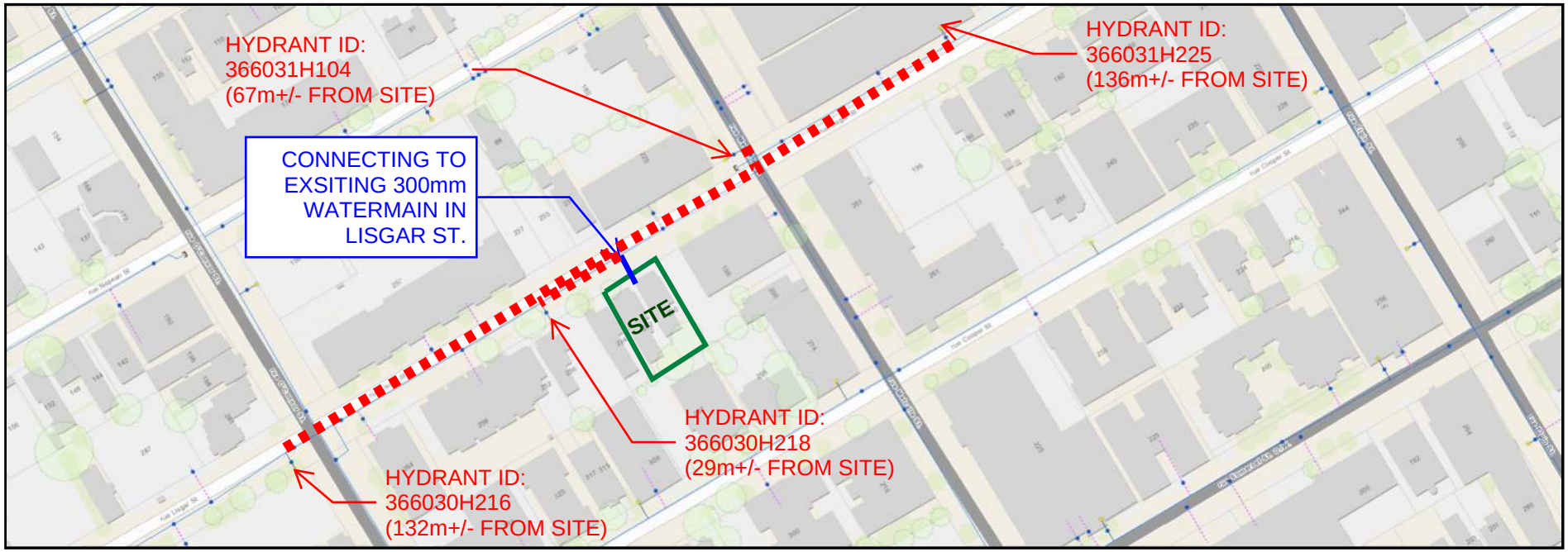
All structural members, including floors, beams, and columns, will possess a minimum of a two-hour fire rating as confirmed by ULC and UL Standard assemblies. These measures will allow the building to be categorized as a "Limited Combustible" occupancy class with a "Non-Combustible" construction type as described in the Fire Underwriters Survey (2020) appendix.

Furthermore, all vertical openings in the building will conform to the Ontario Building Code or other applicable codes having jurisdiction. All vertical enclosures will have walls of non-combustible construction, featuring a fire-resistance rating of no less than one hour. All openings will be fitted with automatic self-closing devices, and the elevator doors will be constructed with metal or metal-covered materials, normally closed for operation, and in accordance with pertinent code clauses.

Regards,

Ryan Koolwine
Principal | Project1 Studio
M. Arch, OAA

FIRE HYDRANT SKETCH AND WATER INFRASTRUCTURE



Chris Visser

From: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>
Sent: Thursday, September 22, 2022 11:05 AM
To: Francois Thauvette
Cc: Chris Visser
Subject: RE: 230-232 Lisgar Street - Request for WM Boundary Conditions
Attachments: 230-232 Lisgar Street September 2022.pdf

Hi Francois,

The following are boundary conditions, HGL, for hydraulic analysis at 230-232 Lisgar Street (zone 1W) assumed to be connected to the 305 mm watermain on Lisgar Street (see attached PDF for location).

Minimum HGL: 106.7 m

Maximum HGL: 115.5 m

Max Day + Fire Flow (183 L/s): 108.9 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.

Best Regards,

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

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

---

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: September 09, 2022 2:55 PM
To: Fawzi, Mohammed <mohammed.fawzi@ottawa.ca>

Cc: Chris Visser <c.visser@novatech-eng.com>
Subject: 230-232 Lisgar Street - Request for WM Boundary Conditions

Hi Mohammed,

We are sending this e-mail to request municipal watermain boundary conditions for the above-noted development. This request is for a proposed 9-storey, residential development located at 230-232 Lisgar Street, in Ottawa. The existing properties will be merged to accommodate the proposed development.

The anticipated water demands for the proposed residential development are as follows:

- Average Day Demand = 0.25 L/s
- Maximum Day Demand = 0.63 L/s
- Peak Hour Demand = 1.39 L/s
- FUS Fire Flow Demand = 183 L/s

It is anticipated that a multi-hydrant approach to firefighting will be required. Based on a review of geoOttawa, there are 2 blue bonnet hydrants within 75m of the subject and at least another 2 blue bonnet hydrants between 75m and 150m of the site. See attached calculation sheets and hydrant sketch for details. Please review and provide watermain boundary conditions. Also confirm that the existing municipal hydrants will provide the necessary fire flow, based on the City's model.

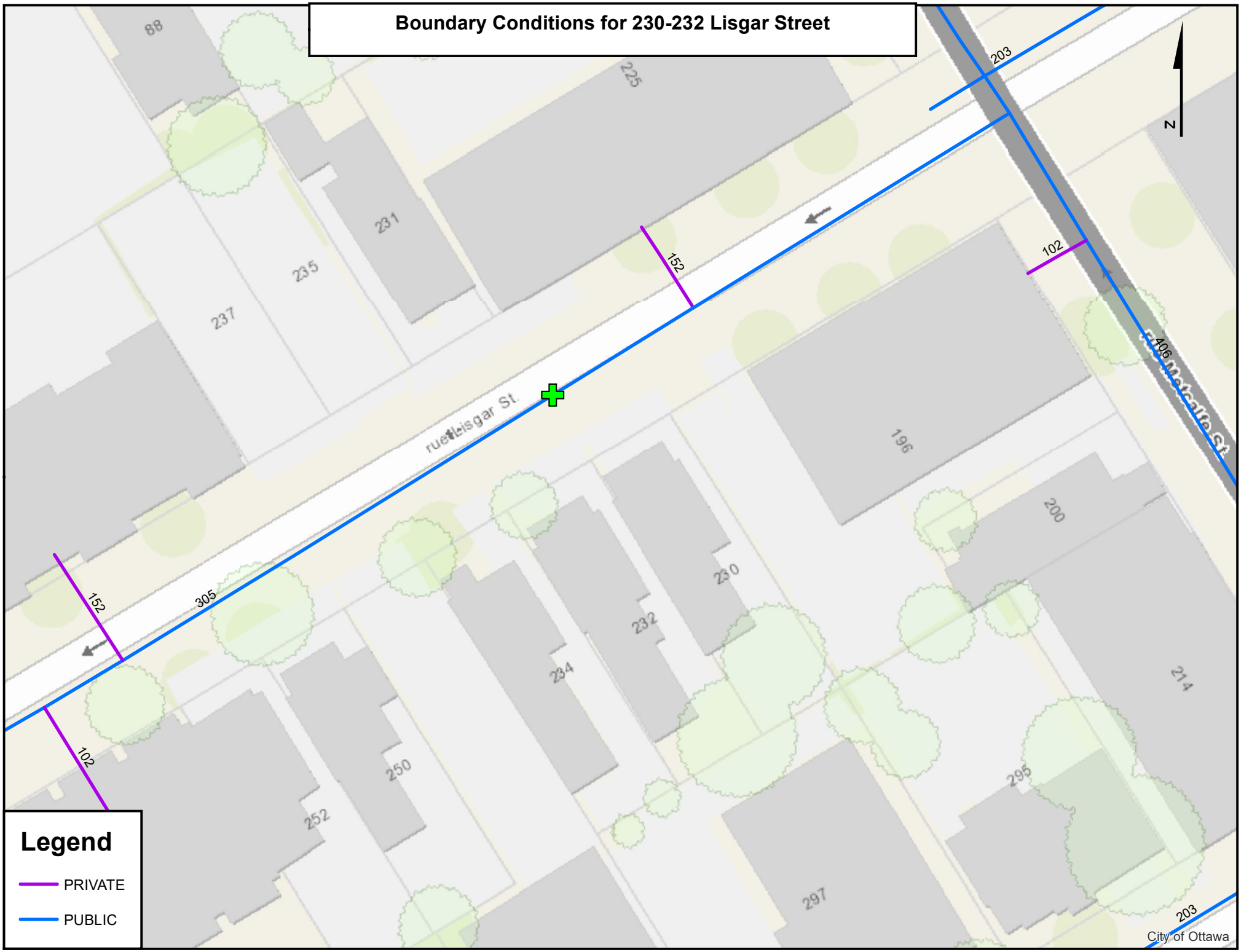
Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering
NOVATECH Engineers, Planners & Landscape Architects
Please note that I am working from home. Email or MS Teams are the best ways to contact me.
240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

'

'

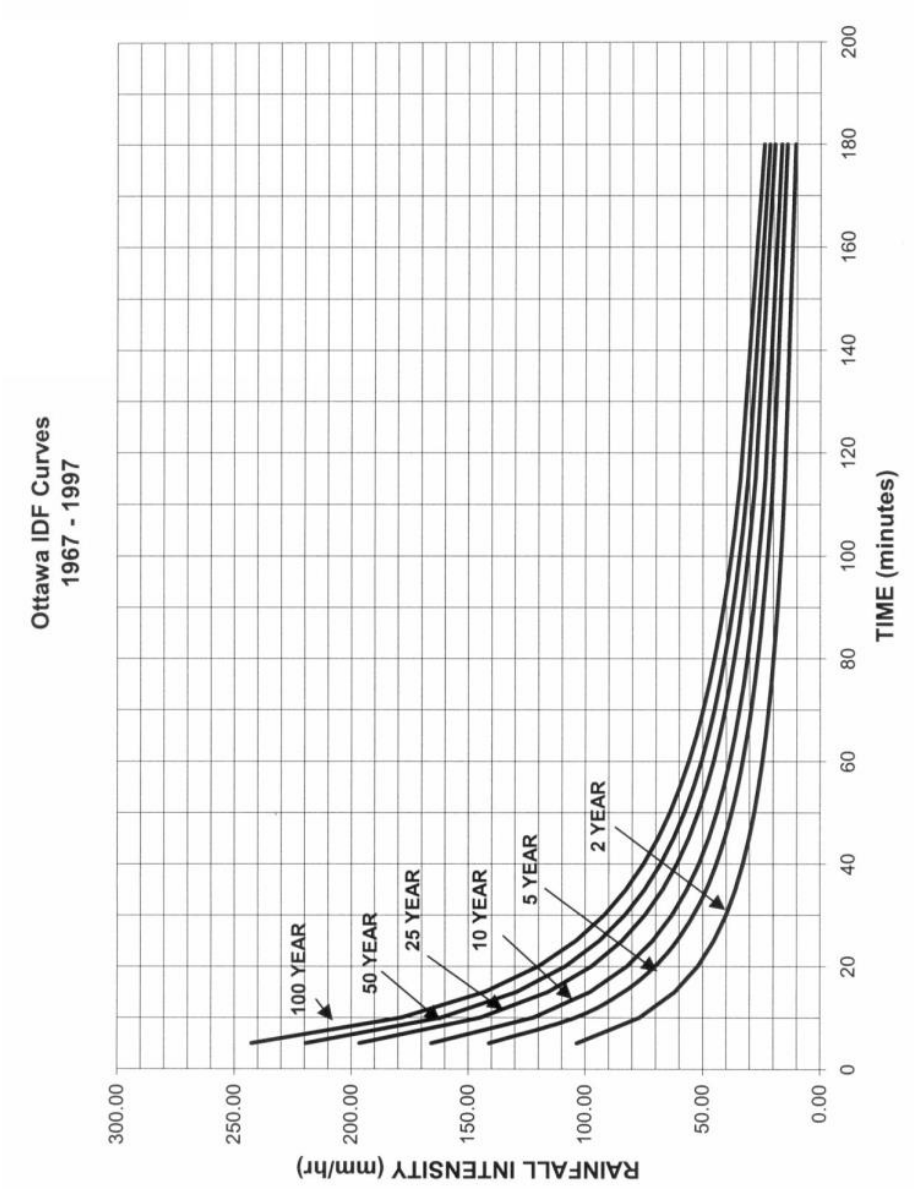
Boundary Conditions for 230-232 Lisgar Street



APPENDIX E

IDF Curves and SWM Calculations

APPENDIX 5-A OTTAWA INTENSITY DURATION FREQUENCY (IDF) CURVE



Proposed Mixed-Use Development
230-232 Lisgar Street

Pre - Development Site Flows											
Description	Area (ha)	$A_{impervious}$ (ha) C=0.9	A_{gravel} (ha) C=0.6	$A_{pervious}$ (ha) C=0.2	Weighted C_{w5}	Weighted C_{w100}	2 Year Flow (L/s)	5 Year Flow (L/s)	100 Year Flow (L/s)	Allowable C_{value}	Allowable Flow 2 year (L/s)
Subject Site	0.069	0.069	0.000	0.000	0.90	1.00	13.3	18.0	34.3	0.5	7.4

T_c = 10mins

Post - Development : Site Flows if the areas were left Uncontrolled								
Area	Description	Area (ha)	A_{imp} (ha) C=0.9	A_{perv} (ha) C=0.2	Cw_2, Cw_5	Cw_{100}	Uncontrolled Flow (L/s) 5 year	Uncontrolled Flow (L/s) 100 year
A-1	Direct Runoff from Site	0.008	0.008	0.000	0.90	1.00	2.1	4.0
A-2	Controlled Internal SWM Tank	0.061	0.061	0.000	0.90	1.00	15.9	30.3
	Summed Area Check:	0.069					T_c = 10mins	T_c = 10mins

Post - Development : Total Flows for Controlled Site + Uncontrolled Direct Runoff								
Area	Description	Peak Design Flow (L/s) 2 year	Peak Design Flow (L/s) 5 year	Peak Design Flow (L/s) 100 year	Storage Required (m^3) 2 year	Storage Required (m^3) 5 year	Storage Required (m^3) 100 year	Provided (m^3)
A-1	Direct Runoff from Site	1.5	2.1	4.0	-	-	-	-
A-2	Controlled Internal SWM Tank	3.2	3.2	3.2	5.7	9.1	23.0	> 30
	Totals :	**4.7**	**5.3**	**7.2**	**5.7**	**9.1**	**23.0**	**> 30**
	Over Controlled:	2.1	0.2	0.2				

NOVATECH
Engineers, Planners & Landscape Architects

Proposed Mixed-Use Development
230-232 Lisgar Street
REQUIRED STORAGE - 1:2 YEAR EVENT
AREA A-1 Direct Runoff from Site

OTTAWA IDF CURVE

Area = 0.008 ha Qallow = 1.54 L/s
C = 0.90 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	103.57	2.07	0.54	0.16
10	76.81	1.54	0.00	0.00
15	61.77	1.24	-0.30	-0.27
20	52.03	1.04	-0.50	-0.60
25	45.17	0.90	-0.63	-0.95
30	40.04	0.80	-0.74	-1.32
35	36.06	0.72	-0.82	-1.71
40	32.86	0.66	-0.88	-2.11
45	30.24	0.61	-0.93	-2.52
50	28.04	0.56	-0.98	-2.93
55	26.17	0.52	-1.01	-3.34
60	24.56	0.49	-1.05	-3.76
65	23.15	0.46	-1.07	-4.19
75	20.81	0.42	-1.12	-5.04
90	18.14	0.36	-1.17	-6.34
120	14.56	0.29	-1.25	-8.97
150	12.25	0.25	-1.29	-11.63
180	10.63	0.21	-1.32	-14.31
210	9.42	0.19	-1.35	-17.00
240	8.47	0.17	-1.37	-19.69

Proposed Mixed-Use Development
230-232 Lisgar Street
REQUIRED STORAGE - 1:5 YEAR EVENT
AREA A-1 Direct Runoff from Site

OTTAWA IDF CURVE

Area = 0.008 ha Qallow = 2.09 L/s
C = 0.90 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	2.83	0.74	0.22
10	104.19	2.09	0.00	0.00
15	83.56	1.67	-0.41	-0.37
20	70.25	1.41	-0.68	-0.82
25	60.90	1.22	-0.87	-1.30
30	53.93	1.08	-1.01	-1.81
35	48.52	0.97	-1.11	-2.34
40	44.18	0.88	-1.20	-2.88
45	40.63	0.81	-1.27	-3.44
50	37.65	0.75	-1.33	-4.00
55	35.12	0.70	-1.38	-4.56
60	32.94	0.66	-1.43	-5.13
65	31.04	0.62	-1.46	-5.71
75	27.89	0.56	-1.53	-6.87
90	24.29	0.49	-1.60	-8.64
120	19.47	0.39	-1.70	-12.21
150	16.36	0.33	-1.76	-15.82
180	14.18	0.28	-1.80	-19.46
210	12.56	0.25	-1.83	-23.11
240	11.29	0.23	-1.86	-26.78

Proposed Mixed-Use Development
230-232 Lisgar Street
REQUIRED STORAGE - 1:100 YEAR EVENT
AREA A-1 Direct Runoff from Site

OTTAWA IDF CURVE

Area = 0.008 ha Qallow = 4.0 L/s
C = 1.00 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	5.40	1.42	0.43
10	178.56	3.97	-0.01	-0.01
15	142.89	3.18	-0.80	-0.72
20	119.95	2.67	-1.31	-1.57
25	103.85	2.31	-1.67	-2.51
30	91.87	2.04	-1.94	-3.49
35	82.58	1.84	-2.14	-4.50
40	75.15	1.67	-2.31	-5.54
45	69.05	1.54	-2.44	-6.60
50	63.95	1.42	-2.56	-7.67
55	59.62	1.33	-2.65	-8.76
60	55.89	1.24	-2.74	-9.85
65	52.65	1.17	-2.81	-10.96
75	47.26	1.05	-2.93	-13.18
90	41.11	0.91	-3.07	-16.55
120	32.89	0.73	-3.25	-23.39
150	27.61	0.61	-3.37	-30.29
180	23.90	0.53	-3.45	-37.24
210	21.14	0.47	-3.51	-44.22
240	19.01	0.42	-3.56	-51.23

Proposed Mixed-Use Development
230-232 Lisgar Street
REQUIRED STORAGE - 1:100 YR + 20% IDF Increase
AREA A-1 Direct Runoff from Site

OTTAWA IDF CURVE

Area = 0.008 ha Qallow = 4.77 L/s
C = 1.00 Vol(max) = 0.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	291.24	6.48	1.71	0.51
10	214.27	4.77	0.00	0.00
15	171.47	3.81	-0.95	-0.86
20	143.94	3.20	-1.56	-1.88
25	124.62	2.77	-1.99	-2.99
30	110.24	2.45	-2.31	-4.16
35	99.09	2.20	-2.56	-5.38
40	90.17	2.01	-2.76	-6.62
45	82.86	1.84	-2.92	-7.89
50	76.74	1.71	-3.06	-9.18
55	71.55	1.59	-3.17	-10.47
60	67.07	1.49	-3.27	-11.79
65	63.18	1.41	-3.36	-13.11
75	56.71	1.26	-3.50	-15.77
90	49.33	1.10	-3.67	-19.81
120	39.47	0.88	-3.89	-27.99
150	33.13	0.74	-4.03	-36.26
180	28.68	0.64	-4.13	-44.58
210	25.37	0.56	-4.20	-52.93
240	22.81	0.51	-4.26	-61.32

Proposed Mixed-Use Development
230-232 Lisgar Street
REQUIRED STORAGE - 1:2 YEAR EVENT
AREA A-2 Controlled Internal SWM Tank

OTTAWA IDF CURVE

Area = 0.061 ha Qallow = 3.20 L/s
C = 0.90 Vol(max) = 5.7 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	103.57	15.81	12.61	3.78
10	76.81	11.72	8.52	5.11
15	61.77	9.43	6.23	5.60
20	52.03	7.94	4.74	5.69
25	45.17	6.89	3.69	5.54
30	40.04	6.11	2.91	5.24
35	36.06	5.50	2.30	4.84
40	32.86	5.02	1.82	4.36
45	30.24	4.62	1.42	3.82
50	28.04	4.28	1.08	3.24
55	26.17	3.99	0.79	2.62
60	24.56	3.75	0.55	1.97
65	23.15	3.53	0.33	1.30
75	20.81	3.18	-0.02	-0.11
90	18.14	2.77	-0.43	-2.33
120	14.56	2.22	-0.98	-7.04
150	12.25	1.87	-1.33	-11.97
180	10.63	1.62	-1.58	-17.04
210	9.42	1.44	-1.76	-22.21
240	8.47	1.29	-1.91	-27.45

Proposed Mixed-Use Development
230-232 Lisgar Street
REQUIRED STORAGE - 1:5 YEAR EVENT
AREA A-2 Controlled Internal SWM Tank

OTTAWA IDF CURVE

Area = 0.061 ha Qallow = 3.20 L/s
C = 0.90 Vol(max) = 9.1 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	141.18	21.55	18.35	5.50
10	104.19	15.90	12.70	7.62
15	83.56	12.75	9.55	8.60
20	70.25	10.72	7.52	9.03
25	60.90	9.29	6.09	9.14
30	53.93	8.23	5.03	9.05
35	48.52	7.40	4.20	8.83
40	44.18	6.74	3.54	8.50
45	40.63	6.20	3.00	8.10
50	37.65	5.75	2.55	7.64
55	35.12	5.36	2.16	7.13
60	32.94	5.03	1.83	6.58
65	31.04	4.74	1.54	6.00
75	27.89	4.26	1.06	4.75
90	24.29	3.71	0.51	2.74
120	19.47	2.97	-0.23	-1.65
150	16.36	2.50	-0.70	-6.33
180	14.18	2.16	-1.04	-11.19
210	12.56	1.92	-1.28	-16.18
240	11.29	1.72	-1.48	-21.26

Proposed Mixed-Use Development
230-232 Lisgar Street
REQUIRED STORAGE - 1:100 YEAR EVENT
AREA A-2 Controlled Internal SWM Tank

OTTAWA IDF CURVE

Area = 0.061 ha Qallow = 3.20 L/s
C = 1.00 Vol(max) = 23.0 m3

Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	242.70	41.16	37.96	11.39
10	178.56	30.28	27.08	16.25
15	142.89	24.23	21.03	18.93
20	119.95	20.34	17.14	20.57
25	103.85	17.61	14.41	21.62
30	91.87	15.58	12.38	22.28
35	82.58	14.00	10.80	22.69
40	75.15	12.74	9.54	22.90
45	69.05	11.71	8.51	22.98
50	63.95	10.85	7.65	22.94
55	59.62	10.11	6.91	22.81
60	55.89	9.48	6.28	22.60
65	52.65	8.93	5.73	22.34
75	47.26	8.01	4.81	21.66
90	41.11	6.97	3.77	20.37
120	32.89	5.58	2.38	17.12
150	27.61	4.68	1.48	13.34
180	23.90	4.05	0.85	9.22
210	21.14	3.59	0.39	4.86
240	19.01	3.22	0.02	0.33

Proposed Mixed-Use Development
230-232 Lisgar Street
REQUIRED STORAGE - 1:100 YR + 20% IDF Increase
AREA A-2 Controlled Internal SWM Tank

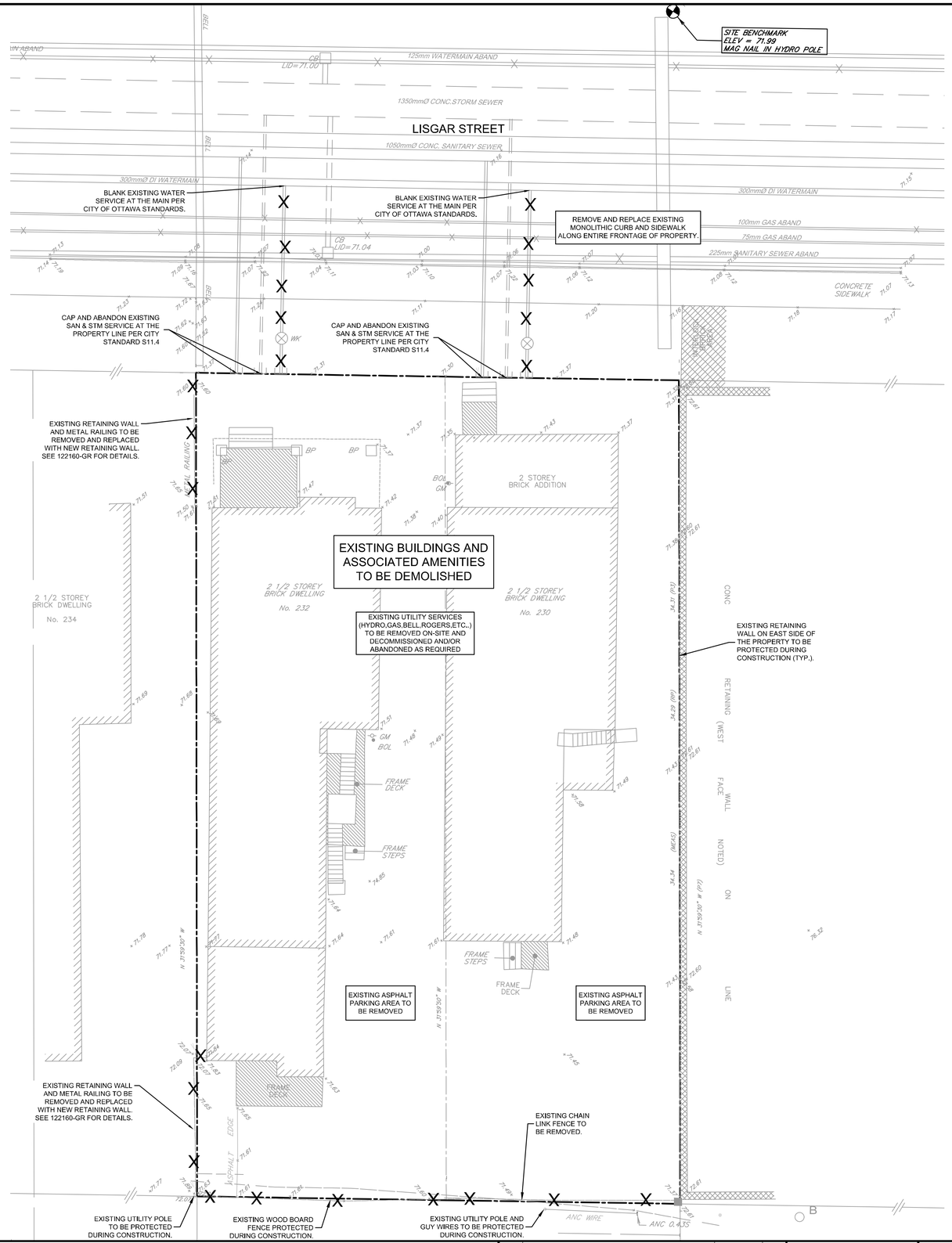
OTTAWA IDF CURVE

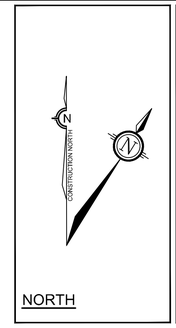
Area = 0.061 ha Qallow = 3.20 L/s
C = 1.00 Vol(max) = 29.5 m3

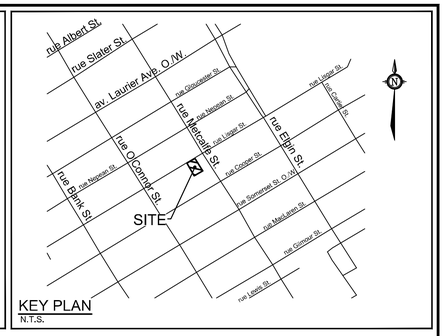
Time (min)	Intensity (mm/hr)	Q (L/s)	Qnet (L/s)	Vol (m3)
5	291.24	49.39	46.19	13.86
10	214.27	36.34	33.14	19.88
15	171.47	29.08	25.88	23.29
20	143.94	24.41	21.21	25.45
25	124.62	21.13	17.93	26.90
30	110.24	18.69	15.49	27.89
35	99.09	16.80	13.60	28.57
40	90.17	15.29	12.09	29.02
45	82.86	14.05	10.85	29.30
50	76.74	13.01	9.81	29.44
55	71.55	12.13	8.93	29.48
60	67.07	11.37	8.17	29.43
65	63.18	10.71	7.51	29.30
75	56.71	9.62	6.42	28.87
90	49.33	8.37	5.17	27.90
120	39.47	6.69	3.49	25.16
150	33.13	5.62	2.42	21.77
180	28.68	4.86	1.66	17.97
210	25.37	4.30	1.10	13.90
240	22.81	3.87	0.67	9.61

APPENDIX H

Engineering Drawings







LEGEND

X	REMOVALS
+ 71.35	EXISTING ELEVATION
WK	EXISTING WATER KEY
	EXISTING CONCRETE CURB
CB	EXISTING CATCHBASIN
EX UP	EXISTING UTILITY POLE C/W ANCHOR WIRES
	EXISTING RETAINING WALL

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. ALL ELEVATIONS ARE GEODETIC.

BENCHMARK NOTES:

1. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF OTTAWA CONTROL POINT 2011-0007 HAVING A PUBLISHED ELEVATION OF 80.55 METRES.
2. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE SITE BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON THIS DRAWING.
3. BENCHMARK WAS PROVIDED ON SURVEYOR'S REAL PROPERTY REPORT WITH TOPOGRAPHIC DETAILS PART 1 - PLAN SHOWING LOT 47 (SOUTH SIDE OF LISGAR STREET), REGISTERED PLAN NO. 12281, CITY OF OTTAWA, SURVEYED BY J.D. BARNES LIMITED (REF. # 21-10-108-00).

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.

OWNER INFORMATION

230 LISGAR STREET INC.
c/o THE FALSETTO COMPANY INC.
1524 ARNHEM ST,
OTTAWA, ON, K2C 1V1

CONTACT: ALBERT FALSETTO
Tel: (613) 261-5224
Email: a.falsetto@rogers.com

No.	REVISION	DATE	BY
2.	REVISED PER CITY COMMENTS	MAY 19/23	FST
1.	ISSUED FOR SPC APPLICATION	NOV 11/22	FST

SCALE
1:100
1:100
0 1 2 3 4

DESIGN CV
CHECKED FST
DRAWN CV
CHECKED FST
APPROVED FST

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
F.S. THAUVETTE
100041399
MAY 19, 2023
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
CITY OF OTTAWA
230-232 LISGAR STREET

DRAWING NAME
EXISTING CONDITIONS AND REMOVALS PLAN

PROJECT No. 122160
REV REV # 2
DRAWING No. 122160-REM

PLAN #18902

D07-12-22-0166

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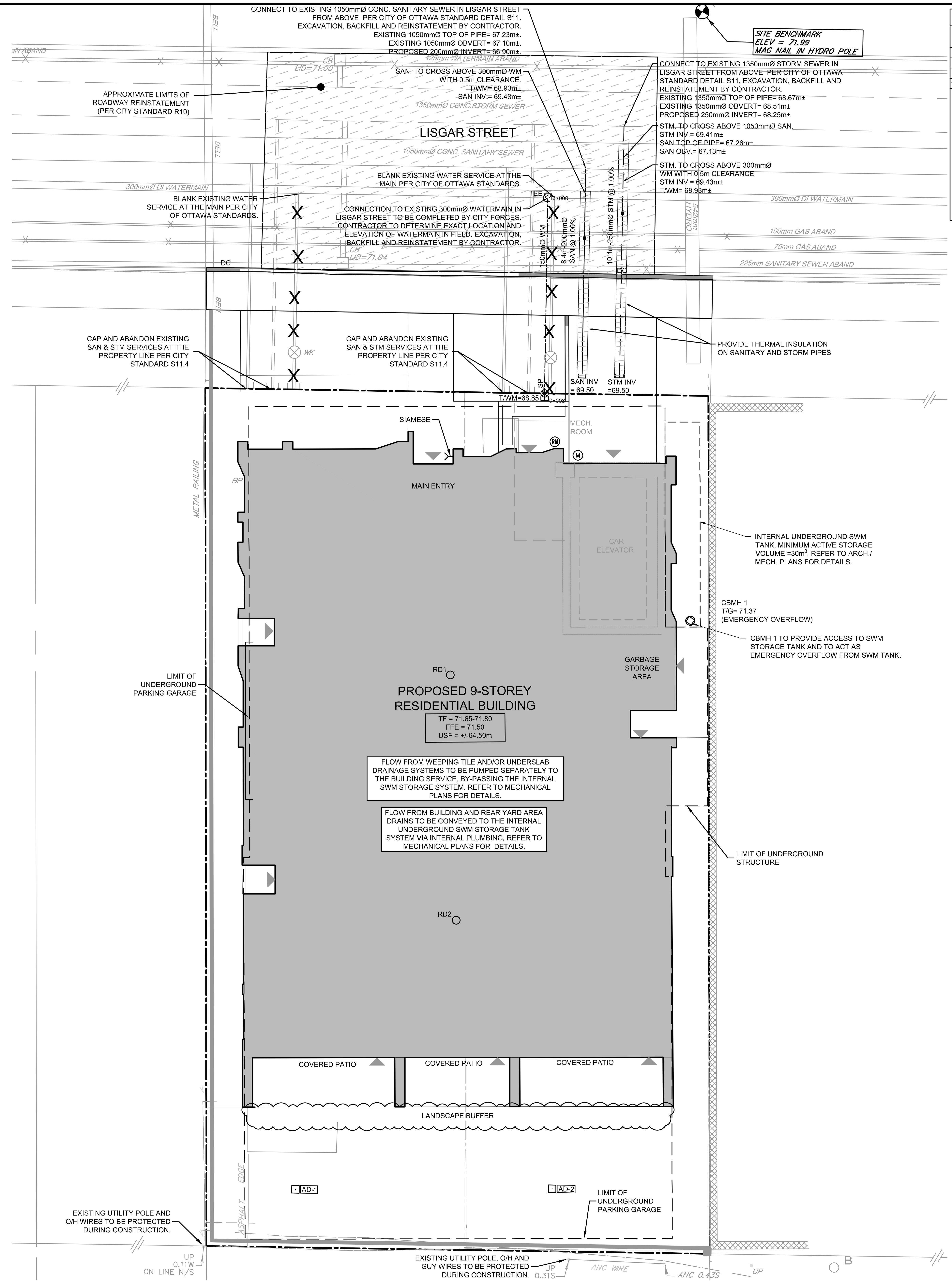
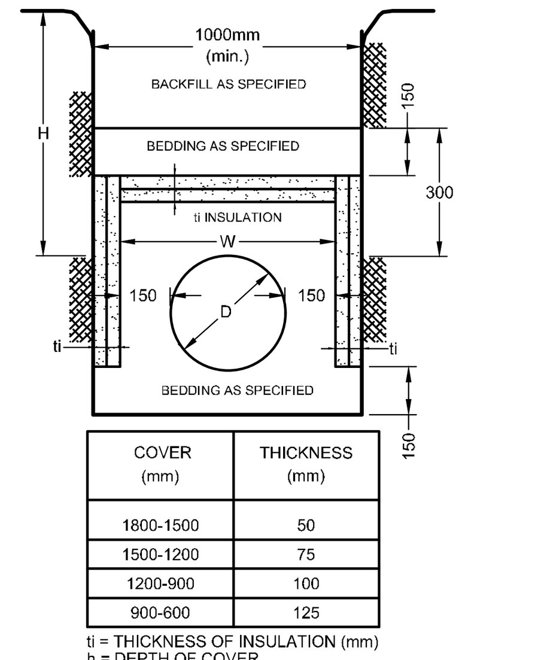


INTERNAL SWM STORAGE SYSTEM

DESIGN EVENT	STORAGE SYSTEM CONTROLLED FLOW	STORAGE VOLUMES	
		REQUIRED	PROVIDED
1:2 YR	PUMPED FLOW RATE = 3.2 L/s	5.7 m³	>30 m³
1:5 YR		9.1 m³	
1:100 YR		23.0 m³	
1:100+20%		29.5 m³	

NOTES:

1. ALL DRAINAGE FROM AREA A-2 (PROPOSED AMENITY AREA DECK DRAINS AND ALL ROOF DRAINS) TO BE DIRECTED TO THE INTERNAL STORMWATER STORAGE SYSTEM. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR DETAILS.
2. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR EXACT SIZE AND DETAILS OF INTERNAL STORMWATER STORAGE SYSTEM.
3. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR LOCATION AND CONNECTIONS AND DETAILS OF THE INTERNAL STORMWATER STORAGE SYSTEM .



COVER (mm)	THICKNESS (mm)
1800-1500	50
1500-1200	75
1200-900	100
900-600	125

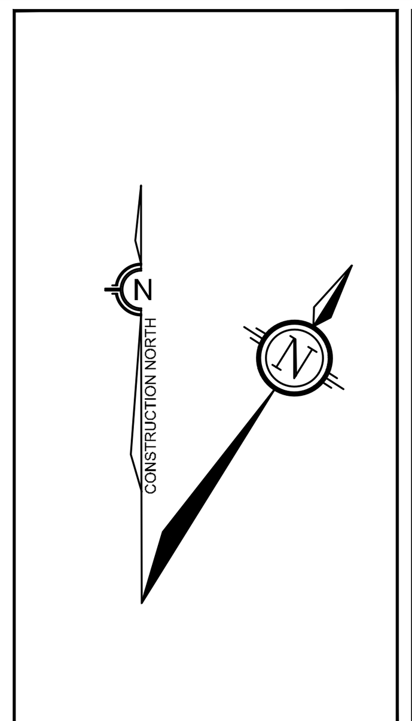
ti = THICKNESS OF INSULATION (mm)
h = DEPTH OF COVER
W = D + 300 (1000 min.)
W = WIDTH OF INSULATION (mm)
D = O.D OF PIPE (mm)

NOTES:

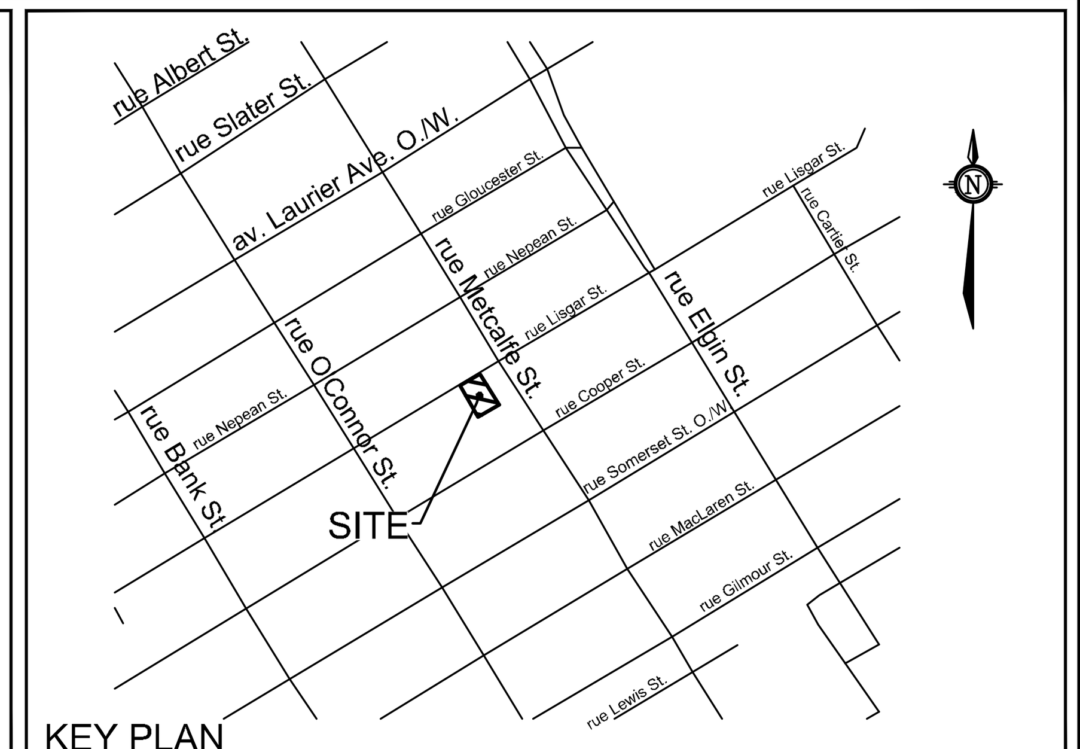
1. INSULATE ALL SEWER PIPES THAT ARE LESS THAN 600mmØ AND HAVE LESS THAN 1.8m COVER WITH EXPANDED POLYSTYRENE INSULATION AS SHOWN.
2. THE THICKNESS OF INSULATION SHALL BE THE EQUIVALENT OF 25mm FOR EVERY 300mm REDUCTION IN THE REQUIRED DEPTH OF COVER (SEE TABLE)

INSULATION DETAIL FOR SHALLOW SEWERS ONLY

N.T.S.



NORTH



KEY PLAN

N.T.S.

LEGEND

- PROPERTY LINE
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED THERMAL INSULATION
- CBMH — PROPOSED CATCHBASIN MANHOLE
- AD-1 — AREA DRAIN
- RD1 — ROOF DRAIN
- PROPOSED WATER METER AND REMOTE METER
- PROPOSED BARRIER CURB
- DC — PROPOSED DEPRESSED CURB
- 150mmØ — PROPOSED WATER SERVICE AND DIAMETER
- SP — PROPOSED STAND POST / VALVE & VALVE BOX
- TEE — PROPOSED TEE C/W THRUST BLOCK
- ROAD REINSTATEMENT LIMIT
- Y — PROPOSED SIMESE CONNECTION
- PROPOSED CAP
- PROPOSED BUILDING ENTRANCE
- UNDERGROUND PARKING LIMIT
- RETAINING WALL
- X — REMOVALS
- FFE — FINISHED FLOOR ELEVATION
- TF — TOP OF FOUNDATION WALL ELEVATION
- USF — UNDERSIDE OF FOOTING ELEVATION
- EXISTING CONCRETE CURB
- EXISTING SANITARY SEWER
- EXISTING STORM SEWER
- CB — EXISTING CATCHBASIN C/W CATCHBASIN LEAD
- WK — EXISTING WATERMAIN AND WATER KEY
- EX UP — EXISTING UTILITY POLE C/W ANCHOR WIRES
- EXISTING RETAINING WALL

PROPOSED 150mmØ WATER SERVICE TABLE

Station	F/G ELEVATION	TOP OF WATERMAIN	DESCRIPTION
0+000.00	71.13	68.93 *	ROLL 150mmØ WM CONNECTION TO EX. 300mmØ DI WM
0+007.83	71.39	68.84 **	VALVE AND VALVE BOX (SP) 0.5m OFF OF CAP (AT PROPERTY LINE)
0+008.11	71.41	68.85 **	CAP AT 1.0m FROM FOUNDATION WALL

* CONNECTION TO EXISTING 300mmØ DUCTILE IRON WATERMAIN. EXACT ELEVATION TO BE FIELD DETERMINED.
** PROVIDE THERMAL INSULATION AS PER CITY OF OTTAWA DETAIL W22 IN SHALLOW TRENCHES AND/OR CITY OF OTTAWA W23 ADJACENT TO OPEN STRUCTURES.

BENCHMARK NOTES:

1. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF OTTAWA CONTROL POINT 2011-0007 HAVING A PUBLISHED ELEVATION OF 80.55 METRES.
2. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE SITE BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON THIS DRAWING.
3. BENCHMARK WAS PROVIDED ON SURVEYOR'S REAL PROPERTY REPORT WITH TOPOGRAPHIC DETAILS PART 1 - PLAN SHOWING LOT 47 (SOUTH SIDE OF LISGAR STREET), REGISTERED PLAN NO. 12281, CITY OF OTTAWA, SURVEYED BY J.D. BARNES LIMITED (REF. # 21-10-108-00).

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. COMPLETE ALL WORKS IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS USING THE CURRENT GUIDELINES, BYLAWS AND STANDARDS INCLUDING MATERIALS OF CONSTRUCTION, DISINFECTION AND ALL RELEVANT REFERENCES TO OPSS, OPSD & AWWA GUIDELINES - ALL CURRENT VERSIONS AND 'AS AMENDED'.
6. 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 MUNICIPAL AUTHORITIES.
7. 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.
8. ALL ELEVATIONS ARE GEODETIC.
9. REFER TO GEOTECHNICAL INVESTIGATION REPORT (PG6401-1, DATED OCTOBER 26, 2022), PREPARED BY PATERSON GROUP INC., 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 HARD SURFACED AREAS AND DIMENSIONS.
11. REFER TO THE 'DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT' (R-2022-151) PREPARED BY NOVATECH.
12. SAW CUT AND KEYGRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE-IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).

SEWER NOTES:

1. SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'.
2. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
STORM / SANITARY MANHOLE (1200Ø)	701.010	OPSD
SANITARY MANHOLE FRAME AND COVER	401.010 - TYPE 'A'	OPSD
STORM/CATCHBASIN MANHOLE (1800Ø)	701.012	OPSD
STORM/CBMH FRAME AND COVER	401.010 - TYPE 'B'	OPSD
WATERTIGHT MANHOLE FRAME AND COVER	401.030	OPSD
CATCHBASIN (600x600)	705.010	OPSD
CATCHBASIN FRAME & COVER	S19	CITY OF OTTAWA
SEWER TRENCH	S6	CITY OF OTTAWA
STORM SEWER	PVC DR 35 (450mmØ PIPE AND SMALLER)	
STORM SEWER	CONCRETE 65-D (600mmØ PIPE AND LARGER)	
SANITARY SEWER	PVC DR 35	

3. THE SANITARY SERVICE LATERAL SHALL BE EQUIPPED WITH BACKFLOW PREVENTERS WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14.1 OR S14.2. REFER TO MECHANICAL PLANS FOR DETAILS.
4. THE STORM SERVICE LATERAL SHALL BE EQUIPPED WITH A BACKFLOW PREVENTER WITHIN THE BUILDING FOOTPRINT AS PER CITY OF OTTAWA STANDARD DETAILS S14. REFER TO MECHANICAL PLANS FOR DETAILS.
5. SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
6. 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.
7. INSULATE ALL PIPES (SAN / STM) THAT HAVE LESS THAN 1.8m COVER WITH HI-40 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
8. CONCRETE MANHOLES ARE TO BE 1200mmØ STRUCTURES UNLESS OTHERWISE NOTED ON THE DRAWING. 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.
9. TYPICAL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED.
10. THE CONTRACTOR IS 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. PROVIDE A COPY OF ALL CCTV INSPECTION REPORTS TO THE ENGINEER FOR REVIEW.
11. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL APPLICABLE 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 AND ANY ALIGNMENT CHANGES, ETC.
12. 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.

WATERMAIN NOTES:

1. SUPPLY AND CONSTRUCT ALL WATERMAINS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS - ALL CURRENT VERSIONS AND 'AS AMENDED'.
2. SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W17	CITY OF OTTAWA
HYDRANT INSTALLATION	W19	CITY OF OTTAWA
THERMAL INSULATION IN SHALLOW TRENCHES	W22	CITY OF OTTAWA
THERMAL INSULATION BY OPEN STRUCTURES	W23	CITY OF OTTAWA
VALVE BOX ASSEMBLY	W24	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWERS	W25	CITY OF OTTAWA
CATHODIC PROTECTION FOR PVC WATERMAINS	W40	CITY OF OTTAWA
WATERMAIN MATERIAL	PVC DR 18 (100mm AND LARGER)	

3. 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.
4. WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
5. PROVIDE MINIMUM 0.5m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS, UNLESS OTHERWISE INDICATED.
6. WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

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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.

OWNER INFORMATION

230 LISGAR STREET INC.
c/o THE FALSETTO COMPANY INC.
1524 ARNHEM ST.
OTTAWA, ON, K2C 1V1

CONTACT: ALBERT FALSETTO
Tel: (613) 261-5224
Email: a.falsetto@rogers.com

No.	REVISION	DATE	BY
2.	REVISED PER CITY COMMENTS	MAY 19/23	FST
1.	ISSUED FOR SPC APPLICATION	NOV 11/22	FST

SCALE 1:100

1:100 — 0 1 2 3 4

DESIGN CV
CHECKED FST
DRAWN CV
CHECKED FST
APPROVED FST

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
F.S. THAUVETTE
100041399
MAY 19, 2023
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

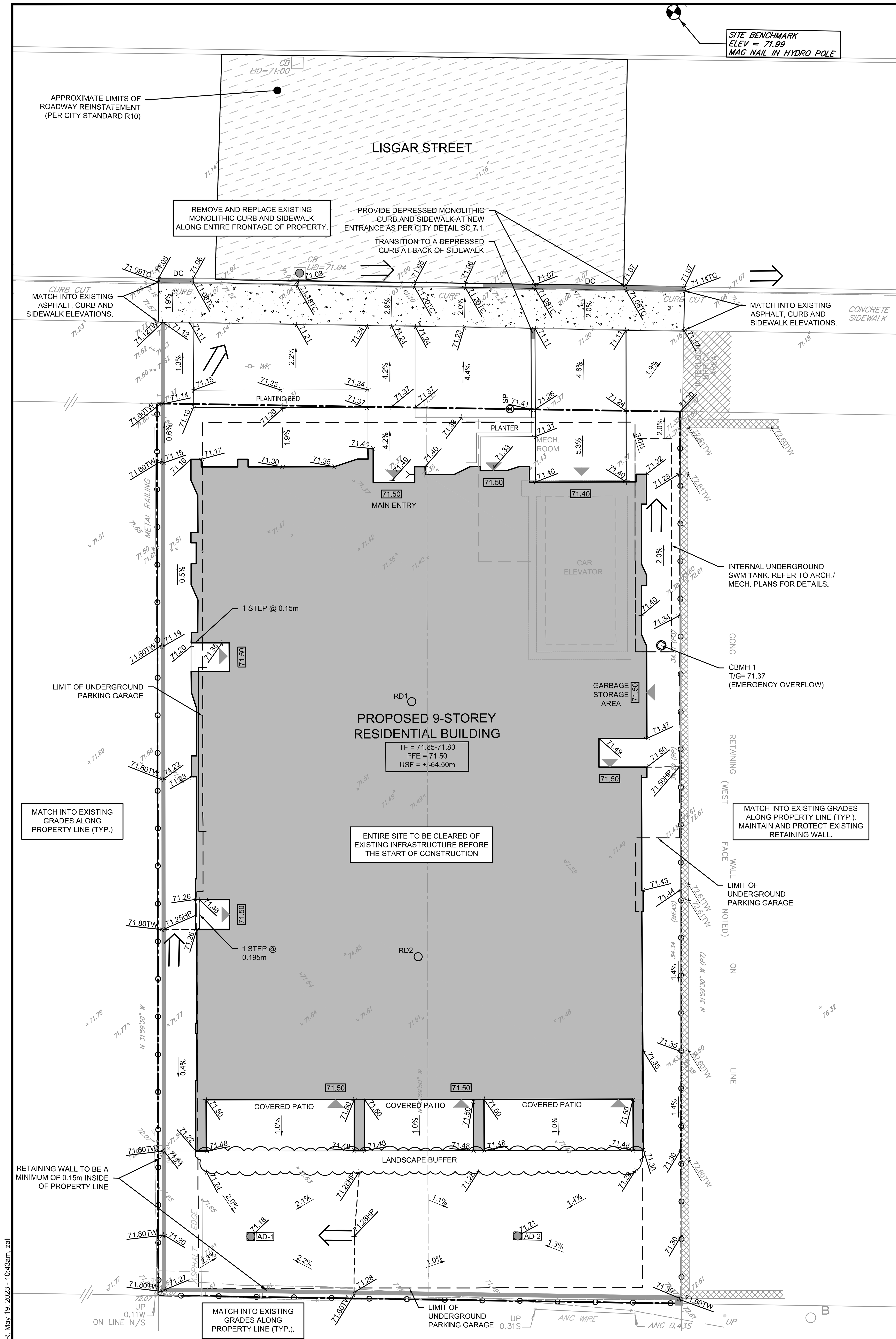
LOCATION
CITY OF OTTAWA
230-232 LISGAR STREET

DRAWING NAME
GENERAL PLAN OF SERVICES

PROJECT No. 122160
REV: REV # 2
DRAWING No. 122160-GP

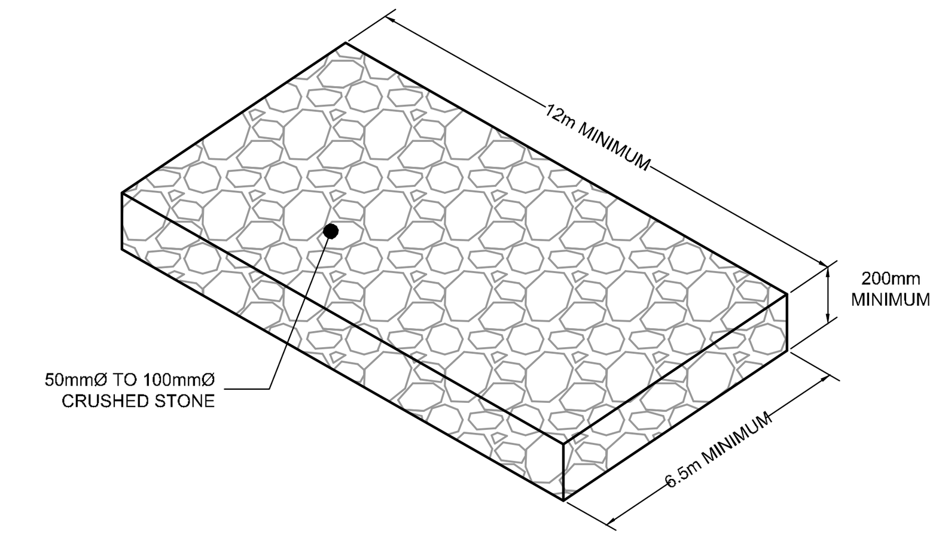
D07-12-22-0166

PLANA1.DWG - 841mmx594mm
PLAN #18902



Erosion and Sediment Control Responsibilities:

	ESC Measure	Symbol	Specification	During Construction: Installation Responsibility	During Construction: Inspection/Maintenance Responsibility	During Construction: Inspection Frequency	After Construction Prior to Final Acceptance: Approval to Remove	After Construction Prior to Final Acceptance: Removal Responsibility	After Final Acceptance: Inspection/Maintenance Responsibility
Temporary Measures	Silt Fence		OPSD 219.110	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Consultant	Developer's Contractor	N/A
	Filter Fabric	Location as Indicated in ESC Note #3	Erosion and Sediment Control Notes	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Consultant	Developer's Contractor	N/A
	Mud Mat		Drawing Details	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Developer's Contractor	Developer's Contractor	N/A
	Dust Control	Location as Required Around Site	Erosion and Sediment Control Notes	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Consultant	Developer's Contractor	N/A
	Stabilized Material Stockpiling	Location as Required by Contractor	Erosion and Sediment Control Notes	Developer's Contractor	Developer's Contractor	Weekly (as a minimum)	Developer's Contractor	Developer's Contractor	N/A
	Sediment Basin (for flows being pumped out of excavations)	Location as Required by Contractor	- - -	Developer's Contractor	Developer's Contractor	After Every Rainstorm	Developer's Contractor	Developer's Contractor	N/A



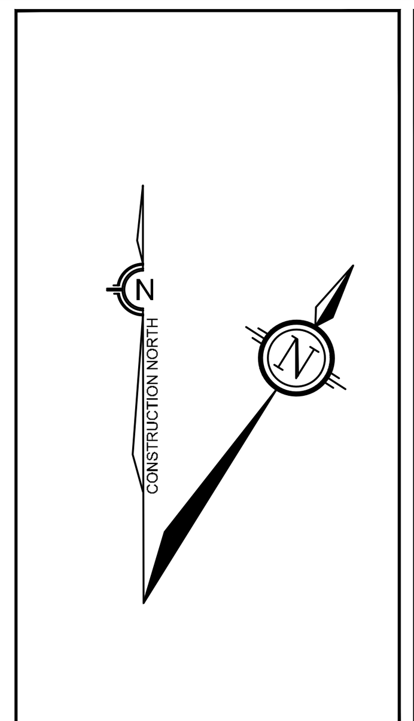
MUD MAT DETAIL
N.T.S.

PAVEMENT STRUCTURE:

ACCESS TO UNDERGROUND PARKING
(CAR ONLY PARKING)
50mm SUPERPAVE 12.5
150mm GRANULAR "A"
300mm GRANULAR "B" TYPE II

LEGEND

Symbol	Description
71.35	PROPOSED ELEVATION
71.35TC	PROPOSED TOP OF CURB ELEVATION
71.35TW	PROPOSED TOP OF WALL ELEVATION
71.35 / 71.35	MATCH INTO EXISTING GRADES
+ 71.35	EXISTING ELEVATION
2.0%	GRADE AND DIRECTION
71.50	PROPOSED TERRACE ELEVATION
	PROPOSED SILT FENCING (OPSD 219.110)
	PROPERTY LINE
FFE	FINISHED FLOOR ELEVATION
TF	TOP OF FOUNDATION WALL ELEVATION
USF	UNDERSIDE OF FOOTING ELEVATION
CBMH	PROPOSED CATCHBASIN MANHOLE
AD-1	AREA DRAIN
SP	PROPOSED STAND POST / VALVE & VALVE BOX
	ROAD REINSTATEMENT LIMIT
RD1	ROOF DRAIN
	PROPOSED FILTER BAG
	UNDERGROUND PARKING LIMIT
	RETAINING WALL
	EMERGENCY OVERLAND FLOW ROUTE
	BUILDING ENTRANCE / EXIT
WK	EXISTING WATER KEY
	EXISTING CONCRETE CURB
CB	EXISTING CATCHBASIN
EX UP	EXISTING UTILITY POLE C/W ANCHOR WIRES
	EXISTING RETAINING WALL



NORTH

KEY PLAN
N.T.S.

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. COMPLETE ALL WORKS IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS USING THE CURRENT GUIDELINES, BYLAWS AND STANDARDS INCLUDING MATERIALS OF CONSTRUCTION, DISINFECTION AND ALL RELEVANT REFERENCES TO OPSS, OPSD & AWWA GUIDELINES - ALL CURRENT VERSIONS AND 'AS AMENDED.
6. 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 THE ENGINEER.
7. 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.
8. ALL ELEVATIONS ARE GEODETIC.
9. REFER TO GEOTECHNICAL INVESTIGATION REPORT (PG6401-1, DATED OCTOBER 26, 2022), PREPARED BY PATERSON GROUP INC., 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 THE DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT(R-2022-151) PREPARED BY NOVATECH.
12. SAW CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).

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 99% 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.
10. CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GRADING PLAN INDICATING THE AS-BUILT ELEVATIONS OF ALL DESIGN GRADES SHOWN ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES :

1. ALL EROSION AND SEDIMENT CONTROLS ARE TO BE INSTALLED TO THE SATISFACTION OF THE ENGINEER AND THE CITY OF OTTAWA. THEY ARE TO BE 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. THESE PRACTICES ARE TO BE IMPLEMENTED IN ACCORDANCE WITH THE CURRENT BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL AND SHOULD INCLUDE AS A MINIMUM THOSE MEASURES INDICATED ON THE PLAN.
2. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED AROUND THE CONSTRUCTION AREA (WHERE APPLICABLE). THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
3. TO PREVENT SURFACE EROSION FROM ENTERING ANY STORM SEWER SYSTEM DURING CONSTRUCTION, FILTER BAGS WILL BE PLACED UNDER GRATES OF NEARBY SURFACE CATCHBASINS AND MANHOLE STRUCTURES. TERRAFIX 8" ULTRA SILT SOCK (FILTER SOCK) IS TO BE USED AT THE OPENING OF ALL CURB INLET CATACHBASINS. A LIGHT DUTY SILT FENCE BARRIER WILL ALSO BE INSTALLED (PER OPSD 219.110) AROUND THE CONSTRUCTION AREA (WHERE APPLICABLE). IN AREAS WHERE SILT FENCING CANNOT BE INSTALLED PER OPSD 219.110 (i.e. HARD SURFACES), A FILTER SOCK SHALL BE SUBSTITUTED. THESE CONTROL MEASURES WILL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETE.
4. THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE ENGINEER, THE MEASURES ARE NO LONGER REQUIRED. NO CONTROL MEASURES MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE ENGINEER.
5. THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE ENGINEER ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO ANY STORM SEWER SYSTEM. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.
6. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.
7. ROADWAYS ARE TO BE SWEPT AS REQUIRED OR AS DIRECTED BY THE ENGINEER AND/OR MUNICIPALITY.
8. THE CONTRACTOR SHALL ENSURE PROPER DUST CONTROL IS PROVIDED WITH THE APPLICATION OF WATER (AND IF REQUIRED, CALCIUM CHLORIDE) DURING DRY PERIODS.

BENCHMARK NOTES:

1. ELEVATIONS ARE GEODETIC AND ARE REFERRED TO CITY OF OTTAWA CONTROL POINT 2011-0007 HAVING A PUBLISHED ELEVATION OF 80.55 METRES.
2. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE SITE BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON THIS DRAWING.
3. BENCHMARK WAS PROVIDED ON SURVEYOR'S REAL PROPERTY REPORT WITH TOPOGRAPHIC DETAILS PART 1 - PLAN SHOWING LOT 47 (SOUTH SIDE OF LISGAR STREET), REGISTERED PLAN NO. 12281, CITY OF OTTAWA, SURVEYED BY J.D. BARNES LIMITED (REF. # 21-10-108-00).

M:\2022\122160\CAD\Civil\122160-GR.dwg, GR, May 19, 2023 - 10:43am, zali

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.

OWNER INFORMATION

230 LISGAR STREET INC.
c/o THE FALSETTO COMPANY INC.
1524 ARNHEM ST.
OTTAWA, ON, K2C 1V1

CONTACT: ALBERT FALSETTO
Tel: (613) 261-5224
Email: a.falsetto@rogers.com

No.	REVISION	DATE	BY
2.	REVISED PER CITY COMMENTS	MAY 19/23	FST
1.	ISSUED FOR SPC APPLICATION	NOV 11/22	FST

SCALE 1:100

1:100 (0 1 2 3 4)

DESIGN CV
CHECKED FST
DRAWN CV
CHECKED FST
APPROVED FST

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER
F.S. THAUVETTE
100041399
MAY 19, 2023
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

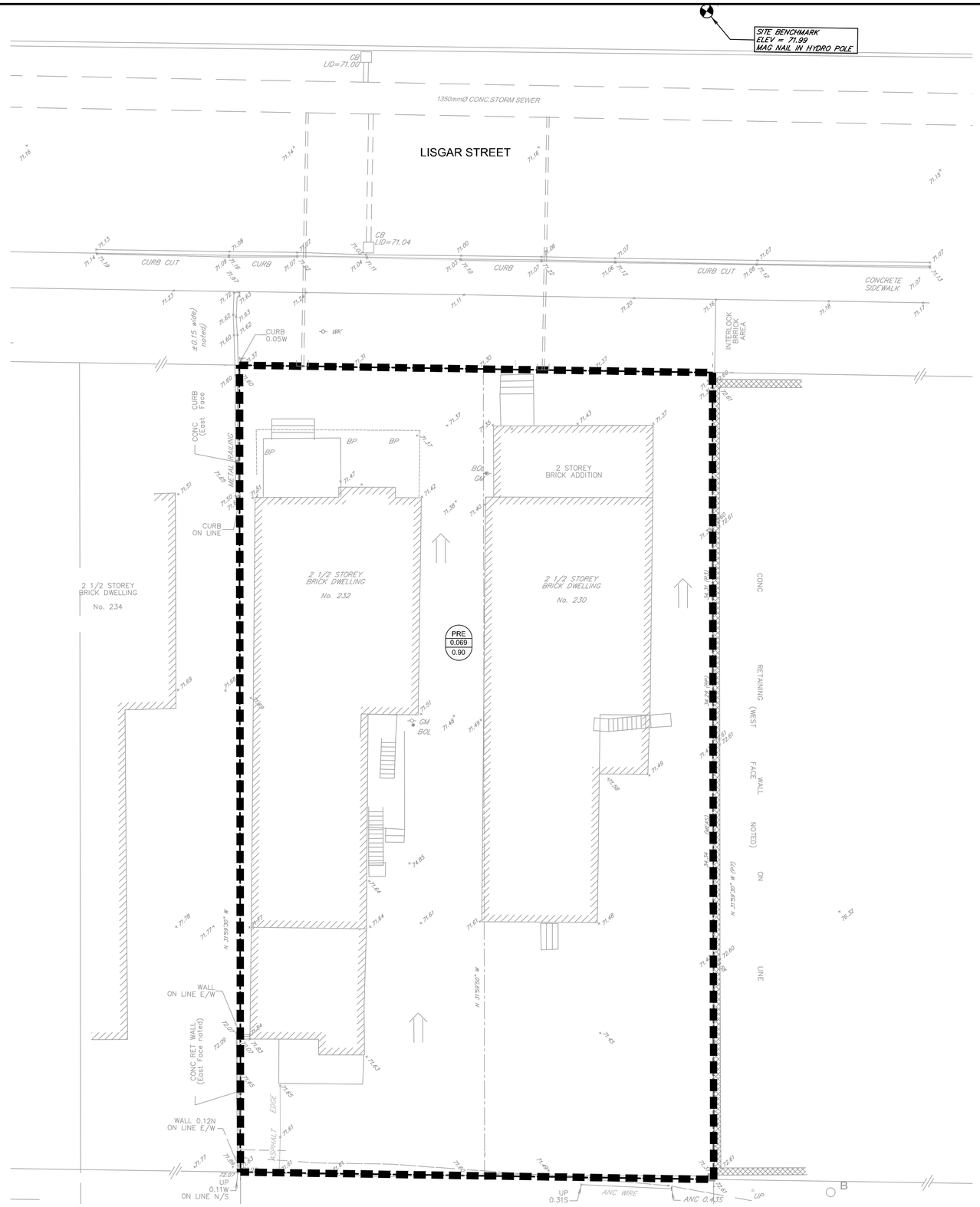
LOCATION
CITY OF OTTAWA
230-232 LISGAR STREET

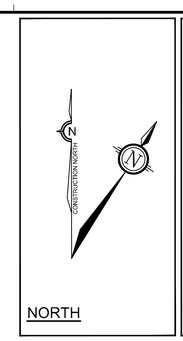
DRAWING NAME
GRADING AND EROSION & SEDIMENT CONTROL PLAN

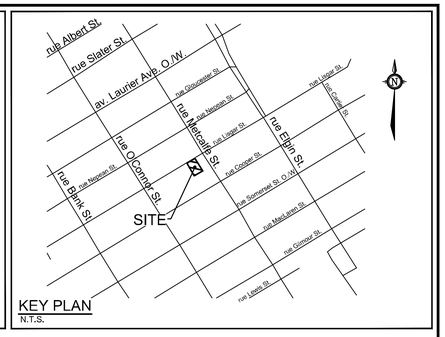
PROJECT No. 122160
REV: REV # 2
DRAWING No. 122160-GR

PLANA1.DWG - 841mmx594mm
PLAN #18902

D07-12-22-0166







GENERAL NOTES:

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3. ALL ELEVATIONS ARE GEODETIC.
9. REFER TO GEOTECHNICAL INVESTIGATION REPORT (PG6401-1, DATED OCTOBER 26, 2022), PREPARED BY PATERSON GROUP INC., 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 THE DEVELOPMENT SERVICING STUDY AND STORMWATER MANAGEMENT REPORT(R-2022-151) PREPARED BY NOVATECH.

BENCHMARK NOTES:

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3. BENCHMARK WAS PROVIDED ON SURVEYOR'S REAL PROPERTY REPORT WITH TOPOGRAPHIC DETAILS PART 1 - PLAN SHOWING LOT 47 (SOUTH SIDE OF LISGAR STREET), REGISTERED PLAN NO. 12281, CITY OF OTTAWA, SURVEYED BY J.D. BARNES LIMITED (REF. # 21-10-108-00).

LEGEND

- DRAINAGE AREA LIMITS
- PRE / 0.072 / 0.24 — PRE-DEVELOPMENT AREA ID; PRE-DEVELOPMENT DRAINAGE AREA (ha); 1:5 YEAR WEIGHTED RUNOFF COEFICIENT
- EXISTING CONCRETE CURB
- EXISTING OVERLAND FLOW
- WK — EXISTING WATER KEY
- CB — EXISTING CATCHBASIN
- EX UP — EXISTING UTILITY POLE C/W ANCHOR WIRES

NOTE:
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OWNER INFORMATION

230 LISGAR STREET INC.
c/o THE FALSETTO COMPANY INC.
1524 ARNHEM ST.
OTTAWA, ON, K2C 1V1

CONTACT: ALBERT FALSETTO
Tel: (613) 261-5224
Email: a.falsetto@rogers.com

No.	REVISION	DATE	BY
2.	REVISED PER CITY COMMENTS	MAY 19/23	FST
1.	ISSUED FOR SPC APPLICATION	NOV 11/22	FST

SCALE: 1:100 (1:100, 0 1 2 3 4)

DESIGN CV | CHECKED FST | DRAWN CV | CHECKED FST | APPROVED FST

FOR REVIEW ONLY

LICENSED PROFESSIONAL ENGINEER — F.S. THAUVETTE — 100041399 — MAY 19, 2023 — 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
CITY OF OTTAWA
230-232 LISGAR STREET

DRAWING NAME
PRE-DEVELOPMENT STORM DRAINAGE AREA PLAN

PROJECT No. 122160
REV REV # 2
DRAWING No. 122160-STM1

PLAN #18902

D07-12-22-0166

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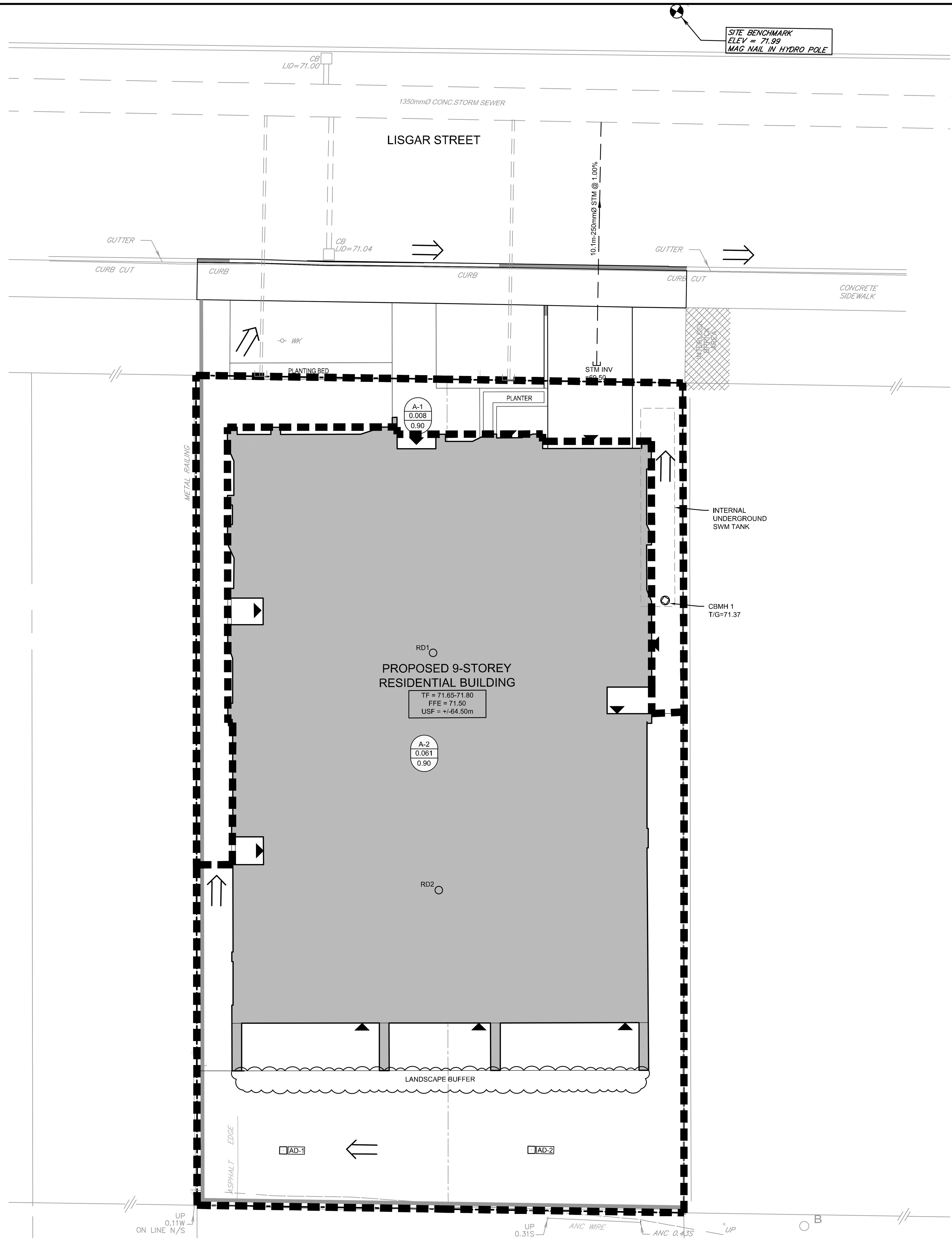

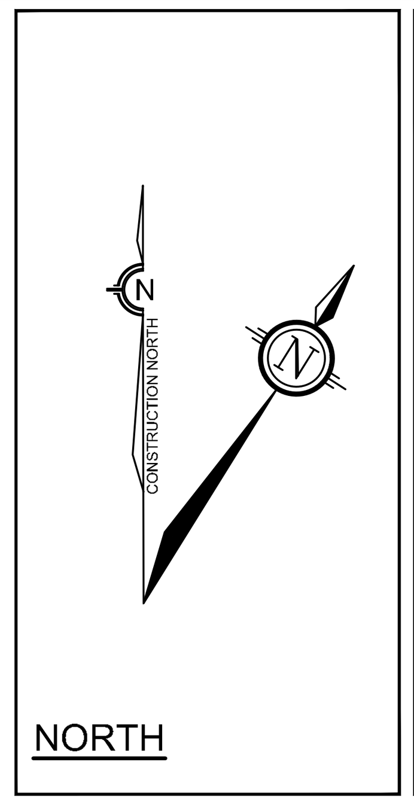

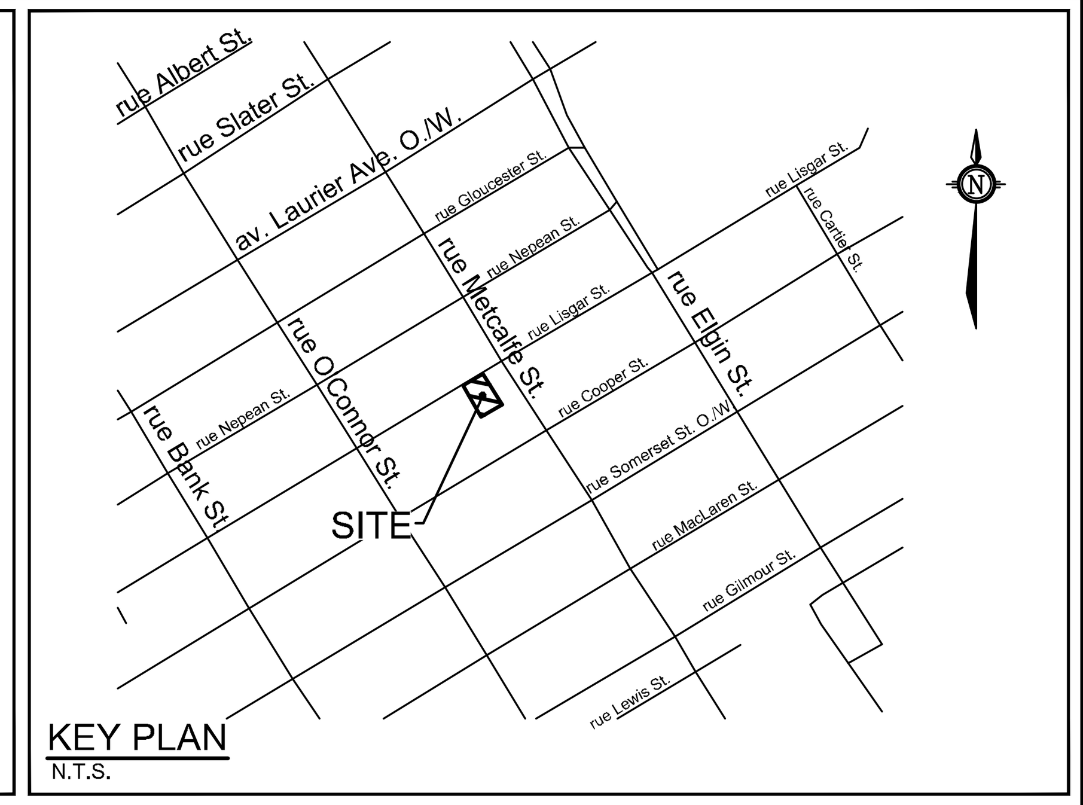

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LEGEND

PROPOSED BARRIER CURB

DC — PROPOSED DEPRESSED CURB

DRAINAGE AREA LIMITS

POST — POST-DEVELOPMENT AREA ID

0.072 — POST-DEVELOPMENT DRAINAGE AREA (ha)

0.24 — 1:5 YEAR WEIGHTED RUNOFF COEFICIENT

CBMH — PROPOSED CATCHBASIN MANHOLE

PROPOSED STORM SEWER

OVERLAND FLOW ROUTE

EXISTING CONCRETE CURB

WK — EXISTING WATER KEY

CB — EXISTING CATCHBASIN

EX UP — EXISTING UTILITY POLE C/W ANCHOR WIRES

INTERNAL SWM STORAGE SYSTEM

DESIGN EVENT	STORAGE SYSTEM CONTROLLED FLOW	STORAGE VOLUMES	
		REQUIRED	PROVIDED
1:2 YR	PUMPED FLOW RATE = 3.2 L/s	5.7 m³	>30 m³
1:5 YR		9.1 m³	
1:100 YR		23.0 m³	
1:100+20%		29.5 m³	

NOTES:

1. ALL DRAINAGE FROM AREA A-2 (PROPOSED AMENITY AREA DECK DRAINS AND ALL ROOF DRAINS) TO BE DIRECTED TO THE INTERNAL STORMWATER STORAGE SYSTEM. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR DETAILS.
2. REFER TO ARCHITECTURAL AND STRUCTURAL PLANS FOR EXACT SIZE AND DETAILS OF INTERNAL STORMWATER STORAGE SYSTEM.
3. REFER TO ARCHITECTURAL AND MECHANICAL PLANS FOR LOCATION AND CONNECTIONS AND DETAILS OF THE INTERNAL STORMWATER STORAGE SYSTEM AND PIPING.

PROPOSED SITE FLOWS & STORMWATER MANAGEMENT TABLE

DESIGN EVENT	PRE-DEVELOPMENT CONDITIONS		POST-DEVELOPMENT CONDITIONS				
	UNCONTROLLED FLOWS (L/s)	ALLOWABLE RELEASE RATE (L/s)	A-1 FLOW (L/s)	A-2 FLOW (L/s)	TOTAL FLOW (L/s)	TOTAL REQUIRED STORAGE (m^3)	REDUCTION IN FLOW (L/s or %)*
1:2 YR	13.3	7.4	1.5	3.2	4.7	5.7	8.6 or 65 %
1:5 YR	18.0		2.1	3.2	5.3	9.1	12.7 or 71 %
1:100 YR	34.3		4.0	3.2	7.2	23.0	27.1 or 79%

*REDUCED FLOW COMPARED TO UNCONTROLLED PRE-DEVELOPMENT CONDITIONS FROM THE CURRENT 0.069 HA SITE AREA.

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1:100 — 0 1 2 3 4

DESIGN CV
CHECKED FST
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LICENSED PROFESSIONAL ENGINEER
F.S. THAUVETTE
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Website www.novatech-eng.com

LOCATION
CITY OF OTTAWA
230-232 LISGAR STREET

DRAWING NAME
POST-DEVELOPMENT STORM DRAINAGE AREA PLAN

PROJECT No. 122160
REV — REV # 2
DRAWING No. 122160-SWM2

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PLAN #18902

D07-12-22-0166