Stormwater Management Report and Servicing Brief

9-Storey Residential Building
211 Clarence Street
Ottawa, ON

Prepared for:

Clarence Gate Holdings Inc.
1376 Bank Street, Unit 500.
Ottawa (ON) K1H 7Y3

Attention: Alex Diaz

LRL File No.: 180647

May 24, 2022

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by Clarence Gate Holding Inc. to complete a Stormwater Management Analysis and Servicing Brief for the development of a proposed 9-storey residential building located at 211 Clarence Street, Ottawa, ON.

The subject property consists of one (1) lot that is legally described as Part of Lot 2, Registered Plan 4R-4282, City of Ottawa. Refer to survey included in ***Appendix F***.

Figure 1: Aerial View of Proposed Development

The subject property has approximately 9.15 m frontage along Clarence street. The total site area is approximately **0.029 ha**. The development proposes a 9-storey apartment building that occupies the majority of the lot and consists of 34 units. For additional detail, refer to architectural site plan included in ***Appendix F***.

This report has been prepared with reference to the conditions described above. Should there be any changes in the design features, which may relate to the stormwater and site servicing considerations, LRL Associates Ltd. should be advised to review the report recommendations.

2 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site measures **0.029 ha** and is currently vacant. Overall the site is relatively flat, elevations range between 58.24 to 58.56 m.

Sewer and watermain mapping, along with as-built information collected from the City of Ottawa indicate the following existing infrastructure located within the adjacent rights-of-way.

Clarence Street:

- 203 mm diameter PVC watermain
- 250 mm diameter PVC sanitary sewer
- 375 mm diameter PVC storm sewer

3 SCOPE OF WORK

As per applicable guidelines, the scope of work includes the following:

Stormwater management

- Calculate the allowable stormwater release rate.
- Calculate the anticipated post-development stormwater release rates.
- Demonstrate how the target quantity objectives will be achieved.

Water services

- Calculate the expected water supply demand at average and peak conditions.
- Calculate the required fire flow as per the Fire Underwriters Survey (FUS) method.
- Confirm the adequacy of water supply and pressure during peak flow and fire flow.
- Describe the proposed water distribution network and connection to the existing system.

Sanitary services

- Describe the existing sanitary sewers available to receive wastewater from the building.
- Calculate peak flow rates from the development.
- Describe the proposed sanitary sewer system.

4 REGULATORY APPROVALS

Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) will be required for this site. However, based on Geotechnical Report, a Permit to Take Water (PTTW) is not expected to be required. Rideau Valley Conservation Authority (RVCA) is required to be consulted to determine stormwater quality control criteria for this site.

5 WATER SUPPLY AND FIRE PROTECTION

5.1 Existing Water Supply Services and Fire Hydrant Coverage

The subject property lies within the City of Ottawa 1W water distribution network pressure zone. Fronting the property there is an existing 203 mm watermain within Clarence Street. Three (3) existing fire hydrants are available to service the proposed development, refer to ***Appendix B*** for the location of fire hydrants.

5.2 Water Supply Servicing Design

The new apartment building is proposed to be serviced via a single 150mm diameter water service lateral. The proposed water servicing should meet both domestic and fire protection water demand.

Table 1 summarizes the City of Ottawa Design Guidelines design parameters employed in the preparation of the water demand estimate.

Table 1: ***Design Parameters based on City of Ottawa Design Guidelines-Water***

Design Parameter	Value
Residential Bachelor / 1-Bedroom Apartment	1.4 P/unit
Other Commercial Average Daily Demand	2.8 L/m^2/d
Average Daily Demand	350 L/c/d
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
Desired operating pressure during maximum daily flow	345 kPa (50 psi) and 552 kPa (80 psi)
Minimum allowable pressure during peak hour flow	275 kPa (40 psi)
Minimum allowable pressure during maximum daily + fire flow	275 kPa (20 psi)

The interior layout and architectural floor plans have been reviewed and it was determined that the building will house **33** studio/one-bedroom units. Based on the City of Ottawa Design guidelines for population projection, this translates to approximately 47.6 residents. Table 2 below summarizes the proposed development as interpreted using Table 4.1 of the City of Ottawa Design Guidelines.

Table 2: ***Proposed Development Residential Population Estimate***

Proposed Unit Type	Persons Per Unit	Number of Units	Population
1-Bedroom/Studio Apartments	1.4	**33**	**47.6**

The required water supply requirements for the residential units in proposed building have been calculated using the following formula:

$$\boldsymbol{Q = (q \times P \times M)}$$

Where,
q = Average water consumption (L/capita/day)
P = Design population (capita)
M = Peak factor

The following factors were used in calculations as per MOE Table 3-3 and Table 4.2 of the Ottawa Design Guidelines – Water Distribution:

- Maximum Daily Demand Residential Factor = 7.8 (MOE)
- Peak Hour Demand Residential Factor = 11.8 (MOE)

Using the above-mentioned factors and design parameters listed in Table 1, anticipated total demands were calculated as follows:

- Average day demand = 0.15 L/s
- Maximum daily demand = 1.21 L/s
- Maximum hour demand = 14.35 L/s

Refer to ***Appendix B*** for water demand calculations.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand, as indicated in the boundary request correspondence included in ***Appendix B***. Table 3 below summarizes boundary conditions for the proposed development.

Table 3: ***Summary of Anticipated Demands and Boundary Conditions***

Scenario	**Anticipated Demand (L/s)**	**Boundary Conditions @ Clarence Street* (m H2O/KPa)**
Average Daily Demand	0.15	115.4 / 561.3
Peak Hour Demand	1.21	106.2 / 471.1
Max Day + Fire Flow	14.35 + 183.3	104.5 / 454.4
**Assumed Ground Elevation of 58.18m*		

Boundary Conditions (Table 3) show that pressures in all design scenario meet the minimum required pressure thresholds mentioned in Table 1. However, static water pressure in the average daily demand scenario exceeds the recommended pressure mentioned in Table 1. It is therefore recommended to install pressure reducing valves.

The estimated fire flow for the proposed buildings was calculated in accordance with *ISTB-2018-02* using the following conservatively assumed parameters;

- Type of construction – Non-combustible
- Occupancy type – Limited combustible
- Sprinkler Protection – Non-Sprinklered.

The estimated fire flow demand was estimated to be **11,000 L/min** (183.3 L/s), see ***Appendix B*** for calculation details.

There are three (3) existing fire hydrants near the proposed building that are available to satisfy the required fire flow demand of 11,000 L/min. Refer to ***Appendix B*** for fire hydrant locations. Table 4 below summarizes the aggregate fire flow of the contributing hydrants in close proximity to the proposed development based on Table 18.5.4.3 of *ISTB-2018-02*.

Table 4: ***Fire Protection Summary Table***

Building	Fire Flow Demand (L/min)	Fire Hydrants within 75m	Fire Hydrant within 150m	Available Combined Fire Flow (L/min)
Proposed 9-Storey Apartment Building	11,000	2	1	(2 x 5678) + (1 x 3785) = 15,141

The total available fire flow from contributing hydrants is equal to 15,141 L/min which is sufficient to provide adequate fire flow for the proposed development. A certified fire protection system specialist will need to be employed to design the building's fire suppression system and confirm the actual fire flow demand.

6 SANITARY SERVICE

6.1 Existing Sanitary Sewer Services

There is an existing 250 mm dia. sanitary sewer along Clarence Street fronting the subject site.

The post-development total flow was calculated to be **0.57 L/s** as a result of the proposed residential population and infiltration allowance. Refer to ***Appendix C*** for additional information on the calculated sanitary flows.

6.2 Sanitary Sewer Servicing Design

The proposed development will be serviced via 150mm dia. sanitary service lateral. The wastewater flow from the proposed development was calculated to be **0.57 L/s,** which will be conveyed to the existing 250 mm dia. sanitary sewer within Clarence Street before ultimately discharging to the 1050mm trunk sewer within King Edward Ave. Refer to LRL drawing C401 for the proposed sanitary servicing.

The parameters used to calculate the anticipated sanitary flows are; residential average population per unit of 1.4 person for 1-bedroom, a residential daily sewage flow of 280 L/p/day, a residential peaking factor using Harmon equation (max=4) and a total infiltration rate of 0.33 L/s/ha. Based on these parameters and the total site area of 0.029 ha, the total anticipated sanitary flow was estimated **0.57 L/s**. Refer to ***Appendix C*** for the sanitary sewer design sheet.

Based on as-builts drawing provided from the City, the existing 250mm municipal sanitary sewer within Clarence Street right-of-way is sloped at 0.5% and has a maximum capacity of **42.05 L/s**.

The total anticipated sanitary flow from the proposed development represents approximately 1.4% of the maximum capacity of the downstream municipal sewer leg.

7 STORMWATER MANAGEMENT

7.1 Existing Stormwater Infrastructure

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer system. As such, approvals for the proposed development within this area are under the approval authority of the City of Ottawa. Existing infrastructure fronting the subject site include a 375 mm dia. storm sewer along Clarence Street.

Based on review of the topography of the site, in pre-development conditions, runoff flows uncontrolled overland towards Clarence Street right-of-way (ROW). Refer to Pre-development Watershed Plan C701 in ***Appendix E***.

7.2 Design Criteria

The stormwater management criteria for this development are based on the pre-consultation with City of Ottawa officials, the City of Ottawa Sewer Design Guidelines, 2012 (City standards), as well as the Ministry of the Environment's Stormwater Management Planning and Design Manual, 2003 (SWMPD Manual).

7.2.1 Water Quality

The subject property lies within the Lower Rideau River sub-watershed and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). Based on correspondence with RVCA, refer to ***Appendix A*** for correspondence, further quality control measures will not be required as runoff from the proposed development will be primarily from clean rooftop and landscaped surfaces.

7.2.2 Water Quantity

Based on pre-consultation with the City, correspondence included in ***Appendix A***, the following stormwater management requirements, , were identified for the subject site:

- Meet an allowable release rate based on a maximum Rational Method runoff coefficient (C) of 0.5, employing the City of Ottawa IDF parameters for a 5-year storm with a calculated time of concentration equal to or greater than 10 minutes.
- Retain storm events greater than 5 year, up to and including the City of Ottawa 100-year storm event on site.

The total allowable stormwater release rate was calculated to be **4.17 L/s**. Refer to ***Appendix D*** for calculations.

7.3 Method of Analysis

The Modified Rational Method has been used to calculate the runoff rate from the subject site and to quantify the detention storage required for quantity control. Refer to ***Appendix D*** for stormwater storage calculations.

7.4 Proposed Stormwater Quantity Controls

The proposed stormwater management quantity control for this development will be accomplished using roof drains restricting the flow leaving the rooftop. Storage required as a result of quantity control will be accomplished through rooftop surface storage.

The subject site is proposed to be serviced via a 200 mm dia. storm service lateral that will connect to the existing 375 mm dia. storm sewer within Clarence street. The proposed servicing layout and connection points are shown on drawing C401 in ***Appendix E***, and detailed calculations can be found in ***Appendix D***.

The existing site is delineated by catchments EWS-01, which currently drains uncontrolled off the site towards Clarence street, refer to Pre-development Watershed Plan C701 included in ***Appendix E***. The site has been analyzed and post-development watersheds have been allocated, see Table 5 and Post-development Watershed Plan C702 in ***Appendix E*****.**

Table 5: ***Post-development Drainage Areas***

Drainage Area Name	Area (ha)	Weighted Runoff Coefficient	100 Year Weighted Runoff Coefficient (25% increase)
WS-01 (un-controlled)	0.007	0.33	0.41
WS-02 (controlled)	0.022	0.90	1.0
Total	**0.029**	**0.76**	**0.95**

Watershed WS-01 consists of small mainly landscaped areas north and south of the proposed building and is uncontrolled in post-development conditions. Runoff in the north portion of this watershed will be collected via two (2) area drains in the backyard which will be indirectly connected to the foundation drain via the building's internal mechanical system. Runoff from the remainder of this watershed will surface drain uncontrolled towards Clarence Street right-of-way.

Watershed WS-02 consists of the building's envelope. Runoff in this watershed will be collected vis three (3) WATT's roof drains with a closed weir opening. Collected runoff on the roof will then discharge to the existing 375 mm dia. storm sewer within Clarence street via the proposed 200mm diameter storm outlet. Refer to C401 in ***Appendix E*** for servicing layout and connection points.

The building's rooftop was analysed and divided into three (3) ponding areas. A total of three (3) roof drains are proposed, each of which will restrict the discharge rate to **0.63 L/s,** resulting in a total release rate of **1.89 L/s** from the roof. The roof drain flow control device has been selected to provide a flow rate of **0.63 L/s** at a maximum flow depth of **0.15 m**. Proposed roof drains are to be **Watts RD-100-A** with a **closed** exposed weir opening. See ***Appendix D*** for more information about the selected roof drain and storage calculations.

Table 6 summarizes the release rates and storage volumes required to meet the allowable release rates.

Table 6: ***Stormwater Release Rate & Storage Volume Summary***

Catchments	Area (ha)	100-Yr Release Rate (L/s)	100-Yr Storage Required (m^3)	Total Available Storage (m^3)
WS-01	0.007	1.42	0	0
WS-02 (Roof Controls)	0.022	1.89	6.62	10.14
TOTAL	**0.029**	**3.31**	**6.62**	**10.14**

It is calculated that a total of **6.62 m^3** of storage will be required to attenuate flows to the release rate of **3.31 L/s.** The runoff exceeding the allowable release rate will be stored on-site via rooftop ponding. Greater details of ponding extents, storage provided and proposed release rates can be found on drawing C601 (Stormwater Management Plan) in ***Appendix E***.

8 EROSION AND SEDIMENT CONTROL

During construction, erosion and sediment controls will be provided primarily via a sediment control fence to be erected along the perimeter of the site where runoff has the potential of leaving the site. Inlet sediment control devices are also to be provided in any catch basin and/or manholes in and around the site that may be impacted by the site construction. Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification OPSS 577. Refer to Erosion and Sediment Control Plan C101 in ***Appendix E***.

9 CONCLUSION

This Stormwater Management and Servicing Report for the proposed development at 211 Clarence street presents the rationale and details for the servicing requirements for the subject property.

In accordance with the report objectives, the servicing requirements for the development are summarized below:

Water Service

- The maximum required fire flow was calculated at 183.3 L/min using the FUS method.
- There are three (3) existing fire hydrants available to service the proposed development which will provide a combined fire flow of 15,141 L/min to the site.

- The new development will be serviced with 150 mm dia. water service connection to the existing 200 mm dia. watermain within Clarence Street.
- Boundary conditions received from the City of Ottawa indicate that sufficient pressure is available to meet the proposed development's water and fire flow demands.

Sanitary Service

- The total anticipated sanitary flow from the proposed development is 0.57 L/s.
- The proposed development will discharge sewage to the existing 250 mm dia. sanitary sewer within Clarence Street via a proposed 150 mm dia. sanitary service lateral.

Stormwater Management

- Stormwater quality control measures are not required as per consultation with RVCA.
- The storm water release rates from the proposed development will meet calculated allowable release rate of 4.17 L/s.
- Stormwater quantity control objectives will be met through on-site storm water storage on the roof.

10 Report Conditions and Limitations

The report conclusions are applicable only to this specific project described in the preceding pages. Any changes, modifications or additions will require a subsequent review by LRL Associates Ltd. to ensure the compatibility with the recommendations contained in this document. If you have any questions or comments, please contact the undersigned.

Prepared by:

LRL Associates Ltd.

Amr Salem, PMP
Civil Designer

Mohan Basnet, P.Eng.
Civil Engineer

APPENDIX A

Pre-consultation

DEVELOPMENT SERVICING STUDY CHECKLIST	
Project #: 180647	
2022-05-17	
4.1 General Content	
Executive Summary (for larger reports only).	N/A
Date and revision number of the report.	Report Cover sheet
Location map and plan showing municipal address, boundary, and layout of proposed development.	Drawings/Figures
Plan showing the site and location of all existing services.	Figure 1
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.	Section 1.0
Summary of Pre-consultation Meetings with City and other approval agencies.	Section 4.0 & Appendix A
Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.	Section 5.1, 6.1, 7.1
Statement of objectives and servicing criteria.	Section 1.0
Identification of existing and proposed infrastructure available in the immediate area.	Section 5.1, 6.1, 7.1
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).	Section 7.0
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.	C301

Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.	N/A
Proposed phasing of the development, if applicable.	N/A
Reference to geotechnical studies and recommendations concerning servicing.	C401
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	C401

4.2 Development Servicing Report: Water

Confirm consistency with Master Servicing Study, if available	N/A
Availability of public infrastructure to service proposed development	Section 5.1
Identification of system constraints	Section 5.1
Identify boundary conditions	Section 5.2
Confirmation of adequate domestic supply and pressure	Section 5.2
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.	Section 5.2

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.	Section 5.2
Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design	N/A
Address reliability requirements such as appropriate location of shut-off valves	N/A
Check on the necessity of a pressure zone boundary modification.	N/A
Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range	Section 5.2
Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.	Section 5.2
Description of off -site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.	N/A
Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.	Section 5.2
Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.	N/A

4.3 Development Servicing Report: Wastewater

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).	Section 6.2
Confirm consistency with Master Servicing Study and/or justifications for deviations.	N/A

Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.	N.A
Description of existing sanitary sewer available for discharge of wastewater from proposed development.	Section 6.1
Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)	Section 6.2
Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.	Section 6.2 Appendix C
Description of proposed sewer network including sewers, pumping stations, and forcemains.	Section 6.2
Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).	N/A
Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.	Section 6.1
Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	N/A
Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	N/A
Special considerations such as contamination, corrosive environment etc.	N/A

4.4 Development Servicing Report: Stormwater Checklist

Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)	Section 7.1

Analysis of available capacity in existing public infrastructure.	N/A
A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.	N/A
Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.	Section 7.2.1
Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.	Section 7.2.1
Description of the stormwater management concept with facility locations and descriptions with references and supporting information.	Section 7.4
Set-back from private sewage disposal systems.	N/A
Watercourse and hazard lands setbacks.	N/A
Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.	N/A
Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.	N/A
Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).	Section 7.4
Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.	N/A
Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.	Section 7.4 Appendix D

Any proposed diversion of drainage catchment areas from one outlet to another.	N/A
Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.	Appendix D
If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100 year return period storm event.	N/A
Identification of potential impacts to receiving watercourses Identification of municipal drains and related approval requirements.	N/A
Descriptions of how the conveyance and storage capacity will be achieved for the development.	Section 7.4
100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.	NA
Inclusion of hydraulic analysis including hydraulic grade line elevations.	N/A
Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.	Section 8.0
Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.	N/A
Identification of fill constraints related to floodplain and geotechnical investigation	N/A

4.5 Approval and Permit Requirements: Checklist

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

4.6 Conclusion Checklist

Clearly stated conclusions and recommendations	Section 9.0
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.	Noted
All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario	Noted

Amr Salem

From: Alex Diaz <alex@arthousedevelopments.ca>
Sent: April 27, 2022 10:21 PM
To: Amr Salem
Subject: Fwd: 211 Clarence Street - Preconsult Follow-up
Attachments: 20210728_111023_211_Clarence_Renders_Pre-Consult.pdf; 20210728_111023_211_Clarence_Site_Plan_Elevations_Pre-Consult.pdf; Clarence, 211_Design Brief.pdf; Plans and Study list_211 Clarence.pdf

Follow Up Flag: Follow up
Flag Status: Completed

Hi Amr

Attached is the pre-consultation follow up email from the City re 211 Clarence
Is this what you are looking for?
If something else let me know...

Alex Diaz
Art House Developments
613-252-5931
alex@arthousedevelopments.ca

---------- Forwarded message ---------
From: **Bernier, John** <John.Bernier@ottawa.ca>
Date: Mon, Oct 4, 2021 at 11:40 AM
Subject: 211 Clarence Street - Preconsult Follow-up
To: Jeffrey Kelly <j.kelly@novatech-eng.com>
Cc: Dubyk, Wally <Wally.Dubyk@ottawa.ca>, Moise, Christopher <christopher.moise@ottawa.ca>, Bakhit, Reza <reza.bakhit@ottawa.ca>, Murray Chown <m.chown@novatech-eng.com>, alex@arthousedevelopments.ca <alex@arthousedevelopments.ca>, Ashraf Arif <aarif@synercapital.ca>, Amr Salem <asalem@lrl.ca>

Good Morning,

Please refer to the below [and/or attached notes] regarding the Pre-Application Consultation (pre-con) Meeting held on August 19, 2021 for the property at 211 Clarence for the development a 9-storey, 31-unit apartment building. No parking spaces were proposed. I have also attached the required Plans & Study List for application submission.

Below [or attached] are staff's preliminary comments based on the information available at the time of pre-con meeting:

Planning

- **OP General Urban Area -** note that new draft OP will likely be tabled this fall and any applications submitted after this time will need to include a rationale as to how this project has regard for the future OP.
    - Annex 12: Viewshed Area of Parliament Buildings from Beechwood Cemetery

- **Secondary Plan:** Central Area Secondary Plan (Lowertown Policy Area)- supportive of a medium-profile residential building
- **Zoning By-law: R4UD S77**- ***R4T no longer applies*** Allows low-rise apartment buildings. Therefore, rezoning required to permit use and additional height (27.78m).
    - https://documents.ottawa.ca/sites/documents/files/schedule77_zbl_en.pdf
    - 6.10m front yard setback
    - 21.4m height

- **ZBA/Planning Rationale:**
    - Was made privy to the previous Preconsult that you had, in which the planner was asking for additional height: this current design might be a little too high. Would prefer a height that matches the buildings on either side.
        - Issues of landscaping, amenity space reqs, setbacks, and livability of the units don't appear to be addressed.

- Should you proceed:
    - Given the small size of the lot, rationale will be required to demonstrate that the proposed development would not represent an overdevelopment of the site. Attention should be given in particular to the site design, in particular the upper storeys of the building, as well as the treatment at ground level

    - Discussion on how the development is achieving the Lowertown Secondary Plan Design Criteria:
        - In particular medium-scale buildings should:
            - Special treatment of lower floors for visual interest
            - Setting back medium profile buildings to achieve human scale
            - Usable private amenity space
            - Opportunities for trees
            - Identifiable entrance
    - Note: R4T is no longer applicable, now subject to the R4UD requirements, many of which are not being met here.
    - View analysis will be required. Please include the following in order to model and assess whether it is outside of the Beechwood Viewshed.
        - an AutoCAD 3D .dwg (v2006), a Sketchup .skp , and a site plan with setbacks, etc. for accurate placement.
    - 2 visitor parking spaces required and would require relief.

- **General Comments:**
  - Flesh out the waste management strategy - room dimensions, bins, door clearances etc.
  - 16 Bicycle space proposed: we would encourage a 1:1 ratio since you are proposing 0 parking spaces.
  - Difficult to tell whether the amenity space requirements are being met.
  - Rooftop amenity and studio apartment seem to be a conflict, would suggest removing this unit and enlarging this space.

Urban Design

- This proposal resides within one of the City's Design Priority Areas and must attend the City's UDRP. We recommend that the applicant come to an agreement with staff on an appropriate approach to locations of massing and overall height prior to their submission for a formal review with the Panel;

- We have the following comments/questions in regard to the current design:

  - **Height**: We recognize this site is problematic with a narrow width sandwiched between two mid-rise residential buildings and struggles with an appropriate contextual relationship.
    - The three storey option may not fit perfectly and be dwarfed by its neighbours however, it may result in a lower impact on residents of those existing buildings as compared to a higher more contextual design;
    - The nine storey option (or a height which more closely matches the neighbouring buildings) would appear to fit better in this context however, any impacts created by the footprint size will increase with each additional floor;
    - We recommend the proposal illustrate how the request for additional height will not negatively impact the two neighbouring buildings in regard to excessive shadowing of the neighbouring units facing the rear yards;
  - **Front yard set-back**: We recommend that any portion of the proposal which is proud of the neighbouring buildings provide some measure to reduce a blank wall effect through some architectural means (ie fenestration, material, etc.)
  - **Rear yard set-back**: We suggest that any variances to rear yard reductions using a three storey proposal may not be equivalent to a nine storey building with a similar foot print. We recommend the rear yard set-backs be reconsidered in the totality of the nine storey proposal with all additional impacts thereby created;
  - **Side yard set-back**: We note that the adjacent properties appear to be designed with the ability to have this property build to its side-yard lot line for a certain length. We recommend the proposal investigate the possibility of gaining additional floor area to the side lot lines to match the existing buildings as a way to increase floor area when the rear yard set-back may increase;
  - Materiality and heritage considerations: We recommend consideration of the material context of the Byward Market, especially concerning the street facing facade;

- 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.

Engineering

General:

- It is the sole responsibility of the consultant to investigate the location of existing underground utilities in the proposed servicing area and submit a request for locates to avoid conflict(s). The location of existing utilities and services shall be documented on an **Existing Conditions Plan**.
- Any easements on the subject site shall be identified and respected by any development proposal and shall adhere to the conditions identified in the easement agreement. A **legal survey plan** shall be provided, and all easements shall be shown on the engineering plans.

1. Reference documents for information purposes :

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

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

Disclaimer:

The City of Ottawa does not guarantee the accuracy or completeness of the data and information contained on the above image(s) and does not assume any responsibility or liability with respect to any damage or loss arising from the use or interpretation of the image(s) provided. This image is for schematic purposes only

Stormwater Management Criteria and Information:

- **Water Quantity Control:** Please control post-development runoff from the subject site, up to and including the **100-year storm event**, to **a 5-year pre-development level.** The pre-development runoff coefficient will need to be determined **as per existing conditions** but in no case more than 0.5. [**If 0.5 applies it needs to be clearly demonstrated in the report that the pre-development runoff coefficient is greater than 0.5**]. The time of concentration (T_c) used to determine the pre-development condition should be calculated. *Tc should not be less than 10 min. since IDF curves become unrealistic at less than 10 min; T_c of 10 minutes shall be used for all post-development calculations*].

- Any storm events greater than the established **5-year allowable** release rate, up to and including the **100-year storm event**, shall be detained on-site. The SWM measures required to avoid impact on downstream sewer system will be subject to review.
- Please note that foundation drainage is to be independently connected to sewer main unless being pumped with appropriate back up power, sufficient sized pump and back flow prevention. **It is recommended that the foundation drainage system be drained by a sump pump connection to the storm sewer to minimize risk of basement flooding as it will provide the best protection from the uncontrolled sewer system compared to relying on the backwater valve.**

- **Water Quality Control:** Please consult with the local conservation authority (RVCA) regarding water quality criteria prior to submission of a Site Plan Control Proposal application to establish any water quality control restrictions, criteria and measures for the site. Correspondence and clearance shall be provided in the Appendix of the report.
- **If Underground Storage proposed:** Please note that the Modified Rational Method for storage computation in the Sewer Design Guidelines was originally intended to be used for above ground storage (i.e. parking lot) where the change in head over the orifice varied from 1.5 m to 1.2 m (assuming a 1.2 m deep CB and a max ponding depth of 0.3 m). This change in head was small and hence the release rate fluctuated little, therefore there was no need to use an average release rate.

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

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

  Please provide information on UG storage pipe. Provide required cover over pipe and details, chart of storage values, capacity etc. How will this pipe be cleaned of sediment and debris? (This to be discuss in SWM report)

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

  Provide a cross section of underground chamber system showing invert and obvert/top, major and minor HWLs, top of ground, system volume provided during major and minor events. UG storage to provide actual 2- and 100-year event storage requirements.

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

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

- Please note that the minimum orifice dia. for a plug style **ICD is 83mm and the minimum flow rate from a vortex ICD is 6 L/s** in order to reduce the likelihood of plugging.
- Post-development site grading shall match existing property line grades in order to minimize disruption to the adjacent residential properties. A **topographical plan of survey** shall be provided as part of the submission and a note provided on the plans.
- Please provide a **Pre-Development Drainage Area Plan** to define the pre-development drainage areas/patterns. **Existing drainage patterns shall be maintained and discussed as part of the proposed SWM solution**.

- **If rooftop control and storage is proposed** as part of the SWM solutions sufficient details (Cl. 8.3.8.4) shall be discussed and document in the report and on the plans. Roof drains are to be connected downstream of any incorporated ICDs within the SWM system and not to the foundation drain system. Provide a **Roof Drain Plan** as part of the submission.
- If **Window wells** are proposed, they are to be indirectly connected to the footing drains. A detail of window well with indirect connection is required, as is a note at window well location speaking to indirect connection.
- There must be at least **15cm of vertical clearance** between the spill elevation and the ground elevation at the building envelope that is in proximity of the flow route or ponding area. The exception in this case would be at reverse sloped loading dock locations. At these locations, a minimum of 15cm of vertical clearance must be provided below loading dock openings. Ensure to provide discussion in report and ensure grading plan matches if applicable.

Sanitary Sewers:

- A 250mm dia. PVC Sanitary sewer (1992) is available within **Clarence St.**

Storm Sewers:

- A 375mm dia. PVC Storm Sewer (1992) is available within **Clarence St.**

Water :

- A 203 mm dia. PVC watermain (1992) is available within **Clarence St.**
- Existing residential service to be blanked at the main. (If applicable , this has to be discuss in serving section of the report and to be shown and noted on the servicing plans)
- **Water Supply Redundancy:** Residential buildings with a basic day demand greater than 50m^3/day (0.57 L/s) are required to be connected to a minimum of two water services separated by an isolation valve to avoid a vulnerable service area as per the *Ottawa Design Guidelines - Water Distribution, WDG001, July 2010 Clause 4.3.1 Configuration.* The basic day demand for this site not expected to exceed 50m^3/day.
- Please **review Technical Bulletin ISTB-2018-0**, maximum fire flow hydrant capacity is provided in Section 3 Table 1 of Appendix I. A **hydrant coverage figure** shall be provided and **demonstrate there is adequate fire protection for the proposal**. Two or more public hydrants are anticipated to be required to handle fire flow.
- Boundary conditions are required to confirm that the require fire flows can be achieved as well as availability of the domestic water pressure on the City street in front of the development. Use Table 3-3 of the MOE Design Guidelines for Drinking-Water System to determine Maximum Day and Maximum Hour peaking factors for 0 to 500 persons and use Table 4.2 of the Ottawa Design Guidelines, Water Distribution for 501 to 3,000 persons. Please provide the following information to the City of Ottawa via email to request water distribution network boundary conditions for the subject site. Please note that once this information has been provided to the City of Ottawa it takes approximately 5-10 business days to receive boundary conditions.

1. Type of Development and Units
2. Site Address
3. A plan showing the proposed water service connection location.
4. **Average Daily Demand** (L/s)
5. **Maximum Daily Demand** (L/s)
6. **Peak Hour Demand** (L/s)
7. **Fire Flow** (L/min)

Exposure separation distances shall be defined on a figure to support the FUS calculation and required fore flow (RFF).

1. **Hydrant capacity shall be assessed to demonstrate the RFF can be achieved**.

Road Reinstatement

Where servicing involves three or more service trenches, either a full road width or full lane width 40 mm asphalt overlay will be required, as per amended Road Activity By-Law 2003-445 and City Standard Detail Drawing R10. The amount of overlay will depend on condition of roadway and width of roadway(s).

Permits and Approvals:

- Please note that this project will be subject to an Environmental Compliance Approval (ECA).

Required Engineering Plans and Studies:

PLANS:

- Existing Conditions and Removals Plan
- Site Servicing Plan
- Grade Control and Drainage Plan
- Erosion and Sediment Control Plan
- Roof Drainage Plan (If roof utilized as a SWM component)
- Topographical survey

REPORTS:

- Site Servicing and Stormwater Management Report

- Geotechnical Study/Investigation
- Slope Stability Assessment Reports (if required, please see requirements below)

- Noise Control Study

- Phase I ESA
- Phase II ESA (Depending on recommendations of the Phase I ESA)
- Site lighting certificate
- Wind study

Please refer to the **City of Ottawa Guide to Preparing Studies and Plans [Engineering]:**

Specific information has been incorporated into both the Guide to Preparing Studies and Plans for a site plan. The guide outlines the requirement for a statement to be provided on the plan about where the property boundaries have been derived from.

Added to the general information for servicing and grading plans is a note that an **O.L.S**. should be engaged when reporting on or relating information to property boundaries or existing conditions. The importance of engaging an **O.L.S.** for development projects is emphasized.

Phase One Environmental Site Assessment:

- A Phase I ESA is required to be completed in accordance with Ontario Regulation 153/04 in support of this development proposal to determine the potential for site contamination. Depending on the Phase I recommendations a Phase II ESA may be required.
- The Phase I ESA shall provide all the required Environmental Source Information as required by O. Reg. 153/04. ERIS records are available to public at a reasonable cost and need to be included in the ESA report to comply with O.Reg. 153/04 and the Official Plan. The City will not be in a position to approve the Phase I ESA without the inclusion of the ERIS reports.
- Official Plan Section 4.8.4:

https://ottawa.ca/en/city-hall/planning-and-development/official-plan-and-master-plans/official-plan/volume-1-official-plan/section-4-review-development-applications#4-8-protection-health-and-safety

Geotechnical Investigation:

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

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

Slope Stability Assessment Reports

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

  https://documents.ottawa.ca/en/document/slope-stability-guidelines-development-applications

Noise Study:

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

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

Wind analysis:

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

Terms of Reference: Wind Analysis (ottawa.ca)

Gas pressure regulating station

- A gas pressure regulating station may be required depending on HVAC needs (typically for 12+ units). Be sure to include this on the Grading, Site Servicing, SWM and Landscape plans. This is to ensure that there are no barriers for overland flow routes (SWM) or conflicts with any proposed grading or landscape features with installed structures and has nothing to do with supply and demand of any product.

Regarding Quantity Estimates:

- Please note that external Garbage and/or bicycle storage structures are to be added to QE under Landscaping as it is subject to securities. In addition, sump pumps for Sanitary and Storm laterals and/or cisterns are to be added to QE under Hard items as it is subject to securities, even though it is internal and is spoken to under SWM and Site Servicing Report and Plan.

CCTV sewer inspection

- CCTV sewer inspection required for pre and post construction conditions to ensure no damage to City Assets surrounding site.

Pre-Construction Survey

- Pre-Construction (Piling/Hoe Ramming or close proximity to City Assets) and/or Pre-Blasting (if applicable) Survey required for any buildings/dwellings in proximity of 75m of site and circulation of notice of vibration/noise to residents within 150 m of site. Conditions for Pre-Construction/ Pre-Blast Survey & Use of Explosives will be applied to agreements. Refer to City's Standard S.P. No. F-1201 entitled Use of Explosives, as amended.

Exterior Site Lighting:

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

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

Transportation

The Screening Form indicated that the TIA Trigger has been met for Design Priority Area and the Forecasting components are minor. Step 2 – Scoping is to be submitted for review. Also, the TIA report will be limited to the Design Review component therefore the Steps 3 & 4 to be submitted together. Ensure that both TDM checklists are filled out and appropriate measures are taken to achieve the target modal shares.

The purchaser, tenant or sub-lessee acknowledges the unit being rented/sold is not provided with any on-site parking and should a tenant/purchaser have a vehicle for which they wish to have parking that alternative and lawful arrangements will need to be made to accommodate their parking need at an alternative location. The Purchaser/Tenant also acknowledges that the availability and regulations governing on-street parking vary; that access to on-street parking, including through residential on-street parking permits issued by the City cannot be guaranteed now or in the future; and that a purchaser, tenant or sub-lessee intending to rely on on-street parking for their vehicle or vehicles does so at their own risk.

Please keep in mind that on street parking is not a viable option for tenants. Ensure that potential tenants are aware that there is no provision for parking.

The closure of an existing private approach shall reinstate the sidewalk, shoulder, curb and boulevard to City standards.

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

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 Association Comments

- Include family-sized units.
- Concerned with the rear and front projecting beyond the neighbours.
- Provide wheelchair accessible amenity space and building entrance.
- Previous concerns to be aware of:

    - first floor balconies are too low and accessible to street posing a safety hazard for break-ins, theft privacy etc.
    - if used for storage, glass balconies encourage theft
    - building is too tall
    - I quote parts from 2011 objection
        - **Heritage Sensitivity (Section 1.8.3e)** The Byward Village plan states that *City Council shall ensure that regardless of profile, residential development respect and is sensitive to nearby heritage buildings….*Clarence Street is predominately a street of brick buildings on the block of the proposed development and on adjacent blocks as well. The developer is proposing a wood and glass box that is completely out of character with this neighbourhood
        - respectfully request that the cladding of a building on this site be sensitive to the character of the neighbourhood.
        - **Safety of Reduced Sideyards** Both the east and west sideyards are reduced.… I question whether .06 metres is adequate to provide access to residents at the rear of the building in case of a fire emergency.

- Furthermore, the long narrow alleyways created by these reduced sideyards provide ideal haunts for drug dealers, addicts and prostitutes. …. Residents of my neighbourhood are sensitive to the need to make every effort to avoid creating spaces that invite criminal activity. I respectfully request that steps be taken to ensure the safety of residents and neighbours with respect to the sideyards.
- when considered as a package the variances represent a gross over development of an already undersized lot.

Other

- You are encouraged to contact the Ward Councillor, Mathieu Fleury

Please refer to the links to "Guide to preparing studies and plans" and fees for general information. Additional information is available related to building permits, development charges, and the Accessibility Design Standards. Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting informationcentre@ottawa.ca.

These pre-con comments are valid for one year. If you submit a development application(s) after this time, you may be required to meet for another pre-consultation meeting and/or the submission requirements may change. You are as well encouraged to contact us for a follow-up meeting if the plan/concept will be further refined.

Please do not hesitate to contact me if you have any questions.

Regards,

John Bernier, MCIP, RPP

Planner II | *Urbaniste II*

Development Review, Central | *Examen des projets d'aménagement, Central*

Planning, Infrastructure and Economic Development Department | *Services de la planification, de l'infrastructure et du développement économique*

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 21576

ottawa.ca/planning / ottawa.ca/urbanisme

Please note that during the current public health emergency I am working remotely. Email is the easiest and most reliable way of reaching me at this time. Thank you for your cooperation.

'

'

Amr Salem

From: Eric Lalande <eric.lalande@rvca.ca>
Sent: May 3, 2022 12:48 PM
To: Amr Salem
Subject: RE: LRL180647 - 211 Clarence - Water Quality Criteria

Hi Amr,

Based on the site plan and outlet path, the RVCA does not have any quality control requirements for the proposed development. Best management practices are encouraged where possible.

Thank you,

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

From: Amr Salem <asalem@lrl.ca>
Sent: Tuesday, May 3, 2022 12:40 PM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>; Eric Lalande <eric.lalande@rvca.ca>
Subject: LRL180647 - 211 Clarence - Water Quality Criteria

Hey guys,

Can you please provide your input regarding any quality control measures required for the proposed development at 211 Clarence given the info below;

Currently, the site is vacant as a previous residential dwelling has been recently demolished. Runoff flows uncontrolled to Clarence street ROW and is conveyed through municipal storm sewer approx. 1.5km before discharging to the Ottawa River.

The development proposes a 9-storey residential building with a footprint that occupies almost the entirety of the lot, with some room for landscaping at the rear yard. No parking proposed.
Expected runoff is clean as flows will be collected from roof drains and CB at rear landscaped yard.

Thanks,

Amr Salem, PMP®, B.Eng
Civil Engineering Services
LRL Engineering
5430 Canotek Road
Ottawa, Ontario K1J 9G2
T (613) 842-3434 or (877) 632-5664 ext 248
F (613) 842-4338

E asalem@lrl.ca
W www.lrl.ca

APPENDIX B

Water Supply Calculations

Water Supply Calculations

LRL File No.	180647
Project	211 Clarence
Date	April 26, 2022
Prepared by	Amr Salem

Water Demand based on the City of Ottawa Design Guidelines-Water Distribution, 2010

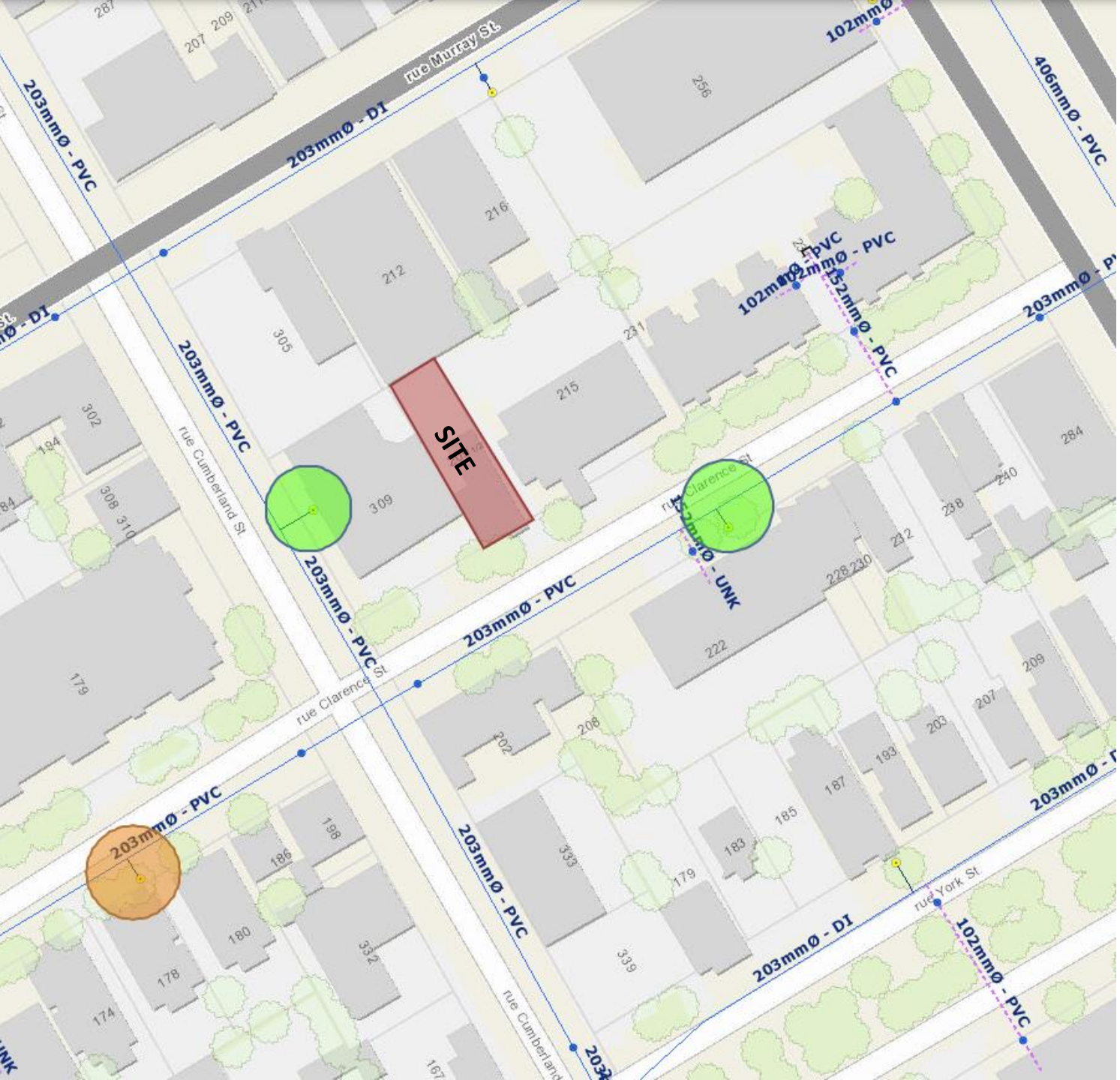
Domestic Demand			
Unit Type	**Persons Per Unit**	**Number of Units**	**Population**
Studio/1-Bdrm Apartment	1.4	34	47.6
Total		**34**	**47.6**

Average Water Consumption Rate	280	L/c/d		
Average Day Demand	**13,328**	**L/d**	**0.15**	**L/s**
Maximum Day Factor	7.9		(MOE Table 3-3)	
Maximum Daily Demand	**104,799**	**L/d**	**1.21**	**L/s**
Peak Hour Factor	11.8		(MOE Table 3-3)	
Maximum Hour Demand	**1,240,138**	**L/d**	**14.35**	**L/s**

Fire Flow Calculations

LRL File No. 180647
Date April 26, 2022
Method Fire Underwriters Survey (FUS)
Prepared by Amr Salem

Step	Task	Term	Options	Multiplier	Choose:	Value	Unit	Fire Flow
Structural Framing Material								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame	1.5	Ordinary Construction	1		
			Ordinary Construction	1.0				
			Non-combustible construction	0.8				
			Fire resistive construction <2 hrs	0.7				
			Fire resistive construction >2 hrs	0.6				
Floor Space Area (A)								
2	Total area					1,752	m^2	
3	Obtain fire flow before reductions	Required fire flow *(rounded to nearest 1,000 L/min)*	Fire Flow = 220 x C x $A^{0.5}$				L/min	10,000
Reductions or surcharge due to factors affecting burning								
4	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Non-combustible	-25%	Limited combustible	-15%	L/min	8,500
			Limited combustible	-15%				
			Combustible	0%				
			Free burning	15%				
			Rapid burning	25%				
5	Choose reduction for sprinklers	Sprinkler reduction	Full automatic sprinklers	-30%	True	-30%	L/min	5,100
			Water supply is standard for both the system and fire department hose lines	-10%	True	-10%		
			Fully supervised system	-10%	False	0%		
6	Choose separation	Exposure distance between units	North side	20.1 to 30m	10%		L/min	11,475
			East side	0 to 3m	25%			
			South side	3.1 to 10m	20%			
			West side	0 to 3m	25%	80%		
Net required fire flow								
7	Obtain fire flow, duration, and volume	Minimum required fire flow rate (rounded to nearest 1000)					L/min	11,000
		Minimum required fire flow rate					L/s	183.3
		Required duration of fire flow					hr	2.25



FIRE HYDRANT FIGURE

LEGEND

Hydrants within 75m

Hydrants within 150m

Distance to buildings[a]		Maximum capacity[b]	
(ft)	(m)	(gpm)	(L/min)
≤ 250	≤ 76	1500	5678
> 250 and ≤ 500	> 76 and ≤ 152	1000	3785
> 500 and ≤ 1000	> 152 and ≤ 305	750	2839

[a] Measured in accordance with 18.5.1.4 and 18.5.1.5.

[b] Minimum 20 psi (139.9 kPa) residual pressure.

Amr Salem

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: May 5, 2022 2:54 PM
To: Amr Salem
Subject: RE: LRL180647 - 211 Clarence - Boundary Conditions Request
Attachments: 211 Clarence Street May 2022.pdf

Hi Amr

FYI, please note the FUS has released an update. Therefore, please ensure to considers the 2020 update for calculations going forward.

The following are boundary conditions, HGL, for hydraulic analysis at 211 Clarence Street (zone 1W) assumed to be connected to the 203 mm watermain on Clarence Street (see attached PDF for location).

Minimum HGL: 106.2 m

Maximum HGL: 115.4 m

Max Day + FF (183.3 L/s): 104.5 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.

Regards,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Real Estate and Economic Development Department / Direction générale de la planification, des biens immobiliers et du développement économique
Development Review - Centeral 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 19346, reza.bakhit@ottawa.ca
Please note: Given the current pandemic, I will be working from home until further notice; reaching me by email is the easiest. I will be checking my voicemail, just not as frequently as I normally would be.

From: Amr Salem <asalem@lrl.ca>
Sent: Friday, April 29, 2022 1:36 PM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Subject: RE: LRL180647 - 211 Clarence - Boundary Conditions Request

Hello Reza,

Please find OBC calcs attached for refence – fireflow demand is indeed more than 9,000 L /min.

Regards,
Amr Salem, PMP®, B.Eng
Civil Engineering Services
LRL Engineering
5430 Canotek Road
Ottawa, Ontario K1J 9G2
T (613) 842-3434 or (877) 632-5664 ext 248
F (613) 842-4338
E asalem@lrl.ca
W www.lrl.ca

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: April 28, 2022 11:40 AM
To: Amr Salem <asalem@lrl.ca>
Subject: RE: LRL180647 - 211 Clarence - Boundary Conditions Request

Hi Amr,

Please use the OBC only and not per NFPA.

The City of Ottawa Water Guidelines does not reference NFPA for fire demand calculations. Please note the NFPA is for fire suppression only and not the firefighting. Even if it is proposed to install sprinkler system , still we must abide by OBC calculation . The fire demands should be submitted using the OBC method if there are no watermains being designed or the OBC method is lower than 150 L/s (9000 L/min) .

Regards,

Reza Bakhit, P.Eng, C.E.T
Project Manager
Planning, Real Estate and Economic Development Department / Direction générale de la planification, des biens immobiliers et du développement économique

Development Review - Centeral Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2400 ext./poste 19346, reza.bakhit@ottawa.ca
Please note: Given the current pandemic, I will be working from home until further notice; reaching me by email is the easiest. I will be checking my voicemail, just not as frequently as I normally would be.

From: Amr Salem <asalem@lrl.ca>
Sent: Thursday, April 28, 2022 11:20 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Subject: RE: LRL180647 - 211 Clarence - Boundary Conditions Request

Hey Reza,

Can you confirm that the OBC method is as per the NFPA?

Where the total fireflow demand is assumed to be the sum of *the required flow rate for the sprinkler system + anticipated hose stream* as per the tables below*;*

Table 11.2.2.1 Water Supply Requirements for Pipe Schedule Sprinkler Systems

Occupancy Classification	Minimum Residual Pressure Required		Acceptable Flow at Base of Riser (Including Hose Stream Allowance)		Duration (minutes)
	psi	bar	gpm	L/min	
Light hazard	15	1	500–750	1900-2850	30–60
Ordinary hazard	20	1.4	850–1500	3200-5700	60–90

Table 11.2.3.1.2 Hose Stream Allowance and Water Supply Duration Requirements for Hydraulically Calculated Systems

Occupancy	Inside Hose		Total Combined Inside and Outside Hose		Duration (minutes)
	gpm	L/min	gpm	L/min	
Light hazard	0, 50, or 100	0, 190, or 380	100	380	30
Ordinary hazard	0, 50, or 100	0, 190, or 380	250	950	60–90
Extra hazard	0, 50, or 100	0, 190, or 380	500	1900	90–120

Thanks,

Amr Salem, PMP®, B.Eng
Civil Engineering Services
LRL Engineering
5430 Canotek Road
Ottawa, Ontario K1J 9G2
T (613) 842-3434 or (877) 632-5664 ext 248
F (613) 842-4338
E asalem@lrl.ca
W www.lrl.ca

From: Bakhit, Reza <reza.bakhit@ottawa.ca>
Sent: April 28, 2022 11:03 AM
To: Amr Salem <asalem@lrl.ca>
Subject: RE: LRL180647 - 211 Clarence - Boundary Conditions Request

Hi Amr,

Did you calculate the OBC first, and it was over 9000 L/min ? Please note that as per the tech bulletin ISTB-2021-03, the OBC method can be used if the fire demand for the private property is less than 9,000 L/min. If the OBC fire demand reaches 9000 L/min, then the FUS method is to be used. Could you please confirm?

Regards,

Reza Bakhit, P.Eng, C.E.T

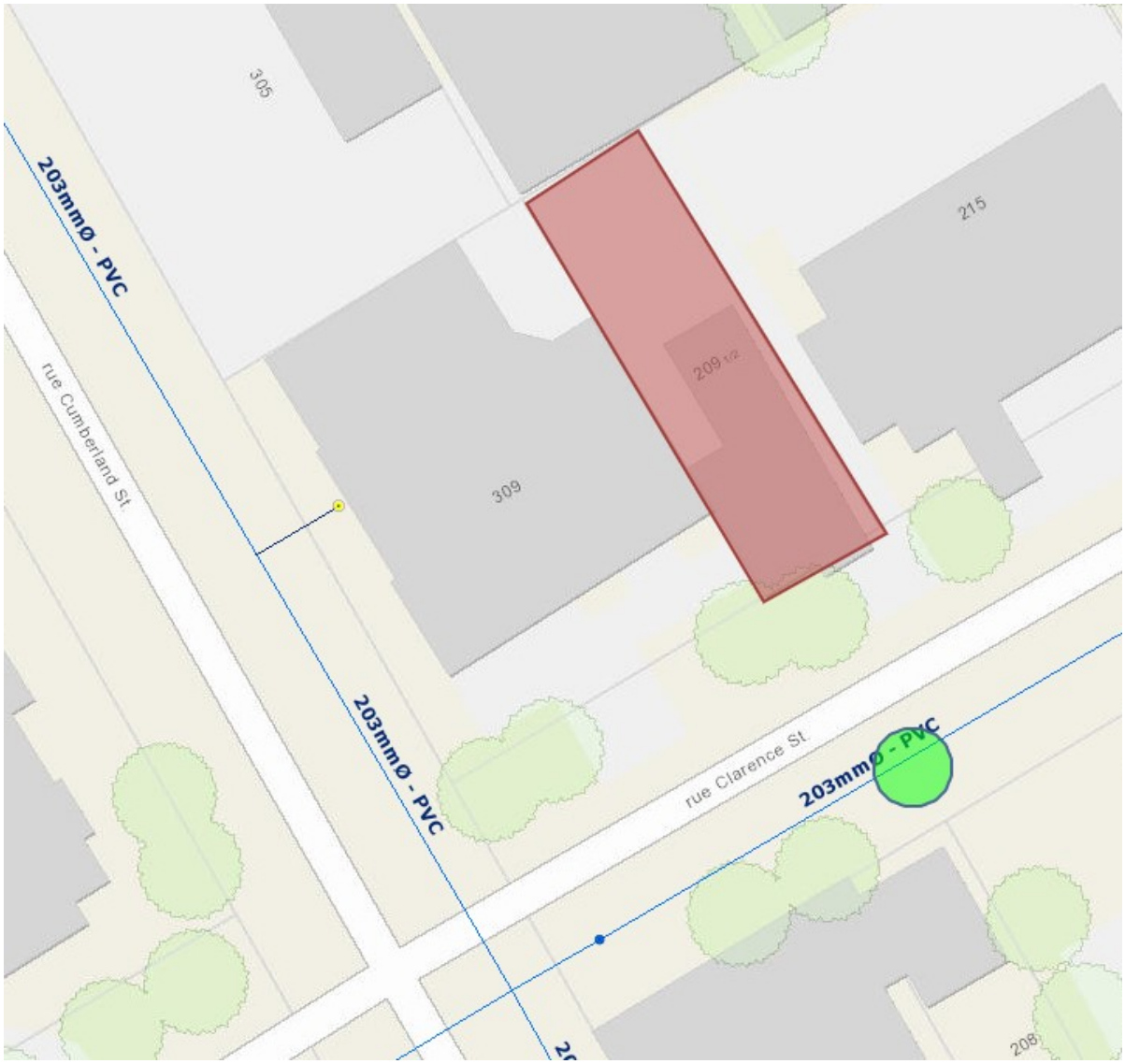
Project Manager
Planning, Real Estate and Economic Development Department / Direction générale de la planification, des biens immobiliers et du développement économique
Development Review - Centeral Branch
City of Ottawa | Ville d'Ottawa
110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1
613.580.2400 ext./poste 19346, reza.bakhit@ottawa.ca
Please note: Given the current pandemic, I will be working from home until further notice; reaching me by email is the easiest. I will be checking my voicemail, just not as frequently as I normally would be.

From: Amr Salem <asalem@lrl.ca>
Sent: Thursday, April 28, 2022 10:01 AM
To: Bakhit, Reza <reza.bakhit@ottawa.ca>
Subject: LRL180647 - 211 Clarence - Boundary Conditions Request
Importance: High

Hello Reza,

I would like to kindly request boundary conditions for the proposed development at 211 Clarence using the following proposed development demands:

- Type of development**: proposed 9-storey apartment bldg consisting of 34 units. .** ***(draft site plan attached for reference)***
- Proposed Connection Points:
    - **Propose a connection point to the 200mm ex. watermain within Clarence St;**



- Please provide pressures for the following water demand scenarios required for the proposed development:

	Demand L/s
Avg. Daily	0.15
Max Day + FUS	1.21 + 183.3
Peak Hour	14.35

Thank you,

Amr Salem, PMP®, B.Eng
Civil Engineering Services
LRL Engineering
5430 Canotek Road
Ottawa, Ontario K1J 9G2
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F (613) 842-4338
E asalem@lrl.ca
W www.lrl.ca

We care deeply, so let us know how we did by completing our Customer Satisfaction Survey.
Nous nous soucions profondément de votre opinion, nous vous invitons donc à nous faire savoir si nous avons satisfait vos attentes en remplissant notre sondage sur la satisfaction de la clientèle

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Boundary Conditions for 211 Clarence Street

APPENDIX C

Wastewater Collection Calculations

LRL File No. 180647
Project: 9-Storey Apartment Building
Location: 211 Clarence Street
Date: May 24, 2022

Sanitary Design Parameters

Average Daily Flow = 280 L/p/day
Commercial & Institutional Flow = 50000 L/ha/day
Light Industrial Flow = 35000 L/ha/day
Heavy Industrial Flow = 55000 L/ha/day
Maximum Residential Peak Factor = 4.0
Commercial & Institutional Peak Factor = 1.5
Industrial Peak Factor = as per Appendix 4-B = 7
Extraneous Flow = 0.33L/s/gross ha

Pipe Design Parameters

Minimum Velocity = 0.60 m/s
Manning's n = 0.013

LOCATION			RESIDENTIAL AREA AND POPULATION						COMMERCIAL		INDUSTRIAL			INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW (l/s)	PIPE					
STREET	FROM MH	TO MH	AREA (Ha)	POP.	CUMMULATIVE AREA (Ha)	CUMMULATIVE POP.	PEAK FACT.	PEAK FLOW (l/s)	AREA (Ha)	ACCU. AREA (Ha)	AREA (Ha)	ACCU. AREA (Ha)	PEAK FACT.	AREA (Ha)	ACCU. AREA (Ha)	PEAK FLOW (l/s)	TOTAL AREA (Ha)	ACCU. AREA (Ha)	INFILT. FLOW (l/s)		LENGTH (m)	DIA. (mm)	SLOPE (%)	MATERIAL	CAP. (FULL) (l/s)	VEL. (FULL) (m/s)
Clarence Street	Bldg	SAN MH01	0.029	47.6	0.03	47.6	3.7	0.56	0.000	0.000	0.00	0.00	7.0	0.0	0.0	0.00	0.029	0.029	0.01	0.57	2.6	150	1.00%	PVC	15.23	0.86
	SAN MH01	*EX.SAN*						0.56											0.01	0.57	10.4	150	1.00%	PVC	15.23	0.86
	EX. SAN																					250	0.50%	PVC	42.05	0.86

NOTES	Existing inverts and slopes are estimated. They are to be confirmed on-site.

Designed: A.S.	PROJECT: Apartment Building		
Checked: V.J.	LOCATION: 211 Clarence Street		
Dwg. Reference: C.401	File Ref.: 180647	Date: 2022-05-24	Sheet No. 1 of 1

APPENDIX D

Stormwater Management Calculations
Watts Roof Drain Specification

LRL Associates Ltd.
Storm Watershed Summary

LRL File No.	180647
Project:	Apartment Building
Location:	211 Clarence
Date:	May 10, 2022
Designed:	Amr Salem
Drawing Reference:	C701/C702

Pre-Development Catchments

WATERSHED	C = 0.2	C = 0.70	C = 0.90	Total Area (m^2)	Total Area (ha)	Combined C
EWS-01	157.7	0.0	130.0	287.7	0.0288	0.52
TOTAL	**157.7**	**0.0**	**130.0**	**287.7**	**0.0288**	**0.52**

Post-Development Catchments

WATERSHED	C = 0.20	C = 0.70	C = 0.90	Total Area (m^2)	Total Area (ha)	Combined C
WS-01(UNCONTROLLED)	57.0		12.7	69.7	0.007	0.33
WS-02 (CONTROLLED)			218.0	218.0	0.022	0.90
TOTAL	**57.0**	**0.0**	**230.7**	**287.7**	**0.0288**	**0.76**

LRL File No. 180647
Project: Apartment Building
Location: 211 Clarence
Date: May 10, 2022
Designed: Amr Salem
Drawing Ref.: C.601

Stormwater Management Design Sheet

Runoff Equation

$Q = 2.78CIA$ (L/s)
C = Runoff coefficient
I = Rainfall intensity (mm/hr) $= A / (Td + C)^B$
A = Area (ha)
T_c = Time of concentration (min)

Pre-development Stormwater Management

$i_5 = 998.071 / (Td + 6.053)^{0.814}$ a = 998.071 b = 0.814 C = 6.053

C = 0.50 max of 0.5 as per City of Ottawa
I = 104.2 mm/hr
Tc = 10 min
Total Area = 0.029 ha

Allowable Release Rate= 4.17 L/s

Post-development Stormwater Management

					ΣR_{max}	ΣR_{min}
	Total Site Area =	0.029	ha	ΣR_C	0.76	0.95
Controlled	WS-02 (Roof)	0.022	ha	R_C	0.90	1.00
	Total Controlled =	0.022	ha	ΣR_C	0.90	1.00
Un-controlled	WS-01	0.007	ha	R_C	0.33	0.41
	Total Un-Controlled =	0.007	ha	ΣR_C	0.33	0.41

Post-development Stormwater Management (Uncontrolled Catchment WS-01)

100 Year Storm Event:

$i_{100} = 1735.688 / (Td + 6.014)^{0.820}$ a = 1735.688 b = 0.820 C = 6.014

Time (min)	Intensity (mm/hr)	Uncontrolled Runoff (L/s)	Controlled Release Rate Constant (L/s)	Total Release Rate (L/s)
10	178.6	1.42	0.00	1.42

Post-development Stormwater Management (WS-02 On Roof)

100 Year Storm Event:

$i_{100} = 1735.688 / (Td + 6.014)^{0.820}$ a = 1735.688 b = 0.820 C = 6.014

		Storage Required				
Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate Constant (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.6	10.82	5.36	1.89	0.00	1.89
15	142.9	8.66	6.09	1.89	0.00	1.89
20	120.0	7.27	6.46	1.89	0.00	1.89
25	103.8	6.29	6.61	1.89	0.00	1.89
30	91.9	5.57	6.62	1.89	0.00	1.89
35	82.6	5.00	6.54	1.89	0.00	1.89
40	75.1	4.55	6.39	1.89	0.00	1.89
45	69.1	4.18	6.20	1.89	0.00	1.89
50	64.0	3.88	5.96	1.89	0.00	1.89
60	55.9	3.39	5.39	1.89	0.00	1.89
70	49.8	3.02	4.74	1.89	0.00	1.89
80	45.0	2.73	4.02	1.89	0.00	1.89
90	41.1	2.49	3.25	1.89	0.00	1.89
100	37.9	2.30	2.44	1.89	0.00	1.89
110	35.2	2.13	1.61	1.89	0.00	1.89
120	32.9	1.99	0.75	1.89	0.00	1.89

$V = (1*w)*h/3 = Ah/3$

TABLE 1 Adjustabl

Weir Opening Exposed
Fully Exposed
3/4
1/2
1/4
Closed

Summary of Roof Storage

Maximum Required Roof Storage (100 Year) =	6.62	m^3		
Watts Roof Drain Discharge =	0.0042	L/s/mm		
Proposed Head =	150	mm	*An Emergency overflow scupper is provided above this height.	
Control Flow/Drain =	0.63	L/s		
Number of Roof Drains =	3			
Total Flow from Roof Drain =	1.89	L/s		
Total Roof Surface =	218	m^2		
Effective Roof Surface =	203	m^2	93	(% of total roof surface)
Available Roof Storage =	**10.14**	m^3		
Roof Drain Model =	**Watts Roof Drain with Adjustable Flow Setting (Watts RD-100 Weir Opening = Closed)**			

Total Storage Required = 6.62 m^3
Available Roof Storage = 10.14 m^3 refer to LRL Plan C.601

Summary of release Rates and Storage Volumes

Catchment Area	Drainage Area (ha)	100-year Release Rate (L/s)	100-Year Required Storage (m^3)	Total Available Storage (m^3)
WS-01	0.007	1.42	0	0
WS-02 (Roof Controls)	0.022	1.89	6.62	10.14
TOTAL	**0.029**	**3.31**	**6.62**	**10.14**

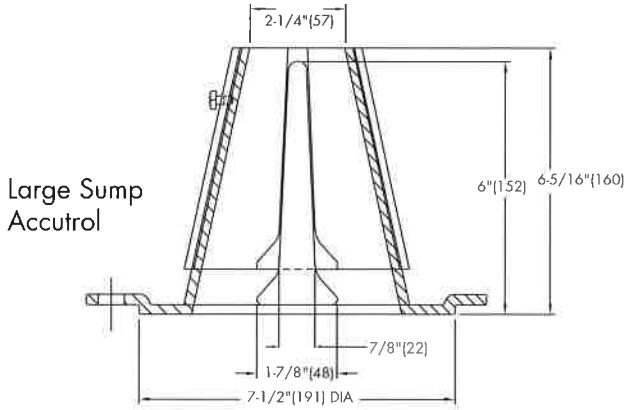
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

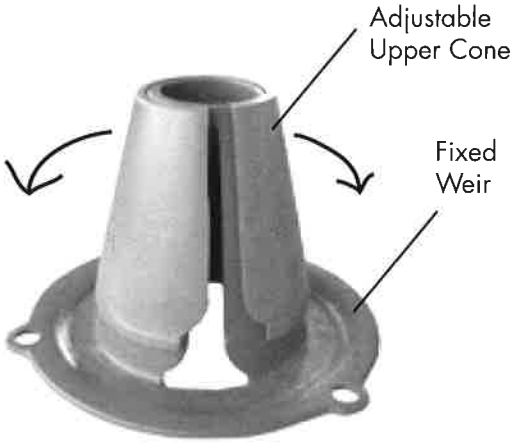
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

EXAMPLE:

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

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





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name _____ **Model No.** _____

Job Location _____ Contractor _____

Engineer _____ Representative _____

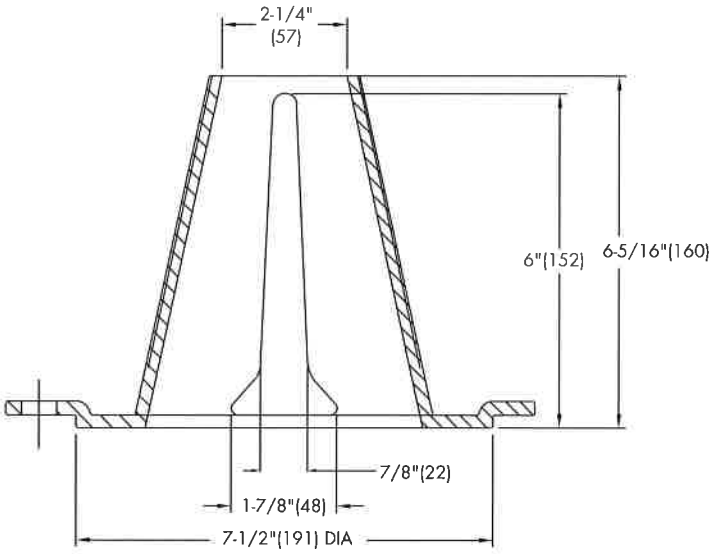
Specification Drainage Products

CANADA: 5435 North Service Road, Burlington, ON, L7L 5H7 TEL: 905-332-6718 TOLL-FREE: 1-888-208-8927 Website: www.wattscanada.ca

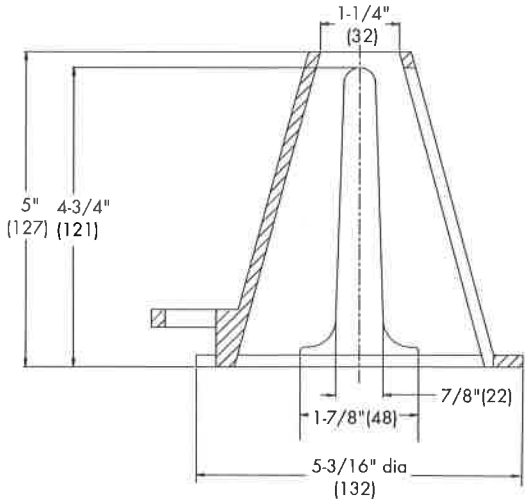
ACCUTROL WEIR FLOW CONTROL

SPECIFICATION: Watts Drainage Products epoxy coated cast iron Accutrol Weir is designed with parabolic openings which limit the flow of rain water off a roof. Each weir slot controls flow to 5 gpm per inch of head to a maximum of 30 gpm at 6" head(for large sump), 25 gpm at 5" head(for small sump) . The Accutrol Weir is secured to the flashing clamp of the roof drain. The Accutrol Weir is available with 1 to 4 slots for the large sump drain and up to 3 slots for the small sump drain.

For Large Sump Roof Drains Specify the "-A" option and number of slots required. (ie. "RD-100-A2" for two slot weir)
For Small Sump Roof Drains Specify the "-A" option and number of slots required. (ie. "RD-200-A1" for one slot weir)



LARGE SUMP ACCUTROL WEIR



SMALL SUMP ACCUTROL WEIR

Job Name _____ **Model No.** _____

Job Location _____ Contractor _____

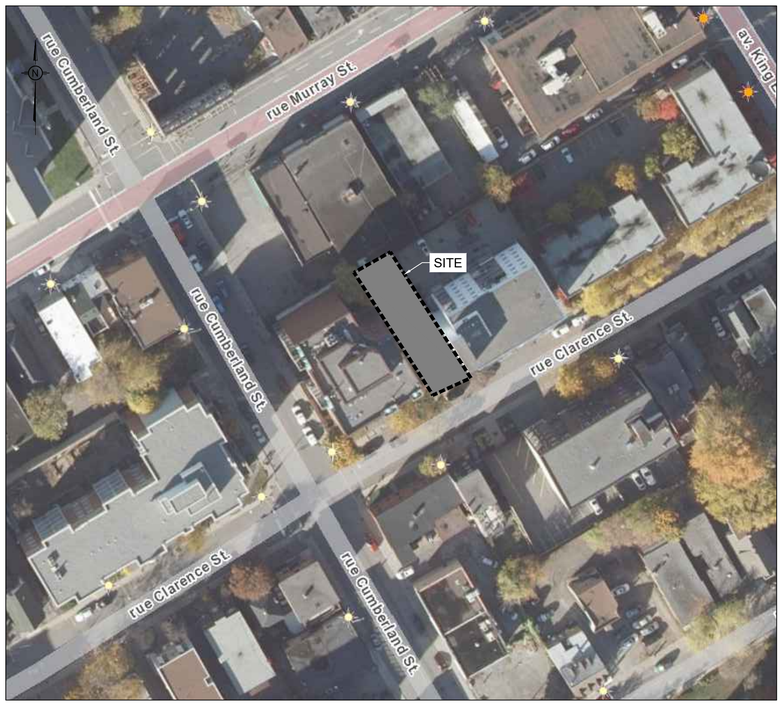
Engineer _____ Representative _____

APPENDIX E

Civil Engineering Drawings

211 CLARENCE STREET,
OTTAWA, ONTARIO

REVISION 01



KEY PLAN (N.T.S.)

DRAWING INDEX	
TITLE PAGE	
SEDIMENT AND EROSION CONTROL PLAN	C101
DEMOLITION PLAN	C102
SITE DEVELOPMENT PLAN	C201
GRADING AND DRAINAGE PLAN	C301
SERVICING PLAN	C401
STORMWATER MANAGEMENT PLAN	C601
PRE-DEVELOPMENT WATERSHED PLAN	C701
POST-DEVELOPMENT WATERSHED PLAN	C702
CONSTRUCTION DETAIL PLAN	C901

LRL

ENGINEERING | INGÉNIERIE

5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

211 CLARNCE STREET,
OTTAWA, ONTARIO
REV.01 - ISSUED FOR MUNICIPAL APPROVAL - MAY 24, 2022
LRL PROJECT no: 180647

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2022/05/24
PROVINCE OF ONTARIO
NOT AUTHENTIC UNLESS SIGNED AND DATED

GENERAL NOTES

1. ALL WORKS MATERIALS SHALL CONFIRM TO THE LAST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), WHERE APPLICABLE. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTORS SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTORS SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION , TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION, ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTORS TO CONFIRM UTILITY LOCATIONS AND NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT CONTRACTORS EXPENSE.
4. ANY AREA BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
   RELOCATING OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DETECTED BY THE ENGINEER AT THE EXPENSE OF DEVELOPERS.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 'OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS'. THE GENERAL CONTRACTORS SHALL BE DEEMED TO BE THE 'CONTRACTOR' AS DEFINED IN THE ACT.
6. ALL THE CONSTRUCTION SIGNAGE MUST CONFIRM TO THE MINISTRY OF TRANSPORTATION OF ONTARIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PER LATEST AMENDMENT.
7. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THE CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
8. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
9. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER.
10. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
11. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT.
12. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL BEDDING, OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH AS SPECIFIED BY OPSD IS EXCEEDED.
15. ALL PIPE/CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
16. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
17. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING/REMOVAL.
18. DRAWINGS SHALL BE READ ON CONJUNCTION WITH ARCHITECTURAL SITE PLAN.
19. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ON SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
20. BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL

THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

THE CONTRACTOR ACKNOWLEDGES THAT SURFACE EROSION AND SEDIMENT RUNOFF RESULTING FROM THEIR CONSTRUCTION OPERATIONS HAS POTENTIAL TO CAUSE A DETRIMENTAL IMPACT TO ANY DOWNSTREAM WATERCOURSE OR SEWER, AND THAT ALL CONSTRUCTION OPERATIONS THAT MAY IMPACT UPON WATER QUALITY SHALL BE CARRIED OUT IN MANNER THAT STRICTLY MEETS THE REQUIREMENT OF ALL APPLICABLE LEGISLATION AND REGULATIONS.

AS SUCH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THEIR OPERATIONS, AND SUPPLYING AND INSTALLING ANY APPROPRIATE CONTROL MEASURES, SO AS TO PREVENT SEDIMENT LADEN RUNOFF ENTERING ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA.

THE CONTRACTOR ACKNOWLEDGES THAT NO ONE MEASURE IS LIKELY TO BE 100% EFFECTIVELY FOR EROSION PROTECTION AND CONTROLLING SEDIMENT RUNOFF AND DISCHARGES FROM THE SITE. THEREFORE, WHERE NECESSARY THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES ARRANGED IN SUCH MANNER AS TO MITIGATE SEDIMENT RELEASE FROM THE CONSTRUCTION OPERATIONS AND ACHIEVE SPECIFIC MAXIMUM PERMITTED CRITERIA WHERE APPLICABLE. SUGGESTED ON-SITE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING METHODS: SEDIMENT PONDS, FILTER BAGS, PUMP FILTERS, SETTLING TANKS, SILT FENCE, STRAW BALES, FILTER CLOTHS, CATCH BASIN FILTERS, CHECK DAMS AND/OR OTHER RECOGNIZED TECHNOLOGIES AND METHOD AVAILABLE AT THE TIME OF CONSTRUCTION. SPECIFIC MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF OPSS 577 WHERE APPROPRIATE, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

WHERE, IN THE OPINION OF THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, THE INSTALLED CONTROL MEASURES FAIL TO PERFORM ADEQUATELY, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL OR ALTERNATIVE MEASURES AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, AS SUCH, THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIME WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED BY HIM AT THE MOMENT'S NOTICE.

PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR SIX COPIES OF A DETAILED EROSION AND SEDIMENT CONTROL PLAN (ESCP). THE ESCP WILL CONSIST OF WRITTEN DESCRIPTION AND DETAILED DRAWINGS INDICATING THE ON-SITE ACTIVITIES AND MEASURES TO BE USED TO CONTROL EROSION AND SEDIMENT MOVEMENT FOR EACH STEP OF THE WORK.

CONTRACTOR'S RESPONSIBILITIES

THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS, INCLUDING SUB-CONTRACTOR, IN THE WORKING ARE ARE AWARE OF THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND INFORMED OF THE CONSEQUENCES OF THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AGENCIES.

THE CONTRACTOR SHALL PERIODICALLY, AND WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES, INCLUDING THOSE DEPOSITS THAT MAY ORIGINATE FROM OUTSIDE THE CONSTRUCTION AREA. ACCUMULATED SEDIMENT SHALL BE REMOVED IN SUCH A MANNER THAT PREVENTS THE DEPOSITION OF THIS MATERIAL INTO THE SEWER WATERCOURSE AND AVOIDS DAMAGE TO CONTROL MEASURES. THE SEDIMENT SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH REQUIREMENTS FRO EXCESS EARTH MATERIAL, AS SPECIFIED ELSEWHERE IN THE CONTRACT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE CONTRACT ADMINISTRATOR ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO EITHER THE WATERCOURSE OR THE STORM SEWER SYSTEM. FAILURE TO REPORT WILL BE CONSTITUTE A BRACH OF THIS SPECIFICATION AND THE CONTRACTOR MAY ALSO BE SUBJECT TO THE PENALTIES IMPOSED BY THE APPLICABLE REGULATORY AGENCY. 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.

THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE OR MEASURES, IS NO LONGER REQUIRED. NO CONTROL MEASURE MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS THE ENTRY OF ANY EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, INTO ANY WATERCOURSE, AND PREVENTS THE RELEASE OF ANY SEDIMENT OR DEBRIS INTO ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE WORKING AREA AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH THE REQUIREMENTS FOR EXCESS EARTH MATERIAL

WHERE, IN THE OPINION OF EITHER THE CONTRACT ADMINISTRATOR OR A REGULATORY AGENCY, ANY OF THE TERMS SPECIFIED HEREIN HAVE NOT BEEN COMPLIED WITH OR PERFORMED IN A SUITABLE MANNER, OR TAT ALL, THE CONTRACTOR ADMINISTRATOR OR A REGULATORY AGENCY HAS THE RIGHT TO IMMEDIATELY WITHDRAW ITS PERMISSION TO CONTINUE THE WORK BUT MAY RENEW ITS PERMISSION UPON BEING SATISFIED THAT THE DEFAULTS OR DEFICIENCIES IN THE PERFORMANCE OF THIS SPECIFICATION BY THE CONTRACTOR HAVE BEEN REMEDIED.

SPILL CONTROL NOTES

1. ALL CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED, MAINTAINED, AND STORED NO LESS THAN 30 METRES FROM WATERCOURSE, STEAMS, CREEKS, WOODLOTS, AND ANY ENVIRONMENTALLY SENSITIVE AREAS, OR AS OTHERWISE SPECIFIED.
2. THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY MEASURES IN ORDER TO PREVENT LEAKS, DISCHARGES OR SPILLS OF POLLUTANTS, DELETERIOUS MATERIALS, OR OTHER SUCH MATERIALS OR SUBSTANCES WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT.
3. IN THE EVENT OF A LEAK, DISCHARGE OR SPILL OF POLLUTANT, DELETERIOUS MATERIAL OR OTHER SUCH MATERIAL OR SUBSTANCE WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT, THE CONTRACTOR SHALL:
   - 3.1. IMMEDIATELY NOTIFY APPROPRIATE FEDERAL, PROVINCIAL, AND LOCAL GOVERNMENT MINISTRIES, DEPARTMENTS, AGENCIES, AND AUTHORITIES OF THE INCIDENT IN ACCORDANCE WITH ALL CURRENT LAWS, LEGISLATION, ACTS, BY-LAWS, PERMITS, APPROVALS, ETC.
   - 3.2. TAKE IMMEDIATE MEASURES TO CONTAIN THE MATERIAL OR SUBSTANCE, AND TO TAKE SUCH MEASURES TO MITIGATE AGAINST ADVERSE IMPACTS TO THE NATURAL ENVIRONMENT.
   - 3.3. RESTORE THE AFFECTED AREA TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.

MUD MAT NOTES

1. THE GRANULAR MATERIAL WILL REQUIRE PERIODIC REPLACEMENT AS IT BECOMES CONTAMINATED BY VEHICLE TRAFFIC.
2. SEDIMENT SHALL BE CLEANED FROM PUBLIC ROADS AT THE END OF EACH DAY.
3. SEDIMENT SHALL BE REMOVED FROM PUBLIC ROADS BY SHOVELING OR SWEEPING AND DISPOSED OR PROPERLY IN A CONTROLLED SEDIMENT DISPOSAL AREA.

SITE GRADING NOTES

1. PRIOR TO THE COMMENCEMENT OF THE SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL PER EROSION CONTROL PLAN.
2. ALL GRANULAR AND PAVEMENT FOR ROADS/PARKING AREAS SHALL BE CONSTRUCTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
3. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD AND PARKING AREAS ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
4. CONCRETE CURB SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. SC1.1 PROVISION SHALL BE MADE OR CURB DEPRESSIONS AS INDICATED ON ARCHITECTURAL SITE PLAN. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD SC1.4. ALL CURBS, CONCRETE ISLANDS, AND SIDEWALKS SHOWN O THIS DRAWING ARE TO BR PRICED IN SITE WORKS PORTION OF THE CONTRACT.
5. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. R10 AND OPSD 509.010 AND OPSS 310.
6. GRANULAR 'A' SHALL BE PLACED TO A MINIMUM THICKNESS OF 30MM AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA.
7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 30MM LIFTS.
8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR BACKFILLING.
9. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE, IF REQUIRED BY THE MUNICIPALITY.
10. ALL PAVEMENT MARKING FEATURES AND SITE SIGNAGE SHALL BE PLACED PER ARCHITECTURAL SITE PLAN. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT PAINT.
11. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS.
12. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ALL JOINTS MUST BE SEALED.
13. SIDEWALKS TO BE 13MM & BEVELED AT 2:1 OR 6MM WITH NO BEVEL REQUIRED BELOW THE FINISHED FLOOR SLAB ELEVATION AT ENTRANCES REQUIRED TO BE BARRIER-FREE, UNLESS OTHERWISE NOTED. ALL IN ACCORDANCE WITH OBC 3.8.1.3 & OTTAWA ACCESSIBILITY DESIGN STANDARDS.
14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

ROADWORK SPECIFICATIONS

15. ROADWORK TO BE COMPLETED IN ACCORDANCE WITH GEOTECHNICAL REPORT, PREPARED BY LRL ASSOCIATES. DATED NOVEMBER 2020.
16. AL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND STOCK PILLED ON SITE AS DIRECTED BY NATIONAL MUNICIPALITY.
17. THE SUBGRADE SHALL BE CROWNED AND SLOPED AT LEAST 2% AND PROOF ROLLED WITH HEAVY ROLLERS.
18. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'A', TYPE II COMPACTED IN MAXIMUM 300MM LIFTS.
19. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO MINIMUM OF 100% STANDARD PROCTOR DENSITY MAXIMUM DRY DENSITY (SPMDD).

SANITARY, FOUNDATION DRAIN, STORM SEWER AND WATERMAIN NOTES

GENERAL

1. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
2. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING S8. THE SEALS SHOULD BE AT LEAST 1.5M LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. THE SEALS SHOULD EXTEND FROM THE FROST LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING, AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPATIBLE BROWN SILTY CLAY PLACED IN MAXIMUM 225MM LIFTS AND COMPACTED TO A MINIMUM OF 95% SPMDD. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT 60M INTERVALS IN THE SERVICE TRENCHES.
3. SERVICES TO BUILDING TO BE TERMINATED 1.0M FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
4. ALL MAINTENANCE STRUCTURE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY. A MINIMUM OF 300MM AROUND STRUCTURES.
5. "MODULOC" OR APPROVED PRE-CAST MAINTENANCE STRUCTURE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICKING. PARGE ADJUSTING UNITS ON THE OUTSIDE ONLY.
6. SAFETY PLATFORMS SHALL BE PER OPSD 404.02.
7. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH OPSD 1003.01, IF APPLICABLE.
8. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SEWERS, INCLUDING PICTORIAL REPORT, ONE (1) CD COPY AND TWO (2) VIDEO RECORDING IN A FORMAT ACCEPTABLE TO ENGINEER. ALL SEWER ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.
9. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT.

SANITARY

10. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD). AND SPECIFICATIONS (OPSS).
11. ALL SANITARY GRAVITY SEWER SHALL BE PVC SDR 35, IPEX 'RING-TITE' (OR APPROVED EQUIVALENT) PER CSA STANDARD B182.2 OR LATEST AMENDMENT, UNLESS SPECIFIED OTHERWISE.
12. EXISTING MAINTENANCE STRUCTURES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
13. SANITARY GRAVITY SEWER TRENCH AND BEDDING SHALL BE PER CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' BEDDING, UNLESS SPECIFIED OTHERWISE.
14. SANITARY MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD. S24 AND S25.
15. SANITARY MAINTENANCE STRUCTURES SHALL BE BENCHED PER OPSD 701.021.
16. 100MM THICK HIGH-DENSITY GRADE 'A' POLYSTYRENE INSULATION TO BE INSTALLED IN ACCORDANCE WITH CITY STD W22 WHERE INDICATED ON DRAWING SSP-1.

STORM

17. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2, OR LATEST AMENDMENT. ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1, OR LATEST AMENDMENT. PIPE SHALL BE JOINED WITH STD. RUBBER GASKETS AS PER CSA A257.3, OR LATEST AMENDMENT.
18. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
19. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
20. CATCH BASIN SHALL BE IN ACCORDANCE WITH OPSD 705.010.
21. CATCH BASIN LEADS SHALL BE IN 200MM DIA. AT 1% SLOPE (MIN) UNLESS SPECIFIED OTHERWISE.
22. ALL CATCH BASINS SHALL HAVE 600MM SUMPS, UNLESS SPECIFIED OTHERWISE.
23. ALL CATCH BASIN LEAD INVERTS TO BE 1.5M BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE.
24. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED , THE CONTRACTOR IS REQUIRED TO PROVIDE AND SHALL BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
25. ALL ROAD AND PARKING LOT CATCH BASINS TO BE INSTALLED WITH ORTHOGONALLY PLACED SUBDRAINS IN ACCORDANCE WITH DETAIL. PERFORATED SUBDRAIN FOR ROAD AND PARKING LOT CATCH BASIN SHALL BE INSTALLED PER CITY STD R1 UNLESS OTHERWISE NOTED.
26. PERFORATED SUBDRAIN FOR REAR YARD AND LANDSCAPING APPLICATIONS SHALL BE INSTALLED PER CITY STD S29, S30 AND S31, WHERE APPLICABLE.
27. RIP-RAP TREATMENT SEWER AND CULVERT OUTLETS PER OPSD 810.010.
28. ALL STORM SEWER/ CULVERTS TO BE INSTALLED WITH FROST TREATMENT PER OPSD 803.031 WHERE APPLICABLE.
29. ALL STORM MANHOLES WITH PIPE LESS THAN 900MM IN DIAMETER SHALL BE CONSTRUCTED WITH A 300MM SUMP AS PER SDG, CLAUSE 6.2.6.

WATERMAIN

30. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
31. ALL PVC WATERMAINS SHALL BE AWWA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.
32. ALL WATER SERVICES LESS THAN OR EQUAL TO 50MM IN DIAMETER TO BE TYPE 'K' COPPER.
33. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17. UNLESS SPECIFIED OTHERWISE. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY THE PROJECT GEOTECHNICAL ENGINEER.
34. ALL PVC WATERMAINS, SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W.36.
35. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD.25.5 AND W25.6.
36. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD W24.
37. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD.25.5 AND W25.6.
38. THRUST BLOCKING OF WATERMAINS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.
39. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
40. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. W25,2 AND W25, RESPECTIVELY.
41. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN 2.4M.
42. THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER/UTILITY IS 0.5M PER MOE GUIDELINES. FOR CROSSING UNDER SEWERS, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING TO ENSURE THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.
43. ALL WATERMAINS SHALL HAVE A MINIMUM COVER OR 2.4M, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD DWG W22.
44. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20.
45. FIRE HYDRANT INSTALLATION AS PER STD DWG W19, ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.10M ABOVE PROPOSED FINISHED GRADE AT HYDRANT; FIRE HYDRANT LOCATION AS PER STD DWG W18.
46. BUILDING SERVICE TO BE CAPPED 1.0M OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12M BACK FROM STUB.
47. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.
48. ALL WATERMAINS SHALL BE BACTERIOLOGICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL CHLORINATED WATER TO BE DISCHARGED AND PRETREATED TO ACCEPTABLE LEVELS PRIOR TO DISCHARGE. ALL DISCHARGED WATER MUST BE CONTROLLED AND TREATED SO AS NOT TO ADVERSELY EFFECT ENVIRONMENT. IT IS RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
49. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50MM BLOW OFF UNLESS OTHERWISE NOTED.

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT. CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	24 MAY 2022

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2022/05/24
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
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CLIENT
CLARENCE GATE HOLDINGS INC.

DESIGNED BY: A.S.
DRAWN BY: A.O.
APPROVED BY: V.J.

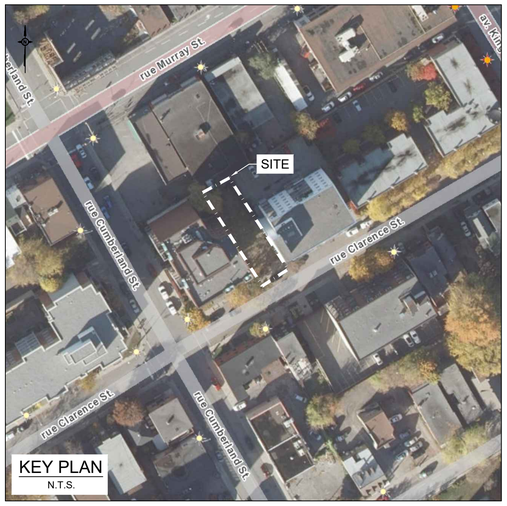
PROJECT
PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

DRAWING TITLE
GENERAL NOTES

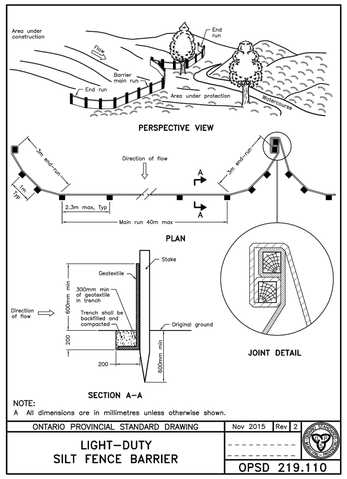
PROJECT NO.
180647

DATE
NOV 2021

C001

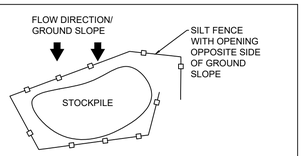


KEY PLAN
N.T.S.

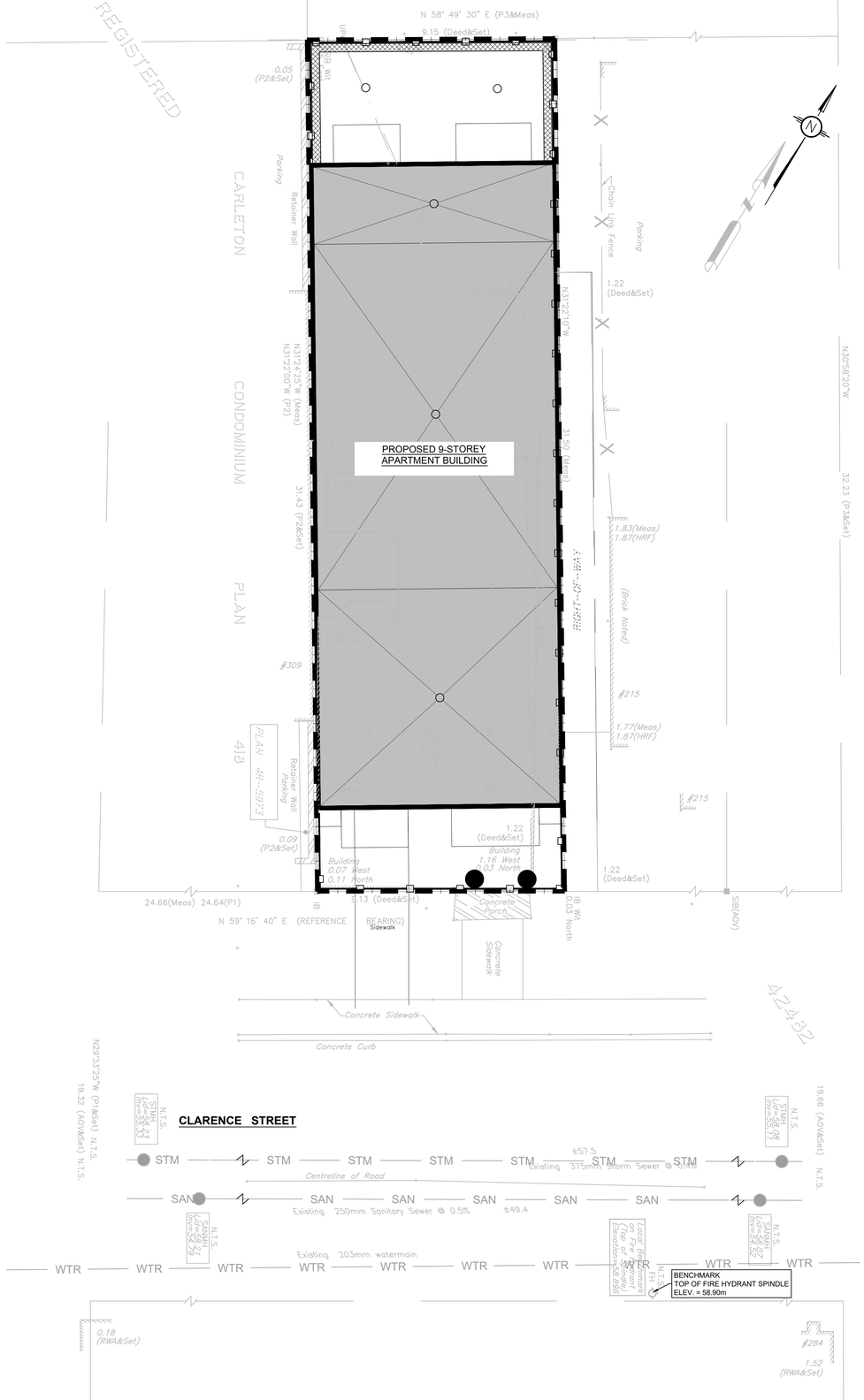


NOTE:
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2015	Rev 2
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110



STOCKPILE EROSION PROTECTION
N.T.S.



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
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- PROPOSED TERRACING (3:1 MIN.)
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- PROPOSED FENCE
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- SAN SAN EXISTING SANITARY SEWER
- WTR WTR EXISTING WATERMAIN
- GAS GAS EXISTING GAS LINE
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
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- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES

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2m 0.5 0 2 4m

SCALE: 1:100

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	24 MAY 2022

LICENSED PROFESSIONAL ENGINEER M. BASNET 100501996 2022/05/24 PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
CLARENCE GATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.O.	V.J.

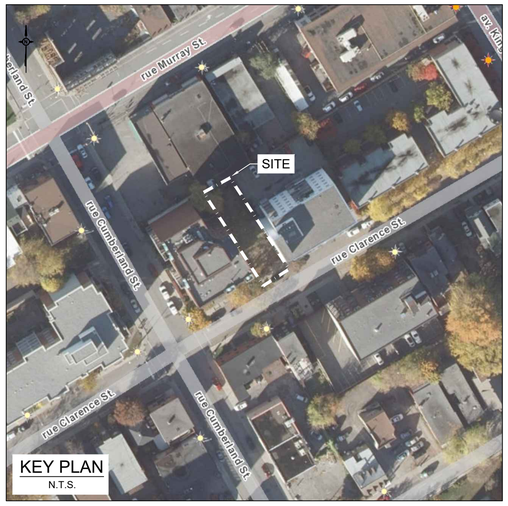
PROJECT
PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

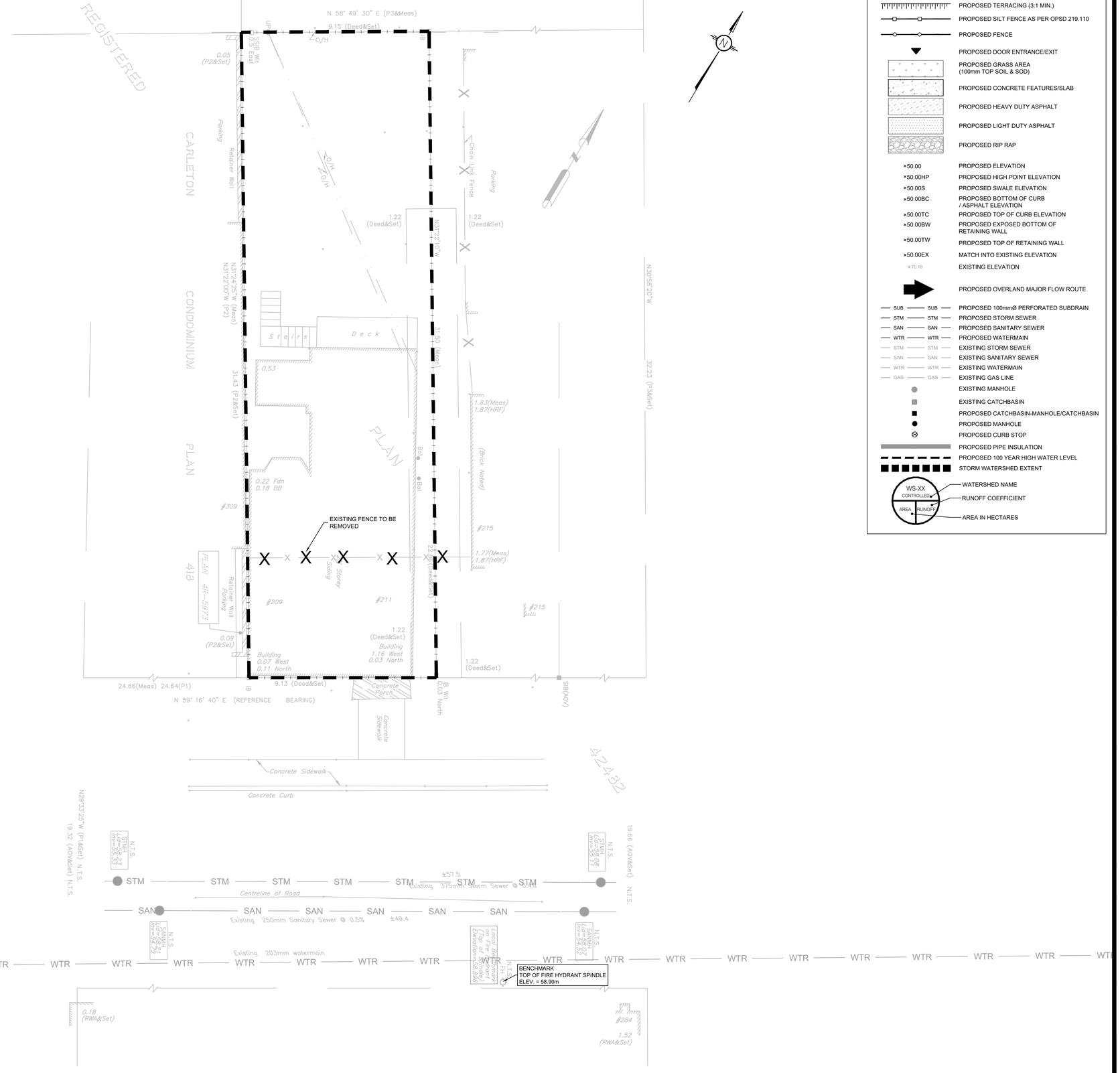
DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.
180647

DATE
NOV 2021

C101





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2m 0.5 0 2 4m

SCALE: 1:100

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	24 MAY 2022

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2022/05/24
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
CLARENCE GATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.O.	V.J.

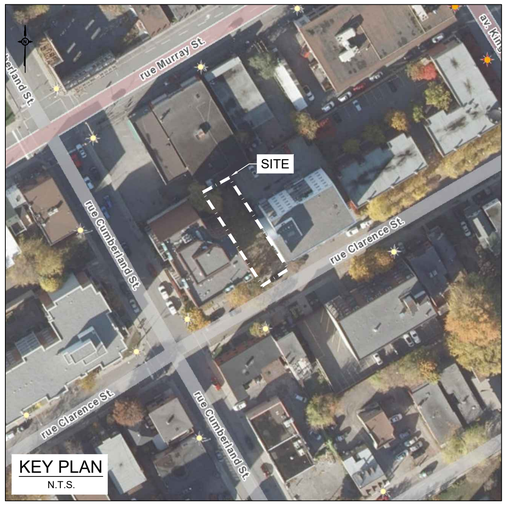
PROJECT
PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

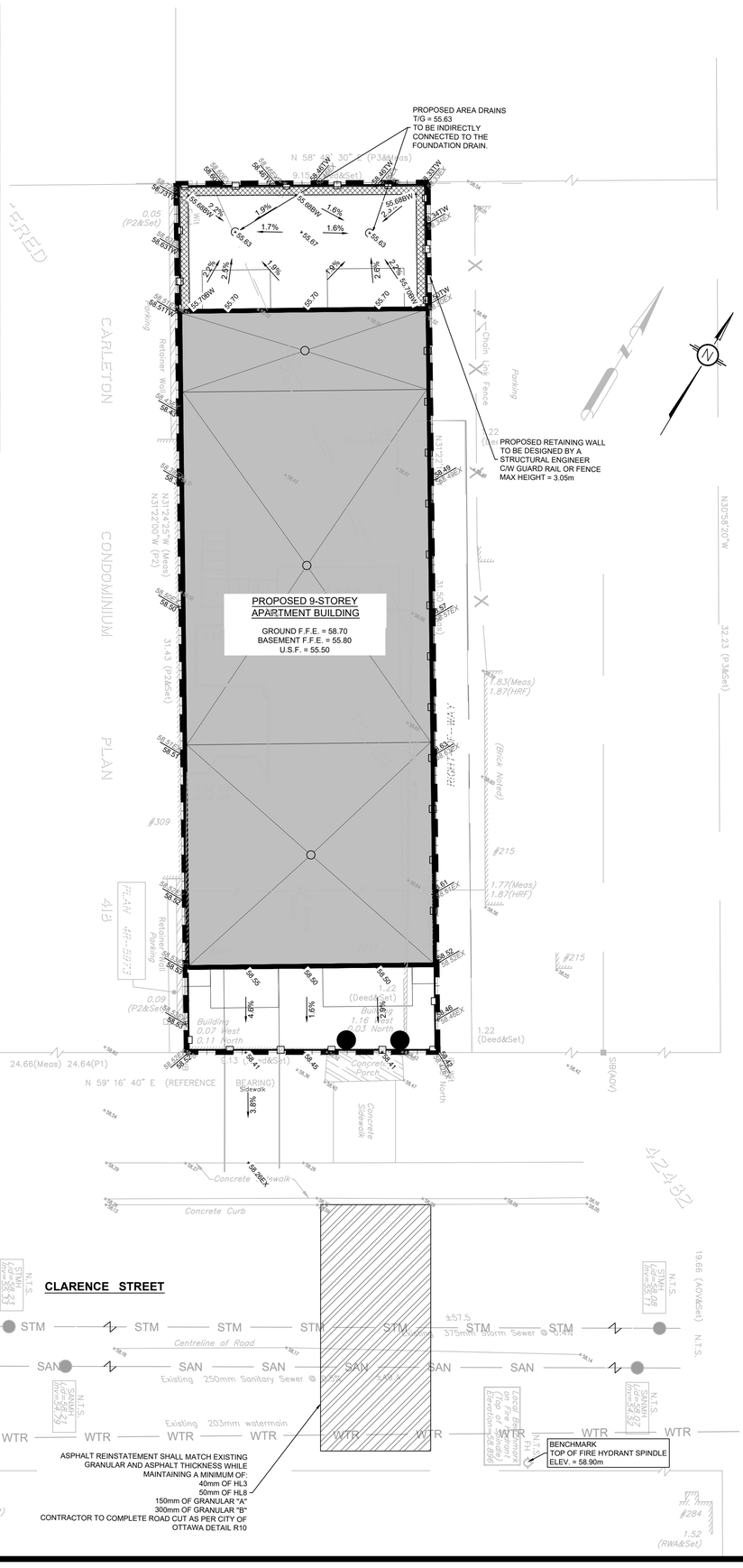
DRAWING TITLE
DEMOLITION PLAN

PROJECT NO.
180647

DATE
NOV 2021

C102





LEGEND:

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WS-XX (CONTROLLED) — WATERSHED NAME
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LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
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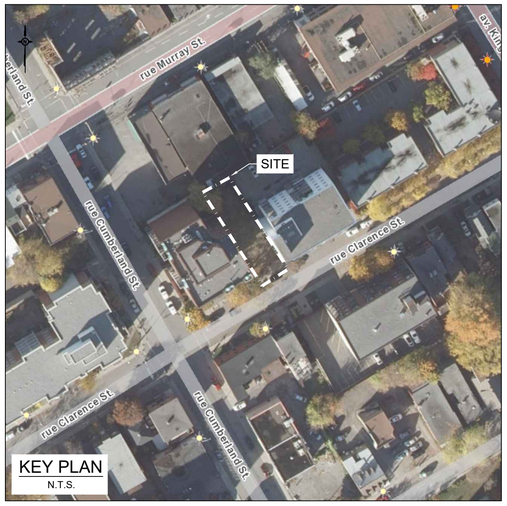
PROJECT
PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

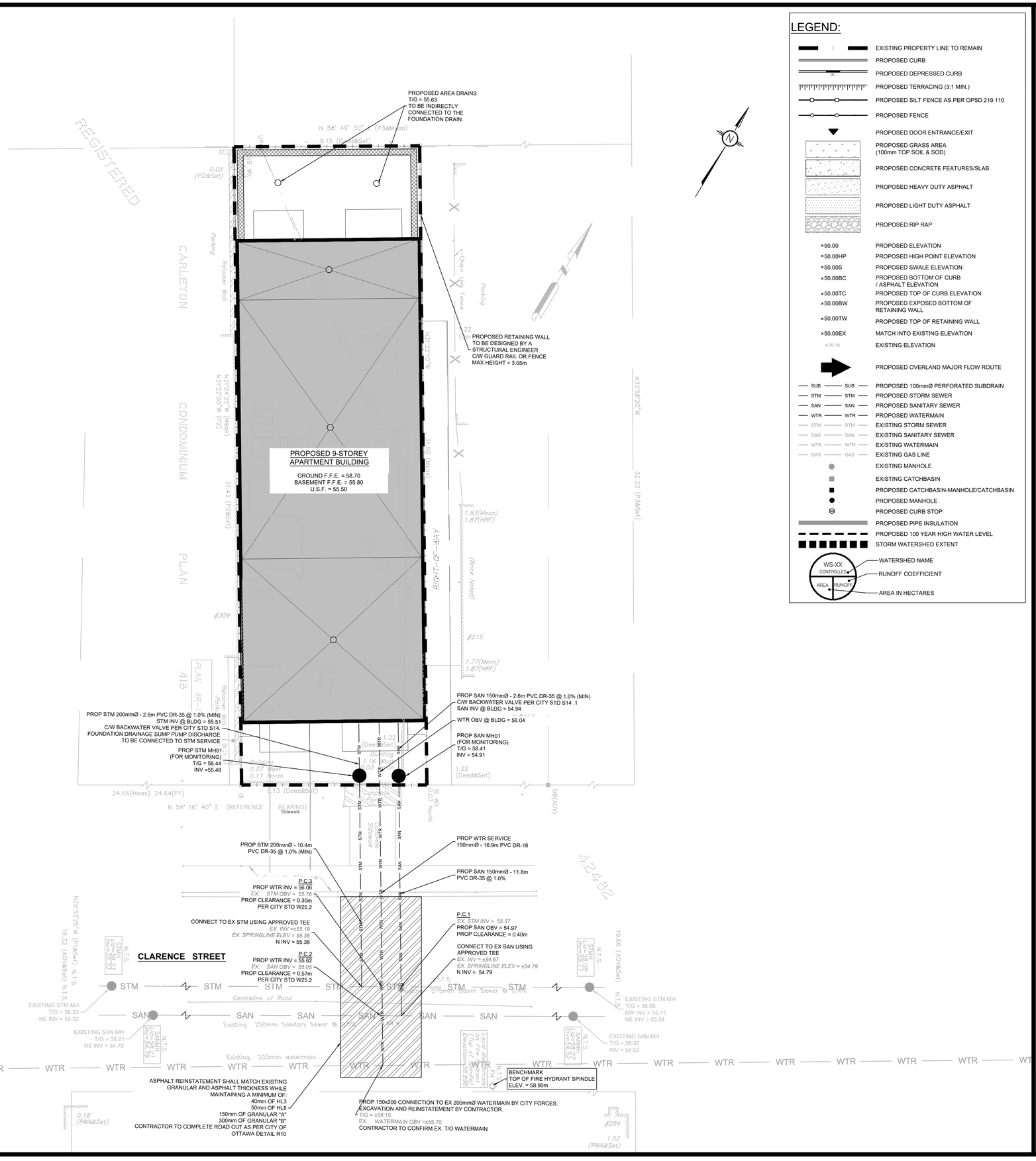
DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT NO.
180647

DATE
NOV 2021

C301





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- SAN — SAN — EXISTING SANITARY SEWER
- WTR — WTR — EXISTING WATERMAIN
- GAS — GAS — EXISTING GAS LINE
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX — WATERSHED NAME
- CONTROLLED — RUNOFF COEFFICIENT
- AREA — AREA IN HECTARES

USE AND INTERPRETATION OF DRAWINGS

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2m 0.5 0 2 4m

SCALE: 1:100

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	24 MAY 2022

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2022/05/24
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road I Ottawa, ON, K1J 9G2
www.lrl.ca I (613) 842-3434

CLIENT

CLARENCE GATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.O.	V.J.

PROJECT

PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

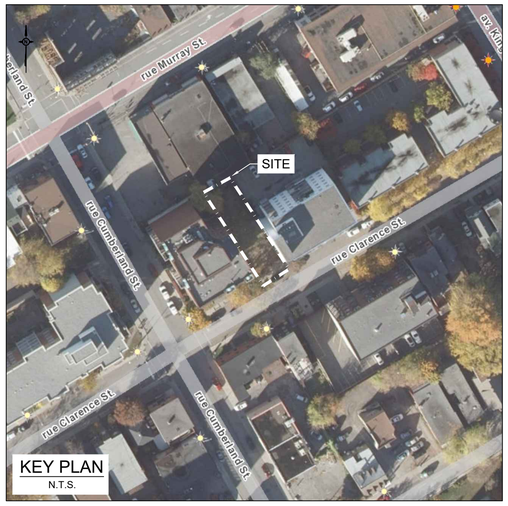
DRAWING TITLE

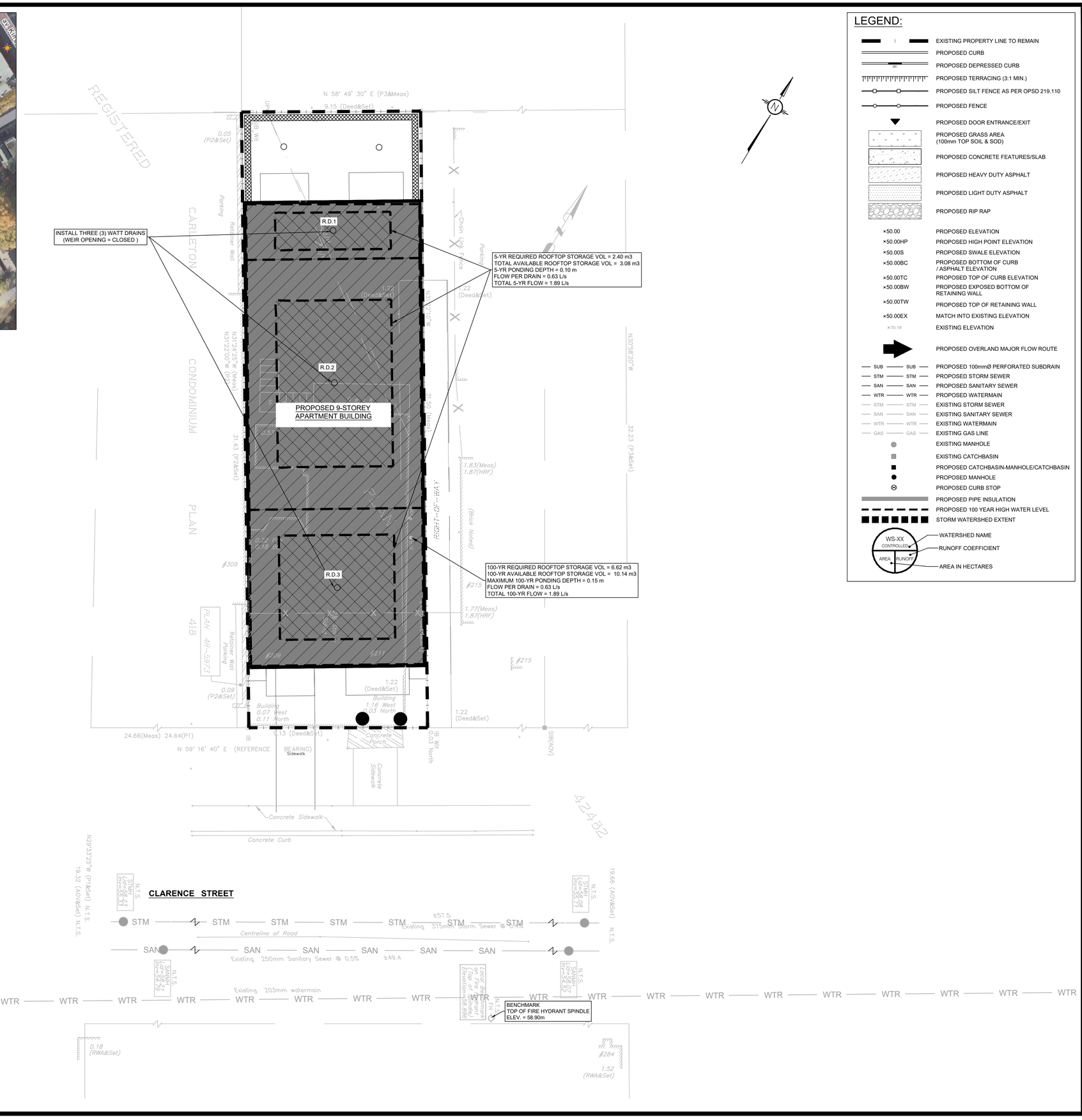
SERVICING PLAN

PROJECT NO.
180647

DATE
NOV 2021

C401





LEGEND:

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- PROPOSED TERRACING (3:1 MIN.)
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- STORM WATERSHED EXTENT

WS-XX (CONTROLLER) — AREA — RUNOFF

- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

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2m 0.5 0 2 4m

SCALE: 1:100

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	24 MAY 2022

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2022/05/24
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road I Ottawa, ON, K1J 9G2
www.lrl.ca I (613) 842-3434

CLIENT

CLARENCE GATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.O.	V.J.

PROJECT

PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

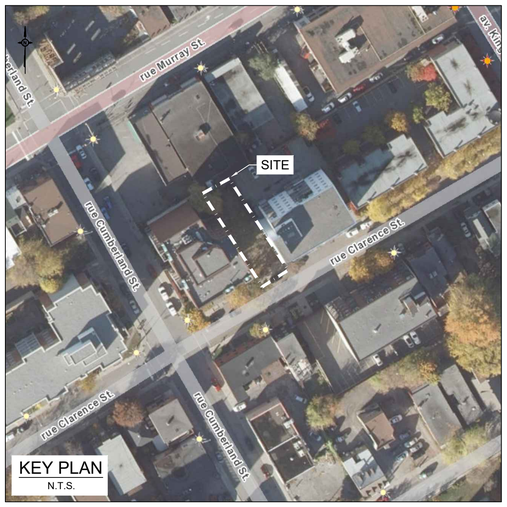
DRAWING TITLE

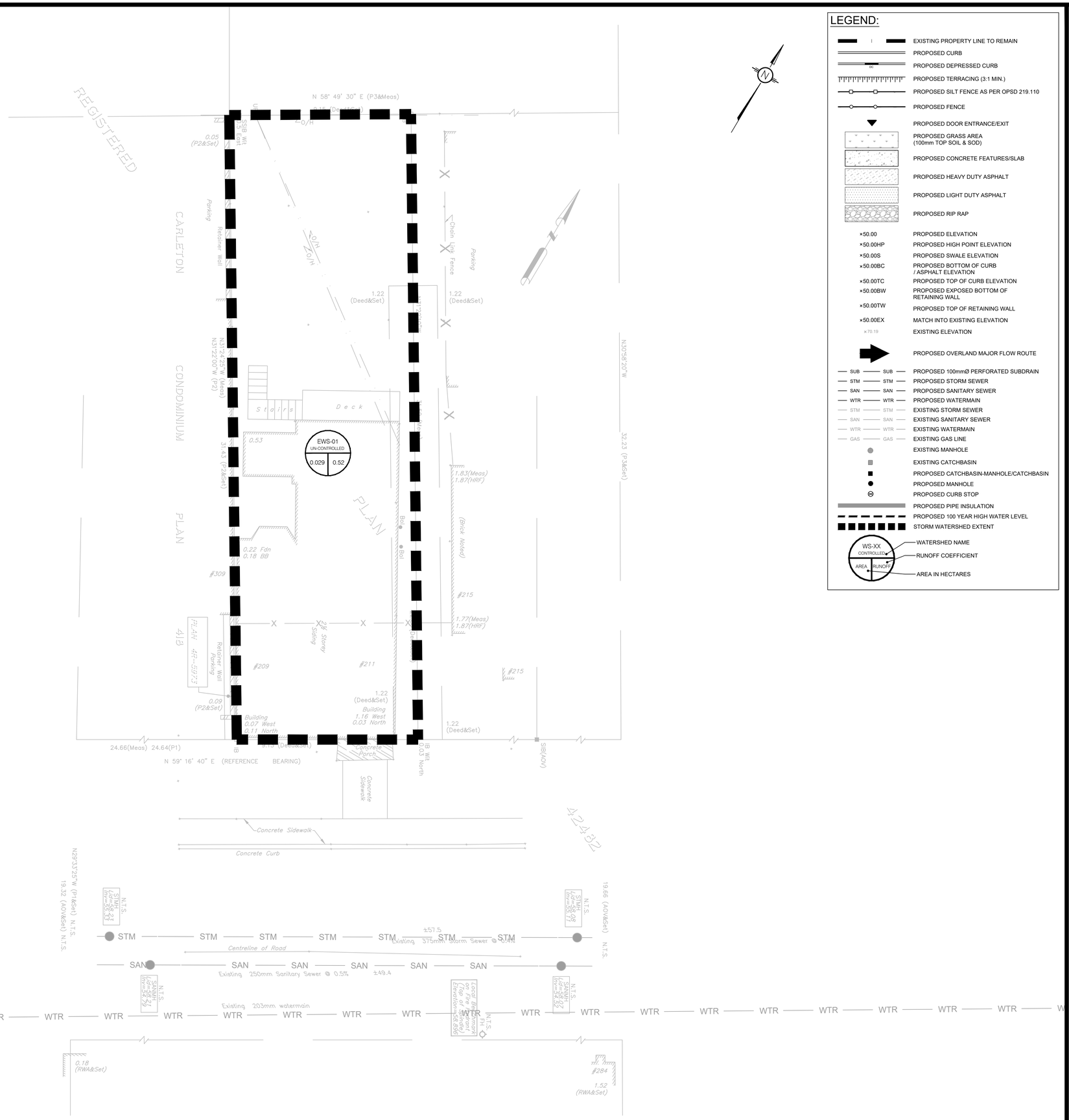
STORMWATER MANAGEMENT PLAN

PROJECT NO.
180647

DATE
NOV 2021

C601





LEGEND:

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WS-XX CONTROLLED — AREA | RUNOFF
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SCALE : 1:100

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	24 MAY 2022

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2022/05/24
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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CLIENT
CLARENCE GATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.O.	V.J.

PROJECT
PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

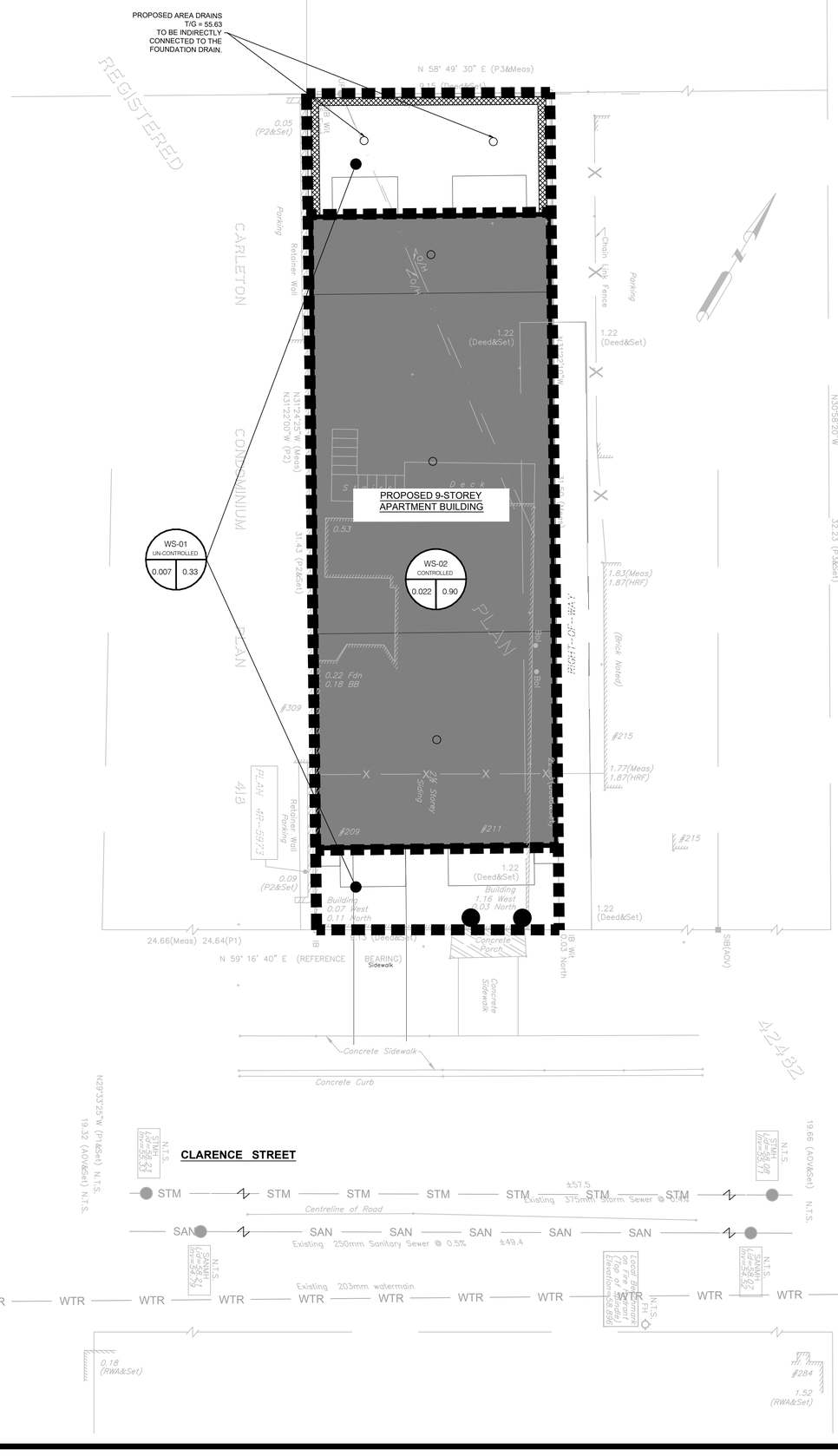
DRAWING TITLE
PRE-DEVELOPMENT
WATERSHED PLAN

PROJECT NO.
180647

DATE
NOV 2021

C701

PROPOSED AREA DRAINS T/G = 55.63 TO BE INDIRECTLY CONNECTED TO THE FOUNDATION DRAIN.



LEGEND:

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GENERAL NOTES:

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CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

2m 0.5 0 2 4m

SCALE: 1:100

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	24 MAY 2022

LICENSED PROFESSIONAL ENGINEER — M. BASNET — 100501996 — 2022/05/24 — PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRJ
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
CLARENCE GATE HOLDINGS INC.

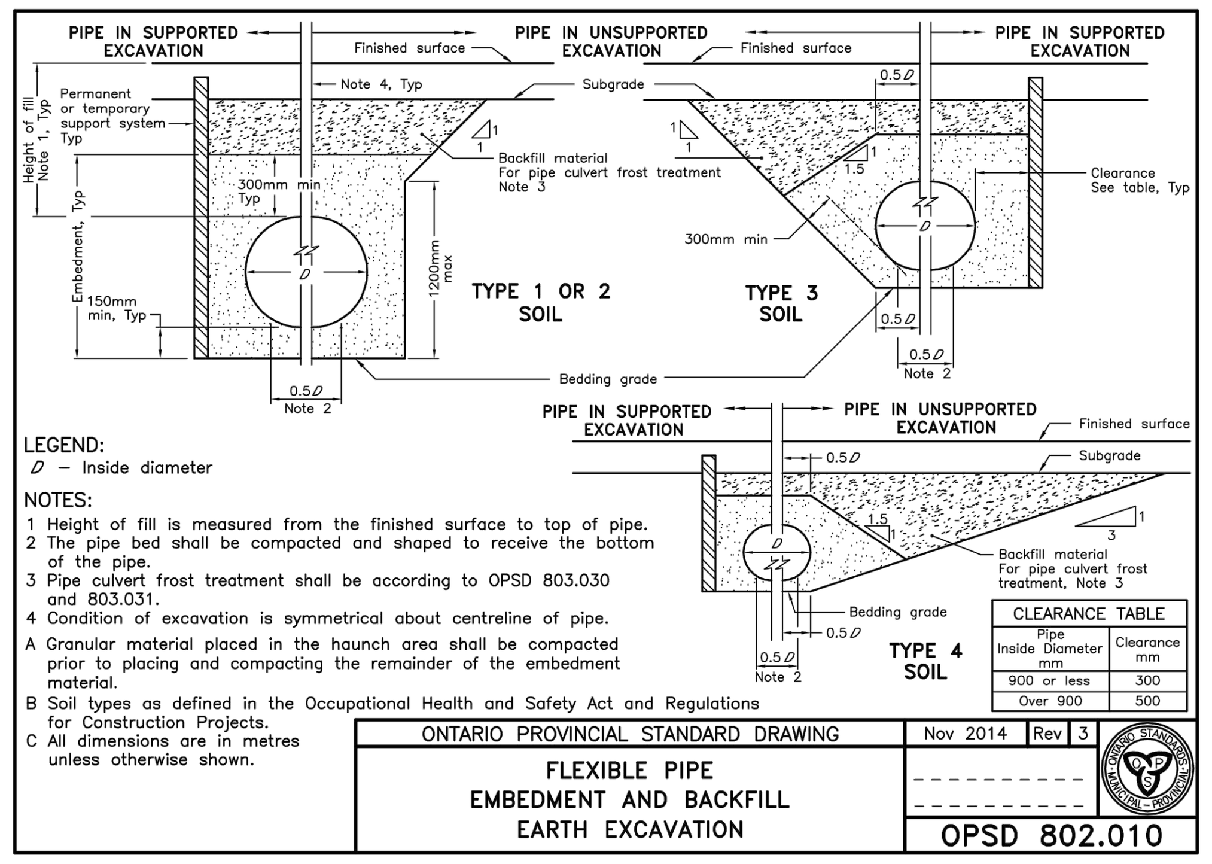
DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.O.	V.J.

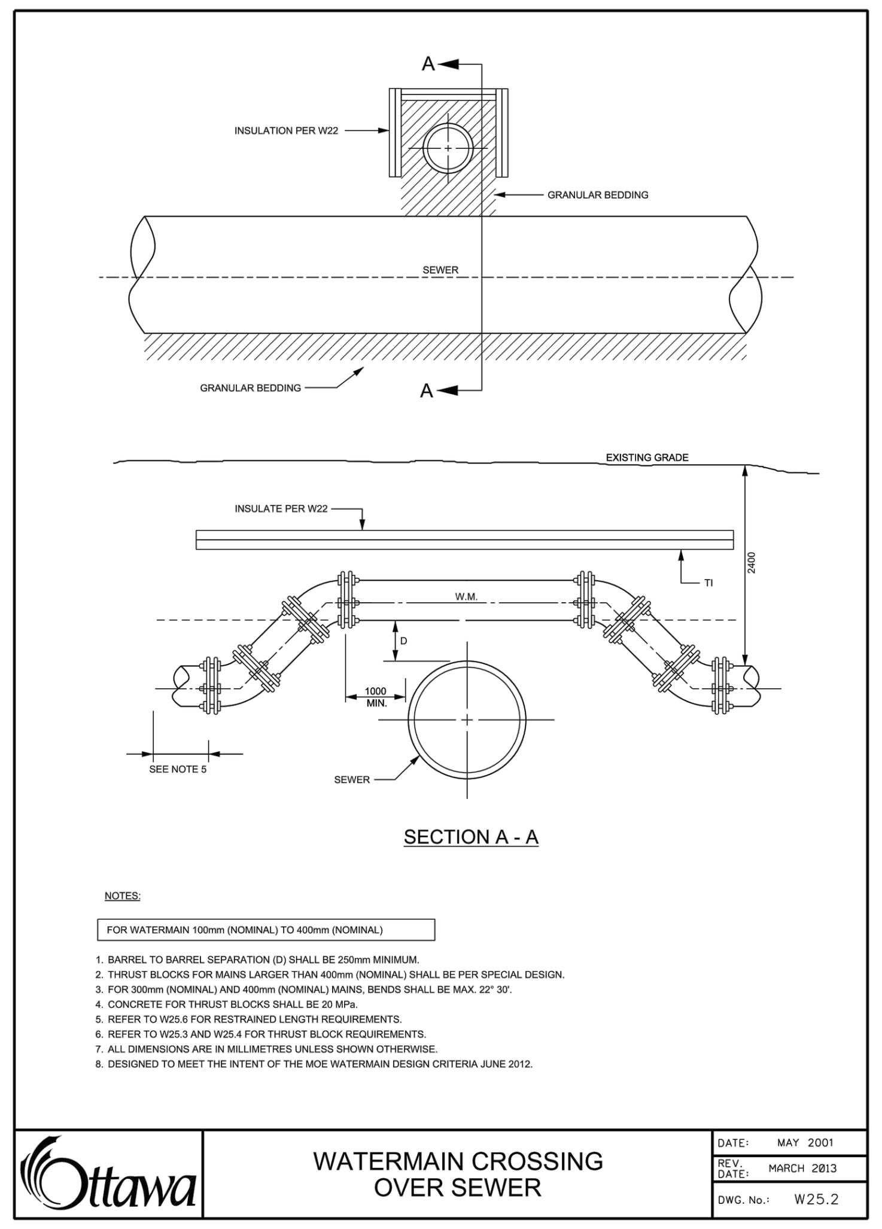
PROJECT
PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

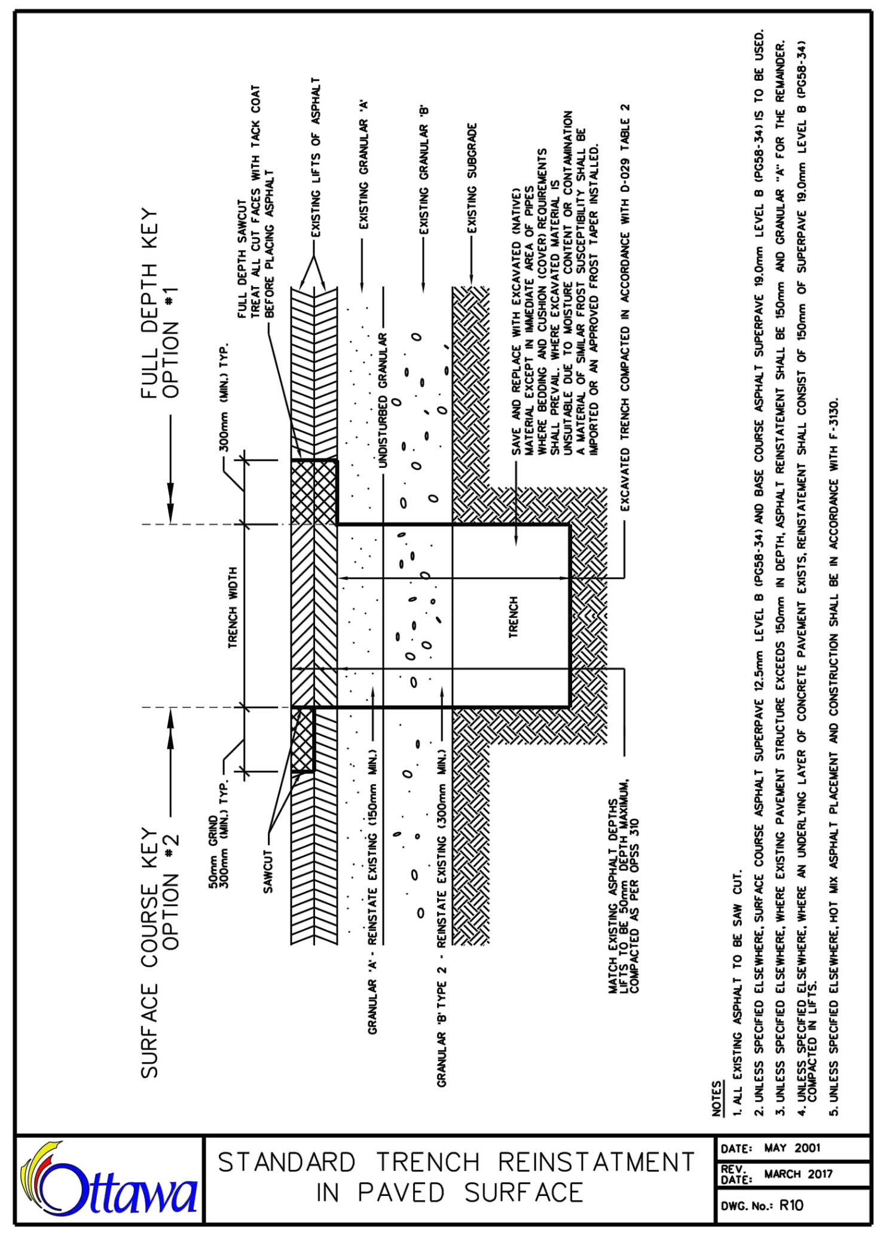
DRAWING TITLE
POST-DEVELOPMENT WATERSHED PLAN

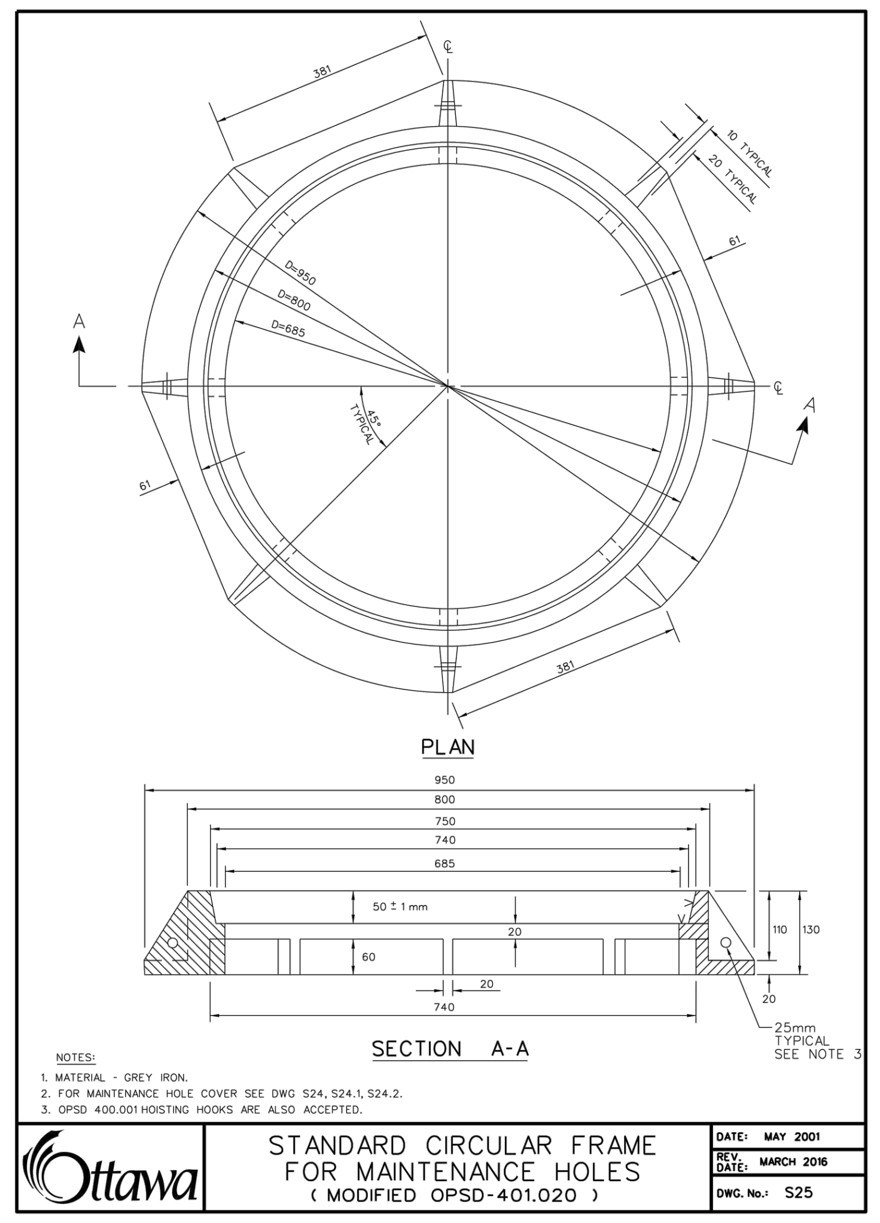
PROJECT NO. 180647
DATE NOV 2021

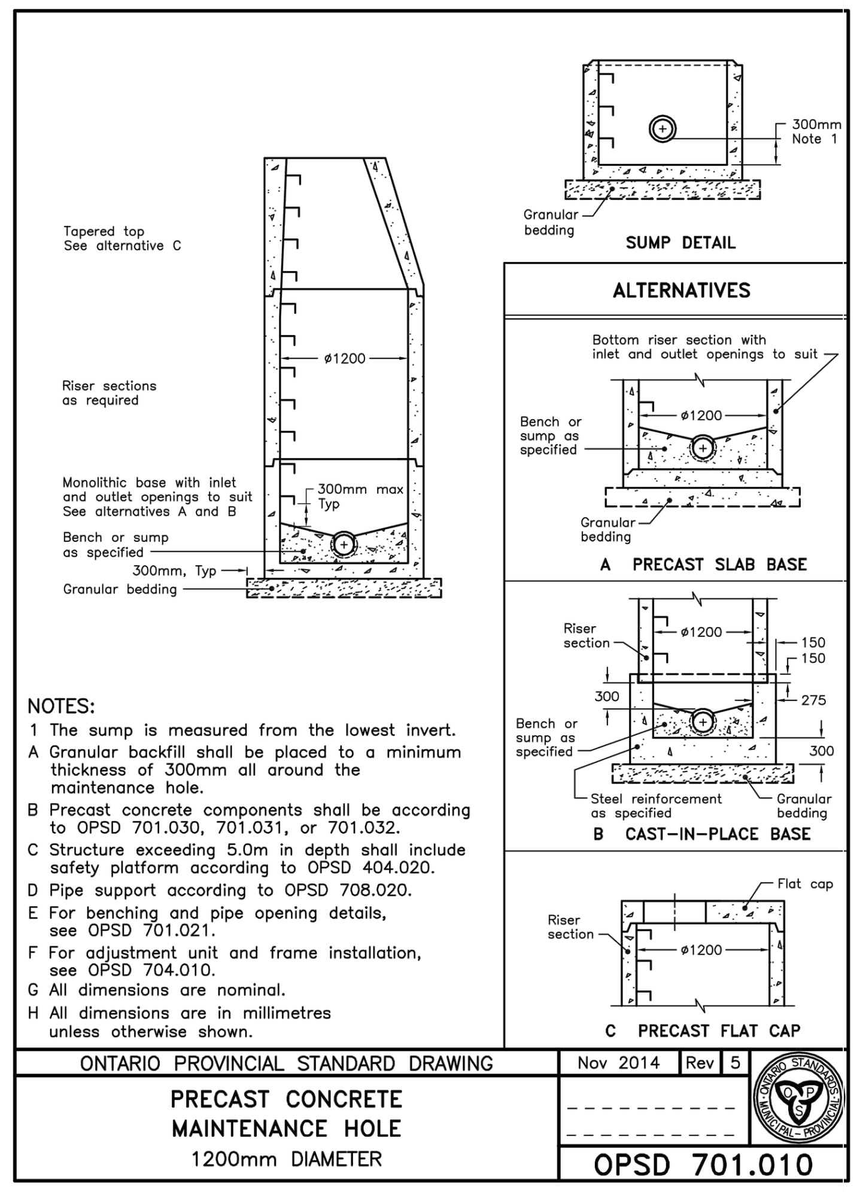
C702

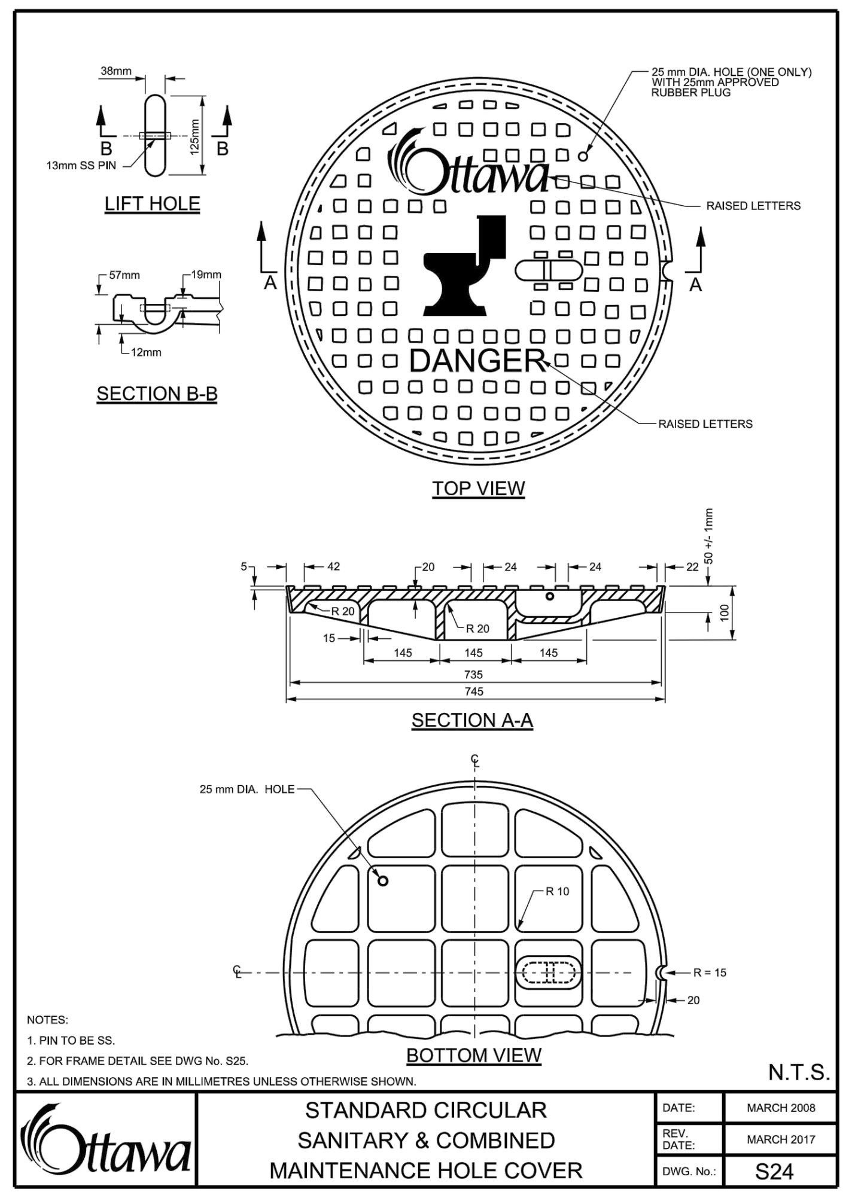


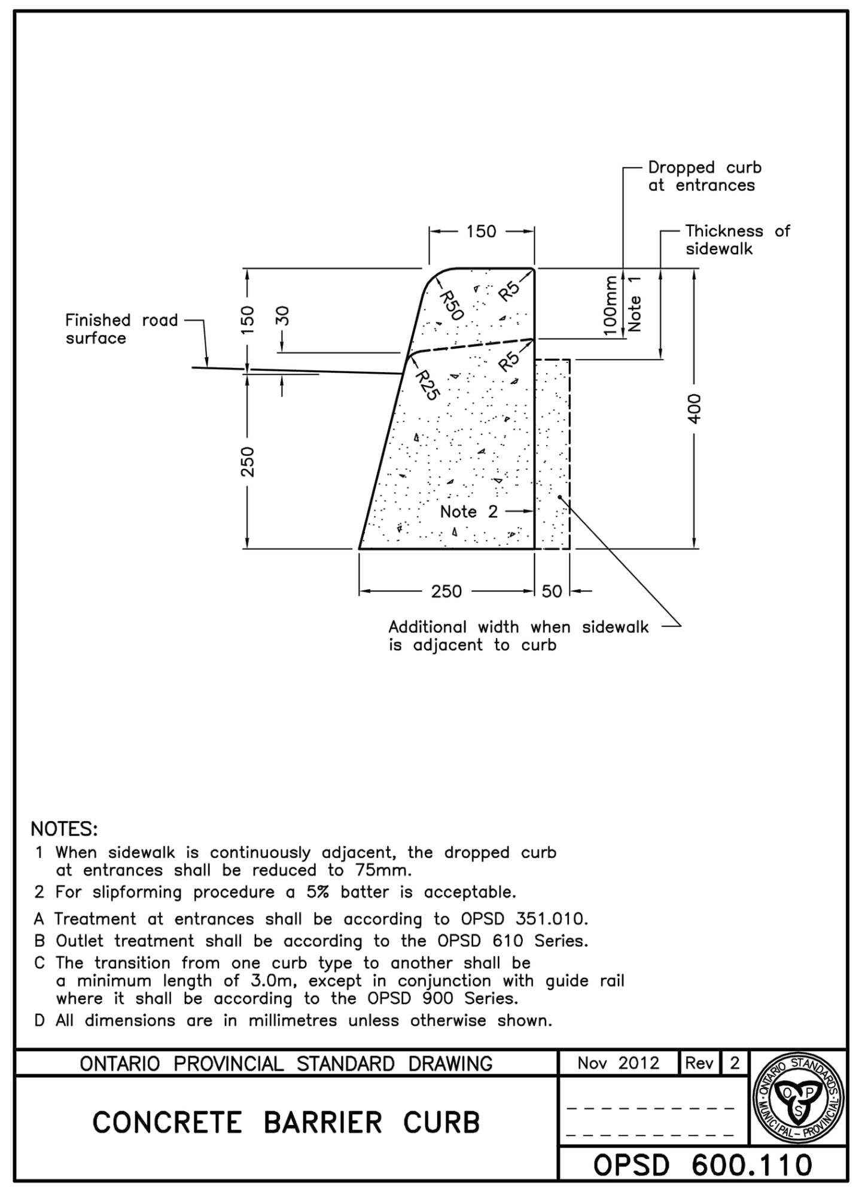


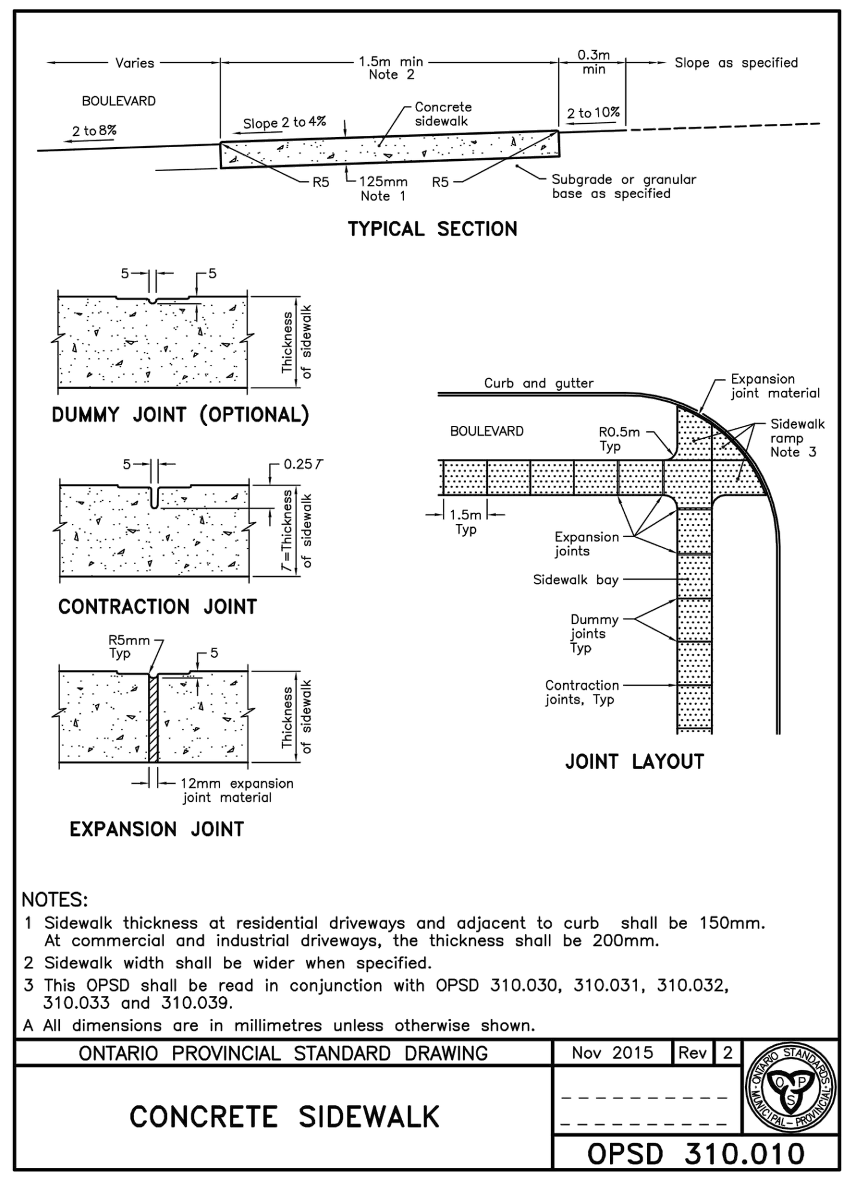


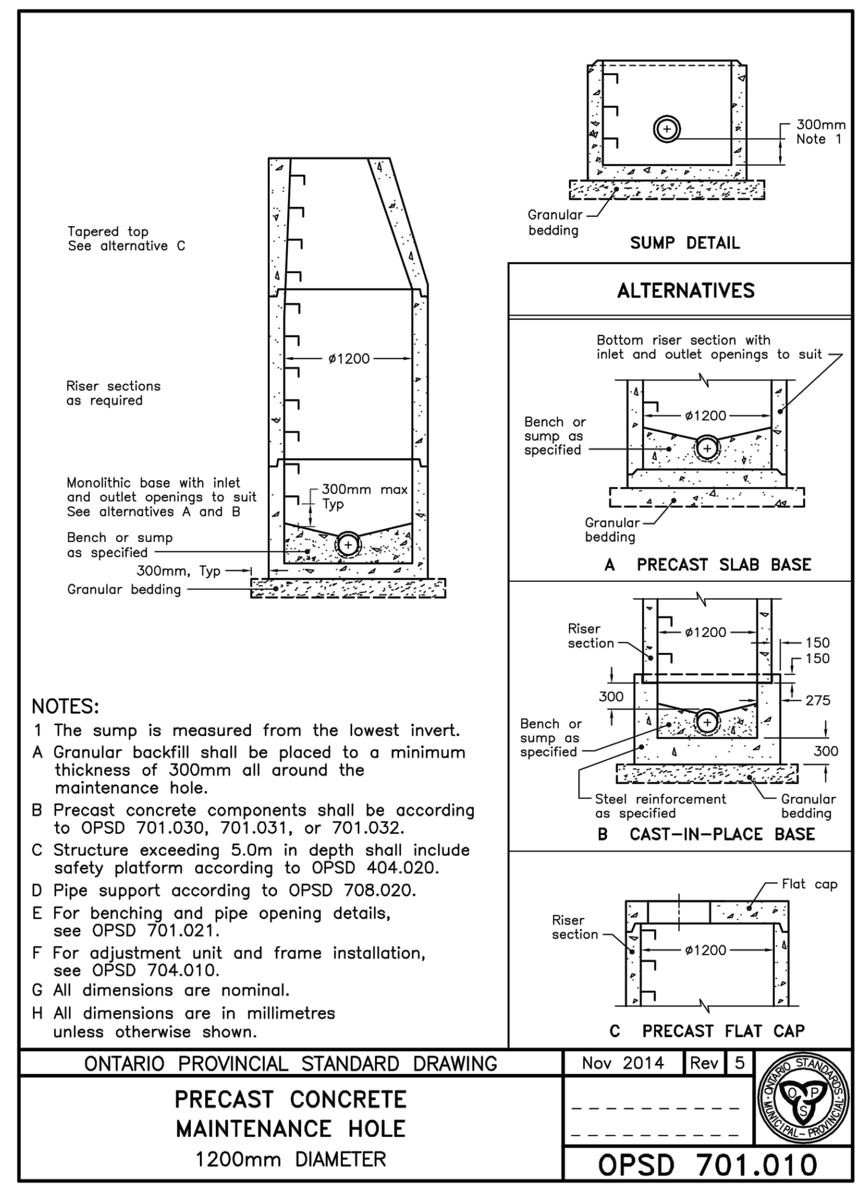


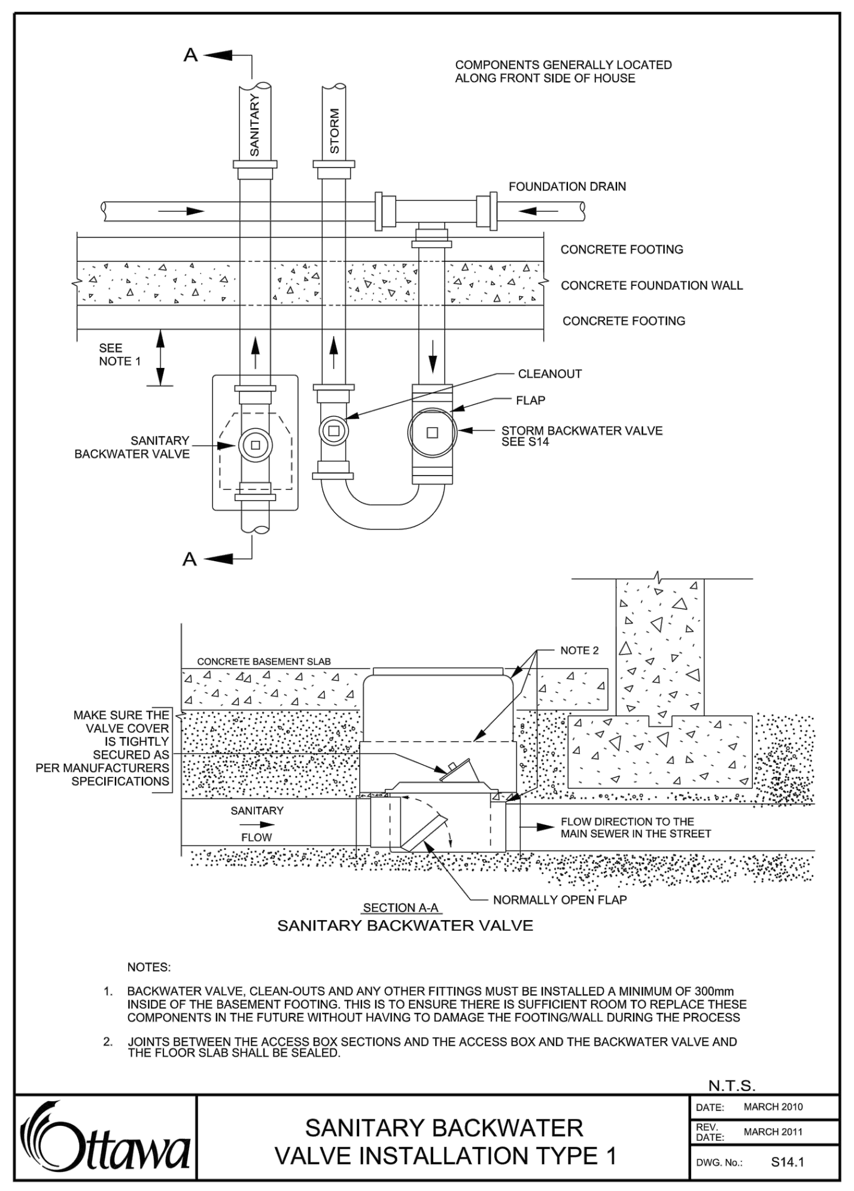


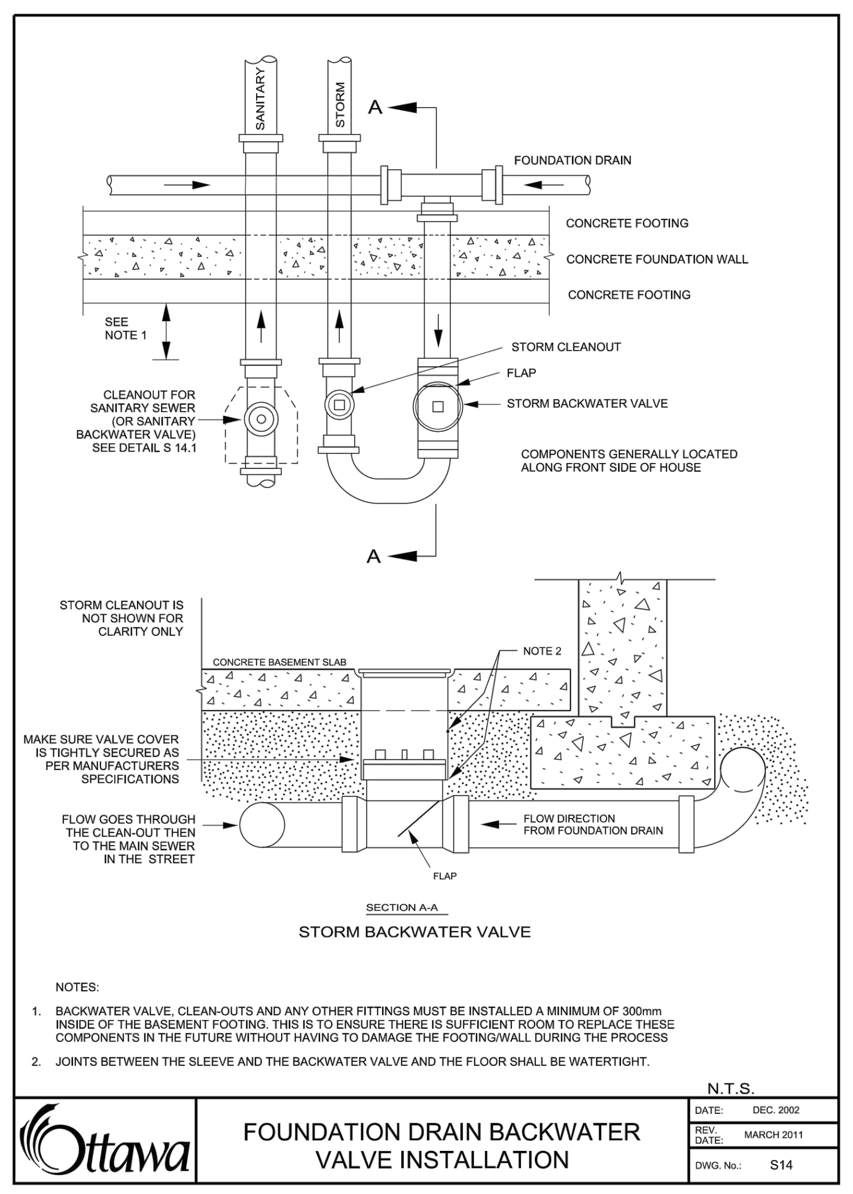


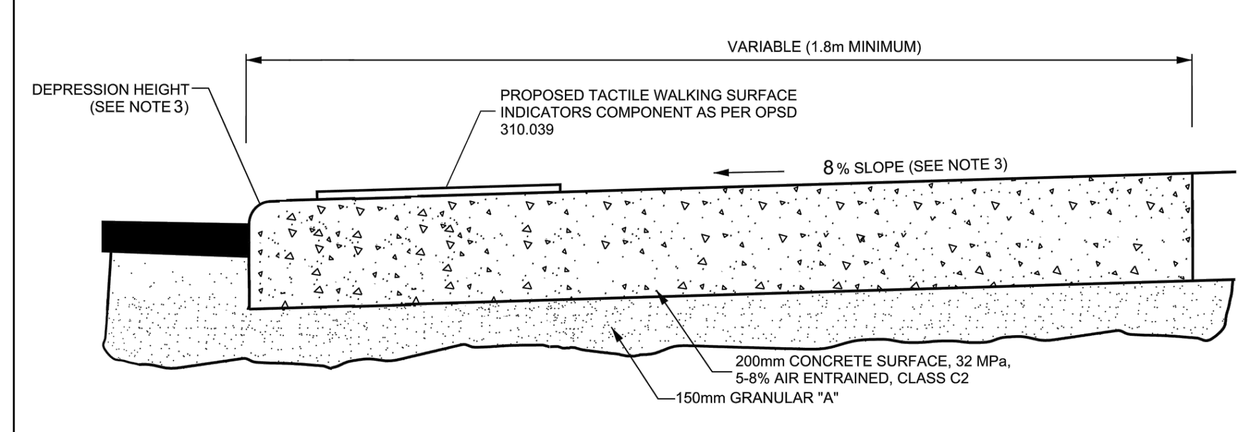






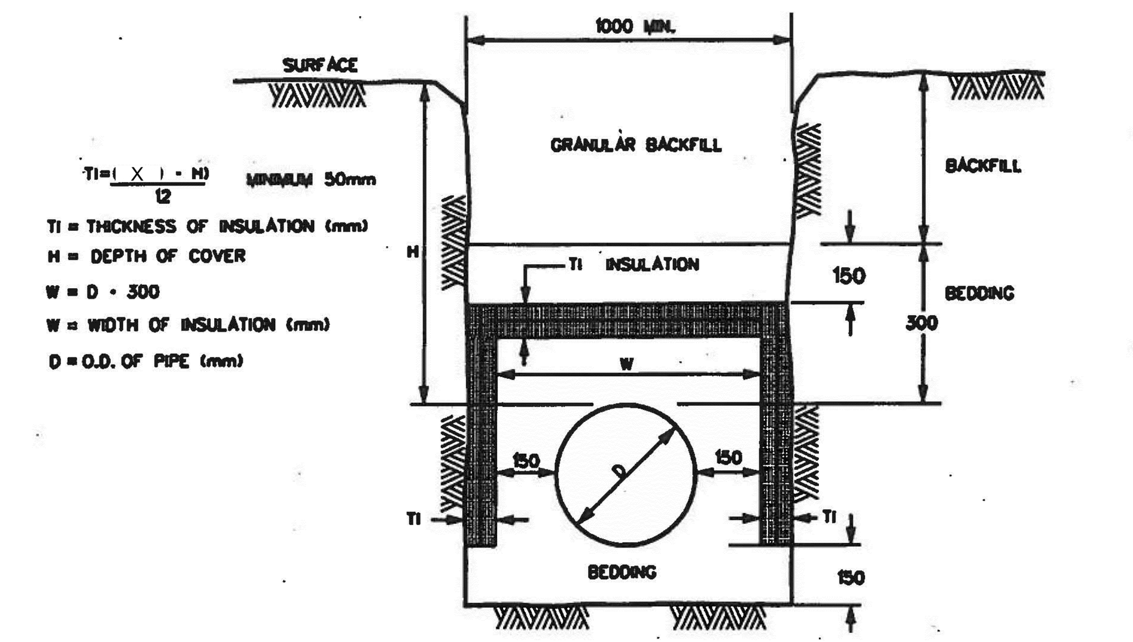






SIDEWALK SECTION AT PRIVATE ENTRANCE AND PEDESTRIAN RAMPS

NOTES:
1. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
2. FOR CURB RAMPS, SLOPE OF 2% TO 5%, MAXIMUM 8%.
3. DEPRESSION HEIGHT 0 TO 6 mm



NOTES:
-FOR STORM INSULATION USE AN X VALUE OF 2000 IN THE ABOVE "TI" EQUATION.
-FOR SANITARY INSULATION USE AN X VALUE OF 2500 IN THE ABOVE "TI" EQUATION.
-FOR WATERMAIN INSULATION USE AN X VALUE OF 2400 IN THE ABOVE "TI" EQUATION.
-INCREMENTS OF INSULATION THICKNESS SHALL BE ADJUSTABLE TO 25mm.
-STAGGER JOINTS OF MULTIPLE SHEETS.
-ALL DIMENSIONS ARE IN MILLIMETERS UNLESS SHOWN OTHERWISE.

TYPICAL STORM AND SANITARYSEWER AND WATERMAIN INSULATION DETAIL
(N.T.S.)

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

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SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	24 MAY 2022

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2022/05/24
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGÉNIERIE
5430 Canotek Road | Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
CLARENCE GATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.O.	V.J.

PROJECT
PROPOSED RE-DEVELOPMENT
211 CLARENCE STREET, OTTAWA, ON

DRAWING TITLE
CONSTRUCTION DETAIL PLAN

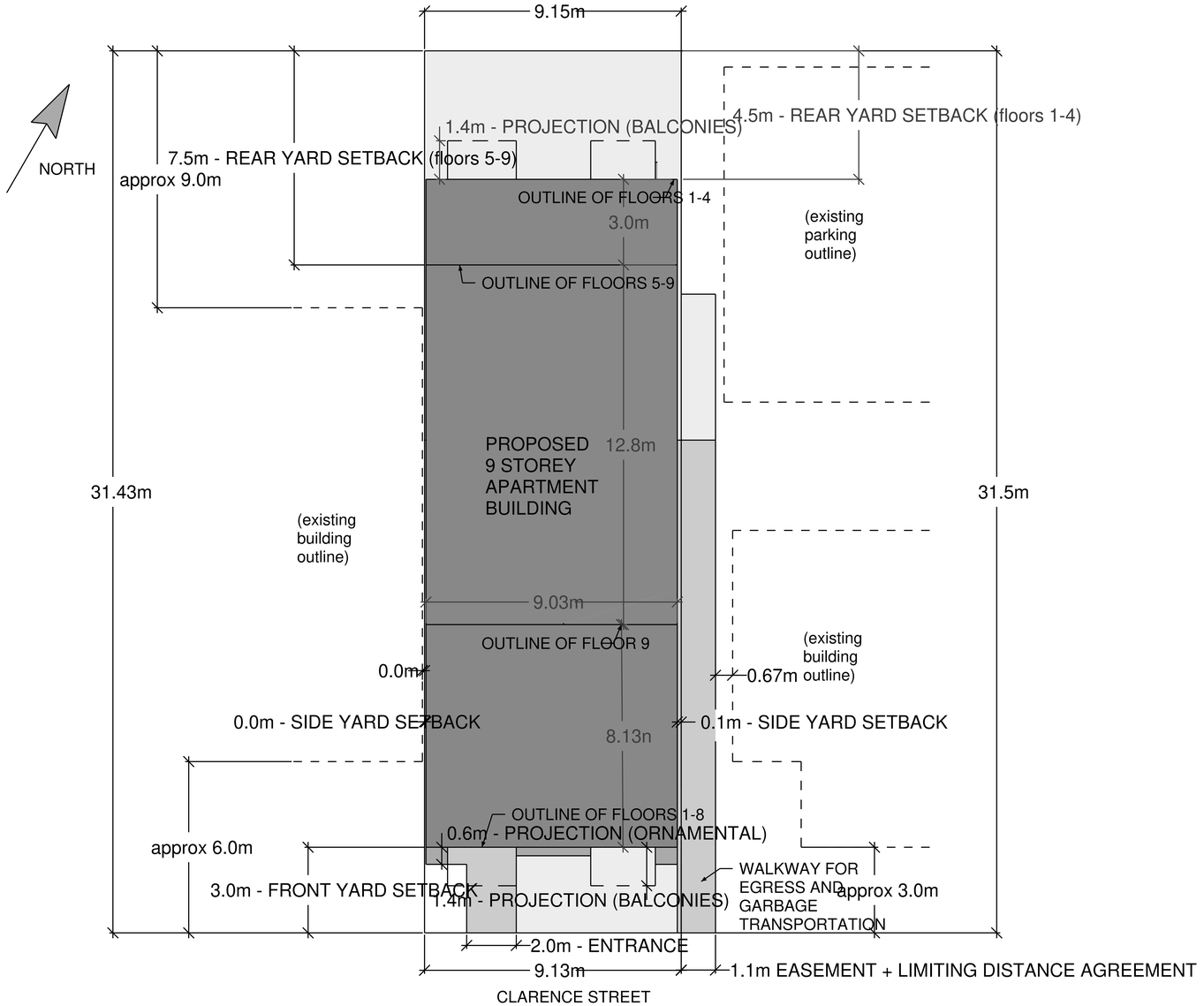
PROJECT NO.
180647

DATE
NOV 2021

C901

APPENDIX F

Proposed Site Plan
Legal Survey
As-builts



PROPOSED MID-RISE APARTMENT BUILDING

9 STOREYS
34 UNITS = 24 STUDIO UNITS + 10 ONE-BEDROOM UNITS
34 BICYCLE PARKING
0 CAR PARKING
COMMON AREA ROOF TERRACE

1718m2 BUILDING AREA - ABOVE GRADE
214 m2 BUILDING AREA - BELOW GRADE
287.6 m2 SITE AREA

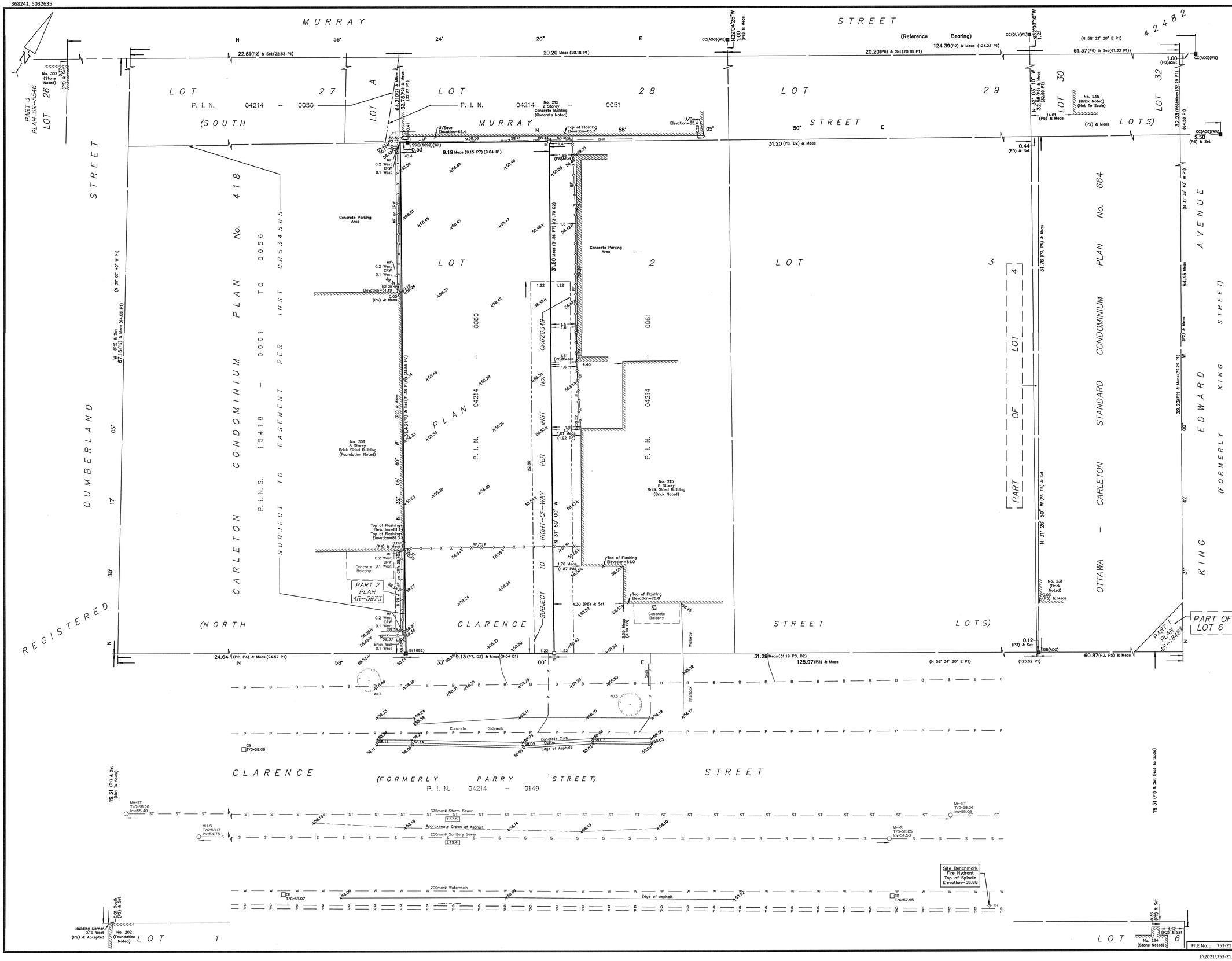
211 CLARENCE - VARIANCES REQUESTED (based on current R4UD S77 Zoning)

1. LOT WIDTH - 12.0m REQUIRED
   - 9.13m PROPOSED
2. LOT AREA - 360.0m2 REQUIRED
   - 287.6m2 PROPOSED
3. BUILDING HEIGHT - 10.7m REQUIRED 6.1m from front lot line
   - 26.25m PROPOSED
4. BUILDING HEIGHT - 12.0m REQUIRED after 6.1m from front lot line
   - 26.25m PROPOSED
   (property has 21.4m height limit as per R4T S77 Zoning)
5. FRONT YARD SETBACK - 6.1m REQUIRED
   - 3.0m PROPOSED (same as adjacent property to the right/east)
6. SIDE YARD SETBACK (left/west) - 2.5m REQUIRED (for first 21m from front lot line)
   - 0.0m PROPOSED (same as adjacent property to the lefttt/west)
7. SIDE YARD SETBACK (left/west) - 6.0m REQUIRED (from 21m to 27m from front lot line)
   - 0.0m PROPOSED (same as adjacent property to the lefttt/west)
8. SIDE YARD SETBACK (right/east) - 2.5m REQUIRED (for first 21m from front lot line)
   - 0.1m PROPOSED
9. SIDE YARD SETBACK (right/east) - 6.0m REQUIRED (from 21m to 27m from front lot line)
   - 0.1m PROPOSED
10. REAR YARD SETBACK (floors 1-4) - 7.5m REQUIRED
    - 4.5m PROPOSED (rear yar setback floors 5-9 - 7.5m proposed)
11. VISITORS PARKING - 2 SPACES REQUIRED
    - 0 SPACES PROPOSED
12. AMENITY AREA

211 CLARENCE STREET
CLARENCE GATE HOLDINGS
JANUARY 2022

SITE PLAN
613-860-3500
34 UNITS

368241, 5032635



TOPOGRAPHIC PLAN OF SURVEY OF

PART OF LOT 2
(NORTH CLARENCE STREET)
REGISTERED PLAN 42482
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2022

Scale 1: 100

0 2.5 5 7.5 10 metres

Metric Note

Distances on this plan are in metres and can be converted to feet by dividing by 0.3048.

Distance Note

Distances shown on this plan are ground distances and can be converted to grid distances by multiplying by the combined scale factor of 0.99994.

Bearing Note

Bearings hereon are grid bearings derived from the Can-Net Real Time Network and are referred to the Central Meridian of MTM Zone 9 (76°30' West Longitude) Nad-83 (Original).

For bearing comparisons, a rotation of 0°43'40" counter-clockwise was applied to bearings on P1, P2, P3, P4 & P5.

Elevation Notes

1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978.
2. Elevations derived from City of Ottawa Vertical Benchmark No. 247 having a published elevation of 57.951m.
3. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing..

Utility Notes

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data derived from City of Ottawa utility sheet reference: D-14-01, D-14-02, 2441p&p4 & 2441p8p5.
4. Sanitary and storm sewer grades and inverts were derived from: Field measurement.
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Notes & Legend

Denotes

—□—	=	Survey Monument Planted
—■—	=	Survey Monument Found
SIB	=	Standard Iron Bar
SSIB	=	Short Standard Iron Bar
IB	=	Iron Bar
CC	=	Cut Cross
(OU)	=	Origin Unknown
(Wit)	=	Witness
Meas	=	Measured
(P1)	=	Registered Plan 42482
(P2)	=	Plan 4R-5973
(P3)	=	Plan 4R-11239
(P4)	=	Carleton Condominium Plan No. 418
(P5)	=	Ottawa-Carleton Standard Condominium Plan No. 664
(P6)	=	Plan by (AOG) dated March 10, 2021 (Job No. 21338-21)
(P7)	=	Plan by (647) dated February 9, 1973
(P8)	=	Plan by (647) dated February 5, 1969
(D1)	=	Inst CR626349
(D2)	=	Inst CR242100
○ MH-ST	=	Maintenance Hole (Storm)
○ MH-S	=	Maintenance Hole (Sanitary)
—— ST ——	=	Underground Storm Sewer
—— S ——	=	Underground Sanitary Sewer
—— W ——	=	Underground Water
—— P ——	=	Underground Power
—— G ——	=	Underground Gas
—— B ——	=	Underground Bell
—— OHW ——	=	Overhead Wires
○ UP	=	Utility Pole
○ LS	=	Light Standard
□ CB	=	Catch Basin
□ GM	=	Gas Meter
Ø	=	Diameter
BF	=	Board Fence
WF	=	Wire Fence
MF	=	Metal Fence
CRW	=	Concrete Retaining Wall
Inv.	=	Invert
T/G	=	Top of Grate
U/Eave	=	Underside of Eave
TpFdn	=	Top of Foundation
C/L	=	Centreline
+ 65.00	=	Location of Elevations
+65.00	=	Top of Concrete Curb/Retaining Wall Elevation
	=	Property Line
	=	Deciduous Tree - The Symbol shown denotes location and trunk diameter only. Size of its' root system/overhead canopy may be smaller/larger than the symbol size depicted on this plan.

TOPOGRAPHIC DATA WAS COLLECTED UNDER WINTER CONDITIONS. SNOW COVER AND ICE PRECLUDE DETERMINING LOCATION AND ELEVATION OF SOME TOPOGRAPHICAL DATA THAT IS OTHERWISE VISIBLE.

Surveyor's Certificate

I certify that :

1. This survey and plan are correct and in accordance with the Surveys Act, the Surveyors Act and the Regulations made under them.
2. The survey was completed on the 16th day of February, 2022.

Feb 22/22
Date

Jamie Leslie
Ontario Land Surveyor

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-22704

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

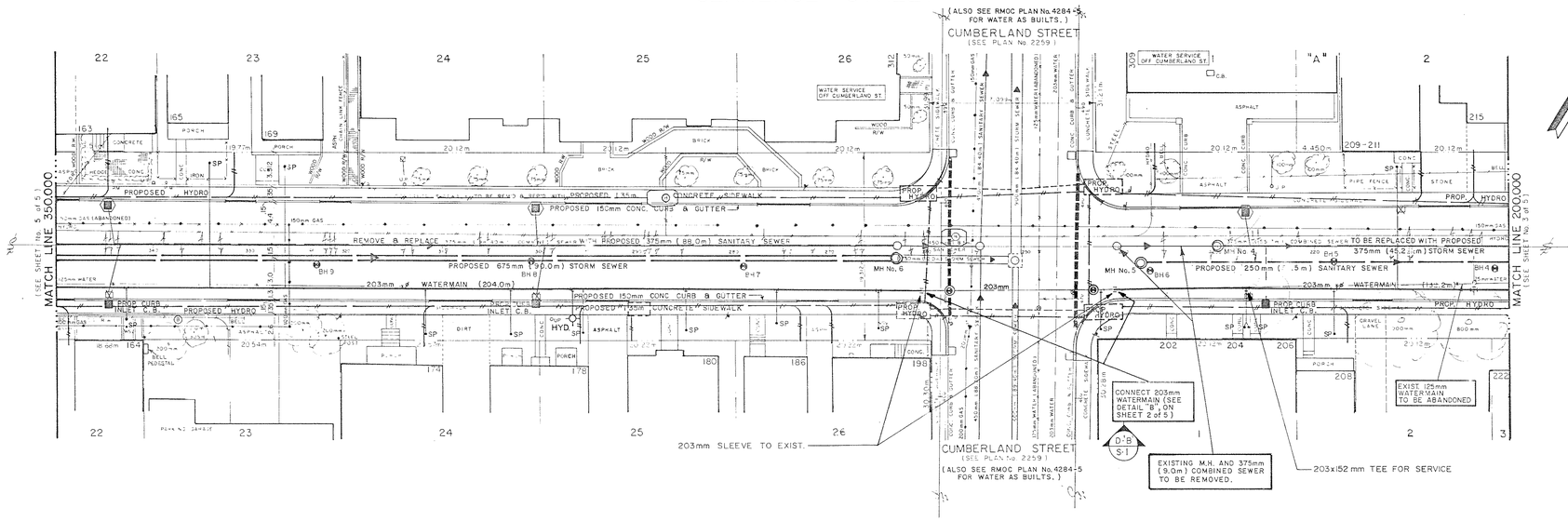
FARLEY, SMITH & DENIS SURVEYING LTD.
ONTARIO LAND SURVEYORS
CANADA LAND SURVEYORS
Unit 275, 30 COLONNADE ROAD, OTTAWA, ONTARIO K2E 7J6
TEL. (613) 727-8226 E-mail: fsdsurveys@bellnet.ca

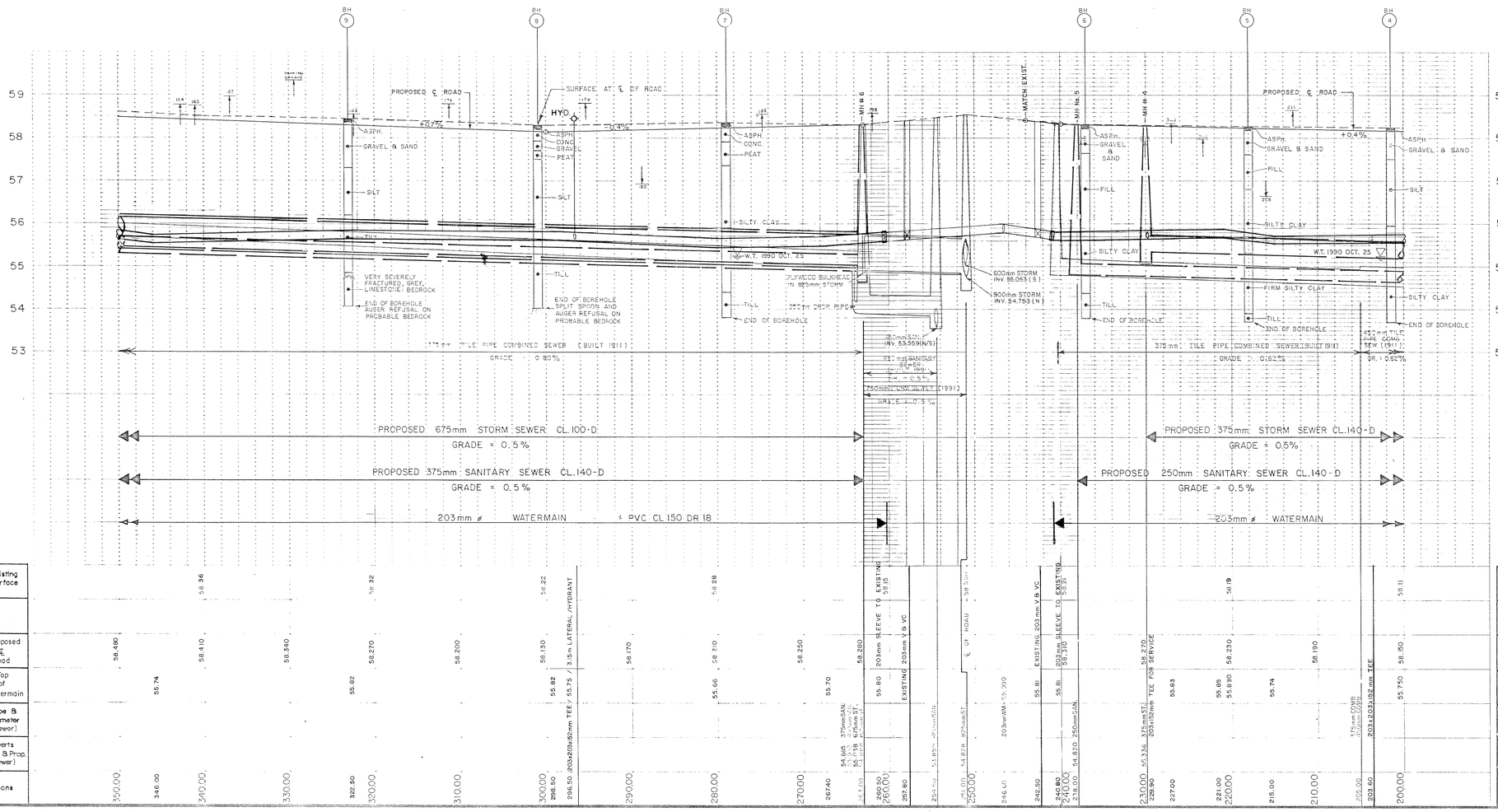
FILE No.: 753-21

J:\2021\753-21_211 Clarence St_topo\Final\753-21_211 Clarence St_Pt1,2 RP42482_T_F.dwg

2441 RMOC WATER
CLARENCE STREET (4 of 8)

CLARENCE STREET





Revisions:

No.	Date	Description	Drawn By	Appr'd By
	MAY 94	AS BUILT W.M. BY R.M.O.C.	CD	

Final Measurements:

Construction Type	Inspector
Work Commenced	Instrumentman
Work Completed	Field Book #
Contractor	Date
Drafting Revisions	Checked By

Designed By D. DOUCHERTY	91.7.26 Date	Structural Check By	Date
Survey Detail By W. CRAIG	Date	Checked By W.B. Craig	JUNE, 1991 Date
Drafting By R.J. SHAPMAN	JUNE, 1991 Date	Checked By W.B. Craig	Date
Chief, Design & Const. Eng.		Senior Const. Coord.	

REGISTERED PROFESSIONAL ENGINEER W. D. TAYLOR PROVINCE OF ONTARIO
FOR ROADS & SEWERS ONLY

J. Morani 13/02/92
FOR WATER ONLY

Notes:

- Utilities shown are taken from best available records. Contractor is requested to check with all utility companies before digging.
- Soil information shown is not guaranteed and contractors are advised to collect additional soils information as deemed necessary.
- Reference bench mark: Index No. 249 Mon. No. OTT 90 Elev. 59.519
- Proposed storm and sanitary sewers may be constructed in a common trench provided that a minimum horizontal distance of 460mm is maintained between outside barrels of pipe.
- All pipes shall conform to the Canadian Standards Association (C.S.A.) A257-2 reinforced concrete sewer pipe with approved rubber gaskets.
- A minimum of 460 mm vertical clearance to be maintained between sewers and watermains where practical.
- Borehole soil descriptions are not based on sieve analysis but on visual inspection only, except where otherwise noted.
- Soil information taken from Jacques Whitford and Paterson & Assoc., Nov., 1990.
- Date of television inspection: July, 1989.
- This plan supercedes (in whole or in part) plan no: G - 21 - a
- Actual rock line recorded during construction of existing —— sewer
- Registered plan no 42482
- Caution, while illustrations and utilities shown are taken from best available information, they cannot be guaranteed.
- When reduced, the scale of this drawing is approximately 1:400 horizontally and 1:81 vertically. Do not scale this plan.
- See additional notes on sheet No. 1.

Regional Municipality of Ottawa-Carleton Environmental Services Department
Municipalité d'Ottawa-Carleton Services environnementaux

Approved

Date 13/02/92

WATER WORKS

"AS BUILT"

City of Ville d' Ottawa

Department Of Engineering And Works
Engineering Branch
Design And Construction Division
1600 SCOTT STREET OTTAWA ONTARIO K1Y 4N7

D.G. Curry P Eng — Commissioner
W.R. Cole P Eng — Branch Director

CLARENCE STREET

FROM KING EDWARD AVENUE TO DALHOUSIE STREET

Contract No.	Survey Books	Scales	Plan No.
92 C 2441	4661, 4705 & 4711	HOR. 1:250 VERT. 1:50	4373-4 / 2441
			Sheet 4 of 5