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City of Ottawa South Facility Phase A 3505 Prince of Wales Drive, Ottawa, ON Site Servicing Report

CITY OF OTTAWA
SOUTH FACILITY PHASE A
3505 Prince of Wales Drive, Ottawa, ON

SITE SERVICING REPORT

Prepared by:

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May 29, 2019
Revised October 10, 2019

Ref: R-2018-151
Novatech File No. 118048

October 10, 2019

MORIYAMA & TESHIMA ARCHITECTS
109 Murray Street, Unit 3
Ottawa, Ontario
K1N 5M5

Attention: Mr. David Stone

Dear Sir:

**Re: Site Servicing Report
City of Ottawa – South Facility Phase A
3505 Prince of Wales Drive, Ottawa, ON
Novatech File No.: 118048**

Enclosed is a copy of the revised Site Servicing Report for the proposed City of Ottawa – South Facility Phase A development located at 3505 Prince of Wales Drive. This report addresses the approach to site servicing and is submitted in support of the site plan control application.

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

Yours truly,

NOVATECH



François Thauvette, P. Eng.
Senior Project Manager

cc: Sharif Sharif (City of Ottawa)
Pauline Dicaire (OPS)
David Landsberg (BPA)

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Grading and Erosion & Sediment Control Plan (C-200)

Sanitary Outlet Plan and Profile (C-302)

1.0 INTRODUCTION

The City of Ottawa is proposing to construct a new South Facility Phase A (SFPA) to be constructed in two (2) distinct phases (A and B). Novatech has been retained to complete the site servicing and stormwater management design for the SFPA project.

1.1 Purpose

This report addresses the approach to site servicing and drainage and is being submitted in support of the site plan control application. The intent is to provide a site servicing design that will accommodate the proposed SFPA development (Phases A and B) as well as accommodate a possible future development on the southern portion of the property. Given the nature of the proposed development, minimizing disruptions to the operation of the facility during future expansion projects is an important design consideration.

1.2 Location and Site Description

The subject site is located on the vacant portion of a City-owned property. The new facility will be located at 3505 Prince of Wales Drive, between Prince of Wales Drive and Lodge Road, just south of the Carleton Lodge long term care facility (55 Lodge Road), on the west bank of the Rideau River. The area to be developed as part of the SFPA project is approximately 6.35 hectares in size. The legal description of the property is designated as Part of Lots 10 & 11 and Part of the Road Allowance between Lots 10 & 11 (Closed by Unregistered By-Law 38-56), Concession 1 (Rideau Front), Geographic Township of Nepean, City of Ottawa.

Figure 1 – Aerial Plan provides an aerial view of the subject site.



1.3 Pre-Consultation Information

A pre-consultation meeting was held with the City of Ottawa on June 1, 2018, at which time the client was advised of the general submission requirements. Subsequent meetings were held with the City of Ottawa on September 26, 2018, on November 15, 2018 and on April 16, 2019. Refer to **Appendix A** for a summary of the correspondence related to the proposed development.

The subject site is located within the jurisdiction of the Rideau Valley Conservation Authority (RVCA). The proposed development will be required to meet an 'Enhanced' Level of Protection for stormwater quality treatment prior to releasing flows from the developed portion of the site.

It is anticipated that a Ministry of the Environment, Conservation and Parks (MECP) Environmental Compliance Approval (ECA) will be required for the proposed on-site stormwater management system. An amendment to the existing Carleton Lodge Pump Station Certificate of Approval (CofA) is also anticipated to be required. A pre-consultation meeting has been requested with the MECP. Refer to **Appendix A** for a copy of the Pre-Submission Consultation Request Form.

1.4 Proposed Development

The proposed SFPA campus will be constructed in two (2) distinct phases (A and B) and includes space for a possible future development on the southern portion of the property. The proposed Phase A works will include the following:

- Phase A building, incl. Mechanical space and Maintenance Wing (~140,000 sq. ft.)
- Phase B shell space (~34,000 sq. ft. to be fit-out and occupied in Phase B)
- Vehicle Garage (~34,000 sq. ft.)
- Parkade (~77,000 sq. ft.)
- Staff Surface Parking Lots (for both Phases A and B)
- Visitor Parking Area

Roadway modifications along Prince of Wales Drive include a new intersection on the north side of the SFPA facility, a new staff only right-in/right-out driveway to the south, the extension of the existing median as well as modifications to the existing roadside ditch on the east side of Prince of Wales Drive. As a result, modifications to the existing driveway entrance to Carleton Lodge will be required to accommodate the proposed development.

Although, the southern portion of the subject site is to remain unchanged, the City of Ottawa may choose to develop it in the future.

1.5 Reference Material

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

¹ The South Campus Site Serviceability Study (V1_5), prepared by Parsons.

² The City of Ottawa SFPA – Stormwater Management Report (R-2018-150), prepared by Novatech, dated May 16, 2019.

³ The Geotechnical Investigation Report (Ref. No. 18111310-4000), prepared by Golder Associates Ltd. in April 2019.

- ⁴ The Geotechnical Investigation Report (Ref. No. 1537295-1000), prepared by Golder Associates Ltd. in May 2017.
- ⁵ City of Ottawa Sewer Design (OSD) Guidelines (October 2012) and subsequent Technical Bulletins (2016-01 & 2018-01).

2.0 SITE SERVICING

The objective of the site servicing design is to provide proper sewage outlets, a suitable domestic water supply and to ensure that appropriate fire protection is provided for the proposed development. The servicing criteria, the expected sewage flows, and water demands are to conform to the requirements of the City of Ottawa municipal design guidelines for sewer and water distribution systems. Refer to the subsequent sections of the report and to the enclosed plans for further details.

The City of Ottawa Servicing Study Guidelines for Development Applications requires that a Development Servicing Study Checklist be included to confirm that each applicable item is deemed complete and ready for review by City of Ottawa Infrastructure Approvals. A completed checklist is enclosed in **Appendix B** of the report.

2.1 Sanitary Sewage

The proposed sanitary servicing for the SFPA development will consist of 200mm dia. sanitary sewers discharging to the existing adjacent Carleton Lodge Sanitary Pump Station. The sanitary sewers will be sized to service both Phases A and B and will be deep enough to service a possible future development to the south.

The City of Ottawa design criteria were used to calculate the theoretical sanitary flows for the proposed development. The following design criteria were taken from Section 4 – ‘Sanitary Sewer Systems’ and Appendix 4-A - ‘Daily Sewage Flow for Various Types of Establishments’ of the City of Ottawa Sewer Design Guidelines:

- Average Daily Sewage Flow (office use only): 75 L/person/day
- Average Daily Sewage Flow (office use incl. showers): 125 L/person/day
- Average Daily Sewage Flow (K9 unit): 75 L/dog enclosure/day
- Average Daily Sewage Flow (Hand-wash vehicles): 200 L/car/day
- Peaking Factor = 1.5
- Infiltration Allowance: 0.33 L/s/ha x 6.35 ha site = 2.1 L/s

Table 1 identifies the theoretical sanitary flows for the proposed SFPA development based on the above design criteria.

Table 1: Theoretical Sanitary Flows

Type of Use	Design Population**	Average Flow (L/s)	Peaking Factor	Peak Flow (L/s)
Phase A				
Employees (office use only)	260	0.23	1.5	0.34
Employees (office incl. showers)	260	0.38	1.5	0.57
K9 Unit	11	<0.01	1.5	0.01
Hand-washed vehicles	< 20	0.05	1.5	0.07
Phase A: Sub-Total	-	0.67	1.5	0.99
Phase B				
Employees (office use only)	180	0.16	1.5	0.23
Employees (office incl. showers)	180	0.26	1.5	0.39
Phase B: Sub-Total	-	0.42	1.5	0.62
Infiltration (Applied across entire site incl. Future Phase C)				
Infiltration Allowance	-	2.10	-	2.10
Phases A + B: Total (incl. Infiltration)	-	3.19	-	3.71*

*Excludes possible future flows (as no information is currently available)

**Includes a 20% projected increase in staff

The values calculated above are smaller than the values calculated in Parsons Serviceability Study¹, as the design population is significantly smaller than previously anticipated by Parsons. The Parsons report also included Phase 3 flows (now referred to as a possible future development), which are not included in this report. A 200mm dia. sanitary sewer at a minimum slope of 0.5% has a full flow conveyance capacity of 24.2 L/s and will have adequate capacity to convey the theoretical sanitary flows for both Phases A and B. This sewer should also have adequate capacity to convey possible future flows.

2.2 Proposed Outlet to existing Carleton Lodge Pump Station

The proposed SFPA sanitary sewers will be approximately 4.5 m below the existing municipal outlet sewer in Willow Creek Circle and therefore sewage from the site will need to be pumped. The Carleton Lodge sanitary pump station currently pumps sewage to the existing local gravity sewer in Willow Creek Circle, which flows into the 1350mm dia. sanitary trunk sewer in Prince of Wales Drive. A standalone pump station was previously considered for the SFPA (independent of the Carleton Lodge Pump Station), but was rejected due to high capital costs, necessity of regular on-site maintenance, necessity of remote monitoring and control, and unnecessary duplication of operations.

The Carleton Lodge Pump Station is owned and operated by the City of Ottawa and has adequate capacity to accommodate the proposed SFPA sewage flows.

2.2.1 Carleton Lodge Pump Station

The existing pump station consists of a wet well, valve chamber, control room and radio tower communication with ROPEC. The wet well includes two submersible sewage pumps, each rated for 19.7 L/s. One pump is the duty pump and the other is a stand-by pump. The duty pump alternates after each pump cycle. The existing Carleton Lodge Pump Station has a rated capacity of 19.7 L/s. The existing peak flow to the pump station from Carleton Lodge site is approximately 4 L/s. City planners have indicated that there is no other future use on file for the pump station. Consequently, the pump station has an available capacity of approximately 15.7 L/s, which exceeds the proposed flow of 3.71 L/s from the SFPA site.

The City of Ottawa is the owner and operator of the existing pump station. The City operations department has noted that the capacity of the existing pumps is below their rated capacity [currently pumping between 5 & 10 L/s] and remedial work will be required. This may either involve repair or replacement of the pumps. Any maintenance work required to repair/replace existing equipment does not require a change in the MOE Certificate of Approval (CofA). Other upgrades to the pump station are being reviewed to determine the appropriate cost allocations and timing. Refer to **Appendix C** for a copy of the existing Carleton Lodge pump station MOE Certificate of Approval.

2.3 Domestic Water

The proposed development will be serviced by extending a new watermain across Prince of Wales Drive and connecting to the existing 200mm dia. municipal watermain in Willow Creek Circle. The proposed 200mm dia. on-site watermain network will be constructed around the new SFPA building and be looped by a second feed/connection to the existing 200mm dia. watermain currently supplying water to the Carleton Lodge. Making the second watermain connection at this location will reduce costs by avoiding an additional crossing of Prince of Wales Drive while providing Carleton Lodge with a redundant water supply.

A total of four (4) private hydrants are being proposed around the SFPA building for fire-fighting purposes. The siamese (fire department) connection will be located near the main entrance on the west side of the building. The water meter will be in the mechanical room inside the building, with an external remote meter near the main building entrance. The proposed Phase A works will include appropriate valving and a watermain stub for possible future development beyond the limit of the south access road. This will minimize disruptions to the facility, should there be a future development on the southern portion of the property.

A hydraulic analysis of the proposed on-site watermain network was completed based on boundary conditions provided by the City of Ottawa. The analysis demonstrates that adequate fire flow will be available from the municipal watermain network.

2.3.1 Domestic Water Demands and Fire Flow Requirements

2.3.1.1 Domestic Water Demands

The City of Ottawa design criteria were used to calculate the theoretical water demand for the proposed SFPA development. The following design criteria were taken from Section 4 – ‘Water Distribution Systems’ of the Ottawa Design Guidelines – Water Distribution and/or from section 2.1 of the report:

- Average Daily Water Demand (office use only): 75 L/person/day
- Average Daily Water Demand (office use incl. showers): 125 L/person/day
- Average Daily Water Demand (K9 unit): 75 L/dog enclosure/day
- Average Daily Water Demand (Hand-wash vehicles): 200 L/car/day
- Maximum Day Demand Peaking Factor = 1.5 x Avg. Day Demand (City Water Table 4.2)
- Peak Hour Demand Peaking Factor = 1.8 x Max. Day Demand (City Water Table 4.2)

The following design criteria were taken from Section 4.2.2 – ‘Watermain Pressure and Demand Objectives’ of the City of Ottawa Design Guidelines for Water Distribution:

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

Table 2 identifies the theoretical domestic water demands for the proposed SFPA development based on the above design criteria.

Table 2: Theoretical Water Demands

Type of Use	Design Population	Average Demand (L/s)	Max. Day Demand (L/s)	Peak Hour Demand (L/s)
Phase A				
Employees (office use)	260**	0.23	0.34	0.61
Employees (office incl. showers)	260**	0.38	0.57	1.03
K9 Unit	11	<0.01	0.01	0.02
Hand-washed vehicles	< 20	0.05	0.07	0.14
Phase A: Sub-Total	-	0.67	0.99	1.80
Phase B				
Employees (office use)	180**	0.16	0.23	0.41
Employees (office incl. gym)	180**	0.26	0.39	0.70
Phase B: Sub-Total	-	0.42	0.62	1.11
Phases A and B: Total	-	1.09	1.61	2.91*

*Excludes possible future flows (as no information is currently available)

**Includes a 20% projected increase in staff

The approach taken to calculate the values above is generally consistent with the approach taken in Parsons Serviceability Study¹, however the design population is significantly smaller than previously anticipated by Parsons. Max Day and Peak Hour Demands used in the hydraulic model for the Carleton Lodge were taken directly from the Parsons Serviceability Study¹.

2.3.1.2 Water Supply for Fire-Fighting

The proposed SFPA facility will be fully sprinklered and supplied with a fire department (siamese) connection. The siamese connection will be located near the main entrance, on the west side of the building, within 45m of one of the proposed private on-site fire hydrants.

The Fire Underwriters Survey (FUS) was used to estimate fire flow requirements (3,963 USGPM or 250 L/s) for the proposed facility, including the building and garages. Based on information provided by the architect, non-combustible construction materials and a free burning occupancy hazard were used in the calculations. Refer to **Appendix D** for a copy of the FUS fire flow calculations. A multi-hydrant approach to fire-fighting (as shown in the hydraulic modeling results) will be required to supply the fire flow calculated above. This approach is in accordance with the City of Ottawa Technical Bulletin ISTB-2018-02.

The fire flow requirements include both sprinkler system and hose allowances in accordance with the OBC and NFPA 13. The sprinkler systems will be designed by the fire protection (sprinkler) contractor as this process involves detailed hydraulic calculations based on building layout, pipe runs, head losses, fire pump requirements, etc. Fire flow requirements calculated using the FUS method tend to generate higher values when compared to flows being calculated using the OBC and NFPA.

2.3.1.3 Watermain Network Analysis

The anticipated domestic water demands, and fire flow requirements were provided to the City of Ottawa to generate the municipal watermain network boundary conditions. **Table 2.1** summarizes the City's hydraulic analysis results and watermain boundary conditions.

Table 2.1: Municipal Watermain Boundary Conditions

Municipal Watermain Boundary Condition	City WM Boundary Conditions		Domestic Demand (L/s)	System Pressure Range (PSI)
	Willow Creek Circle WM (Connection #1)	Willow Creek Circle WM (Connection #2)		
Maximum HGL	147.8m	147.8m	1.1	80.5 - 81.8
Peak Hour HGL	145.6m	145.6m	2.9	77.4 - 78.7
Max Day + FF (250 L/s)*	121.3m	123.7m	1.6	42.9 - 47.6

*Described in Section 2.3.1.1

The municipal watermain boundary conditions were then used to analyze the proposed on-site watermain network. The hydraulic model EPANET was used to analyzing the two theoretical conditions:

- 1) Maximum Day + Fire Flow Demand
- 2) Peak Hour Demand

A schematic representation of the hydraulic network depicts the node and pipe numbers used in the model. The model indicates that adequate water and system pressures will exist throughout the watermain system under the specified design conditions. **Table 2.2** and **Table 2.3** summarize the hydraulic model results for the on-site network.

Table 2.2: Maximum Day + Fire Flow Demand (250 L/s) Condition

Operating Condition	Minimum System Pressure	Maximum System Pressure
Max Day Demands: 4.0 at J1 (Carleton Lodge service), 2.0 L/s at J4 (SFPA Building), 2.0 L/s at J10 (Fut. Stub) Fire Flow Demands: 70 L/s at J6 (Hyd. 1) 60 L/s at J12 (Hyd. 2) 60 L/s at J15 (Hyd. 3) 60 L/s at J18 (Hyd. 4)	Minimum system pressure of 208.7 kPa (30.2 psi) is available at Node J13 (Hyd. 3)	Maximum system pressure 326.9 kPa (47.4 psi) is available at Node J1 (Carleton Lodge service)

Table 2.3: Peak Hour Demand Condition

Operating Condition	Minimum System Pressure	Maximum System Pressure
Peak Hour Demands: 7.0 at J1 (Carleton Lodge service), 3.0 L/s at J4 (SFPA Building), 3.0 L/s at J10 (Fut. Stub)	Minimum system pressure of 569.7 kPa (82.6 psi) is available at Node J6 (Hyd. 1)	Maximum system pressure 623.6 kPa (90.4 psi) is available at Node J16 (WM near NE building corner)

Max Day and Peak Hour Demands used in the hydraulic model for the Carleton Lodge were taken directly from the Parson's Serviceability Study¹.

Refer to **Appendix D** for domestic water demand calculations, FUS calculations, City of Ottawa boundary conditions, the hydraulic modeling schematic and hydraulic modelling results.

As indicated above, the existing municipal watermain network should have adequate water supply for the proposed development and will provide adequate system pressures for both 'Max Day + Fire Flow' and 'Peak Hour' conditions, however it is anticipated that pressure reducing valves (PRV) will likely be required given the high system pressures (> 80 PSI).

3.0 STORM DRAINAGE AND STORMWATER MANAGEMENT

The proposed stormwater management design will include both on-site stormwater quantity and quality control, prior to releasing flows from the site. Stormwater quantity control will be achieved by the construction of dry ponds and the use of an inlet control device (ICD) within the storm sewer outlet structure. Stormwater quality control will be achieved using a treatment train of grass bottom drainage swales, flat-bottom dry ponds and an oil and grit separator (OGS) type treatment unit, achieving a minimum Enhanced Level of Protection, equivalent to 80% TSS removal, with at least 90% of the total rainfall being captured and treated.

Post-development flows will be over-controlled to less than the pre-development conditions as described in the City of Ottawa – SFPA Stormwater Management Report², prepared by Novatech. The approach to on-site stormwater management is consistent with the approach described in the Parsons Site Serviceability Report¹.

4.0 SITE GRADING

The topography of the existing site drops approximately 6m from Prince of Wales Drive along the western limit of the property to Lodge Road to the east. The proposed grading and drainage design takes advantage of the existing topography by sheet draining runoff from the landscaped areas and internal roadways into grass swales and/or directly into the dry ponds, thus reducing the need to pipe all of the stormwater runoff.

To ensure a presence along Prince of Wales Drive (Scenic Route into Ottawa), the main building floor (Level 1) has been set at an elevation of 90.85m, which is approximately the same elevation as the southbound lanes along this portion of Prince of Wales. The lower floor (Level 0) has been set at an elevation of 85.65m. The proposed 3-storey building will include entrances/exits at both the lower and middle floor levels. Access to the parking garages on the north side of the building will be at the lower (Level 0).

Where possible, the grading design will match into the existing elevations around the perimeter of the site, however the elevations along Prince of Wales will be adjusted slightly to accommodate the proposed site entrances and roadside ditches along Prince of Wales Drive (shown on the RMA drawings). Modifications to the Carleton Lodge entrance will be required to accommodate the proposed development.

On-site grade raise restrictions (~1.0m), due to sensitive clay soils, have been taken into consideration, as described in the Geotechnical Reports^{3,4}.

As stated above, the elevation of the dry ponds, required as part of the on-site SWM system, have been set approximately 0.2m above the top of the existing site outlet culvert (Culvert No. 6) along Lodge Road.

Refer to the enclosed Grading and Erosion & Sediment Control Plan (C-200) for details.

4.1 Major System Overflow Route

As discussed above, the entire site slopes from west to east, with the main storm outlet being the roadside ditch along Lodge Road, located near the NE corner of the site. In the case of a major rainfall event exceeding the design storms provided for, the stormwater located within the dry ponds will overflow towards the roadside ditch along Lodge Road. As stated above, the top of bank (weir and emergency overflow) along the east side of the north dry pond has been set at an elevation of 83.70m, approximately 0.65m below the top of grate elevations of the low catchbasins on site. The lower level of the proposed building has been set at an elevation of 85.65m, approximately 1.95m above the major system overflow elevation within the NE dry pond. The major system overflow route is shown on the enclosed Grading and Erosion & Sediment Control Plan (C-200).

5.0 GEOTECHNICAL INVESTIGATIONS

Geotechnical Investigation Reports have been prepared by Golder Associates for the proposed project. Refer to the Geotechnical Reports^{3,4} for subsurface conditions, construction recommendations and geotechnical inspection requirements.

6.0 EROSION AND SEDIMENT CONTROL

To mitigate erosion and to prevent sediment from entering the storm drainage system, temporary erosion and sediment control measures will be implemented on-site during construction in accordance with the "Guidelines on Erosion and Sediment Control for Urban Construction Sites" (Government of Ontario, May 1987). Details are provided on the Grading and Erosion and Sediment Control Plan (Drawing C-200). This includes the following measures:

- Filter bags / catchbasin inserts (sediment sacks) will be placed under the grates of nearby catchbasins and manholes and they will remain in place until vegetation has been established and construction is completed.
- Silt fencing will be placed per OPSS 577 and OPSD 219.110 along the surrounding construction limits.
- Mud mats will be installed at the site entrances.
- Street sweeping, and cleaning will be performed, as required, to suppress dust and to provide safe and clean roadways adjacent to the construction site.
- On-site dewatering is to be directed to a sediment trap and/or gravel splash pad and discharged safely to an approved outlet as directed by the engineer.
- Temporary rock flow check dams as per OPSD 219.211 are to be installed as indicated on the plans.

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

In addition, the following measures will provide permanent erosion and sediment control on site:

- Shallow flat-bottom grass drainage swales and dry ponds.
- Rip-rap will be provided at the storm inlets, outfall and overflow weir per OPSD 810.010.
- A Vortechs type Oil/Grit Separator will be installed to provide water quality control prior to releasing stormwater from the site.

7.0 CONCLUSION

This report has been prepared in support of the site plan control application for the proposed SFPA development in Ottawa.

The conclusions are as follows:

- The proposed development will be serviced by extending a gravity sewer to the existing Carleton Lodge sanitary pump station. The existing outlet is the local sanitary sewer in Willow Creek Circle, which outlets to the sanitary trunk sewer in Prince of Wales Drive.
- The proposed development will be serviced by a looped 200mm dia. watermain network with connections to the municipal watermain in Willow Creek Circle and the existing 200mm dia. watermain currently supplying water to the Carleton Lodge. On-site hydrants will provide the necessary water for fire-fighting purposes.

- On-site stormwater management, including both stormwater quantity and water quality control measures, will be provided as described in the City of Ottawa – SFPA Stormwater Management Report².
- Regular inspection and maintenance of the on-site sanitary sewer system, including the Carleton Lodge sanitary pump station and controls is recommended to ensure that the sanitary sewage system is clean and operational.
- Regular inspection and maintenance of the on-site watermain network, including the valves and hydrants is recommended to ensure that the system is operational.
- Regular inspection and maintenance of the on-site storm sewer system, including the ICD, OGS treatment unit and dry ponds is recommended to ensure that the storm drainage system is clean and operational.
- Erosion and sediment control measures are to be provided both during construction and on a permanent basis.

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

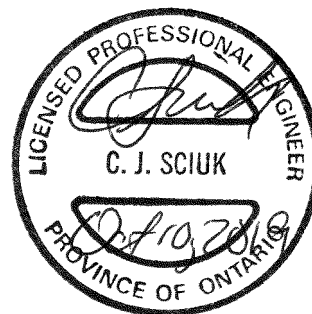
NOVATECH

Servicing Prepared by:



Stephen Matthews, B.A. (Env.)
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Sanitary Sewage System Prepared by:



Carl Sciuk, P. Eng.
Practice Lead Special Projects

Reviewed by:



François Thauvette, P. Eng.
Senior Project Manager

APPENDIX A

Correspondence

CITY OF OTTAWA MEETING 001 (PRE-CONSULTATION)

Project:	South Campus Phase 1 [REDACTED]	Date:	June 1, 2018
Meeting Location:	Ottawa City Hall – Room 5105	Time:	1:30PM
		Project No.:	180001
Chaired by:	Ian Kennedy		
Key Agenda Items:	Project Introduction, Public Pre-Consultation, Site Design, Municipal Infrastructure,		
Attachments:	City of Ottawa Applicant's Study and Plan Identification Checklist.pdf		

		Attendance:	Copies to:
City of Ottawa (CO)	Wendy Tse (WT) – Planner II	X	
	Christopher Moise (CM) – Urban Designer & Architect	X	
	Golam Sharif (GS) – Project Manager, Infrastructure Approvals	X	
Client (OPS)	Ian Kennedy (IK) – Senior Project Manager, CPT	X	X
	Carol Roper (CR) – Manager, CPT		X
	Sandra McLaren (SM) – Inspector / Ops Rep, CPT		X
	Pauline Dicaire (PD) – CPT		X
	Greg Jodouin (GJ) – Public Affairs Consultant		
Prime Consultants (PDT)	Brian Rudy (BR) – Partner-in-Charge		X
	Emmanuelle van Rutten (EvR) – Project Architect		X
	Peter Ortrede (PO) – Design Principal / Police Facilities Expert		X
	Elizabeth Goetz (EG) – Project Architect / Police Facilities Expert		X
	David Stone (DS) – Architect	X	x
Sub-Consultants	Jean-Michel Carrière (JC) – Structural Lead (AAR)		X
	Patrick St-Onge (PS) – Mechanical Project Manager (BP)		X
	April Waddell (AW) – Electrical Lead (BP)		X
	Francois Thauvette (FT) – Civil Lead (NOVATECH)	X	X
	Jamie McKay (JM) – Bldg Science & Sustainability Specialist (MH)		X

LEGEND

[REDACTED]

CO – City of Ottawa
PDT – Project Design Team
CPT – Capital Project Team
MP – Macintosh Perry Traffic Consultants

Note: If the information contained in this report does not agree with your record, or if there are any omissions, please advise us within 48 hours; otherwise we will assume the contents to be correct.

Item No.	Item	Action By	Due Date
1	GENERAL OVERVIEW OF THE PROJECT & 2017 MASTERPLAN		
1.1.1	Ian Kennedy (IK) provided overview of CPT work-to-date on generation of [REDACTED] South Campus Masterplan. Also gave overview of project schedule and key submittal / completion dates.	INFO	
2	CURRENT PROJECT STATUS		
1.2.1	David Stone (DS) provided overview of PDT work-to-date, current site plan strategy and anticipated deviations from the 2017 Masterplan, including;	INFO	
1.2.1.1	Use of Lodge Road will be avoided– parking egress shown in Masterplan will not exit to Lodge Road for Phase 1, but rather the Carleton Lodge Access Rd.		
1.2.1.2	Short queing “throat” at new signalized intersection on PoW Dr. in the middle of the site will be expanded, and 4-way intersection shown for internal site circulation will be reconfigured so no stopping is necessary.		
1.2.1.3	Multiple access/egress points on Carleton Lodge access road in short distance of one another will be avoided and/or optimized.		
3	PROPERTY		
1.3.1	Site Severance City confirmed that if site is not severed, application and studies would have to include entire site, including Carleton Lodge portion and triangular wedge north of Rocky Hill Drive. This would have the greatest impact on the Stormwater Management Plan & the MOECC Environmental Compliance Approval (ECA) application. Recommended to proceed with severance process – CPT to confirm with City Real Estate department (CREO) as final decision rests there.	CPT (IK)	July 4, 18
4	MUNICIPAL INFRASTRUCTURE		
1.4.1	Wendy Tse (WT) stated the following;	INFO	
1.4.1.1	No upgrades or resurfacing is planned for Lodge Rd in the foreseeable future. If Lodge Road is to be used by SCP1, upgrades would be the responsibility of [REDACTED].		
1.4.1.2	Road widening is planned in future. City has initiated a 40m right-of-way in anticipation of this work.		

Note: If the information contained in this report does not agree with your record, or if there are any omissions, please advise us within 48 hours; otherwise we will assume the contents to be correct.

1.4.1.3	Woodroffe disconnection work is complete and road will not connect to Prince of Wales again in the future.		
1.4.1.4	Servicing will most likely be from existing Carleton Lodge pump house. Will need to determine if capacity is adequate or if upgrade is required.		
5	SITE DESIGN ISSUES		
1.5.1	Public Transportation PDT/CPT identified that no OC Tranpo service near site – closest bus stop is over 1km away. Discussions to be initiated with OC Tranpo by CPT.	CPT (IK)	July 4, 18
1.5.2	City of Ottawa Comments on 2017 Masterplan Design;	INFO	
1.5.2.1	Throat length inadequate – recommended to be increased. This will impact siting as setback from road will be increased.		
1.5.2.2	Concern raised over 4-way internal site intersection – distance from road inadequate due to the possibility of traffic stopping here. (See point above)		
1.5.2.3	Concern raised at number of egress points in close proximity on Lodge Road access road.		
1.5.2.4	Questions raised over security of site – planners concerned about fenced perimeter. Suggested that alternative security measures be investigated. (i.e. earth berms, bollards, etc.)		
1.5.2.5	Identified that Prince of Wales is a “Scenic Access Route.” Refer to design guidelines for more information. (Submittal/approvals process not required for this, simply a guideline)		
1.5.2.6	Identified that building should have strong civic presence on Prince of Wales Dr.		
1.5.2.7	Identified concern over quantity of parking – minimizing footprint however possible is preferred, and masking parking areas from both PoW Dr. and the Rideau River is encouraged. Suggested to mask multi-story parking decks with vegetation if possible.		
1.5.2.8	Planners expressed enthusiasm for selected design team, and look forward to seeing subsequent submissions. PDT & CPT were encouraged to return for presentation of schematic design options prior to site plan application. To be confirmed if necessary.		

Note: If the information contained in this report does not agree with your record, or if there are any omissions, please advise us within 48 hours; otherwise we will assume the contents to be correct.

1.5.3	Access from Prince of Wales PDT outlined that current approach will entail a new access point most likely aligned with the old Woodroffe Rd connection. A second access point will most likely entail the use of the existing Carleton Lodge unnamed access road, as [REDACTED] Fleet parking requires a redundancy in egress points. Traffic analysis and workshop will help determine required distance between intersections, and turning lane/signalization strategy.	INFO	
6	APPLICATIONS & PROCESS		
1.6.1	Studies Required by City See attached Study and Plan Identification List for all required submittals to the City of Ottawa. Noted that "Cultural Heritage Impact Statement" is no longer required but already completed.	INFO	
7	PUBLIC PRE-CONSULTATION MEETING		
1.7.1 1.7.1.1	Overview of Evening Ian Kennedy & Greg Jodouin presented overview of Public Pre-Consultation strategy and event planned for June 26 th at the Rideau Valley Conservation Authority. Invitation was extended to City of Ottawa staff.	INFO	
1.7.1.2	Planners recommended that due to early stage of process, avoid showing any image of a site plan. Presentation material should be "inspirational", "notional" and "abstract" to generate conversation and discussion.	INFO	
1.7.2	Statistics City of Ottawa to provide CPT with statistics & forecasting for Barrhaven growth for use on presentation boards.	CO	June 15, 18

END

NEXT MEETING: TBD

Note: If the information contained in this report does not agree with your record, or if there are any omissions, please advise us within 48 hours; otherwise we will assume the contents to be correct.

APPLICANT'S STUDY AND PLAN IDENTIFICATION LIST

Legend: **S** indicates that the study or plan is required with application submission.

A indicates that the study or plan may be required to satisfy a condition of approval/draft approval.

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

<http://ottawa.ca/en/development-application-review-process-0/guide-preparing-studies-and-plans>

S/A	Number of copies	ENGINEERING		S/A	Number of copies
S	15	1. Site Servicing Plan	2. Assessment of Adequacy of Public Services / Site Servicing Study / Brief	S	6
S	15	3. Grade Control and Drainage Plan	4. Geotechnical Study / Slope Stability Study (update to existing is acceptable)	S	4
	2	5. Composite Utility Plan	6. Groundwater Impact Study		6
	5	7. Servicing Options Report	8. Wellhead Protection Study		6
S	9	9. Transportation Impact Brief	10. Erosion and Sediment Control Plan / Brief	S	6
S	6	11. Storm water Management Report / Brief	12. Hydro geological and Terrain Analysis	S	8
	3	13. Hydraulic Water main Analysis	14. Noise / Vibration Study	S	3
	35/50/55	15. Roadway Modification Design Plan	16. Confederation Line Proximity Study		9

S/A	Number of copies	PLANNING / DESIGN / SURVEY		S/A	Number of copies
	50	17. Draft Plan of Subdivision	18. Plan Showing Layout of Parking Garage		2
	30	19. Draft Plan of Condominium	20. Planning Rationale		3
S	15	21. Site Plan	22. Minimum Distance Separation (MDS)		3
	20	23. Concept Plan Showing Proposed Land Uses and Landscaping	24. Agrology and Soil Capability Study		5
	3	25. Concept Plan Showing Ultimate Use of Land	26. Cultural Heritage Impact Statement	S	3
S	15	27. Landscape Plan	28. Archaeological Resource Assessment Requirements: S (site plan) A (subdivision, condo)	S	3
	2	29. Survey Plan	30. Shadow Analysis		3
S	3	31. Architectural Building Elevation Drawings (dimensioned)	32. Design Brief	S	3
	6	33. Wind Analysis			

S/A	Number of copies	ENVIRONMENTAL		S/A	Number of copies
S	5	34. Phase 1 Environmental Site Assessment	35. Impact Assessment of Adjacent Waste Disposal/Former Landfill Site		6
	5	36. Phase 2 Environmental Site Assessment (depends on the outcome of Phase 1)	37. Assessment of Landform Features		7
	4	38. Record of Site Condition	39. Mineral Resource Impact Assessment		4
	10	40. Tree Conservation Report	41. Environmental Impact Statement / Impact Assessment of Endangered Species	S	11
	4	42. Mine Hazard Study / Abandoned Pit or Quarry Study			

S/A	Number of copies	ADDITIONAL REQUIREMENTS		S/A	Number of copies
		43.	44.		

Meeting Date: May 9, 2017

Application Type: *Site Plan Control*

File Lead (Assigned Planner): Mary Ellen Wood

Infrastructure Approvals Project Manager: James Hall

Site Address (Municipal Address): 55 Lodge Rd

*Preliminary Assessment: 1 ☐ 2 ☐ 3 ☐ 4 ☐ 5 ☐

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

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

Francois Thauvette

From: Francois Thauvette
Sent: Tuesday, September 17, 2019 1:26 PM
To: MOECCOttawaSewage@ontario.ca
Subject: City of Ottawa SFPA / 3505 Prince of Wales Dr. / D07-12-19-0090 (Pre-Consultation with the MECP)
Attachments: ODO - Pre-Submission Consultation Request Fill-in Form-May 2017 v4r.docx

Please find attached a completed MECP Pre-Submission Consultation Request Form for the proposed **City of Ottawa – South Facility Phase A** development located at 3505 Prince of Wales Drive. The form has been completed to address the following:

1. A new on-site SWM facility, which will provide both stormwater quantity control (per City of Ottawa requirements) and quality control measures (i.e. 80% TSS removal per RVCA requirements)
2. A new connection to the existing Carleton Lodge Retirement Residence sanitary pump station (the existing sanitary pump station currently has an ECA)

Please review and call should you have any questions or require additional information.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

The information contained in this email message is confidential and is for exclusive use of the addressee.

Pre-Submission Consultation Request Form

Name of Proponent (Company): Novatech	Date: 2019-09-17	Application File No. with the Municipality/City: D07-12-19-0090
Contact Information for Meeting Participants:		
Name: François Thauvette Company: Novatech Position: Senior PM, P. Eng. (for SWM) Phone: 613-254-9643x219 Email: f.thauvette@novatech-eng.com	Name: Carl Sciuk Company: Novatech Position: Senior PM, P. Eng. (for SAN P.S.) Phone: 613-254-9643x219 Email: c.sciuk@novatech-eng.com	
Name of the Project Manager assigned to the Municipality/City's Application filed with the Municipality/City: Wendy Tse (Planner - City of Ottawa)		
Name of the Municipal/City Review Engineer assigned to review the Proposed Works Approval Application package: Golam Sharif (Eng. - City of Ottawa)		
Name of Project: <u>City of Ottawa - South Facility Phase A</u> Is this project subject to Environmental Assessment Act approvals? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Municipal Class EA's Schedule and reason for the project's classification: 1) Schedule A: paragraph 17, construct SWM facility required as condition of site plan approval under the Planning Act 2) Schedule A: paragraph 10, extend sewage collection system to an existing sewage outlet required as condition of site plan approval under the Planning Act	Location of Project (address including municipality): 3505 Prince of Wales Drive City of Ottawa	Is this a new works? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> Are there existing ECAs in place where an amendment is required? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> N/A <input type="checkbox"/> If yes, please provide the ECA/CofA number: MOE CofA amendment # 3-0834-87-006 for existing Carleton Lodge pump station, dated September 23, 2004 Water Works Permit Amendment required? Yes <input type="checkbox"/> No <input type="checkbox"/> N/A <input checked="" type="checkbox"/>
Works to Service: Residential <input type="checkbox"/> Municipal Infrastructure <input type="checkbox"/> Commercial <input type="checkbox"/> Institutional <input type="checkbox"/> Industrial <input type="checkbox"/> Other: <u>City of Ottawa - Police Station</u>		
Zoning: Residential <input type="checkbox"/> Commercial <input type="checkbox"/> Institutional <input checked="" type="checkbox"/> Industrial <input type="checkbox"/> Other: _____		
Is the Proposed Works: Direct Submission <input checked="" type="checkbox"/> Transfer of Review <i>Standard</i> works <input type="checkbox"/> Transfer of Review <i>Additional</i> works <input type="checkbox"/>		

Pre-Submission Consultation Request Form

Facility Type: (i.e. STP, SWMF, storm, sanitary, forcemain, pumping station, pond, ditches, etc.)

- 1) On-site SWM facility (dry ponds) incl. OGS treatment unit.
- 2) Connection to existing Carleton Lodge Sanitary Pump Station

Proposed Property Use Description:

City of Ottawa - Police Station

Project Description: (project size, capacity, type of equipment, etc.)

The City of Ottawa is proposing to construct a new Police Station Facility called South Facility Phase A (SFPA). The proposed SFPA storm drainage and SWM design will include both on-site stormwater quality and quantity control, prior to releasing flows towards the existing outlet ditch to the Rideau River.

Sanitary sewage from the proposed building and parking garages will be directed to the existing Carleton Lodge sanitary pump station via a gravity service and sewer system. The existing pump station and sanitary forcemain conveys the sewage uphill to the municipal sanitary sewer in Willow Creek Circle, located on the west side of Prince of Wales.

Project Timing (proposed construction / start up): 2020/03/27
year/mm/dd

Expected Application Submission Date (year/month): 2019/10
year/mm

Have municipal/city approvals/permits/authorization been secured?

Yes ☐ No ☒ N/A ☐

Does the proposal qualify for exemption under O.Reg. 525/98 of OWRA?

Yes ☐ No ☒ N/A ☐

If yes please provide a description of how this proposal meets the exemption criteria:

For stormwater management applications has the local Municipality/City and Conservation Authority or MNR Office been consulted with regard to effluent quality/quantity considerations? Yes ☒ No ☐ N/A ☐

If yes, what is the required effluent quality and quantity? Normal ☐ Enhanced ☒

Name of closest natural watercourse/municipal drain/private drain to receive stormwater/drainage from the site of concern:

Rideau River

Pre-Submission Consultation Request Form

Name of the Conservation Authority (CA) having jurisdiction on the site and Name of CA contact person:

RVCA - Eric Lalande

Is there an Erosion and Sediment Control Plan/Measures? Yes ☒ No ☐ N/A ☐

If temporary erosion and sediment control measures and stormwater management are incorporated into the project has their design/construction been included in the application?

Yes ☒ No ☐ N/A ☐

Where construction activities necessitate dewatering, have Permit To Take Water (PTTW) / Construction Dewatering Environmental Activity Sector Registry (EASR) considerations been addressed? Yes ☒ No ☐ N/A ☐

Other Questions:

For infrastructure crossing highways and/or right-of-ways have required permits been secured from MTO? Yes ☐ No ☐ N/A ☒

For infrastructure crossing federal property have authorization/support letters been secured from the federal authority? Yes ☐ No ☐ N/A ☒

Are there potential First Nations considerations? Yes ☐ No ☐ N/A ☒

Where applicable, has spill containment been incorporated into design or installation contingencies? Yes ☐ No ☐ N/A ☒

Where applicable, are odour and/or noise controls incorporated into design or installation contingencies? Yes ☐ No ☐ N/A ☒

If applicable, is a contingency in place to deal with contaminated soils? Yes ☒ No ☐ N/A ☐

Questions and Issues requested to be addressed in the pre-submission consultation meeting:

- 1.
- 2.
- 3.
- 4.
- 5.
- 6.
- 7.

Pre-Submission Consultation Request Form

8.

Please return this completed form at least **3 weeks before** approximate preferred meeting date.

Email completed form to: MOECCOttawaSewage@ontario.ca

Subject Line: – *Project Name/ Site Address/ Application File No.*

May 2017 v4r

Francois Thauvette

From: MECPOttawaSewage (MECP) <MOECCOttawaSewage@ontario.ca>
Sent: Tuesday, September 17, 2019 1:27 PM
To: Francois Thauvette
Subject: Automatic reply: City of Ottawa SFPA / 3505 Prince of Wales Dr. / D07-12-19-0090 (Pre-Consultation with the MECP)

Thank you for contacting the Ministry of the Environment, Conservation and Parks, Ottawa District Office. We appreciate your email and will respond to your message within two business days.

Transfer of Review Program Participants,

Please be advised that as of February 4, 2019, mandatory pre-submission consultation with the local office is no longer required under the Transfer of Review (ToR) program.

The ECA application process is to be determined by the City of Ottawa's review engineer – be it ToR Standard Works, ToR Additional Works, or Direct Submission. In instances where the City's review engineer is unsure through which process the ECA application should proceed, then a consultation between the City and MECP should take place.

If the pre-submission consultation form submitted does not identify any specific items to address with the local MECP office, no meeting will be scheduled at this time.

When providing draft ECAs for local office review, please clearly indicate if the project falls under "Standard Works" or "Additional Works."

Please note that the responsibility to ensure an accurate and full technical review of the supporting application is held by the City of Ottawa under the ToR program. Local office review, as outlined in the ToR agreement, does not involve assessment of the application nor a technical review.

Standard Works applications:

Please assume that there are no local office comments.

Additional Works applications:

Please include a project summary/design brief with your submission and note that "Additional Works" draft ECAs may require up to 10 business days to review.

Thank you.

Francois Thauvette

From: MECPOttawaSewage (MECP) <MOECCOttawaSewage@ontario.ca>
Sent: Wednesday, September 18, 2019 3:31 PM
To: Francois Thauvette
Cc: Diamond, Emily (MECP); Tieu, Emily (MECP)
Subject: RE: City of Ottawa SFPA / 3505 Prince of Wales Dr. / D07-12-19-0090 (Pre-Consultation with the MECP)
Attachments: ODO - Pre-Submission Consultation Request Fill-in Form-May 2017 v4r.docx

Good Afternoon:

The MECP Ottawa District Office has received your pre-submission consultation request. Emily Diamond, Senior Environmental Officer, assigned to your file will contact you.

Thank you,

Jéhanne Hurlbut

District Administrative Assistant (Bilingual)
Ministry of the Environment, Conservation and Parks | Ottawa District Office
2430 Don Reid Drive, Unit 103
Ottawa, ON K1H 1E1
Tel: (613) 521-3450 X 221 | Fax: 613-521-5437 | jehanne.hurlbut@ontario.ca

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: Tuesday, September 17, 2019 1:26 PM
To: MECPOttawaSewage (MECP) <MOECCOttawaSewage@ontario.ca>
Subject: City of Ottawa SFPA / 3505 Prince of Wales Dr. / D07-12-19-0090 (Pre-Consultation with the MECP)

Please find attached a completed MECP Pre-Submission Consultation Request Form for the proposed **City of Ottawa – South Facility Phase A** development located at 3505 Prince of Wales Drive. The form has been completed to address the following:

1. A new on-site SWM facility, which will provide both stormwater quantity control (per City of Ottawa requirements) and quality control measures (i.e. 80% TSS removal per RVCA requirements)
2. A new connection to the existing Carleton Lodge Retirement Residence sanitary pump station (the existing sanitary pump station currently has an ECA)

Please review and call should you have any questions or require additional information.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

The information contained in this email message is confidential and is for exclusive use of the addressee.

APPENDIX B

Development Servicing Study Checklist

4. Development Servicing Study Checklist

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

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

4.1 General Content

- N/A ☐ Executive Summary (for larger reports only).
- ☒ Date and revision number of the report.
- ☒ Location map and plan showing municipal address, boundary, and layout of proposed development.
- ☒ Plan showing the site and location of all existing services.
- ☒ Development statistics, land use, density, adherence to zoning and official plan, and reference to applicable subwatershed and watershed plans that provide context to which individual developments must adhere.
- ☒ Summary of Pre-consultation Meetings with City and other approval agencies.
- ☒ 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 defensible design criteria.
- ☒ Statement of objectives and servicing criteria.
- ☒ Identification of existing and proposed infrastructure available in the immediate area.
- ☒ Identification of Environmentally Significant Areas, watercourses and Municipal Drains potentially impacted by the proposed development (Reference can be made to the Natural Heritage Studies, if available).

- ☒ Concept level master grading plan to confirm existing and proposed grades in the development. This is required to confirm the feasibility of proposed stormwater management and drainage, soil removal and fill constraints, and potential impacts to neighbouring properties. This is also required to confirm that the proposed grading will not impede existing major system flow paths.
- N/A ☐ Identification of potential impacts of proposed piped services on private services (such as wells and septic fields on adjacent lands) and mitigation required to address potential impacts.
- ☒ Proposed phasing of the development, if applicable.
- ☒ Reference to geotechnical studies and recommendations concerning servicing.
- ☒ All preliminary and formal site plan submissions should have the following information:
- Metric scale
 - North arrow (including construction North)
 - Key plan
 - Name and contact information of applicant and property owner
 - Property limits including bearings and dimensions
 - Existing and proposed structures and parking areas
 - Easements, road widening and rights-of-way
 - Adjacent street names

4.2 Development Servicing Report: Water

- ☒ Confirm consistency with Master Servicing Study, if available
- ☒ Availability of public infrastructure to service proposed development
- ☒ Identification of system constraints
- ☒ Identify boundary conditions
- ☒ Confirmation of adequate domestic supply and pressure
- ☒ Confirmation of adequate fire flow protection and confirmation that fire flow is calculated as per the Fire Underwriter's Survey. Output should show available fire flow at locations throughout the development.
- ☒ Provide a check of high pressures. If pressure is found to be high, an assessment is required to confirm the application of pressure reducing valves.
- ☒ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design
- ☒ Address reliability requirements such as appropriate location of shut-off valves
- N/A ☐ Check on the necessity of a pressure zone boundary modification.

- ☒ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range
- ☒ Description of the proposed water distribution network, including locations of proposed connections to the existing system, provisions for necessary looping, and appurtenances (valves, pressure reducing valves, valve chambers, and fire hydrants) including special metering provisions.
- N/A ☐ Description of off-site required feeder mains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.
- ☒ Confirmation that water demands are calculated based on the City of Ottawa Design Guidelines.
- ☒ Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

4.3 Development Servicing Report: Wastewater

- ☒ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).
- ☒ Confirm consistency with Master Servicing Study and/or justifications for deviations.
- ☒ Consideration of local conditions that may contribute to extraneous flows that are higher than the recommended flows in the guidelines. This includes groundwater and soil conditions, and age and condition of sewers.
- N/A ☐ Description of existing sanitary sewer available for discharge of wastewater from proposed development.
- N/A ☐ Verify available capacity in downstream sanitary sewer and/or identification of upgrades necessary to service the proposed development. (Reference can be made to previously completed Master Servicing Study if applicable)
- N/A ☐ Calculations related to dry-weather and wet-weather flow rates from the development in standard MOE sanitary sewer design table (Appendix 'C') format.
- ☒ Description of proposed sewer network including sewers, pumping stations, and forcemains.

- N/A ☐ Discussion of previously identified environmental constraints and impact on servicing (environmental constraints are related to limitations imposed on the development in order to preserve the physical condition of watercourses, vegetation, soil cover, as well as protecting against water quantity and quality).
- ☒ Pumping stations: impacts of proposed development on existing pumping stations or requirements for new pumping station to service development.
- ☒ Forcemain capacity in terms of operational redundancy, surge pressure and maximum flow velocity.
- 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.
- ☒ Special considerations such as contamination, corrosive environment etc.

4.4 Development Servicing Report: Stormwater Checklist

- ☒ Description of drainage outlets and downstream constraints including legality of outlets (i.e. municipal drain, right-of-way, watercourse, or private property)
- N/A ☐ Analysis of available capacity in existing public infrastructure.
- ☒ A drawing showing the subject lands, its surroundings, the receiving watercourse, existing drainage patterns, and proposed drainage pattern.
- ☒ Water quantity control objective (e.g. controlling post-development peak flows to pre-development level for storm events ranging from the 2 or 5 year event (dependent on the receiving sewer design) to 100 year return period); if other objectives are being applied, a rationale must be included with reference to hydrologic analyses of the potentially affected subwatersheds, taking into account long-term cumulative effects.
- ☒ Water Quality control objective (basic, normal or enhanced level of protection based on the sensitivities of the receiving watercourse) and storage requirements.
- ☒ Description of the stormwater management concept with facility locations and descriptions with references and supporting information.
- N/A ☐ Set-back from private sewage disposal systems.
- ☒ Watercourse and hazard lands setbacks.
- ☒ Record of pre-consultation with the Ontario Ministry of Environment and the Conservation Authority that has jurisdiction on the affected watershed.
- ☒ Confirm consistency with sub-watershed and Master Servicing Study, if applicable study exists.

- ☒ Storage requirements (complete with calculations) and conveyance capacity for minor events (1:5 year return period) and major events (1:100 year return period).
- N/A ☐ Identification of watercourses within the proposed development and how watercourses will be protected, or, if necessary, altered by the proposed development with applicable approvals.
- ☒ Calculate pre and post development peak flow rates including a description of existing site conditions and proposed impervious areas and drainage catchments in comparison to existing conditions.
- ☒ Any proposed diversion of drainage catchment areas from one outlet to another.
- ☒ Proposed minor and major systems including locations and sizes of stormwater trunk sewers, and stormwater management facilities.
- N/A ☐ If quantity control is not proposed, demonstration that downstream system has adequate capacity for the post-development flows up to and including the 100-year return period storm event.
- ☒ Identification of potential impacts to receiving watercourses
- N/A ☐ Identification of municipal drains and related approval requirements.
- ☒ Descriptions of how the conveyance and storage capacity will be achieved for the development.
- ☒ 100 year flood levels and major flow routing to protect proposed development from flooding for establishing minimum building elevations (MBE) and overall grading.
- N/A ☐ Inclusion of hydraulic analysis including hydraulic grade line elevations.
- ☒ Description of approach to erosion and sediment control during construction for the protection of receiving watercourse or drainage corridors.
- N/A ☐ Identification of floodplains – proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.
- ☒ Identification of fill constraints related to floodplain and geotechnical investigation.

4.5 Approval and Permit Requirements: Checklist

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

- NOTED ☐ 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.
- NOTED ☐ Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.
- N/A ☐ Changes to Municipal Drains.
- N/A ☐ Other permits (National Capital Commission, Parks Canada, Public Works and Government Services Canada, Ministry of Transportation etc.)

4.6 Conclusion Checklist

- ☒ Clearly stated conclusions and recommendations
- TBD ☐ Comments received from review agencies including the City of Ottawa and information on how the comments were addressed. Final sign-off from the responsible reviewing agency.
- ☒ All draft and final reports shall be signed and stamped by a professional Engineer registered in Ontario

APPENDIX C

Existing Carleton Lodge MOE Certificate of Approval



Ontario

Ministry
of the
Environment

Ministère
de
l'Environnement

AMENDMENT TO CERTIFICATE OF APPROVAL
MUNICIPAL AND PRIVATE SEWAGE WORKS
NUMBER 3-0834-87-006
Notice No. 1

City of Ottawa
100 Constellation Crescent, 6th Floor
Ottawa, Ontario
K2G 6J8

Site Location: Carleton Lodge Well Supply
55 Lodge Road
Ottawa City,
K2C 3H1

You are hereby notified that I have amended Certificate of Approval No. 3-0834-87-006 issued on June 3, 1987 for A Sewage Pumping Station, as follows:

- modifications to the existing sanitary sewage forcemain consisting of the realignment of approximately 65-meters of 152 mm diameter sanitary sewage forcemain, from approximately 35-meters west of the existing sewage lift station, and connecting to an existing municipal sanitary sewer on Willow Creek Street;
- modifications to the existing sanitary sewage lift station consisting of the replacement of two (2) submersible centrifugal pumps, one in duty and one in standby, with the pumps equipped with fixed speed drives to provide an equivalent capacity of 20 L/s each against a total dynamic head of 10-meters, including new 100 mm diameter discharge connections, new galvanized steel guide rails, related pipe fittings and appurtenances;

All in accordance with the application dated June 23, 2004 and received on August 26, 2004, including a design brief, final plans and specifications prepared by Kevin Mc Cambley, P.Eng, David McManus Engineering Ltd, and the Certificate of Approval 3-0834-87-006.

This Notice shall constitute part of the approval issued under Certificate of Approval No. 3-0834-87-006 dated June 3, 1987

In accordance with Section 100 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, as amended, you may by written notice served upon me and the Environmental Review Tribunal within 15 days after receipt of this Notice, require a hearing by the Tribunal. Section 101 of the Ontario Water Resources Act, R.S.O. 1990, Chapter 0.40, provides that the Notice requiring the hearing shall state:

1. The portions of the approval or each term or condition in the approval in respect of which the hearing is required, and;
2. The grounds on which you intend to rely at the hearing in relation to each portion appealed.

The Notice should also include:

3. The name of the appellant;
4. The address of the appellant;
5. The Certificate of Approval number;
6. The date of the Certificate of Approval;
7. The name of the Director;
8. The municipality within which the works are located;

And the Notice should be signed and dated by the appellant.

This Notice must be served upon:

CONTENT COPY OF ORIGINAL

The Secretary*
Environmental Review Tribunal
2300 Yonge St., 12th Floor
P.O. Box 2382
Toronto, Ontario
M4P 1E4

AND

The Director
Section 53, *Ontario Water Resources Act*
Ministry of the Environment
2 St. Clair Avenue West, Floor 12A
Toronto, Ontario
M4V 1L5

*** Further information on the Environmental Review Tribunal's requirements for an appeal can be obtained directly from the Tribunal at: Tel: (416) 314-4600, Fax: (416) 314-4506 or www.ert.gov.on.ca**

The above noted sewage works are approved under Section 53 of the Ontario Water Resources Act.

DATED AT TORONTO this 23rd day of September, 2004

Aziz Ahmed, P.Eng.
Director
Section 53, *Ontario Water Resources Act*

RR/
c: District Manager, MOE Ottawa District Office
Kevin Mc Cambley, P.Eng, David McManus Engineering Ltd.

Post-It Fax Note 7671

Date	1 of pages
To	From G. VINCELLI
Co./Dept.	Co.
to #	Phone #
Fax # 745-9197	Fax #

Carleton Lodge

Certified of Approval (Sewage)
Certificat d'autorisation (eaux usées)

Number Numéro 3-0834-87-006

1216-03

.....THE REGIONAL MUNICIPALITY OF OTTAWA-CARLETON.....

of: d

OTTAWA, ONTARIO

has applied in accordance with Section 24 of the Ontario Water Resources Act for approval of:

a fait, conformément à l'article 24 de la loi sur les ressources en eau de l'Ontario, une demande d'autorisation:

sewage pumping station, 152mm diameter forcemain and appurtenances to be constructed in Woodroffe Avenue in the City of Nepean, as follows:

<u>STREET</u>	<u>FROM</u>	<u>TO</u>
Woodroffe Ave.	The pumping station approx. 210 m north of the intersection of Woodroffe Ave. and Highway 16	Approx. 3,425 m north of Highway 16

and a sewage pumping station consisting of 3.048 m diameter concrete wet well equipped with two submersible centrifugal sewage pumps each rated at 26.0 h/sec. at a TDH of 41.8 m including float level switches, interconnecting piping and valves, electrical equipment and controls, all in accordance with the plans prepared by Oliver, Mangione, McCalla and Associates Ltd., Consulting Engineers, at a total estimated cost, including engineering and contingencies, of SEVEN HUNDRED AND FIFTEEN THOUSAND DOLLARS (\$715,000.00).



Now therefore this is to certify that after due enquiry the said proposed works have been approved under Section 24 of the Ontario Water Resources Act.

Le présent document certifie qu'après vérification en bonne et due forme la construction dudit projet d'ouvrages a été approuvée aux termes de l'article 24 de la loi sur les ressources en eau de l'Ontario.

DATED AT TORONTO this
DATÉ À TORONTO ce

2

day of
jour d

June 1987.

cc:-Ms. G. Brown. Clerk, R.M. of Ottawa-Carleton

APPENDIX D

Water Demands, Boundary Conditions, Schematic of the Hydraulic Model, Hydraulic Modelling Results and FUS Calculations

Francois Thauvette

From: Sharif, Sharif <sharif.sharif@ottawa.ca>
Sent: Wednesday, May 8, 2019 10:01 AM
To: Francois Thauvette
Cc: Oram, Cody; Steve Matthews
Subject: RE: OPS - South Campus - Request for WM boundary conditions
Attachments: 3505 Prince of Wales Dr. Connection Location.docx

Good Morning Francois,

Here is the requested boundary condition attached. If you have any question please let me know. Thanks.

Sharif

From: Francois Thauvette <f.thauvette@novatech-eng.com>
Sent: May 07, 2019 8:26 AM
To: Sharif, Sharif <sharif.sharif@ottawa.ca>
Cc: Oram, Cody <Cody.Oram@ottawa.ca>; Steve Matthews <S.Matthews@novatech-eng.com>
Subject: RE: OPS - South Campus - Request for WM boundary conditions

CAUTION: This email originated from an External Sender. Please do not click links or open attachments unless you recognize the source.

ATTENTION : Ce courriel provient d'un expéditeur externe. Ne cliquez sur aucun lien et n'ouvrez pas de pièce jointe, excepté si vous connaissez l'expéditeur.

Hi Sharif,

Any updates from the Water Department regarding the request for boundary conditions? We require this information to finalize our design as we are planning to submit for SPA next week.

Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

The information contained in this email message is confidential and is for exclusive use of the addressee.

From: Francois Thauvette
Sent: Monday, April 29, 2019 10:50 AM
To: Sharif, Sharif <sharif.sharif@ottawa.ca>
Cc: Oram, Cody <Cody.Oram@ottawa.ca>; Steve Matthews <S.Matthews@novatech-eng.com>
Subject: Ottawa Police Service - South Campus - Request for WM boundary conditions

Hi Sharif,

We are sending you this e-mail to request watermain boundary conditions for a proposed looped watermain network to service the proposed Ottawa Police Service (OPS) South Campus. The intent is to connect to the existing 200mm dia. watermain on Willow Creek Circle (west side of Prince of Wales) as well as to the 200mm dia. watermain currently servicing the Carleton Lodge. This will also provide the Carleton Lodge with a redundant water supply. See attached schematic sketch for details.

The anticipated water demands for the proposed Phase 1 and Phase 2 development are as follows:

- Average Day Demand = 1.1 L/s
- Max. Day Demand = 1.6 L/s
- Peak Hour Demand = 2.9 L/s
- Max Daily + Fire Flow = 252 L/s (FUS fire flow of 250 L/s)*

We will be using a multi-hydrant approach to fire-fighting per City of Ottawa Technical Bulletin ISTB-2018-02.

*Based on a non-combustible, 3-storey building with an supervised sprinkler system, per the architectural design. See attached FUS calculation sheet for details.

If possible, please provide boundary conditions before the end of the week.

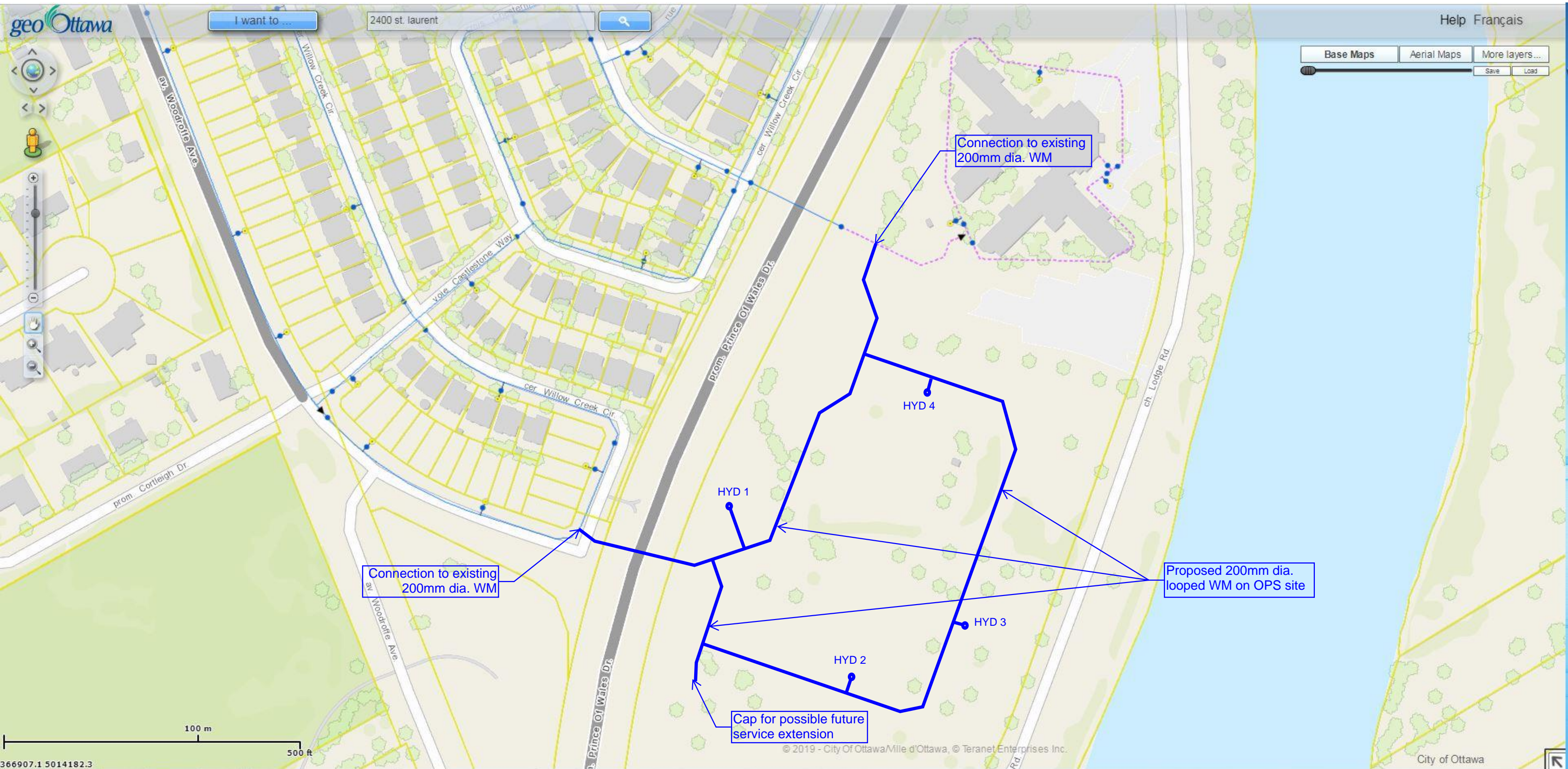
Regards,

François Thauvette, P. Eng., Senior Project Manager | Land Development & Public Sector Engineering

NOVATECH Engineers, Planners & Landscape Architects

240 Michael Cowpland Drive, Suite 200, Ottawa, ON, K2M 1P6 | Tel: 613.254.9643 Ext: 219 | Cell: 613.276.0310 | Fax: 613.254.5867

The information contained in this email message is confidential and is for exclusive use of the addressee.



FUS - Fire Flow Calculations

As per 1999 Fire Underwriter's Survey Guidelines



Engineers, Planners & Landscape Architects

Novatech Project #: 118048

Project Name: Ottawa Police Services - South Campus

Date: 4/29/2019

Input By: S. Matthews

Reviewed By: F. Thauvette

Legend

Input by User

No Information or Input Required

Building Description: 3-Storey Building

Fire Resistive Construction

Step		Choose		Value Used	Total Fire Flow (L/min)
Base Fire Flow					
1	Construction Material		Multiplier		0.8
	Coefficient related to type of construction C	Wood frame		1.5	
		Ordinary construction		1	
		Non-combustible construction	Yes	0.8	
		Modified Fire resistive construction (2 hrs)		0.6	
		Fire resistive construction (> 3 hrs)		0.6	
2	Floor Area				
	A	Building Footprint (m ²)	9063		
		Number of Floors/Storeys	3		
		Protected Openings (1 hr)	No		
		Area of structure considered (m ²)		22,658	
	F	Base fire flow without reductions			26,000
		$F = 220 C (A)^{0.5}$			
Reductions or Surcharges					
3	Occupancy hazard reduction or surcharge		Reduction/Surcharge		15%
	(1)	Non-combustible		-25%	
		Limited combustible		-15%	
		Combustible		0%	
		Free burning	Yes	15%	
		Rapid burning		25%	
4	Sprinkler Reduction		Reduction		-14,950
	(2)	Adequately Designed System (NFPA 13)	Yes	-30%	
		Standard Water Supply	Yes	-10%	
		Fully Supervised System	Yes	-10%	
		Cumulative Total		-50%	
5	Exposure Surcharge (cumulative %)		Surcharge		0
	(3)	North Side	> 45.1m	0%	
		East Side	> 45.1m	0%	
		South Side	> 45.1m	0%	
		West Side	> 45.1m	0%	
		Cumulative Total		0%	
Results					
6	(1) + (2) + (3)	Total Required Fire Flow, rounded to nearest 1000L/min		L/min	15,000
		(2,000 L/min < Fire Flow < 45,000 L/min)	or	L/s	250
			or	USGPM	3,963
7	Storage Volume	Required Duration of Fire Flow (hours)		Hours	3
		Required Volume of Fire Flow (m ³)		m ³	2700

BOUNDARY CONDITIONS



Boundary Conditions For: 3505 Prince of Wales Dr.

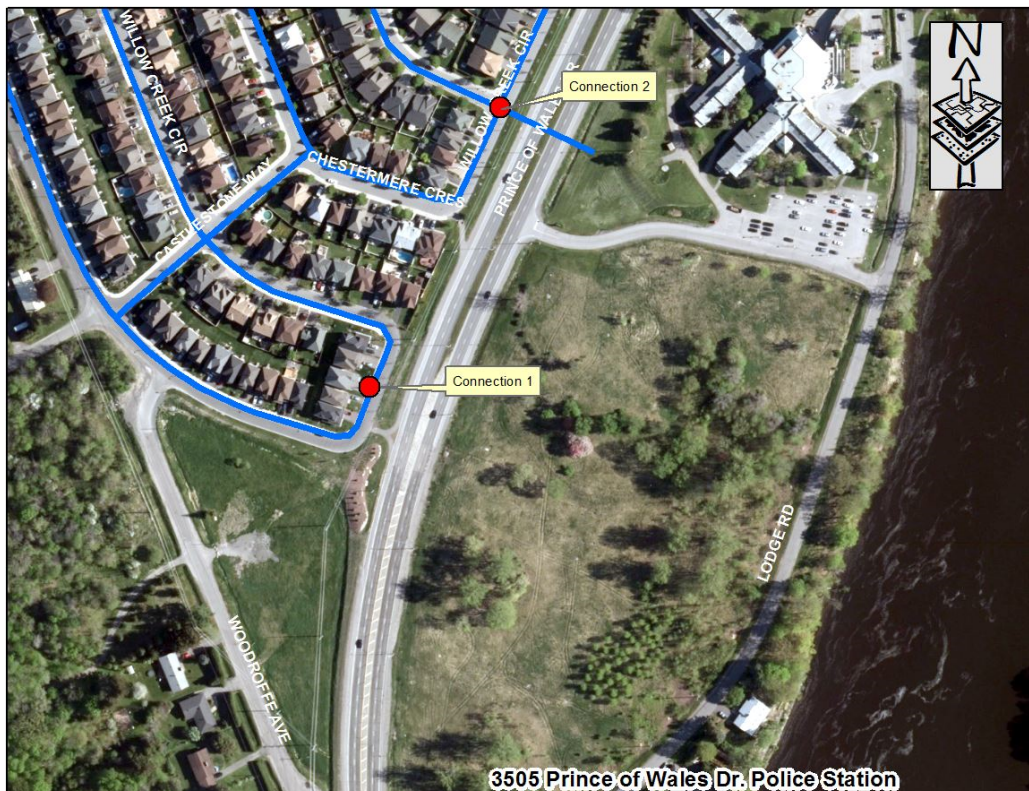
Date of Boundary Conditions: 2019-May-07

Provided Information:

Scenario	Demand	
	L/min	L/s
Average Daily Demand	66.0	1.1
Maximum Daily Demand	96.0	1.6
Peak Hour	174.0	2.9
Fire Flow #1 Demand	15,000	250.0

Number Of Connections: 2

Location:



BOUNDARY CONDITIONS



Results:

Pre-Config

Connection #: 1

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	157.9	95.0
Peak Hour	142.6	73.3
Max Day Plus Fire (15,000) L/min	113.2	31.6

¹Elevation: **91.020 m**

Connection #: 2

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	157.9	96.2
Peak Hour	142.6	74.4
Max Day Plus Fire (15,000) L/min	115.5	36.0

¹Elevation: **90.220 m**

Post-Config

Connection #: 1

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	147.8	80.5
Peak Hour	145.6	77.4
Max Day Plus Fire (15,000) L/min	121.3	42.9

¹Elevation: **91.020 m**

BOUNDARY CONDITIONS



Connection #: 2

Demand Scenario	Head (m)	Pressure ¹ (psi)
Maximum HGL	147.8	81.8
Peak Hour	145.6	78.7
Max Day Plus Fire (15,000) L/min	123.7	47.6

¹Elevation: **90.220 m**

Notes:

1) As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:

- a) If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
- b) Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

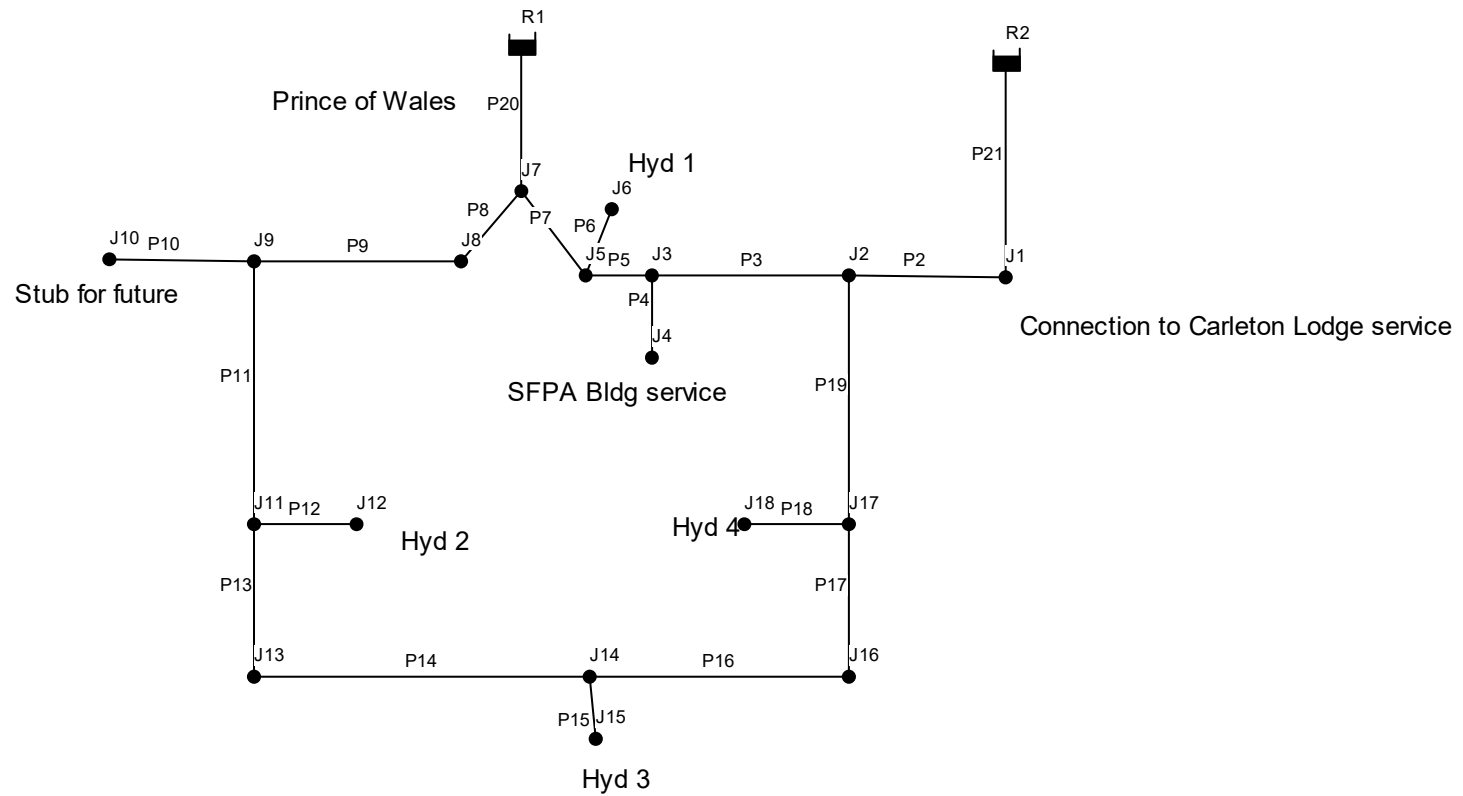
2) Click or tap here to enter text.

3) Click or tap here to enter text.

Disclaimer

The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. Fire Flow analysis is a reflection of available flow in the watermain; there may be additional restrictions that occur between the watermain and the hydrant that the model cannot take into account.

City of Ottawa - SFPA Watermain Model Schematic



City of Ottawa - SFPA (Phases 1 & 2)

Max Day + Fire Flow Demand (using 4 hydrants)

Network Table - Nodes

Node ID	Elevation m	Demand L/s	Head m	Pressure m	Pressure kPa	Pressure psi
Junc J1 (Carleton Lodge service)	83.90	4	117.22	33.32	326.87	47.41
Junc J2	84.95	0	113.62	28.67	281.25	40.79
Junc J3	87.45	0	113.53	26.08	255.84	37.11
Junc J4 (Bldg Service)	90.85	2	113.53	22.68	222.49	32.27
Junc J5	87.50	0	113.51	26.01	255.16	37.01
Junc J6 (Hyd. 1)	87.50	70	110.65	23.15	227.10	32.94
Junc J7	86.00	0	113.9	27.9	273.70	39.70
Junc J8	86.00	0	113.36	27.36	268.40	38.93
Junc J9	86.60	0	111.56	24.96	244.86	35.51
Junc J10 (Fut. Stub)	86.20	2	111.55	25.35	248.68	36.07
Junc J11	83.10	0	107.94	24.84	243.68	35.34
Junc J12 (Hyd. 2)	86.00	60	107.64	21.64	212.29	30.79
Junc J13	82.40	0	107.85	25.45	249.66	36.21
Junc J14	82.65	0	107.71	25.06	245.84	35.66
Junc J15 (Hyd. 3)	86.00	60	107.27	21.27	208.66	30.26
Junc J16	82.00	0	108.6	26.6	260.95	37.85
Junc J17	82.75	0	109.61	26.86	263.50	38.22
Junc J18 (Hyd. 4)	86.00	60	108.81	22.81	223.77	32.45
Resvr R1 (Willow Creek WM)	121.30	-138.13	121.3	0	0.00	0.00
Resvr R2 (Willow Creek WM)	123.70	-119.87	123.7	0	0.00	0.00

Link ID	Length m	Diameter mm	Roughness	Flow L/s	Velocity m/s	Unit Headloss m/km
Pipe P2	43.4	200	110	115.87	3.69	82.9
Pipe P3	106.4	200	110	10.13	0.32	0.91
Pipe P4 (Bldg Service)	20	200	110	2	0.06	0.04
Pipe P5	22.2	200	110	8.13	0.26	0.6
Pipe P6 9Hyd. Lead)	18.1	150	100	70	3.96	157.91
Pipe P7	14.8	200	110	-61.87	1.97	25.94
Pipe P8	14.1	200	110	76.25	2.43	38.2
Pipe P9	47.2	200	110	76.25	2.43	38.2
Pipe P10	8.8	200	110	2	0.06	0.05
Pipe P11	99.5	200	110	74.25	2.36	36.36
Pipe P12 (Hyd. Lead)	2.5	150	100	60	3.4	118.69
Pipe P13	48.4	200	110	-14.25	0.45	1.71
Pipe P14	83.8	200	110	14.25	0.45	1.71
Pipe P15 (Hyd. Lead)	3.7	150	100	60	3.4	118.69
Pipe P16	59.8	200	110	-45.75	1.46	14.83
Pipe P17	68	200	110	-45.75	1.46	14.83
Pipe P18 (Hyd. Lead)	6.7	150	100	60	3.4	118.69
Pipe P19	57.4	200	110	-105.75	3.37	69.98
Pipe P20	64.5	200	110	-138.13	4.4	114.78
Pipe P21	73.4	200	110	119.87	3.82	88.27

City of Ottawa - SFPA (Phases 1 & 2)

Peak Hour Demand

Network Table - Nodes

Node ID	Elevation m	Demand L/s	Head m	Pressure m	Pressure kPa	Pressure psi
Junc J1 (Carleton Lodge service)	83.90	7	145.57	61.67	604.98	87.75
Junc J2	84.95	0	145.57	60.62	594.68	86.25
Junc J3	87.45	0	145.57	58.12	570.16	82.69
Junc J4 (Bldg Service)	90.85	3	145.57	54.72	536.80	77.86
Junc J5	87.5	0	145.57	58.07	569.67	82.62
Junc J6 (Hyd. 1)	87.50	0	145.57	58.07	569.67	82.62
Junc J7	86.00	0	145.58	59.58	584.48	84.77
Junc J8	86.00	0	145.57	59.57	584.38	84.76
Junc J9	86.60	0	145.57	58.97	578.50	83.90
Junc J10 (Fut. Stub)	86.20	3	145.57	59.37	582.42	84.47
Junc J11	83.10	0	145.57	62.47	612.83	88.88
Junc J12 (Hyd. 2)	86.00	0	145.57	59.57	584.38	84.76
Junc J13	82.40	0	145.57	63.17	619.70	89.88
Junc J14	82.65	0	145.57	62.92	617.25	89.52
Junc J15 (Hyd. 3)	86.00	0	145.57	59.57	584.38	84.76
Junc J16	82.00	0	145.57	63.57	623.62	90.45
Junc J17	82.75	0	145.57	62.82	616.26	89.38
Junc J18 (Hyd. 4)	86.00	0	145.57	59.57	584.38	84.76
Resvr R1 (Willow Creek WM)	145.60	-6.39	145.6	0	0.00	0.00
Resvr R2 (Willow Creek WM)	145.60	-6.61	145.6	0	0.00	0.00

Link ID	Length m	Diameter mm	Roughness	Flow L/s	Velocity m/s	Unit Headloss m/km
Pipe P2	43.4	200	110	-0.39	0.01	0
Pipe P3	106.4	200	110	-0.53	0.02	0
Pipe P4 (Bldg Service)	20	200	110	3	0.1	0.1
Pipe P5	22.2	200	110	-3.53	0.11	0.13
Pipe P6 9Hyd. Lead)	18.1	150	100	0	0	0
Pipe P7	14.8	200	110	-3.53	0.11	0.13
Pipe P8	14.1	200	110	2.86	0.09	0.09
Pipe P9	47.2	200	110	2.86	0.09	0.09
Pipe P10	8.8	200	110	3	0.1	0.1
Pipe P11	99.5	200	110	-0.14	0	0
Pipe P12 (Hyd. Lead)	2.5	150	100	0	0	0
Pipe P13	48.4	200	110	0.14	0	0
Pipe P14	83.8	200	110	-0.14	0	0
Pipe P15 (Hyd. Lead)	3.7	150	100	0	0	0
Pipe P16	59.8	200	110	-0.14	0	0
Pipe P17	68	200	110	-0.14	0	0
Pipe P18 (Hyd. Lead)	6.7	150	100	0	0	0
Pipe P19	57.4	200	110	-0.14	0	0
Pipe P20	64.5	200	110	-6.39	0.2	0.39
Pipe P21	73.4	200	110	6.61	0.21	0.41

SEWER NOTES:

- SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
CATCHBASIN (600x600mm)	701.010	OPSD
STORM/SANITARY MANHOLE (1200mm)	400.020	OPSD
CR. FRAME & COVER	401.010	OPSD
STORM/SANITARY MH FRAME & COVER	401.030	OPSD
WATER/TIGHT MH FRAME AND COVER	401.030	OPSD
SEWER TRENCH	56	CITY OF OTTAWA
STORM SEWER	PVC DR 36	
SANITARY SEWER	PVC DR 36	
SANITARY SEWER BELOW DRY POND	PVC DR 36	
CATCHBASIN LEAD	IPX TERRASRUTE CR	
	PVC DR 36	
- ALL STORM AND SANITARY SERVICE LATERALS SHALL BE EQUIPPED WITH BACKFLOW PREVENTION DEVICES AS PER THE CITY OF OTTAWA STANDARD DETAILS S14 AND S14.2.
- INSULATE ALL PIPES (SANITARY) THAT HAVE LESS THAN 1.0m COVER WITH H-40 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
- SERVICES ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
- PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 85% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
- FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KORK-SEAL, PSX, POSITIVE SEAL AND DURASEAL). THE CONCRETE CRADLE FOR THE PIPE CAN BE ELIMINATED.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVICING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSD 410.07.16, 410.07.16.04 AND 407.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
- ALL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SLUMPS UNLESS OTHERWISE INDICATED. ALL CATCHBASINS ARE TO HAVE 600mm SLUMPS UNLESS OTHERWISE INDICATED.
- ALL CATCHBASINS, MANHOLES AND/OR CATCHBASIN MANHOLES THAT ARE TO HAVE ICDS INSTALLED WITHIN THEM ARE TO HAVE 600mm SLUMPS.
- ALL WEEDING TILE CONNECTIONS ARE TO BE MADE TO THE PROPOSED STORM SEWER SYSTEM DOWNSTREAM OF ANY INLET CONTROL DEVICES.
- CONTRACTOR TO TELEVIEW CCTV ALL PROPOSED SEWERS, 200mm OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES. PROVIDE COPY OF CCTV INSPECTION REPORT TO THE ENGINEER.

CONNECTION TO EXISTING 200mm WATERMAIN TO BE FIELD DETERMINED BY CITY OF OTTAWA FORCES. EXCAVATION, BACKFILL AND REINSTATEMENT BY CONTRACTOR. ROAD CUT REINSTATEMENT AS PER CITY OF OTTAWA STANDARD R10.

INSTALLATION OF PROPOSED 200mm WATERMAIN ACROSS PRINCE OF WALES DRIVE TO BE COMPLETED BY TRINGLESS METHOD TO MINIMIZE DISRUPTION OF THE ROADWAY OPERATIONS.

REFER TO ROADWAY MODIFICATIONS PLANS (RMA-2019-TPD-003) BY OTHERS FOR PROPOSED RMA WORKS WITHIN THE PRINCE OF WALES DRIVE RIGHT-OF-WAY, INCLUDING THE EAST SIDEWALK DITCHES, ASSOCIATED CULVERTS AND CATCHBASIN OUTLET.

PORTIONS OF ABANDONED 150mm SANITARY SEWER CHUTE MAY NEED TO BE INSTALLED TO MAINTAIN EXISTING CAP AND ABANDON REMAINING SEWER STUBS AS REQUIRED PER CITY STANDARD S11.4.

BENCHMARK INFO:

JOB BENCHMARK No. 1: CUT CORNER ON CONCRETE BASE OF LIGHT STANDARD NEAR NORTH-EAST CORNER OF THE INTERSECTION OF PRINCE OF WALES DRIVE AND LODGE ROAD. ELEVATION = 87.07m.

JOB BENCHMARK No. 2: MAGNETIC NAIL AT EAST EDGE OF EXISTING LODGE ROAD. ELEVATION = 84.70m.

REFER TO THE OLS PLAN OF SURVEY (DRAWING 16882-16) BY AOV FOR SPECIFIC DETAILS.

GENERAL NOTES:

- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
- DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES WHETHER OR NOT SHOWN ON THIS DRAWING.
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
- BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR \$5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
- RESTORE ALL DISTURBED AREAS ON SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
- REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER, EXCAVATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
- ALL ELEVATIONS ARE GEODETIC. EXISTING TOPOGRAPHIC INFORMATION HAS BEEN COMPILED FROM CITY OF OTTAWA 1:1000 BASE MAPPING AND TOPOGRAPHIC SURVEY INFORMATION FROM JOB #16882-16 BY ANNIS, O'SULLIVAN, VOLLEBECK LTD. DATED JUNE 15, 2018.
- REFER TO GEOTECHNICAL REPORTS NO. 18-1131-0400, DATED APRIL 2019 AND NO. 153796-1000, DATED MAY 2017, PREPARED BY GOLDER ASSOCIATES LTD., FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND FOR GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
- REFER TO ARCHITECTS AND LANDSCAPE ARCHITECTS DRAWINGS FOR BUILDING AND HARDSCAPE AREAS AND DIMENSIONS.
- REFER TO THE SITE SERVICING REPORT (R-2018-151) AND THE STORMWATER MANAGEMENT REPORT (R-2018-150) BOTH PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
- SAV CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT IN THE POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
- PROVIDE LINER/PAVING PAINTING.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZES, LENGTHS, SLOPES, INVERT AND T&G ELEVATIONS, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, T&W ELEVATIONS AND ANY ALLOWANCE CHANGES, ETC.

WATERMAIN NOTES:

- SUPPLY AND CONSTRUCT ALL WATERMANS AND APPURTENANCES IN ACCORDANCE WITH THE CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. EXCAVATION, INSTALLATION, BACKFILL AND REINSTATEMENT OF ALL WATERMANS SHALL BE PERFORMED BY THE CONTRACTOR. CONNECTIONS AND SHUT-OFFS AT THE MAIN AND COLORIZATION OF THE WATER SYSTEM SHALL BE PERFORMED BY THE CONTRACTOR IN THE PRESENCE OF THE CITY OF OTTAWA FORCES.
- SPECIFICATIONS:

ITEM	SPEC. No.	REFERENCE
WATERMAIN TRENCHING	W19	CITY OF OTTAWA
HYDRANT INSTALLATION	W20	CITY OF OTTAWA
THERMAL INSULATION FOR SHALLOW TRENCHES	W25	CITY OF OTTAWA
WATERMAIN CROSSING BELOW SEWER	W26	CITY OF OTTAWA
WATERMAIN CROSSING OVER SEWER	W27	CITY OF OTTAWA
WATERMAIN	PVC DR 18	
- WATERMAIN SHALL BE MINIMUM 2.4m DEPTH BELOW GRADE UNLESS OTHERWISE INDICATED.
- PROVIDE MINIMUM 0.5m CLEARANCE BETWEEN OUTSIDE OF PIPES AT ALL CROSSINGS, UNLESS OTHERWISE NOTED.
- WATER SERVICE IS TO BE CONSTRUCTED TO WITHIN 1.0m OF FOUNDATION WALL AND CAPPED, UNLESS OTHERWISE INDICATED.

ICD DATA TABLE - STM MH 1

DESIGN EVENT	ICD TYPE / MODEL	DIAMETER OF OUTLET PIPE (mm)	DESIGN FLOW (L/s)	DESIGN HEAD (m)	WATER ELEVATION (m)
1.5YR	PLUG TYPE (225mm ORIFICE)	525	75.9	0.97	83.76
1.100YR	PLUG TYPE (225mm ORIFICE)	525	63.9	0.97	83.76

STATION	SURFACE ELEVATION	T&W ELEVATION	COMMENTS
1+000	89.10	86.70	200 x 200 x 200 TEE (H=0.4)
1+002.0	89.05	86.65	200mm VALVE AND VALVE BOX
1+008.8	88.75	86.35	CROSS BELOW NEW COMMS (1.1m CLEARANCE)
1+013.7	88.65	86.25	45° HORIZONTAL BEND
1+025	88.40	86.00	---
1+038.3	88.75	86.35	22° HORIZONTAL BEND
1+056.2	88.90	86.40	---
1+066.2	88.85	86.35	200 x 200 x 200 TEE (H=0.4)
1+081.3	89.00	86.60	200mm VALVE AND VALVE BOX
1+087.1	89.00	86.60	200mm VALVE AND VALVE BOX
1+070.1	88.70	86.30	CAP FOR POSSIBLE FUTURE EXPANSION

STATION	SURFACE ELEVATION	T&W ELEVATION	COMMENTS
1+000	89.10	86.70	200 x 200 x 200 TEE (H=0.4)
1+002.0	89.05	86.65	200mm VALVE AND VALVE BOX
1+008.8	88.75	86.35	CROSS BELOW NEW COMMS (1.1m CLEARANCE)
1+013.7	88.65	86.25	45° HORIZONTAL BEND
1+025	88.40	86.00	---
1+038.3	88.75	86.35	22° HORIZONTAL BEND
1+056.2	88.90	86.40	---
1+066.2	88.85	86.35	200 x 200 x 200 TEE (H=0.4)
1+081.3	89.00	86.60	200mm VALVE AND VALVE BOX
1+087.1	89.00	86.60	200mm VALVE AND VALVE BOX
1+070.1	88.70	86.30	CAP FOR POSSIBLE FUTURE EXPANSION

STATION	SURFACE ELEVATION	T&W ELEVATION	COMMENTS
1+000	89.10	86.70	200 x 200 x 200 TEE (H=0.4)
1+002.0	89.05	86.65	200mm VALVE AND VALVE BOX
1+008.8	88.75	86.35	CROSS BELOW NEW COMMS (1.1m CLEARANCE)
1+013.7	88.65	86.25	45° HORIZONTAL BEND
1+025	88.40	86.00	---
1+038.3	88.75	86.35	22° HORIZONTAL BEND
1+056.2	88.90	86.40	---
1+066.2	88.85	86.35	200 x 200 x 200 TEE (H=0.4)
1+081.3	89.00	86.60	200mm VALVE AND VALVE BOX
1+087.1	89.00	86.60	200mm VALVE AND VALVE BOX
1+070.1	88.70	86.30	CAP FOR POSSIBLE FUTURE EXPANSION

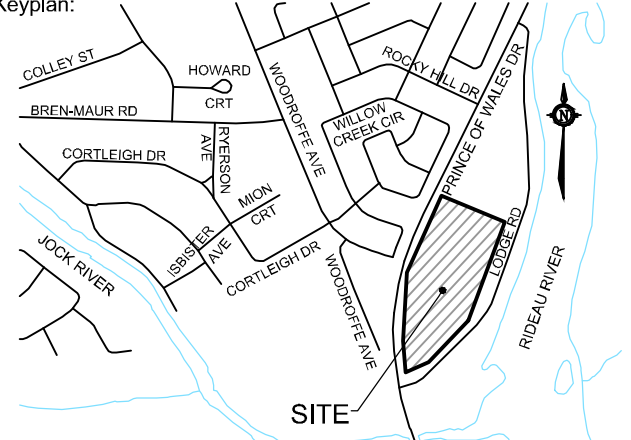
STATION	SURFACE ELEVATION	T&W ELEVATION	COMMENTS
1+000	89.10	86.70	200 x 200 x 200 TEE (H=0.4)
1+002.0	89.05	86.65	200mm VALVE AND VALVE BOX
1+008.8	88.75	86.35	CROSS BELOW NEW COMMS (1.1m CLEARANCE)
1+013.7	88.65	86.25	45° HORIZONTAL BEND
1+025	88.40	86.00	---
1+038.3	88.75	86.35	22° HORIZONTAL BEND
1+056.2	88.90	86.40	---
1+066.2	88.85	86.35	200 x 200 x 200 TEE (H=0.4)
1+081.3	89.00	86.60	200mm VALVE AND VALVE BOX
1+087.1	89.00	86.60	200mm VALVE AND VALVE BOX
1+070.1	88.70	86.30	CAP FOR POSSIBLE FUTURE EXPANSION

LEGEND:

SAN MH	PROPOSED SANITARY MH & SEWER
STM MH	PROPOSED STORM MANHOLE & SEWER
CB 2	PROPOSED CATCHBASIN MANHOLE
HYD	PROPOSED HYDRANT
DC	PROPOSED DEPRESSION CURB
200mm	PROPOSED WATERMAIN AND DIAMETER
VB	PROPOSED VALVE AND VALVE BOX
BEND	PROPOSED BEND AND THRUSTLOCK
ICD	PROPOSED INLET CONTROL DEVICE
RD	ROOF DRAIN
INS	THERMAL INSULATION FOR SHALLOW SEWERS
ENTR	PROPOSED BUILDING ENTRANCE
RET	PROPOSED RETAINING WALL
STW	PROPOSED STORMWATER QUALITY TREATMENT UNIT

PROPERTY LINE:

EXISTING CONCRETE CURB	PROPERTY LINE
EXISTING SANITARY MANHOLE AND SEWER	PROPERTY LINE
EXISTING CATCHBASIN MANHOLE	PROPERTY LINE
EXISTING STORM MANHOLE	PROPERTY LINE
EXISTING CATCHBASIN CW	PROPERTY LINE
EXISTING HYDRANT	PROPERTY LINE
EXISTING UTILITY POLE CW	PROPERTY LINE
EXISTING WATERMAIN	PROPERTY LINE
EXISTING HYDRANT CW	PROPERTY LINE
EXISTING LIGHT STANDARD	PROPERTY LINE
EXISTING OVERHEAD UTILITY WIRES	PROPERTY LINE
PROPOSED WATER METER	PROPERTY LINE
PROPOSED REMOTE METER	PROPERTY LINE
PROPOSED GAS METER	PROPERTY LINE
CONCRETE HEADWALLS	PROPERTY LINE
PROPOSED TRANSFORMER	PROPERTY LINE



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DRAFT

NOT FOR CONSTRUCTION

416-602-4444

PROPOSED 200mm WATERMAIN TABLE

STATION	SURFACE ELEVATION	T&W ELEVATION	COMMENTS
0+000	91.20	88.85	TEE CONNECTION TO EX. 200mm WM
0+01.8	91.19	88.90	CROSS ABOVE EX. 200 SAN (0.5m CLEARANCE)
0+03.8	91.16	88.95	CROSS ABOVE EX. 1300 SAN (TRANVERSE CLEAR)
0+04.5	91.14	89.00	CROSS ABOVE EX. 3750 SAN (0.5m CLEARANCE)
0+005.2	91.13	89.00	22° HORIZONTAL BEND
0+012.2	91.28	89.00	CROSS BELOW EX. BELL (1.6m CLEARANCE)
0+018.9	91.21	89.00	CROSS ABOVE EX. 200 SAN (M45 15m CLEAR)
0+025	91.12	88.85	---
0+050.2	88.90	86.55	CROSS BELOW EX. GAS DITCH (1.1m CLEARANCE)
0+055.2	89.25	86.85	PROPERTY LINE 200mm WM
0+059.8	89.10	86.70	45° HORIZONTAL BEND
0+060.7	89.10	86.70	CROSS BELOW NEW HYDRO2 (1.4m CLEARANCE)
0+063.4	89.10	86.70	200 x 200 x 200 TEE (1+000)
0+075	88.85	86.45	---
0+080.7	89.10	86.70	200 x 200 x 200 HYDRANT TEE
0+095.2	90.03	87.63	45° HORIZONTAL BEND
0+096.7	90.02	87.62	200mm VALVE AND VALVE BOX
0+100	89.96	87.56	---
0+100.4	89.95	87.55	200 x 200 x 200 TEE (H=000)
0+125	89.56	87.16	---
0+132.1	89.46	87.06	CROSS BELOW 250mm STM (0.3m CLEARANCE)
0+150	89.70	87.30	---
0+175	88.82	86.42	---
0+175.8	88.80	86.40	45° HORIZONTAL BEND
0+186.6	88.20	85.80	45° HORIZONTAL BEND
0+200	87.85	85.45	---
0+204.1	87.65	85.25	CROSS BELOW 250mm STM (0.5m CLEARANCE)
0+210.3	87.45	85.05	CROSS BELOW NEW GAS (1.3m CLEARANCE)
0+220.0	87.35	84.80	200 x 200 x 200 TEE (2+416.2)
0+223.0	87.35	84.85	200mm VALVE AND VALVE BOX
0+225	87.35	84.90	---
0+243.6	86.50	84.10	45° HORIZONTAL BEND
0+250	86.40	84.00	---
0+251.6	86.40	84.00	45° HORIZONTAL BEND
0+263.4	86.30	83.90	TEE CONNECTION TO EX. 200mm WM

200mm x 200mm x 200mm TEE CONNECTIONS TO EXISTING 200mm WATERMANS. EXACT ELEVATION TO BE FIELD DETERMINED.

*** PROVIDE THERMAL INSULATION AS PER CITY OF OTTAWA DETAIL W23 AND DETAIL W22 WHERE COVER IS LESS THAN 2.4m AND/OR ADJACENT TO OPEN STRUCTURES.

PROPOSED 200mm WATERMAIN TABLE

STATION	SURFACE ELEVATION	T&W ELEVATION	COMMENTS
2+000	89.00	86.60	200 x 200 x 200 TEE (H=0.1)
2+003.0	88.84	86.44	200mm VALVE AND VALVE BOX
2+004.4	88.80	86.40	112° HORIZONTAL BEND
2+007.0	88.66	86.26	CROSS BELOW NEW HYDRO2 (1.4m CLEARANCE)
2+025	87.88	85.48	---
2+040.1	87.50	85.10	CROSS BELOW NEW HYDRO2 (1.4m CLEARANCE)
2+050	87.15	84.75	---
2+055	86.90	84.50	---
2+094.1	85.66	83.26	CROSS BELOW 150mm STM (0.5m CLEARANCE)
2+097.5	85.55	83.15	200mm VALVE AND VALVE BOX
2+098.5	85.50	83.10	200 x 200 x 150 HYDRANT TEE
2+100	85.50	83.10	---
2+125	84.96	82.56	---
2+142.2	84.89	82.35	CROSS BELOW 200mm WM (0.5m CLEARANCE)
2+147.2	84.83	82.35	22° HORIZONTAL BEND
2+149.2	84.82	82.35	45° HORIZONTAL BEND
2+150	84.82	82.35	---
2+175	84.85	82.35	---
2+200	85.03	82.65	---
2+114.9	85.03	82.63	200mm VALVE AND VALVE BOX
2+225	85.15	82.75	---
2+226.2	85.10	82.70	200 x 200 x 150 HYDRANT TEE
2+250	85.00	82.60	---
2+275	84.80	82.40	---
2+300	84.58	82.18	45° HORIZONTAL BEND
2+300	84.62	82.22	---
2+306.3	84.57	82.17	45° HORIZONTAL BEND
2+312.4	84.80	82.40	CROSS ABOVE 200mm SAN (0.5m CLEARANCE)
2+318.1	85.18	82.78	CROSS BELOW 450mm STM (0.5m CLEARANCE)
2+348	85.08	82.68	INSULATE WM (PROXIMITY TO CBM 1)
2+350	85.08	82.68	---
2+350.4	85.08	82.68	CROSS BELOW 250mm STM (0.5m CLEARANCE)
2+353	85.10	82.70	INSULATE WM (PROXIMITY TO CBM 1)
2+358.8	85.12	82.72	200mm VALVE AND VALVE BOX
2+358.8	85.23	82.83	CROSS BELOW 450mm STM (0.5m CLEARANCE)
2+367.4	85.30	82.90	200 x 200 x 150 HYD TEE
2+375	85.27	83.17	---
2+400	86.65	84.25	---
2+402.5	86.77	84.37	CROSS BELOW 300mm STM (0.5m CLEARANCE)
2+413.2	87.24	84.78	200mm VALVE AND VALVE BOX
2+416.2	87.35	84.80	200 x 200 x 200 TEE (H=220.0)

*** PROVIDE THERMAL INSULATION AS PER CITY OF OTTAWA DETAIL W23 AND DETAIL W22 TO ALLOW FOR CROSSING CLEARANCE FROM ADJACENT SANITARY FORCEMAIN.

PROPOSED 200mm WATER SERVICE TABLE

STATION	SURFACE ELEVATION	T&W ELEVATION	COMMENTS
3+000	89.95	87.55	200 x 200 x 200 TEE (H=100.4)
3+003.0	89.85	87.55	200mm VALVE AND VALVE BOX
3+007.8	90.00	87.60	CROSS BELOW NEW COMMS (1.7m CLEARANCE)
3+009.6	90.03	87.63	CROSS BELOW NEW HYDRO2 (1.4m CLEARANCE)
3+017.5	90.15	87.65	CAP 1.0m FROM BUILDING FACE

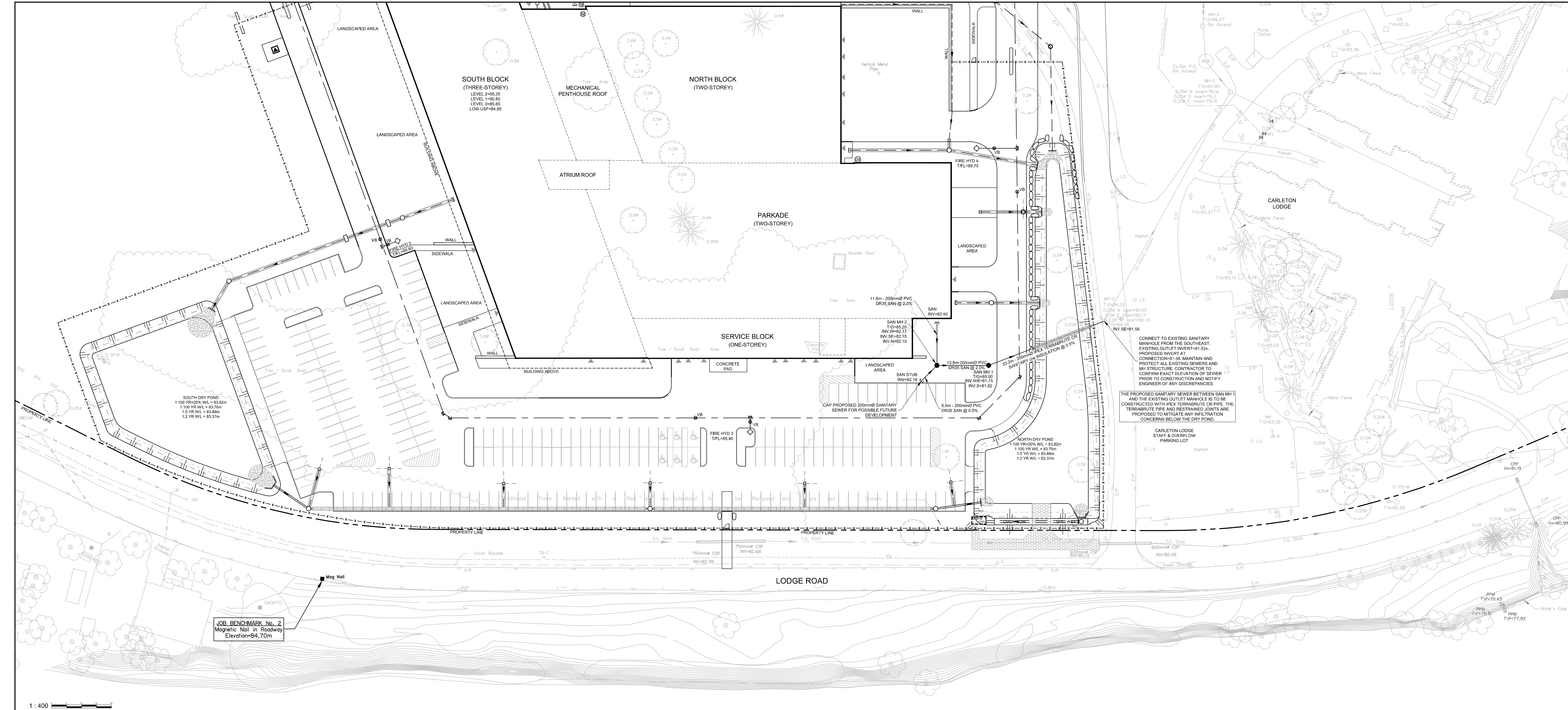
SITE SERVICING PLAN

Scale: 1:400
Date: 22 April 2019
Drawn by: 1190481 Civil
Job No.: 3M - Novatech
Checked by: FST - Novatech
Approved by: FST - Novatech

CITY PLAN # 17973

CITY PLAN # 17973





1:400

GENERAL NOTES:

- COORDINATE AND SCHEDULE ALL WORK WITH OTHER TRADES AND CONTRACTORS.
- DETERMINE THE EXACT LOCATION, SIZE, MATERIAL AND ELEVATION OF ALL EXISTING UTILITIES PRIOR TO COMMENCING CONSTRUCTION. PROTECT AND ASSUME RESPONSIBILITY FOR ALL EXISTING UTILITIES EITHER OR NOT SHOWN ON THIS DRAWING.
- OBTAIN ALL NECESSARY PERMITS AND APPROVALS FROM THE CITY OF OTTAWA BEFORE COMMENCING CONSTRUCTION.
- BEFORE COMMENCING CONSTRUCTION OBTAIN AND PROVIDE PROOF OF COMPREHENSIVE, ALL RISK AND OPERATIONAL LIABILITY INSURANCE FOR \$5,000,000.00. INSURANCE POLICY TO NAME OWNERS, ENGINEERS AND ARCHITECTS AS CO-INSURED.
- RESTORE ALL DISTURBED AREAS ON-SITE AND OFF-SITE, INCLUDING TRENCHES AND SURFACES ON PUBLIC ROAD ALLOWANCES TO EXISTING CONDITIONS OR BETTER TO THE SATISFACTION OF THE CITY OF OTTAWA AND ENGINEER.
- REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL, ORGANIC MATERIAL, AND DEBRIS UNLESS OTHERWISE INSTRUCTED BY ENGINEER. LOCATE AND REMOVE FROM SITE ANY CONTAMINATED MATERIAL. ALL CONTAMINATED MATERIAL SHALL BE DISPOSED OF AT A LICENSED LANDFILL FACILITY.
- ALL ELEVATIONS ARE GEODETIC. EXISTING TOPOGRAPHIC INFORMATION HAS BEEN COMPILED FROM CITY OF OTTAWA 1:1000 BASE MAPS AND TOPOGRAPHIC SURVEY INFORMATION FROM JOB #1806-18 BY ANIS, CULLIVAN, VOLLEBERG LTD. DATED JUNE 13, 2018.
- REFER TO GEOTECHNICAL REPORTS (NO. 1811310-4000, DATED APRIL 2019) AND (NO. 1537295-1000, DATED MAY 2017), PREPARED BY GOLDER ASSOCIATES LTD. FOR SUBSURFACE CONDITIONS, CONSTRUCTION RECOMMENDATIONS, AND FOR GEOTECHNICAL INSPECTION REQUIREMENTS. THE GEOTECHNICAL CONSULTANT IS TO REVIEW ON-SITE CONDITIONS AFTER EXCAVATION PRIOR TO PLACEMENT OF THE GRANULAR MATERIAL.
- REFER TO ARCHITECTS AND LANDSCAPE ARCHITECTS DRAWINGS FOR BUILDING AND HARDSURFACE AREAS AND DIMENSIONS.
- REFER TO THE SITE SERVING REPORT (R-2018-151) AND THE STORMWATER MANAGEMENT REPORT (R-2018-150) BOTH PREPARED BY NOVATECH ENGINEERING CONSULTANTS LTD.
- SAV CUT AND KEY GRIND ASPHALT AT ALL ROAD CUTS AND ASPHALT TIE IN POINTS AS PER CITY OF OTTAWA STANDARDS (R10).
- PROVIDE LINE/PARKING PAINTING.
- CONTRACTOR TO PROVIDE THE CONSULTANT WITH A GENERAL PLAN OF SERVICES INDICATING ALL SERVING AS-BUILT INFORMATION SHOWN ON THIS PLAN. AS-BUILT INFORMATION MUST INCLUDE: PIPE MATERIAL, SIZE, LENGTHS, SLOPE, INVERT AND ELEVATION, STRUCTURE LOCATIONS, VALVE AND HYDRANT LOCATIONS, TWM ELEVATIONS AND ANY ALIGNMENT CHANGES, ETC.

BENCHMARK INFO:

JOB BENCHMARK No. 1 CUT CROSS ON CONCRETE BASE OF LIGHT STANDARD NEAR NORTH-EAST CORNER THE INTERSECTION OF PRINCE OF WALES DRIVE AND LODGE ROAD. ELEVATION = 87.07m.

JOB BENCHMARK No. 2 MAGNETIC NAIL AT EAST EDGE OF EXISTING LODGE ROAD. ELEVATION = 84.70m.

REFER TO THE OLS PLAN OF SURVEY (DRAWING 18062-18) BY ADZ FOR SPECIFIC DETAILS.

SEWER NOTES:

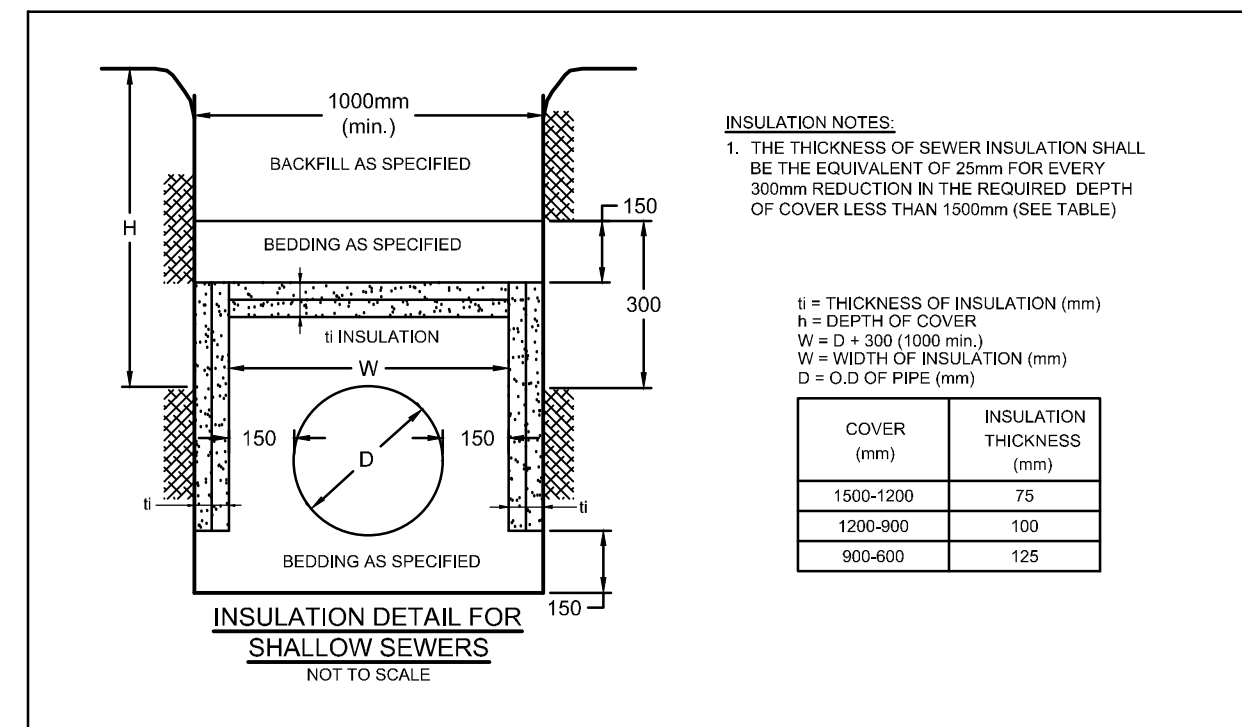
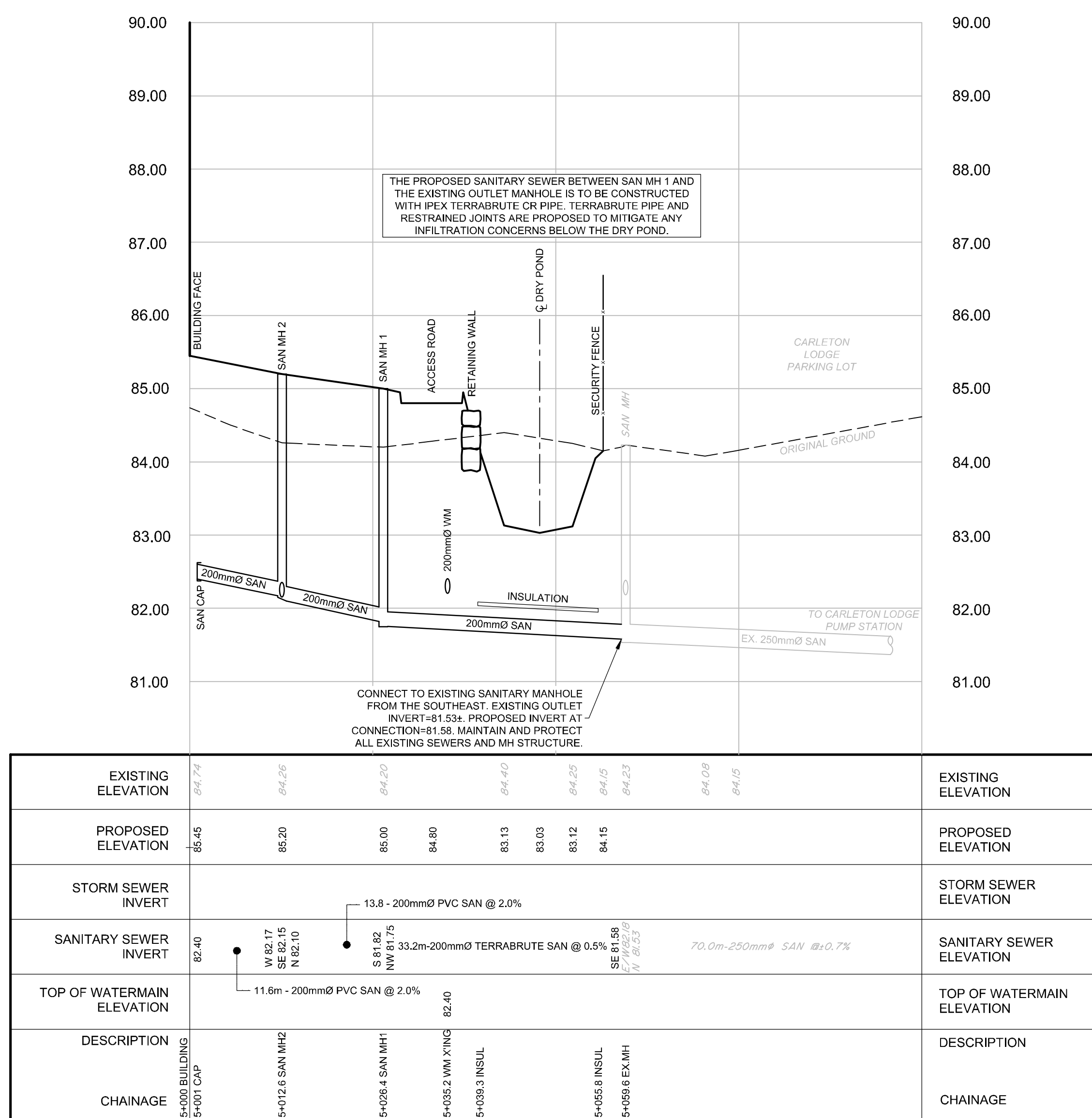
- SUPPLY AND CONSTRUCT ALL SEWERS AND APPURTENANCES IN ACCORDANCE WITH THE MOST CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS.
- SPECIFICATIONS:

ITEM	SPEC. NO.	REFERENCE
CATCHBASIN (600x600mm)	705.010	OPSD
STORM / SANITARY MANHOLE (1200mm)	701.010	OPSD
CB FRAME & COVER	400.020	OPSD
STORM / SANITARY MH FRAME & COVER	401.010	OPSD
WATERTIGHT MH FRAME AND COVER	401.020	OPSD
SEWER TRENCH	58	CITY OF OTTAWA
STORM SEWER	PVC DR 35	
SANITARY SEWER	PVC DR 35	
SANITARY SEWER BELOW DRY POND	PVC DR 35	
CATCHBASIN LEAD	PVC DR 35	
- ALL STORM AND SANITARY SERVICE LATERALS SHALL BE EQUIPPED WITH BACKFLOW PREVENTION DEVICES AS PER THE CITY OF OTTAWA STANDARD DETAILS S14 AND S14.1 OR S14.2.
- INSULATE ALL PIPES (SAN/STM) THAT HAVE LESS THAN 1.5m COVER WITH H140 INSULATION PER INSULATION DETAIL FOR SHALLOW SEWERS. PROVIDE 150mm CLEARANCE BETWEEN PIPE AND INSULATION.
- SEWERS ARE TO BE CONSTRUCTED TO 1.0m FROM FACE OF BUILDING AT A MINIMUM SLOPE OF 1.0%.
- PIPE BEDDING, COVER AND BACKFILL ARE TO BE COMPACTED TO AT LEAST 95% OF THE STANDARD PROCTOR MAXIMUM DRY DENSITY. THE USE OF CLEAR CRUSHED STONE AS A BEDDING LAYER SHALL NOT BE PERMITTED.
- FLEXIBLE CONNECTIONS ARE REQUIRED FOR CONNECTING PIPES TO MANHOLES (FOR EXAMPLE KOR-SEAL, PSX, POSITIVE SEAL AND DUKSEAL). THE CONCRETE CRIBLE FOR THE PIPE CAN BE ELIMINATED.
- THE OWNER SHALL REQUIRE THAT THE SITE SERVING CONTRACTOR PERFORM FIELD TESTS FOR QUALITY CONTROL OF ALL SANITARY SEWERS. LEAKAGE TESTING SHALL BE COMPLETED IN ACCORDANCE WITH OPSD 47.07.16, 47.07.16.64 AND 47.07.24. DYE TESTING IS TO BE COMPLETED ON ALL SANITARY SERVICES TO CONFIRM PROPER CONNECTION TO THE SANITARY SEWER MAIN. THE FIELD TESTS SHALL BE PERFORMED IN THE PRESENCE OF A CERTIFIED PROFESSIONAL ENGINEER WHO SHALL SUBMIT A CERTIFIED COPY OF THE TEST RESULTS.
- ALL STORM MANHOLES AND CATCHBASIN MANHOLES ARE TO HAVE 300mm SUMPS UNLESS OTHERWISE INDICATED. ALL CATCHBASINS ARE TO HAVE 600mm SUMPS UNLESS OTHERWISE INDICATED.
- ALL CATCHBASINS, MANHOLES AND/OR CATCHBASIN MANHOLES THAT ARE TO HAVE ICD'S INSTALLED WITHIN THEM ARE TO HAVE 600mm SUMPS.
- ALL WEAVING TILE CONNECTIONS ARE TO BE MADE TO THE PROPOSED STORM SEWER SYSTEM DOWNSTREAM OF ANY INLET CONTROL DEVICES.
- CONTRACTOR TO TELEVIEW (CCTV) ALL PROPOSED SEWERS, 200mm OR GREATER PRIOR TO BASE COURSE ASPHALT. UPON COMPLETION OF CONTRACT, THE CONTRACTOR IS RESPONSIBLE TO FLUSH AND CLEAN ALL SEWERS & APPURTENANCES. PROVIDE COPY OF CCTV INSPECTION REPORT TO THE ENGINEER.

LEGEND

SAN MH	PROPOSED SANITARY MH & SEWER	PROPERTY LINE	PROPERTY LINE
CB MH	PROPOSED CATCHBASIN MANHOLE c/w 3.0m RADIAL SUBSANS PER DETECH	SAN MH	EXISTING CONCRETE CURB
STM MH	PROPOSED STORM MANHOLE & SEWER	CB MH	EXISTING SANITARY MANHOLE AND SEWER
CB	PROPOSED CATCHBASIN c/w 3.0m RADIAL SUBSANS PER DETECH	STM MH	EXISTING STORM MANHOLE AND SEWER
HYD	PROPOSED HYDRANT AND VALVE	CB	EXISTING CATCHBASIN C/W CATCHBASIN LEAD
DC	PROPOSED DEPRESSION CURB	HYD	EXISTING HYDRANT
200mm	PROPOSED WATERMAIN AND DIAMETER	EX UP	EXISTING UTILITY POLE C/W DUT WINGS
VB	PROPOSED VALVE AND VALVEBOX	200mm	EXISTING WATERMAIN
BEND	PROPOSED BEND AND THRUSTBLOCK 11.25°, 22.5°, 45° or TEE	HYD	EXISTING HYDRANT C/W VALVE & LEAD
C	PROPOSED CAP	1.5	EXISTING LIGHT STANDARD
ICD	PROPOSED INLET CONTROL DEVICE	EXISTING	EXISTING OVERHEAD UTILITY WINGS
RD	ROOF DRAIN	W	PROPOSED WATER METER AND REMOTE METER
	THERMAL INSULATION FOR SHALLOW SEWERS	G	PROPOSED GAS METER
	PROPOSED BUILDING ENTRANCE		CONCRETE HEADWALLS
	PROPOSED RETAINING WALL		
	PROPOSED STORMWATER QUALITY TREATMENT UNIT		

RIDEAU RIVER



Keyplan:

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DRAFT
NOT FOR CONSTRUCTION

1	OCT 3/19	ISSUED FOR R/S DESIGN
2	OCT 10/19	REVISED PER CITY COMMENTS

DATE REVISION NOTE

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Stamp:

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Owner / Developer: **CITY OF OTTAWA**
110 LAURIER AVENUE WEST,
OTTAWA ON K1P 1J1

Architect: **COLLIERS PROJECT LEADERS INC.**
150 BABELLA STREET, SUITE 700,
OTTAWA ON K1S 1V7

Project: **SOUTH PHASE A**
3505 PRINCE OF WALES DRIVE,
OTTAWA ON

Title: **SANITARY OUTLET PLAN and PROFILE**

Scale: As Noted Sheet No.:
Date: 22 April, 2019
Job No.: 118043 Civil
Drawn By: SM - Novatech
Checked By: FST - Novatech
Approved By: CJS - Novatech

C-302

CITY PLAN # 17973

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