Stormwater Management and Servicing Report

Apartment Building
1509 Merivale Road
Nepean, Ontario

Prepared for:

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LRL File No.: 200255

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by Katasa Group to complete a Stormwater Management Analysis and Servicing Brief for a proposed nine (9) storey mixed-use building located at 1509-1531 Merivale Road in Ottawa, Ontario. The legal description of the property is Part Block **F** (part 1 and 4 Plan 5R-7688) registered plan **605,** city of Ottawa.

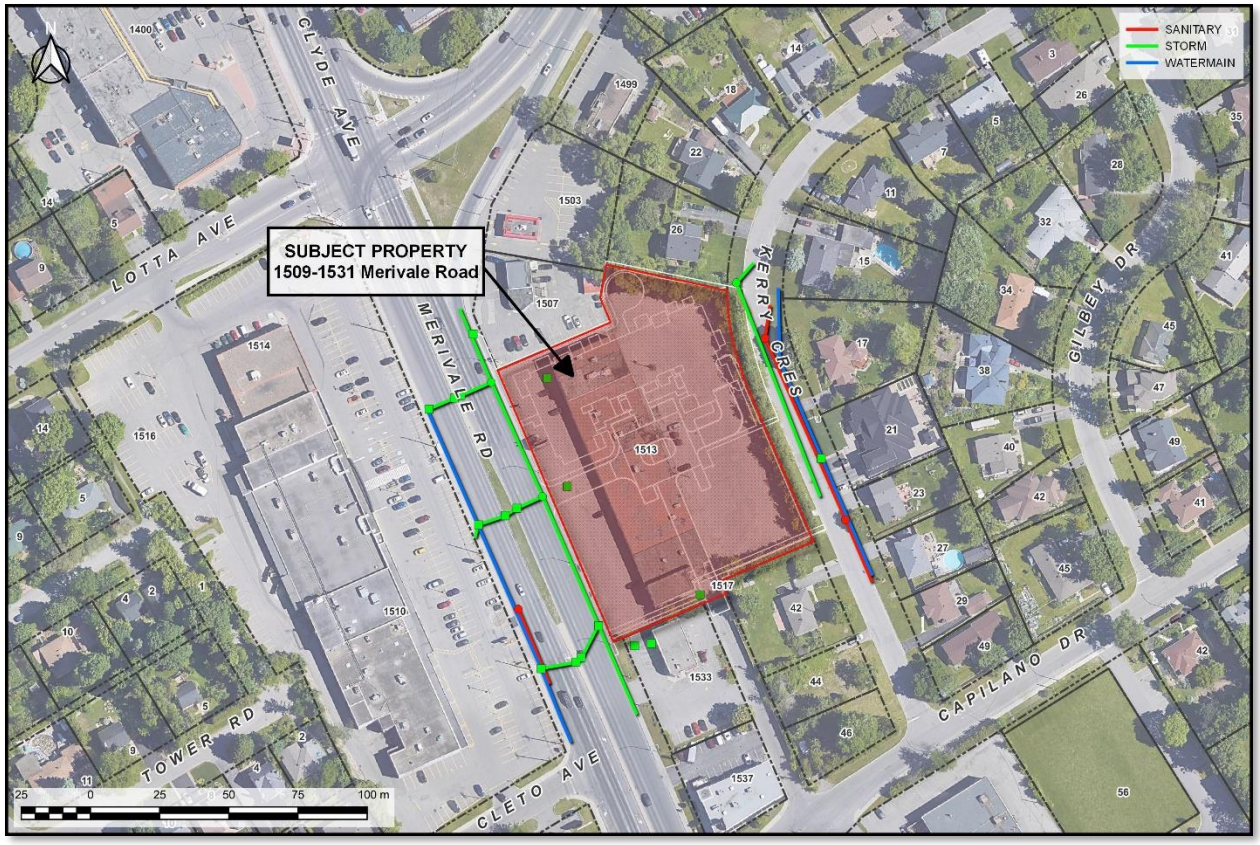


Figure 1: Arial View of Proposed Development

The site at 1509 Merivale Road has approximately 106 metres of frontage along Merivale Road and maximum depth of approximately 87 metres. The overall lot area is approximately **0.89 ha.**

Currently there is a 1 and 2 storey strip mall with 10 units facing the westerly side of the property and paved surface parking on the east and west side of the building with access from Merivale Road.

Under the Zoning By-law 2008-250 the site is zoned under AM10 (Arterial Mainstreet Zone). The proposed uses of the site are in conformity with the existing zoning.

Phase 1 of the development proposes a new nine (9) storey residential apartment building that transitions down to 6-storeys, consisting altogether of two hundred and three (203) units with underground vehicular parking. Future Phase 2 of the development contemplates a second

building with approximately 250 residential units, mirroring the Phase 1 proposed building to be located on the southern portion of the property.

This report has been prepared in consideration of the terms and conditions noted above and with the civil drawings prepared for the new development. Should there be any changes in the design features, which may relate to the stormwater considerations, LRL Associates Ltd. Should be advised to review the report recommendations.

2 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site measures ***0.89 ha*** and currently consists of a 1 and 2 storey strip mall retail building with 10 units, front and rear surface parking with an entrance from Merivale Road. Elevations of existing site range between 94.35m in the northeast corner, 95.25m at the southeast corner, 95.93m at the southwest corner, and 95.39m in the northwest corner of the site.

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

Merivale Road:

- 305 mm diameter DI watermain (south-bound lanes)
- 250 mm diameter Concrete sanitary sewer (south-bound lanes)
- 525 mm & 600 mm diameter Concrete storm sewer (north-bound lanes)

Kerry Cres:

- 200 mm diameter CI watermain
- 200 mm diameter Concrete sanitary sewer
- 300 mm & 375 mm diameter Concrete 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.
- Review impact of increased sanitary flow on downstream sanitary sewer.

4 REGULATORY APPROVALS

An MECP Environmental Compliance Approval is expected to be required for the proposed extension of municipal sanitary sewer within Merivale Road. A Permit to Take Water is not anticipated to be required for pumping requirements for sewer installation. The Rideau Valley Conservation Authority will need to be consulted in order to obtain municipal approval for site development. No other approval requirements from other regulatory agencies beyond the City of Ottawa are anticipated.

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 ME water distribution network pressure zone. Refer to ***Appendix B*** for the water network pressure zone map.

The subject property is located within proximity of an existing 305 mm dia. ductile iron watermain within the Merivale Road right-of-way and a 200 mm dia. cast iron watermain within the Kerry Crescent right-of-way.

There are currently four (4) existing fire hydrants near the property:

1) on Merivale Rd., approximately 85m north of the proposed building's rear entrance,
2) on Kerry Cres., approximately 30m from the proposed building's eastern entrance,
3) at the corner of Kerry Cres. And Capilano Dr., approximately 150m from the proposed building's eastern entrance,
4) at the corner of Merivale Rd. and Cleto Ave. approximately 200m south of the proposed building's main entrance.

Refer to ***Appendix B*** for the location of fire hydrants.

5.2 Water Supply Servicing Design

The subject property is proposed to be serviced via 150mm diameter PVC DR-18 service lateral connected to the 200mm diameter cast iron watermain located within Kerry Crescent and another 150mm diameter PVC DR-18 service lateral connected to the 300mm diameter ductile iron watermain located within Merivale Road.
Refer to Site Servicing Plan C401 in ***Appendix E*** for servicing layout.

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

Table 1: ***City of Ottawa Design Guidelines Design Parameters***

Design Parameter	Value
Residential Bachelor / 1 Bedroom Apartment Population	1.4 P/unit
Residential 2 Bedroom Apartment Population	2.1 P/unit
Residential Average Apartment Population	1.8 P/unit
Average Daily Demand	280 L/d/per
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
Desired operating pressure range during normal operating conditions	350 kPa and 480 kPa
During normal operating conditions pressure must not drop below	275 kPa
During normal operating conditions pressure shall not exceed	552 kPa
During fire flow operating conditions pressure must not drop below	140 kPa
**Table updated to reflect technical Bulletin ISDTB-2018-02*	

The interior layout and architectural floor plans have been reviewed, and it was determined that the proposed phase one building will house:

- 19 studio apartments,
- 140 one-bedroom apartments, and
- 44 two-bedroom apartments.

Anticipated demands from future Phase 2 of the development were also accounted for in the design of Phase 1. Hence, water domestic demands include the future contemplated demand of the additional 250 average apartments.

Based on the City of Ottawa Design guidelines for population projection, this translates to approximately 765.0 residents.

Table 2 below summarizes the proposed development as interpreted using table 4.1 of the City of Ottawa Design Guidelines.

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

Proposed Unit type	Persons Per Unit	Number of Units	Population
Studio/1 Bedroom	1.4	159	222.6
2 Bedroom Apartment	2.1	44	92.4
Phase two average apartments	1.8	250	450.0
	Total Residential Population		765.0

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

Where: $Q = (q \times P \times M)$

q = average water consumption (L/capita/day)
P = design population (capita)
M = Peak factor

Using a calculated Maximum Day Factor and Peak Hour factor of 2.5 and 2.2 respectively as per Table 4-2 in the *City of Ottawa Design Guidelines – Water Distribution*, anticipated demands were calculated as follows:

- Average daily domestic water demand is **2.48** L/s,
- Maximum daily demand is **6.20** L/s, and
- Maximum hourly is **13.64** 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***

Design Parameter	Anticipated Demand (L/s)	Boundary Conditions @ Merivale Road * (m H_20 / kPa)	Boundary Conditions @ Kerry Crescent ** (m H_20 / kPa)
Average Daily Demand	2.48	158.2 / 616.33	158.2 / 623.20
Max Day + Fire Flow (per FUS)	6.20 + 200	144.6 / 482.96	145.0 / 493.75
Peak Hour	13.64	146.5 / 501.60	146.5 / 508.46

* *Assumed Ground elevation at connection point = 95.35 m.*
** *Assumed Ground elevation at connection point = 94.65 m.*
Water demand calculation per City of Ottawa Water Design guidelines. See Appendix B for details.

As shown above, pressures from boundary conditions exceed the minimum required threshold in all scenarios. However, pressure reducing valves may be required as pressures in the Average Daily demand scenario exceed the maximum recommended outlined in Table 1.

The estimated fire flow for the proposed buildings was calculated in accordance with *ISTB-2018-02*. The following parameters were provided by the Architect, see ***Appendix A*** for collaborating correspondence:

- Type of construction – Non-combustible construction
- Occupancy type – Limited Combustibility
- Sprinkler Protection – Standard Fully Supervised Sprinkler System

The estimated fire flow demand was estimated to be **12,000 L/min**, see ***Appendix B*** for details.

There are four (4) existing fire hydrants in close proximity to the proposed buildings that are available to provide the required fire flow demands of 12,000 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(s) within 75m	Fire Hydrant(s) within 150m	Fire Hydrant(s) within 200m	Available Combined Fire Flow (L/min)
Proposed 9 Storey Building	12,000	1	2	1	(1 x 5678) + (2 x 3785) + (1 x 2839) = 16,087

The total available fire flow from contributing hydrants is equal to 16,087 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.

The proposed water supply design conforms to all relevant City Guidelines and Policies.

6 SANITARY SERVICE

6.1 Existing Sanitary Sewer Services

There is an existing 250mm dia. concrete sanitary sewer within Merivale Road across from the subject site where the wastewater flow is ultimately conveyed to the Lynwood Collector trunk sewer. Refer to ***Appendix C*** for the trunk sewer map. There is another existing 200mm dia. concrete sanitary sewer within Kerry Crescent which flows are conveyed to the Borden Side Road Collector trunk sewer.

The pre-development conditions of the lot were reviewed to calculate a total wet wastewater flow of **0.73 L/s** based on assumed conditions of the existing 10-unit commercial strip mall.

The ultimate post development total flow from Phase 1 and contemplated future Phase 2 was calculated to be **9.89 L/s** as a result of the proposed residential population (765 residents) and a small portion of infiltration. Refer to ***Appendix C*** for further information on the calculated sanitary flows. The post development conditions increase existing wastewater flow by approximately **9.16 L/s** as a result of additional residential population from pre-development conditions.

Based on inverts from the City of *Ottawa Water and Wastewater networks – interactive map* website, the existing 250mm dia. concrete sanitary sewer within Merivale Road is sloped at 0.34% and is calculated to have a maximum capacity of **34.68 L/s**. The proposed increase in total wastewater flow of **9.16 L/s** represents approximately 26% of existing maximum capacity. The additional flow created by the proposed development (including future phase) is at the most upstream portion of the existing local sewer network, hence it is anticipated that there will be little to no additional contributions at this section of the network.

6.2 Sanitary Sewer Servicing Design

The proposed development will be serviced via a 200mm dia. sanitary service lateral which will connect to a new sanitary manhole (SAN MH 01) on the west-side of Merivale Road, a length of 250mm dia. sanitary pipe will extend the existing municipal sanitary network by connecting the new sanitary manhole to the existing sanitary structure to the south.

Refer to LRL drawing C401 in ***Appendix E*** 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 single units
  - 2.1 persons for two-bedroom units
- an anticipated second phase value of 250 apartments with an average population unit of 1.8 persons
- a residential daily demand of 280 L/p/day
- a residential peaking factor of 3.9
- a total infiltration rate of 0.33 L/s/ha

Based on these parameters and the total site area of 0.89 ha, the total anticipated wet sanitary flow was estimated to be **9.89 L/s**.

Refer to ***Appendix C*** for the site sanitary sewer design sheet.

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.

In pre-development conditions, the stormwater runoff from the front of the building (west) would be collected via catch basins within the parking lot to be conveyed to municipal storm sewer within

the Merivale Road right-of-way. Existing storm sewers lie within Merivale rd., sized from 450mm diameter at the southern end of the site, up to 600mm diameter at the northern end of the site. The stormwater runoff from the rear of the building would flow uncontrolled overland towards the Kerry Cres. right-of-way.

Refer to ***Appendix E*** for pre- and post-development watershed information.

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 including City of Ottawa Stormwater Management Design Guidelines, 2012 (City standards), as well as the Ministry of the Environment's Stormwater Planning and Design Manual, 2003 (SWMP Manual).

7.2.1 Water Quality

The subject property lies within the Ottawa River West sub-watershed and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). It was determined that no further treatment is required for stormwater runoff from the proposed development. Correspondence with RVCA is included in ***Appendix A***.

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 the existing Rational Method Coefficient equal to 0.50, employing the City of Ottawa IDF parameters for a 2-year storm with a calculated time of concentration equal to or greater than 10 minutes.

- Attenuate all storms up to and including the City of Ottawa 100-year storm event on site.

The allowable release rate for the subject site was calculated to be **135.52 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 site to quantify the detention storage required for quantity control of the development.
Refer to ***Appendix D*** for storage calculations.

7.4 Proposed Stormwater Quantity Controls

The proposed stormwater management quantity control for this development will be accomplished by restricting flows via an inlet control device (ICD) installed in the outlet pipe of manhole structure CBMH02 as well as pumping the proposed underground cistern at a specific release rate.

The existing site is delineated by catchments: EWS-01 (0.433 ha) which currently drains uncontrolled in the rear of the property towards Kerry Cres. and EWS-02 (0.456 ha) which is collected by catch basins within the front parking area and is assumed to drain uncontrolled to the existing storm sewer within Merivale Road. Flows from an existing external watershed, delineated by EWS-EXT (0.095 ha), from the adjacent property to the south also drains towards the subject property and is collected via an existing catch basin at the southern end of the existing building.

Storage required as a result of quantity control measures will be accomplished through a combination of surface ponding areas at CBMH01 and CBMH02 for the landscaped area at the south of the site (WS-03) and an underground cistern structure to collect the proposed building and front parking/entrance areas (WS-02).

The subject site is proposed to be serviced via two outlets;

1. A proposed underground cistern structure will collect runoff from Phase 1 extents and outlet to an existing 600mm diameter storm sewer pipe within the Merivale Road right-of-way via a 200mm diameter storm sewer pipe.
2. A proposed network of 250mm STM pipes and catch basin manholes will collect runoff from the future phase/landscaped area in the interim conditions and will outlet to the existing 525mm diameter storm sewer within the Merivale Road right-of-way.

The proposed site storm sewer and stormwater management system are shown on drawing C401 and detailed calculations, including the design sheet, can be found in ***Appendix D***.

The proposed site development has been analyzed and post development watersheds have been allocated.

- Watershed WS-01 (0.203 ha), consisting of grass and pavers will flow uncontrolled on the west to Merivale Road and on the east to Kerry Crescent., the rear of the building will flow north to a drainage swale along the perimeter of the site and ultimately outlet to an existing catch basin manhole located within the Kerry Crescent right-of-way. Runoff from the concrete ramp to the underground parking structure will also be collected via a trench drain and conveyed through the proposed building's mechanical system to be discharged uncontrolled into the cistern outlet pipe.
- Watershed WS-02 (0.338 ha), which includes the proposed building, front parking and entrance/exit areas consisting of grass, pavers, concrete, and asphalt areas will be captured by area drains and collected into the underground cistern structure and pumped

at a specific release rate via 200mm diameter outlet pipe to the existing 600mm diameter storm sewer pipe on Merivale Road when at capacity.

- Watershed WS-03 (0.349 ha), which includes the landscaped area to the southern end of the site (interim conditions of the future development phase) and asphalt paved access road will be captured by two catch basin manholes and a catch basin and conveyed through a network of 300mm diameter storm sewer pipes. Grading proposed will provide positive overland drainage to the proposed storm water collection and control systems. An orifice plate 128mm diameter ICD is proposed at CBMH02 to restrict collected runoff prior to releasing flows into the existing 525mm storm sewer pipe on Merivale Road.
- Watershed WS-EXT (0.095 ha), which includes the existing asphalt area on the adjacent property to the south of the subject site will flow into CB01 and will be controlled as part of watershed WS-03.

Table 5 below summarizes post-development drainage areas. Calculations can be seen in ***Appendix D.***

Table 5: ***Drainage Areas***

Drainage Area Name	Area	Weighted Runoff Coefficient	100 Year Weighted Runoff Coefficient (25% increase)
WS-01 (uncontrolled)	0.203	0.37	0.46
WS-02 (cistern-controlled)	0.356	0.83	1.00
WS-03 (controlled)	0.348	0.25	0.31
WS-EXT-02 (controlled)	0.095	0.86	1.00

Rooftop controls are not proposed in this development. Hence, all rooftop runoff shall be collected via **free-flowing** rooftop drains to be directed to the underground cistern. Refer to C401 for approximate location of cistern.

All controlled overland stormwater captured will ultimately be conveyed, via underground storm sewers, to the city storm sewer running along Merivale Road at a maximum release rate of 85.91 L/s.

All uncontrolled overland stormwater from watershed WS-01 will release to the adjacent Merivale Road or Kerry Crescent right-of-ways at a combined maximum release rate of 49.61 L/s.

Table 6 below summarizes the release rates and storage volumes required to meet the allowable release rate of 135.52 L/s for 100-year flows.

Table 6: ***Stormwater Release Rate & Storage Volume Summary (100 Year)***

Catchment Area	Drainage Area (ha)	100-year Release Rate (L/s)	100-Year Required Storage (m^3)	Total Available Storage (m^3)
WS-01 (uncontrolled)	0.203	49.61	0	0
WS-02 (cistern-controlled)	0.338	45.91	79.59	85.00
WS-03 (Controlled) + WS-EXT	0.349	40.00	41.28	42.60
TOTAL	**0.890**	**135.52**	**120.87**	**127.60**

To meet the allowable release rate of **135.52 L/s,** it is calculated that a total of **127.60 m^3** of storage will be required; **79.59 m^3** of which will be provided in the underground cistern and **42.60 m^3** will be provided in surface ponding in landscaped areas within WS-03. The 100-year maximum ponding depths can be found on drawing "C601 – Stormwater Management Plan" of ***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 drawing C101 in ***Appendix E*** for erosion and sediment control details.

9 CONCLUSION

This Stormwater Management and Servicing Report for the development proposed at 1509 Merivale Road 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 **12,000 L/min** using the FUS method.

- There are four (4) existing fire hydrants available to service the proposed development. They will provide a combined fire flow of **16,087 L/min** to the site.
- The new development/expansion will be serviced by two (2) new connections: a new 150mm diameter water service to be connected to the existing 200mm diameter watermain within Kerry Crescent and a new 150mm diameter water service to be connected to the existing 300mm diameter watermain within Merivale Road.
- Boundary conditions received from the City of Ottawa indicate that sufficient pressure is available to service the proposed site.

Sanitary Service

- The anticipated sanitary flow from the proposed development is **9.89 L/s.**
- The proposed development will be serviced by a 200mm dia. sanitary service lateral which will connect to a new sanitary manhole on Merivale Road.
- From the new sanitary manhole on Merivale Road, a length of 250mm diameter sanitary pipe will extend the existing municipal sanitary network by connecting to the existing sanitary structure to the south.

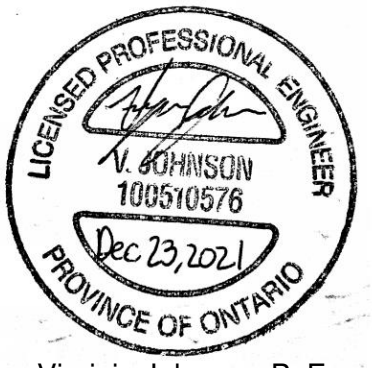
Stormwater Management

- Stormwater quality controls are not required as per consultation with the RVCA.
- The storm water release rates from the proposed development will meet calculated allowable release rate of **135.52 L/s.**
- Stormwater quantity control objectives will be met through on-site storm water surface ponding and cistern sub-surface storage.

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.



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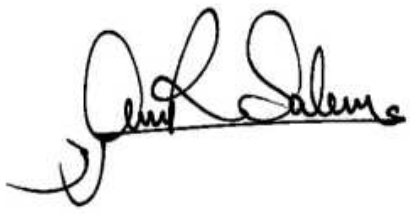

Amr Salem
Civil Designer

APPENDIX A

Pre-consultation / Correspondence

DEVELOPMENT SERVICING STUDY CHECKLIST
Project #: 200295
Date: 2021-12-17

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
Summary of Pre-consultation Meetings with City and other approval agencies.	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.	Sections: 5.1, 6.1, 7.1
Statement of objectives and servicing criteria.	Section 1
Identification of existing and proposed infrastructure available in the immediate area.	Sections: 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
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.	Drawing C301 / Appendix E
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.	Section 1
Reference to geotechnical studies and recommendations concerning servicing.	Drawing C401 / Appendix E
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	Drawing C401 / Appendix E

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	Section 5.2
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.	Appendix B
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.	*N/A*
Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.	*N/A*
Identification and implementation of the emergency overflow from sanitary pumping stations in relation to the hydraulic grade line to protect against basement flooding.	*N/A*
Special considerations such as contamination, corrosive environment etc.	*N/A*
4.4 Development Servicing Report: Stormwater Checklist	
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 7.2.2
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.	Appendix 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 (1:2 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.	*N/A*
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

Mike Allen

From: Robert Verch <rverch@rlaarchitecture.ca>
Sent: June 24, 2021 11:50 AM
To: Amr Salem; Ashwani Kumar
Cc: Rachel Irving-Beer
Subject: 1618 - 1509 Merivale - Fireflow Assumptions to be confirmed

The current stat sheet shows a total construction area (above grade) of 158,101 sq. ft.

We should not use the roof for water storage. We will need a cistern anyways so we can simply make it larger. Plus the roof will have amenity terrace on it. We can not store water on a finished amenity area.

Rob

From: Amr Salem <asalem@lrl.ca>
Sent: June-23-21 5:21 PM
To: Robert Verch <rverch@rlaarchitecture.ca>; Ashwani Kumar <akumar@rlaarchitecture.ca>; Victoria McCartney <vmccartney@rlaarchitecture.ca>
Cc: Rachel Irving-Beer <rirvingbeer@rlaarchitecture.ca>
Subject: RE: 1509 Merivale - Fireflow Assumptions to be confirmed

Thanks Rob,

Can you guys confirm the gross floor area?

I also anticipate we'll utilize roofstop storage - and so I'll need the roof plan in CAD showing the area drain locations, extents of rooftop storage areas, and scupper locations per OBC.

Thanks,
Amr Salem
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: Robert Verch <rverch@rlaarchitecture.ca>
Sent: June 21, 2021 3:53 PM
To: Ashwani Kumar <akumar@rlaarchitecture.ca>; Amr Salem <asalem@lrl.ca>; Victoria McCartney

<vmccartney@rlaarchitecture.ca>
Cc: Rachel Irving-Beer <rirvingbeer@rlaarchitecture.ca>
Subject: 1509 Merivale - Fireflow Assumptions to be confirmed

Yes this building will have a “fully supervised sprinkler system”
The ISO class is 3.

Total floor area:??? How is the stat sheet coming, do we need one?

Rob

From: Ashwani Kumar <akumar@rlaarchitecture.ca>
Sent: June-21-21 3:28 PM
To: Amr Salem <asalem@lrl.ca>; Victoria McCartney <vmccartney@rlaarchitecture.ca>
Cc: Robert Verch <rverch@rlaarchitecture.ca>; Rachel Irving-Beer <rirvingbeer@rlaarchitecture.ca>
Subject: RE: (LRL200255) - 1509 Merivale - Fireflow Assumptions to be confirmed

Hello Amr,

I have copied Rob and Rachel on this email who are the lead architects on this project. They will be able to answer your questions.

Ashwani Kumar *B.Arch, MCP, LEED® Green Associate*
Urban Designer
RLA Architecture
Tel: 613.724.9932 x 313
Toll Free: 888.724.9932

From: Amr Salem <asalem@lrl.ca>
Sent: June 18, 2021 10:10 AM
To: Victoria McCartney <vmccartney@rlaarchitecture.ca>; Ashwani Kumar <akumar@rlaarchitecture.ca>
Subject: (LRL200255) - 1509 Merivale - Fireflow Assumptions to be confirmed

Good morning Victoria & Ashwani,

I believe you’re the lead architects on this file, please direct me to the right contact if not.

I’m looking to confirm a few assumptions that will help us determine water and fireflow demands for the proposed development;

- Please confirm unit stats below;

UNIT STATISTICS	
STUDIO	19
1 BEDROOM UNIT	101
1 BEDROOM + DEN UNIT	39
2 BEDROOM UNIT	41
2 BEDROOM + DEN UNIT	3
TOTAL	203

- Can you please confirm the total floor area of the building is **11,753.2 m2**

- Can you confirm if *fully supervised sprinkler system* is proposed? Definition of supervised sprinkler system as per below;

Supervised System definition:

Code [10], the National Fire Protection Association (NFPA) describes "supervision" of sprinkler systems as requiring two types of signals:

- a distinctive supervisory signal to indicate conditions that could impair the satisfactory operation of the sprinkler system (a fault alarm), which is to sound and be displayed, either at a location within the building that is constantly attended by qualified personnel (such as a security room), or at an approved remotely located receiving facility (such as a monitoring facility of the sprinkler system manufacturer); and
- a water flow alarm to indicate that the sprinkler system has been activated, which is to be transmitted to an approved, proprietary alarm-receiving facility, a remote station, a central station or the fire department.

- Would you be able to provide the **ISO class** per ISO Guide sections 1, 2 and 3. I have included a brief summary of ISO Guide (review chapter 2 for construction types) as well as the section from the City's technical bulletin. Note that ISO refers only to fire-resistive for fire ratings not less than 1-hour.

A. *Determine the type of construction.*

- Coefficient *C* in the FUS method is equivalent to coefficient *F* in the ISO method:

Correspondence between FUS and ISO construction coefficients

FUS type of construction	ISO class of construction	Coefficient *C*
Fire-resistive construction	Class 6 (fire resistive)	0.6
	Class 5 (modified fire resistive)	0.6
Non-combustible construction	Class 4 (masonry non-combustible)	0.8
	Class 3 (non-combustible)	0.8
Ordinary construction	Class 2 (joisted masonry)	1.0
Wood frame construction	Class 1 (frame)	1.5

However, the FUS definition of fire-resistive construction is more restrictive than those of ISO construction classes 5 and 6 (modified fire resistive and fire resistive). FUS requires structural members and floors in buildings of fire-resistive construction to have a fire-resistance rating of 3 hours or longer.

- With the exception of fire-resistive construction that is defined differently by FUS and ISO, practitioners can refer to the definitions of the ISO construction classes (and the supporting definitions of the types of materials and assemblies that make up the ISO construction classes) found in the current ISO guide [4] (see Annex i) to help select coefficient *C*.
- To identify the most appropriate type of construction for buildings of mixed construction, the rules included in the current ISO guide [4] can be followed (see Annex i). For a building to be assigned a given classification, the rules require ⅔ (67%) or more of the total wall area and ⅔ (67%) or more of the total floor and roof area of the building to be constructed according to the given construction class or a higher class.
- New residential developments (less than 4 storeys) are predominantly of wood frame construction ($C = 1.5$) or ordinary construction ($C = 1.0$) if exterior walls are of brick or masonry. Residential buildings with exterior walls of brick or masonry veneer and those with less than ⅔ (67%) of their exterior walls made of brick or masonry are considered wood frame construction ($C = 1.5$).

Please feel free to reach out if you have questions.

Thanks,

LRL
ENGINEERING | INGÉNIERIE

Amr Salem
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

Amr Salem

From: Eric Lalande <eric.lalande@rvca.ca>
Sent: June 18, 2021 3:47 PM
To: Amr Salem
Subject: RE: (LRL200255) - 1509 Merivale Road - SWM Quality Control Requirements

Hi Amr,

The RVCA does not require water quality protection based on the draft phase 1 plan, however encourage best management practices to promote on-site design where available.

Thanks,

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

From: Jamie Batchelor <jamie.batchelor@rvca.ca>
Sent: Thursday, June 17, 2021 4:38 PM
To: Eric Lalande <eric.lalande@rvca.ca>
Subject: FW: (LRL200255) - 1509 Merivale Road - SWM Quality Control Requirements

Hi Eric,

This would be in your area.

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

Rideau Valley Conservation Authority
3889 Rideau Valley Drive
PO Box 599, Manotick ON K4M 1A5
T 613-692-3571 | 1-800-267-3504 **F** 613-692-0831 | www.rvca.ca

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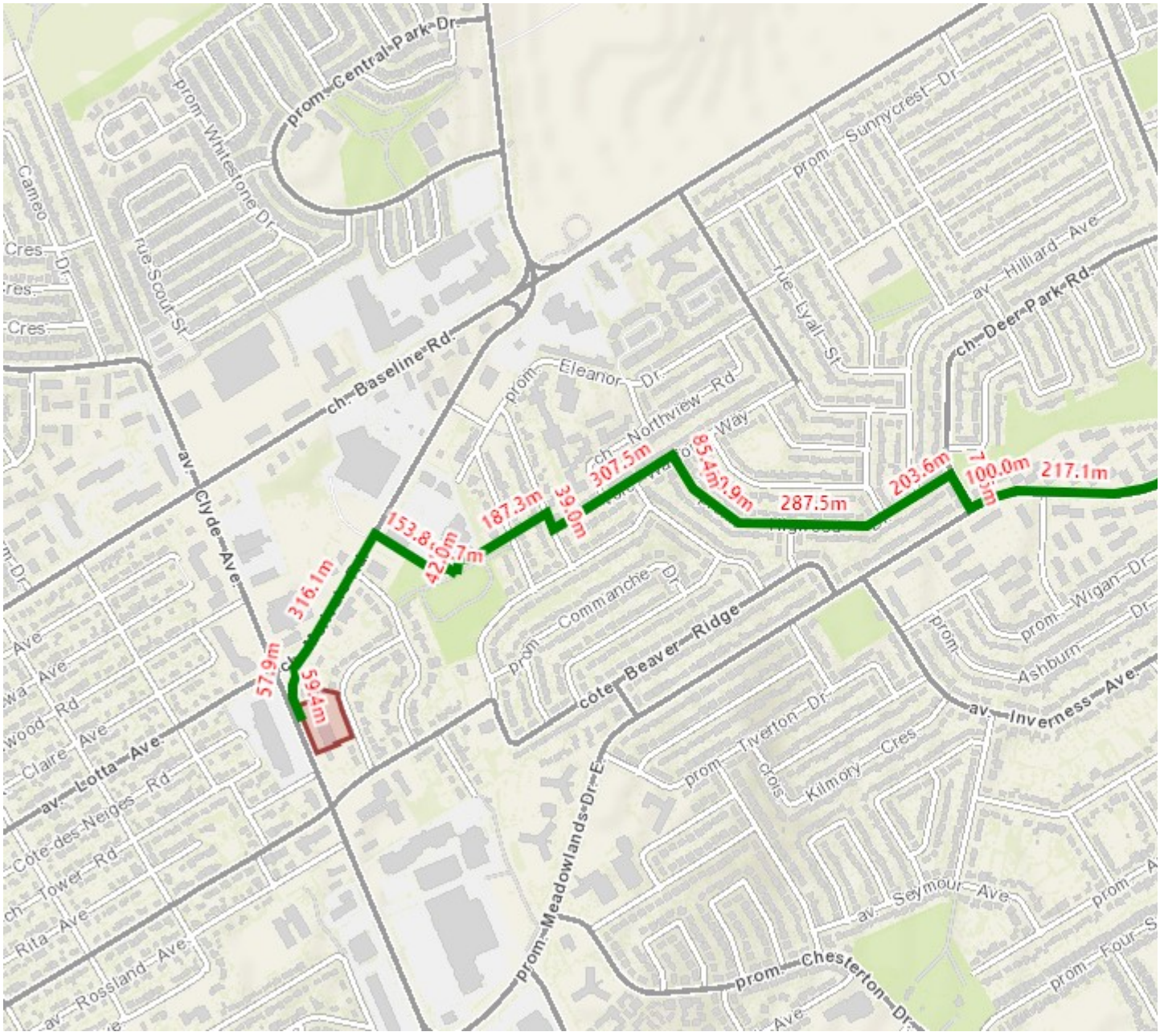
From: Amr Salem <asalem@lrl.ca>
Sent: Thursday, June 17, 2021 4:34 PM
To: Jamie Batchelor <jamie.batchelor@rvca.ca>
Subject: (LRL200255) - 1509 Merivale Road - SWM Quality Control Requirements

Hello Jamie,

I'm looking to confirm the quality control requirements for Phase 1 proposed development located at 1509 Merivale Rd. Phase 1 includes a single 9-storey residential building consisting of approx. 203 units and a large undeveloped/landscaped area.
8 visitor surface parking spots along with an **underground parking** are proposed to accommodate all the building's parking needs.
Phase 2 contemplates a future building and expansion of the U/G parking garage, *however it is outside the scope of this application*.

The current site consists of commercial buildings and a large asphalt paved surface parking lot covering the majority of the site area.

Runoff from the proposed development is expected to be collected via roof drains and area drains to be discharged into municipal sewer within Merivale Rd and ultimately travel approx. 3.7 kms to outlet into the Rideau River.



Please confirm any SWM quality control requirements that may be required for the subject site.

Thanks,

Amr Salem
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5430 Canotek Road
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T (613) 842-3434 or (877) 632-5664 ext 248
F (613) 842-4338
E asalem@lrl.ca
W www.lrl.ca

From: Dickinson, Mary <mary.dickinson@ottawa.ca>
Sent: January 16, 2020 10:55 AM
To: Jeff Nadeau <nadeau@fotenn.com>
Cc: Knight, Melanie (Planning) <Melanie.Knight@ottawa.ca>; Gervais, Josiane <josiane.gervais@ottawa.ca>; Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>; Doug Yonson <yonny@bell.net>
Subject: Pre-con Follow-up - 1509 Merivale Road

Jeff,

Please refer to the below and attached notes regarding the Pre-Application Consultation (pre-con) Meeting held on December 18, 2019 for the property at 1509 Merivale Road for Site Plan Control in order to allow the development of a 9-storey retirement residence. I have also attached the required Plans & Study List for application submission.

Below and attached are preliminary comments based on the information available at the time of pre-con meeting:

Planning

- The subject site is zoned AM10
- The subject site is designated Arterial Mainstreet according to the Official Plan
- The subject site is within the area for the Merivale Road Secondary Plan
- No variances were identified at the meeting as being required, although if this changes, please reach out to staff at your earliest opportunity so the Committee of Adjustment Planner can be advised and provide comment.
- A pedestrian pathway connection through the site from Kerry to Merivale should be included in the site design.
- There appears to be vehicular access (formal or informal) through the subject site to the auto service use and the Dairy Queen. Without this access, there are no appropriate options to get vehicles travelling south along Merivale to these adjacent uses, as there is currently a no U-turn sign at the intersection of Capilano and Merivale when travelling south. Consideration on how appropriate access to these adjacent site needs to be reviewed as part of this development application. Staff will initiate a discussion with our traffic staff about the no U-turn intersection. I will provide you with any feedback I receive. Your Transportation Impact Assessment will need to address this challenge and present a solution.
- Orientation and location of windows and balconies should be thought out carefully as it relates to overlook on the surrounding homes.
- The existing tree row along and near the Kerry property line provides successful screening from the established low-rise neighbourhood to the subject site. Maintaining these trees would be viewed as positive. In general, both new and existing landscaping should be used to green and screen the subject site.
- The Merivale Road Secondary Plan places an emphasis on fostering a pedestrian friendly environment. The landscape design within the right of way will be

important in ensuring this goal is met. Street trees, wide sidewalks, and possibly planters and benches are all elements that will help achieve these goals.

- The stepping down of the proposed building is appreciated and the resulting massing represents a design that exhibits a deliberate transition towards the established residential neighbourhood that surrounds this site.
- In addition to meeting the zoning by-law requirements, the parking on site should be adequate to accommodate commercial and visitors, staff and residents. Please clearly show your parking calculation breakdown in your submission.
- The ground floor commercial along Merivale Road is appreciated.
- The submission should identify how the 'phase 2' lands will be treated in the interim.

Urban Design

General comments:

- It would be beneficial to see an overall master plan for the site to understand how the site will function, the relationship between the two buildings (phase 1 and 2) and adjacent properties and the impact to the public realm along Merivale Road.
- This site is within a Design Priority Area and so a formal review of the Site Plan Control application is required by the Urban Design Review Panel. More information on the dates and submission requirements can be found online Urban Design Review Panel.

Site Design:

- On-site vehicular circulation needs to be studied to determine the best area for loading, underground garage access and access from Merivale Road. For example, the alcove for the loading area could be used as a courtyard when loading is not needed if it is thoughtfully designed with a multiple purpose use. It appears that there may also be a conflict created having the underground parking garage access intersecting the building's amenity space and the outdoor amenity space. It is appreciated that no vehicular access is proposed from Kerry.
- On-site pedestrian circulation needs to be studied to determine the best routes for pedestrians to Merivale Road, outdoor amenity spaces and to Kerry Cres and the residential neighbourhoods to the east.
- Consideration also needs to be given to the publicly accessible uses within the building (amenities, commercial uses) and how people will access these areas either by car or on foot.

Massing, setbacks and uses:

- The current proposal meets the performance standards of the AM10 zone, please consider the setbacks of any rooftop outdoor amenity space from the residential uses along Kerry Cres.
- Consider enlarging the main lobby of the building so it also has a presence on Merivale Road.

- Front door access from Merivale Road to the commercial uses is currently not shown on the plans. Direct door access to commercial uses from Merivale Road should be incorporated into the design.
- The alcove where the loading area is identified would be an appropriate place for a courtyard for the residents.

-

Engineering

- The Servicing Study Guidelines for Development Applications are available at the following link: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-application-review-process/development-application-submission/guide-preparing-studies-and-plans
- Record drawings and utility plans are available for purchase from the City's Information Centre. Contact the City's Information Centre by email at informationcentre@ottawa.ca or by phone at (613) 580-2424 x44455
- Stormwater quantity control criteria – Control the release rate to the 2 year event using a C=0.5 with a computed Tc, for all storms up to and including the 100-year storm.
- Stormwater quality control – Consult with the Conservation Authority (RVCA) for their requirements. Include the correspondence with MVCA in the stormater/site servicing report.
- Service connections (water and sewers) can be made to Merivale Road.
- Clearly show and label the property lines on all sides of the property.
- Clearly show and label all the easements (if any) on the property, on all plans.
- When calculating the post development composite runoff coefficient (C), please provide a drawing showing the individual drainage area and its runoff coefficient.
- When using the modified rational method to calculate the storage requirements for the site, the underground storage should not be included in the overall available storage. The modified rational method assumes that the restricted flow rate is constant throughout the storm which, in this case, underestimates the storage requirement prior to the 1:100 year head elevation being reached. Alternately, if you wish to include the underground storage, you may use an assumed average release rate equal to 50% of the peak allowable rate. Otherwise, disregard the underground storage as available storage or provide modeling to support the design.
- Engineering plans are to be submitted on standard A1 size (594mm x 841mm) sheets.
- Phase 1 ESA and Phase 2 ESA must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.
- Provide the following information for water main boundary conditions:
    1. Location map with water service connection location
    2. Average daily demand (l/s)
    3. Maximum daily demand (l/s)
    4. Maximum hourly demand (l/s)
    5. Fire flow demand (provide detailed fire flow calculations based on the fire underwriters survey method)
- If you are proposing any exterior light fixtures, all must be included and approved as

part of the site plan approval. Therefore, the lights must be clearly identified by make, model and part number. 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 applicant must provide certification from an acceptable professional engineer. The location of all exterior fixtures, a table showing the fixture types (including make, model, part number), and the mounting heights must be included on a plan.

Feel free to contact Infrastructure Project Manager, Santhosh Kuruvilla, at Santhosh.kuruvilla@ottawa.ca or 613-580-2424 ext 27599, for follow-up questions.

Transportation

- Follow Traffic Impact Assessment Guidelines
  - A TIA is required.
  - Start this process asap. The application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).
  - Request base mapping asap if RMA is required. Contact Engineering Services (https://ottawa.ca/en/city-hall/planning-and-development/engineering-services)
- ROW protection on Merivale between Baseline and West Hunt Club is 44.5m even. – The TMP 2031 Network Concept identifies Merivale Road as a Transit Priority Corridor (Continuous Lanes); therefore improvements to Merivale Road would be beyond 2031.
- Sight triangle as per Zoning by-law is 6 m x 6 m measure on the curb line.
- Minimum Clear throat requirements for apartments (100-200 units) off an arterial is 25m.
  - Note that a lay-by lane is not to be provided within this distance, as it provides conflict points (vehicles turning into/leaving lay-by area, pedestrians crossings, etc.) within the distance that should be kept clear to ensure efficient operation of driveways.
- On site plan:
  - Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
  - Turning templates will be required for all accesses showing the largest vehicle to access the site; required for internal movements and at all access (entering and exiting and going in both directions).
  - Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
  - Show lane/aisle widths.
  - Sidewalk is to be depressed and continuous across access as per City Specification 7.1.
  - Grey out any area that will not be impacted by this application.
- AODA legislation is in effect for all organizations, please ensure that the design

conforms to these standards.

- Noise Impact Studies required for the following:
  - Road
  - Aircraft
  - Stationary due to the proximity to neighbouring exposed mechanical equipment and/or if there will be any exposed mechanical equipment due to the proximity to neighbouring noise sensitive land uses.

Feel free to contact Transportation Project Manager, Josiane Gervais, at Josiane.gervais@ottawa.ca or 613-580-2424 ext 21765, for follow-up questions.

Environmental

- Tree preservation is desirable, especially along the periphery of the subject site.
- Any tree removal will require a Tree Conservation Report and a tree permit will need to be issued prior to any removals taking place.

Parkland

- Cash in lieu of parkland will apply to the subject property.

Community representative comments

- Please see attached from Doug Yonson

Other

- You are encouraged to contact the Ward Councillor, Councillor Keith Egli, at ward9@ottawa.ca about the proposal.

Please refer to the links to "Guide to preparing studies and plans" and fees for further 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,
Mary Dickinson

Mary Dickinson, MCIP, RPP

Planner
Development Review West
Urbaniste

Examen des demandes d'aménagement ouest

City of Ottawa | Ville d'Ottawa
613.580.2424 ext./poste 13923
ottawa.ca/planning / ottawa.ca/urbanisme

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File No.: **PC2021-0222**
Date: July 8, 2021

ADDRESS: 1509 Merivale Road
Pre-Consultation Meeting Minutes
Meeting Date: June 23, 2021

Attendee	Role	Organization
Lisa Stern	File Lead	City of Ottawa
Josiane Gervais	Transportation	
Randolph Wang	Urban Designer	
Adrian Van Wyk	Urban Designer	
Santhosh Kuruvilla	Engineering Project Management	
Rod Lahey	Architect	RLA Architecture
Rachel Irving Beer		
Kersten Nitsche	Planner	Fotenn Consulting
Bria Aird	Planner	
Tanya Chowieri		Land Owner
Tony Sroka		Community Association Representative
Doug Yonson		

Comments from the Applicant:

1. Proposal to develop a 9-storey residential building as Phase 1 of developing the site.
2. Access will be taken from Merivale Road and the rear lane way which extends to Capilano Drive.
3. A previous preconsultation was held in December 2019, access and building heights have been revised since this meeting.

Planning Comments:

1. The application will require a complex site plan application. The application form, timeline and fees can be found here.
2. The site is designated under schedule B of the Official Plan as Arterial Mainstreet and are zoned AM10.
3. No variances were identified at the meeting as being required, although if this changes, please reach out to staff at your earliest opportunity so the Committee of Adjustment Planner can be advised and provide comment.
4. The City is currently working on a new Official Plan and will likely be presented before Committee and Council in Fall 2021. Please review the new Official Plan policies relating Urban Design in the City.
5. The site is within the boundaries of the Merivale Road Secondary Plan.
6. The site is within 600m of future BRT on Baseline Road. Guidelines for Arterial Mainstreets, TOD Development and Bird Friendly Design apply.
7. Please provide a Planning Rationale which discusses how the proposal meets the intent of policy and guidelines. A high quality built form and pedestrian oriented public realm is expected.
8. The arterial mainstreet designation and the Merivale Road Secondary Plan both speak to providing a mix of uses – commercial uses should be provided fronting Merivale Road. Please provide a 4.5m ground floor height and individual front door access for commercial units along Merivale Road.

9. The Merivale Road Secondary Plan places an emphasis on fostering a pedestrian friendly environment. The landscape design within the right of way will be important in ensuring this goal is met. Street trees, wide sidewalks, and possibly planters and benches are all elements that will help achieve these goals. Please ensure that front yard setbacks can accommodate these features.
10. Compatibility with existing single detached dwellings on Kerry Crescent important and should be discussed in the Planning Rationale and design brief.
11. Orientation and location of windows and balconies should be thought out carefully as it relates to overlook on the surrounding homes.
12. The existing tree row along and near the Kerry property line provides successful screening from the established low-rise neighbourhood to the subject site. Maintaining these trees would be viewed as positive. In general, both new and existing landscaping should be used to green and screen the subject site.
13. To improve compatibility between the existing and planned context on Kerry Cres consider stepping down the building at the Kerry frontage, the provision of grade related units, and utilizing amenity space to provide an appropriate transition.
14. Please provide a concept plan for the entire site identifying building entrances, vehicular and pedestrian connections.
15. The submission should identify how the 'phase 2' lands will be treated in the interim.
16. Cash-in-lieu of parkland and associated appraisal fee will be required as a condition of approval as per the Parkland Dedication Bylaw.
17. Please consult with the Ward Councillor prior to submission.

Urban Design:

1. A Design Brief is required for the submission. The Terms of Reference is attached for convenience.
2. The site is within a Design Priority Area. Formal review by the City's Urban Design Review Panel is required.
3. The applicants indicated that a number of design alternatives had been explored. Could the applicants share these alternatives with staff? It will be useful to include these alternatives in the Design Brief as well as the UDRP submission.
4. The applicants also indicated that the development is in compliance with the zoning. It is within this context urban design provides the following suggestions for consideration:
    a. The proposed quart yard concept is interesting. However, has considerations been given to a quart yard design with a different orientation? (see attached diagrams).
    b. Transition to the low-rise neighbourhood is crucially important
        i. Please study pedestrian level views along Kerry;
        ii. Protecting the existing row of trees along Kerry can ensure memories of the past be maintained.
        iii. A building setback from Kerry in keeping with the rest of the neighbourhood with allowance for healthy growth of mature canopy trees can contribute to compatibility.
        iv. Please study the appropriateness and feasibility of grade-related units along Kerry.
        v. The relationship with future development on abutting properties should be further studied and illustrated. The proposed building setback along the north property line may be too tight.
    c. Merivale frontage should be prominent with extensive glazing and animation at grade to support the vision of a main street.
    d. Overall, a base-middle-top approach to built form design is appropriate.

Transportation:

1. Follow Traffic Impact Assessment Guidelines
    a. A TIA is required. Consider including Phases 1 and 2 within the TIA.
    b. Please submit Screening Form as soon as possible to Josiane.Gervais@ottawa.ca
    c. Start this process asap. The application will not be deemed complete until the submission of the draft step 1-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable).
    d. Request base mapping asap if RMA is required. Contact Engineering Services (https://ottawa.ca/en/city-hall/planning-and-development/engineering-services)
    e. An update to the *TRANS Trip Generation Manual* has been completed (October 2020). This manual is to be utilized for this TIA. A copy of this document can be provided upon request.
2. ROW protection on Merivale between Baseline and West Hunt Club is 44.5m even.
3. Minimum clear throat requirements for apartments with >200 units off an arterial is 40m.
4. Corner Clearances should follow minimum distances set out within TAC Figure 8.8.2.
5. The TMP 2031 Network Concept identifies Merivale Road as a Transit Priority Corridor (Continuous Lanes); therefore improvements to Merivale Road would be beyond 2031.
6. On site plan:
    a. Show all details of the roads abutting the site up to and including the opposite curb; include such items as pavement markings, accesses and/or sidewalks.
    b. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
    c. Turning movement diagrams required for internal movements (loading areas, garbage).
    d. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible
    e. Show lane/aisle widths.
    f. Sidewalk is to be continuous across access as per City Specification 7.1.
    g. Grey out any area that will not be impacted by this application.
7. As the site proposed is residential, AODA legislation applies for all areas accessed by the public (i.e. outdoor pathways, visitor parking, etc.).
    a. A residential building can be considered a small organization for the purposes of IASR if it has employees, which is probable for a rental building and should therefore be AODA compliant.
    b. When determining the number of required accessible parking stalls, it is my understanding that the AODA applies to the visitor parking component only for residential buildings and would not apply to parking spaces available for purchase or rent. For resident parking spaces, Section 111 of the Traffic and Parking By-law would apply to determine the number of required accessible parking spaces.
8. Noise Impact Studies required for the following:
    a. Road
    b. Aircraft, site is within the Airport Vicinity Development Zone
    c. Stationary, due to the proximity to neighboring exposed mechanical equipment or if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses.

Engineering:

1. The Servicing Study Guidelines for Development Applications are available at the following link: https://ottawa.ca/en/city-hall/planning-and-development/information-developers/development-

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

2. Record drawings and utility plans are available for purchase from the City's Information Centre. Contact the City's Information Centre by email at informationcentre@ottawa.ca or by phone at (613) 580-2424 x44455
3. Stormwater quantity control criteria – Control the release rate to the 2 year event using a C=0.5 with a computed Tc, for all storms up to and including the 100-year storm.
4. Stormwater quality control – Consult with the Conservation Authority (RVCA) for their requirements. Include the correspondence with MVCA in the stormater/site servicing report.
5. Service connections (water and sewers) can be made to Merivale Road.
6. Clearly show and label the property lines on all sides of the property.
7. Clearly show and label all the easements (if any) on the property, on all plans.
8. When calculating the post development composite runoff coefficient (C), please provide a drawing showing the individual drainage area and its runoff coefficient.
9. When using the modified rational method to calculate the storage requirements for the site, the underground storage should not be included in the overall available storage. The modified rational method assumes that the restricted flow rate is constant throughout the storm which, in this case, underestimates the storage requirement prior to the 1:100 year head elevation being reached. Alternately, if you wish to include the underground storage, you may use an assumed average release rate equal to 50% of the peak allowable rate. Otherwise, disregard the underground storage as available storage or provide modeling to support the design.
10. Engineering plans are to be submitted on standard A1 size (594mm x 841mm) sheets.
11. Phase 1 ESA and Phase 2 ESA must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.
12. Provide the following information for water main boundary conditions:
    a. Location map with water service connection location
    b. Average daily demand (l/s)
    c. Maximum daily demand (l/s)
    d. Maximum hourly demand (l/s)
13. Fire flow demand (provide detailed fire flow calculations based on the fire underwriters survey method)
14. If you are proposing any exterior light fixtures, all must be included and approved as part of the site plan approval. Therefore, the lights must be clearly identified by make, model and part number. 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 applicant must provide certification from an acceptable professional engineer. The location of all exterior fixtures, a table showing the fixture types (including make, model, part number), and the mounting heights must be included on a plan.

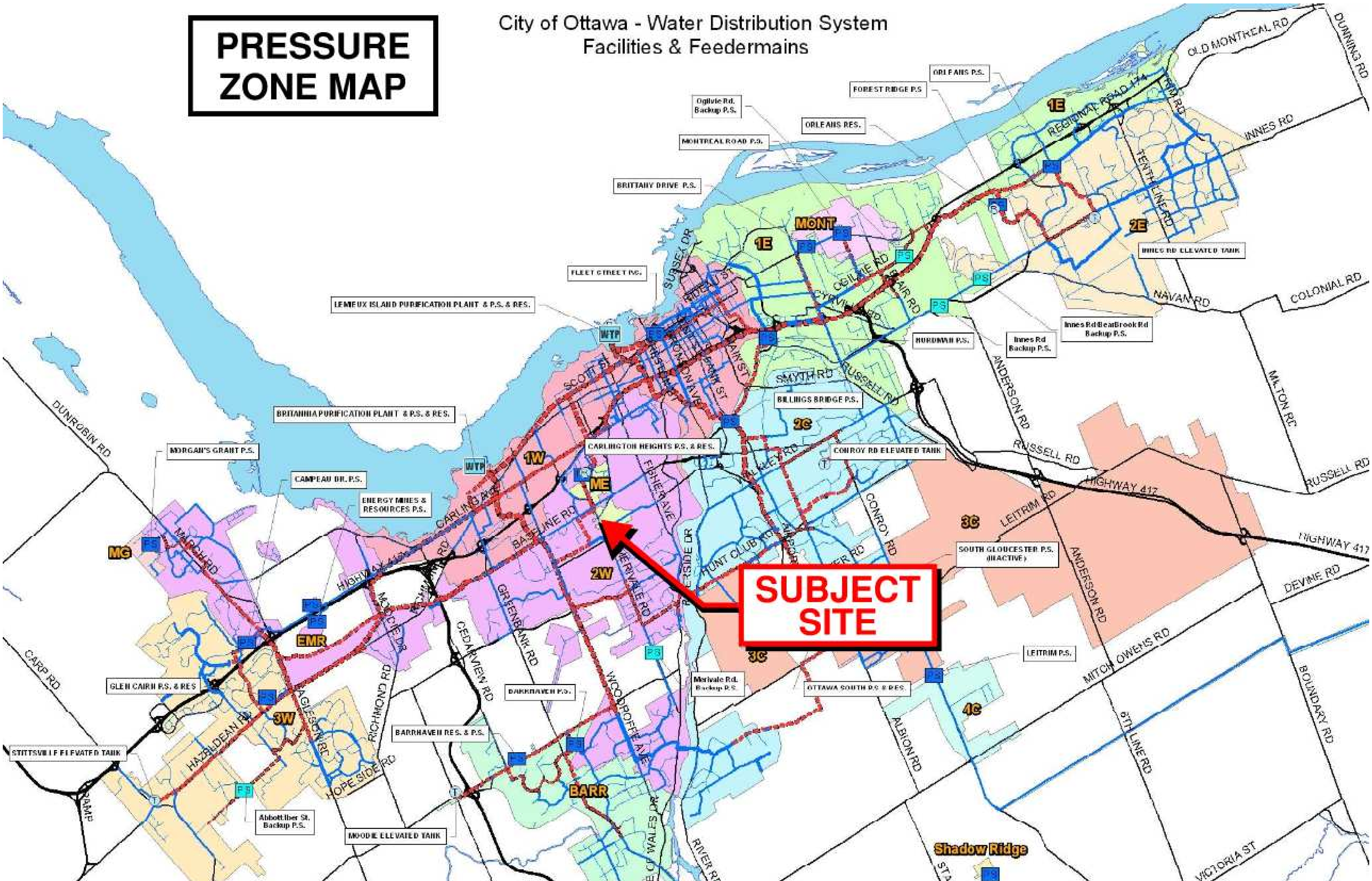
Feel free to contact Infrastructure Project Manager, Santhosh Kuruvilla, at Santhosh.kuruvilla@ottawa.ca or 613-580-2424 ext 27599, for follow-up questions.

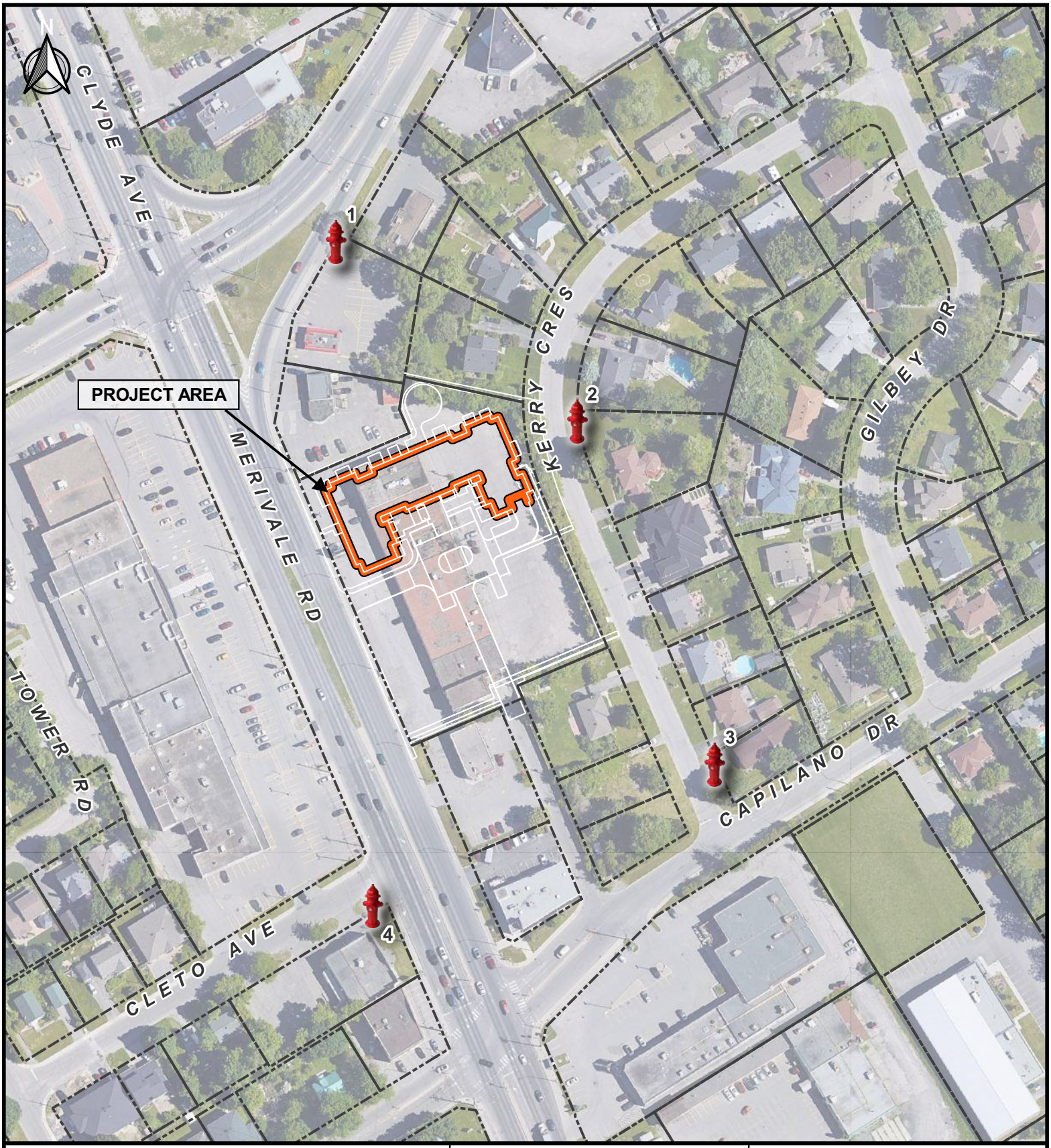
Community Association:
Please see attached memo

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

APPENDIX B

Water Supply Calculations


PRESSURE ZONE MAP
City of Ottawa - Water Distribution System
Facilities & Feedermains
SUBJECT SITE
ORLEANS P.S.
FOREST RIDGE P.S
Ogilvie Rd. Backup P.S.
ORLEANS RES.
MONTREAL ROAD P.S.
BRITTANY DRIVE P.S.
FLEET STREET P.S.
LEMIEUX ISLAND PURIFICATION PLANT & P.S. & RES.
BRITANNIA PURIFICATION PLANT & P.S. & RES.
MORGAN'S GRANT P.S.
CAMPEAU DR. P.S.
ENERGY MINES & RESOURCES P.S.
CARLINGTON HEIGHTS P.S. & RES.
BILLINGS BRIDGE P.S.
CONROY RD ELEVATED TANK
HURDMAN P.S.
Innes Rd Backup P.S.
Innes Rd/BearBrook Rd Backup P.S.
INNES RD ELEVATED TANK
SOUTH GLOUCESTER P.S. (INACTIVE)
LEITRIM P.S.
OTTAWA SOUTH P.S. & RES.
Merivale Rd. Backup P.S.
BARRHAVEN P.S.
BARRHAVEN RES. & P.S.
MOODIE ELEVATED TANK
Abbott/Iber St. Backup P.S.
STITTSVILLE ELEVATED TANK
GLEN CAIRN P.S. & RES
1E
2E
MONT
2C
3C
4C
1W
2W
3W
ME
MG
EMR
BARR
Shadow Ridge
WTP
PS
OLD MONTREAL RD
DUNNING RD
REGIONAL ROAD 174
TRIM RD
INNES RD
TENTH LINE RD
NAVAN RD
COLONIAL RD
MILTON RD
ANDERSON RD
RUSSELL RD
HIGHWAY 417
LEITRIM RD
DEVINE RD
MITCH OWENS RD
BOUNDARY RD
6TH LINE RD
VICTORIA ST
ALBION RD
CONROY RD
HUNT CLUB RD
RIVERSIDE DR
RIVER RD
WALKLEY RD
SMYTH RD
OGILVIE RD
CYRVILLE RD
BLAIR RD
SUSSEX DR
SCOTT ST
BANK ST
CARLING AVE
BASELINE RD
FISHER AVE
MERIVALE RD
WOODROFFE AVE
GREENBANK RD
CEDARVIEW RD
RICHMOND RD
MOODIE DR
HOPE SIDE RD
FALLOWFIELD RD
HAZELDEAN RD
EAGLESON RD
MARCH RD
DUNROBIN RD
CARP RD
HIGHWAY 417



LRJ
ENGINEERING | INGÉNIERIE

5430 CANOTEK ROAD OTTAWA, ON, K1J 9G2
www.lrl.ca (613) 842-3434

CLIENT NAME
KATASA GROUP

PROJECT NAME
PROPOSED 9 STOREY
APARTMENT BUILDING
1509 MERIVALE ROAD

DRAWING TITLE
EXISTING FIRE HYDRANT LOCATIONS

PROJECT NUMBER
200255

DATE
DEC. 10, 2021

SCALE
25 0 25 50 m

Water Supply Calculations for Proposed Building

LRL File No.	200255
Project Location	1509 Merivale
Date	July 7, 2021
Prepared by	Amr Salem

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

Unit Type	Persons Per Unit	Number of Units	Population
Studio / 1 Bedroom Apartment	1.4	159	222.6
2 Bedroom Apartment	2.1	44	92.4
Average Apartment	1.8	250	450.0
	Total	**453**	**765.0**

Average Water Consumption Rate	280	L/c/d		
Average Day Demand	**214,200**	**L/d**	**2.48**	**L/s**
Maximum Day Factor	2.5		(Water Design Guidelines Table 4.2)	
Maximum Daily Demand	**535,500**	**L/d**	**6.20**	**L/s**
Peak Hour Factor	2.2		(Water Design Guidelines Table 4.2)	
Maximum Hour Demand	**1,178,100**	**L/d**	**13.64**	**L/s**

Water Service Pipe Sizing

Q = VA

Where: V = velocity
A = area of pipe
Q = flow rate

Assuming a maximum velocity of 1.8m/s, the diameter of pipe is calculated as:

Minimum pipe diameter (d) =	$(4Q/\pi V)^{1/2}$	
=	0.098	m
=	98	mm
Proposed pipe diameter (d) =	**150**	mm
=	**6**	Inches

Amr Salem

From: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Sent: July 19, 2021 12:45 PM
To: Amr Salem
Subject: RE: (LRL200255) - 1509 Merivale Rd - Boundary Condition Request _ REVISION
Attachments: 1509 Merivale Road July 2021 -revised.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Amr,

The following are boundary conditions, HGL, for hydraulic analysis at 1509 Merivale Road (zone ME) assumed to be connected to the 305 mm on Merivale Road and the 203 mm on Kerry Crescent (see attached PDF for location).

At both connections:

Minimum HGL: 146.5 m

Maximum HGL: 158.2 m

Max Day + Fire Flow (200 L/s): 144.6 m (Merivale)

Max Day + Fire Flow (200 L/s): 145.0 m (Kerry)

The maximum pressure is estimated to be more than 80 psi. A pressure check at completion of construction is recommended to determine if pressure control is required.

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.

Thanks,

Santhosh

From: Amr Salem <asalem@lrl.ca>
Sent: July 08, 2021 3:00 PM
To: Kuruvilla, Santhosh <Santhosh.Kuruvilla@ottawa.ca>
Subject: RE: (LRL200255) - 1509 Merivale Rd - Boundary Condition Request _ REVISION

I would like to revise the boundary condition request to account for the domestic demand from a potential future building that is contemplated to be constructed at a later date. The future building would potentially house 250 additional apartment units. As a result I would like to propose a second connection to existing 200mm watermain within Kerry Crescent for redundancy.

Please find attached updated Water demand calculations and previously coordinated FUS calcs (no changes are anticipated for fire flow).

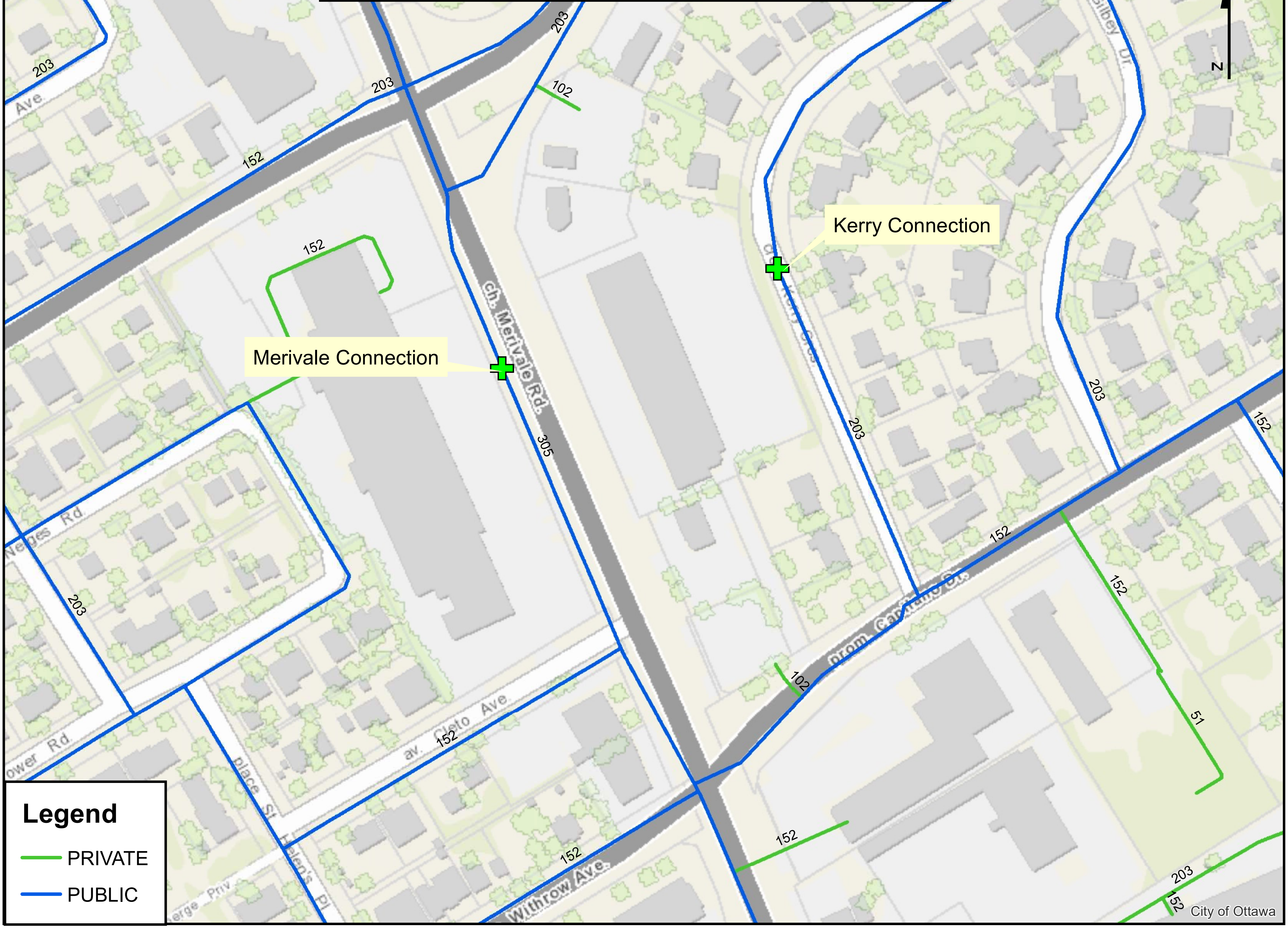
Please see below sketch for connection points;

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

	L/s
Avg. Daily	2.48
Max Day + FUS	6.20 + 200
Peak Hour	13.64

Thank you,

Boundary Conditions for 1509 Merivale Road



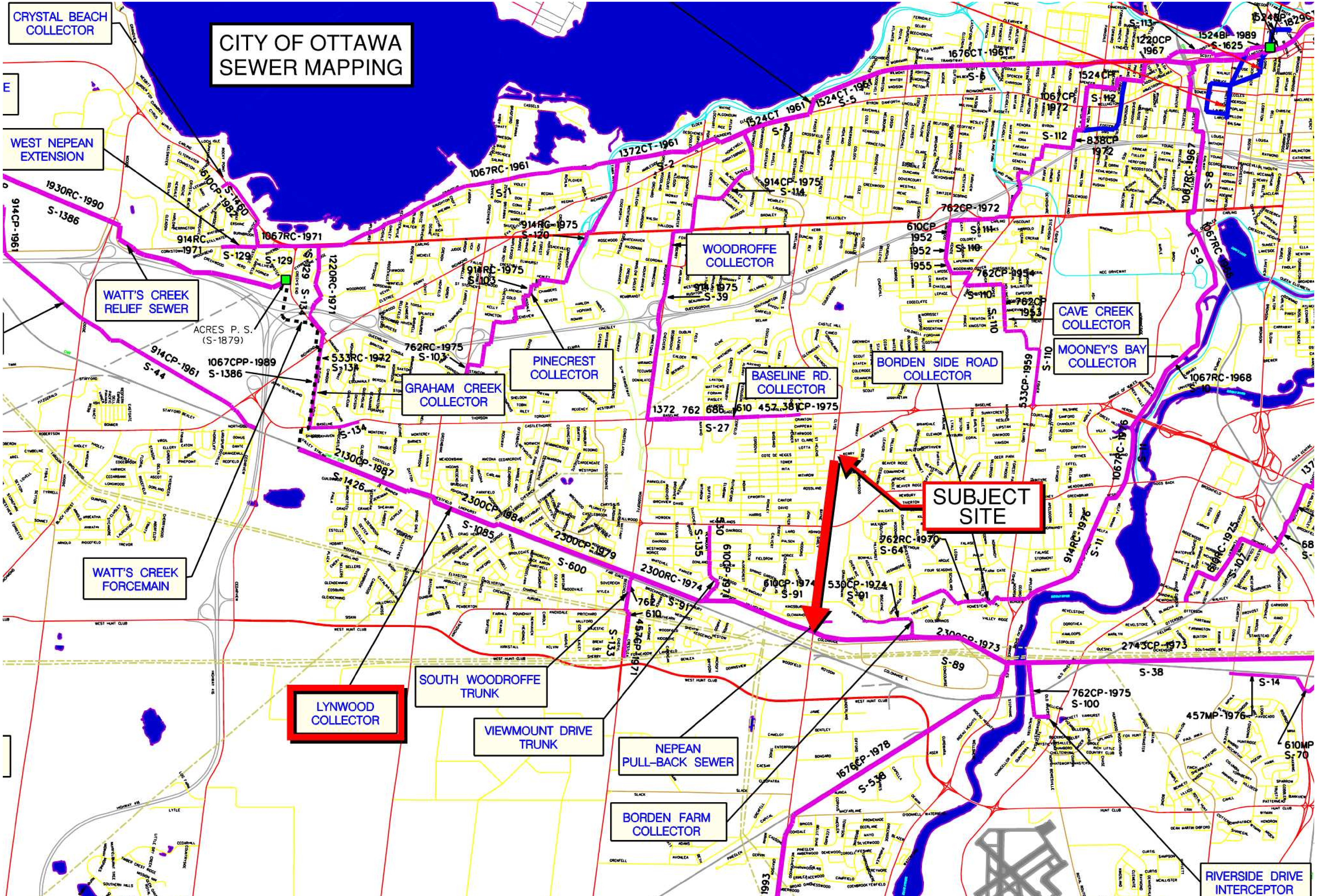
Fire Flow Calculations

LRL File No. 200255
Date June 30, 2021
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	Non-combustible construction	**0.8**		
			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					**14,688**	m^2	
3	Obtain fire flow before reductions	Required fire flow	Fire Flow = 220 x C x $A^{0.5}$				L/min	**21,330**
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	**18,131**
			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	**9,065**
			Water supply is standard for both the system and fire department hose lines	-10%	True	**-10%**		
			Fully supervised system	-10%	True	**-10%**		
6	Choose separation	Exposure distance between units	North side	10.1 to 20m	15%		L/min	**11,785**
			East side	>30m	0%			
			South side	10.1 to 20m	15%			
			West side	>30m	0%	**30%**		
Net required fire flow								
7	Obtain fire flow, duration, and volume	Minimum required fire flow rate (rounded to nearest 1000)					L/min	**12,000**
		Minimum required fire flow rate					L/s	**200.0**
		Required duration of fire flow					hr	**2.5**

APPENDIX C

Wastewater Collection Calculations



CITY OF OTTAWA
SEWER MAPPING
CRYSTAL BEACH COLLECTOR
WEST NEPEAN EXTENSION
WATT'S CREEK RELIEF SEWER
ACRES P. S. (S-1879)
WATT'S CREEK FORCEMAIN
GRAHAM CREEK COLLECTOR
PINECREST COLLECTOR
WOODROFFE COLLECTOR
BASELINE RD. COLLECTOR
BORDEN SIDE ROAD COLLECTOR
CAVE CREEK COLLECTOR
MOONEY'S BAY COLLECTOR
SUBJECT SITE
LYNWOOD COLLECTOR
SOUTH WOODROFFE TRUNK
VIEWMOUNT DRIVE TRUNK
NEPEAN PULL-BACK SEWER
BORDEN FARM COLLECTOR
RIVERSIDE DRIVE INTERCEPTOR

LRL File No. 200255
Project: 9-Storey Residential BLDG
Location: 1509 Merivale Road
Date: December 17, 2021

Sanitary Design Parameters

Average Daily Flow = 280 L/p/day
Commercial & Institutional Flow = 28000 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

EXISTING WASTERWATER FLOW

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)
Ex. Building - Merivale Rd	Ex. Building	Ex. San MH	0.000	0.0	0.00	0.0	4.0	0.00	**0.890**	**0.890**	0.00	0.00	7.0	0.0	0.0	**0.43**	0.89	0.89	0.29	**0.73**	72.0	250	0.34%	PVC	34.68	0.71

PROPOSED WASTEWATER FLOW

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)
Building - Merivale Rd	Prop. Building	Prop. San MH	**0.890**	**765.0**	**0.89**	**765.0**	**3.9**	**9.60**	0.000	0.000	0.00	0.00	7.0	0.0	0.0	0.00	**0.89**	**0.89**	**0.29**	**9.89**	34.4	200	1.00%	PVC	32.80	1.04
Merivale Rd	Prop. San MH	Ex. San MH	**0.000**	**0.0**	**0.89**	**765.0**	**3.9**	**9.60**	0.000	0.000	0.00	0.00	7.0	0.0	0.0	0.00	**0.89**	**0.89**	**0.29**	**9.89**	25.7	250	0.70%	PVC	49.75	1.01

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

Designed: A.S.	PROJECT: 9-Storey Residential Building		
Checked: V.J.	LOCATION: 1509-1531 Merivale Road		
Dwg. Reference: C.401	File Ref.: 200255	Date: 2021-12-13	Sheet No. 1 of 1

APPENDIX D

Stormwater Management Calculations

LRL Associates Ltd.

Storm Watershed Summary

LRL File No.	200255
Project:	9-Storey Residential BLDG
Location:	1509 Merivale Road
Date:	December 17, 2021
Designed:	Amr Salem
Drawing Reference:	C701/C702

Pre-Development Catchments

WATERSHED	Total Area (m^2)	Total Area (ha)	Combined C
EWS-01	4332.8	0.433	0.89
EWS-02	4562.5	0.456	0.89
EWS-EXT	950.0	0.095	0.86
TOTAL	**9845.3**	**0.985**	**0.89**

Post-Development Catchments

WATERSHED	Total Area (m^2)	Total Area (ha)	Combined C
WS-01 (UNCONTROLLED)	2026.3	0.203	0.39
WS-02 (CISTERN -CONTROLLED)	3384.0	0.338	0.80
WS-03 (CONTROLLED)	3485.0	0.349	0.28
WS-EXT (CONTROLLED)	950.0	0.095	0.86
TOTAL	**9845.3**	**0.985**	**0.54**

LRL File No. 200255
Project: 9-Storey Residential BLDG
Location: 1509 Merivale Road
Date: December 17, 2021
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 (EWS-01+EWS-02)

$i_{2} = 732.95 / (Td + 6.199)^{0.81}$ a = 732.951 b = 0.81 C = 6.199

C = 0.50 max of 0.5 as per City of Ottawa
I = 76.8 mm/hr
Tc = 10 min
Total Area = 0.890 ha

2-Yr Allowable Release Rate= 94.97 L/s

Pre-development Stormwater Management (EWS-EXT)

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

C = 0.86
I = 178.6 mm/hr
Tc = 10 min
Total Area = 0.095 ha

100-Yr Allowable Release Rate= 40.56 L/s

TOTAL 100-Year Allowable Release Rate= 135.52 L/s

Post-development Stormwater Management

					$\sum R_{2yr}$	$\sum R_{100yr}$
	Total Site Area =	0.985	ha	$\sum R_T$ =	0.54	0.67
Controlled	WS-02 (Cistern)	0.338	ha	R_T =	0.80	0.99
	WS-03	0.349	ha	R_T =	0.28	0.35
	WS EXT-02	0.095	ha	R_T =	0.86	1.00
	Total Controlled =	0.782	ha	$\sum R_T$ =	0.57	0.72
Un-controlled	WS-01	0.203	ha	R_T =	0.39	0.49
	Total Un-Controlled =	0.203	ha	$\sum R_T$ =	0.39	0.49

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	49.61	0.00	49.61

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

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	167.08	72.70	45.91	0.00	45.91
15	142.9	133.71	79.01	45.91	0.00	45.91
20	120.0	112.24	79.59	45.91	0.00	45.91
25	103.8	97.17	76.86	45.91	0.00	45.91
30	91.9	85.96	72.09	45.91	0.00	45.91
35	82.6	77.27	65.85	45.91	0.00	45.91
40	75.1	70.31	58.56	45.91	0.00	45.91
45	69.1	64.61	50.48	45.91	0.00	45.91
50	64.0	59.84	41.78	45.91	0.00	45.91
60	55.9	52.30	22.99	45.91	0.00	45.91
70	49.8	46.59	2.83	45.91	0.00	45.91
80	45.0	42.10	0.00	45.91	0.00	45.91
90	41.1	38.47	0.00	45.91	0.00	45.91
100	37.9	35.47	0.00	45.91	0.00	45.91
110	35.2	32.94	0.00	45.91	0.00	45.91
120	32.9	30.78	0.00	45.91	0.00	45.91

**Cistern to be pumped at specified constant release rate*

Total Storage Required = 79.59 m^3
Available CISTERN Storage = 85.00 m^3
refer to LRL Plan C.601

Post-development Stormwater Management (WS-03 + WS-EXT-02)

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	107.30	40.38	40.00	0.00	40.00
15	142.9	85.87	41.28	40.00	0.00	40.00
20	120.0	72.08	38.50	40.00	0.00	40.00
25	103.8	62.41	33.61	40.00	0.00	40.00
30	91.9	55.21	27.37	40.00	0.00	40.00
35	82.6	49.62	20.21	40.00	0.00	40.00
40	75.1	45.16	12.38	40.00	0.00	40.00
45	69.1	41.49	4.04	40.00	0.00	40.00
50	64.0	38.43	0.00	40.00	0.00	40.00
55	59.6	35.83	0.00	40.00	0.00	40.00
60	55.9	33.59	0.00	40.00	0.00	40.00
65	52.6	31.64	0.00	40.00	0.00	40.00
70	49.8	29.92	0.00	40.00	0.00	40.00
75	47.3	28.40	0.00	40.00	0.00	40.00
80	45.0	27.04	0.00	40.00	0.00	40.00
85	43.0	25.81	0.00	40.00	0.00	40.00
90	41.1	24.70	0.00	40.00	0.00	40.00
95	39.4	23.70	0.00	40.00	0.00	40.00
100	37.9	22.78	0.00	40.00	0.00	40.00

***Release rate restricted via 128mm diameter orifice plate*

Total Storage Required = 41.28 m^3
100-YR Surface Storage Available 42.60 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 (m3)	Total Available Storage (m3)
WS-01	0.203	49.61	0	0
WS-02	0.338	45.91	79.59	85.00
WS-03 + WS-EXT	0.349	40.00	41.28	42.60
TOTAL	0.890	135.52	120.87	127.60

ICD Sizing @ CBMH01

Orifice Dia. (mm) 128 *USE min. 75mm ORIFICE*

	SURFACE STORAGE						
	Stage	**Ponding**	**head h**	**delta d**	**V**	**V acc**	**Q release**
	(m)	**(m2)**	**(m)**	**(m)**	**(m3)**	**(m3)**	**(L/s)**
Orifice Inv	94.04	0	0	0	0	0	0
T/L	95.05	0	1.01	1.01	0.30	0.30	35.5
100yr ELEV	95.32	470	1.28	0.27	42.30	42.60	40.0

LRL Associates Ltd.

Storm Design Sheet

LRL File No.
Project:
Location:
Date:
Designed: Amr Salem
Drawing Reference: C.401

Storm Design Parameters

Rational Method Q = 2.78CIA

Q = Peak flow in litres per second (L/s)
A = Drainage area in hectares (ha)
C = Runoff coefficient
I = Rainfall intensity (mm/hr)

Runoff Coefficient (C)

Grass	0.20
Gravel	0.80
Asphalt / rooftop	0.90

Ottawa Macdonald-Cartier International Airport IDF curve equation (2 year event, intensity in mm/hr)

$I_2 = 732.95 / (Td + 6.199)^{0.81}$

Min. velocity = 0.80 m/s
Manning's "n" = 0.013

LOCATION			AREA (ha)			FLOW						STORM SEWER							
WATERSHED / STREET	From MH	To MH	C = 0.20	C = 0.80	C = 0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc. (min.)	Rainfall Intensity (mm/hr)	Peak Flow Q (L/s)	Controlled Flow Q (L/s)	Pipe Diameter (mm)	Type	Slope (%)	Length (m)	Capacity Full (L/s)	Velocity Full (m/s)	Time of Flow (min.)	Ratio (Q/Q_{FULL})
WS-03 + WS-EXT	CBMH02	CBMH01	0.315	0.000	0.129	0.497	0.50	10.00	76.8	38.20	40.00	300	PVC	0.35%	43.0	57.2	0.81	0.89	0.67
	CBMH01	EX. STM	0.000	0.000	0.000	0.000	0.50	10.89	73.6	36.59	40.00	300	PVC	0.35%	18.5	57.2	0.81	0.38	0.64

APPENDIX E

Civil Engineering Drawings

PROPOSED 9-STOREY MULTI-USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

REVISION 01

KEY PLAN (N.T.S.)

DRAWING INDEX	
DRAWING NAME	**DRAWING NUMBER**
TITLE PAGE	
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SEDIMENT AND EROSION CONTROL PLAN	C101
DEMOLITION PLAN	C102
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
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PROPOSED 9-STOREY MULTI-USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.
REV.01 - ISSUED FOR MUNICIPAL APPROVAL - DEC. 21, 2021
LRL PROJECT no: 200255

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.

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SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	23 DEC 2021

V. JOHNSON
100510576
Dec 23, 2021

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT
KATASA GROUP

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

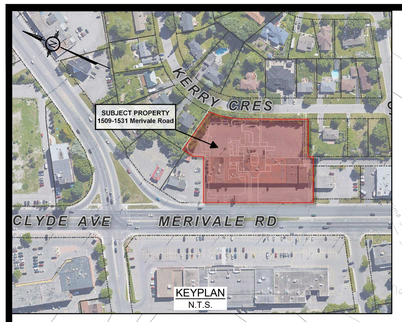
PROJECT
PROPOSED 9-STOREY MULTI USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

DRAWING TITLE
GENERAL NOTES

PROJECT NO.
200255

DATE
JUNE, 2021

C001



BENCHMARK
TOP OF FIRE HYDRANT SPINDLE
ELEV. = 95.56m

KERRY CRESCENT

PROPOSED SILT FENCE BARRIER AS PER OPSD 219.110

PROPOSED 6 STOREY

RAMP DN 28.2M @ 12.0%

PROPOSED 9 STOREY RESIDENTIAL APARTMENT BUILDING
(G.F.A. = ±8,896m²)

GROUND F.F.E. = 96.15
P1 F.F.E. = 92.65

EXTENTS OF U/G PARKING

PROPOSED MUD MAT AS PER DETAIL

A.D.1

A.D.2

MERIVALE ROAD

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED FENCE
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
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- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
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- GAS GAS EXISTING GAS LINE
- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
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- PROPOSED CURB STOP
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- WS-XX WATERSHED NAME
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MUD MAT - CONSTRUCTION ACCESS

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5m 0 5 10m
SCALE: 1:250

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	23 DEC 2021

LICENSED PROFESSIONAL ENGINEER
N. JOHNSON
100510576
Dec 23,2021
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
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www.lrl.ca I (613) 842-3434

CLIENT
KATASA GROUP

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

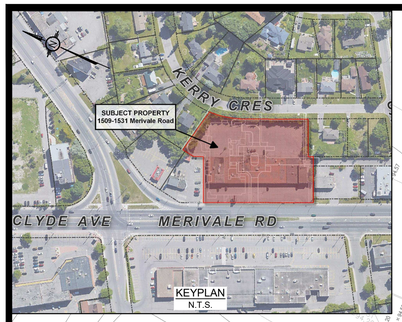
PROJECT
PROPOSED 9-STOREY MULTI USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.
200255

DATE
JUNE, 2021

C101



1509-1531 MERIVALE ROAD
EXISTING 10-UNIT STRIP MALL BUILDING TO BE DEMOLISHED

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
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- PROPOSED FENCE
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5m 0 5 10m
SCALE: 1:250

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01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	23 DEC 2021

LICENSED PROFESSIONAL ENGINEER
N. JOHNSON
100510576
DEC 23, 2021
PROVINCE OF ONTARIO

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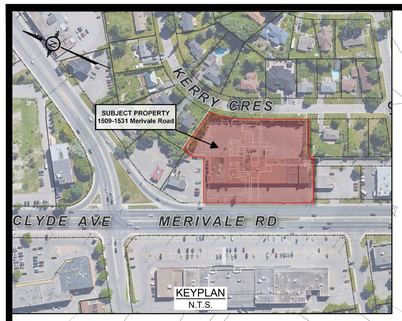
DESIGNED BY:	DRAWN BY:	APPROVED BY:
A.S.	A.S.	V.J.

PROJECT
PROPOSED 9-STOREY MULTI USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

DRAWING TITLE
DEMOLITION PLAN

PROJECT NO.
200255
DATE
JUNE, 2021

C102



PAVEMENT STRUCTURE

COURSE	MATERIAL	THICKNESS (mm) ACCESS LANE / TRUCK ROUTE
SURFACE	HL 3 A/C (PG 58-28)	40
BINDER	HL 8 A/C (PG 58-28)	50
BASECOURSE	OPSS GRANULAR "A"	150
SUBBASE	OPSS GRANULAR "B" TYPE II	450

NOTE:
IN PREPARATION FOR PAVEMENT CONSTRUCTION AT THIS SITE, ANY SURFICIAL OR NEAR SURFACE/SUBGRADE LEVEL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS MATERIALS SHOULD BE REMOVED FROM THE PROPOSED PAVED AREAS. THE EXPOSED SUBGRADE SHOULD BE INSPECTED AND APPROVED BY GEOTECHNICAL PERSONNEL AND ANY SOFT AREAS EVIDENT SHOULD BE SUBEXCAVATED AND REPLACED WITH SUITABLE EARTH BORROW APPROVED BY THE GEOTECHNICAL ENGINEER. THE SUBGRADE SHOULD BE SHAPED AND CROWNED TO PROMOTE DRAINAGE OF THE SITE DRAINAGE STRUCTURES. FOLLOWING APPROVAL OF THE PREPARATION OF THE SUBGRADE, THE PAVEMENT GRANULARS MAY BE PLACED.

REFER TO GEOTECHNICAL INVESTIGATION REPORT (PG5812-1) BY PATERSON GROUP INC., DATED MAY 7, 2021 FOR FURTHER INFORMATION.

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED FENCE
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00S PROPOSED SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00BW PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- ×50.00TW PROPOSED TOP OF RETAINING WALL
- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SUB SUB PROPOSED 100mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
- STM STM EXISTING STORM SEWER
- 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 CONTROLLER
- AREA RUNOFF
- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

BENCHMARK
TOP OF FIRE HYDRANT SPINDLE
ELEV. = 95.56m

PROPOSED 6 STOREY

PROPOSED 9 STOREY RESIDENTIAL APARTMENT BUILDING
(G.F.A. = ±8,896m²)

GROUND F.F.E. = 96.15
P1 F.F.E. = 92.65

PROPOSED RETAINING WALL INSTALL GUARD RAIL WHERE WALL HEIGHT EXCEEDS 600mm

RAMP DN 28.2M @ 12.0%

REFER TO ARCHITECTURAL PLANS FOR RAMP DETAILS

PROPOSED TRENCH DRAIN TO BE ACCOMMODATED IN BLDG MECH SYSTEM

PROPOSED RETAINING WALL TO BE DESIGNED BY A STRUCTURAL ENGINEER.
INSTALL GUARD RAIL WHERE WALL HEIGHT EXCEEDS 600mm.

EXTENTS OF U/G PARKING

CBMH 02

CB 01

A.D.1

A.D.2

MAXIMUM PONDING EXTENTS

MERIVALE ROAD

ASPHALT REINSTATEMENT SHALL MATCH EXISTING GRANULAR AND ASPHALT THICKNESS WHILE MAINTAINING A MINIMUM OF:
40mm OF HL3
50mm OF HL8
150mm OF GRANULAR "A"
300mm OF GRANULAR "B"
CONTRACTOR TO COMPLETE ROAD CUT AS PER CITY OF OTTAWA DETAIL R10

3.4m

24.5m

MERIVALE ROAD
Road Allowance Between Concessions A (Rideau Front) (Nepean
REGIONAL ROAD 17

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.

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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.

5m 0 5 10m
SCALE: 1:250

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	23 DEC 2021

LICENSED PROFESSIONAL ENGINEER
V. JOHNSON
100510576
Dec 23, 2021
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
KATASA GROUP

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

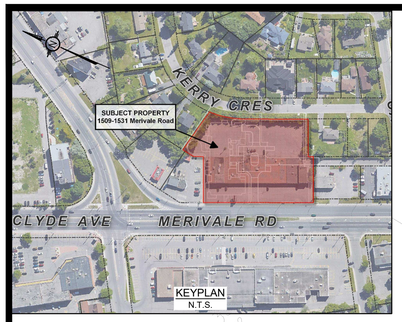
PROJECT
PROPOSED 9-STOREY MULTI USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT NO.
200255

DATE
JUNE, 2021

C301



LEGEND:

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- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED FENCE
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- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WS-XX CONTROLLED AREA RUNOFF — WATERSHED NAME / RUNOFF COEFFICIENT / AREA IN HECTARES

NOTE:

- CONTRACTOR TO LOCATE ALL EXISTING SERVICES AND CAP AT MAIN.
- SEWER SERVICES TO BE CAP/ABANDONED AS PER CITY OF OTTAWA STANDARD DWG S11.4

PROP 150mmØ x 200mmØ CONNECTION BY CITY FORCES.
EXCAVATION AND REINSTATEMENT BY CONTRACTOR,
T/G = ±94.65
EX. WATERMAIN OBV = ±92.25

PROP WTR SERVICE 35.7m - 150mm± PVC DR-18 TO BE INSTALLED 2.4m FROM T/0 WTR SERVICE TO FINISHED GRADE.
PROVIDE INSULATION WHERE COVER IS LESS THAN 2.4 AS PER DETAIL ON C901
INV @ BLDG = 93.40

EX. CBMH
T/G = 94.20
INV = ±92.30

PROPOSED RETAINING WALL
INSTALL GUARD RAIL WHERE WALL HEIGHT EXCEEDS 600mm

RAMP DN 22.2M @ 12.0%

REFER TO ARCHITECTURAL PLANS FOR RAMP DETAILS

PROPOSED RETAINING WALL TO BE DESIGNED BY A STRUCTURAL ENGINEER.
INSTALL GUARD RAIL WHERE WALL HEIGHT EXCEEDS 600mm.

PROPOSED TRENCH DRAIN
TO BE ACCOMMODATED IN BLDG MECH SYSTEM

GROUND F.F.E. = 96.15
P1 F.F.E. = 92.65

PROP STM CBMH02
T/G = 95.05
INV = 94.21

PROP STM 43.0m - 300mmØ
PVC DR-35 @ 0.35%

PROPOSED DRAINS TO DIRECT FLOW TO CISTERN

PROP STM CB01
T/G = 95.43
INV = 94.28

PROP STM CBMH01
T/G = 95.05
INV = 94.05
C/W 128mmØ ORIFICE PLATE ICD
100-YR H = 1.28m
100-YR Q= 40.0 L/s

PROP STM 18.5m - 300mmØ
PVC DR-35 @ 0.35%

APPROX. CISTERN LOCATION
REFER TO ARCHITECTURAL PLANS FOR DETAIL
100-YR REQUIRED CISTERN VOLUME = 79.59m³
PROPOSED CISTERN VOLUME = 85.00m³
CONSTANT PUMP Q = 45.91 L/s

PROPOSED CISTERN ACCESS

PROP 10.7m - 200mmØ STM CISTERN OUTLET @ 2.0%
C/W BACKWATER VALVE
INV @ BLDG = 93.88

CONNECT TO EX. 600mmØ STM
EX. INV = 93.37
EX. SPRINGLINE ELEV = 93.67
PROP INV =93.67

PROP SAN INV = 94.64
C/W BACKWATER VALVE AS PER CITY STD S14 ON C901

EX. CBMH
T/G = 95.17
INV = 93.23

PROP 10.3m - 150mmØ STM @ 1.0%
(FOUNDATION DRAIN)
INV @ BLDG = 94.11
C/W BACKWATER VALVE AS PER CITY STD S14 IN C901

CONNECTION TO EX. STM MH
EX INV = 93.66
PROP INV = 94.01

PC
EX. STM OBV = 94.24
PROP SAN INV = 94.54
0.30m CLEARANCE

ASPHALT REINSTATEMENT SHALL MATCH EXISTING GRANULAR AND ASPHALT THICKNESS WHILE MAINTAINING A MINIMUM OF:
40mm OF HL3
50mm OF HL8
150mm OF GRANULAR "A"
300mm OF GRANULAR "B"
CONTRACTOR TO COMPLETE ROAD CUT AS PER CITY OF OTTAWA DETAIL R10

PROP SAN 34.4m - 200mmØ
PVC DR-28 @ 1.0%

CONNECT PROP 300mmØ STM TO EX. 525mmØ STM
EX. INV = 93.88
EX. SPRINGLINE ELEV = 94.14
PROP SPRINGLINE ELEV = 94.14
PROP INV = 93.99

PROP WTR SERVICE 35.7m - 150mm± PVC DR-18 TO BE INSTALLED 2.4m FROM T/0 WTR SERVICE TO FINISHED GRADE.
PROVIDE INSULATION WHERE COVER IS LESS THAN 2.4 AS PER DETAIL ON C901
INV @ BLDG = 93.40

PROP SAN MH 01
T/G = ±95.40
E INV = 94.29
S INV = 94.23

PROP SAN 25.7m - 250mmØ
PVC DR-28 @ 0.70%

PROP 150Ø x 300Ø CONNECTION BY CITY FORCES.
EXCAVATION AND REINSTATEMENT BY CONTRACTOR.
T/G = ±95.35
EX. WATERMAIN OBV = ±92.95

CONNECT TO EX. SAN MH
T/G = 95.62
S. INV = 93.79
PROP N. INV = 94.04

24.5m

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5m 0 5 10m
SCALE: 1:250

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	23 DEC 2021

LICENSED PROFESSIONAL ENGINEER
N. JOHNSON
100510576
Dec 23, 2021
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT
KATASA GROUP

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

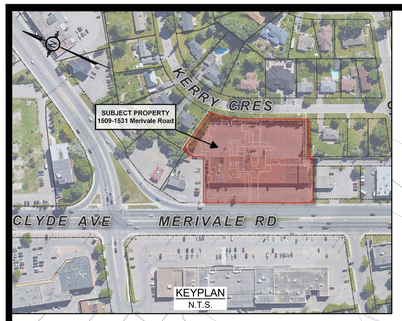
PROJECT
PROPOSED 9-STOREY MULTI USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

DRAWING TITLE
SERVICING PLAN

PROJECT NO.
200255

DATE
JUNE, 2021

C401



BENCHMARK
TOP OF FIRE HYDRANT SPINDLE
ELEV. = 95.56m

KERRY CRESCENT

PROPOSED RETAINING WALL
INSTALL GUARD RAIL WHERE WALL HEIGHT EXCEEDS 600mm

PROPOSED 6 STOREY

RAMP DN 26.2M @ 12.0%

REFER TO ARCHITECTURAL PLANS FOR RAMP DETAILS

PROPOSED TRENCH DRAIN
TO BE ACCOMMODATED IN BLDG MECH SYSTEM

PROPOSED RETAINING WALL TO BE DESIGNED BY A STRUCTURAL ENGINEER.
INSTALL GUARD RAIL WHERE WALL HEIGHT EXCEDS 600mm

EXTENTS OF U/G PARKING

NO ROOF CONTROLS PROPOSED.
REFER TO ARCHITECTURAL PLANS FOR LOCATIONS OF ROOF DRAINS AND SCUPPERS

PROPOSED 9 STOREY
RESIDENTIAL APARTMENT
BUILDING
(G.F.A. = ±8,896m²)

GROUND F.F.E. = 96.15
P1 F.F.E. = 92.65

A.D.1

A.D.2

100-YR PONDING EXTENTS
100-YR ELEV.= 95.30m
400-YR REQUIRED STORAGE = 41.28m³
100-YR AVAILABLE STORAGE = 42.40m³

MAXIMUM PONDING EXTENTS

EXTENTS OF U/G PARKING

APPROX. CISTERN LOCATION
REFER TO ARCHITECTURAL PLANS FOR DETAIL
100-YR REQUIRED CISTERN VOLUME =79.59m³
PROPOSED CISTERN VOLUME = 85.00m³
CONSTANT PUMP Q = 45.91 L/s

PROP STM CBMH01
T/G = 95.05
INV = 94.05
C/W 128mmØ ORIFICE PLATE ICD
100-YR H = 1.28m
100-YR Q= 40.0 L/s

MERIVALE ROAD

ASPHALT REINSTATEMENT SHALL MATCH EXISTING GRANULAR AND ASPHALT THICKNESS WHILE MAINTAINING A MINIMUM OF:
40mm OF HL3
50mm OF HL8
150mm OF GRANULAR "A"
300mm OF GRANULAR "B"
CONTRACTOR TO COMPLETE ROAD CUT AS PER CITY OF OTTAWA DETAIL R10

3.4m

24.5m

LEGEND:

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- STORM WATERSHED EXTENT

WS-XX (WATERSHED NAME)
CONTROLLED (RUNOFF COEFFICIENT)
AREA (AREA IN HECTARES)

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5m 0 5 10m
SCALE: 1:250

SUBJECT TO APPROVAL

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	23 DEC 2021

LICENSED PROFESSIONAL ENGINEER
N. JOHNSON
100510576
Dec 23, 2021
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
KATASA GROUP

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

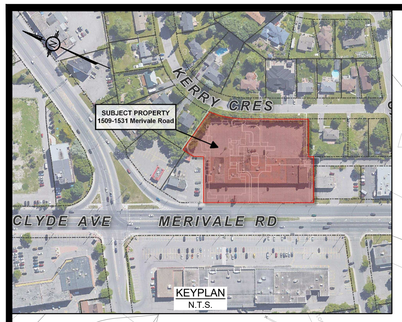
PROJECT
PROPOSED 9-STOREY MULTI USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

DRAWING TITLE
STORMWATER MANAGEMENT PLAN

PROJECT NO.
200255

DATE
JUNE, 2021

C601



LEGEND:

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- PROPOSED CURB
- PROPOSED DEPRESSED CURB
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- PROPOSED SILT FENCE AS PER OPSD 219.110
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- PROPOSED LIGHT DUTY ASPHALT
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- PROPOSED MANHOLE
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- STORM WATERSHED EXTENT

WS-XX (CONTROLLED) | AREA | RUNOFF
- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

EWS-01 (UN-CONTROLLED): 0.433 | 0.89

EWS-02 (UN-CONTROLLED): 0.456 | 0.89

EWS-EXT (UN-CONTROLLED): 0.095 | 0.86

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5m 0 5 10m
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DESIGNED BY:	DRAWN BY:	APPROVED BY:
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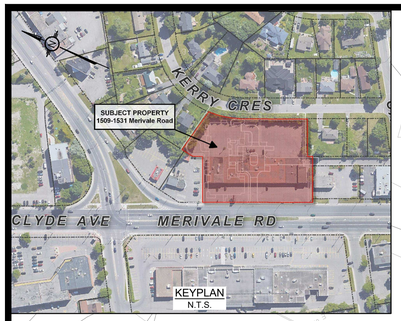
PROJECT
PROPOSED 9-STOREY MULTI USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

DRAWING TITLE
PRE-DEVELOPMENT
WATERSHED PLAN

PROJECT NO.
200255

DATE
JUNE, 2021

C701



PROPOSED RETAINING WALL - INSTALL GUARD RAIL WHERE WALL HEIGHT EXCEEDS 600mm

RAMP ON 28.2M @ 12.0%

REFER TO ARCHITECTURAL PLANS FOR RAMP DETAILS

PROPOSED RETAINING WALL TO BE DESIGNED BY A STRUCTURAL ENGINEER. INSTALL GUARD RAIL WHERE WALL HEIGHT EXCEEDS 600mm.

PROPOSED TRENCH DRAIN TO BE ACCOMMODATED IN BLDG MECH SYSTEM

WS-01 UN-CONTROLLED 0.203 0.39

WS-02 CONTROLLED 0.338 0.80

WS-03 CONTROLLED 0.349 0.28

WS-EXT CONTROLLED 0.86 0.095

ASPHALT REINSTATEMENT SHALL MATCH EXISTING GRANULAR AND ASPHALT THICKNESS WHILE MAINTAINING A MINIMUM OF:
40mm OF HL3
50mm OF HL8
150mm OF GRANULAR "A"
300mm OF GRANULAR "B"
CONTRACTOR TO COMPLETE ROAD CUT AS PER CITY OF OTTAWA DETAIL R10

3.4m

24.5m

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DRAWING TITLE
POST-DEVELOPMENT WATERSHED PLAN

PROJECT NO.
200255

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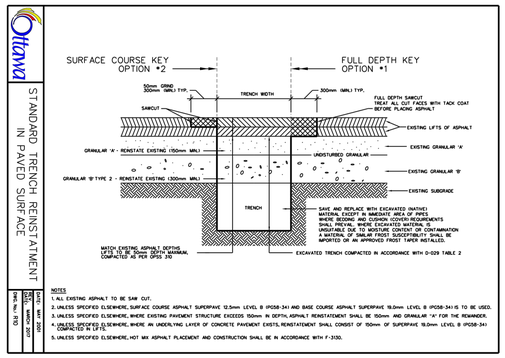
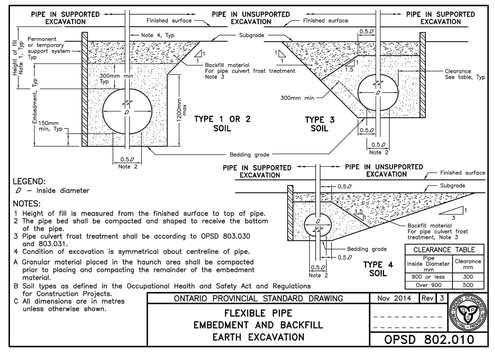
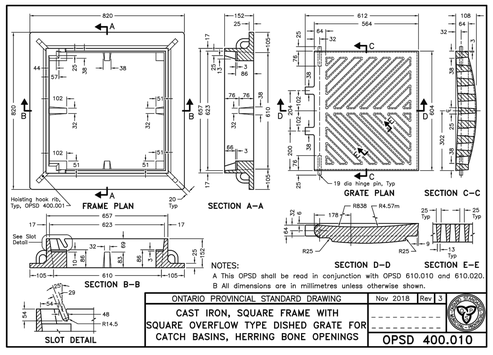
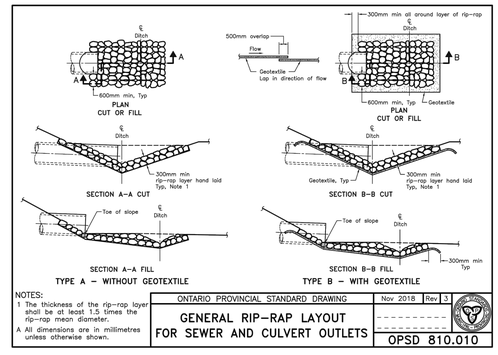
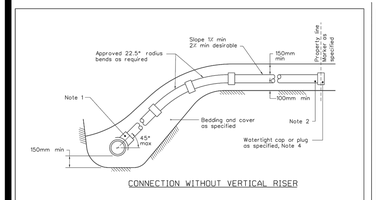
C702

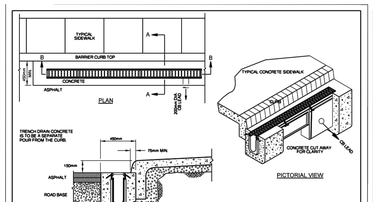


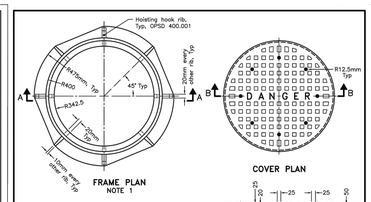


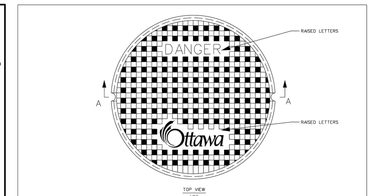


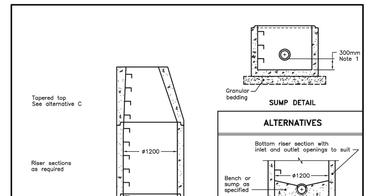


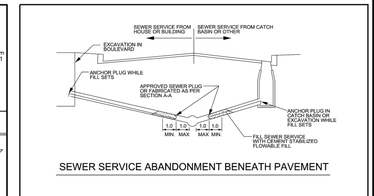




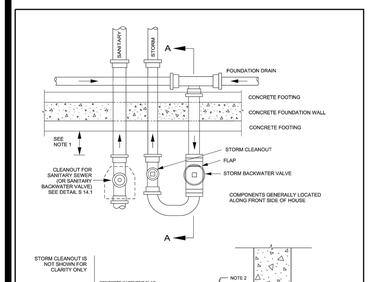


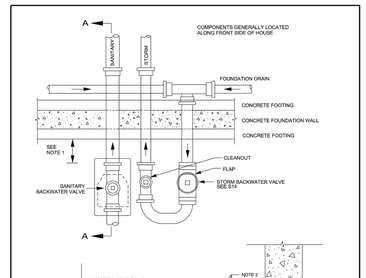


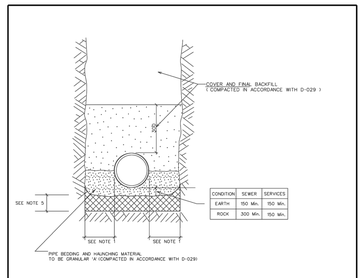


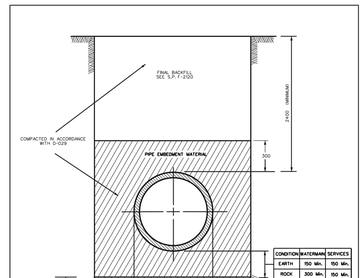


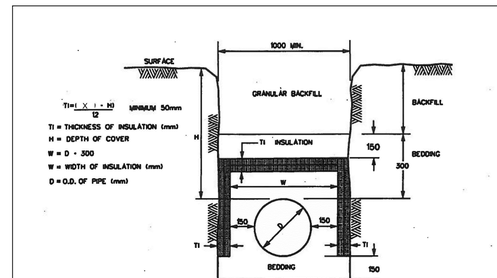
SUBJECT TO APPROVAL

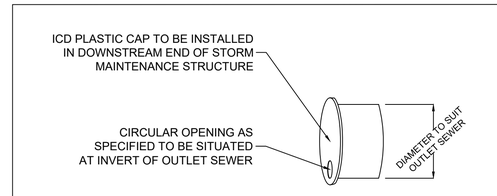












USE AND INTERPRETATION OF DRAWINGS

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 NOT 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 CHANGES 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.

No.	REVISIONS	BY	DATE
01	ISSUED FOR MUNICIPAL APPROVAL	A.S.	23 DEC 2021

LICENSED PROFESSIONAL ENGINEER A. MOHISON 100510576 Dec 23, 2021 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

KATASA GROUP

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

PROJECT

PROPOSED 9-STOREY MULTI USE BUILDING
1509 MERIVALE ROAD, OTTAWA, ON.

DRAWING TITLE

CONSTRUCTION DETAIL PLAN

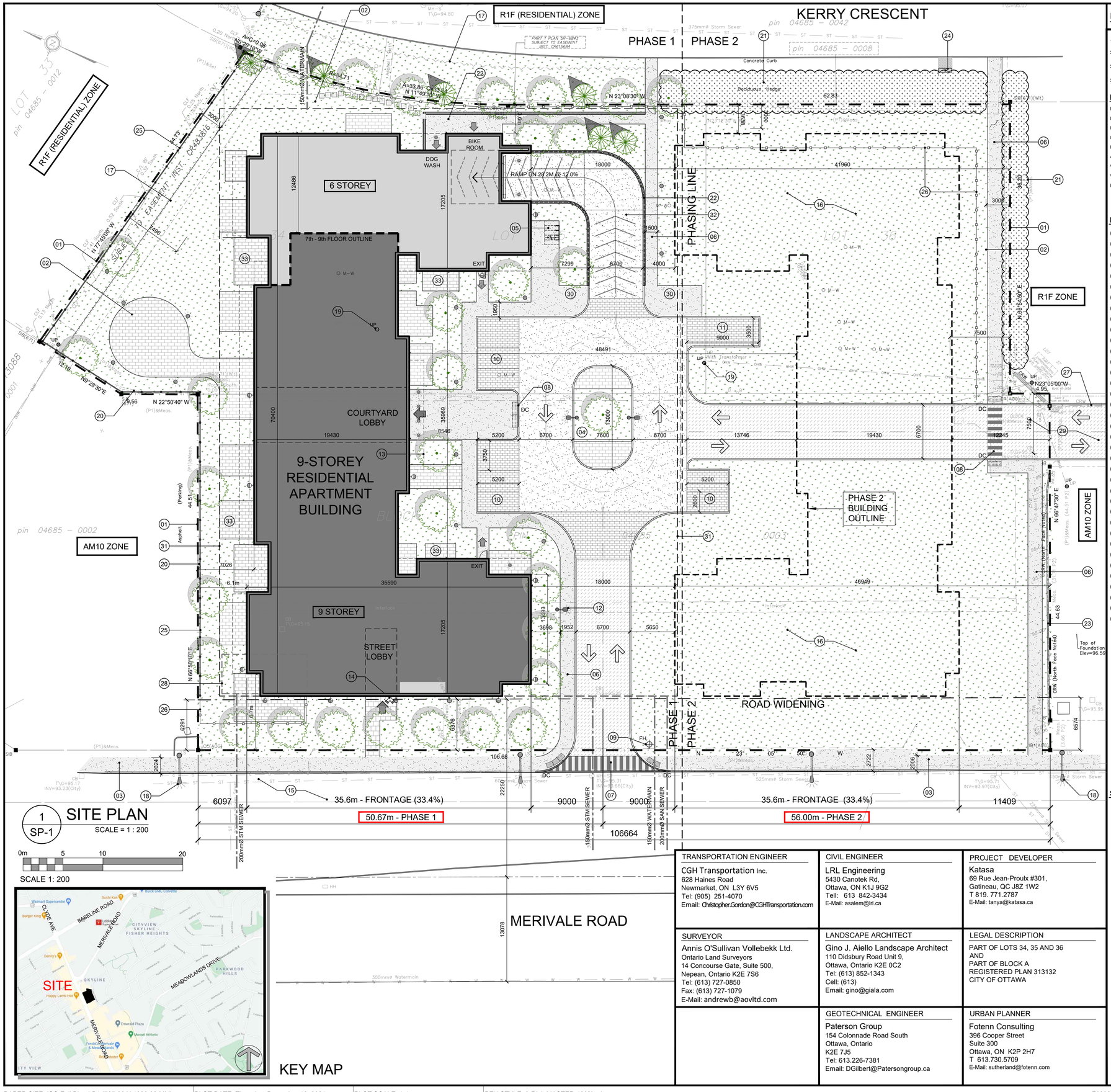
PROJECT NO. 200255

DATE JUNE, 2021

C901

DRAWINGS/FIGURES

Proposed Site Plan
Legal Survey
As-builts



SITE PLAN

1 SP-1

SCALE = 1 : 200

0m 5 10 20

SCALE 1: 200

KEY MAP

PROJECT INFORMATION

ZONING	AM10
SITE AREA (OVERALL)	8,896.0 sq. m. 95,756 sq. ft.
SITE AREA (PHASE 1)	5,357.3 sq. m. 57,666 sq. ft.
SITE AREA (PHASE 2)	3,538.7 sq. m. 38,090 sq. ft.

REQUIRED

BUILDING HEIGHT	9 STOREY'S - 30 m
DENSITY - F.S.I.	3.5
FRONT YARD SETBACK	3.0 m
INTERIOR YARD SETBACK	0.0 , 3.0 & 7.5 m
REAR YARD SETBACK	3.0 m.
AMENITY AREA PER UNIT	6.0 sq. m.
VEHICLE PARKING - RESIDENTIAL	0.5 PER UNIT
VEHICLE PARKING - VISITOR ONLY	0.1 PER UNIT
BICYCLE PARKING - RESIDENTIAL	0.5 PER UNIT

PROVIDED

BUILDING HEIGHT		9 STOREY'S - 29.0 m
GRADE		95.80m geo. elev.
DENSITY - F.S.I.	PHASE 1 ONLY	2.74
FRONT YARD SETBACK		6.7 m.
INTERIOR YARD SETBACK		6.1 m.
REAR YARD SETBACK		3.6 m.
AMENITY AREA PER UNIT		6.0 sq. m.
TOWER FOOTPRINT		890 sq. m.
VEHICLE PARKING - RESIDENTIAL		0.5 PER UNIT
VEHICLE PARKING - VISITOR ONLY		0.1 PER UNIT
BICYCLE PARKING - RESIDENTIAL		0.7 PER UNIT

DRAWING NOTES

①	PROPERTY LINE
②	BUILDING SETBACK LINE
③	EXISTING CONCRETE SIDEWALK TO REMAIN
④	LANDSCAPE ISLAND WITH 150mm BARRIER CURB
⑤	BICYCLE PARKING SPACES (0.6 x 1.8M) WITH RACK
⑥	CONCRETE WALK, WIDTH AS NOTED
⑦	CONCRETE SIDEWALK WITH DEPRESSED CURB & TWSI
⑧	DEPRESSED CURB & TWSI
⑨	FIRE HYDRANT
⑩	STANDARD PARKING SPACE (2.6 X 5.2 M)
⑪	LOADING ZONE
⑫	LIGHT STANDARD - LOCATION TO BE CONFIRMED
⑬	BUILDING CANOPY
⑭	SIAMESE CONNECTION
⑮	FIRE ROUTE
⑯	SOFT LANDSCAPING
⑰	EXISTING CEDAR HEDGE TO BE REMOVED
⑱	EXISTING STREET LIGHT
⑲	EXISTING HYDRO POLE TO BE REMOVED
⑳	EXISTING MOVABLE CURE TO BE REMOVED
㉑	EXISTING CEDAR HEDGE
㉒	RETAINING WALL WITH GUARD RAILINGS AS REQUIRED
㉓	EXISTING RETAINING WALL
㉔	EXISTING CANADA POST MAIL BOXES
㉕	2.1m HT. SOLID WOOD FENCE, SEE LANDSCAPE
㉖	LOW METAL PICKED FENCE, SEE LANDSCAPE
㉗	EXISTING RETAINING WALL TO BE REMOVED
㉘	BELOW GRADE CISTERN
㉙	EXISTING SERVICE LANE TO BE EXTENDED
㉚	REFUGE PICK UP AREA
㉛	EXTENT OF BELOW GROUND PARKING GARAGE
㉜	RAMP TO PARKING GARAGE WITH TRENCH DRAIN
㉝	PRIVATE PATIO AT GRADE
㉞	EXISTING FIRE HYDRANT
㉟	HYDRO EQUIPMENT
㊱	TEMPORARY SNOW STORAGE AREA
㊲	

BUILDING STATISTICS

UNIT STATISTICS

STUDIO	19
1 BEDROOM UNIT	102
1 BEDROOM + DEN UNIT	38
2 BEDROOM UNIT	41
2 BEDROOM + DEN UNIT	3
TOTAL	203

GROSS BUILDING FLOOR AREA

(OTTAWA ZONING DEFINITION)

GROUND FLOOR		913.9 sq. m. 9,837 sq. ft.
2nd - 6th FLOOR	5 x 1,492.4 sq. m. 5 x 16,064 sq. ft.	7,462.0 sq. m. 80,320 sq. ft.
7th - 9th FLOOR	3 x 1,067.3 sq. m. 3 x 11,488 sq. ft.	3,201.8 sq. m. 34,464 sq. ft.
TOTAL AREA ABOVE GRADE		11,577.7 sq. m. 124,621 sq. ft.

CAR PARKING

REQUIRED

RESIDENT	- 0.5 PER UNIT (203 UNITS)	102
VISITOR	- 0.1 PER UNIT AFTER FIRST 12 UNITS	19
TOTAL		121

PROVIDED

RESIDENT	- 0.5 PER UNIT	102
VISITOR	- 0.1 PER UNIT AFTER FIRST 12 UNITS	19
TOTAL		121
SURFACE PARKING SPACES		6
LEVEL P1 PARKING SPACES		115

BICYCLE PARKING

REQUIRED

RESIDENT	- 0.5 PER UNIT (203 UNITS)	102

PROVIDED

RESIDENT	- 0.7 PER UNIT	143
GROUND FLOOR BIKE ROOM		98
UNDERGROUND PARKING LEVEL P1		45

SITE PLAN SYMBOLS

▨	ASPHALT DRIVING AISLE
░	CONCRETE DRIVING AISLE
░	CONCRETE SIDEWALK / WALK
▦	CONCRETE PAVERS, SEE LANDSCAPE DRAWINGS
▦	CONCRETE PAVERS ON DRIVING SURFACE
━ ╷ ━	PROPERTY LINE
━ ━ ━	BUILDING SETBACK LINE
─□─□	1.2m & 1.5m HT. METAL PICKET FENCE
═●═●	2.1m HT. SOLID WOOD FENCE
	BIKE RACK
➡	ENTRANCE / EXIT DOOR
FH ⊕	FIRE HYDRANT
⇨	VEHICULAR DIRECTION
	EXISTING TREES
	SIAMESE CONNECTION
	SITE LIGHTING

NOTE:
SEE LANDSCAPE FOR ALL SURFACE MATERIAL AND PATTERN

AMENITY AREA

AT GRADE EXTERIOR - PRIVATE	360.1 sq. m.
AT GRADE EXTERIOR - COMMUNAL	481.1 sq. m.
INTERIOR AMENITY - COMMUNAL	287.6 sq. m.
EXTERIOR AMENITY - COMMUNAL	532.1 sq. m.
BALCONIES - PRIVATE	1,528.1 sq. m.
TOTAL	2,828.8 sq. m.
TOTAL COMMUNAL	1,300.8 sq. m.

REQUIRED (203 UNITS X 6 m²) = 1,218 sq. m.

REQUIRED COMMUNAL @ 50% = 609 sq. m.

SITE COVERAGE

BUILDING FOOTPRINT	34.2%	1,804.3 sq. m.
DRIVING SURFACE	18.6%	980.3 sq. m.
LANDSCAPE AREA	47.3%	2,498.4 sq. m.
PHASE 1 TOTAL	100.0%	5,283 sq. m.

SOLID WASTE COLLECTION

REQUIRED		PROVIDED
GARBAGE @ 0.110 cu yd per unit	22.33 yd	23 yd
GMP CONTAINERS @ 0.018 cu yd per unit	3.65 yd	4 yd
FIBRE CONTAINERS @ 0.018 cu yd per unit	7.71 yd	8 yd
ORGANICS CONTAINERS @ one 240L per 50 unit	4.06	5

TRANSPORTATION ENGINEER

CGH Transportation Inc.
628 Haines Road
Newmarket, ON L3Y 6V5
Tel: (905) 251-4070
Email: Christopher.Gordon@CGHTransportation.com

CIVIL ENGINEER

LRL Engineering
5430 Canotek Rd,
Ottawa, ON K1J 9G2
Tell: 613 842-3434
E-Mail: asalem@lrl.ca

PROJECT DEVELOPER

Katasa
69 Rue Jean-Proulx #301,
Gatineau, QC J8Z 1W2
T 819. 771.2787
E-Mail: tanya@katasa.ca

SURVEYOR

Annis O'Sullivan Vollebekk Ltd.
Ontario Land Surveyors
14 Concourse Gate, Suite 500,
Nepean, Ontario K2E 7S6
Tel: (613) 727-0850
Fax: (613) 727-1079
E-Mail: andrewb@aovltd.com

LANDSCAPE ARCHITECT

Gino J. Aiello Landscape Architect
110 Didsbury Road Unit 9,
Ottawa, Ontario K2E 0C2
Tel: (613) 852-1343
Cell: (613)
Email: gino@giala.com

LEGAL DESCRIPTION

PART OF LOTS 34, 35 AND 36
AND
PART OF BLOCK A
REGISTERED PLAN 313132
CITY OF OTTAWA

GEOTECHNICAL ENGINEER

Paterson Group
154 Colonnade Road South
Ottawa, Ontario
K2E 7J5
Tel: 613.226-7381
Email: DGilbert@Patersongroup.ca

URBAN PLANNER

Fotenn Consulting
396 Cooper Street
Suite 300
Ottawa, ON K2P 2H7
T 613.730.5709
E-Mail: sutherland@fotenn.com

IT IS THE RESPONSIBILITY OF THE APPROPRIATE CONTRACTOR TO CHECK AND VERIFY ALL DIMENSIONS ON SITE AND TO REPORT ALL ERRORS AND/OR OMISSIONS TO THE ARCHITECT.

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

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

DO NOT SCALE DRAWINGS.

NOTATION SYMBOLS:

(00)	INDICATES DRAWING NOTES, LISTED ON EACH SHEET.
◇ 00	INDICATES ASSEMBLIE TYPE; REFER TO TYPICAL ASSEMBLIES SCHEDUAL.
⬡ 00	INDICATES WINDOW TYPE; REFER TO WINDOW ELEVATIONS AND DETAILS ON A900 SERIES.
(000)	INDICATES DOOR TYPE; REFER TO DOOR SCHEDULE AND DETAILS ON A900 SERIES.

DETAIL NUMBER
00 TITLE SCALE
A000 A000
DETAIL REFERENCE PAGE
DETAIL CROSS REFERENCE PAGE

GENERAL NOTES:

- (A) REFER TO TYPICAL ASSEMBLIES SHEET FOR WALL, PARTITION, ROOF CEILING & FLOOR TYPES.
- (B) FOR DOOR TYPES AND HARDWARE REQUIREMENTS REFER TO DOOR SCHEDULE ON A900 SERIES.
- (C) ALL INTERIOR DIMENSIONS ARE TAKEN FROM THE FACE OF DRYWALL.
- (D) ALL EXTERIOR DIMENSIONS ARE TAKEN FROM THE FACE OF CLADDING.
- (E) ALL EXTERIOR WALLS ARE TO BE TYPE 'W1' UNLESS NOTED OTHER WISE.
- (F) ALL INTERIOR PARTITIONS ARE TO BE TYPE 'P1' UNLESS NOTED OTHER WISE.

No.	DESCRIPTION	DATE (D/M/Y)
9		
8		
7	ISSUED FOR SITE PLAN CONTROL	20 12 2021
6	ISSUED FOR CONSULTANT COORDINATION	19 11 2021
5	REVISED BUILDING DESIGN	31/08/2020
4	REVISED BUILDING DESIGN	17/06/2020
3	ISSUED FOR REZONING APPLICATION-R1	31/01/2020
2	ISSUED FOR REZONING APPLICATION	15/10/2019
1	ISSUED FOR COMMUNITY MEETING	03/10/2019

REVISIONS:

ARCHITECT SEAL:
RODERICK I. LAHEY
LICENCE
4375
SEAL DATE: STAMP DATE

NORTH ARROW:

CLIENT:
KATASA
GROUPE ✚ DÉVELOPPEMENT

ARCHITECT:
rla/architecture
roderick lahey architect inc.
56 beech street, ottawa, ontario K1S 3J6
t. 613.724.9932 f. 613.724.1209 rlaarchitecture.ca

PROJECT TITLE:

1509 MERIVALE ROAD

OTTAWA ONTARIO

SHEET TITLE:

SITE PLAN

DRAWN:	CHECKED:
RV	R.V.
SCALE: 1:200	SHEET No. SP-1
PROJECT No. 2034	

PAPER SIZE: ISO Full Bleed B1 (707.00 X 1000.00 MM) PLOT DATE: Thursday, December 16, 2021 PLOT SCALE: 1:1 PEN STYLE: 0-RLA-MASTER-100%.ctb F:\2020\2034 - 1540 Merivale Road (Previously 1618)\01 Design Development\01 Site Plan\2034 Site Plan 2021 12 16.dwg

TOPOGRAPHICAL PLAN OF SURVEY OF

PART OF LOTS 34, 35 AND 36 AND PART OF BLOCK A REGISTERED PLAN 313132 CITY OF OTTAWA

Prepared by Annis, O'Sullivan, Vollebekk Ltd.

Scale 1 : 250

10 7.5 5.0 2.5 0 5 10 Metres

Metric

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

Surveyor's Certificate

I CERTIFY THAT :

1. This survey and plan are correct and in accordance with the Surveys Act and the Surveyors Act and the regulations made under them.
2. The survey was completed on the 20th day of October, 2020.

October 29, 2020 — Date

A. J. Broxham — Andrew J. Broxham, Ontario Land Surveyor

Notes & Legend

Denotes		
○	=	Survey Monument Planted
■	=	Survey Monument Found
SIB	=	Standard Iron Bar
SSIB	=	Short Standard Iron Bar
IB	=	Iron Bar
CC	=	Cut Cross
CP	=	Concrete Pin
IBØ	=	Round Iron Bar
SSIB*	=	Short Standard Iron Bar
IB*	=	Iron Bar
(WIT)	=	Witness
Meas.	=	Measured
(AOG)	=	Annis, O'Sullivan, Vollebekk Ltd.
(P1)	=	(AOG) Plan dated August 16, 2016 (Job No. 17208-16)
(P2)	=	Plan 4R-1634
(P3)	=	(857) Plan dated June 29, 1994
(P4)	=	(AOG) Plan dated September 29, 1987
(P5)	=	(671) Plan dated June 11, 1973
(DI)	=	Inst. CR615684
	=	Deciduous Tree
FH	=	Fire Hydrant
WV	=	Water Valve
SP	=	Water Stand Post
AN	=	Anchor
MH-ST	=	Maintenance Hole (Storm Sewer)
MH-S	=	Maintenance Hole (Sanitary)
ST	=	Underground Storm Sewer
S	=	Underground Sanitary Sewer
G	=	Underground Gas
W	=	Underground Water
OHW	=	Overhead Wires
CB	=	Catch Basin
M-W	=	Monitoring Well
GM	=	Gas Meter
HH	=	Handhole
B	=	Bollard
S	=	Sign
T/G	=	Top of Grate
CLF	=	Chain Link Fence
BF	=	Board Fence
	=	Gate
PO-M	=	Metal Pole
UP	=	Utility Pole
LS	=	Light Standard
EOA	=	Edge of Asphalt
CRW	=	Concrete Retaining Wall
Ø	=	Diameter
95.00	=	Location of Elevations
95.00	=	Top of Concrete Curb & Wall Elevation
C/L	=	Centreline
	=	Property Line

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
2141733
THIS PLAN IS NOT VALID UNLESS IT IS AN EMBOSSED ORIGINAL COPY ISSUED BY THE SURVEYOR In accordance with Regulation 1026, Section 29 (3).

SITE AREA = 8897 m²

Bearings are grid, derived from Can-Net 2016 Real Time Network GPS observations, MTM Zone 9 (76°30' West Longitude) NAD-83 (original).

For bearing comparisons, a rotation of 0°02'00" clockwise was applied to bearings on (P1)

ELEVATION NOTES

1. Elevations shown are geodetic and are referred to the CGVD28 geodetic datum.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.
4. Location of Underground Services and Inverts are taken from from City of Ottawa Engineering Plans : K-04-12, K-04-18, K-05-25 and R870-R-9 (Sheets 8 & 9 of 36) .

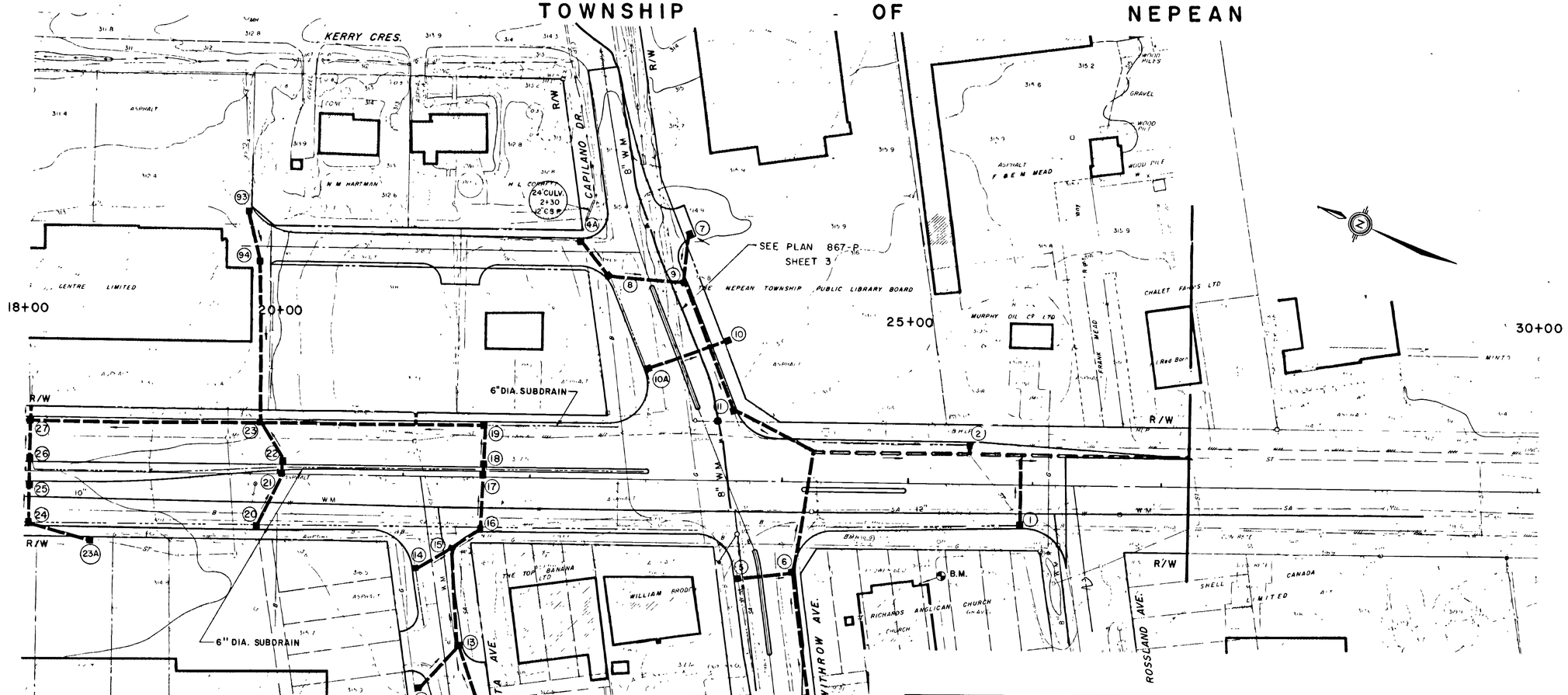
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
14 Concourse Gate, Suite 500
Nepean, Ont. K2E 7S6
Phone: (613) 727-0850 / Fax: (613) 727-1079
Email: Nepean@aovltd.com

Ontario Land Surveyors

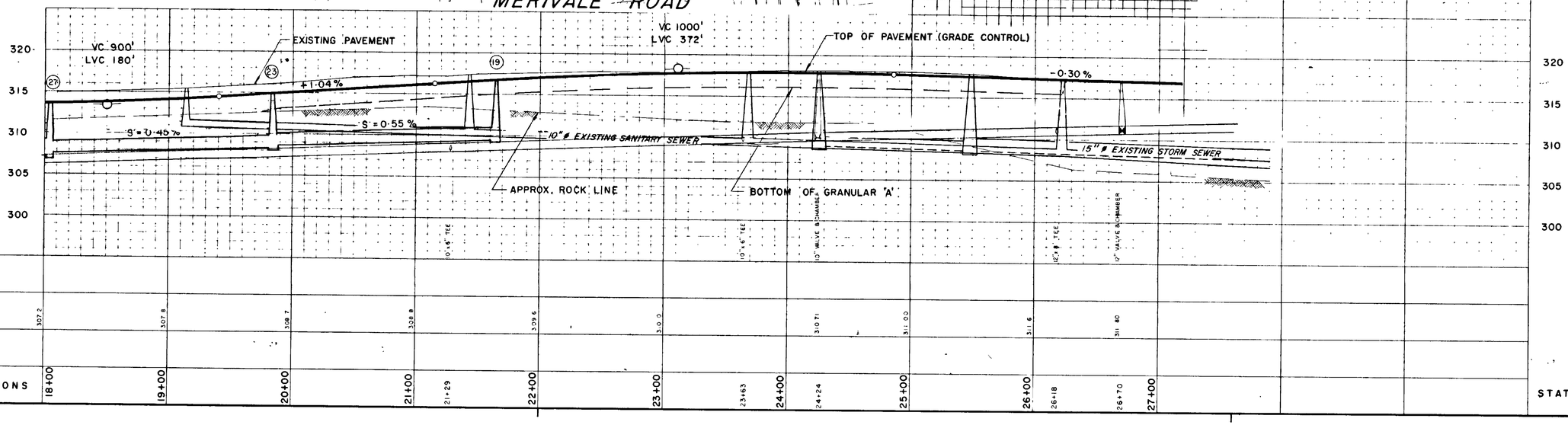
Job No. 21007-20 MerivaleRd Pt1Lts34-36 BlkA RP313132 PQS F | DG

DETAIL
Scale 1:100

TOWNSHIP OF NEPEAN



G.B.M. ELEV. 318·08
TABLET IN E. FDN. WALL 5·5' FROM S. COR. OF ST. RICHARDS ANGLICAN CHURCH. STA. 25+10.



MANHOLE AND CATCHBASIN DATA

No.	STATION	OFFSET	TYPE		ELEVATION	
			STRUCT.	COVER	GRATE	LOW INV.
1	25+90	33 0'LT	S-313	S-318	316 96	312 21
2	25+50	33 0'RT	S-313	S-318	317 11	312 36
3	W2+00	26 0'LT	S-311	S-315	315 9±	312 38
4	W1+80	27 0'RT	S-311	S-315	316·1±	312·71
4A	C 2+05	45 0'LT	S-313	S-318	316 26	311 76
5	W0+80	19 0'RT	S-313	S-318	316 32	311 57
6	W0+80	27 0'LT	S-313	S-318	316 16	311·16
7	C1+95	45 0'RT	S-311	S-315	314 9±	311 49
8	C1+85	31 0'LT	S-313	S-318	315·64	311 39
9	C1+60	27 0'RT	S-313	S-318	315 89	310 99
10	C1+00	39 0'RT	S-311	S-315	315 5±	311·50
11	C0+50	27 0'RT	S-313	S-318	316 67	309 86
12	R1+65	25 0'RT	S-311	S-315	315 0±	312·32
13	R1+35	14 0'LT	S-313	S-318	315 82	311·99
14	R0+70	14 0'RT	S-313	S-318	315 04	311·87
15	R0+60	19 0'LT	S-313	S-318	315 05	311 54
16	21+65	42 0'RT	S-313	S-318	316 14	311·04
17	21+65	3 0'LT	S-313	S-318	316 46	310·54
18	21+65	9 0'LT	S-313	S-318	316 46	310·29
19	21+65	42·0'LT	S-313	S-318	316 14	309 54
20	19+90	42·0'RT	S-313	S-318	314 26	309 76
21	20+00	1·0'LT	S-313	S-318	314·70	309·24
22	20+00	9 0'LT	S-313	S-318	314 70	309 15
23	19+85	42 0'LT	S-313	S-318	314 26	308·33
24	18+05	42 0'RT	S-313	S-318	312 75	308 25
25	18+05	9 0'RT	S-313	S-318	313·15	307 96
26	18+05	9 0'LT	S-313	S-318	313·15	307 80
27	18+05	42 0'LT	S-313	S-318	312·75	307·27
10A	C1+05	27 0'LT	S-313	S-318	316 27	311 52
93	19+75	207'LT	S-313	S-318	313 6±	309 15
94	19+85	168'LT	S-313	S-318	313 4±	308 90
23A	18+55	53 0'RT	S-313	S-318	313 8±	309 50

SEWER DATA

No.	to No.	SIZE	LENGTH	CLASS	INVERTS	
					INLET	OUTLET
1	TRUNK	9"	55'	C-14-ES	312 21	309 0±
2	EXIST.	9"	8'	C-14-ES	312 36	311 86
3	6	12"	120'	C-14-ES	312 38	311·16
4	TRUNK	12"	53'	C-14-ES	312 71	312 2±
5	6	9"	46'	C-14-ES	311·57	311 16
6	EXIST.	15"	96'	C-14-ES	311·16	310 00
7	9	9"	38'	C-14-ES	311 49	310 99
8	9	9"	64'	C-14-ES	311·39	310 99
9	11	12"	110'	C-14-ES	310 99	309 86
10	TRUNK	9"	12'	C-14-ES	311·50	310 8±
11	EXIST.	15"	72'	C-14-ES	309 86	309·14
EXIST.	13	12"	75'	C-14-ES	315 39	311 99
12	13	12"	50'	C-14-ES	312 32	311·99
13	15	15"	75'	C-14-ES	311 99	311 54
14	15	9"	34'	C-14-ES	311 87	311 54
15	16	15"	28'	C-14-ES	311 54	311 04
16	17	15"	46'	C-14-ES	311 04	310·54
17	18	15"	6'	C-14-ES	310 54	310 29
18	19	15"	33'	C-14-ES	310 29	309 79
19	23	18"	180	C-76-IV	309·54	308·58
20	21	9"	44'	C-14-ES	309 76	309 24
21	22	9"	8'	C-14-ES	309·24	309 15
22	23	9"	36'	C-14-ES	309 15	308 72
23	27	21"	180'	C-76-IV	308·33	307·52
24	25	12"	33'	C-14-ES	308 25	307 96
25	26	12"	18'	C-14-ES	307·96	307·80
26	27	12"	33'	C-14-ES	307·80	307·52
27	32	24"	210'	C-76-IV	307·23	306·37
4A	8	9"	36	C-14-ES	311 76	311 39
EXIST.	27	12"	10'	C-14-ES	310 0	307 27
10A	TRUNK	9"	54	C-14-ES	311 52	310 8±
93	94	9"	40'	C-14-ES	309 15	308 90
94	23	12"	125'	C-14-ES	308 90	308 33
23A	24	12"	50'	C-14-ES	309 50	308 50

McCORMICK, RANKIN & ASSOCIATES LIMITED
CONSULTING ENGINEERS
W. M. Rankin

NO	REVISION	BY	DATE
1	W M AS BUILT		7/17/17

THE REGIONAL MUNICIPALITY OF
OTTAWA—CARLETON
Transportation Department

MERIVALE ROAD
CLYDE TO ROSSLAND

N-291-2

Des. M.J.R. Chkd W.M.H.	N. H. ORR P. ENG. Director Design & Construction
Dwn. H.R. Chkd W.M.H.	
Date: FEB. 1977	
Scale Horiz 1" = 40' Vert 1" = 6'	Chief Design Engineer
CONTRACT NO. 76 - 504	DWG. NO. R 870-R-9
	SHEET 9 OF 36

55+2