

EXTENDICARE (CANADA) INC.

**1001 NOELLA LECLAIR WAY  
AND 4200 INNES ROAD, OTTAWA, ON  
PROPOSED EXTENDICARE HOME ORLEANS  
SERVICING REPORT**

FEBRUARY 17, 2023  
1<sup>ST</sup> SUBMISSION







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AND 4200 INNES ROAD,  
OTTAWA, ON  
PROPOSED EXTENDICARE  
HOME ORLEANS  
SERVICING REPORT**

EXTENDICARE (CANADA) INC.

SITE PLAN APPLICATION  
1ST SUBMISSION

PROJECT NO.: 221-12376-00  
DATE: FEBRUARY 2023

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# TABLE OF CONTENTS

<b>1</b>	<b>GENERAL.....</b>	<b>11</b>
1.1	Executive summary.....	11
1.2	Date and revision number .....	12
1.3	Location map and plan .....	13
1.4	Adherence to zoning and related requirements .....	14
1.5	Pre-Consultation meetings.....	14
1.6	Higher level studies .....	14
1.7	Statement of objectives and servicing criteria.....	15
1.8	Available existing and proposed infrastructure .....	15
1.9	Environmentally significant areas, watercourses and municipal drains .....	16
1.10	Concept level master grading plan .....	16
1.11	Geotechnical study .....	16
<b>2</b>	<b>WATER DISTRIBUTION .....</b>	<b>17</b>
2.1	Consistency with master servicing study and availability of public infrastructure.....	17
2.2	System constraints and boundary conditions.....	17
2.3	Confirmation of adequate domestic supply and pressure	18
2.4	Confirmation of adequate fire flow protection.....	19
2.5	Check of high pressure.....	20
2.6	Reliability requirements .....	20
2.7	Capability of major infrastructure to supply sufficient water .....	20
2.8	Description of proposed water distribution network....	20
2.9	Off-site requirements .....	20
2.10	Calculation of water demands .....	20
2.11	Model Schematic .....	20



<b>3</b>	<b>WASTEWATER DISPOSAL.....</b>	<b>21</b>
<b>3.1</b>	<b>Design Criteria.....</b>	<b>21</b>
<b>3.2</b>	<b>Consistency with master servicing study .....</b>	<b>21</b>
<b>3.3</b>	<b>Description of existing sanitary sewer .....</b>	<b>21</b>
<b>3.4</b>	<b>Verification of available capacity in downstream sewer</b>	<b>22</b>
<b>3.5</b>	<b>Calculations for new sanitary sewer .....</b>	<b>22</b>
<b>3.6</b>	<b>Description of proposed sewer network.....</b>	<b>22</b>
<b>4</b>	<b>SITE STORM SERVICING .....</b>	<b>23</b>
<b>4.1</b>	<b>Existing condition .....</b>	<b>23</b>
<b>4.2</b>	<b>Analysis of available capacity in public infrastructure</b>	<b>23</b>
<b>4.3</b>	<b>Drainage drawing .....</b>	<b>23</b>
<b>4.4</b>	<b>Water quantity control objective.....</b>	<b>23</b>
<b>4.5</b>	<b>Water quality control objective .....</b>	<b>24</b>
<b>4.6</b>	<b>Design criteria .....</b>	<b>24</b>
<b>4.7</b>	<b>Proposed minor system.....</b>	<b>24</b>
<b>4.8</b>	<b>Watercourses .....</b>	<b>24</b>
<b>4.9</b>	<b>Pre and Post development peak flow rates .....</b>	<b>24</b>
<b>4.10</b>	<b>Diversion of drainage catchment areas .....</b>	<b>25</b>
<b>5</b>	<b>SEDIMENT AND EROSION CONTROL .....</b>	<b>26</b>
<b>5.1</b>	<b>General .....</b>	<b>26</b>
<b>6</b>	<b>APPROVAL AND PERMIT REQUIREMENTS .....</b>	<b>27</b>
<b>6.1</b>	<b>General .....</b>	<b>27</b>
<b>7</b>	<b>CONCLUSION CHECKLIST .....</b>	<b>28</b>
<b>7.1</b>	<b>Conclusions and recommendations.....</b>	<b>28</b>



**7.2 Comments received from review agencies ..... 28**

**TABLES**

TABLE 2-1: BOUNDARY CONDITIONS (STANTEC SERVICING REPORT) ..... 17

TABLE 2-2: STANTEC HYDRAULIC MODELLING RESULTS (STANTEC SERVICING REPORT)..... 18

TABLE 2-3: BOUNDARY CONDITIONS (STANTEC SERVICING REPORT) ..... 18

TABLE 2-2: WATER DEMAND ..... 18

**FIGURES**

FIGURE 1-1 SITE LOCATION ..... 13

FIGURE 1-2 SITE PLAN ..... 14

**APPENDICES**

**A**

- PRE-CONSULTATION MEETING NOTES
- TOPOGRAPHIC SURVEY PLAN
- ARCHITECTURAL SITE PLAN
- EXCERPTS OF SITE SERVICING STUDY BY STANTEC
- APPROVED SUBDIVISION DRAWINGS BY STANTEC

**B**

- WATERMAIN BOUNDARY CONDITIONS FROM CITY OF OTTAWA
- EMAILS FROM CITY OF OTTAWA
- FIRE UNDERWRITERS SURVEY - FIRE FLOW CALCULATION
- WATER DEMAND CALCULATION

**C**

- STORM DRAINAGE AREA PLAN



- STORM SEWER DESIGN SHEET
- D**
- EROSION AND SEDIMENT CONTROL PLAN
- E**
- SUBMISSION CHECK LIST

# 1 GENERAL

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## 1.1 EXECUTIVE SUMMARY

WSP was retained by Extencicare (Canada) Inc. to provide servicing and grading design services for the proposed Extencicare home development for a proposed 4 storey building, located at 1001 Noella Leclair Street and 4200 Innes Road, in the Orleans II Subdivision, south of Innes Road and east of Mer-Bleue Road. The construction of sewers and base course asphalt is underway on the future Noella Leclair Street and Lady Pellatt Street, on which the Extencicare property will front. All services for the Extencicare home will be available from the future Noella Leclair Street and Lady Pellatt Street. The subject development is bounded by the Orleans II Subdivision. This report outlines findings and calculations pertaining to the servicing of the proposed development with a gross lot area of 1.62 ha.

The proposed Extencicare home is a 4-storey building with 256 beds for long-term care with gross building area of 14,261m<sup>2</sup> and building height of 18.4m which is located at the central west of the subjected site. To the north, east and south of the proposed building, there will be outdoor parking area.

The surrounding neighbourhood is being developed by Innes Shopping Centres Limited, with the Stantec Consulting Ltd., providing engineering design services. Information regarding the proposed municipal services was provided by Stantec, as described in Site Servicing and Stormwater Management Report – Orleans II Draft Plan of Subdivision, Project 160401419 dated April 12, 2018. Excerpts from the report are provided in Appendix A of this report for reference.

Currently the land proposed for the building abuts the future Noella LeClair Way extension and Lady Pellatt Street which are located to the west and south of the subject site. The future design of the property in the vicinity of the future collector roads slopes from northwest to southeast towards the future Lady Pellatt Street. And the subjected land is vacant and primarily grass covered. The total study area is 1.62 ha in size. It is part of lot 1, concession 11, geographic township of Cumberland, now City of Ottawa. Based on the topographic survey, the site is slopping from the northwest corner to the southeast corner and will be draining toward future Lady Pellatt Street and Vanguard Drive Intersection to the east. The proposed piped stormwater system within Orleans II Subdivision development conveys drainage to the existing 1350mm diameter storm sewer stub at the northern boundary of the subdivision and northwest corner of the site.

As per the Orleans II Subdivision Site Servicing and Stormwater Management Report by Stantec Consulting Ltd., the following criteria apply:

- Proposed development to discharge the existing 1350mm diameter storm sewer at the north of existing Noella LeClair Way.
- Minor system inflow to be restricted for all privately owned contributing areas to 50L/s/ha.
- Building openings to be a minimum of 0.30m above the 100-year water level.
- Sites to provide minimum storage of 200 m<sup>3</sup>/ha or sufficient storage to contain 100-year storm event on-site, whichever is greater.
- Maximum depth of flow under either static or dynamic conditions shall be less than 0.35m.
- Provide adequate emergency overflow conveyance off-site.

On-site quality control measures are expected for the proposed development site. It is assumed that enhanced protection (80% removal of suspended solids for the downstream Bilberry Creek) will be required. The downstream SWMF additionally provides quality control to normal protection criteria (70% TSS removal).

The City of Ottawa required that the design of a drainage and stormwater management system in this development must be prepared in accordance with the following documents:

- Sewer Design Guidelines, City of Ottawa, October 2012;
- Stormwater Management Planning and Design Manual, Ministry of the Environment, March 2003; and
- Stormwater Management Facility Design Guidelines, City of Ottawa, April 2012.

This report was prepared utilizing servicing design criteria obtained from available sources, and outlines the design for water, sanitary wastewater, and stormwater facilities.

The format of this report matches that of the servicing study checklist found in Section 4 of the City of Ottawa's Servicing Study Guidelines for Development Applications, November 2009.

The following municipal services are available within 864 Lady Ellen Place as recorded from as-built drawings from City of Ottawa:

Existing Noella LeClair Way:

- 1350mm storm sewer, 525mm storm stub (for subjected site) and 300mm watermain.

Future Noella LeClair Way (South Extension):

- 1200mm storm sewer, 375mm sanitary sewer and 300mm watermain.

Future Lady Pellatt Street:

- 1050mm storm sewer, 375mm sanitary sewer and 300mm watermain.

It is proposed that:

- On-site stormwater management systems, employing surface and roof storage will be provided to attenuate flow rates. Existing drainage patterns, previously established controlled flow rates and storm sewers will be maintained. Refer to the stormwater management report for details.
- The subject site maintains emergency overland flow routes for flows deriving from storm events in excess of the maximum design event to the proposed municipal rights-of-way at the southern and eastern boundaries of the subdivision development, and ultimately to the future Vanguard Drive extension as depicted in Stantec Drawing GP-1, which attached to Appendix A for reference.

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## 1.2 DATE AND REVISION NUMBER

This version of the report is the first revision, dated February 17, 2023.

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### 1.3 LOCATION MAP AND PLAN

The proposed residential development is located at 360 Kennedy Lane East, in the City of Ottawa at the location shown in Figure 1-1 below.



**Figure 1-1 Site Location**



- Technical Bulletin ISDTB-2018-01 (21 March 2018)
- Technical Bulletin ISDTB-2018-04 (27 June 2018)
- Ottawa Design Guidelines – Water Distribution, July 2010 (WDG001), including:
  - Technical Bulletin ISDTB-2014-02 (May 27, 2014)
  - Technical Bulletin ISTB-2018-02 (21 March 2018)
- Stormwater Management Planning and Design Manual, Ontario Ministry of the Environment and Climate Change, March 2003 (SMPDM).
- Design Guidelines for Drinking-Water Systems, Ontario Ministry of the Environment and Climate Change, 2008 (GDWS).
- Fire Underwriters Survey, Water Supply for Public Fire Protection (FUS), 2020.

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## 1.7 STATEMENT OF OBJECTIVES AND SERVICING CRITERIA

The objective of the site servicing is to meet the requirements for the proposed modification of the site while adhering to the stipulations of the applicable higher-level studies and City of Ottawa servicing design guidelines.

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## 1.8 AVAILABLE EXISTING AND PROPOSED INFRASTRUCTURE

Existing storm sewers and a watermain stubs have been provided from Noella LeClair Way to the northwest corner of the site. The proposed municipal 375mm sanitary sewer will be extended south toward future Lady Pellatt Street. And it will continue to the east toward future Vanguard Drive. The existing 250mm sanitary sewers running across the site from west to east would be abandoned following commissioning of new 375mm sanitary sewer. A sanitary connection to the 375mm sanitary sewer along Lady Pallet Street will be made near the proposed south entrance of the site from the proposed building mechanical room. The mechanical room is located at the basement level of the building under the main entry lobby, two water services connection would be required for redundancy, one is connecting to the future 300mm watermain along the future Noella LeClair Way and the other is connecting to the future 300mm watermain along future Lady Pellatt Street.

The storm sewers flow from south to north across the site will be connected to the existing 525 mm stub at the northwest corner of the site, and discharge to the existing 1350mm storm flows toward Innes Road to the north. Ultimately, the storm flows from existing Noella LeClair Way (servicing the Extendicare site) to the Innes Road storm sewer are intended to be directed to a downstream SWMF that will provide additionally provides quality control to normal protection criteria and including the school site. Quantity control is required to restrict the discharge for all events up to a 100-year event to the flow rate provided by Stantec.

The works provided by the subdivision developer have already taken the stormwater, wastewater and water consideration from the subject site into account, and all work within the right of way, excluding the driveway entrances.

Site accesses for vehicles during construction will be provided from the two entrances connecting future Noella Leclair Way extension and future Lady Pellatt Street south of the site. The entrance close to the existing Noella LeClair Way intersection at the northwest corner of the site would be a busy traffic intersection. Thus, this entrance is not recommended to use as site access. All three entrances being provided are two-way entrances for post construction.

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## **1.9 ENVIRONMENTALLY SIGNIFICANT AREAS, WATERCOURSES AND MUNICIPAL DRAINS**

The proposed development site is bordered by commercial land to the east, south and west. There are no watercourses, municipal drains or environmentally significant areas on the site, but currently there are areas of environment significance on adjacent properties. The status of these areas will be changing as the area is developed. The building program proposed for the site is not subject to any restrictions associated with the surrounding lands..

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## **1.10 CONCEPT LEVEL MASTER GRADING PLAN**

The existing and proposed grading are shown on Drawings C001 - Grading Plan. Existing grading was identified in a topographic survey and is noted in the background of Drawings C001. The proposed grading will be reviewed by the geotechnical engineer. The geotechnical investigation was completed on June 29, 2022, by Pinchin Ltd. The grading along the site boundaries bordering Orleans II Subdivision lands have been coordinated with Stantec Consulting Ltd. The site topographic survey provides evidence of direction of overland flow of the site. Minor grade changes will be made to grades at the proposed entrances.

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## **1.11 GEOTECHNICAL SUTDY**

A geotechnical investigation report has been prepared by Pinchin Ltd. (Geotechnical Investigation – Proposed Residential Development, June 29, 2022), and its recommendations have been taken into account in developing the engineering specifications.



## 2 WATER DISTRIBUTION

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### 2.1 CONSISTENCY WITH MASTER SERVICING STUDY AND AVAILABILITY OF PUBLIC INFRASTRUCTURE

The proposed Orleans II subdivision will be serviced via the existing 305mm watermain at the Roger-Pharand Street and Noella LeClair Way intersection, northwest corner of the development site, which is fed from the 406mm watermain within Mer Bleue Road and the 610mm watermain on Innes Road. This existing 305mm watermain will be extended south along the Noella LeClair Way south extension, then turn east toward future Vanguard Drive via future Lady Pellatt Street.

This new 305mm diameter municipal watermain looping connecting Noella LeClair Way and Vanguard Drive will provide water to the property. The new Extencicare building will be protected with a supervised automatic fire protection sprinkler system and will require a dual 203mm diameter water services. The fire department connection is located at the south of the 4-storey building near the main entrance fronting to future Lady Pellatt Street. It is 45m away from the proposed municipal FHs near the intersection of future Noella LeClair Way and Lady Pellatt Street. No further modification is required to the proposed municipal water distribution system to allow servicing for this property.

Two connections will be made to the proposed 305mm diameter municipal watermain on Noella LeClair Way and Lady Pellatt Street from the proposed development site. The Dual 203mm diameter private watermain services connecting to the proposed 305mm municipal watermain will provide redundancy for the Extencicare building. The dual 203mm dia. water services will be extended to the building mechanical room.

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### 2.2 SYSTEM CONSTRAINTS AND BOUNDARY CONDITIONS

Boundary conditions have been provided by the City of Ottawa at two locations, Mer Bleue - Roger-Pharand Street intersection and Inness Road - Wildflower Drive intersection. A maximum fire flow of 183 l/s (10,980 l/min) was estimated for the Orleans II subdivision from the hydraulic model provided by Stantec. The Stantec hydraulic modelling indicated the hydraulic pressure for different scenario conditions are shown below, based on fire flows and domestic demands estimated by Stantec for the proposed long term care land.

**Table 2-1: Boundary Conditions (Stantec Servicing Report)**

BOUNDARY CONDITIONS		
SCENARIO	Head (m) @ Connection 1	Head (m) @ Connection 2
Maximum HGL	130.8	130.6
Minimum HGL (Peak Hour)	128.2	128.0
Max Day + Fire Flow	128.0	127.3

**Table 2-2: Stantec Hydraulic Modelling Results (Stantec Servicing Report)**

Hydraulic Modelling Results @ Junction 13 and 15		
SCENARIO	Hydraulic Pressure (kPa) @ 13	Hydraulic Pressure (kPa) @ 15
Maximum HGL	409.21	409.48
Minimum HGL (Peak Hour)	370.22	364.73
Max Day + Fire Flow	137.96	137.90

An updated boundary conditions have also been provided by the City of Ottawa at two locations, Roger-Pharand Street - Noella LeClair Way intersection and Lanthier Drive - Vanguard Drive intersection. A revised fire flow of 117 l/s (7,020 l/min) was estimated for the proposed Extencicare Building with using the FUS 2020 calculation method.

**Table 2-3: Boundary Conditions (Stantec Servicing Report)**

BOUNDARY CONDITIONS		
SCENARIO	Head (m) @ Connection 1	Head (m) @ Connection 2
Maximum HGL	130.3	130.3
Minimum HGL (Peak Hour)	126.7	126.2
Max Day + Fire Flow	128.1	127.5

---

## 2.3 CONFIRMATION OF ADEQUATE DOMESTIC SUPPLY AND PRESSURE

Water demands are based on Table 4.2 of the Ottawa Design Guidelines – Water Distribution. As previously noted, the development is considered as residential development, consisting of 256 beds long-term care home in a 4-storey building. A water demand calculation sheet is included in Appendix C, and the total water demands are summarized as follows:

**Table 2-4: Water Demand**

Domestic Water Demand			
SCENARIO	Avg Daily	Max Daily	Max Hourly
Commercial	1.33	2.00	3.60

The 2010 City of Ottawa Water Distribution Guidelines stated that the preferred practice for design of a new distribution system is to have normal operating pressures range between 345 kPa (50 psi) and 552 kPa (80 psi) under maximum daily flow conditions. Other pressure criteria identified in the guidelines are as follows:

Minimum Pressure      Minimum system pressure under peak hour demand conditions shall not be less than 276 kPa (40 psi)

Fire Flow                During the period of maximum day demand, the system pressure shall not be less than 140 kPa (20 psi) during a fire flow event.

Maximum Pressure      Maximum pressure at any point the distribution system shall not exceed 689 kPa (100 psi). In accordance with the Ontario Building/Plumbing Code, the maximum pressure should not exceed 552 kPa (80 psi). Pressure reduction controls may be required for buildings where it is not possible/feasible to maintain the system pressure below 552 kPa.

Water pressure at municipal connection check:

Min. HGL @ Connection 1 – Pavement elevation = 126.7m – 88.45m = 38.25m = 375.01 kPa

Min. HGL @ Connection 2 – Pavement elevation = 126.2m – 88.44m = 37.76m = 370.20 kPa

Water pressure at building connection (at average day) check:

Max. HGL @ Connection 1 – Finished floor elevation = 130.3m – 89.18 = 41.12m = 403.15 kPa

Max. HGL @ Connection 2 – Finished floor elevation = 130.3m – 89.18 = 41.12m = 403.15 kPa

Water pressure at building connection (at max. hour demand) check:

Min. HGL @ Connection 1 – Finished floor elevation = 126.7m-89.18m = 37.52m = 367.85 kPa

Min. HGL @ Connection 2 – Finished floor elevation = 126.2m-89.18m = 37.02m = 362.95 kPa

Water pressure at building connection (at max. day + fire demand):

(Max Day + Fire) HGL @ Connection 1 - Finished floor elevation = 128.1m-89.18m = 38.92m = 381.58 kPa

(Max Day + Fire) HGL @ Connection 2 - Finished floor elevation = 127.5m-89.18m = 38.32m = 380.60 kPa

The minimum water pressure inside the building at the connection is determined with the minimum HGL condition, resulting in a pressure of 367.85-367.95 kPa which exceed the minimum requirement of 276 kPa per the guidelines.

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## 2.4 CONFIRMATION OF ADEQUATE FIRE FLOW PROTECTION

The fire flow rate has been calculated using the Fire Underwriters Survey (FUS) method. The method takes into account the type of building construction, the building occupancy, the use of sprinklers and the exposures to adjacent structures. Assuming non-combustible construction and a fully supervised sprinkler system, a fire flow demand of 117 l/s (7,000 l/min) for the new Extencicare building has been calculated. Copy of the FUS calculations are included in Appendix B.

The demand of 7,000 l/min can be delivered through two municipal fire hydrants. The two proposed public hydrants are located north of the Noella LeClair Way and Lady Pellatt Street intersection close to the southwest corner of the site, and the other one is south of the proposed building on Lady Pellatt Street. It is within 55 m of the FDC and is rated at 3800 l/min each. The one on Noella LeClair Way is within 45 m of the building FDC, and is rated at 5700 l/min. The two hydrants have a combined total of 9,500 l/min.

The two hydrants have a combined total of 9,500 l/min. The proposed building on site will be serviced by dual 203 mm services off the proposed 305 mm watermain from Noella LeClair Way and Lady Pellatt Street. The services will run into the water entry room. The proposed building will be fully sprinklered and fire protection will be provided with the fire department Siamese connection within 45 m of the municipal fire hydrant from Noella LeClair Way. The Siamese connection is located on the south side of the building next to the main entrance.

The boundary condition for Maximum Day and Fire Flow results in a pressure of 381.58-381.60 kPa at the ground floor level. In the guidelines, a minimum residual pressure of 140 kPa must be maintained in the distribution system for a fire flow and maximum day event. As a pressure of 381.58-380.60 kPa is achieved, the fire flow requirement is exceeded.

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## 2.5 CHECK OF HIGH PRESSURE

High pressure is not a concern. The maximum water pressure inside the building at the connection is determined with the maximum HGL condition, resulting in a pressure of 403.15 kPa which is less than the 552 kPa threshold in the guideline in which pressure control is required. Based on this result, pressure control is not required for this building.

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## 2.6 RELIABILITY REQUIREMENTS

Shot off valves will be provided at each service lateral at the boundary from Noella LeClair Way and Lady Pellatt Street. Water can be supplied to the service laterals from both direction of Noella LeClair Way and Lady Pellatt Street and can also be isolated. Refer to servicing plan C002 for details.

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## 2.7 CAPABILITY OF MAJOR INFRASTRUCTURE TO SUPPLY SUFFICIENT WATER

The proposed infrastructure for the Orleans II Subdivision is capable of meeting the domestic demand based on City requirements and fire demand as determined by FUS requirements for the proposed residential units.

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## 2.8 DESCRIPTION OF PROPOSED WATER DISTRIBUTION NETWORK

Two 203mm private water services are proposed to provide domestic and fire demand for the proposed building. The two 203 mm private water services will be merge inside the building before connecting to the water meter. No private hydrant is required for this site.

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## 2.9 OFF-SITE REQUIREMENTS

No off-site improvements to watermains, feeder mains, pumping stations, or other water infrastructure are required to maintain existing conditions and service the adjacent buildings, other than the connection of the new private watermain to the City watermain in the south frontage of the site.

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## 2.10 CALCULATION OF WATER DEMANDS

Water demands were calculated as described in Sections 2.3 and 2.4 above and is also attached in Appendix B.

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## 2.11 MODEL SCHEMATIC

The water works consist dual building services; a model schematic is not required for this development.

## 3 WASTEWATER DISPOSAL

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### 3.1 DESIGN CRITERIA

In accordance with the City of Ottawa's Sewer Design Guidelines, the following design criteria have been utilized in order to predict wastewater flows generated by the subject site and complete the sewer design.

• Minimum Velocity	0.6 m/s
• Maximum Velocity	3.0 m/s
• Manning Roughness Coefficient	0.013
• Total est. hectares residential use	1.62
• Average sanitary flow for residential use	280 l/cap/day
• Average sanitary flow for long term care use	450 l/bed/day
• Number of beds	256 beds
• Commercial/Light Industrial Peaking Factor	1.5
• Infiltration Allowance (Total)	0.33 l/s/ha
• Minimum Sewer Slopes – 200 mm diameter	0.32%

The area of 1.62 ha represents the lot area of the new building and immediate surrounding area to the sides of the new building. This is the sanitary collection area that is being considered to contribute to the new 200mm sanitary service extending from the proposed 375mm sanitary sewer on Lady Pellatt Street to the new building.

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### 3.2 CONSISTENCY WITH MASTER SERVICING STUDY

The outlet for the private sanitary lateral is the 375 mm diameter municipal sewer on lady Pellatt Street.

The Ottawa Sewer Design Guidelines provide estimates of sewage flows based on commercial development. The anticipated average daily flow based on a 256 beds long term care home is 1.33 l/s. Applying the peaking factor of 1.5, and adding the extraneous flow, the estimated ultimate peak flow is 2.53 l/s.

- Long term care  $450 \text{ l/bed/day} \times 256 = 1.33 \text{ l/s}$
- Peak flow =  $(450 \text{ l/bed/day} \times 256 \times 1.5 \text{ peaking factor}) + 0.33 \text{ l/ha/s} \times 1.62 \text{ ha} = 2.53 \text{ l/s}$

The on-site sanitary sewer network has been designed in accordance with 2.53 l/s as described above. Illustration of the proposed sanitary network can be found on the site servicing plan.

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### 3.3 DESCRIPTION OF EXISTING SANITARY SEWER

The outlet sanitary sewer is the proposed 375mm diameter sewer on Lady Pellatt Street. This local sewer will outlet to an existing 525mm diameter sanitary sewer at the intersection of Lanthier Drive and vanguard Drive, and ultimately to the Tenth Line Road pumping station. A 250mm sewer was previously installed through the development site from the proposed subdivision to service earlier phases of the Orleans II site plan development. It is proposed to make a new connection to the 375mm sewer and extend the sanitary sewer along the proposed municipal roadways within the subdivision to the existing sanitary manhole (Ex. SAN 14) immediately north of the subdivision lands. The new sewer will provide a sanitary outlet for all of the proposed subdivision blocks including the development site. Once the new sanitary sewer has been commissioned, the existing 250mm sewer running through the development site will be abandoned. The subdivision lands and proposed land uses form part of the previously approved drainage area to the existing Tenth Line Road Pump Station.

---

### 3.4 VERIFICATION OF AVAILABLE CAPACITY IN DOWNSTREAM SEWER

The capacity of the receiving 375 mm diameter sanitary sewer on Lady Pellatt Street at 0.20% slope is 78.41 l/s, which is adequate for the flow assumptions from the proposed development. And the flow from the existing sanitary sewer upstream of Lady Pellatt Street has a total flow of 11.56 l/s. The downstream sanitary sewer will carry over the discharge from the subjected site and the upstream areas, a total flow of 14.09 l/s is anticipated. The proposed sewer was designed by Stantec to service the proposed 1.62 ha of Extencicare land.

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### 3.5 CALCULATIONS FOR NEW SANITARY SEWER

The 200 mm diameter sanitary service from the sanitary monitoring manhole 200 to the building will have a slope of 1.0 %, and a capacity of 32.80 l/s, with a velocity of 1.04 m/s. The 200 mm diameter sanitary service from the sanitary monitoring manhole 200 to the SANMH201 then to the proposed 375mm sanitary sewer on Lady Pellatt Street have a slope of 0.50%, and a capacity of 23.19 l/s with a velocity of 0.74 m/s. The servicing pipe capacity exceeds the estimated peak sanitary flow rate of 2.53 l/s for the proposed development site.

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### 3.6 DESCRIPTION OF PROPOSED SEWER NETWORK

The proposed sanitary sewer network on site will consist of 200 mm diameter building service, and two new 1200 mm diameter manholes.

## 4 SITE STORM SERVICING

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### 4.1 EXISTING CONDITION

The subjected property is located within the Orleans II Subdivision Development area east of future Noella LeClair Way extension and north of future Lady Pellatt Street. Most runoff from the Extendicare land is ultimately directed to a 1350 mm diameter trunk storm sewer which runs south to north along Noella LeClair Way. The 1350 mm diameter storm sewer ultimately outlets to the stormwater management facility. The available drainage outlet from the school site is the existing 525 mm diameter concrete storm sewer, located in the northwest corner of the site and east of Roger-Pharand Street and Noella LeClair Street intersection.

Based on the Orleans II Subdivision Servicing and SWM report, drainage released from the site to the city storm sewer is limited to 50 l/s/ha. Flow exceeding this amount up to the 100-year storm have to be retained on the site. Drainage in excess of the minor system capacity currently flows overland to the Noella LeClair Way and Lady Pellatt Street.

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### 4.2 ANALYSIS OF AVAILABLE CAPACITY IN PUBLIC INFRASTRUCTURE

The total controlled area of the site draining toward the existing 525mm diameter storm sewer is 1.472 ha. There is 0.149 ha of uncontrolled area draining toward the study boundary in all directions. The runoff from the controlled areas will discharge to a 525mm storm pipe at the intersection of Roger-Pharand Street and Noella LeClair Street which ultimately drains to the 1350mm diameter trunk sewer.

On-site attenuation to predevelopment flow is required for the purpose of advancing use of this storm outlet. Using the Rational Method, with coefficient of 0.25 for pervious areas and 0.90 for impervious areas, and a 10-minute time of concentration, results in an estimated 2-year flow of 171.38 l/s from this area. Using proposed drawings from the Orleans II Subdivision, the slope of the existing storm sewer 525 mm diameter running toward Ex.STM102 is 0.25%, which equates to a capacity in excess of 215.25 l/s. As the proposed stormwater management works for the site will reduced the runoff rate to a peak discharge at outlet equal to 39 l/s, capacity in the minor system is not a concern.

As the proposed stormwater management works for the site will restricted the 100-year flow to the pre-development 5-year runoff rate, capacity in the minor system is not a concern.

The release rate for the site is 39 l/s as calculated in the Stormwater Management Report.

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### 4.3 DRAINAGE DRAWING

Drawing C002 shows the receiving storm sewer and site storm sewer network for the site. Drawing C001 provides proposed grading and drainage and includes existing grading information. Drawing C004 provides a post-construction drainage sub-area plan. Post site sub-area information is also provided on the storm sewer design sheet attached in Appendix C.

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### 4.4 WATER QUANTITY CONTROL OBJECTIVE

Refer to the Stormwater Management Report for the water quantity objective for the site.

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## 4.5 WATER QUALITY CONTROL OBJECTIVE

On-site quality control measures are expected for the proposed development site per the previous studies. It is assumed that enhanced protection (80% removal of suspended solids for the downstream Bilberry Creek) will be required for the site. The downstream SWMF additionally provides quality control to normal protection criteria (70% TSS removal).

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## 4.6 DESIGN CRITERIA

The stormwater system was designed following the principles of dual drainage, making accommodation for both major and minor flow.

Some of the key criteria include the following:

- |                                 |  |
|---------------------------------|--|
| • Design Storm (minor system)   | 1:2-year return (Ottawa)                               |
| • Rational Method Sewer Sizing  |  |
| • Initial Time of Concentration | 10 minutes   |
| • Runoff Coefficients           |  |
| Landscaped Areas                | C = 0.25   |
| Asphalt/Concrete                | C = 0.90   |
| Traditional Roof                | C = 0.90   |
| • Pipe Velocities               | 0.80 m/s to 6.0 m/s                                    |
| • Minimum Pipe Size             | 250 mm diameter<br>(200 mm CB Leads and service pipes) |
- 

## 4.7 PROPOSED MINOR SYSTEM

The detailed design for this site will maintain the existing 525mm diameter storm sewer to the intersection of Roger-Pharand Street and Noella LeClair Street northwest of the development site. The drainage system consists of a series of manholes, catchbasins and storm sewers leading to the existing outlet manhole STMH1001 at the northwest corner of the site. All drainage areas on the site are collected in the site piped drainage system. It is also customary for larger buildings to be provided with piped storm services for roof drainage. There are no downspouts proposed. Separate outlet pipes are provided for foundation drains and roof drains, and therefore roof drainage will not negatively impact the foundation. The roof storm service is connected to the storm sewer downstream of STMH106 and CBMH105 which is downstream of the controlled flow point, ensuring an unobstructed flow for these areas. The foundation drain is connected to STMH100 from the mechanical room with back flow preventor valve inside the building. Using the above noted criteria, the proposed on-site storm sewers were sized accordingly. A detailed storm sewer design sheet and the associated post development storm sewer drainage area plan are included in Appendix C

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## 4.8 WATERCOURSES

The minor flow will be ultimately directed to the SWMF.

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## 4.9 PRE AND POST DEVELOPMENT PEAK FLOW RATES

Pre and post development peak flow rates for the site have been noted in storm sewer design sheet as well as the Stormwater Management report.



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## 4.10 DIVERSION OF DRAINAGE CATCHMENT AREAS

With the exception of a small uncontrolled area to the study limit, the development will be regraded such that all overland flow is directed to the south entrance of the site as per the Orleans II Subdivision. And the proposed overland flow route draining north to south carrying the major runoff from the other development areas within Orleans II Subdivision will be maintained. All the overland runoff will be conveyed to the future Vanguard Drive.

## 5 SEDIMENT AND EROSION CONTROL

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### 5.1 GENERAL

During construction, existing storm sewer system can be exposed to sediment loadings. A number of construction techniques designed to reduce unnecessary construction sediment loadings will be used including:

- The installation of straw bales within existing drainage features surrounding the site.
- Silt Sack will remain on open surface structures such as manholes and catchbasins until these structures are commissioned and put into use.
- Installation of silt fence, where applicable, around the perimeter of the proposed work area.

During construction of the services, any trench dewatering using pumps will be fitted with a “filter sock.” Thus, any pumped groundwater will be filtered prior to release to the existing surface runoff. The contractor will inspect and maintain the filter sock as needed including sediment removal and disposal.

All catchbasins, and to a lesser degree, manholes, convey surface water to sewers. Consequently, until the surrounding surface has been completed, these structures will be covered to prevent sediment from entering the minor storm sewer system. These measures will stay in place and be maintained during construction and build-out until it is appropriate to remove them.

During construction of any development both imported and native soils are placed in stockpiles. Mitigative measures and proper management to prevent these materials entering the sewer system are needed.

During construction of the deeper watermains and sewers, imported granular bedding materials are temporarily stockpiled on site. These materials are however quickly used up and generally placed before any catchbasins are installed.

Refer to the Erosion and Sedimentation Control Plan C003 provided in Appendix D.

## 6 APPROVAL AND PERMIT REQUIREMENTS

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### 6.1 GENERAL

The proposed development is subject to site plan approval and building permit approval.

No approvals related to municipal drains are required.

No permits or approvals are anticipated to be required from the Ontario Ministry of Transportation, National Capital Commission, Parks Canada, Public Works and Government Services Canada, or any other provincial or federal regulatory agency.

## 7 CONCLUSION CHECKLIST

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### 7.1 CONCLUSIONS AND RECOMMENDATIONS

It is concluded that the proposed development can meet all provided servicing constraints and associated requirements. It is recommended that this report be submitted to the City of Ottawa in support of the application for site plan approval.

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### 7.2 COMMENTS RECEIVED FROM REVIEW AGENCIES

This is the first submission, no city comments.

# APPENDIX

## A

- PRE-CONSULTATION MEETING NOTES
- TOPOGRAPHIC SURVEY PLAN
- ARCHITECTURAL SITE PLAN
- EXCERPTS OF SITE SERVICING STUDY BY STANTEC
- APPROVED SUBDIVISION DRAWINGS BY STANTEC

# Pre-Application Consultation – Preliminary Comments

1001 Noella Leclair Way & 4200 Innes Road | File No. PC2022-0290 | Meeting held on 14 November 2022

## Contents

Summary of Application.....	1
Planning .....	1
Urban Design.....	5
Infrastructure Engineering.....	5
Transportation Engineering .....	10
Forester .....	<b>Error! Bookmark not defined.</b>

## Summary of Application

The following summary notes and attachments are provided as a follow-up to the pre-application consultation meeting held on 14 November 2022. They are regarding a future proposed site plan control application for two vacant parcels of land addressed 1001 Noella Leclair Way and 4200 Innes Road. The proposed application is to enable the applicant to implement a 3 storey plus partial basement long - term care home, containing a total of 192 residential unit. The proposed development is planned to be placed in between 1001 Noella Leclair Way and 4200 Innes Road, at the intersection of Roger Pharand Road. The site will have access from future Vangaurd Drive. A total of 207 at-grade parking spaces are proposed on the northern, eastern, and southern portions of the lot.

Also attached is the list of required plans and studies in support of applications for site plan control approval should your client choose to formally submit them.

The following City staff preliminary comments are based upon the attached information that was made available at the time of the pre-application consultation.

## Planning

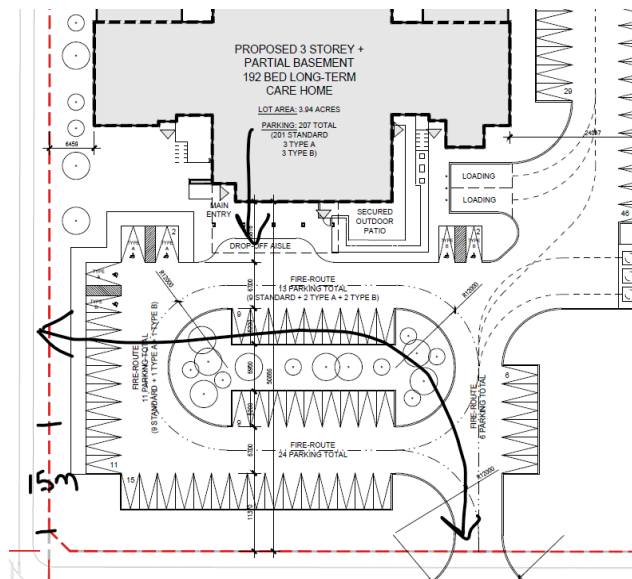
Contact: Steve Belan – Planner II | [Steve.Belan@ottawa.ca](mailto:Steve.Belan@ottawa.ca)

### Official Plan and Zoning

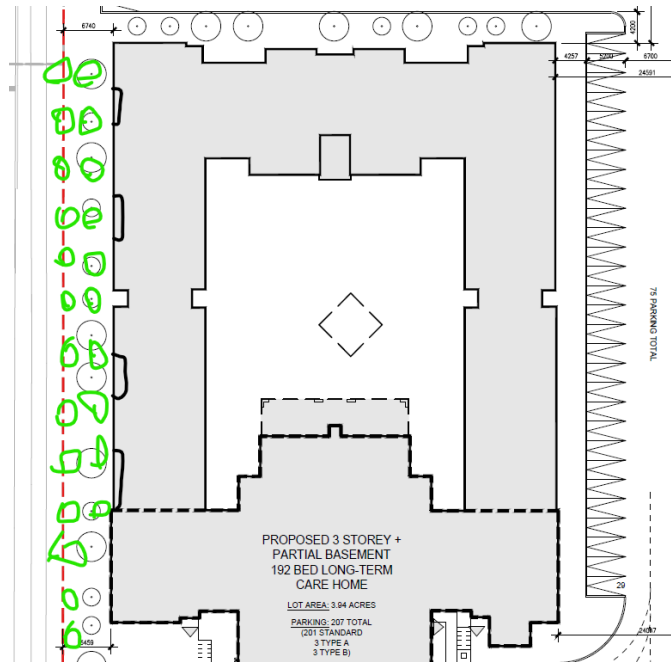
- The use is consistent with the OP and ZBL. The concept plan seems to conform with the ZBL but will be reviewed as part of the planning review.

### Site Plan

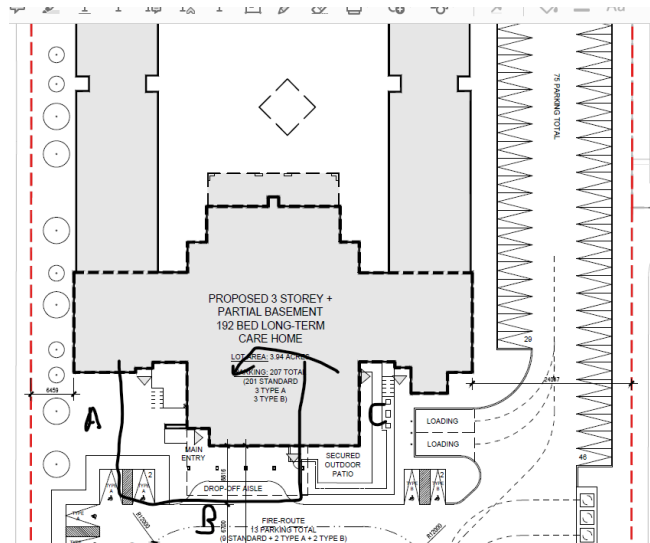
- I realize that this building is highly designed for efficiencies in the care of the residents. But I have concerns that it is designed has no regard to its relationship to its surroundings. The entrance faces into the parking lot has separated the building from the intersection and the street. There is a long side wall facing the street with no active doors. Parking seems to be excessive and there seems to be a lot of congestion of uses at the southeast corner of the building. I know that you provided more explanations of what was happening in the building, but more information (ground floor plan) and elevations would have been more helpful at the meeting. The following are suggestions to improve the building's relationship with the surrounding and street:
  - Introduce a couple of access points onto Noella Leclair. The southern access can be within 15 metres of the intersection. The northern access can be in the intersection or 15 m from the intersection. The fire route can go from the existing access to the new south access on Noella Leclair and try and bring the building up to the intersection more. Have the north access connect with the northern parking lot.



- Can the west side of the building be articulated with some units pushed back to break up a long straight wall? Or can exterior materials be employed to break up the mass or a combination of both? There will be a row of street trees on Noella Leclair. I like the idea that you plant a second row to match on your property to have a fully treed boulevard.



- Would it be possible to move the massing of the central building towards Noella Leclair and have is present as a more prominent architectural feature of the building? The secured outdoor patio can face the street (A) the covered drop off can extend into the parking (B) and there would be more room to provide loading and utility areas (C) away from the other areas and reduce congestion with access to the employee parking areas.



- Breaking up the long lines of parking space by introducing some trees in the parking area to provide some shade.



## Other

- Will you be considering LEED building or the [HPDS Overview for Applicants](#) and [HPDS Example Checklist](#) ?
- The Assessable Parking Standards are here [ADS Site Plan Checklist](#);
- Plans are to be standard A1 size (594 mm x 841 mm) or Arch D size (609.6 mm x 914.4 mm) sheets, dimensioned in metric and utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400 or 1:500).
- All PDF submitted documents are to be unlocked and flattened.
- A Waste Reduction Workplan Summary is required for the construction project as required by O.Reg. 102/94, being “Waste Audits and Waste Reduction Work Plans” made under the Environmental Protection Act, RSO 1990, c E.19, as amended.
- You are encouraged to contact the Ward Councillor, Councillor Kitts, at [Catherine.Kitts@ottawa.ca](mailto:Catherine.Kitts@ottawa.ca) about the proposal.

Please refer to the links to [Guide to preparing studies and plans](#) and [fees](#) for further information. Additional information is available related to [building permits, development charges, and the Accessibility Design Standards](#). Be aware that other fees and permits may be required, outside of the development review process. You may obtain background drawings by contacting [geoinformation@ottawa.ca](mailto:geoinformation@ottawa.ca).

It is anticipated that, as a result of the More Homes for Everyone Act, 2022, for applications for site plan approval and zoning by-law amendments, new processes in respect of pre-application consultation will be in place as of January 1, 2023. The new processes are anticipated to require a multiple phase pre-application consultation approach before an application will be deemed complete. Applicants who have not filed a complete application by the effective date may be required to undertake further pre-application consultation(s) consistent with the provincial changes. The by-laws to be amended include By-law 2009-320, the Pre-Consultation By-law, By-law 2022-239, the planning fees by-law and By-law 2022-254, the Information and Materials for Planning Application By-law. The revisions are anticipated to be before Council in the period after the new Council takes office and the end of the year.

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

## Urban Design

Selma Hassan – Planner II | [Selma.Hassan@ottawa.ca](mailto:Selma.Hassan@ottawa.ca)

1. A Design Brief is required with the Site Plan submission. A Terms of Reference for the Design Brief is attached; all items highlighted in yellow must be provided with the application.
2. Complete floor plan and elevation drawings are required with the application.
3. The property is **not** subject to review by the City's Urban Design Review Panel (UDRP).
4. The Site Plan needs to show:
  - a. pedestrian walkways from the public sidewalks, on both streets, to the building
  - b. pedestrian walkways from the parking areas to building entries (for the safety of staff and visitors)
  - c. Substantial landscaping to screen the parking and commercial uses to the east
  - d. Continuous tree planting along Noelle LeClair (currently, the planting stops at the north and south ends of the building)
  - e. Continuous tree planting at the southern frontage / property line

## Infrastructure Engineering

Alex Polyak – Infrastructure Project Manager | [Alex.Polyak@ottawa.ca](mailto:Alex.Polyak@ottawa.ca)

### **Note the following Development charges which are applicable to the site:**

- Outer Greenbelt development charge

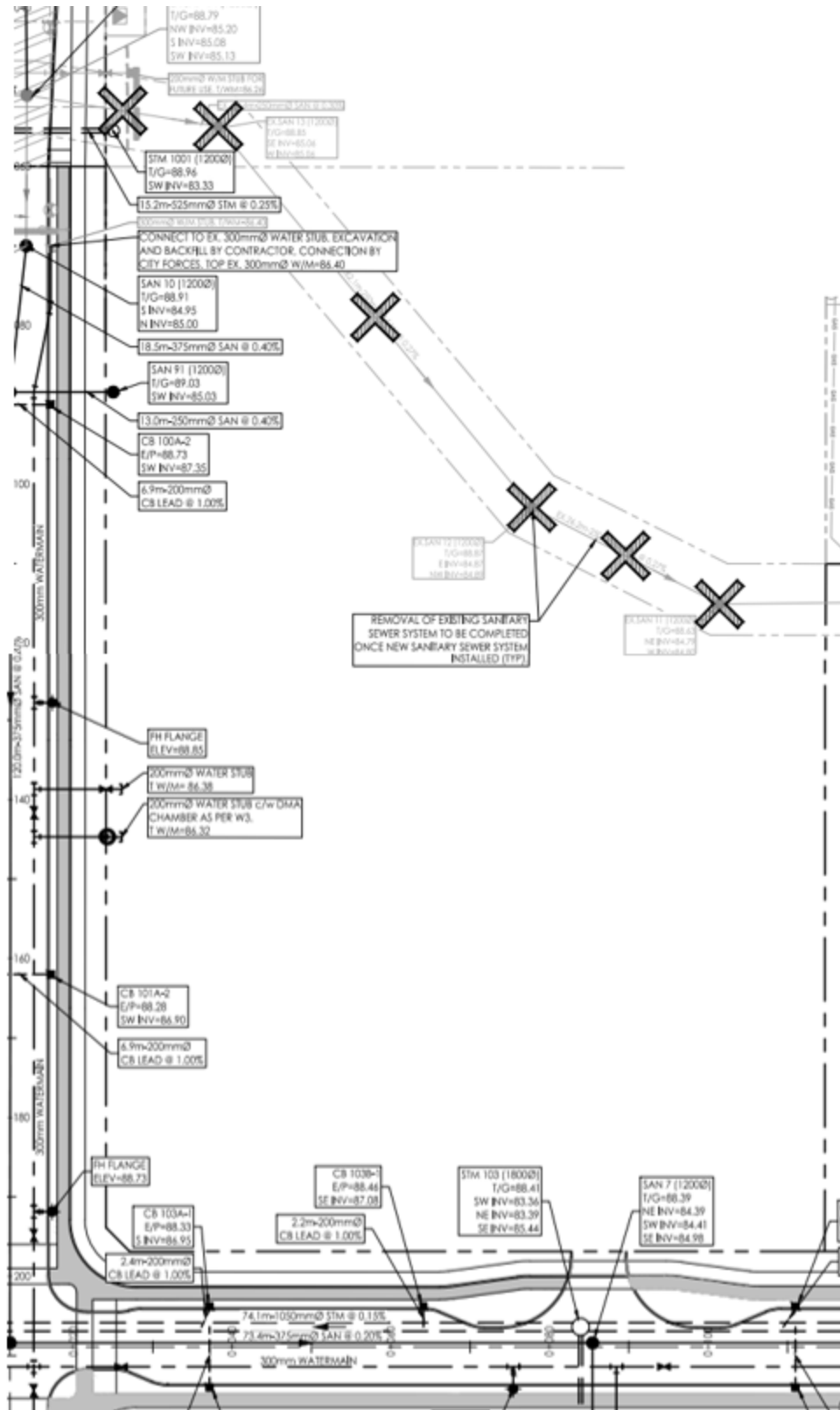
### *List of Reports and Plans (Site Plan Control):*

1. Site Plan
2. Topographical Plan of Survey Plan with a published Bench Mark
3. Removals Plan
4. Site Servicing Plan
5. Site Grading and Ponding Plan
6. Erosion and Sediment Control Plan
7. Existing Condition Storm Drainage Plan
8. Post Development Storm Drainage Plan
9. Stormwater Management and Site Servicing Report
10. Geotechnical Investigation Report

Please note the following information regarding the engineering design submissions for the above noted site:

1. The Servicing Study Guidelines for Development Applications are available at the following address:  
<https://ottawa.ca/en/city-hall/planning-and-development/how-develop-property/development-application-review-process-2/guide-preparing-studies-and-plans>
2. Servicing and site works shall be in accordance with the following documents:

- Ottawa Sewer Design Guidelines, Second Edition, (October 2012), including Technical Bulletins, ISDTB-2014-01, PIEDTB-2016-01, ISTB 2018-01, ISTB-2018-04, and ISTB-2019-02
  - Ottawa Design Guidelines – Water Distribution, First Edition, (July 2010), including Technical Bulletins ISD-2010-2, ISDTB-2014-02, ISTB-2018-02, and ISTB-2021-03
  - Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa (Revised 2008)
  - City of Ottawa Slope Stability Guidelines for Development Applications (Revised 2012)
  - City of Ottawa Environmental Noise Control Guidelines (January, 2016)
  - City of Ottawa Hydrogeological and Terrain Analysis Guidelines (March 2021)
  - City of Ottawa Park and Pathway Development Manual (2012)
  - City of Ottawa Accessibility Design Standards (2012)
  - Ottawa Standard Tender Documents (latest version)
  - Ontario Provincial Standards for Roads & Public Works (2013)
3. Record drawings and utility plans are also available for purchase from the City (Contact the City's Information Centre by email at [InformationCentre@ottawa.ca](mailto:InformationCentre@ottawa.ca) or by phone at (613) 580-2424 x 44455
4. The Stormwater Management Criteria for the subject site is to be based on the approved detailed subdivision design for allowable release rates
- Minor system inflow to be restricted for all contributing areas to 50L/s/ha.
  - Ensure no overland flow for all storms up to and including the 100-year event. Provide adequate emergency overflow conveyance off-site
  - Quality control requirements to be provided by Rideau Valley Conservation Authority (RVCA).
  - This property is located within the Bilberry Creek subwatershed. Please verify any subwatershed specific SWM criteria with the RVCA.
5. Deep Services:



- i. A plan view of the approximate services may be seen above from the future services to be installed as part of the subdivision plan. Services should ideally be grouped in a common trench to minimize the number of road cuts. The sizing of available future services is:
  - a. Connections (Noella Leclair):
    - i. 200 mm dia. future water service stub to be dropped at the West of the property.
    - ii. 250 mm dia. future sanitary service stub to be dropped at the West of the property.
    - iii. 525 mm dia. future storm service stub to be dropped at the North-West of the property
  - b. Note: Existing sanitary system running through the property is to be removed once new sanitary system has been installed*
- ii. Provide existing servicing information and the recommended location for the proposed connections. Services should ideally be grouped in a common trench to minimize the number of road cuts.*
- iii. Provide information on the monitoring manhole requirements – should be located in an accessible location on private property near the property line (ie. Not in a parking area).*
- iv. Provide information on the type of connection permitted*

Sewer connections to be made above the springline of the sewermain as per:

- a. Std Dwg S11.1 for flexible main sewers – *connections made using approved tee or wye fittings.*
- b. Std Dwg S11 (For rigid main sewers) – *lateral must be less than 50% the diameter of the sewermain,*
- c. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – *for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain,*
- d. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.
- e. *No submerged outlet connections.*

- v. *The capacity of the existing system should be evaluated when estimating the peak sanitary flow rates.*
6. Civil consultant must request boundary conditions from the City's assigned Project Manager prior to first submission. Water Boundary condition requests must include the location of the service and the expected loads required by the proposed development. Please provide the following information:
- i. Location of service(s)
  - ii. Type of development and the amount of fire flow required (as per FUS, 2020).
  - iii. Average daily demand: \_\_\_ l/s.
  - iv. Maximum daily demand: \_\_\_ l/s.
  - v. Maximum hourly daily demand: \_\_\_ l/s.
  - vi. Hydrant location and spacing to meet City's Water Design guidelines.
  - vii. Water supply redundancy will be required for more than 50 m<sup>3</sup>/day water demand.

***Please note that a boundary condition request should be made to the City as early as possible, in order to identify any water supply constraints (if any exist). Please also provide the estimated sanitary flows with the design, so the City can confirm that there aren't any capacity constraints downstream.***

7. Phase 1 ESAs and Phase 2 ESAs must conform to clause 4.8.4 of the Official Plan that requires that development applications conform to Ontario Regulation 153/04.
8. All development applications should be considered for an Environmental Compliance Approval (ECA) by the Ministry of the Environment, Conservation, and Parks (MECP);
  - a. The consultants determine if an approval for sewage works under Section 53 of OWRA is required and determines what type of application. The City's project manager may help confirm and coordinate with the MECP as required.
  - b. The project will be either transfer of review (standard), transfer of review (additional), direct submission, or exempt as per O. Reg. 525/98.
  - c. Pre-consultation is not required if applying for standard or additional works (Schedule A of the Agreement) under Transfer Review.

- d. Pre-consultation with local District office of MECP is recommended for direct submission.
- e. Consultant completes an MECP request form for a pre-consultation. Send request to [moeccottawasewage@ontario.ca](mailto:moeccottawasewage@ontario.ca)
- f. ECA applications are required to be submitted online through the MECP portal. A business account required to submit ECA application. For more information visit <https://www.ontario.ca/page/environmental-compliance-approval>

NOTE: Site Plan Approval, or Draft Approval, is required before an application is sent to the MECP.

9. General Engineering Submission requirements:

- a. As per section 53 of the Professional Engineers Act, O. Reg 941/40, R.S.O. 1990, all documents prepared by engineers must be signed and dated on the seal.
- b. All required plans are to be submitted on standard A1 size sheets (594mm x 841mm) sheets, utilizing a reasonable and appropriate metric scale as per City of Ottawa Servicing and Grading Plan Requirements: title blocks are to be placed on the right of the sheets and not along the bottom. Engineering plans may be combined, but the Site Plans must be provided separately. Plans shall include the survey monument used to confirm datum. Information shall be provided to enable a non-surveyor to locate the survey monument presented by the consultant.
- c. All required plans & reports are to be provided in \*.pdf format (at application submission and for any, and all, re-submissions)

Should you have any questions or require additional information, please contact me directly at [alex.polyak@ottawa.ca](mailto:alex.polyak@ottawa.ca)

**Minimum Drawing and File Requirements- All Plans**

Plans are to be submitted on standard **A1 size** (594mm x 841mm) sheets, utilizing an appropriate Metric scale (1:200, 1:250, 1:300, 1:400, or 1:500).

With all submitted hard copies provide individual PDF of the DWGs and for reports please provide one PDF file of the reports. **All PDF documents are to be unlocked and flattened.**

## Transportation Engineering

Mike Giampa – Senior Transportation Engineer | [Mike.Giampa@ottawa.ca](mailto:Mike.Giampa@ottawa.ca)

- Submit a TIA screening form.

- If a TIA is warranted proceed to scoping. The guidelines are available on the City website: <https://ottawa.ca/en/transportation-impact-assessment-guidelines>
- The application will not be deemed complete until the submission of the draft step 2-4, including the functional draft RMA package (if applicable) and/or monitoring report (if applicable). Although a full review of the TIA Strategy report (Step 4) is not required prior to an application, it is strongly recommended.
- Synchro files are required at Step 4.
- Corner sight triangle: 5m x 5m
- A Road Noise Impact Study is required

## Forestry

Mark Richardson - Forester | [Mark.Richardson@ottawa.ca](mailto:Mark.Richardson@ottawa.ca)

1. a Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
  - a. an approved TCR is a requirement of Site Plan approval.
  - b. The TCR may be combined with the LP provided all information is supplied
2. Any removal of privately-owned trees 10cm or larger in diameter, or city-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
3. The Planning Forester from Planning and Growth Management as well as foresters from Forestry Services will review the submitted TCR
  - a. If tree removal is required, both municipal and privately-owned trees will be addressed in a single permit issued through the Planning Forester
  - b. Compensation may be required for city owned trees – if so, it will need to be paid prior to the release of the tree permit
4. The TCR must contain 2 separate plans:
  - a. Plan/Map 1 - show existing conditions with tree cover information
  - b. Plan/Map 2 - show proposed development with tree cover information
  - c. Please ensure retained trees are shown on the landscape plan
5. the TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition
6. please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
7. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained
8. All retained trees must be shown, and all retained trees within the area impacted by the development process must be protected as per City guidelines available at [Tree Protection Specification](#) or by searching Ottawa.ca
  - a. the location of tree protection fencing must be shown on the plan
  - b. show the critical root zone of the retained trees
9. the City encourages the retention of healthy trees; if possible, please seek opportunities for retention of trees that will contribute to the design/function of the site.



10. For more information on the process or help with tree retention options, contact Mark Richardson [mark.richardson@ottawa.ca](mailto:mark.richardson@ottawa.ca) or on [City of Ottawa](https://www.cityofottawa.ca)

**LP tree planting requirements:**

For additional information on the following please contact [tracy.smith@Ottawa.ca](mailto:tracy.smith@Ottawa.ca)

**Minimum Setbacks**

- Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.
- Maintain 2.5m from curb
- Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro’s planting guidelines (species and setbacks) when planting around overhead primary conductors.

**Tree specifications**

- Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- Tree planting on city property shall be in accordance with the City of Ottawa’s Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).
- Plant native trees whenever possible
- No root barriers, dead-man anchor systems, or planters are permitted.
- No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

**Hard surface planting**

- Curb style planter is highly recommended
- No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.
- Trees are to be planted at grade

**Soil Volume**

- Please document on the LP that adequate soil volumes can be met:

Tree Type/Size	Single Tree Soil Volume (m3)	Multiple Tree Soil Volume (m3/tree)
Ornamental	15	9
Columnar	15	9
Small	20	12
Medium	25	15
Large	30	18

Conifer	25	15
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Please note that these soil volumes are not applicable in cases with Sensitive Marine Clay.

#### Sensitive Marine Clay

- Please follow the City's 2017 Tree Planting in Sensitive Marine Clay guidelines

#### Tree Canopy Cover

- The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.
- At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate.
- Indicate on the plan the projected future canopy cover at 40 years for the site.

### Environmental Planning

Sami Rehman – Environmental Planner II | [Sami.Rehamn@ottawa.ca](mailto:Sami.Rehamn@ottawa.ca)

- Please review and incorporate design elements from the City's Bird Safe Design Guidelines to eliminate bird collisions.
  - [Bird-Safe Design Guidelines | City of Ottawa](#)

### Parkland

Jessica Button – Parks & Facilities Planner II | [Jessica.Button@ottawa.ca](mailto:Jessica.Button@ottawa.ca)

- Please note that Parks and Facilities Planning has recently undertaken a legislated replacement of the Parkland Dedication By-law, with the new by-law approved by City Council on August 31, 2022. To ensure you are aware of parkland dedication requirements for your proposed development, we encourage you to familiarize yourself with the staff report and By-Law that were approved by Council on August 31, 2022.
- The southern portion of the proposed development is part of a subdivision (D07-16-18-0006) and has met its parkland dedication requirement under the former Parkland dedication by-law.
- The northern portion of the proposed development is located outside of the above noted subdivision. Cash-in-lieu of Parkland dedication, along with the fee for appraisal services, will be required in accordance with the By-law. The Cash-in-lieu of Parkland will be finalized as the Site Plan Control Agreement is being prepared. The monies are to be paid at the time of execution of the Site Plan Agreement. If the proposed land use or By-law changes, then the parkland dedication will be recalculated accordingly.
- Please provide Parks & Facilities Planning with a surveyor's note (or equivalent) which specifies the gross land area of the property with your application.



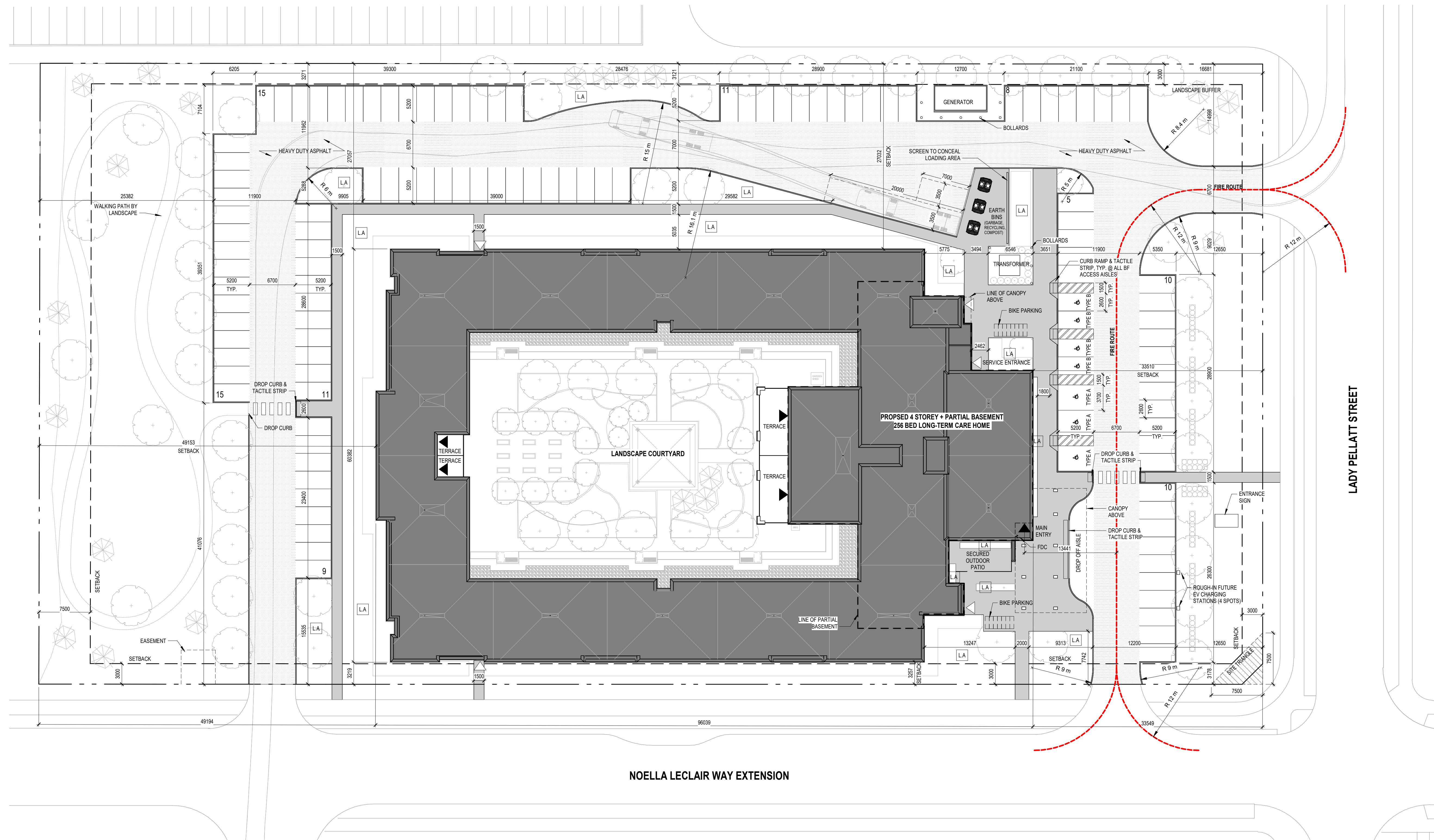
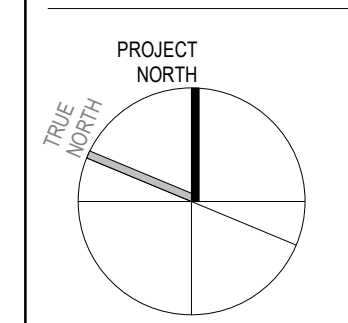


KEY PLAN

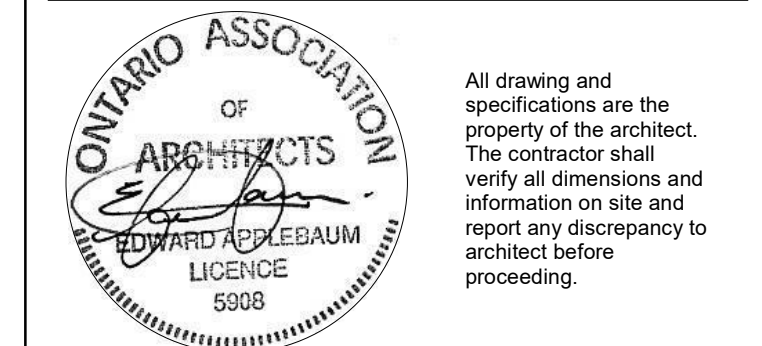
SITE DATA		
<b>SITE DESCRIPTION</b>	PART OF LOT 1, CONCESSION 11, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, CITY OF OTTAWA	
<b>SITE ADDRESS</b>	NOELLA LECLAIR, OTTAWA, ON	
<b>PROPOSED USE</b>	4 STOREY LONG TERM CARE (256 BEDS)	
<b>BUILDING FOOTPRINT</b>	3387m <sup>2</sup>	
<b>LANDSCAPED AREA</b>	1564m <sup>2</sup>	
<b>PAVED SURFACE AREA</b>	4891m <sup>2</sup>	
ZONING		
<b>ZONE</b>	REQUIRED	PROVIDED
<b>LOT AREA</b>	N/A	AM - Arterial Mainstreet
<b>FRONT YARD &amp; CORNER SIDE...</b>	NO MINIMUM	16,195m <sup>2</sup> (1.62 ha)
<b>MIN. INTERIOR SIDE YARD</b>	3m	3m
<b>MIN. REAR YARD</b>	NO MINIMUM	N/A
<b>MIN. REAR YARD</b>	7.5m	7.5m
<b>BUILDING HEIGHT</b>	21m	18.4m
<b>MAX. FLOOR SPACE INDEX</b>	NO MAXIMUM	
<b>MIN. WIDTH OF LANDSCAPED AREA AROUND PARKING</b>	3m	3m

PARKING		
<b>PARKING SPACES</b>	REQUIRED	PROVIDED
<b>BARRIER-FREE SPACES</b>	0.125 x 256 BEDS + 0.5 PER 100 Sq.m	110
<b>LOADING SPACES</b>	3 TYPE A + 4 TYPE B (AS PER AODA)	3 TYPE A + 4 TYPE B
<b>BICYCLE PARKING</b>	2 (5m)	1 (20m) + 1 (5m)
	N/A	16

BUILDING DATA		
<b>GROSS BUILDING AREA</b>		
<b>BASEMENT FLOOR LEVEL</b>		1206 m <sup>2</sup>
<b>GROUND FLOOR LEVEL</b>		3387 m <sup>2</sup>
<b>SECOND FLOOR LEVEL</b>		3307 m <sup>2</sup>
<b>THIRD FLOOR LEVEL</b>		3047 m <sup>2</sup>
<b>FOURTH FLOOR LEVEL</b>		3047 m <sup>2</sup>
<b>ROOF: MECH. PENTHOUSE AND STAIR</b>		267 m <sup>2</sup>
<b>TOTAL</b>		14261 m <sup>2</sup>



2 02.17.23 ISSUED FOR SITE PLAN APPROVAL MSA  
 # date: revision: by:  
 revisions:



EC ORLEANS

Noella Leclair Way  
 Ottawa, ON

SITE CONTEXT PLAN AND  
 PROJECT STATS

scale: As indicated  
 drawn by: MCS  
 reviewed by: BW  
 job number: 22058  
 plot date: 02/17/2023  
 drawing number:

A11.02

**Site Servicing and Stormwater  
Management Report –  
Orleans II Draft Plan of  
Subdivision**

Project # 160401419



Prepared for:  
Innes Shopping Centres Limited

Prepared by:  
Stantec Consulting Ltd.

April 12, 2018

# SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Introduction  
April 12, 2018

## 1.0 INTRODUCTION

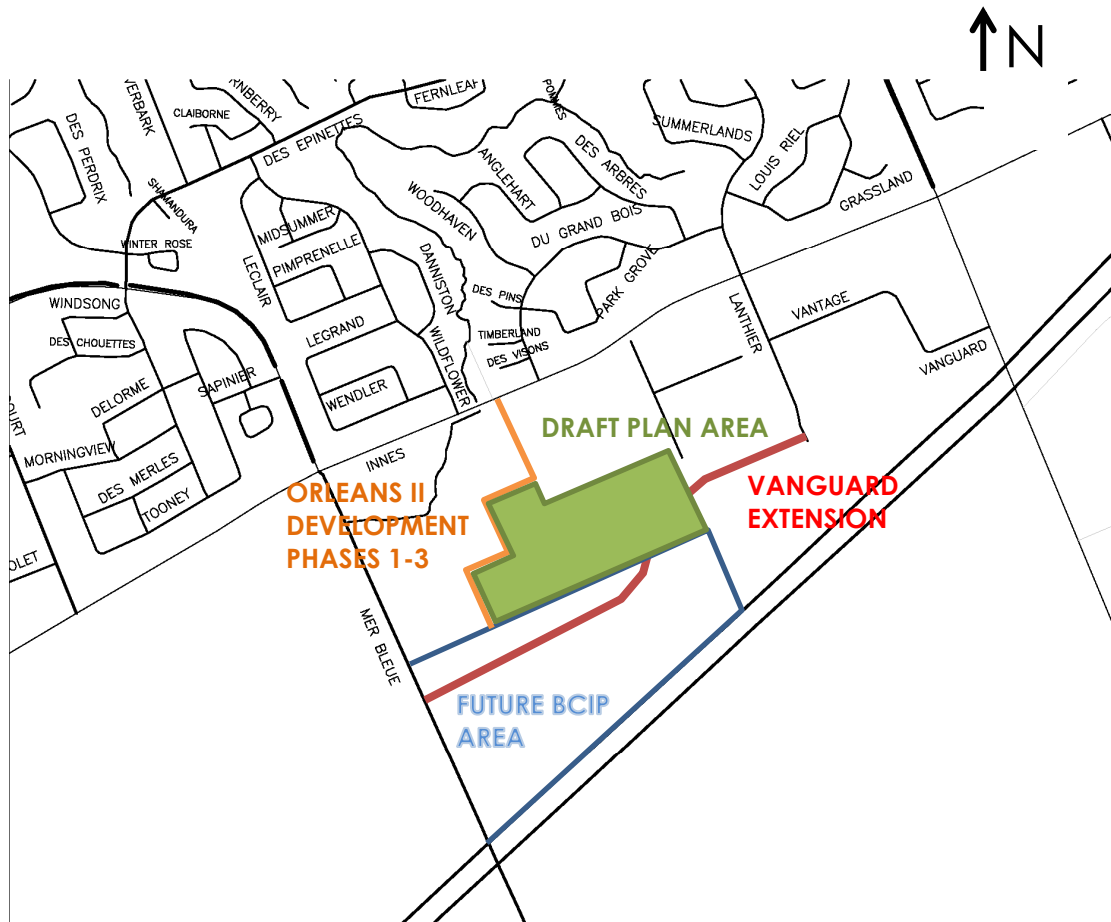
Stantec Consulting Ltd. has been commissioned by Innes Shopping Centres Limited to prepare a servicing study in support of the plan of subdivision for the property located at 4200 Innes Road forming part of the Orleans II Commercial Development. The site is situated southeast of the intersection of Innes Road and Mer Bleue Road within the City of Ottawa as indicated in **Figure 1**. The proposed development comprises approximately 11.3 ha of land within the Bilberry Creek Industrial Park (BCIP), and is currently zoned AM (arterial mainstreet) and IG (general industrial). The intent of this report is to provide a servicing scenario for the site that is free of conflicts, provides on-site servicing in accordance with City of Ottawa design guidelines, and utilizes the existing local infrastructure in accordance with the background studies noted in **Section 2.0**, and as per consultation with City of Ottawa staff.

Numerous infrastructure projects have recently taken place in the surrounding area that will provide servicing and transportation connections to the subdivision lands. In the summer of 2006, the City of Ottawa completed the design and construction of Innes Road improvements and associated servicing. Innes Road was widened to a four-lane divided arterial and a large diameter storm trunk sewer was constructed which is tributary to Bilberry Creek. Roadway improvements to Mer Bleue Road from Innes Road south to Renaud Road have also been completed and Vanguard Drive has been extended from Trim Road to Lanthier Drive. A sanitary sewer was extended from Lanthier Drive through an easement within the development lands to service the site plan developments along Mer Bleue Road south of Innes Road. Site plan works include between Innes Road and the subdivision lands include the extension of the municipal services along new roadways that will provide servicing and transportation connections to the subdivision lands from Mer Bleue Road and Innes Road. Access will be available from Vanguard Drive in the future when the roadway is extended from its existing terminus at Lanthier Drive.

# SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Introduction  
April 12, 2018

Figure 1: Location Plan



# SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Background  
April 12, 2018

## 2.0 BACKGROUND

In October 2006 (and later re-assessed in 2012 and 2016 for rezoning of the property) Stantec prepared a serviceability report entitled “Pharand Lands Serviceability Report”. This report outlined a general servicing scheme for the proposed development site. It was shown that adequate servicing could be provided to support the development.

In July 2006 Stantec prepared a report entitled “Gloucester and Cumberland East Urban Community Expansion Area and Bilberry Creek Industrial Park Master Servicing Update”. The objective of the report was to consolidate recent reports and to update the Gloucester and Cumberland East Urban Community Master Servicing reports. It also included updated basemaps to include existing and proposed trunk storm (900mm and larger), sanitary (375mm and greater) and watermains (300mm and larger).

In April 2006 Paterson Group completed a report for the proposed lands entitled “Preliminary Geotechnical Investigation: Proposed Commercial Development (Pharand Lands) Innes Road at Mer Bleue Road – Ottawa”. The investigation included a series of 34 test pits as well as eight boreholes ranging in depth from 0.3m to 13.9m. Generally, the report indicated that the site consists of topsoil overlying silty clay and/or glacial till. The site was generally found to be vacant with only two buildings and one well. A rock outcrop exists in the centre of the site. Groundwater levels were found to range from the ground surface to 3m below the surface. The report indicated that shallow foundations over silty clay would require some means of reducing settlement.

In April 2006 Paterson Group completed a Phase 1 Environmental Assessment for the proposed lands. The purpose was to research the past use of the site and identify and any concerns associated with the site. It was their opinion that a Phase II Environmental Site Assessment would not be required for the subject property.

Serviceability for the development lands was reassessed in December 2016 to permit rezoning of the subject lands. To this end, a Stage 1 and 2 Archaeological Assessment as well as an Environmental Impact Statement with Headwaters Assessment was produced for the property. The Archeological Assessment did not identify any potential archaeological sites requiring further assessment, whereas the EIS recommended mitigation measures relating to spill management, erosion and sediment control, and construction timing to ensure the proposed development would not result in adverse environmental effects.



## **SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION**

Background  
April 12, 2018

Documents referenced in preparation of the design for the Orleans II Draft Plan of Subdivision include:

- Geotechnical Investigation – Proposed Pharand Lands-Commercial Developments – Innes Road, Patersongroup Consulting Engineers, April 24, 2006.
- Phase 1 Environmental Site Assessment, Proposed Commercial Property, Pharand Lands – Innes Road at Mer Bleue Road, Patersongroup Consulting Engineers, April 28, 2006.
- City of Ottawa Sewer Design Guidelines, City of Ottawa, October 2012.
- City of Ottawa Design Guidelines – Water Distribution, City of Ottawa, July 2010.
- Gloucester and Cumberland East Urban Community Expansion Area and Bilberry Creek Industrial Park Master Servicing Update, Stantec Consulting Ltd., July 2006.
- Pharand Lands, Innes Shopping Centres Limited – City of Ottawa, Stantec Consulting Ltd., February 22, 2012.
- Stage 1 and 2 Archaeological Assessment for Site Plan Application at 4100 Innes Rd/2025 Mer Bleue Rd, Stantec Consulting Ltd., July 2016.
- Environmental Impact Statement with Headwaters Assessment for 4100 Innes Road/2025 Mer Bleue Road, Stantec Consulting Ltd., December 2016.
- Site Servicing and Stormwater Management Report – Orleans II Development Rezoning, Stantec Consulting Ltd., December 2016.
- Site Servicing and Stormwater Management Report – Orleans II Development – 2025 Mer Bleue Road – Phase 1, Stantec Consulting Ltd., March 2017.
- Site Servicing and Stormwater Management Report – Orleans II Development – 2025 Mer Bleue Road – Phase 2, Stantec Consulting Ltd., March 2018.

# SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Water Supply Servicing  
April 12, 2018

## 3.0 WATER SUPPLY SERVICING

### 3.1 BACKGROUND

The proposed development comprises six development blocks, three of which are light industrial/non-residential sites, with the remaining three having zoning permitting mid-rise apartment dwellings. The subdivision will be serviced via the existing 305mm watermain constructed as part of the site plan developments to the north, which is fed from the 406mm watermain within Mer Bleue Road and the 610mm watermain on Innes Road. Additional connection points are anticipated in the future with the extension of the 305mm watermain within Vanguard Drive. The property is located within the City's Pressure Zone 2E. Proposed ground elevations of the site vary from approximately 88.3m to 89.2m.

### 3.2 WATERMAIN LAYOUT

A 305mm watermain has been proposed to extend through the internal roadway network from the Orleans II Development to the north (extension of Wildflower Drive) to the future proposed location of Vanguard Road as per findings of the Gloucester and Cumberland East Urban Community Expansion Area and Bilberry Creek Industrial Park Master Servicing Update, and Pharand Lands, Innes Shopping Centres Limited reports. A 200mm watermain has been proposed adjacent to Blocks 1 and 3 in anticipation of future looping to the future Vanguard watermain extension (see **Drawing WM-1** for details).

### 3.3 HYDRAULIC ANALYSIS

A hydraulic model for the proposed subdivision was prepared during preparation of the Site Servicing and Stormwater Management Report – Orleans II Development Rezoning. The analysis considered several high rise apartment dwellings with a mixed use component on ground floors within blocks 1 and 3, as well as senior housing complexes within blocks 2 and 4, which produce domestic and fire flow demands that suit a wide range of permissible uses under the current zoning arrangement for the development. Additionally, the model was created under the assumption that watermains within Vanguard would not be constructed in the interim, providing an additional level of conservatism to the design. Results of the modeling indicated that the required demands could be met while maintaining the appropriate residual pressures at all areas prior to construction of the Vanguard watermain.

As such, it is assumed that the analysis is adequate in assessing the viability of the current development plan, and that a detailed hydraulic analysis with boundary condition at Vanguard be required for detailed design. Description of the original hydraulic analysis has been included below, with results tabulated within **Appendix A**.

## SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Water Supply Servicing  
April 12, 2018

### 3.3.1 Water Demands

Water demands for the development were estimated using the Ministry of Environment's Design Guidelines for Drinking Water Systems (2008). A daily rate of 5 L/m<sup>2</sup> of commercial space was used for the proposed site, a rate of 3.5 L/m<sup>2</sup> has been assumed for industrial use spaces, and a rate of 350 L/cap/day has been applied to residential populations, with an assumed apartment density of 1.8 persons/unit. It is predicted that commercial/industrial facilities will be operated 12 hours per day. See **Appendix A.1** for detailed domestic water demand estimates.

Maximum daily demand peaking factors used were 1.5 for commercial/industrial property and 2.5 for residential areas. Peak hour demand peaking factors were 1.8 for commercial/industrial property and 2.2 for residential uses.

The average day demand (AVDY) for the entire site was determined to be 14.27 L/s. The maximum daily demand (MXDY) totals 33.74 L/s. The peak hour demand (PKHR) totals 73.07 L/s.

Ordinary construction was considered for commercial buildings and non-combustible construction for industrial buildings and residential towers for assessment for fire flow requirements according to the FUS Guidelines. All buildings save one were considered to be fully equipped with automatic sprinkler systems conforming to NFPA 13. Based on calculations per the FUS Guidelines (**Appendix A.2**), the maximum required fire flows for the development were assumed to be 183 L/s.

### 3.3.2 Hydraulic Model Results

A hydraulic model of the water supply system was created by Stantec based on boundary conditions provided for detailed design of the Phase 1 Orleans II Site Plan to the north to assess the proposed watermain layout under the above demands and during fire flow scenarios. Headloss for boundary conditions was extrapolated based on the estimated demands for the entire site as noted in the sections above. Results of the hydraulic modeling demonstrate that adequate flows are available for the subject site, with on-site pressures ranging from **53 psi to 60 psi** under normal operating conditions. These values are within the normal operating pressure range as defined by MOECC and City of Ottawa design guidelines (desired 50 to 70 psi and not less than 40 psi). Results of the hydraulic model analysis can be found in **Appendix A.4**.

## **SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION**

Water Supply Servicing  
April 12, 2018

A fire flow analysis was carried out using the hydraulic model to determine the anticipated amount of flow that could be provided for the proposed development under maximum day demands and fire flow requirements per the FUS methodology. Results of the modeling analysis indicate that flows in excess of 11,000L/min (183 l/sec) can be delivered while still maintaining a residual pressure of 140 kPa (20 psi) under interim conditions prior to looping of the proposed 300mm watermain to the Vanguard Drive extension. In the future, looping may be provided by a 300mm connection to the Vanguard Drive/Lanthier Drive watermain, and connection to the 400mm watermain along Mer Bleue Road. Results of the hydraulic modeling are included for reference in **Appendix A.4**.

# SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Wastewater Servicing  
April 12, 2018

## 4.0 WASTEWATER SERVICING

### 4.1 BACKGROUND

The subdivision will be serviced by an existing 375mm diameter sanitary sewer located at the southeast corner of the lands in an existing easement within the future Vanguard Drive extension. The sewer directs flow to an existing 525mm diameter sanitary sewer at the intersection of Lanthier Drive and Vanguard Drive, and ultimately to the Tenth Line Road pumping station. A 250mm sewer was previously installed through blocks 2 and 4 of the proposed subdivision to service earlier phases of the Orleans II site plan development (see **Drawing SA-1**). It is proposed to make a new connection to the 375mm sewer and extend the sanitary sewer along the proposed municipal roadways within the subdivision to the existing sanitary manhole (Ex. SAN 14) immediately north of the subdivision lands. The new sewer will provide a sanitary outlet for all of the proposed subdivision blocks. Once the new sanitary sewer has been commissioned, the existing 250mm sewer running through blocks 2 and 4 will be abandoned. The subdivision lands and proposed land uses form part of the previously approved drainage area to the existing Tenth Line Road Pump Station.

For detailed information regarding the wastewater servicing and pump station improvements for the area, please refer to the *Gloucester and Cumberland East Urban Community Expansion Area and Bilberry Creek Industrial Park Master Servicing Update* (Stantec, July 2006).

### 4.2 DESIGN CRITERIA

It is assumed that areas zoned Arterial Mainstreet may comprise of low-mid rise apartment dwellings that will provide the bulk of domestic sanitary sewer contribution for the development. As such, development blocks within this zoning blanket have been considered to contain 200 typical apartment units per hectare of land as a conservative value (based on an intermediate value between low density and medium density apartments within Table 4.1 of the 2004 version of the Sewer Design Guidelines).

Future tributary areas to the 375mm sanitary main forming the remainder of the Bilberry Creek Industrial Park (BCIP) have been assessed as entirely light industrial area with the exception of lands attributed to the future Vanguard Drive extension ROW.

As outlined in the recently updated City of Ottawa Sewer Design Guidelines and the MOECC's Design Guidelines for Sewage Works, the following criteria were used to calculate estimated wastewater flow rates and to size the sanitary sewers:

- Minimum Velocity – 0.6 m/s (0.8 m/s for upstream sections)

## SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Wastewater Servicing  
April 12, 2018

- Maximum Velocity – 3.0 m/s
- Manning roughness coefficient for all smooth wall pipes – 0.013
- Minimum size – 200mm dia. for residential areas, 250mm for commercial areas
- Average Wastewater Generation – 28,000L/ha/day (Commercial)
- Average Wastewater Generation – 35,000L/ha/day (Light Industrial)
- Average Wastewater Generation – 280 L/pers/day (Residential)
- Peak Factor – 1.5 (Commercial >20% of development)
- Peak Factor – per Harmon's equation and correction factor of 0.8 (Residential)
- Peak Factor – per Sewer Design Guidelines Appendix 4-B (Industrial)
- Average Apartment Unit Density – 1.8ppu
- Extraneous Flow Allowance – 0.33 l/s/ha
- Manhole Spacing – 120 m
- Minimum Cover – 2.5m

### 4.3 PROPOSED SERVICING

The proposed site will be serviced by gravity sewers which will direct the wastewater flows (approx. 66.9 L/s with allowance for infiltration) to the existing 375mm diameter sanitary sewer at the northeast corner of the subdivision. The proposed drainage pattern is detailed on **Drawing SA-1**. A sanitary sewer design sheet for the proposed and existing downstream sewers is included in **Appendix B.1**. External downstream sewers and flow contributions have been input based on the Overall Sanitary Drainage Area Plan for the Tenth Line Road Pump Station as prepared by David Schaeffer Engineering Ltd. to incorporate additional urban expansion area to the pump station. Full port backwater valves are to be installed on all sanitary services within the site to prevent any potential surcharge from the downstream sanitary sewer from impacting developments within the proposed property.

# SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Stormwater Management  
April 12, 2018

## 5.0 STORMWATER MANAGEMENT

### 5.1 OBJECTIVES

The objective of this stormwater management plan is to determine the measures necessary to control the quantity/quality of stormwater released from the proposed development to criteria established by the *Pharand Lands – Innes Shopping Centres Limited – Serviceability Study* (Stantec, February 2012) and the *Gloucester and Cumberland East Urban Community Expansion Area and Bilberry Creek Industrial Park Master Servicing Update* for the region, and to provide sufficient detail for draft plan approval of the subject site.

### 5.2 SWM CRITERIA AND CONSTRAINTS

Criteria were established by combining current design practices outlined by the City of Ottawa Design Guidelines (2012), those presented in the Pharand Lands Serviceability Study and other background reports listed in **Section 2.0**, and through consultation with City of Ottawa staff. The following summarizes the criteria, with the source of each criterion indicated in brackets:

#### General

- Use of the dual drainage principle (City of Ottawa).
- Wherever feasible and practical, site-level measures should be used to reduce and control the volume and rate of runoff. (City of Ottawa).
- Assess impact of 100 year event outlined in the City of Ottawa Sewer Design Guidelines on major & minor drainage system (City of Ottawa).
- Enhanced quality control (80% TSS removal) to be provided on-site for the development.

#### Storm Sewer & Inlet Controls

- Proposed development to discharge the existing 1350mm diameter storm sewer stub at the northern boundary of the subject site (City of Ottawa).
- Proposed storm sewers to be sized to service existing and future commercial/light industrial developments to the south and east of the subject site as per background reports (Pharand Lands Serviceability Study).
- Minor system inflow to be restricted for all privately owned contributing areas to 50L/s/ha (Pharand Lands Serviceability Study).
- Minor system inflow for municipal ROW contributing areas to be limited to 100L/s/ha (Pharand Lands Serviceability Study).
- 100-year HGL boundary condition at the site outlet sewer of 81.342m (BCIP Report, Appendix I for node W19).

## SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Stormwater Management  
April 12, 2018

- 100-year Storm HGL to be a minimum of 0.30 m below building foundation footing (City of Ottawa).

### Surface Storage & Overland Flow

- Building openings to be a minimum of 0.30m above the 100-year water level (City of Ottawa).
- No overland flow is to be permitted from internal sites to the municipal ROW (Pharand Lands Serviceability Study).
- Sites to provide minimum storage of 200 m<sup>3</sup>/ha or sufficient storage to contain 100-year storm event on-site, whichever is greater (Pharand Lands Serviceability Study).
- Road storage to be maximized where possible to provide 130 m<sup>3</sup>/ha of storage (Pharand Lands Serviceability Study).
- Maximum depth of flow under either static or dynamic conditions shall be less than 0.35m (City of Ottawa)
- Provide adequate emergency overflow conveyance off-site (City of Ottawa)

## 5.3 STORMWATER MANAGEMENT

### 5.3.1 Allowable Release Rate

Based on background information, the peak post-development discharge from the subject site to the minor system is to be limited to 50L/s/ha of contributing area. Peak post-development discharge from municipal Rights-of-Way within the development are to be limited to 100L/s/ha. Peak release rates for the current phase, existing tributary areas and future developments are summarized in **Table 1** below:

**Table 1: Target Release Rates**

Development Site	Area (ha)	Target Flow Rate (L/s)
Proposed Development - Private	9.570	478.5
Proposed Development - Public	1.757	175.7
Future – Private	14.611	730.6
Future – Public	1.724	172.4
<b>Total</b>	<b>27.632</b>	<b>1557.2</b>

The total target flow rate lies slightly above that determined for the previous Pharand Lands study, and is likely due to the assessment of additional length of public roads both on-site and within the



## SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Stormwater Management  
April 12, 2018

external tributary BCIP area. The downstream 1350mm sewer on Wildflower Drive has capacity to accept the increase in flows based on drainage area plans and design sheets created by Delcan for construction of the storm sewer and widening of Innes Road (capacity of 2784.1L/s including downstream existing phases of development, see **Appendix C.2**). It is of note that the tributary area to the Wildflower Drive outlet has not changed, and peak post-development discharge targets of 100L/s/ha and 50L/s/ha for public ROWs and private developments has been carried from targets listed in the BCIP Master Servicing Update.

### 5.3.2 Water Quantity Control

The development will require restrictive quantity control measures to meet stormwater release criteria. Per hectare storage rates have been estimated via the Modified Rational Method. Peak flow rates have been calculated as follows:

$$Q = 2.78 CiA$$

Where: Q = peak flow rate, L/s

A = drainage area, ha

I = rainfall intensity, mm/hr (per Ottawa IDF curves)

C = site runoff coefficient

Based on a conservative time of concentration of 10 minutes for a given development parcel, and an estimated runoff coefficient C of 0.80 for private sites (increased by 25% to a maximum of 1.00 for post-development 100-year storm events based on MTO Drainage Manual recommendations), it is anticipated that private developments will require approximately 385m<sup>3</sup>/ha of storage to meet the required release rate. It is likely that individual sites within the development will be required to provide dry ponds, subsurface tanks or cisterns in addition to rooftop and surface storage within paved areas to meet restrictive stormwater criteria. Infiltration measures are not anticipated to be effective given a thick layer of clay (or bedrock outcrop) underlying the proposed development area.

Municipal roads releasing at 100L/s/ha will be required to provide approximately 230 m<sup>3</sup>/ha of surface storage in order to meet the required release rate. This storage requirement is feasible given the relatively flat grading of the proposed development, and the ability to store water up to a maximum depth of 0.35m per recent revisions to the City stormwater management guidelines (see calculation sheet as part of **Appendix C**). Ponding is anticipated during 5-year storm events and above in order to meet the 100L/s/ha restriction.

It is assumed that no major system spillage will occur from private sites to municipal rights-of-way within the development, and no major system spillage is to occur to Innes Road or downstream segments of Vanguard Drive during design storm events up to the 100-year event. Further dual-drainage modeling will be required at time of detailed design to confirm HGLs in the receiving sewer and to ensure the 0.35m maximum water depth is being achieved.

## SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Stormwater Management  
April 12, 2018

**Drawing SD-1** summarizes the discretized subcatchments used in the analysis of the proposed site, and outlines the major overland flow paths. Conceptual grading plans are also enclosed for review.

Storm sewers were designed using Rational Method calculations to confirm flow capacities in the ultimate condition with consideration of flow contributions from future areas. The detailed storm sewer design sheet is included in **Appendix C1**.

### 5.4 WATER QUALITY CONTROL

On-site quality control measures are expected for the proposed development sites per section 3.1.2.5.2 of the Gloucester Cumberland EUC & BCIP Servicing Update. It is assumed that enhanced protection (80% removal of suspended solids for the downstream Bilberry Creek) will be required for all development parcels similar to existing areas of the BCIP. The downstream SWMF additionally provides quality control to normal protection criteria (70% TSS removal).

## SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Grading and Drainage  
April 12, 2018

### 6.0 GRADING AND DRAINAGE

The proposed development site measures approximately 11.3 ha in area. The topography across the site is relatively flat, and currently drains from west to east. A conceptual grading plan (see **Drawing GP-1**) has been provided to satisfy the stormwater management requirements, adhere to permissible grade raise restrictions (see **Section 9.0**) for the site, and provide for minimum cover requirements for storm and sanitary sewers where possible. Site grading has been established to provide emergency overland flow routes required for stormwater management in accordance with City of Ottawa requirements.

The subject site maintains emergency overland flow routes for flows deriving from storm events in excess of the maximum design event to the proposed municipal rights-of-way at the southern and eastern boundaries of the phase 1 development, and ultimately to the future Vanguard Drive extension as depicted in **Drawing GP-1**. Future development areas to the south within the BCIP are anticipated to maintain overland flow routes to the future Vanguard Road extension.

# SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Utilities  
April 12, 2018

## 7.0 UTILITIES

As the subject site is bound to the north and west by an existing commercial business park, and by an existing right-of-way to the north, Hydro, Bell, Gas and Cable servicing for the proposed development should be readily available. It is anticipated that existing infrastructure will be sufficient to provide a means of distribution for the proposed site. Exact size, location and routing of utilities, along with determination of transformer locations and any off-site works required for development, will be finalized upon detailed design of the individual site plans within the development.

## 8.0 EROSION CONTROL DURING CONSTRUCTION

Erosion and sediment controls must be in place during construction. The following recommendations to the contractor will be included in contract documents.

1. Implement best management practices to provide appropriate protection of the existing and proposed drainage system and the receiving water course(s).
2. Limit extent of exposed soils at any given time.
3. Re-vegetate exposed areas as soon as possible.
4. Minimize the area to be cleared and grubbed.
5. Protect exposed slopes with plastic or synthetic mulches.
6. Provide sediment traps and basins during dewatering.
7. Install sediment traps (such as SiltSack® by Terrafix) between catch basins and frames.
8. Plan construction at proper time to avoid flooding.

The contractor will, at every rainfall, complete inspections and guarantee proper performance. The inspection is to include:

9. Verification that water is not flowing under silt barriers.
10. Clean and change silt traps at catch basins.

# SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION

Geotechnical Investigation and Environmental Assessment  
April 12, 2018

## 9.0 GEOTECHNICAL INVESTIGATION AND ENVIRONMENTAL ASSESSMENT

A geotechnical Investigation Report was prepared by Paterson Group on April 24, 2006. The report summarizes the existing soil conditions within the subject area and construction recommendations. For details which are not summarized below, please see the original Paterson report.

Subsurface soil conditions within the subject area were determined from 8 boreholes and 34 test pits distributed across the proposed site. In general soil stratigraphy consisted of topsoil underlain silty clay and/or glacial fill. Bedrock/inferred bedrock elevations range from depths of 0.3 to 13.9m below ground surface.

Groundwater Levels were measured and vary in elevation from ground surface to a depth of 3m.

The required pavement structure for proposed hard surfaced areas are outlined in **Tables 1 and 2** below:

**Table 2: Pavement Structure – Car only Parking Areas**

Thickness (mm)	Material Description
50	Wear Course – HL 3 Asphaltic Concrete
150	Base – OPSS Granular A Crushed Stone
300	Subbase - OPSS Granular B Type II
-	Subgrade – Either fill, in situ soil, or OPSS Granular B Type I or II material placed over in situ soil or bedrock.

**Table 3: Pavement Structure – Access Lanes and Heavy Truck Parking Areas**

Thickness (mm)	Material Description
40	Wear Course – HL-3 Asphaltic Concrete
50	Binder Course – HL-8 Asphaltic Concrete
150	Base – OPSS Granular A Crushed Stone
450	Subbase - OPSS Granular B Type II
-	Subgrade – Either fill, in situ soil or OPSS Granular B Type I or II material placed over in situ soil or bedrock.

# **SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION**

Conclusions  
April 12, 2018

## **10.0 CONCLUSIONS**

### **10.1 WATER SERVICING**

Based on previously assessed watermain hydraulic model prepared for rezoning of the subject lands utilizing the supplied boundary conditions for existing watermains and estimated domestic and fire flow demands for the subject site, it is anticipated that the proposed servicing in this development will provide sufficient capacity to sustain the required domestic demands and emergency fire flow demands for the area. Fire flows greater than those required per the FUS Guidelines are available for this development.

### **10.2 SANITARY SERVICING**

The proposed sanitary sewer network is sufficiently sized to provide gravity drainage of the site. The proposed site will be serviced by a network of gravity sewers which will direct wastewater flows to the existing 375mm dia. sanitary sewer situated within the future Vanguard Drive extension to Lanthier Drive. The proposed drainage outlet to the east has sufficient capacity to receive sanitary discharge from the site based on the findings of the Gloucester and Cumberland EUC Master Servicing Update, and through assessment of the tributary area to the downstream Tenth Line Pumping Station.

### **10.3 STORMWATER SERVICING**

The proposed stormwater management plan is in compliance with the goals specified through consultation with the City of Ottawa. On-site catchbasins and connected ICDs will be proposed to limit peak storm sewer inflows to downstream storm sewers to 50L/s/ha for privately owned areas and 100L/s/ha for municipal ROWs as determined by background reports. The downstream receiving sewer has sufficient capacity to receive runoff volumes from the site based on the findings of the Gloucester and Cumberland EUC Master Servicing Update, and as detailed during design for Innes Road widening.

### **10.4 GRADING**

Grading for the site has been designed to provide an emergency overland flow route as per City requirements and reflects the recommendations made in the Geotechnical Investigation Report prepared by Patersongroup and the Gloucester and Cumberland EUC Master Servicing Update. Erosion and sediment control measures will be implemented during construction to reduce the impact on existing facilities.

## **SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION**

Conclusions  
April 12, 2018

### **10.5 UTILITIES**

Utility infrastructure exists within neighbouring developments and roadways. It is anticipated that existing infrastructure will be sufficient to provide a means of distribution for the proposed site. Exact size, location and routing of utilities will be finalized after detailed design of the individual sites within the development.

# **SITE SERVICING AND STORMWATER MANAGEMENT REPORT – ORLEANS II DRAFT PLAN OF SUBDIVISION**

Appendix A Water Supply Servicing  
April 12, 2018

## **A.4 HYDRAULIC ANALYSIS RESULTS**





### Hydraulic Model Estimated Water Demands

Node ID	AVDY (L/s)	MXDY (L/s)	PKHR (L/s)
9	0.48	0.73	1.31
11	0.64	0.95	1.72
13	0.12	0.17	0.31
15	11.44	28.47	62.54
17	0.44	0.66	1.19
19	1.04	2.59	5.70
21	0.11	0.16	0.30
<b>Total</b>	14.27	33.74	73.07

**AVDY - Junction Results**

ID	Demand	Elevation	Head	Pressure	
	(L/s)	(m)	(m)	(psi)	(Kpa)
11	0.64	88.69	130.61	59.59	410.86
13	0.12	88.87	130.62	59.35	409.21
15	11.44	88.82	130.59	59.39	409.48
17	0.44	88.46	130.59	59.90	413.00
19	1.04	88.26	130.59	60.18	414.93
21	0.11	88.40	130.59	59.98	413.55
9	0.48	89.05	130.70	59.21	408.24

**AVDY - Pipe Results**

ID	From Node	To Node	Length	Diameter	Roughness	Flow	Velocity
			(m)	(mm)		(L/s)	(m/s)
14	11	7001	55.5	300	120	9.78	0.14
16	13	11	150.4	300	120	10.42	0.15
20	7008	9	185.3	300	120	24.05	0.34
22	9	13	153.8	300	120	23.57	0.33
26	13	15	162.3	300	120	13.03	0.18
28	15	17	165.3	300	120	1.59	0.02
30	17	19	102.7	300	120	1.15	0.02
32	19	21	77.9	300	120	0.11	0.00

**PKHR - Junction Results**

ID	Demand	Elevation	Head	Pressure	
	(L/s)	(m)	(m)	(psi)	(Kpa)
11	1.72	88.69	126.66	53.97	372.11
13	0.31	88.87	126.65	53.71	370.32
15	62.54	88.82	126.03	52.90	364.73
17	1.19	88.46	126.02	53.40	368.18
19	5.7	88.26	126.02	53.68	370.11
21	0.3	88.40	126.02	53.48	368.73
9	1.31	89.05	127.18	54.21	373.77

**PKHR - Pipe Results**

ID	From Node	To Node	Length	Diameter	Roughness	Flow	Velocity
			(m)	(mm)		(L/s)	(m/s)
14	11	7001	55.5	300	120	-6.03	0.09
16	13	11	150.4	300	120	-4.31	0.06
20	7008	9	185.3	300	120	67.04	0.95
22	9	13	153.8	300	120	65.73	0.93
26	13	15	162.3	300	120	69.73	0.99
28	15	17	165.3	300	120	7.19	0.10
30	17	19	102.7	300	120	6.00	0.08
32	19	21	77.9	300	120	0.30	0.00

**MXDY + FF - Model Results**

ID	Static Demand	Static Pressure		Static Head	Fire-Flow Demand	Residual Pressure		Available Flow at Hydrant	Available Flow Pressure	
	(L/s)	(psi)	(Kpa)	(m)	(L/s)	(psi)	(Kpa)	(L/s)	(psi)	(Kpa)
11	0.95	54.5	375.77	127.03	183	53.34	367.77	1,161.32	20.01	137.96
13	0.17	54.33	374.59	127.09	183	51.55	355.43	753.56	20.01	137.96
15	28.47	54.19	373.63	126.94	183	44.53	307.03	412.41	20.00	137.90
17	0.66	54.7	377.15	126.94	183	39.49	272.28	294.45	20.00	137.90
19	2.59	54.98	379.08	126.94	183	36.35	250.63	264.6	20.00	137.90
21	0.16	54.78	377.70	126.94	183	33.62	231.80	242.67	20.00	137.90
9	0.73	54.56	376.18	127.43	183	51.89	357.77	781.81	20.01	137.96

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Legend

- PROPOSED WATERMAIN
- PROPOSED VALVE AND VALVE BOX
- PROPOSED VALVE CHAMBER
- PROPOSED REDUCER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER
- PROPOSED STORM SEWER
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED SUBRAIN CATCHBASIN
- EXISTING/FUTURE VALVE AND VALVE BOX
- EXISTING/FUTURE VALVE CHAMBER
- EXISTING/FUTURE REDUCER
- EXISTING/FUTURE FIRE HYDRANT
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- EXISTING/FUTURE CATCHBASIN
- EXISTING/FUTURE SUBRAIN CATCHBASIN
- TACTILE WALKING SURFACE INDICATOR
- THERMAL INSULATION AS PER CITY STD W22
- EXISTING SANITARY SEWER AND MH REMOVAL
- TP22-1

Notes

1. DESIGN OF FUTURE BLOCKS BY OTHERS UNDER SEPARATE CONTRACT
2. DESIGN OF FUTURE VANGUARD DRIVE GEOMETRY AND PROFILE ELEVATIONS BY OTHERS. SANITARY SEWER AND WATER DESIGN BY STANTEC FROM LADY PELLATT STREET EAST TO EXISTING SANITARY SEWER AND WATERMAIN
3. REMOVAL OF EXISTING SANITARY SEWER TO BE COMPLETED AFTER NEW SANITARY SEWER INSTALLED.

Revision	By	Appd.	YY.MM.DD	
5	REVISD PARK SAN AS PER CITY COMMENTS / IFC	MJS	KS	22.11.15
4	REVISD AS PER CITY COMMENTS	MJS	KS	22.09.20
3	ISSUED FOR TENDER	MJS	KS	22.08.31
2	REVISD AS PER CITY COMMENTS	MJS	KS	22.08.24
1	REVISD AS PER CITY COMMENTS	MJS	KS	22.07.27
0	ISSUED TO CITY FOR REVIEW	MJS	KS	22.05.13

Revision	By	Appd.	YY.MM.DD	
5	REVISD AS PER CITY COMMENTS / IFC	MJS	KS	22.11.15
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0	ISSUED TO CITY FOR REVIEW	MJS	KS	22.05.13

File Name: 160401419-SSP MJS DT MJS 22.04.10  
Dwn. Chkd. Dgn. YY.MM.DD

Permit-Seal

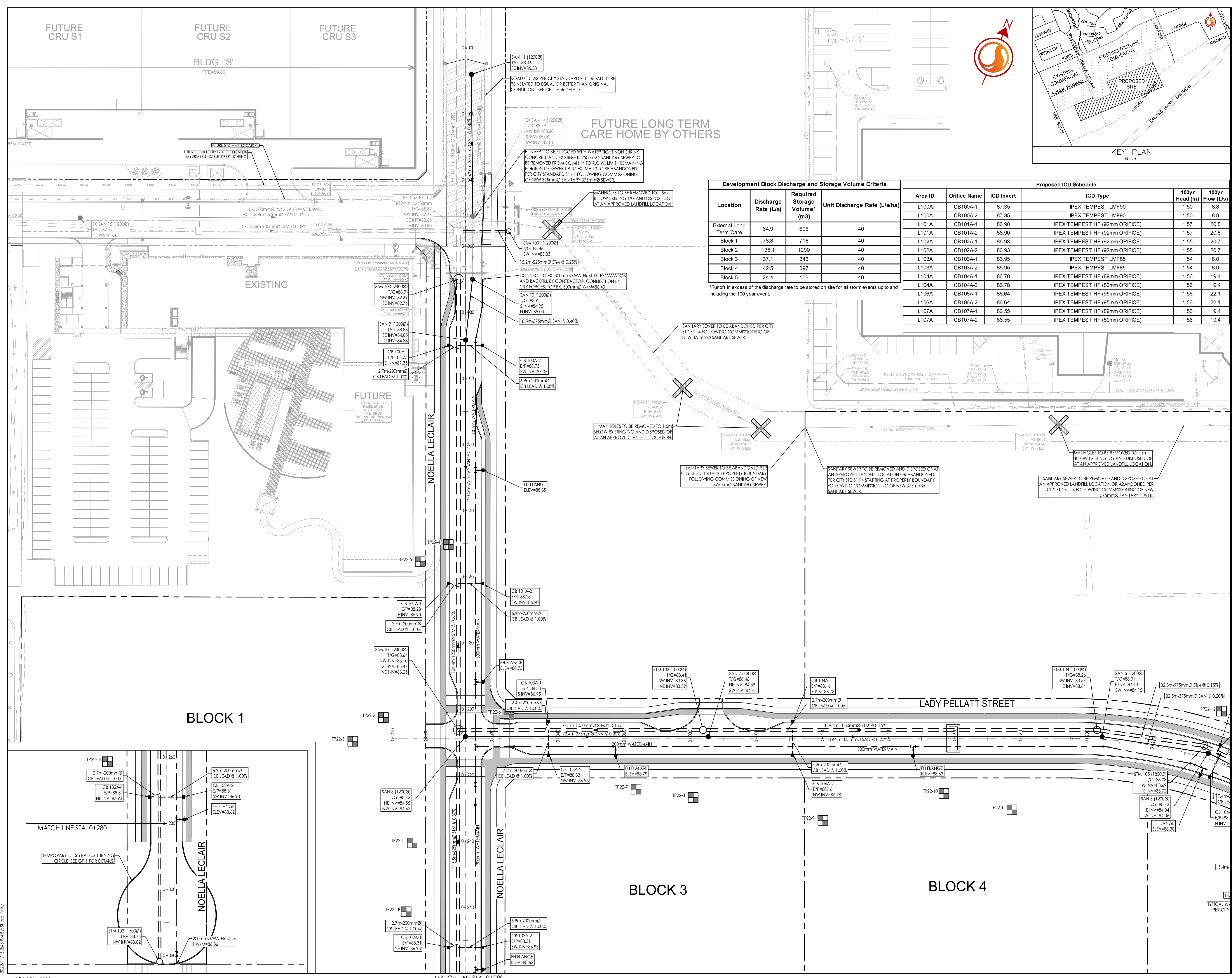
Client/Project  
INNES SHOPPING CENTRES LIMITED

ORLEANS II  
SUBDIVISION  
OTTAWA, ON, CANADA

Title  
SITE SERVICING PLAN

Project No. 160401419 Scale 1:500  
Drawing No. Sheet Revision

SSP-1 3 of 23 5  
Project No. 160401419 Scale 1:500  
Drawing No. Sheet Revision



Development Block Discharge and Storage Volume Criteria

Location	Discharge Rate (L/s)	Required Storage Volume* (m <sup>3</sup> )	Unit Discharge Rate (L/s/ha)
External Long Term Care	64.9	606	40
Block 1	76.8	718	40
Block 2	138.1	1290	40
Block 3	37.1	346	40
Block 4	42.5	397	40
Block 5	24.4	103	40

\*Runoff in excess of the discharge rate to be stored on site for all storm events up to and including the 100 year event.

Proposed ICD Schedule

Area ID	Orifice Name	ICD Invert	ICD Type	100yr Head (m)	100yr Flow (L/s)
L100A	CB100A-1	87.35	IPEX TEMPEST LMF90	1.50	8.8
L100A	CB100A-2	87.35	IPEX TEMPEST LMF90	1.50	8.8
L101A	CB101A-1	86.90	IPEX TEMPEST HF (92mm ORIFICE)	1.57	20.8
L101A	CB101A-2	86.90	IPEX TEMPEST HF (92mm ORIFICE)	1.57	20.8
L102A	CB102A-1	86.93	IPEX TEMPEST HF (92mm ORIFICE)	1.55	20.7
L102A	CB102A-2	86.93	IPEX TEMPEST HF (92mm ORIFICE)	1.55	20.7
L103A	CB103A-1	86.95	IPEX TEMPEST LMF85	1.54	8.0
L103A	CB103A-2	86.95	IPEX TEMPEST LMF85	1.54	8.0
L104A	CB104A-1	86.78	IPEX TEMPEST HF (89mm ORIFICE)	1.56	19.4
L104A	CB104A-2	86.78	IPEX TEMPEST HF (89mm ORIFICE)	1.56	19.4
L106A	CB106A-1	86.64	IPEX TEMPEST HF (95mm ORIFICE)	1.56	22.1
L106A	CB106A-2	86.64	IPEX TEMPEST HF (95mm ORIFICE)	1.56	22.1
L107A	CB107A-1	86.55	IPEX TEMPEST HF (89mm ORIFICE)	1.56	19.4
L107A	CB107A-2	86.55	IPEX TEMPEST HF (89mm ORIFICE)	1.56	19.4



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- TACTILE WALKING SURFACE INDICATOR
- THERMAL INSULATION AS PER CITY STD V22
- EXISTING SANITARY SEWER AND MH REMOVAL
- TEST PIT LOCATION PER GEOTECHNICAL INVESTIGATION BY LRL ENGINEERING, DATED 2022-08-23

Notes

- DESIGN OF FUTURE BLOCKS BY OTHERS UNDER SEPARATE CONTRACT
- DESIGN OF FUTURE VANGUARD DRIVE GEOMETRY AND PROFILE ELEVATIONS BY OTHERS. SANITARY SEWER AND WATER DESIGN BY STANTEC FROM LADY PELLATT STREET EAST TO EXISTING SANITARY SEWER AND WATERMAIN
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5	REVISED PARK SAN AS PER CITY COMMENTS / IFC	MJS	KS	22.11.15
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3	ISSUED FOR TENDER	MJS	KS	22.08.31
2	REVISED AS PER CITY COMMENTS	MJS	KS	22.08.24
1	REVISED AS PER CITY COMMENTS. NEW SW INV TO BE CORED. BENCHING TO BE ADJUSTED TO SUIT NEW SEWER CONFIGURATION	MJS	KS	22.07.27
0	ISSUED TO CITY FOR REVIEW	MJS	KS	22.05.13

File Name:	MJS	DT	MJS	22.04.10
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Permit-Seal

Client/Project  
INNES SHOPPING CENTRES LIMITED

ORLEANS II  
SUBDIVISION  
OTTAWA, ON, CANADA

Title  
SITE SERVICING PLAN

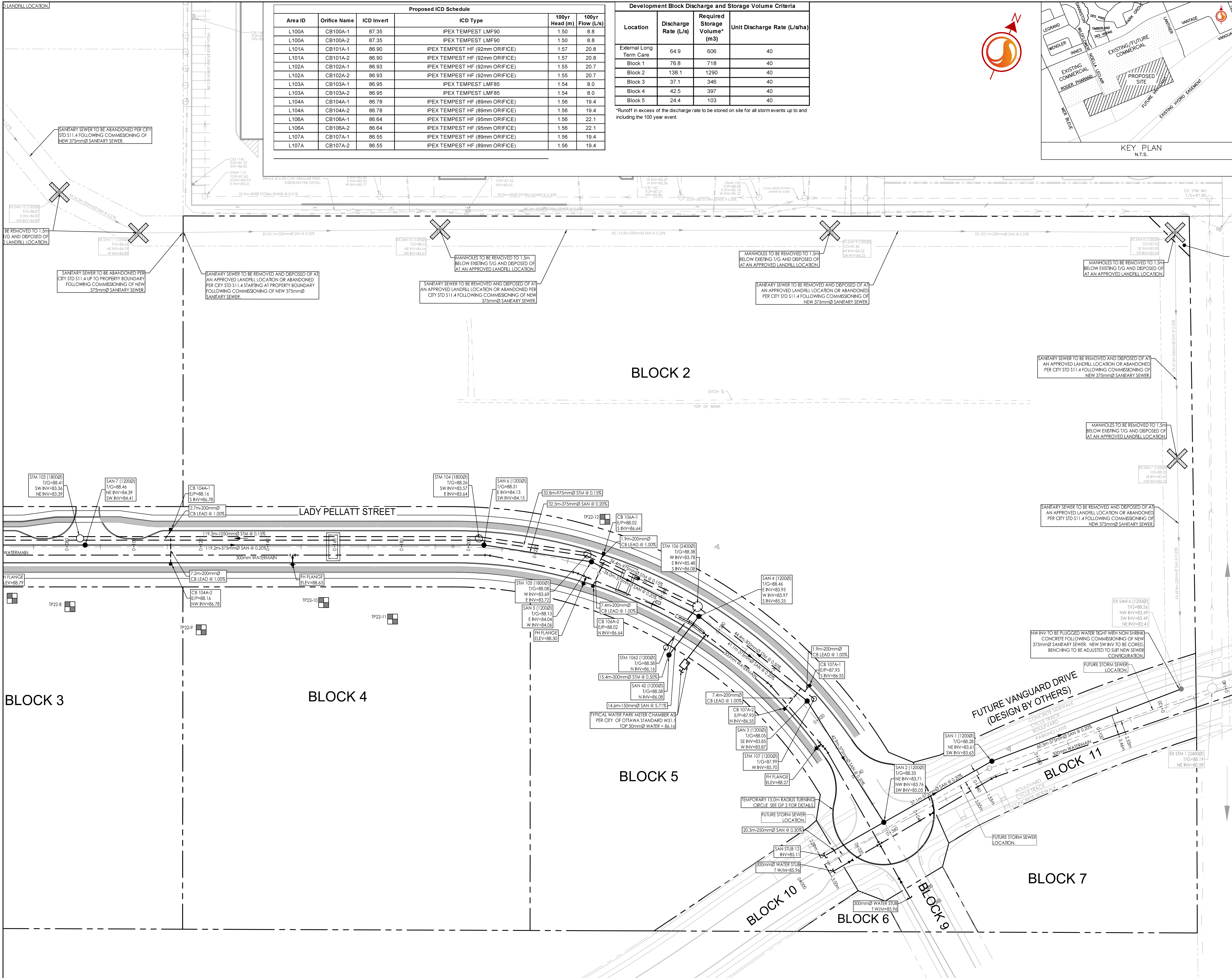
Project No.	Scale
160401419	1:500

Drawing No.	Sheet	Revision
SSP-2	4 of 23	5

Proposed ICD Schedule						
Area ID	Orifice Name	ICD Invert	ICD Type	100yr Head (m)	100yr Flow (L/s)	
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L101A	CB101A-2	86.90	IPEX TEMPEST HF (92mm ORIFICE)	1.57	20.8	
L102A	CB102A-1	86.93	IPEX TEMPEST HF (92mm ORIFICE)	1.55	20.7	
L102A	CB102A-2	86.93	IPEX TEMPEST HF (92mm ORIFICE)	1.55	20.7	
L103A	CB103A-1	86.95	IPEX TEMPEST LMF85	1.54	8.0	
L103A	CB103A-2	86.95	IPEX TEMPEST LMF85	1.54	8.0	
L104A	CB104A-1	86.78	IPEX TEMPEST HF (89mm ORIFICE)	1.56	19.4	
L104A	CB104A-2	86.78	IPEX TEMPEST HF (89mm ORIFICE)	1.56	19.4	
L106A	CB106A-1	86.64	IPEX TEMPEST HF (95mm ORIFICE)	1.56	22.1	
L106A	CB106A-2	86.64	IPEX TEMPEST HF (95mm ORIFICE)	1.56	22.1	
L107A	CB107A-1	86.55	IPEX TEMPEST HF (89mm ORIFICE)	1.56	19.4	
L107A	CB107A-2	86.55	IPEX TEMPEST HF (89mm ORIFICE)	1.56	19.4	

Development Block Discharge and Storage Volume Criteria			
Location	Discharge Rate (L/s)	Required Storage Volume* (m <sup>3</sup> )	Unit Discharge Rate (L/s/ha)
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Block 1	76.8	718	40
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Block 3	37.1	346	40
Block 4	42.5	397	40
Block 5	24.4	103	40

\*Runoff in excess of the discharge rate to be stored on site for all storm events up to and including the 100 year event.



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Legend

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH OPS AND CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS AND CRSD SUPPLEMENT. ONTARIO PROVINCIAL STANDARDS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND BEAR COST OF SAME INCLUDING WATER PERMIT AND ASSOCIATED COSTS.
3. SERVICE AND UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING SERVICES AND UTILITIES PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING LOCATES FROM ALL UTILITIES COMPANIES TO LOCATE EXISTING UTILITIES PRIOR TO EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION AND REINSTATEMENT.
4. ALL DISTURBED AREAS SHALL BE REINSTATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION OF THE ENGINEER & THE CITY. PERMITS FOR REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH OPS 099.00 AND OPS 310.
5. THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENTATION CONTROL PLAN WHICH WILL IMPLEMENT BEST MANAGEMENT PRACTICES TO PREVENT PROTECTION FOR RECEIVING DRAINAGE DURING CONSTRUCTION ACTIVITIES. THE PLAN SHALL INCLUDE BUT NOT LIMITED TO TERRACE SLOTTACKS ON CATCH BASINS. STORM SHALL CHECK FOR EROSION AND SEDIMENT CONTROLS AROUND ALL DISTURBED AREAS. DRAINAGE SHALL BE PAVED INTO SEDIMENT TRAYS.
6. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH ARCHITECT AND THE CITY OF OTTAWA PRIOR TO TREE CUTTING.
7. FOR ALL LANDSCAPING FEATURES (IE TREES, WALKWAYS, PARK DETAILS, NOSE BARRIERS, FENCES ETC) REFER TO LANDSCAPE ARCHITECT DRAWINGS.
8. STREET LIGHTING TO CITY OF OTTAWA STANDARDS. REFER TO STANDARD UTILITY PLAN.
9. EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.
10. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.

ROADWORKS

11. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
12. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS & NECESSARY REPAIRS HAVE BEEN CARRIED OUT TO THE SATISFACTION OF THE CONSULTANT.
13. SUB-EXCAVATED SOFT AREAS & FILL WITH GRANULAR 'B' COMPACTED IN 0.15m LAYERS.
14. CONCRETE CURBS SHALL BE CONSTRUCTED AS PER CITY STANDARD SC1.1 AND SC1.3 (BARRIER OR MOUNTABLE CURB AS SHOWN ON DRAWINGS).
15. THE CONTRACTOR SHALL CONSTRUCT WATERMAIN, WATER SERVICES, CONNECTIONS & AFFLUENTANCES AS PER CITY OF OTTAWA SPECIFICATIONS & SHALL CO-ORDINATE AND PAY ALL RELATED COSTS INCLUDING THE COST OF CONNECTION INSPECTION & DISINFECTION BY CITY PERSONNEL.
16. WATERMAIN PIPE MATERIAL SHALL BE PVC CL 150 DR18. DEFLECTION OF WATERMAIN PIPE IS NOT TO EXCEED 1/20 OF THAT SPECIFIED BY THE MANUFACTURER.
17. SERVICE CONNECTIONS SHALL BE INSTALLED A MINIMUM OF 2400mm FROM ANY CATCHBASK, MANHOLE OR OBJECT THAT MAY COMPROMISE PROTECTION FOR RECEIVING DRAINAGE DURING CONSTRUCTION. CATCH BASINS ON THE W/M STREET SIDE WHERE 2400mm SEPARATION CANNOT BE ACHIEVED (AS PER CITY OF OTTAWA W22 & W23) CATCHBASK PROTECTION AS PER CITY OF OTTAWA W40 AND W41.

STORM AND SANITARY SEWERS

18. SANITARY AND STORM SEWERS 375mm DIA. OR SMALLER SHALL BE PVC SDR 35 INSTALLED AS PER CITY OF OTTAWA STANDARD S6 AND S7. UNLESS OTHERWISE NOTED. SANITARY AND STORM SEWERS LARGER THAN 375mm DIA. SHALL BE CONCRETE CSA A 207 CLASS 100-2 AS PER OPS 807.01 CLASS B BEDDING, UNLESS OTHERWISE NOTED.
19. STORM AND SANITARY MANHOLES SHALL BE 1200mm DIAMETER IN ACCORDANCE WITH OPS 401-701.01 (UNLESS OTHERWISE NOTED) c/w FRAME AND COVER AS PER CITY OF OTTAWA S24, S24.1 AND S24.2. ALL STORM MANHOLES WITH SEWERS 900mm DIA SEWERS AND OVER SIZE SHALL BE BENCHED. ALL OTHERS SHALL BE COVERED WITH 300mm SUMP AS PER CITY STANDARDS.
20. CATCH BASINS SHALL BE IN ACCORDANCE WITH CITY STANDARDS c/w FRAME AND GRADE AS PER S20 AND S21 FOR 600mm DEPTH. STREET CATCH BASIN LEADS SHALL BE 200mm DIA (MIN) PVC SDR 35 AT 1.0% OR WHERE NOT OTHERWISE SHOWN ON PLAN, CATCH BASINS WILL BE INSTALLED WITH BUILT CONTROL SERVICE TOY AS PER CITY SCHEDULE ON SITE SERVING DRAWINGS. WHERE CATCH BASINS REQUIRE C/D OF PEAKY TD OR LARGER, CATCH BASIN LEADS SHALL BE 200mm DIA. PVC SDR 35.
21. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING NO. S8. THE SEALS SHOULD BE AT LEAST 1.5m LONG IN THE TRENCH DIRECTION AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. GENERALLY THE SEALS SHOULD EXTEND FROM THE PROTECTIVE LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPACTABLE BROWN SILTY CLAY PLACED IN MAXIMUM 250mm THICK LAYERS COMPACTED TO A MINIMUM OF 95% OF THE MATERIALS SPECIFIED. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT STRATEGIC LOCATIONS AT NO MORE THAN 60m INTERVALS IN THE SERVICE TRENCHES. REFER TO CATCH BASIN PREPARED BY PATRICK GROUP INC. FOR MICHON CORPORATION. REPORT NO. P0233-2 REVISION 2, DATED FEBRUARY 9, 2016.
22. GRANULAR 'A' SHALL BE PLACED TO A MINIMUM THICKNESS OF 300mm AROUND ALL STRUCTURES WITHIN PAVEMENT AREA AND COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
23. SEWER TRENCH SHALL COVERED WITH CLAY SEAL BEING AS PER CITY OF OTTAWA STANDARDS S6 AND S7. COMPACTION SHALL BE A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
24. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPS 410 AND OPS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL STORM AND SANITARY SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW.

Revision	By	Appd.	YY.MM.DD	
5	REVISED PARK SAN AS PER CITY COMMENTS / JFC	MJS	KS	22.11.15
4	REVISED AS PER CITY COMMENTS	MJS	KS	22.09.20
3	ISSUED FOR TENDER	MJS	KS	22.08.31
2	REVISED AS PER CITY COMMENTS	MJS	KS	22.08.24
1	REVISED AS PER CITY COMMENTS	MJS	KS	22.07.27
0	ISSUED TO CITY FOR REVIEW	MJS	KS	22.05.13

File Name:	MJS	DT	MJS	22.04.10
160401419-PP-1	Dwn.	Chkd.	Dgn.	YY.MM.DD

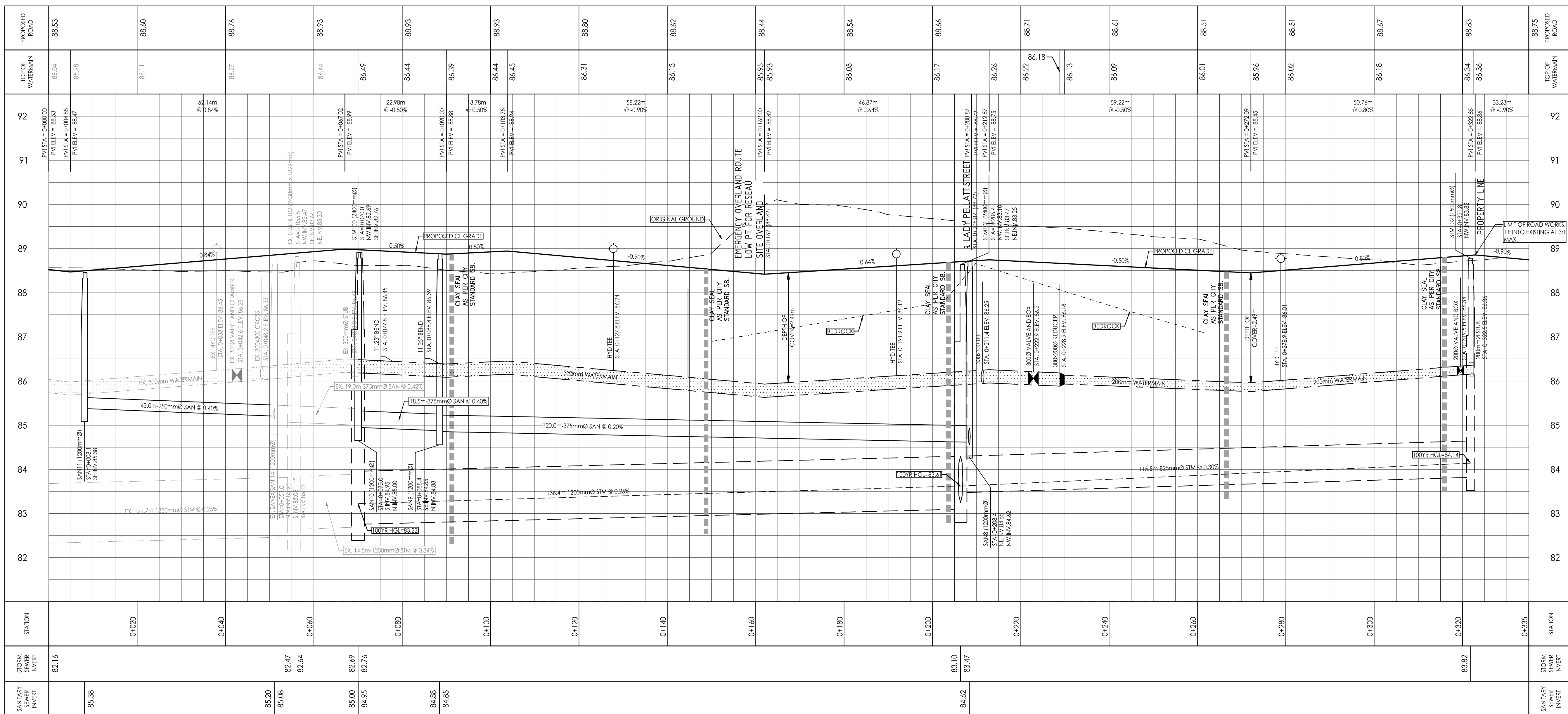
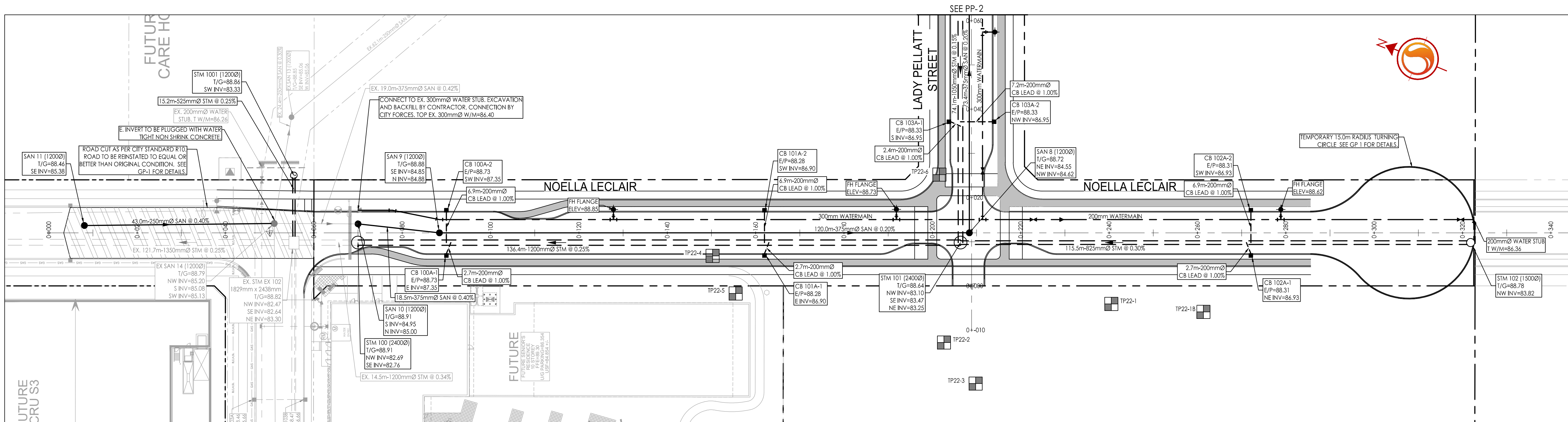
Permit-Seal

Client/Project  
INNES SHOPPING CENTRES LIMITED

ORLEANS II  
SUBDIVISION  
OTTAWA, ON, CANADA

Title  
PLAN AND PROFILE  
NOELLA LECLAIR  
STA. 0+000 TO STA. 0+325

Project No. 160401419  
Scale 1:500H  
Drawing No. Sheet  
Revision



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Legend

GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH OPS AND CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS AND OPS SUPPLEMENT. CHINA/PROVINCIAL STANDARDS WILL APPLY WHERE NO CITY STANDARDS ARE AVAILABLE.
2. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND BEAR COST OF SAME INCLUDING WATER FEE AND ASSOCIATED COSTS.
3. SERVICE AND UTILITY LOCATIONS ARE APPROXIMATE. CONTRACTOR TO VERIFY LOCATION AND ELEVATION OF EXISTING SERVICES AND UTILITIES PRIOR TO ANY CONSTRUCTION. CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING LOCATES FROM ALL UTILITY COMPANIES TO LOCATE EXISTING UTILITIES PRIOR TO EXCAVATION. THE CONTRACTOR IS RESPONSIBLE FOR PROTECTION AND REINSTATEMENT.
4. ALL DISTURBED AREAS SHALL BE RESTORED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION OF THE ENGINEER & THE CITY. PERMITS FOR REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH OPSD 509.010 AND OPS 310.
5. THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENTATION CONTROL PLAN WHICH WILL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE PROTECTION FOR RECEIVING DRAINAGE DURING CONSTRUCTION ACTIVITIES. THE PLAN SHALL INCLUDE BUT NOT LIMITED TO TERRAIN STRIPS ON CATCH BASINS. MAIN SHALL CHECK DAMAGED AREAS AND SEDIMENT CONTROLS AROUND ALL DISTURBED AREAS. DEWATERING SHALL BE PUMPED INTO SEDIMENT TRAPS.
6. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH ARCHITECT AND THE CITY OF OTTAWA PRIOR TO TREE CUTTING.
7. FOR ALL LANDSCAPING FEATURES (i.e. TREES, WALKWAYS, PARK DETAILS, NOISE BARRIERS, FENCES, ETC.) REFER TO LANDSCAPE ARCHITECT PLAN.
8. STREET LIGHTING TO CITY OF OTTAWA STANDARDS. REFER TO COMPLETE UTILITY PLAN.
9. EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.
10. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE STATED.
11. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
12. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS & NECESSARY REPAIRS HAVE BEEN CARRIED OUT TO THE SATISFACTION OF THE CONSULTANT.
13. SUB-EXCAVATE SOFT AREAS & FILL WITH GRANULAR "B" COMPACTED IN 0.15m LAYERS.
14. CONCRETE CURBS SHALL BE CONSTRUCTED AS PER CITY STANDARDS SC1.1 AND SC1.3 (BARRIER OR MOUNTABLE CURB AS SHOWN ON DRAWINGS).

ROADWORK

15. THE CONTRACTOR SHALL CONSTRUCT WATERMAIN, WATER SERVICES, CONNECTIONS & AFFINUITANCES AS PER CITY OF OTTAWA SPECIFICATIONS & SHALL CO-ORDINATE AND PAY ALL RELATED COSTS INCLUDING THE COST OF CONNECTION INSPECTION & DEFLECTION BY CITY PERSONNEL.
16. WATERMAIN PIPE MATERIAL SHALL BE PVC CL 150 DR18. DEFLECTION OF WATERMAIN PIPE IS NOT TO EXCEED 1/2 OF THAT SPECIFIED BY THE MANUFACTURER.
17. SERVICE CONNECTIONS SHALL BE INSTALLED A MINIMUM OF 2400mm FROM ANY CATCHBASIN, MANHOLE OR OTHER STRUCTURE CONTRIBUTING TO FLOODING. THERMAL ISOLATION SHALL BE INSTALLED ON ALL PROPOSED CBS ON THE W/M STREET SIDE WHERE 2400mm SEPARATION CANNOT BE ACHIEVED (AS PER CITY OF OTTAWA W22 & W23) (CATHODIC PROTECTION AS PER CITY OF OTTAWA W40 AND W41).

WATERMANS

18. SANITARY AND STORM SEWERS 375mm DIA. OR SMALLER SHALL BE PVC SDR 35 INSTALLED AS PER CITY OF OTTAWA STANDARD S6 AND S7. UNLESS OTHERWISE NOTED. SANITARY AND STORM SEWERS LARGER THAN 375mm DIA. SHALL BE CONCRETE C/S A 20' CLASS 100 AS PER OPSD 807.010 CLASS B BEDDING, UNLESS OTHERWISE NOTED.
19. STORM AND SANITARY MANHOLES SHALL BE 1200mm DIAMETER IN ACCORDANCE WITH OPSD-701.01 (UNLESS OTHERWISE NOTED) c/w FRAME AND COVER AS PER CITY OF OTTAWA S24, S24.1 AND S25. ALL STORM MANHOLES WITH SEWERS 900mm DIA. SEWERS AND OTHER PIPE SIZE SHALL BE BENCHED. ALL OTHERS SHALL BE COMPLETED WITH 300mm Sumps AS PER CITY STANDARDS.

20. CATCH BASINS SHALL BE IN ACCORDANCE WITH CITY STANDARDS c/w FRAME AND GRADE AS PER S20 AND S21 FOR REAR YARDS AND S3 FOR STREET CBS. PROVIDE 100mm ADJUSTED SPACERS. ALL CATCH BASINS SHALL HAVE Sumps (600mm DEEP). STREET CATCH BASIN LEADS SHALL BE 200mm DIA. (MIN) PVC SDR 35 AT 1.0% OR WHERE NOT OTHERWISE SHOWN ON PLAN, CATCH BASINS WILL BE INSTALLED WITH BENCH CONTROL DEVICES (CD) AS PER ICD SCHEDULE ON SITE SERVING DRAWINGS. WHERE CATCH BASINS REQUIRE CD OF BENCH TYPE "D" OR LARGER, CATCH BASIN LEADS SHALL BE 200mm DIA. PVC SDR 35.
21. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING NO. S8. THE SEALS SHOULD BE AT LEAST 1.5m LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. GENERALLY, THE SEALS SHOULD BE INSTALLED FROM THE TRENCH LINE AND FULLY PENETRATE THE BEDDING, SUBBEDDING AND COVER MATERIAL. THE BARRIERS SHOULD BE RELATIVELY DRY AND COMPACTABLE BROWN SILTY CLAY PLACED IN MAXIMUM 225mm THICK LAYERS COMPACTED TO A MINIMUM OF 95% OF THE MATERIAL'S SPECIFIC GRAVITY. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT STRATEGIC LOCATIONS AT NO MORE THAN 60m INTERVALS IN THE SERVICE TRENCHES. REFER TO CHECK SHEET FOR PREPARED BY PATRICK GROUP INC. FOR MICHENER CORPORATION, REPORT NO. P0233-2 REVISION 2, DATED FEBRUARY 9, 2016.
22. GRANULAR "A" SHALL BE PLACED TO A MINIMUM THICKNESS OF 300mm AROUND ALL STRUCTURES WITHIN PAVEMENT AREA AND COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
23. SEWER TRENCH SHALL CONSIST OF A CLAY "B" BEDDING AS PER CITY OF OTTAWA STANDARDS S6 AND S7. COMPACTATION SHALL BE A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
24. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPS 410 AND OPS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL STORM AND SANITARY SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW.

STORM AND SANITARY SEWERS

25. REVISED PARK SAN AS PER CITY COMMENTS / IFC
4. REVISED AS PER CITY COMMENTS
3. ISSUED FOR TENDER
2. REVISED AS PER CITY COMMENTS
1. REVISED AS PER CITY COMMENTS
0. ISSUED TO CITY FOR REVIEW

Revision	By	App'd.	YY.MM.DD
5	MJS	KS	22.11.15
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3	MJS	KS	22.08.31
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1	MJS	KS	22.07.27
0	MJS	KS	22.05.13

File Name:	MJS	DT	MJS	22.04.10
160401419-PP-2-3	Dwn.	Chkd.	Dgn.	YY.MM.DD

Permit Seal

Client/Project  
**INNES SHOPPING CENTRES LIMITED**

ORLEANS II  
SUBDIVISION  
OTTAWA, ON, CANADA

Title  
**LADY PELLATT STREET  
STA. 0+000 TO STA. 0+320**

Project No.  
160401419

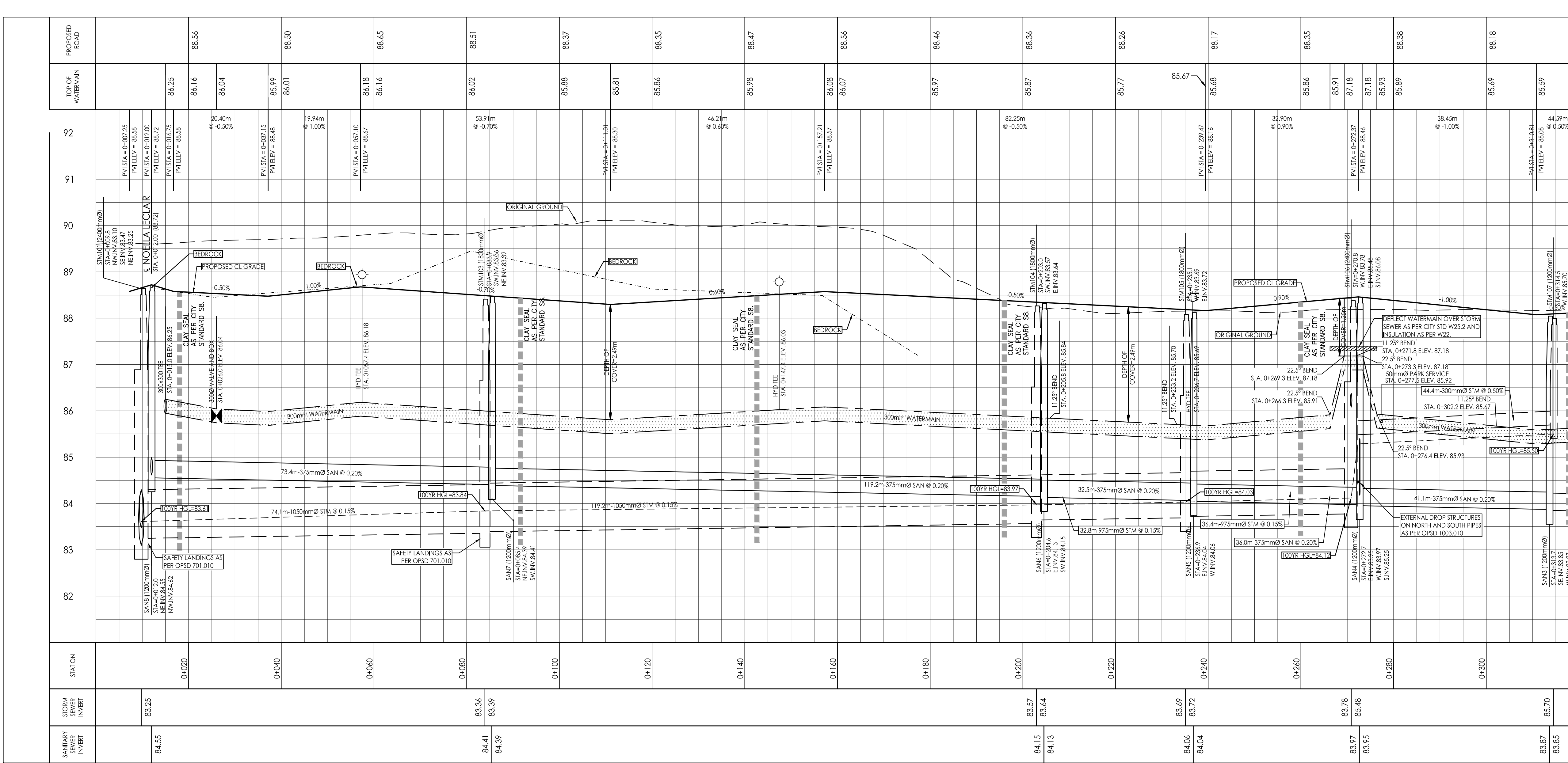
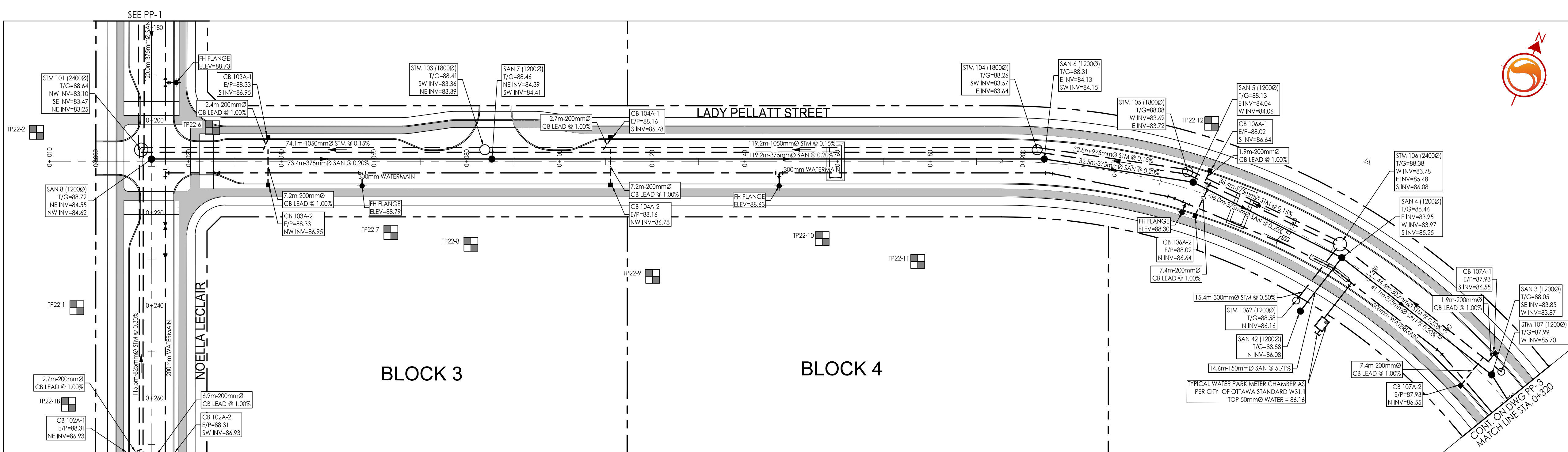
Scale  
1:500H  
1:500V

Drawing No.  
PP-2

Sheet  
7 of 23

Revision  
5

Project No. 160401419  
Scale 1:500H, 1:500V  
Drawing No. PP-2  
Sheet 7 of 23  
Revision 5  
Project Title: ORLEANS II SUBDIVISION, OTTAWA, ON, CANADA  
Title: LADY PELLATT STREET STA. 0+000 TO STA. 0+320  
Project Location: 400-1331 Clyde Avenue, Ottawa, ON  
Tel: 613.722.4420  
www.stantec.com



STATION	PROPOSED ROAD	TOP OF WATERMAIN	PROPOSED ROAD
92	88.56	86.25	92
91	88.56	86.04	91
90	88.56	85.99	90
89	88.56	86.01	89
88	88.56	86.18	88
87	88.56	86.16	87
86	88.56	86.02	86
85	88.56	85.88	85
84	88.56	85.81	84
83	88.56	85.86	83
82	88.56	85.77	82
81	88.56	85.67	81
80	88.56	85.68	80
79	88.56	85.86	79
78	88.56	85.91	78
77	88.56	87.18	77
76	88.56	85.93	76
75	88.56	85.89	75
74	88.56	85.69	74
73	88.56	85.69	73
72	88.56	85.59	72
71	88.56	85.43	71
70	88.56	85.43	70

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Legend

- ORIGINAL GROUND ELEVATION
- PROPOSED ELEVATION
- PROPOSED LOT CORNER ELEVATION
- EXISTING ELEVATION AT LOT CORNER
- FLOW DIRECTION AND GRADE
- FINISHED FIRST FLOOR ELEVATION
- UNDERSIDE OF FOOTING ELEVATION
- ENGINEERING FILL REQUIRED
- TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN)
- DIRECTION OF EMERGENCY OVERLAND FLOW
- PROPOSED VALVE BOX
- PROPOSED VALVE CHAMBER
- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM SEWER MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
- PROPOSED DEPRESSED CURB LOCATION
- PROPOSED BARRIER CURB

Notes

Revision	By	Appd.	YY.MM.DD	
5	REVISED PARK SAN AS PER CITY COMMENTS / JFC	MJS	KS	22.11.15
4	REVISED AS PER CITY COMMENTS	MJS	KS	22.09.20
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1	REVISED AS PER CITY COMMENTS	MJS	KS	22.07.27
0	ISSUED TO CITY FOR REVIEW	MJS	KS	22.05.13

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16040149-GP	Dwn.	Chkd.	Dgn.	YY.MM.DD

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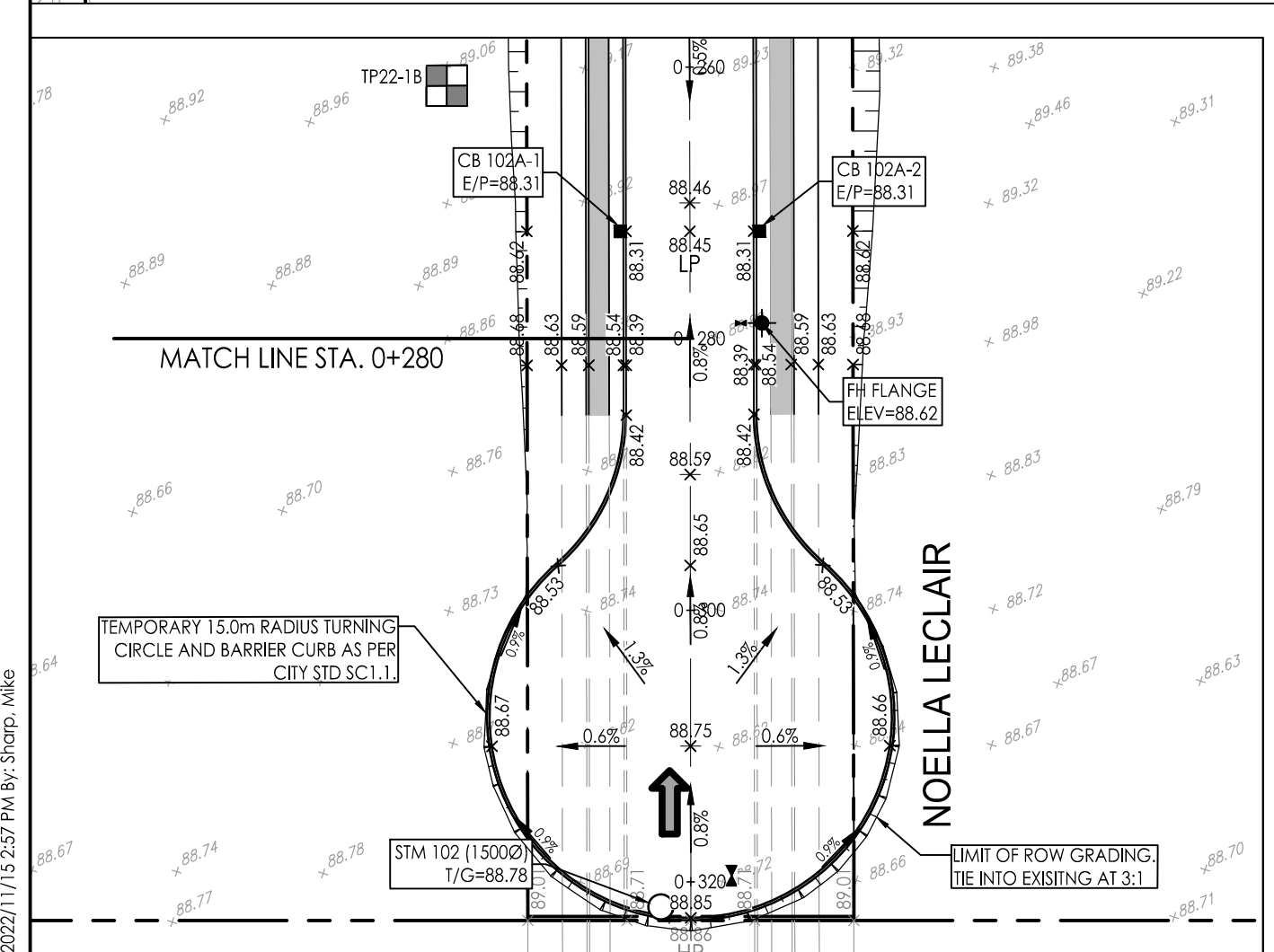
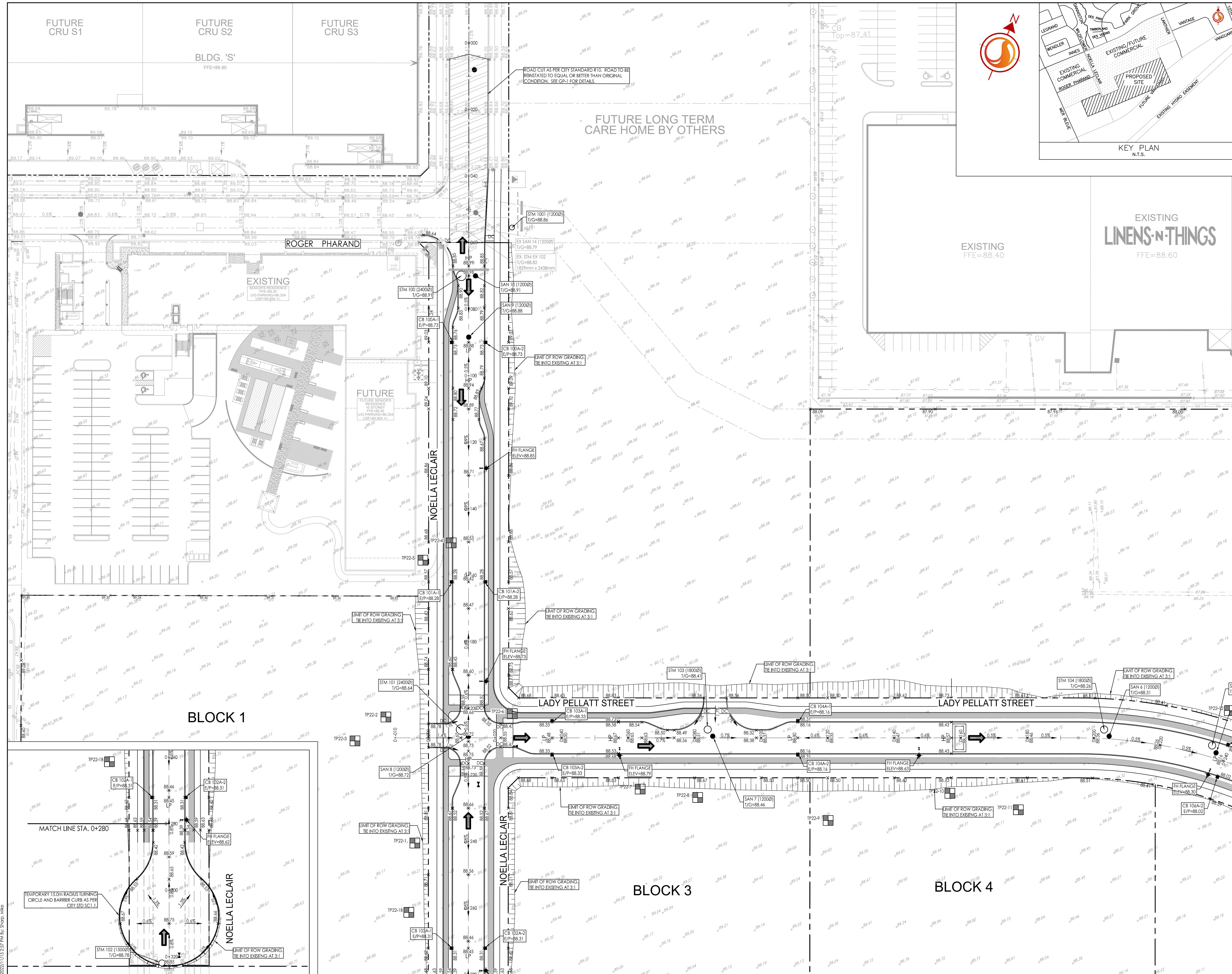
Client/Project  
INNES SHOPPING CENTRES LIMITED

ORLEANS II  
SUBDIVISION  
OTTAWA, ON, CANADA

Title  
GRADING PLAN

Project No. 16040149 Scale 0 5 15 25m  
1:500

Drawing No. GP-1 Sheet 11 of 23 Revision 5



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Legend

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- FLOW DIRECTION AND GRADE
- FINISHED FIRST FLOOR ELEVATION
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- ENGINEERED FILL REQUIRED
- TERRACING 3:1 SLOPE MAXIMUM (UNLESS OTHERWISE SHOWN)
- DIRECTION OF EMERGENCY OVERLAND FLOW
- PROPOSED VALVE BOX
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- PROPOSED FIRE HYDRANT
- PROPOSED SANITARY SEWER MANHOLE
- PROPOSED STORM SEWER MANHOLE
- PROPOSED CATCHBASIN MANHOLE
- PROPOSED CATCHBASIN
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- PROPOSED BARRIER CURB

Notes

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File Name:	MJS	DT	MJS	22.04.10
160401419-GP	Dwn.	Chkd.	Dgn.	YY.MM.DD

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Client/Project  
INNES SHOPPING CENTRES LIMITED

ORLEANS II  
SUBDIVISION  
OTTAWA, ON, CANADA

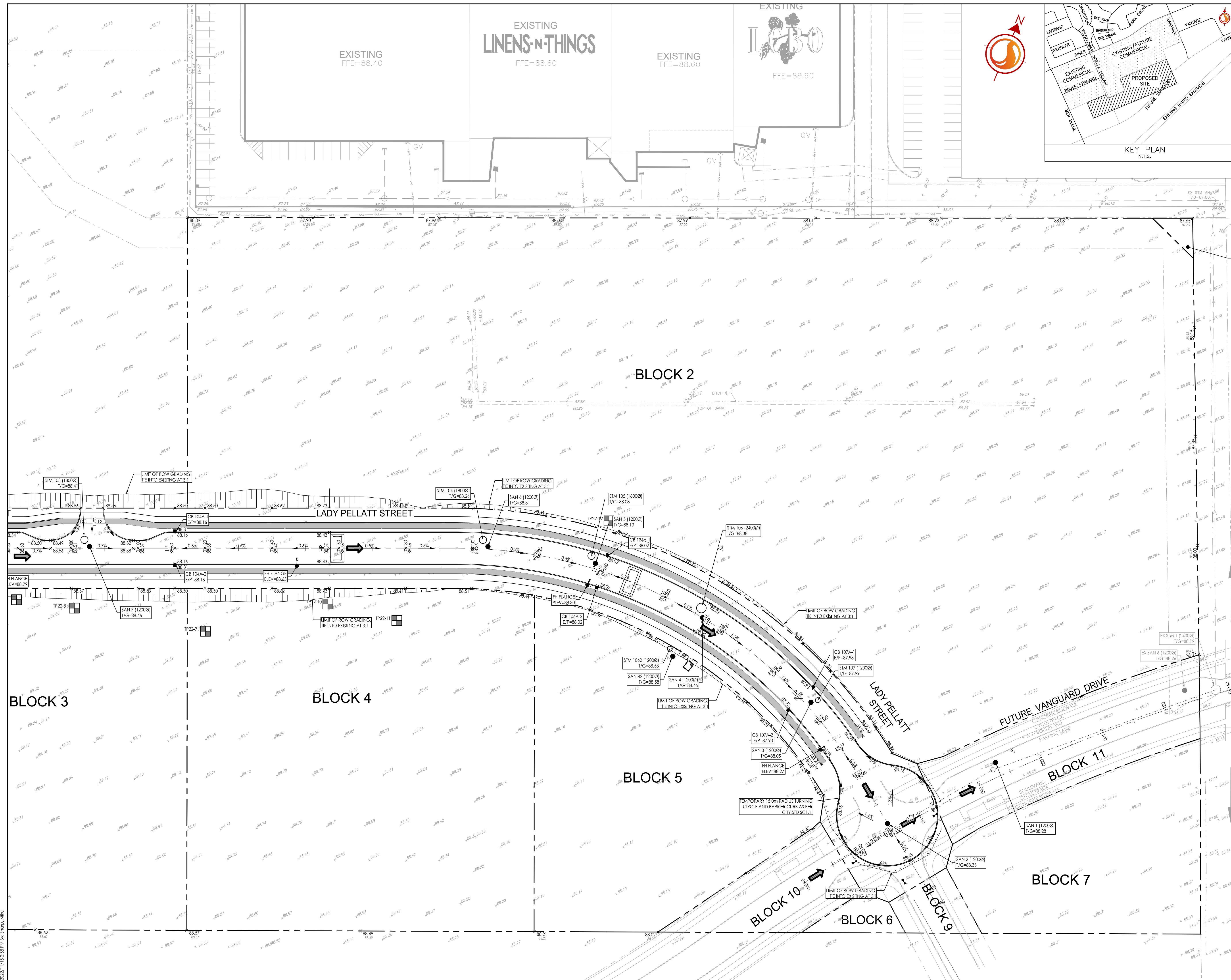
Title  
GRADING PLAN

Project No. 160401419 Scale 1:500

Drawing No. GP-2 Sheet 12 of 23 Revision 5

Project No. 160401419 Scale 0 5 15 25m

Drawing No. GP-2 Sheet 12 of 23 Revision 5



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 2022/11/22 09:16:06  
 ORIGINAL SHEET - ARCH D

D07-16-18-0006

# APPENDIX

# APPENDIX

## B

- WATERMAIN BOUNDARY CONDITIONS FROM CITY OF OTTAWA
- EMAILS FROM CITY OF OTTAWA
- FIRE UNDERWRITERS SURVEY – FIRE FLOW CALCULATION
- WATER DEMAND CALCULATION



## Boundary Conditions 1001 Noella Leclair Way & 4200 Innes Road

### Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	80	1.33
Maximum Daily Demand	120	2.00
Peak Hour	216	3.60
Fire Flow Demand #1	7,020	117.00

### Location



### Results

#### Connection 1 – Roger-Pharand St.

Demand Scenario	Head (m)	Pressure <sup>1</sup> (psi)
Maximum HGL	130.3	59.5
Peak Hour	126.7	54.5
Max Day plus Fire Flow	128.1	56.4

<sup>1</sup> Ground Elevation = 88.4 m

**Connection 2 – Prom. Lanthier Dr.**

<b>Demand Scenario</b>	<b>Head (m)</b>	<b>Pressure<sup>1</sup> (psi)</b>
Maximum HGL	130.3	60.2
Peak Hour	126.2	54.4
Max Day plus Fire Flow	127.5	56.3

<sup>1</sup> Ground Elevation = 87.9 m

**Notes**

**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.*

## Yang, Winston

---

**From:** Polyak, Alex <alex.polyak@ottawa.ca>  
**Sent:** January 30, 2023 1:25 PM  
**To:** Yang, Winston  
**Subject:** RE: Boundary Condition Request - 1001 Noella Leclair Way & 4200 Innes Road (Long-Term Care Home)  
**Attachments:** 1001 Noella Leclair Way & 4200 Innes Road\_Boundary Condition(23Jan2023).docx  
**Follow Up Flag:** Follow up  
**Flag Status:** Flagged

Hello Winston,

Please see the boundary conditions for 4200 Innes Road attached.

Regards,

---

### **Oleksandr (Alex) Polyak, B.Eng., P.Eng**

Project Manager, Infrastructure Approvals, Development Review East Branch | Gestionnaire de projet, Direction de l'examen des projets d'aménagement – Est.  
Planning, Real Estate and Economic Development Department | Direction générale de la planification, des biens immobiliers et du développement économique

City of Ottawa | Ville d'Ottawa  
110 Laurier Ave., 4th Fl East, Ottawa ON K1P 1J1  
Email: alex.polyak@ottawa.ca  
www.Ottawa.ca



---

**From:** Yang, Winston <Winston.Yang@wsp.com>  
**Sent:** January 23, 2023 1:34 PM  
**To:** Polyak, Alex <alex.polyak@ottawa.ca>  
**Subject:** RE: Boundary Condition Request - 1001 Noella Leclair Way & 4200 Innes Road (Long-Term Care Home)

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Hi Alex,

It's okay. Most of the design information for fire protection and water demand could be obtained from the Stantec servicing report for the plan of subdivision.

I just like to double check the recent boundary condition from City model.

Yours truly,



**Winston Ding Bang Yang, P.Eng., PMP**

Senior Civil Engineer  
Infrastructure / Land Development & Municipal Engineering  
Ottawa

T+ 1 613-690-0538  
M+ 1 647-628-8108

WSP Canada Inc.  
2611 Queensview Drive, Suite 300  
Ottawa, Ontario,  
K2B 8K2 Canada

[wsp.com](http://wsp.com)

---

**From:** Polyak, Alex <[alex.polyak@ottawa.ca](mailto:alex.polyak@ottawa.ca)>

**Sent:** January 23, 2023 11:35 AM

**To:** Yang, Winston <[Winston.Yang@wsp.com](mailto:Winston.Yang@wsp.com)>

**Subject:** RE: Boundary Condition Request - 1001 Noella Leclair Way & 4200 Innes Road (Long-Term Care Home)

Good morning Winston,

Thank you for submission the boundary condition request. Due to current workloads, staff will provide a response to your request within 3 weeks.

Regards,

---

**Oleksandr (Alex) Polyak, B.Eng., P.Eng**

Project Manager, Infrastructure Approvals, Development Review East Branch | Gestionnaire de projet,  
Direction de l'examen des projets d'aménagement – Est.

Planning, Real Estate and Economic Development Department | Direction générale de la planification, des  
biens immobiliers et du développement économique

City of Ottawa | Ville d'Ottawa

110 Laurier Ave., 4th Fl East, Ottawa ON K1P 1J1

Email: [alex.polyak@ottawa.ca](mailto:alex.polyak@ottawa.ca)

[www.Ottawa.ca](http://www.Ottawa.ca)



**From:** Yang, Winston <[Winston.Yang@wsp.com](mailto:Winston.Yang@wsp.com)>  
**Sent:** January 20, 2023 4:18 PM  
**To:** Polyak, Alex <[alex.polyak@ottawa.ca](mailto:alex.polyak@ottawa.ca)>  
**Subject:** Boundary Condition Request - 1001 Noella Leclair Way & 4200 Innes Road (Long-Term Care Home)  
**Importance:** High

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Hello Alex,

We are seeking information for the boundary conditions for the Long-Term Care Home at 1001 Noella Leclair Way & 4200 Innes Road in Orleans Ottawa.  
Included below is the request information, please advise if you require any further details.

**Proposed:** 4 Storey Building with 256 Bed. Dual 200mm water services are needed, one service will be connected to the 300mm W/M on Noella Leclair west of the site, the other one will be connected to the 300mm W/M on Lady Pellatt Street south of the site.  
See attached sketch for the proposed site and water servicing locations.

**Provided information:**

Scenario	L/min	L/s
Average Daily Demand	79.8	1.33
Maximum Daily Demand	120	2.00
Peak Hour	216	3.60
Fire Flow Demand	7,000	117

**Location:** 1001 Noella Leclair Way & 4200 Innes Road

Detail calculations are attached for review and reference.

Yours truly,



**Winston Ding Bang Yang, P.Eng., PMP**  
Senior Civil Engineer  
Infrastructure / Land Development & Municipal Engineering  
Ottawa

T+ 1 613-690-0538  
M+ 1 647-628-8108

WSP Canada Inc.  
2611 Queensview Drive, Suite 300  
Ottawa, Ontario,  
K2B 8K2 Canada

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**Proposed 4-Storey + Partial Basement Long-Term Care Home**  
**Fire Flow Requirements Based on Fire Underwriters Survey (FUS) 2020**

1. An estimate of the Fire Flow required for a given fire area may be estimated by:  $F = 220 C \sqrt{A}$

- F = required fire flow in litres per minute
- C = coefficient related to the type of construction
  - 1.5 for **Type V** Wood Frame Construction
  - 0.8 for **Type IV-A** Mass Timber Construction
  - 0.9 for **Type IV-B** Mass Timber Construction
  - 1.0 for **Type IV-C** Mass Timber Construction
  - 1.5 for **Type IV-D** Mass Timber Construction
  - 1.0 for **Type III** Ordinary Construction
  - 0.8 for **Type II** Noncombustible Construction
  - 0.6 for **Type I** Fire resistive Construction

A = 2-b) The single largest Floor Area plus 25% of each of the two immediately adjoining floors

A = 5075 m<sup>2</sup>  
 C = 0.8  
 F = 12537.5 L/min

rounded off to 13,000 L/min (min value of 2000 L/min)

2. The value obtained in 1. may be reduced by as much as 25% for occupancies having a low contents fire hazard.

Non-combustible	-25%
Limited Combustible	-15%
Combustible	0%
Free Burning	15%
Rapid Burning	25%

Reduction due to low occupancy hazard  $-15\% \times 13,000 = 11,050$  L/min

3. The value obtained in 2. may be reduced by as much as 50% for buildings equipped with automatic sprinkler protection.

Adequate Sprinkler confirms to NFPA13	-30%
Water supply common for sprinklers & fire hoses	-10%
Fully supervised system	-10%
No Automatic Sprinkler System	0%

Reduction due to Sprinkler System  $-40\% \times 11,050 = 4,420$  L/min

4. The value obtained in 2. is increased for structures exposed within 45 metres by the fire area under consideration.

Separation	Charge
0 to 3 m	25%
3.1 to 10 m	20%
10.1 to 20 m	15%
20.1 to 30 m	10%
30.1 to 45 m	0%

Side 1	65	0% north side
Side 2	44	0% east side
Side 3	70	0% south side
Side 4	31	0% west side

0% (Total shall not exceed 75%)

Increase due to separation  $0\% \times 11,050 = 0$  L/min

5. The flow requirement is the value obtained in 2., minus the reduction in 3., plus the addition in 4.

The fire flow requirement is 7,000 L/min (Rounded to nearest 1000 L/min)  
 or **117 L/sec**  
 or 1,849 gpm (us)  
 or 1,540 gpm (uk)

**Water Demand Calculation Sheet**

**Project:** 1001 Noella Leclair Way & 4200 Innes Road  
**Location:** City of Ottawa  
**WSP Project No.** 221-12376-00

**Date:** 2023-01-20  
**Design:** WY  
**Page:** 1 of 1



Proposed Buildings	Residential				Pop.	Non-Residential		Average Daily			Maximum Daily			Maximum Hourly			Fire Demand (l/s)		
	Units					Industrial (ha)	Long-Term Care (bed)	Demand (l/s)			Demand (l/s)			Demand (l/s)					
	SF	1 BED APT	2 BED APT	ST		Res.	Non-Res.	Total	Res.	Non-Res.	Total	Res.	Non-Res.	Total					
<b>Proposed 4-Storey Long-Term Care Building</b>					0		256.00		1.33	1.33			2.00	2.00			3.60	3.60	117
Long Term Care																			
<b>Total</b>										1.33				2.00				3.60	117

**Population Densities**

Single Family	3.4 person/unit
Semi-Detached	2.7 person/unit
Duplex	2.3 person/unit
Townhome (Row)	2.7 person/unit
Bachelor Apartment	1.4 person/unit
1 Bedroom Apartment	1.8 person/unit
2 Bedroom Apartment	2.1 person/unit
3 Bedroom Apartment	3.1 person/unit
4 Bedroom Apartment	4.1 person/unit

**Average Daily Demand**

Residential	280 l/cap/day
Industrial	35000 l/ha/day
Institutional	28000 l/ha/day
Commercial	28000 l/ha/day
Long-Term Care	450 l/(bed/day)

**Maximum Daily Demand**

Residential	2.5 x avg. day
Industrial	1.5 x avg. day
Institutional	1.5 x avg. day
Commercial	1.5 x avg. day

**Maximum Hourly Demand**

Residential	2.2 x max. day
Industrial	1.8 x max. day
Institutional	1.8 x max. day
Commercial	1.8 x max. day



# APPENDIX

# APPENDIX

## C

- STORM DRAINAGE AREA PLAN
- STORM SEWER DESIGN SHEET

STORM SEWER DESIGN SHEET



EXTENDICARE (CANADA) INC - ORLEANS LTC HOME  
 Residential Development  
 Project: 221-12376-00  
 Date: February, 2023

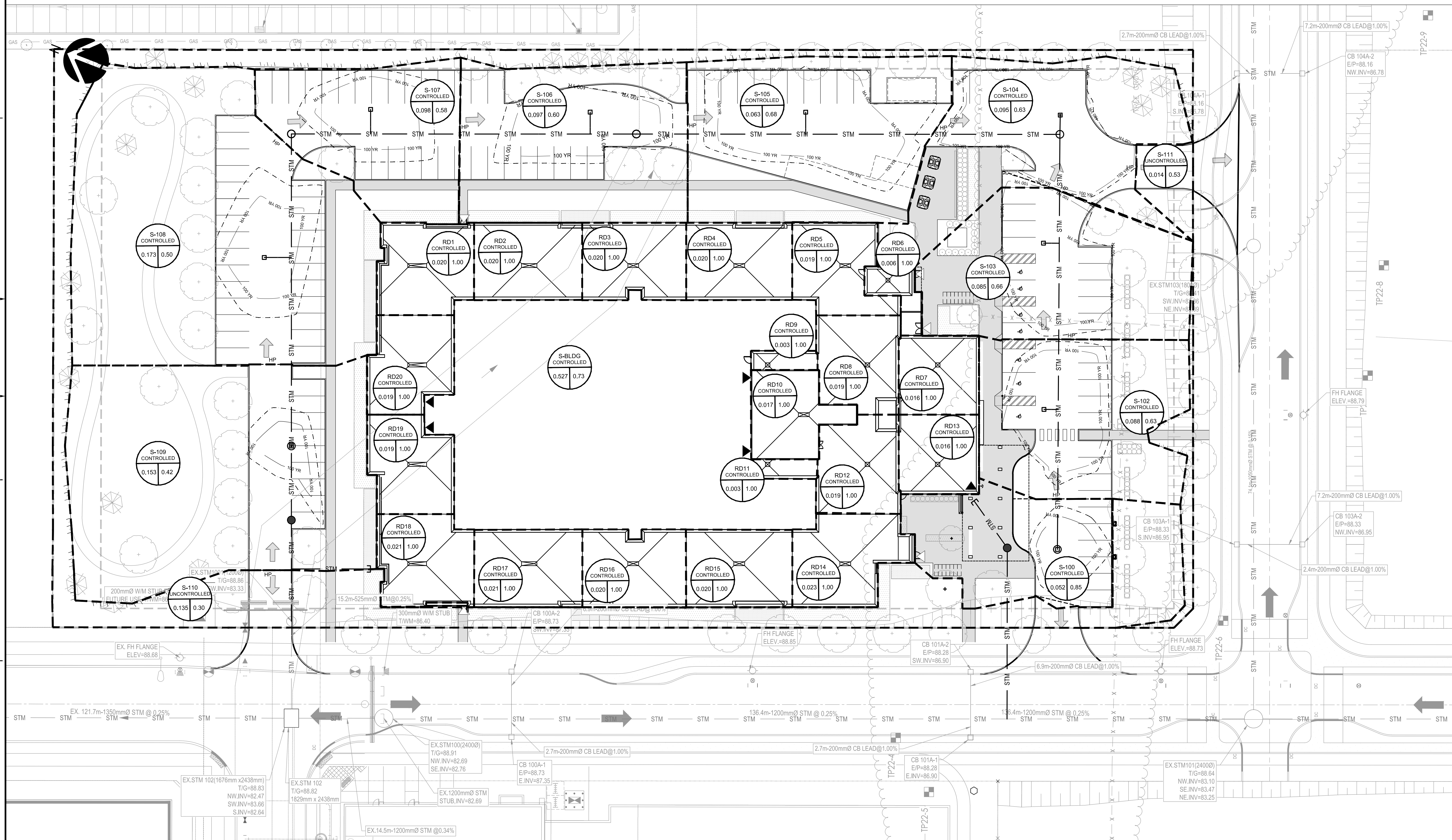
LOCATION				AREA (Ha)						RATIONAL DESIGN FLOW										PROPOSED SEWER DATA													
STREET	AREA ID	FROM	TO	C= 0.25	C= 0.50	C= 0.70	C= 0.80	C= 0.90	C= 1.00	IND 2.78AC	CUM 2.78 AC	INLET (min)	TOTAL (min)	I (2) (mm/hr)	I (5) (mm/hr)	I (100) (mm/hr)	BLDG FLOW (L/s)	2yr PEAK FLOW (L/s)	5yr PEAK FLOW (L/s)	100yr PEAK FLOW (L/s)	ICD FIXED FLOW (L/s)	DESIGN FLOW (L/s)	MODIFIED DESIGN FLOW (L/s)	MATERIAL PIPE	SIZE (mm)	SLOPE (%)	LENGTH (m)	CAPACITY (l/s)	VELOCITY (m/s)	TIME IN PIPE	AVAIL CAP (2yr) (L/s)	(%)	
<b>To Noelia Leclair Way Exxtension</b>																																	
	S-102	CB01	CBMH101-STMH102	0.037				0.051		0.153	0.153	10.00	10.04	76.81	104.19	178.56		11.78					11.78		PVC DR-35	200.0	1.00	2.25	32.83	1.04	0.04	21.06	64.13%
	S-103	CB02	CBMH101-STMH102	0.031				0.054		0.157	0.157	10.00	10.04	76.81	104.19	178.56		12.03					12.03		PVC DR-35	200.0	1.00	2.48	32.83	1.04	0.04	20.80	63.35%
	S-101	CBMH101	STMH102	0.003				0.048		0.122	0.432	10.04	11.11	76.65	103.98	178.20		33.13					33.13		PVC DR-35	250.0	0.70	65.08	49.80	1.01	1.07	16.68	33.49%
	S-104	CB03	STMH102	0.040				0.055		0.165	0.165	10.00	10.05	76.81	104.19	178.56		12.70					12.70		PVC DR-35	200.0	1.00	3.05	32.83	1.04	0.05	20.13	61.30%
	S-105	CB04	STMH102-STMH103	0.035				0.069		0.197	0.197	10.00	10.06	76.81	104.19	178.56		15.13					15.13		PVC DR-35	200.0	1.00	3.45	32.83	1.04	0.06	17.70	53.92%
			STMH102							0.000	0.795	11.11	11.92	72.79	98.68	169.01		57.83					57.83		PVC DR-35	300.0	1.00	66.40	96.80	1.37	0.81	38.96	40.25%
	S-106	CB05	STMH103-STMH104	0.045				0.052		0.161	0.161	10.00	10.05	76.81	104.19	178.56		12.39					12.39		PVC DR-35	200.0	1.00	3.43	32.83	1.04	0.05	20.44	62.25%
	S-107	CB06	STMH103-STMH104	0.048				0.050		0.158	0.158	10.00	10.06	76.81	104.19	178.56		12.17					12.17		PVC DR-35	200.0	1.00	3.86	32.83	1.04	0.06	20.66	62.93%
			STMH103							0.000	1.114	11.92	12.87	70.15	95.04	162.74		78.17					78.17		PVC DR-35	375.0	0.50	64.10	124.10	1.12	0.95	45.93	37.01%
	S-108	CB07	STMH104-CBMH105	0.106				0.067		0.241	0.241	10.00	10.07	76.81	104.19	178.56		18.53					18.53		PVC DR-35	200.0	1.00	4.26	32.83	1.04	0.07	14.30	43.55%
	S-109		STMH104	0.112				0.041		0.180	1.536	12.87	13.45	67.30	91.13	155.98		103.38					103.38		CONC 100D	525.0	0.50	48.93	304.41	1.40	0.58	201.03	66.04%
			CBMH105							0.000	1.536	10.07	10.21	76.54	103.84	177.94		117.58					117.58		CONC 100D	525.0	0.50	11.62	304.41	1.40	0.14	186.83	61.37%
	S-BLDG	BLDG	STMH106-EX-STMH1001	0.188					0.339	1.073	1.073	10.00	10.14	76.81	104.19	178.56		82.42					82.42		PVC DR-35	300.0	1.20	12.40	106.04	1.50	0.14	23.62	22.27%
			STMH106							0.000	2.609	13.45	13.72	65.68	88.92	152.15		171.38					171.38		CONC 100D	525.0	0.25	15.86	215.25	0.99	0.27	43.87	20.38%


<b>Definition:</b> Q=2.78CiA, where: Q = Peak Flow in Litres per Second (L/s) A = Area in Hectares (Ha) i = Rainfall Intensity in millimeters per hour (mm/hr) i = 732.951/(TC+6.199)^0.810 i = 1174.184/(TC+6.014)^0.816 i = 1735.688/(TC+6.014)^0.820 2 Year 5 Year 100 Year	<b>Notes:</b> 1. Mannings coefficient (n) = 0.013  Time-of-Concentration in the Swale FAA Equation: t (min) = 3.258 [(1.1 - C) L^0.5 / S^0.33] Where: Longest Watercourse Length, L (m), S (%) Runoff Coef.C = Impervious	Designed: J.T.  Checked: D.B.Y.  Dwg. Reference: C005	No. 1.	Revision City Submission No. 1	Date 2023-02-17
			File Reference: 221-04473-00	Date: 2023-02-17	Sheet No: 1 of 1

Drainage Area	CB NO.	Total (Ha)	Grass C=0.25	Asphalt C=0.90	Roof C=1.0	Cavg	Max Ponding Area	Max Ponding Elev	Max Ponding Depth	Max Ponding Volume	100YR Ponding Depth	100YR Ponding Area	100YR Ponding Volume	100YR Ponding Depth+20% Depth	100YR+20% Depth Ponding Area	100YR+20% Depth Ponding Volume
S-100	CBMH101	0.052	0.003	0.048		0.85	156.79	88.68	0.200	10.45	0.13	70.09	3.04	0.17	119.9	6.79
S-102	CB01	0.088	0.037	0.051		0.63	310.23	88.65	0.250	25.85	0.21	232.44	16.27	0.24	295.39	23.63
S-103	CB02	0.085	0.031	0.054		0.66	317.33	88.62	0.250	26.44	0.24	300.91	24.07	0.27	344.85	31.04
S-104	CB03	0.095	0.040	0.055		0.63	389.84	88.62	0.300	38.98	0.29	363.85	35.17	0.30	382.09	38.21
S-105	CB04	0.104	0.035	0.069		0.68	524.87	88.65	0.300	52.49	0.25	363.11	30.26	0.29	483.39	46.73
S-106	CB05	0.097	0.045	0.052		0.60	372.39	88.69	0.300	37.24	0.21	206.84	14.48	0.25	266.14	22.18
S-107	CB06	0.098	0.048	0.050		0.58	428.53	88.73	0.300	42.85	0.16	147.47	7.87	0.21	245.9	17.21
S-108	CB07	0.173	0.106	0.067		0.50	540.49	88.76	0.300	54.05	0.13	136.87	5.93	0.19	284.52	18.02
S-109	CBMH105	0.153	0.112	0.041		0.42	295.53	88.80	0.300	29.55	0.09	51.64	1.55	0.14	115.29	5.38
S-BLDG		0.527	0.188		0.339	0.73										
Total		1.472	0.645	0.487	0.339					317.914		1873.22	138.64		2537.47	209.19

Roof Drainage#	Roof Area m <sup>2</sup>	Ponding Area m <sup>2</sup>	Ponding Depth m	Ponding Volume m <sup>3</sup>
RD1	207.11	186.40	0.13	8.08
RD2	205.42	184.88	0.13	8.01
RD3	194.59	175.13	0.13	7.59
RD4	201.88	181.69	0.13	7.87
RD5	187.96	169.16	0.13	7.33
RD6	57.42	51.68	0.13	2.24
RD7	156.26	140.63	0.13	6.09
RD8	189.29	170.36	0.13	7.38
RD9	31.34	28.21	0.13	1.22
RD10	168.69	151.82	0.13	6.58

Roof Drainage#	Roof Area m <sup>2</sup>	Ponding Area m <sup>2</sup>	Ponding Depth m	Ponding Volume m <sup>3</sup>
RD11	31.87	28.68	0.13	1.24
RD12	189.60	170.64	0.13	7.39
RD13	156.65	140.99	0.13	6.11
RD14	225.52	202.97	0.13	8.80
RD15	202.69	182.42	0.13	7.90
RD16	195.81	176.23	0.13	7.64
RD17	206.23	185.61	0.13	8.04
RD18	205.52	184.97	0.13	8.02
RD19	188.75	169.88	0.13	7.36
RD20	189.44	170.50	0.13	7.39





2011 QUEENSWAY  
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CANADA K2B 8K2  
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F: 613-829-6299  
WWW.WSP.COM

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**MONTGOMERY SISAM ARCHITECTS INC.**  
197 SPADINA AVE., SUITE 301  
TORONTO, ONTARIO  
CANADA M5T 2C8

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**LI-CENSIED PROFESSIONAL ENGINEER**  
D. B. YANG  
100230568  
2023-02-17  
PROVINCE OF ONTARIO

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**EXTENDICARE CANADA INC.**

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**EXTENDICARE (CANADA) INC**  
ORLEANS LTC HOME

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**STORM DRAINAGE AREA PLAN**

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**C004**

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**ISSUED FOR SPA**

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DATE OF: 2023-02-17

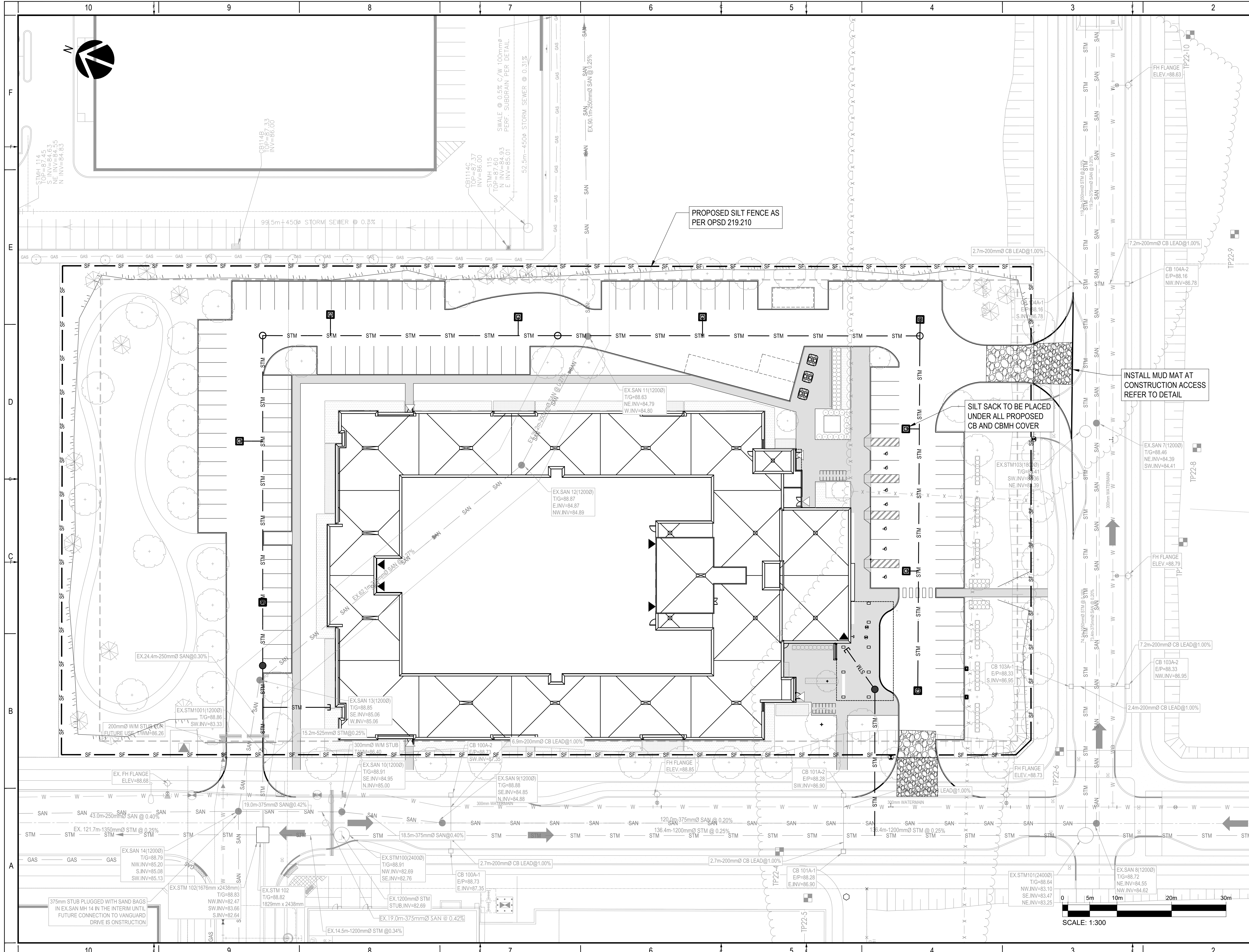
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# APPENDIX

# APPENDIX

## D

- EROSION AND SEDIMENT CONTROL PLAN



DISCLAIMER: THIS DRAWING AND DESIGN IS COPYRIGHT PROTECTED WHICH SHALL NOT BE USED, REPRODUCED OR DERIVED WITHOUT WRITTEN PERMISSION BY WSP. THE CONTRACTOR SHALL CHECK AND VERIFY ALL DIMENSIONS AND UTILITY LOCATIONS AND REPORT ALL ERRORS AND OMISSIONS PRIOR TO COMMENCING WORK. THIS DRAWING IS NOT TO BE SCALED.

REMARKS: BEARING AND GRID DERIVED FROM THE CAN-NET URS NETWORK OBSERVATIONS ON NECE HORIZONTAL CONTROL MONUMENTS 1977035A AND 198691. CENTRAL MERIDIAN, 79°30' WEST LONGITUDE MTM ZONE 18T UTM 500000.42 E 524888.04 1977035 N 500000.42 E 524888.04 198691 500000.37 E 524888.04

NO.	DATE	DESCRIPTION
1	2023-02-17	ISSUED FOR SPA

PROJECT NO.	DATE
221-12376-00	2023-02-17

ORIGINAL SCALE: 1:300	IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
DESIGNED BY: D.Y.	
DRAWN BY: J.T.	
CHECKED BY: D.Y.	
DISCIPLINE: CIVIL	
TITLE: EROSION AND SEDIMENT CONTROL PLAN	
SHEET NUMBER: C003	
ISSUED FOR SPA	0

SCALE: 1:300

# APPENDIX



# APPENDIX

## E

- SUBMISSION CHECK LIST

## 4.1 General Content

- Executive Summary (for larger reports only).

*Comments:*

- Date and revision number of the report.

*Comments:*

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

*Comments:*

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

*Comments:*

- 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.

*Comments:*

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

*Comments:*

- 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.

*Comments:*

- Statement of objectives and servicing criteria.

*Comments:*

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

*Comments:*

- 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).

*Comments:*

- 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.

*Comments:*

- 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.

*Comments:*

- Proposed phasing of the development, if applicable.

*Comments:*

- Reference to geotechnical studies and recommendations concerning servicing.

*Comments:*

- 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

*Comments:*

## 4.2 Development Servicing Report: Water

- Confirm consistency with Master Servicing Study, if available  
*Comments:*
- Availability of public infrastructure to service proposed development  
*Comments:*
- Identification of system constraints  
*Comments:*
- Identify boundary conditions  
*Comments:*
- Confirmation of adequate domestic supply and pressure  
*Comments:*
- 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.  
*Comments:*
- 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.  
*Comments:*
- Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design  
*Comments:*
- Address reliability requirements such as appropriate location of shut-off valves  
*Comments:*
- Check on the necessity of a pressure zone boundary modification.  
*Comments:*

- 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

*Comments:*

- 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.

*Comments:*

- 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.

*Comments:*

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

*Comments:*

- Provision of a model schematic showing the boundary conditions locations, streets, parcels, and building locations for reference.

*Comments:*

### 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).

*Comments:*

- Confirm consistency with Master Servicing Study and/or justifications for deviations.

*Comments:*

- 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.

*Comments:*

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

*Comments:*

- 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)

*Comments:*

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

*Comments:*

- Special considerations such as contamination, corrosive environment etc.

*Comments:*

## 4.4 Development Servicing Report: Stormwater

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

*Comments:*

- Analysis of available capacity in existing public infrastructure.

*Comments:*

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

*Comments:*

- 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.

*Comments:*

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

*Comments:*

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

*Comments:*

- Set-back from private sewage disposal systems.

*Comments:*

- Watercourse and hazard lands setbacks.

*Comments:*

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

*Comments:*

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

*Comments:*

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

*Comments:*

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

*Comments:*

- 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.

*Comments:*

- Any proposed diversion of drainage catchment areas from one outlet to another.

*Comments:*

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

*Comments:*

- 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.

*Comments:*

- Identification of potential impacts to receiving watercourses

*Comments:*

- Identification of municipal drains and related approval requirements.

*Comments:*



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

*Comments:*

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

*Comments:*

- Inclusion of hydraulic analysis including hydraulic grade line elevations.

*Comments:*

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

*Comments:*

- 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.

*Comments:*

- Identification of fill constraints related to floodplain and geotechnical investigation.

*Comments:*

## 4.5 Approval and Permit Requirements: Checklist

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

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

*Comments:*

- Application for Certificate of Approval (CofA) under the Ontario Water Resources Act.

*Comments:*

- Changes to Municipal Drains.

*Comments:*

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

*Comments:*

## 4.6 Conclusion Checklist

- Clearly stated conclusions and recommendations

*Comments:*

- 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.

*Comments:*

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

*Comments:*