EXTENDICARE (CANADA) INC.

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

SERVICING REPORT

MARCH 20, 2023
1ST SUBMISSION

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EXTENDICARE (CANADA) INC.

SITE PLAN APPLICATION
1ST SUBMISSION

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

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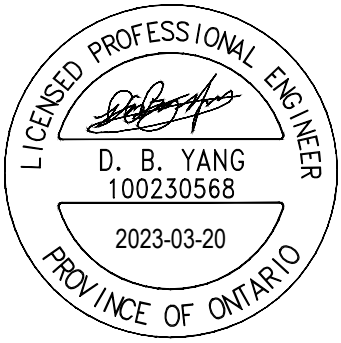

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1 GENERAL

1.1 EXECUTIVE SUMMARY

WSP was retained by Extendicare (Canada) Inc. to provide servicing and grading design services for the proposed Extendicare 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 Extendicare property will front. All services for the Extendicare 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 Extendicare home is a 4-storey building with 256 beds for long-term care with gross building area of 14,261m² 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 west to the east property line toward the existing site at 4220 Innes Road (Winners & Home Sense) and will be directed to the temporary swale south of 4220 Innes Road, and eventually be directed to Lanthier Drive and Vanguard Drive intersection to the east. The proposed overland flow route and piped stormwater system within Orleans II Subdivision development conveys major drainage to the future Lady Pellatt Street south of the site, and eventually be directed to Lanthier Drive and Vanguard Drive intersection as per the existing condition, and the minor 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 m³/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.

1.2 DATE AND REVISION NUMBER

This version of the report is the first revision, dated March 20, 2023.

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

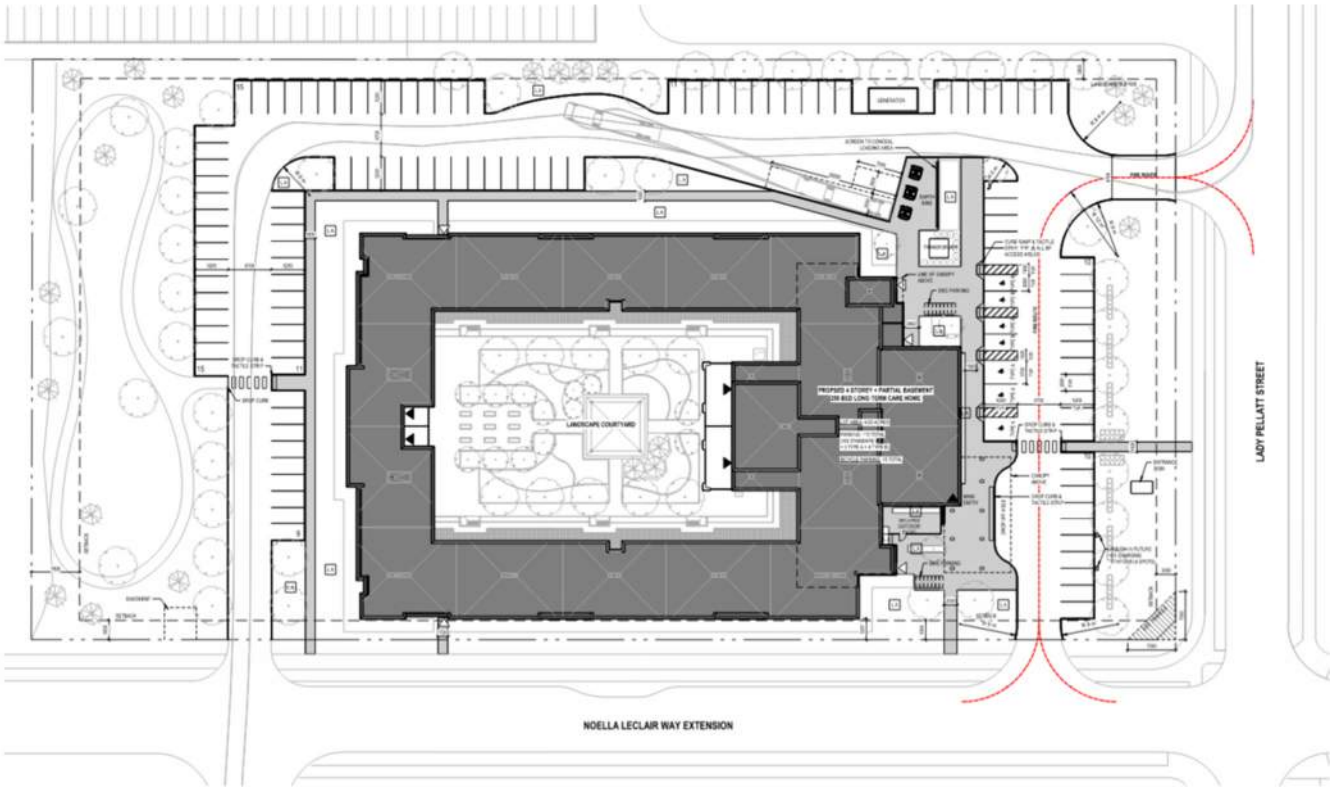


Figure 1-2 Site Plan

1.4 ADHERENCE TO ZONING AND RELATED REQUIREMENTS

The proposed property use will be in conformance with zoning and related requirements prior to approval and construction and is understood to be in conformance with current zoning.

1.5 PRE-CONSULTATION MEETINGS

A pre-consultation meeting was held with the City of Ottawa on November 14, 2022. Notes from this meeting are provided in Appendix A.

1.6 HIGHER LEVEL STUDIES

The review for servicing has been undertaken in conformance with, and utilizing information from, the following documents:

- Ottawa Sewer Design Guidelines, Second Edition, Document SDG002, October 2012, City of Ottawa including:
    - Technical Bulletin ISDTB-2012-4 (20 June 2012)
    - Technical Bulletin ISDTB-2014-01 (05 February 2014)
    - Technical Bulletin PIEDTB-2016-01 (September 6, 2018)

- 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.

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.

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.

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..

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.

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

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 Extendicare 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 Extendicare building. The dual 203mm dia. water services will be extended to the building mechanical room.

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 Extendicare 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 = 38.82m = 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.

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 Extendicare 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.

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.

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.

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.

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.

2.9 OFF-SITE REQUIREMENTS

No off-site improvements to watermains, feedermains, 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.

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.

2.11 MODEL SCHEMATIC

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

3 WASTEWATER DISPOSAL

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.

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 l/bed/day x 256 = 1.33 l/s
- Peak flow = (450 l/bed/day x 256 x 1.5 peaking factor) + 0.33 l/ha/s x 1.62 ha = 2.53 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.

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 Extendicare land.

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.

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

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.

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.

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.

4.4 WATER QUANTITY CONTROL OBJECTIVE

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

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).

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 (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

4.8 WATERCOURSES

The minor flow will be ultimately directed to the SWMF.

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.

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

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

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

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.

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

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

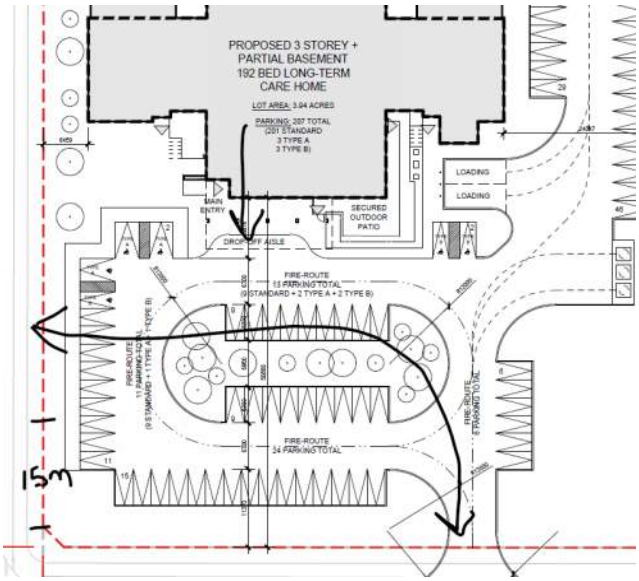
Contact: Steve Belan – Planner II| Steve.Belan@ottawa.ca

Official Plan and Zoning

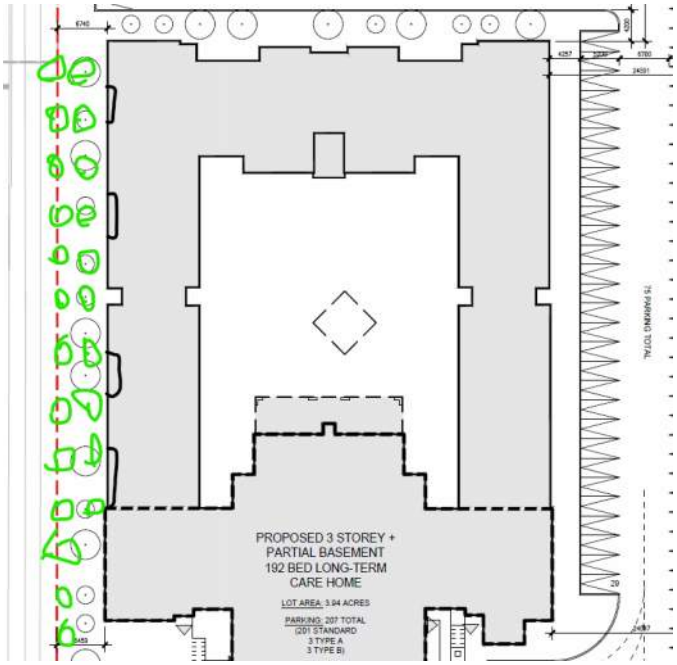
- The use is consistent with the OP and ZBL. The concept plan seems to conform with the ZBL but will be reviewed as part of the planning review.

Site Plan

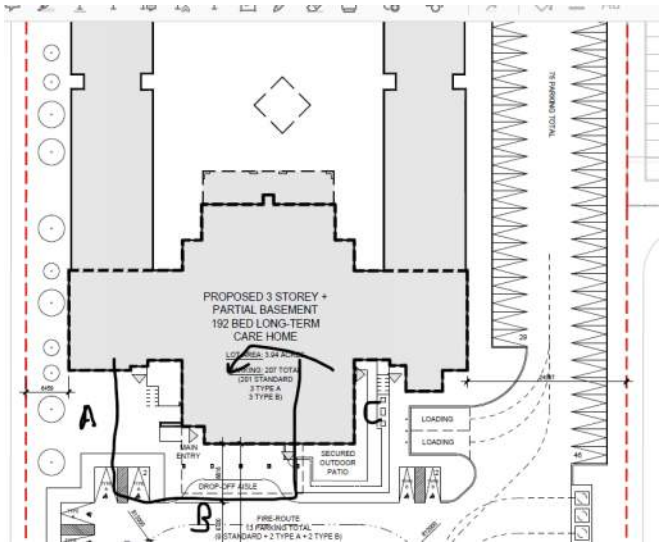
- I realize that this building is highly designed for efficiencies in the care of the residents. But I have concerns that it is designed has no regard to its relationship to its surroundings. The entrance faces into the parking lot has separated the building from the intersection and the street. There 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 employs 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 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.

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

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

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:

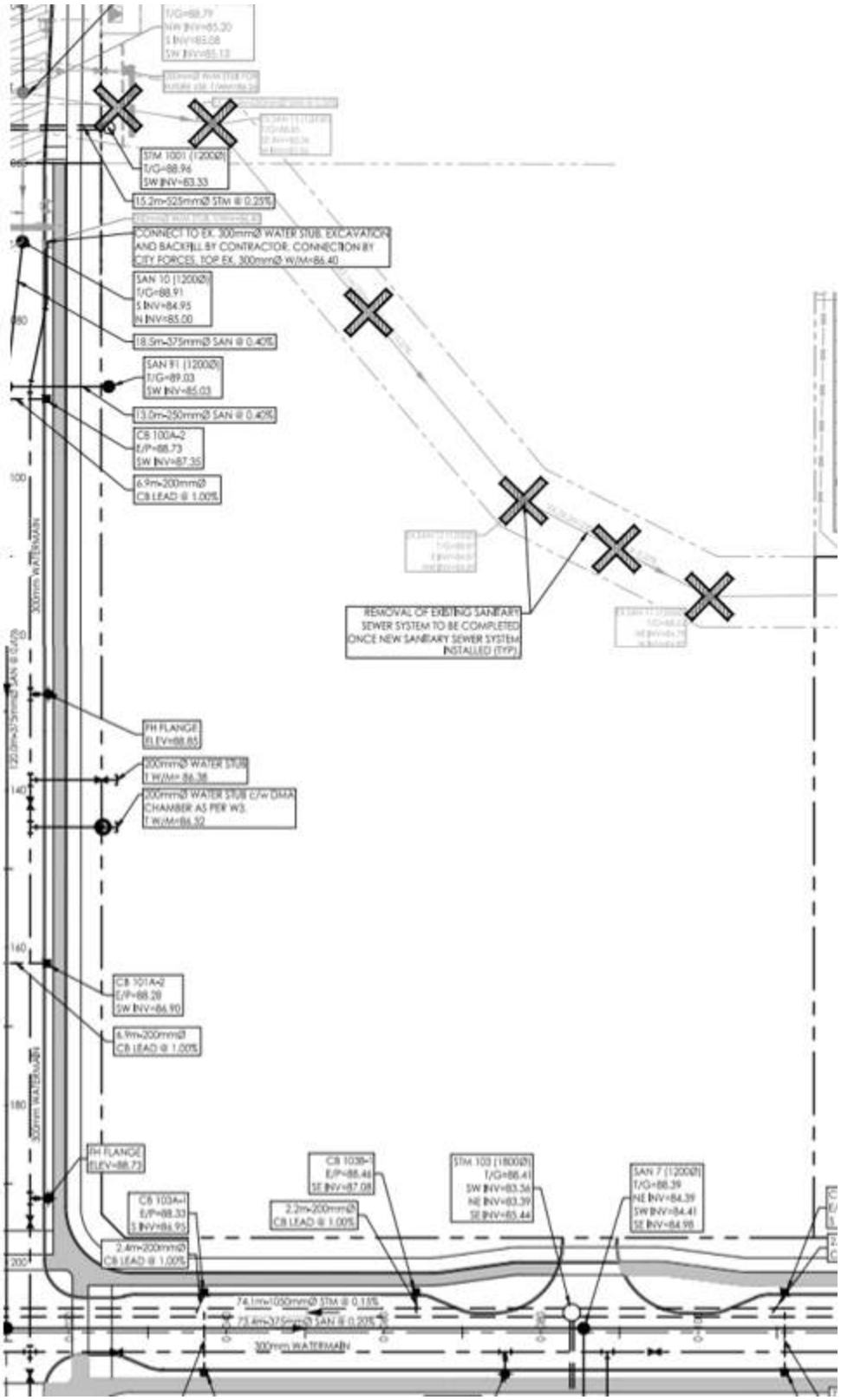
- Ottawa Sewer Design Guidelines, Second Edition, (October 2012), including Technical Bulletins, ISDTB-2014-01, PIEDTB-2016-01, ISTB 2018-01, ISTB-2018-04, and ISTB-2019-02
- Ottawa Design Guidelines – Water Distribution, First Edition, (July 2010), including Technical Bulletins ISD-2010-2, ISDTB-2014-02, 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 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:


STM 1001 (1200Ø)
T/G=88.96
SW INV=83.33
15.2m=525mmØ STM @ 0.25%
CONNECT TO EX. 300mmØ WATER STUB. EXCAVATION AND BACKFILL BY CONTRACTOR. CONNECTION BY CITY FORCES. TOP EX. 300mmØ W/M=86.40
SAN 10 (1200Ø)
T/G=88.91
S INV=84.95
N INV=85.00
18.5m=375mmØ SAN @ 0.40%
SAN 91 (1200Ø)
T/G=89.03
SW INV=85.03
13.0m=250mmØ SAN @ 0.40%
CB 100A-2
E/P=88.73
SW INV=87.35
6.9m=200mmØ
CB LEAD @ 1.00%
REMOVAL OF EXISTING SANITARY SEWER SYSTEM TO BE COMPLETED ONCE NEW SANITARY SEWER SYSTEM INSTALLED (TYP.)
FH FLANGE
ELEV=88.85
200mmØ WATER STUB
T.W.M= 86.38
200mmØ WATER STUB C/W DMA CHAMBER AS PER W3.
T.W.M=86.32
CB 101A-2
E/P=88.28
SW INV=86.90
6.9m=200mmØ
CB LEAD @ 1.00%
FH FLANGE
ELEV=88.73
CB 103A-1
E/P=88.33
S INV=86.93
2.4m=200mmØ
CB LEAD @ 1.00%
CB 103B-1
E/P=88.48
SE INV=87.08
2.2m=200mmØ
CB LEAD @ 1.00%
STM 103 (1800Ø)
T/G=88.41
SW INV=83.56
NE INV=83.39
SE INV=83.44
SAN 7 (1200Ø)
T/G=88.39
NE INV=84.39
SW INV=84.41
SE INV=84.98
74.1m=1050mmØ STM @ 0.15%
73.4m=375mmØ SAN @ 0.20%
300mm WATERMAIN

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 that 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 that 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 m3/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

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

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

- 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

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 or on City of Ottawa

LP tree planting requirements:

For additional information on the following please contact 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

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

- 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

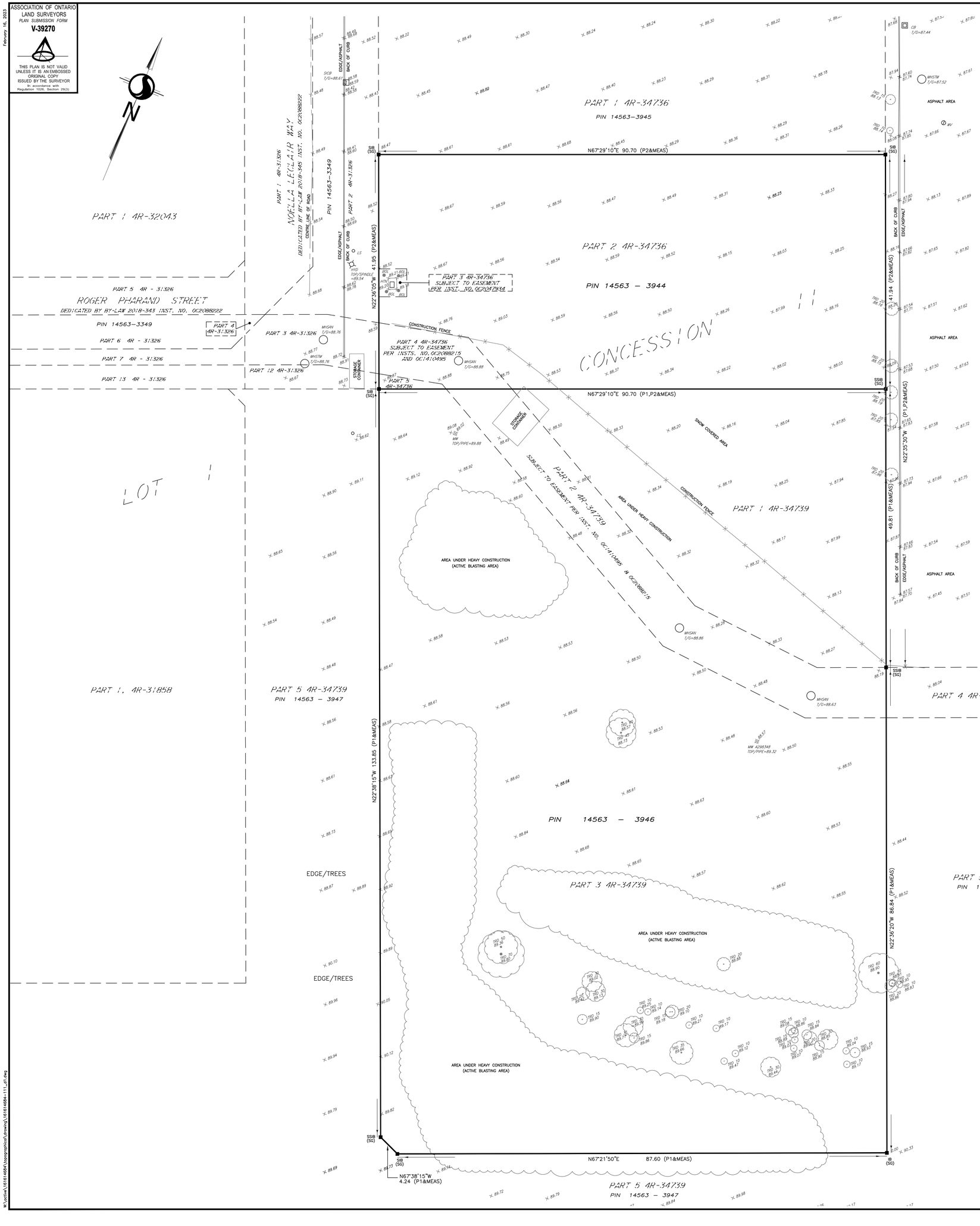
Jessica Button – Parks & Facilities Planner II | Jessica.Button@ottawa.ca

- 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.

February 16, 2023

ASSOCIATION OF ONTARIO LAND SURVEYORS
PLAN SUBMISSION FORM
V-39270

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



TOPOGRAPHIC PLAN OF SURVEY

PART OF LOT 1
CONCESSION 11
(GEOGRAPHIC TOWNSHIP OF CUMBERLAND)
CITY OF OTTAWA

Scale 1:300

5 0 5 10 15 20 METRES

METRIC CONVERSION

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

BEARING NOTE

BEARINGS ARE GRID, DERIVED FROM CAN-NET VRS NETWORK GPS OBSERVATIONS ON NCC HORIZONTAL CONTROL MONUMENTS 19773035 AND 19680191, CENTRAL MERIDIAN, 76° 30' WEST LONGITUDE MTM ZONE 9, NAD83 (ORIGINAL).

19773035 N:5006060.42 E:324888.04
19680191 N:5033564.26 E:388064.94

ELEVATION NOTE

ELEVATIONS SHOWN HEREON ARE GEODETIC (CGVD-1928:1978) AND ARE DERIVED FROM VERTICAL CONTROL MONUMENT No. 0011796530229 HAVING AN ELEVATION OF 86.120 m.

LEGEND (IF APPLICABLE)

■	DENOTES	FOUND MONUMENTS
□	"	SET MONUMENTS
IB	"	IRON BAR
IB⊕	"	ROUND IRON BAR
SIB	"	STANDARD IRON BAR
SSIB	"	SHORT STANDARD IRON BAR
CC	"	CUT CROSS
CP	"	CONCRETE PIN
WIT	"	WITNESS
PIN	"	PROPERTY IDENTIFICATION NUMBER
MEAS	"	MEASURED
INST	"	INSTRUMENT
PROP	"	PROPORTIONED
OU	"	ORIGIN UNKNOWN
SG	"	STANTEC GEOMATICS LTD.
P1	"	PLAN 4R-34739
P2	"	PLAN 4R-34736
□	*ACU*	AIR CONDITIONING UNIT
◄	*AN*	ANCHOR
○	*AP*	AIR PUMP
▲	*ANT*	ANTENNA
⊕	*BH*	BOREHOLE
⊕	*BIB*	HOSE BIB
▥	*BKR*	BIKE RACK
▬	*BENCH*	BENCH
●	*BOL*	BOLLARD
○	*BOUL*	BOULDER
▣	*CB*	CATCH BASIN
▣	*DCB*	DOUBLE CB
Ⓜ	*CBMH*	CB MANHOLE
Ⓜ	*DCBMH*	DOUBLE CB MANHOLE
▤	*SICB*	SIDE INLET CB
□	*CHM*	CHIMNEY
○	*CO*	CLEAN OUT
○	*CSV*	CURB STOP VALVE
⊕	*DRN*	DRAIN
⊠	*EPOST*	ELECTRICAL OUTLET
○	*FP*	FLAG POLE
○	*FL*	FLOOD LIGHT
○	*FTF*	FUEL TANK FILLER CAP
Ⓖ	*GC*	GARBAGE CAN
I	*GFL*	PIPE FLANGE (GAS)
□	*GFP*	GAS FUEL PUMP
○	*GP*	POLE GUYWIRE
□	*GSR*	GAS SERVICE REGULATOR
⋈	*GV*	GAS VALVE
○	*HIC*	HICKENBOTTOM
▭	*HDS*	HEADSTONE
○	*HLS*	HYDRO LIGHT STANDARD
⊠	*HM*	HYDRO METER
□	*HTN*	HYDRO TRANSFORMER
○	*HW*	HAND WELL
◇	*HYD*	FIRE HYDRANT
□	*JBX*	JUNCTION BOX
○	*LS*	LIGHT STANDARD
▭	*MB*	MAILBOX
○	*MP*	MONITORING PIN
◯	*MH*	MAINTENANCE HOLE UNIDENTIFIED
◯	*MHB*	MAINTENANCE HOLE BELL
◯	*MHF*	MAINTENANCE HOLE FIBRE OPTIC
◯	*MHH*	MAINTENANCE HOLE HYDRO
◯	*MHSA*	MAINTENANCE HOLE SANITARY
◯	*MHST*	MAINTENANCE HOLE STORM
◯	*MHT*	MAINTENANCE HOLE TRAFFIC
⊕	*MW*	MONITORING WELL
▭	*NPB*	NEWS PAPER BOX
⊕	*OLS*	LIGHT STANDARD ORNAMENTAL
⊕	*OW*	OBSERVATION WELL
□	*PKM*	PARKING METER
□	*PLBX*	PULL BOX
□	*PLQ*	PLAQUE
□	*PLR*	PILLAR
⊕	*PZ*	PIEZOMETER
⊙	*RLC*	RED LIGHT CAMERA
⊠	*RWSL*	RAILWAY SIGNAL LIGHT
⊠	*RWSS*	RAILWAY SWITCH STAND
⊙	*SAT*	SATELLITE DISH
⊡	*SCLP*	SCULPTURE
○	*SCP*	SUMP/CATCH PIT
⊗	*SCV*	SPRINKLER CONTROL VALVE
⊕	*SH*	SPRINKLER HEAD
⊓	*SIA*	SIAMESE CONNECTION
▬	*SN*	SIGN
⊡	*SPAN*	SOLAR PANEL
○	*SPT*	SEPTIC TANK LID
□	*TBL*	TABLE
□	*TB BELL*	TERMINAL BOX - BELL
□	*TB CATV*	TERMINAL BOX - CABLE
□	*TCB*	TRAFFIC CONTROL BOX
⊕	*TPIT*	TEST PIT
○	*TSL*	TRAFFIC SIGNAL LIGHT
●	*UMB*	MARKER BELL UNDERGROUND
●	*UMC*	MARKER CABLE UNDERGROUND
●	*UMG*	MARKER GAS UNDERGROUND
●	*UMO*	MARKER OIL UNDERGROUND
○	*UP*	UTILITY POLE
□	*VB*	VALVE BOX
⊕	*VC*	VALVE CHAMBER
⊖	*WV*	WATER VALVE
○		TREE STUMP
⊙	*TRC _cm*	TREE CONIFEROUS (D.B.H. SHOWN)
⊙	*TRD _cm*	TREE DECIDUOUS (D.B.H. SHOWN)

SURVEYOR'S CERTIFICATE

I CERTIFY THAT :

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT, THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 14th DAY OF FEBRUARY, 2023.

Feb. 16, 2023
DATE

FRANCIS LAU
ONTARIO LAND SURVEYOR

SRO MAP COORD.= 383096, 5035460

Stantec Geomatics Ltd.
CANADA LANDS SURVEYORS
ONTARIO LAND SURVEYORS
1331 CLYDE AVENUE, SUITE 300
OTTAWA, ONTARIO, K2C 3G4
TEL. 613.722.4420
stantec.com

DRAWN: ME	CHECKED: FL	PM: FL	FIELD: CA	PROJECT No.: 161614684-111

W:\active\161614684\topographic\dwg\161614684-111_01.dwg

KEY PLAN

SITE DATA

SITE DESCRIPTION	PART OF LOT 1, CONCESSION 11, GEOGRAPHIC TOWNSHIP OF CUMBERLAND, CITY OF OTTAWA
SITE ADDRESS	NOELLA LECLAIR, OTTAWA, ON
PROPOSED USE	4 STOREY LONG TERM CARE (256 BEDS)
BUILDING FOOTPRINT	3387m2
LANDSCAPED AREA	1564m2
PAVED SURFACE AREA	4891m2

ZONING

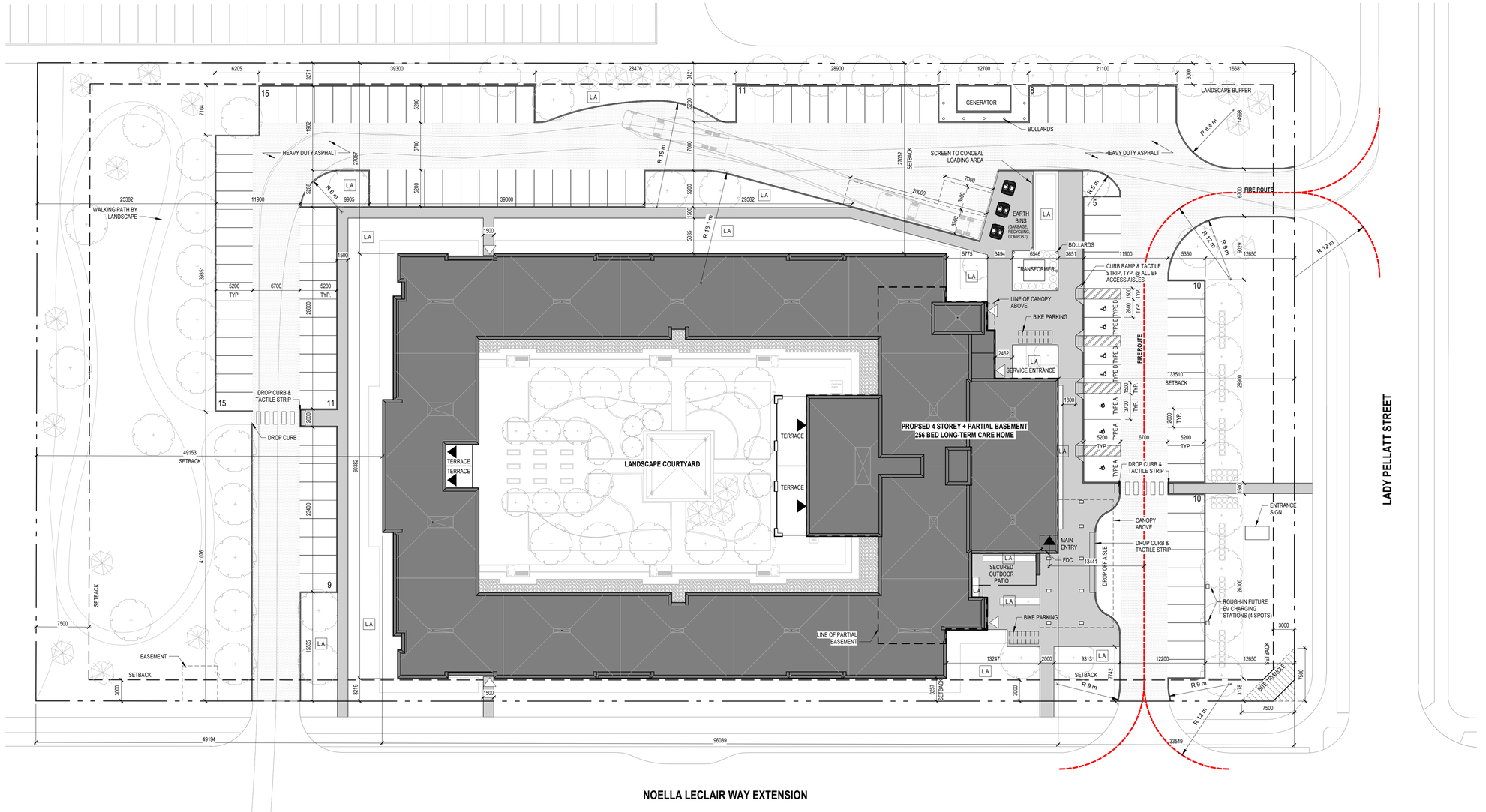
	REQUIRED	PROVIDED
ZONE	N/A	AM - Arterial Mainstreet
LOT AREA	NO MINIMUM	16,195m2 (1.62 ha)
FRONT YARD & CORNER SIDE...	3m	3m
MIN. INTERIOR SIDE YARD	NO MINIMUM	N/A
MIN. REAR YARD	7.5m	7.5m
BUILDING HEIGHT	21m	18.4m
MAX. FLOOR SPACE INDEX	NO MAXIMUM	
MIN. WIDTH OF LANDSCAPED AREA AROUND PARKING	3m	3m

PARKING

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

BUILDING DATA

GROSS BUILDING AREA	
BASEMENT FLOOR LEVEL	1206 m2
GROUND FLOOR LEVEL	3387 m2
SECOND FLOOR LEVEL	3307 m2
THIRD FLOOR LEVEL	3047 m2
FOURTH FLOOR LEVEL	3047 m2
ROOF: MECH. PENTHOUSE AND STAIR	267 m2
TOTAL	14261 m2



Montgomery Sisam Architects Inc.

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MontgomerySisam

PROJECT NORTH
TRUE NORTH

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

ONTARIO ASSOCIATION OF ARCHITECTS
EDWARD APPLEBAUM
LICENCE 5908

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.

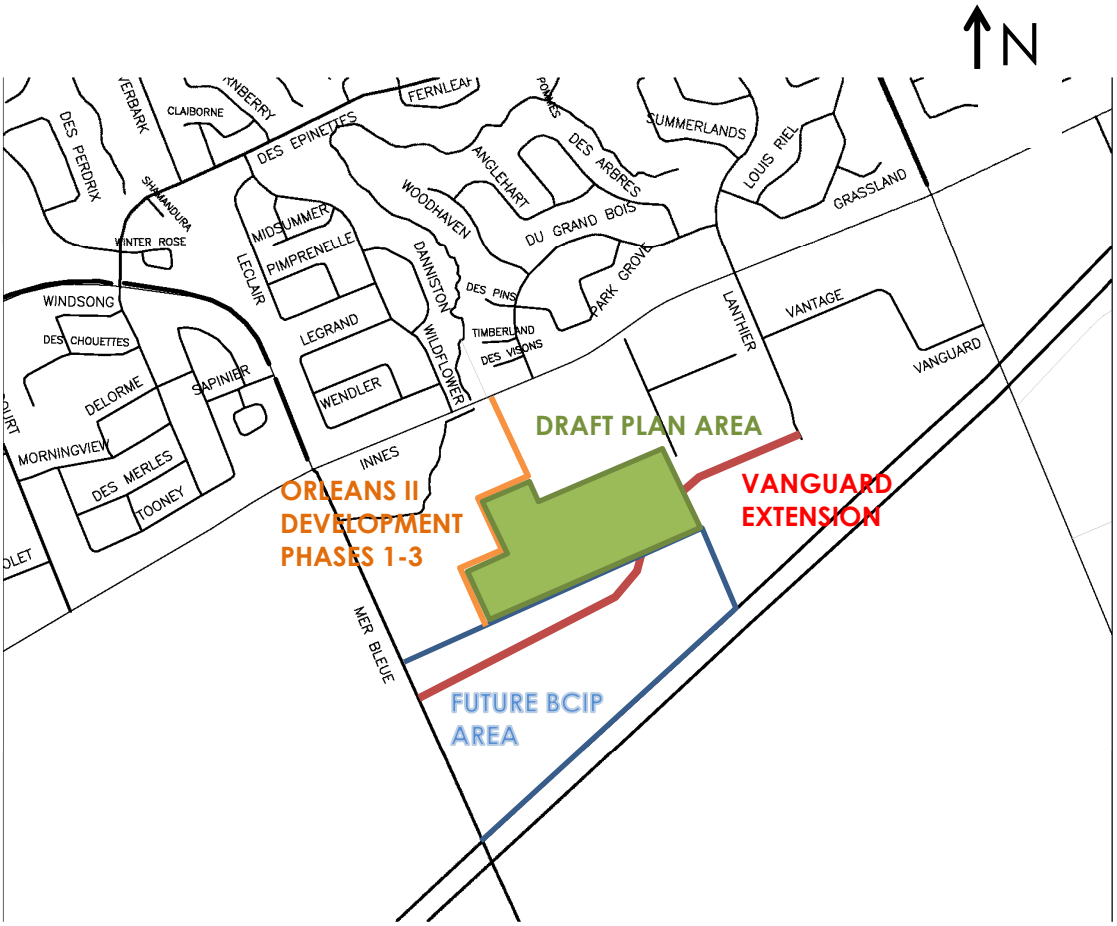
April 12, 2018

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.

Figure 1: Location Plan



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.

Background
April 12, 2018

Documents referenced in preparation of the design for the Orleans II Draft Plan of Subdivison 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.

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 and 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**.

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^2 of commercial space was used for the proposed site, a rate of 3.5 L/m^2 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.**

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**.

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 an 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)

- 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.

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).

- 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^3/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^3/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
Total	**27.632**	**1557.2**

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

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^3/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^3/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.

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).

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.

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.

9.0 GEOTECHNICAL INVESTIGATION AND ENVIRONMENTAL ASSESSMENT

A geotechnical Investigation Report was prepared by Patersongroup 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 till. 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.

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.

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.

A.4 HYDRAULIC ANALYSIS RESULTS


7001
14
11
16
13
22
9
20
7008
26
15
28
17
30
19
32
21

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
Total	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

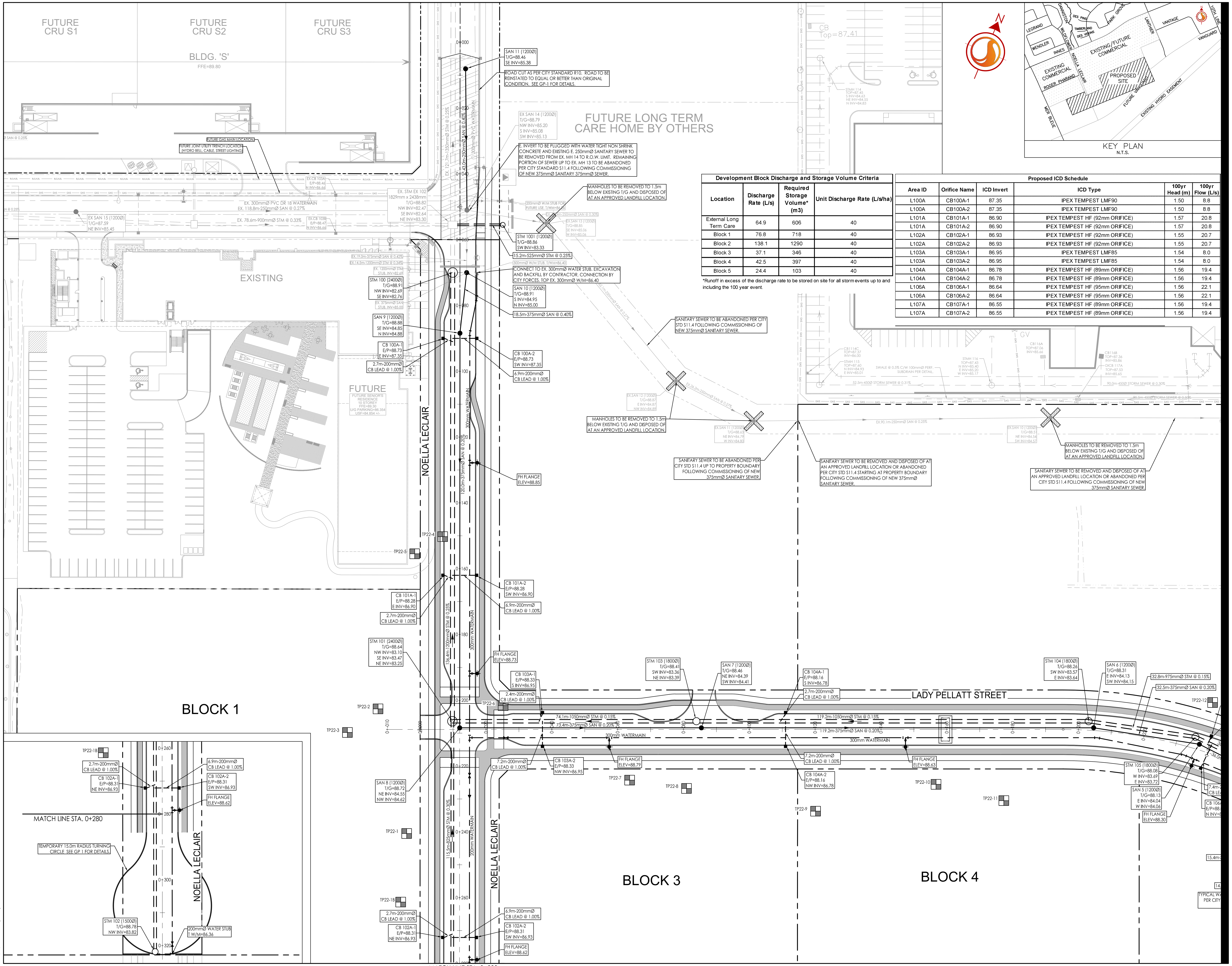
ID	Demand	Elevation	Head	Pressure	
	(L/s)	(m)	(m)	(psi)	(Kpa)
11	1.72	88.69	126.66	53.97	372.11
13	0.31	88.87	126.65	53.71	370.32
15	62.54	88.82	126.03	52.90	364.73
17	1.19	88.46	126.02	53.40	368.18
19	5.7	88.26	126.02	53.68	370.11
21	0.3	88.40	126.02	53.48	368.73
9	1.31	89.05	127.18	54.21	373.77

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



Development Block Discharge and Storage Volume Criteria			
Location	Discharge Rate (L/s)	Required Storage Volume* (m3)	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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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
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- TACTILE WALKING SURFACE INDICATOR
- THERMAL INSULATION AS PER CITY STD W22.
- EXISTING SANTIARY SEWER AND MH REMOVAL
- TP22-1 TEST PIT LOCATION PER GEOTECHNICAL INVESTIGATION BY LRL ENGINEERING. DATED 2022-08-23

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.

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5	REVISED PARK SAN AS PER CITY COMMENTS / IFC	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: 160401419-SSP	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	MJS	DT	MJS	22.04.10

Permit-Seal

Client/Project

INNES SHOPPING CENTRES LIMITED

ORLEANS II
SUBDIVISION

OTTAWA, ON, CANADA

Title

SITE SERVICING PLAN

Project No. 160401419

Scale 1:500 (0 5 15 25m)

Drawing No. SSP-1

Sheet 3 of 23

Revision 5

D07-16-18-0006

PLAN # 18733

ORIGINAL SHEET - ARCH D

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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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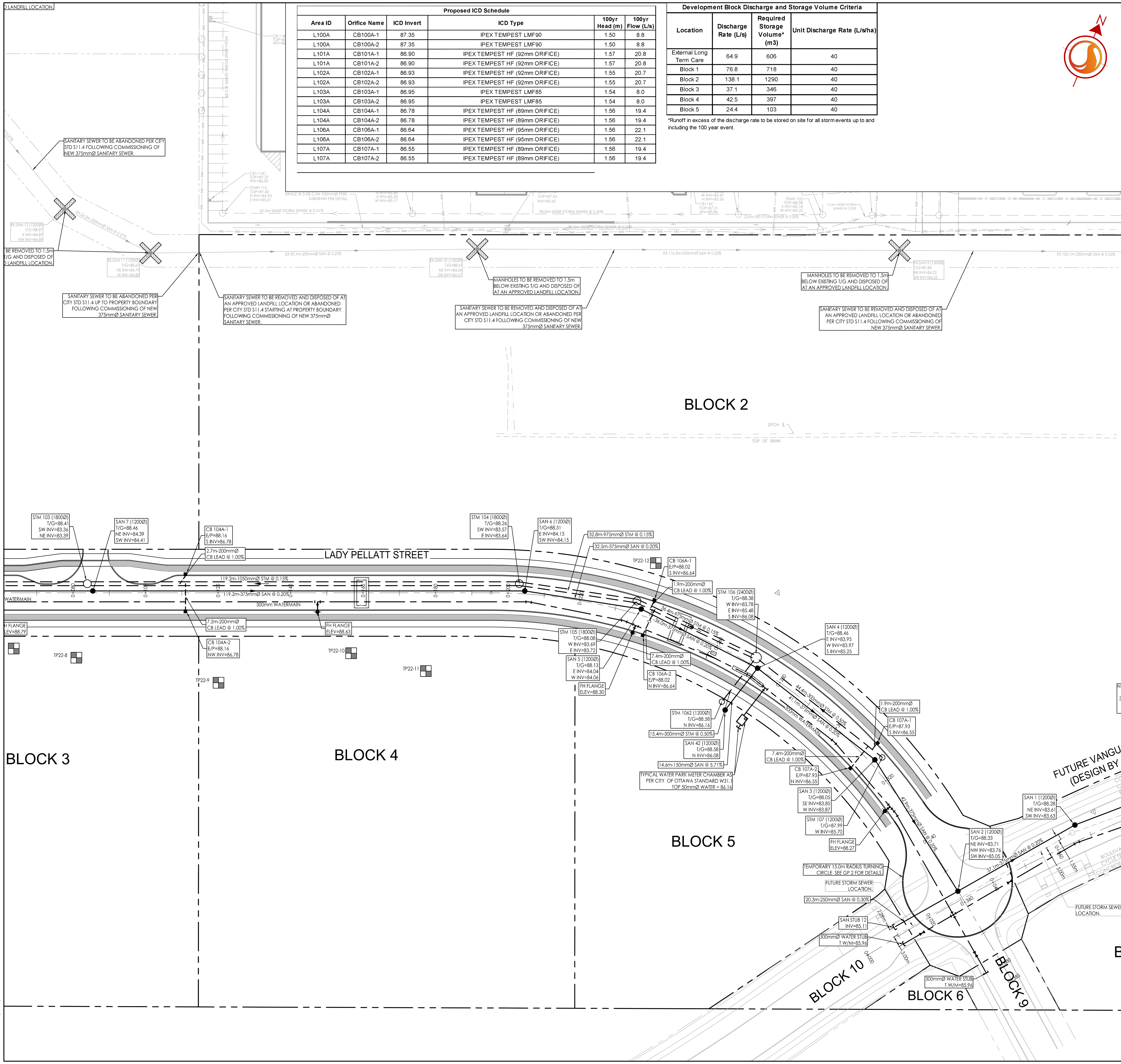

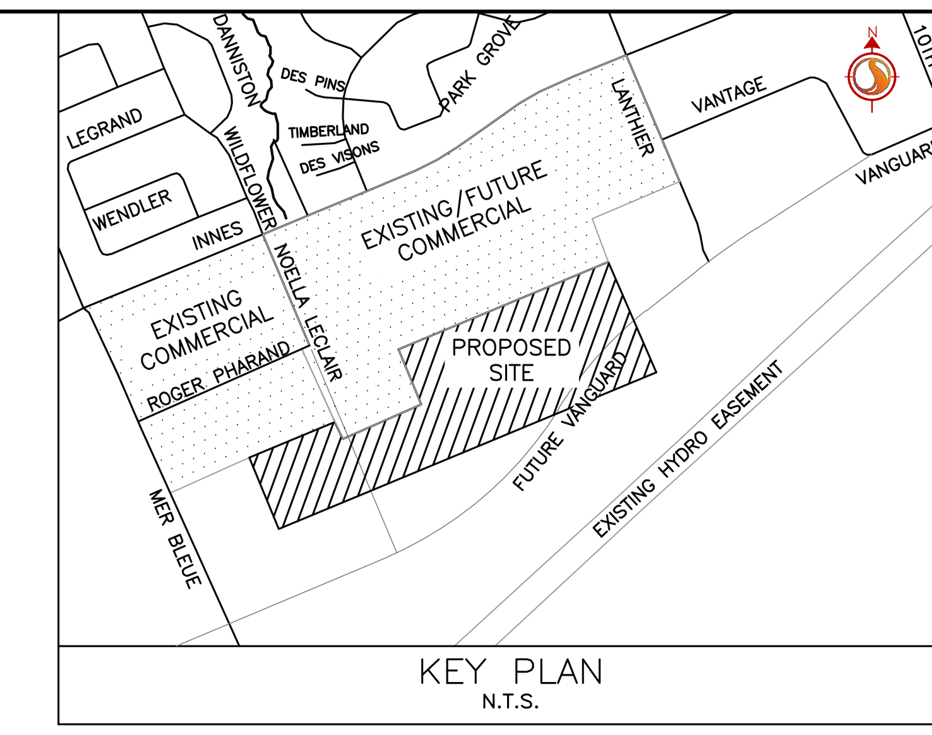

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0	ISSUED TO CITY FOR REVIEW	MJS	KS	22.05.13

Revision

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

Permit-Seal

Client/Project
INNES SHOPPING CENTRES LIMITED

ORLEANS II SUBDIVISION
OTTAWA, ON, CANADA

Title
SITE SERVICING PLAN

Project No. 160401419
Scale 1:500 (0 5 15 25m)

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

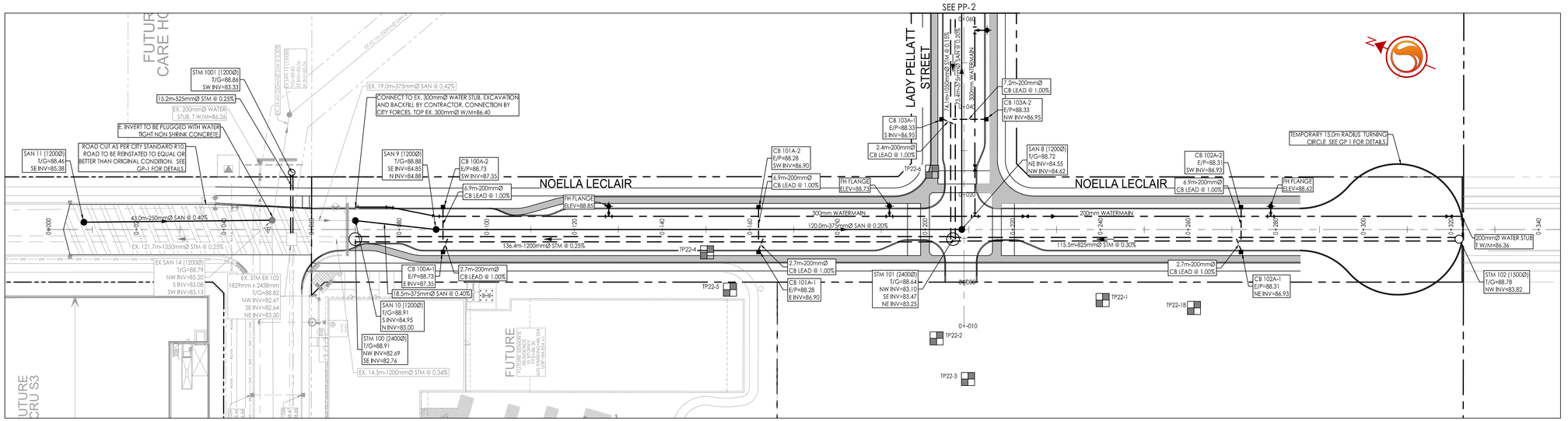
D07-16-18-0006

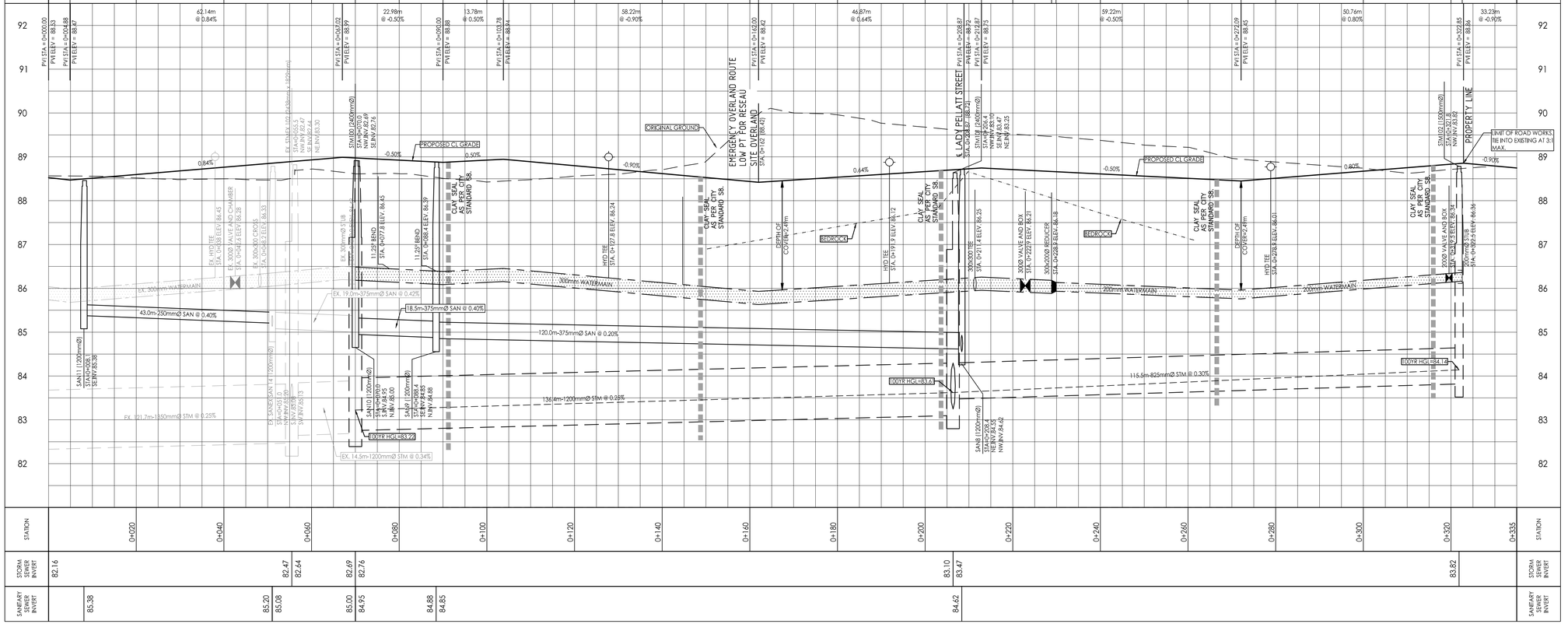
PLAN # 18733

ORIGINAL SHEET - ARCH D

TEST PIT LOCATION PER GEOTECHNICAL INVESTIGATION BY LRL ENGINEERING, DATED 2022-08-23

TP22-1





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GENERAL NOTES

1. ALL MATERIALS AND CONSTRUCTION METHODS TO BE IN ACCORDANCE WITH OPS AND CITY OF OTTAWA STANDARD SPECIFICATIONS AND DRAWINGS AND OPSD 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 UTILITY 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. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH OPSD 509.010 AND OPSS 310.
5. THE CONTRACTOR SHALL SUBMIT AN EROSION AND SEDIMENTATION CONTROL PLAN WHICH WILL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE PROTECTION FOR RECEIVING STORM SEWERS OR DRAINAGE DURING CONSTRUCTION ACTIVITIES. THIS PLAN SHALL INCLUDE BUT NOT LIMITED TO TERRAFIX SILTSACKS ON CATCH BASINS, STRAW BALE CHECK DAMS 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 (ie. TREES, WALKWAYS, PARK DETAILS, NOISE BARRIERS, FENCES etc.) REFER TO LANDSCAPE ARCHITECT PLAN.
8. STREET LIGHTING TO CITY OF OTTAWA STANDARDS. REFER TO COMPOSITE 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-EXCAVATE 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).

WATERMAIN

15. THE CONTRACTOR SHALL CONSTRUCT WATERMAIN, WATER SERVICES, CONNECTIONS & APPURTENANCES 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 1/2 OF THAT SPECIFIED BY THE MANUFACTURER.
17. SERVICE CONNECTIONS SHALL BE INSTALLED A MINIMUM OF 2400mm FROM ANY CATCHBASIN, MANHOLE, OR OBJECT THAT MAY CONTRIBUTE TO FREEZING. THERMAL INSULATION SHALL BE INSTALLED ON ALL PROPOSED CB'S 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 W42).

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 257 CLASS 100-D 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 OVER IN 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 GRATE AS PER S20 AND S21 FOR REAR YARDS AND S3 FOR STREET CB'S, PROVIDE 150mm 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 INLET CONTROL DEVICES (ICD) AS PER ICD SCHEDULE ON SITE SERVICING DRAWINGS. WHERE CATCH BASINS REQUIRE ICD OF IPEX TITE TO OR LARGER, CATCH BASIN LEADS SHALL BE 250mm 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 FROST LINE AND FULLY PENETRATE THE BEDDING, SUBBEDDING AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPACTABLE BROWN SILTY CLAY PLACED IN MAXIMUM 225mm THICK LOOSE LAYERS COMPACTED TO A MINIMUM OF 95% OF THE MATERIAL'S SPMDD. 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 GEOTECH REPORT PREPARED BY PATERSON GROUP INC., FOR MONARCH CORPORATION. REPORT No. PG2233-2 REVISION 2, DATED FEBRUARY 9, 2016.
22. GRANULAR "A" SHALL BE PLACED TO A MINIMUM THICKNESS OF 300 mm AROUND ALL STRUCTURES WITHIN PAVEMENT AREA AND COMPACTED TO A MINIMUM OF 98% STANDARD PROCTOR DENSITY.
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Revision		By	Appd.	YY.MM.DD

File Name: 160401419-PP-1	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

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

Project No.	Scale	
160401419	1:500H 0 5 15 25m 1:50V 0 0.5 1.5 2.5m	
Drawing No.	Sheet	Revision
PP-1	6 of 23	5

D07-16-18-00006

PLAN # 18733

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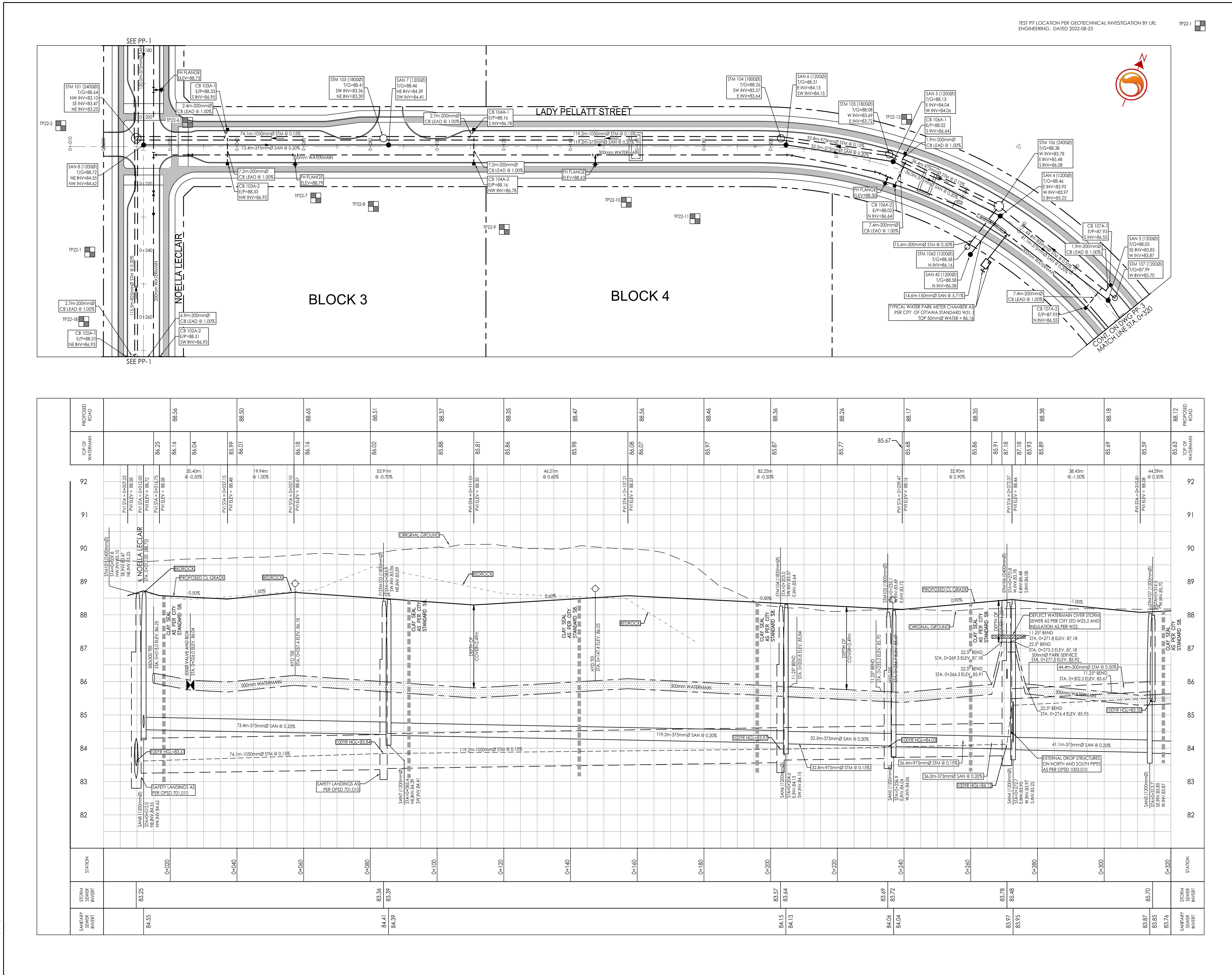

ORIGINAL SHEET - ARCH D

Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

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4. ALL DISTURBED AREAS SHALL BE REINSTATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION OF THE ENGINEER & THE CITY. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH OPSD 509.010 AND OPSS 310.
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9. EXCESS EXCAVATED MATERIAL SHALL BE REMOVED FROM THE SITE.
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ROADWORKS

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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.
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WATERMAIN

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17. SERVICE CONNECTIONS SHALL BE INSTALLED A MINIMUM OF 2400mm FROM ANY CATCHBASIN, MANHOLE, OR OBJECT THAT MAY CONTRIBUTE TO FREEZING. THERMAL INSULATION SHALL BE INSTALLED ON ALL PROPOSED CB'S 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 W42).

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

Permit-Seal

Client/Project
INNES SHOPPING CENTRES LIMITED

ORLEANS II
SUBDIVISION
OTTAWA, ON, CANADA

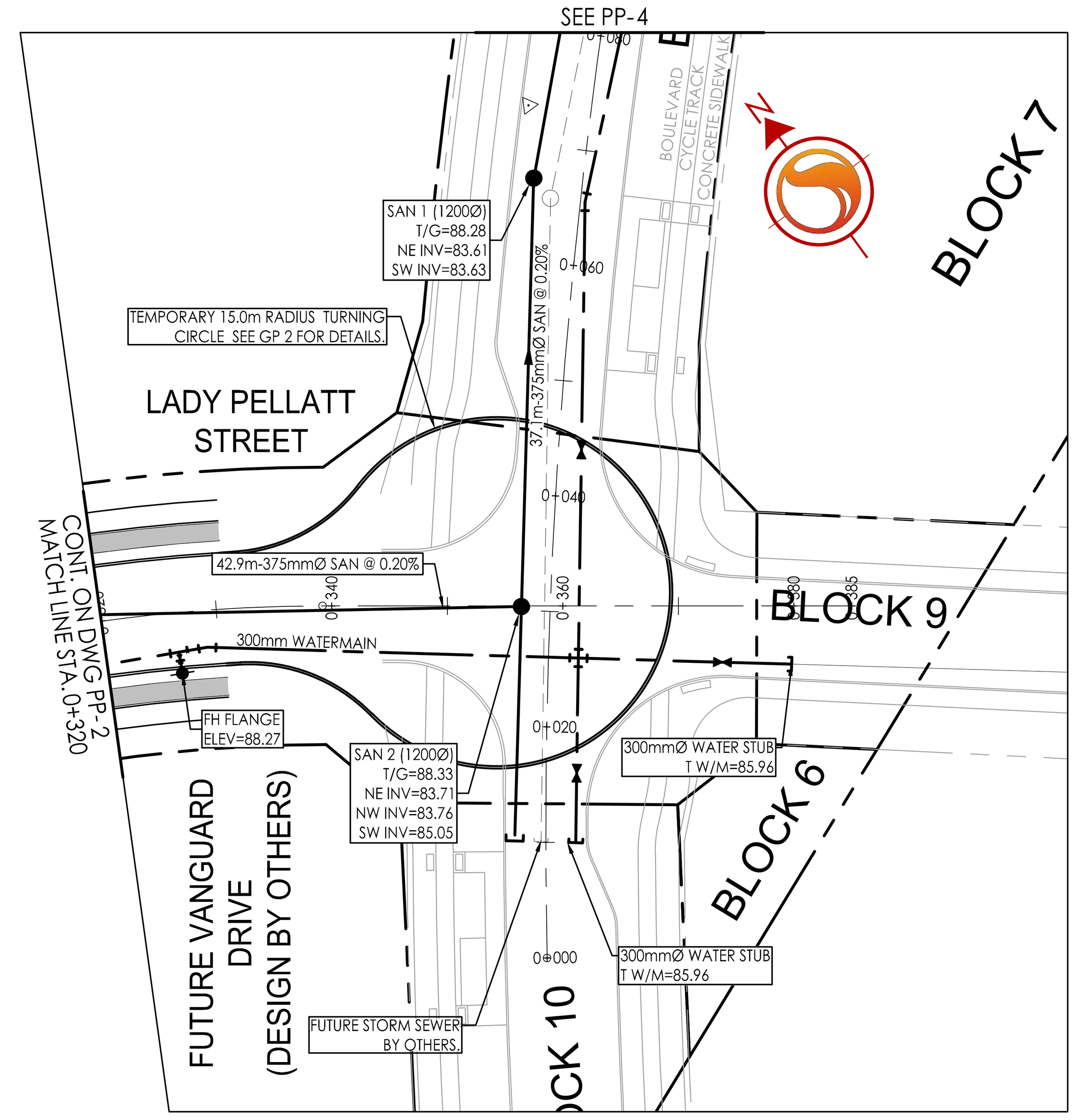
Title
PLAN AND PROFILE
LADY PELLATT STREET
STA. 0+000 TO STA. 0+320

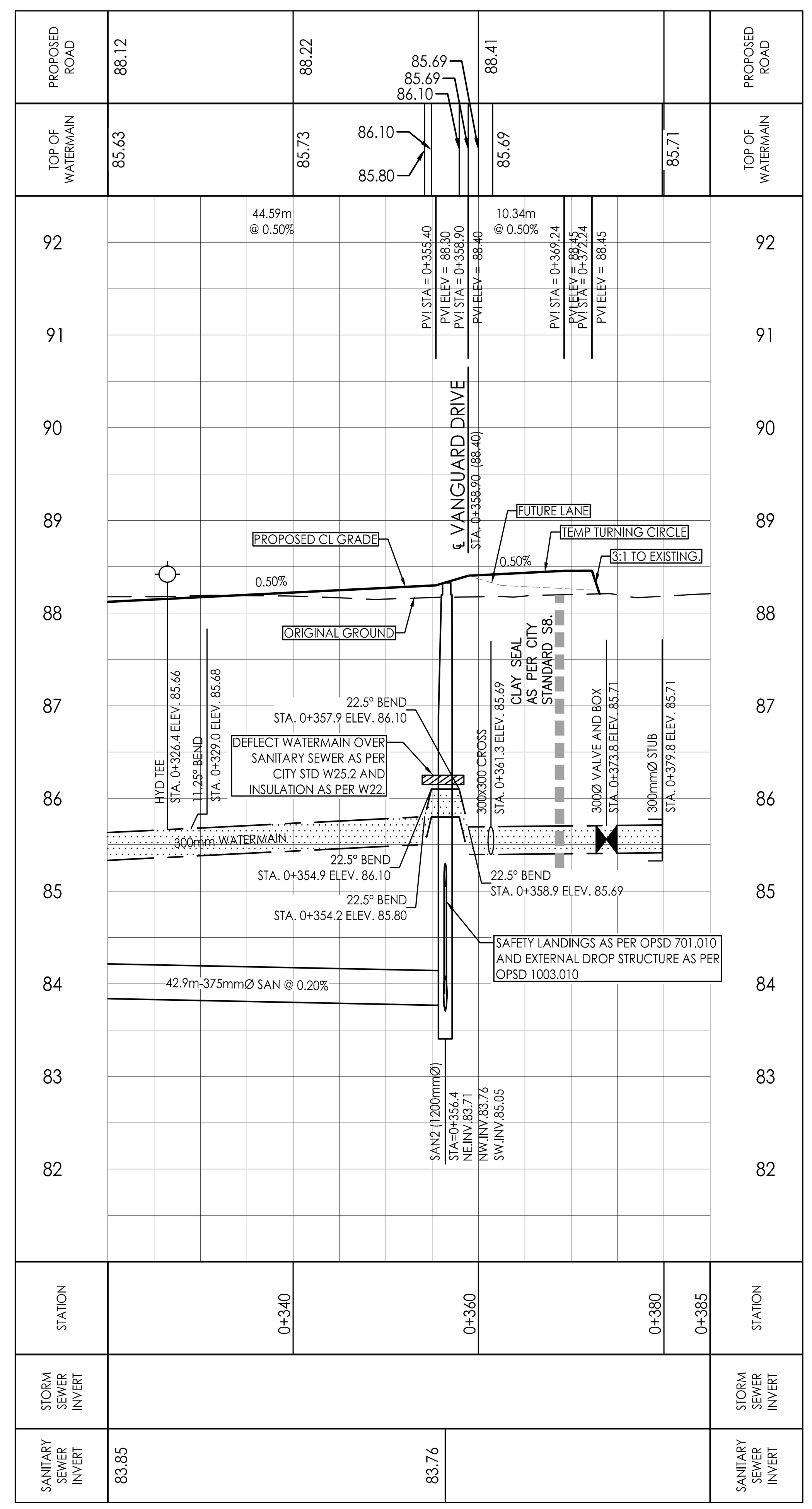
Project No. 160401419
Scale 1:500H 1:50V

Drawing No.	Sheet	Revision
PP-2	7 of 23	5

D07-16-18-0006

PLAN # 18733





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Legend

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

Permit-Seal

Client/Project

INNES SHOPPING CENTRES LIMITED

ORLEANS II
SUBDIVISION

OTTAWA, ON, CANADA

Title

PLAN AND PROFILE
LADY PELLATT STREET
STA. 0+320 TO STA. 0+385

Project No. 160401419

Scale 1:500H 1:50V

Drawing No. PP-3

Sheet 8 of 23

Revision 5

D07-16-18-0006

PLAN # 18733

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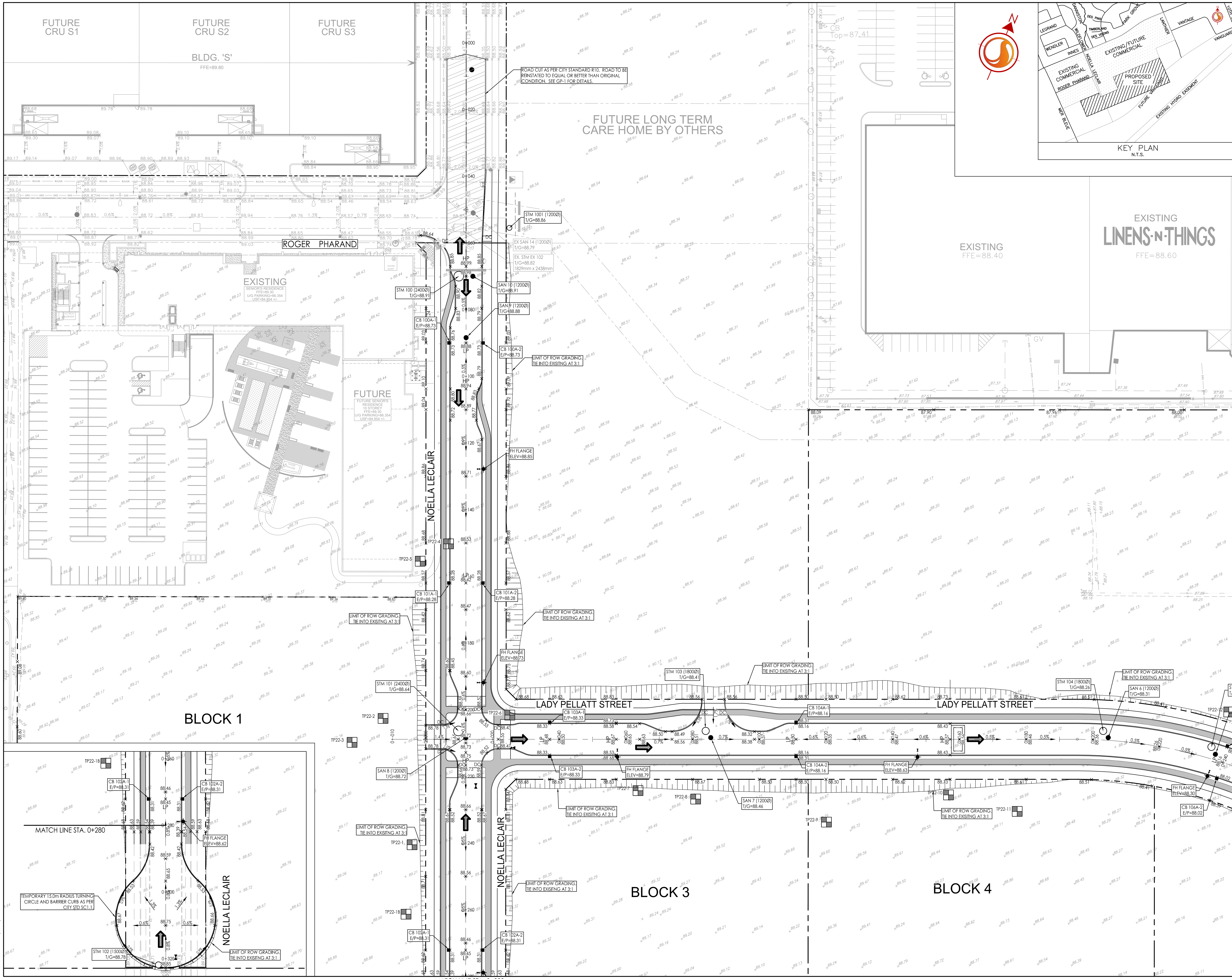

Stantec

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Legend

Symbol	Description
99.99	ORIGINAL GROUND ELEVATION
99.99	PROPOSED ELEVATION
99.99 / 98.88	PROPOSED LOT CORNER ELEVATION EXISTING ELEVATION AT LOT CORNER
2.0%	FLOW DIRECTION AND GRADE
FFE=100.00	FINISHED FIRST FLOOR ELEVATION
USF=97.00	UNDERSIDE OF FOOTING ELEVATION
E.F.	ENGINEERED FILL REQUIRED
3:1	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
D.C.	PROPOSED DEPRESSED CURB LOCATION
	PROPOSED BARRIER CURB

Notes

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	MJS	DT	MJS	22.04.10

Permit-Seal

Client/Project
INNES SHOPPING CENTRES LIMITED

ORLEANS II SUBDIVISION
OTTAWA, ON, CANADA

Title
GRADING PLAN

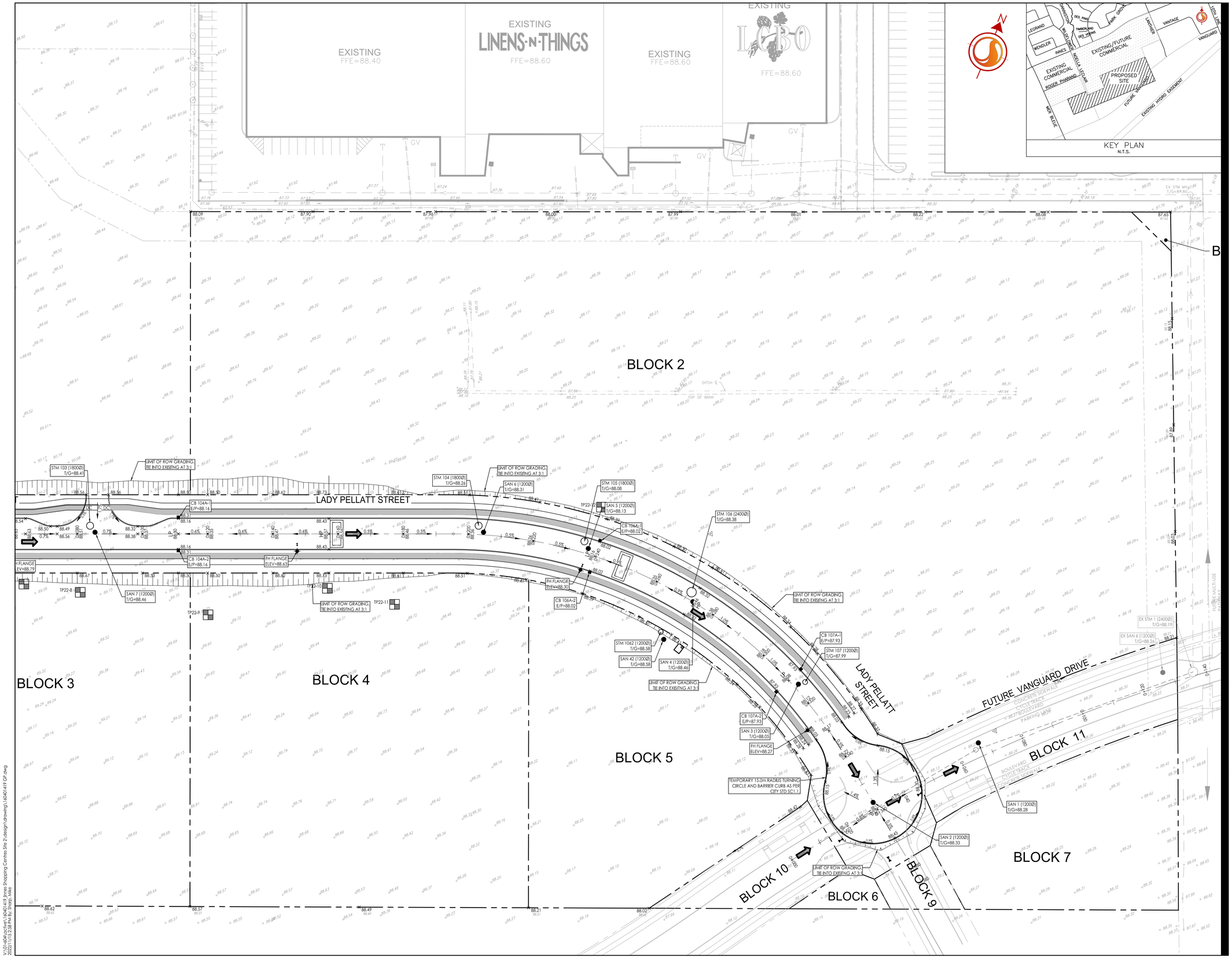
Project No. 160401419
Scale 1:500

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

D07-16-18-0006

PLAN # 18733

ORIGINAL SHEET - ARCH D



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Legend

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	PROPOSED SANITARY SEWER MANHOLE
	PROPOSED STORM SEWER MANHOLE
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D.C.	PROPOSED DEPRESSED CURB LOCATION
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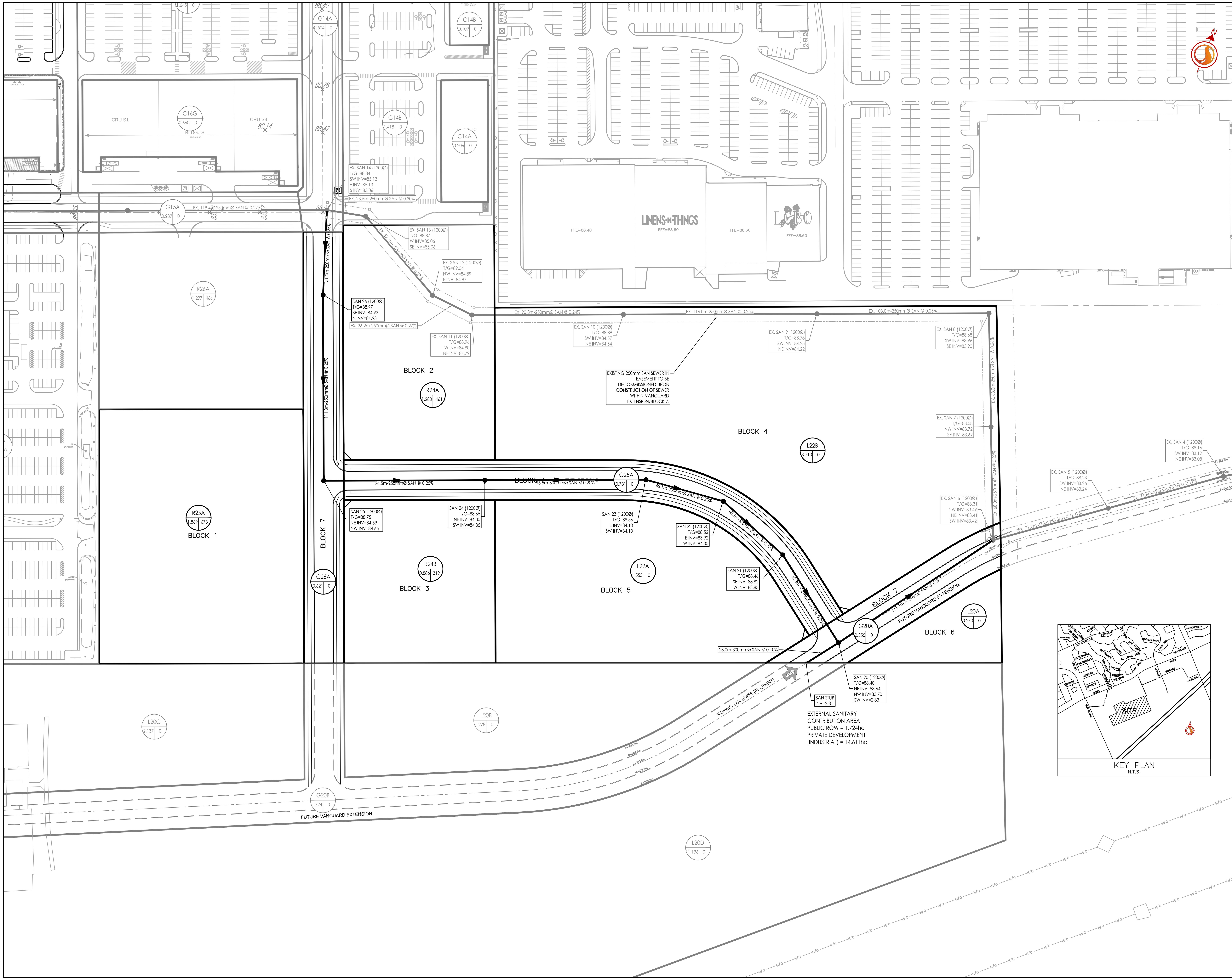
Client/Project
INNES SHOPPING CENTRES LIMITED

ORLEANS II
SUBDIVISION
OTTAWA, ON, CANADA

Title
GRADING PLAN

Project No. 160401419	Scale 1:500 (0 5 15 25m)	
Drawing No. GP-2	Sheet 12 of 23	Revision 5

D07-16-18-0006
PLAN # 18733



Stantec

Stantec Consulting Ltd.
400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

- PROPOSED TRUNK SANITARY SEWER
- EXISTING TRUNK SANITARY SEWER
- SANITARY DRAINAGE BOUNDARY
- EXISTING SANITARY DRAINAGE BOUNDARY
- G17A / 0.50 / 50:
  - SANITARY DRAINAGE AREA ID
    - G = GREEN SPACE OR INFILTRATION
    - C = COMMERCIAL AREA
    - L = LIGHT INDUSTRIAL AREA
    - R = RESIDENTIAL AREA
  - POPULATION
  - SANITARY DRAINAGE AREA (ha)

Notes

1	ISSUED FOR DRAFT PLAN OF SUBDIVISION	DT	KS	18.04.11
Revision		By	Appd.	YY.MM.DD

File Name: 160401242-D8	DT	KS	DT	18.04.09
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project

INNES SHOPPING CENTRES LIMITED

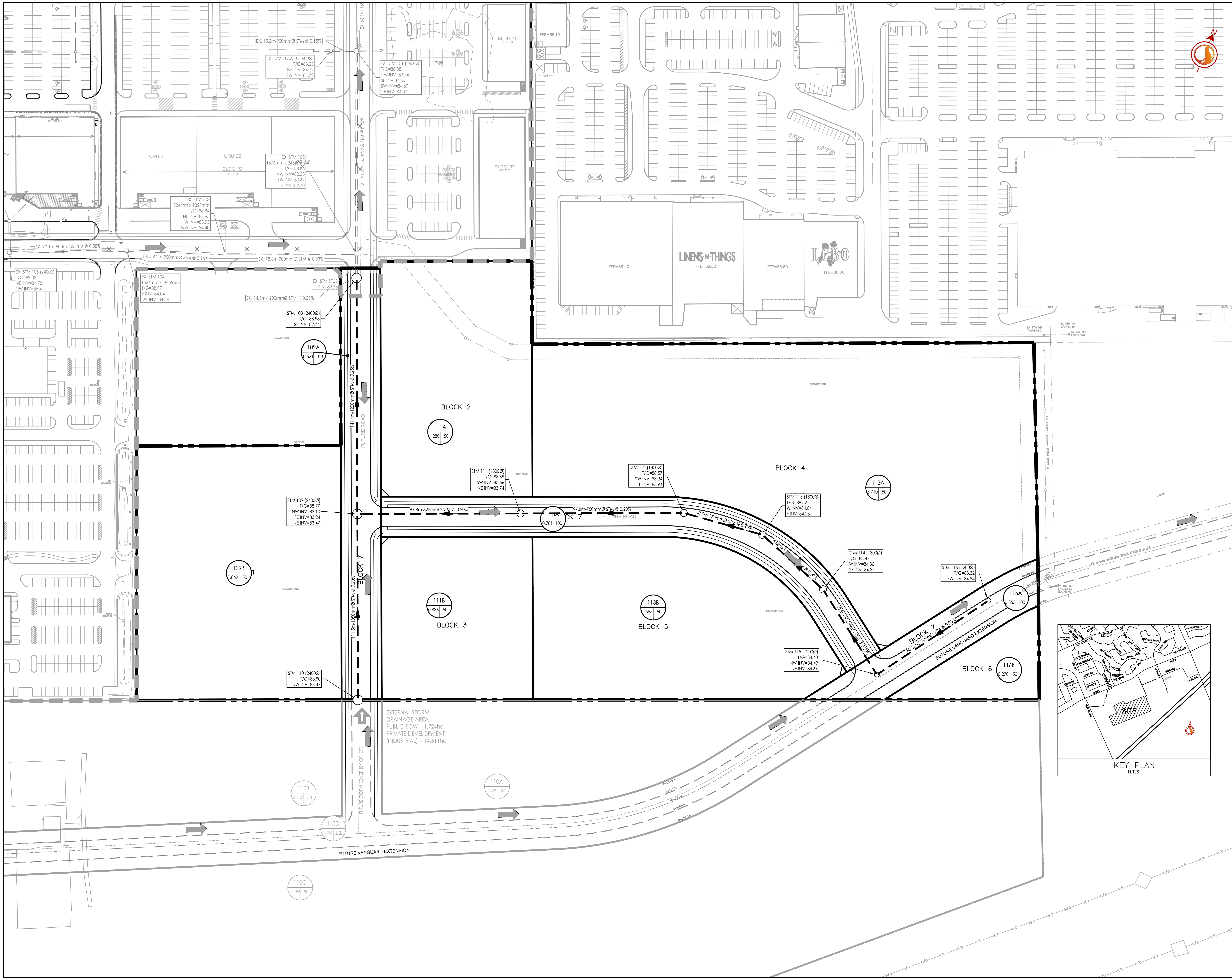
ORLEANS II
DRAFT PLAN OF SUBDIVISION
Ottawa, ON

Title

OVERALL SANITARY SEWER LAYOUT

Project No.	Scale
160401419	1:1000 (0 10 30 50m)

Drawing No.	Sheet	Revision
SA-1	1 of 4	1



Stantec

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400 - 1331 Clyde Avenue
Ottawa ON
Tel. 613.722.4420
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Legend

- TRUNK STORM SEWER
- EXISTING TRUNK STORM SEWER
- FUTURE TRUNK STORM SEWER
- MAJOR OVERLAND FLOW ROUTE
- 305A / 1.00 / 100: DRAINAGE AREA No.; CONTROLLED RELEASE RATE (L/s); STORM DRAINAGE AREA (ha)
- STORM DRAINAGE BOUNDARY
- FUTURE STORM DRAINAGE BOUNDARY
- MAJOR SYSTEM DIVIDE

Notes

		By	Appd.	YY.MM.DD
1	ISSUED FOR DRAFT PLAN OF SUBDIVISION	DT	KS	18.04.11

Revision

File Name: 160401242-DB	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	DT	KS	DT	18.04.09

Permit-Seal

Client/Project

INNES SHOPPING CENTRES LIMITED

ORLEANS II
DRAFT PLAN OF SUBDIVISION
Ottawa, ON

Title

OVERALL STORM SEWER LAYOUT

Project No. 160401419

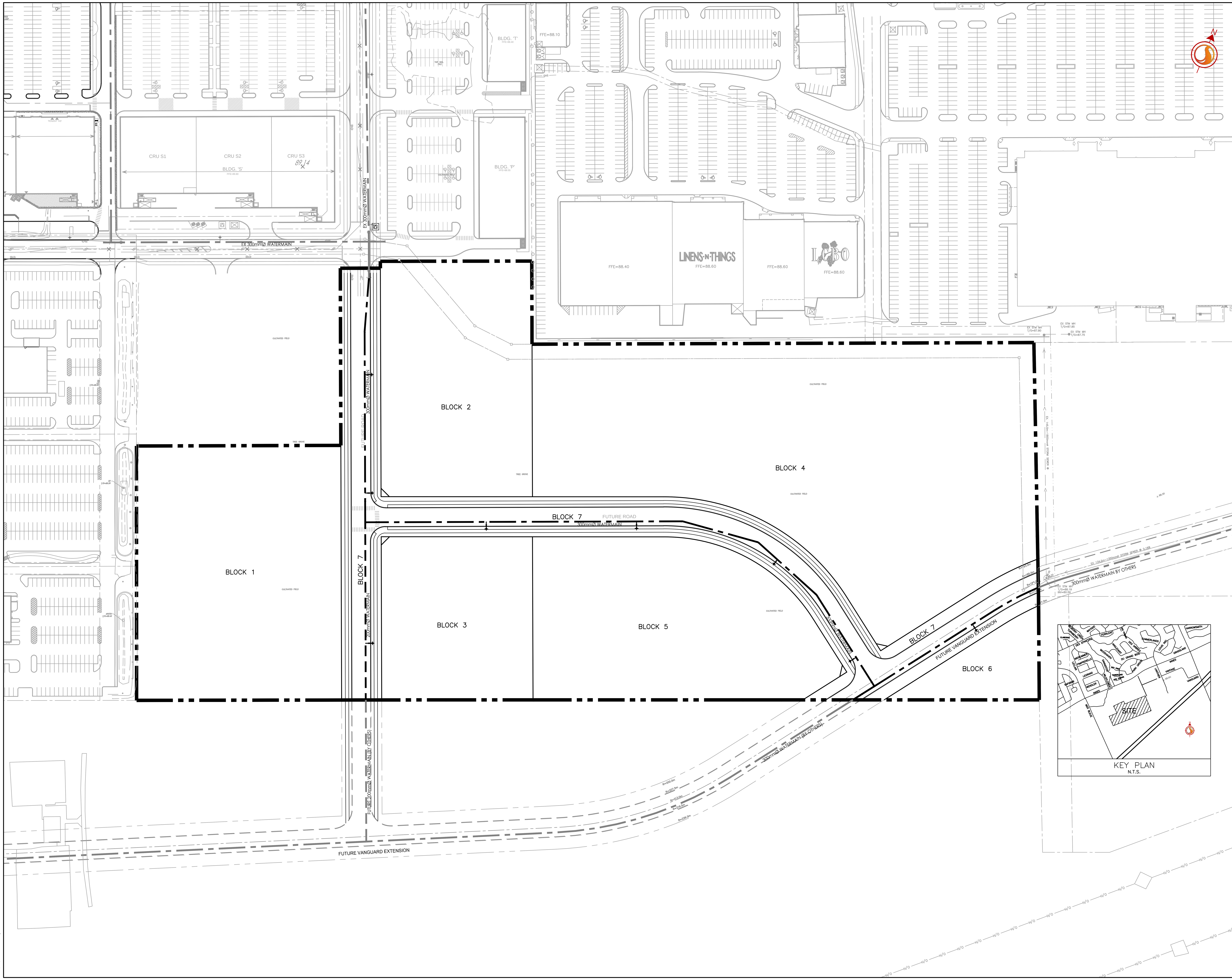
Scale 1:1000 (0 10 30 50m)

Drawing No. SD-1

Sheet 2 of 4

Revision 1

ORIGINAL SHEET - ARCH D



Stantec

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Ottawa ON
Tel. 613.722.4420
www.stantec.com

Legend

406mmØ WATERMAIN
305mmØ WATERMAIN
203mmØ WATERMAIN

EX. 406mmØ WATERMAIN
EX. 305mmØ WATERMAIN
EX. 203mmØ WATERMAIN

FUT. 406mmØ WATERMAIN
FUT. 305mmØ WATERMAIN
FUT. 203mmØ WATERMAIN

Notes

		By	Appd.	YY.MM.DD
1	ISSUED FOR DRAFT PLAN OF SUBDIVISION	DT	KS	18.04.11

Revision

File Name: 160401242-DB	Dwn.	Chkd.	Dsgn.	YY.MM.DD
	DT	KS	DT	18.04.09

Permit-Seal

Client/Project

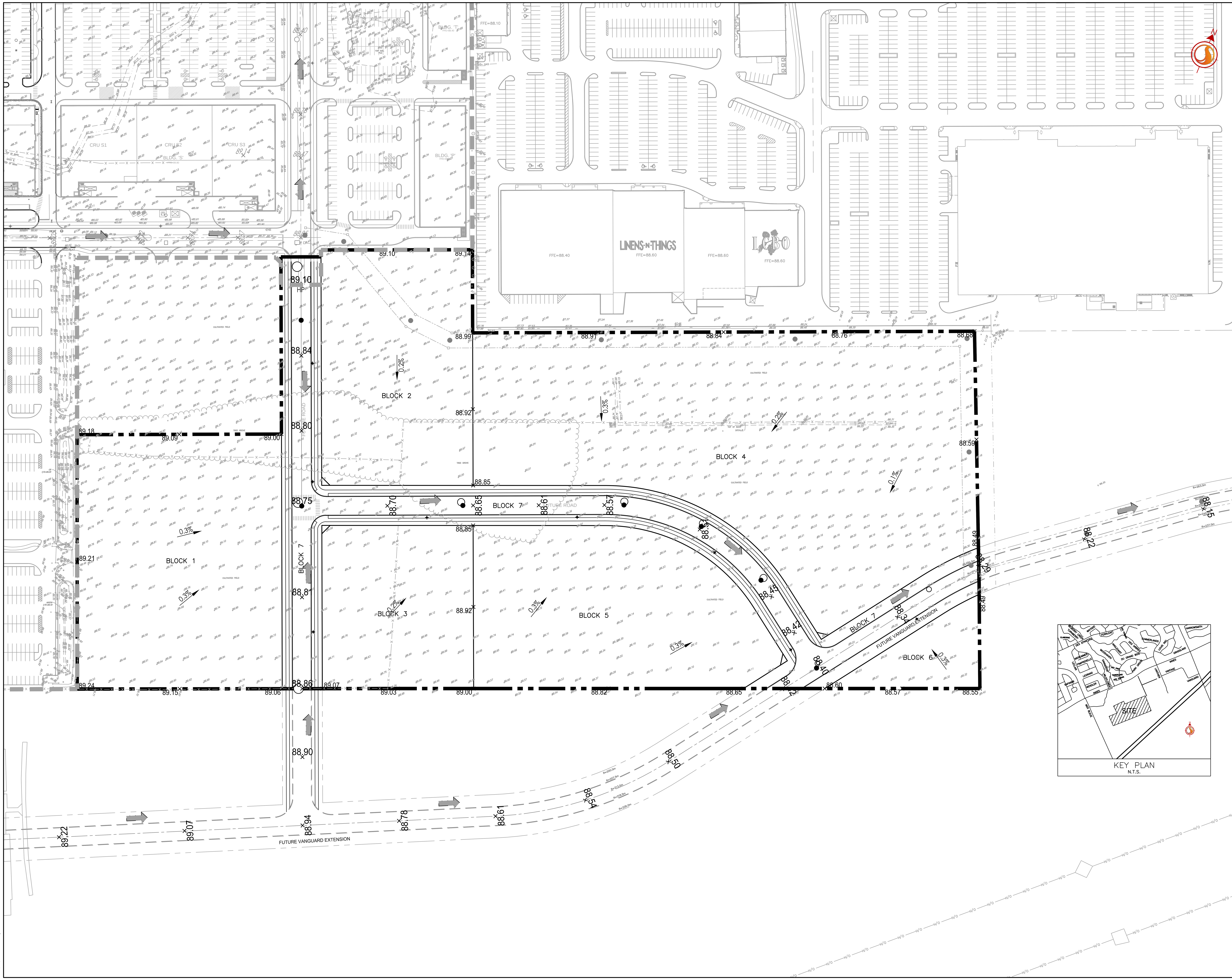
INNES SHOPPING CENTRES LIMITED

ORLEANS II
DRAFT PLAN OF SUBDIVISION
Ottawa, ON

Title

OVERALL WATERMAIN LAYOUT

Project No.	Scale		
160401419	1:1000 (0, 10, 30, 50m)		
Drawing No.	Sheet	Revision	
WM-1	3 of 4	1	



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Ottawa ON
Tel. 613.722.4420
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Legend

×89.40 (small)	EXISTING ELEVATION
89.40 ×	PROPOSED ELEVATION
89.14 ×	EXISTING DESIGN ELEVATION
(arrow)	MAJOR OVERLAND FLOW ROUTE
(dashed line)	MAJOR SYSTEM DIVIDE

Notes

1	ISSUED FOR DRAFT PLAN OF SUBDIVISION	DT	KS	18.04.11
Revision		By	Appd.	YY.MM.DD

File Name: 160401242-D8	DT	KS	DT	18.04.09
	Dwn.	Chkd.	Dsgn.	YY.MM.DD

Permit-Seal

Client/Project

INNES SHOPPING CENTRES LIMITED

ORLEANS II
DRAFT PLAN OF SUBDIVISION
Ottawa, ON

Title

OVERALL GRADING PLAN

Project No.	Scale
160401419	1:1000 (0 10 30 50m)

Drawing No.	Sheet	Revision
GP-1	4 of 4	1

ORIGINAL SHEET - ARCH D

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[1] (psi)
Maximum HGL	130.3	59.5
Peak Hour	126.7	54.5
Max Day plus Fire Flow	128.1	56.4

[1] Ground Elevation = 88.4 m

Connection 2 – Prom. Lanthier Dr.

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	130.3	60.2
Peak Hour	126.2	54.4
Max Day plus Fire Flow	127.5	56.3

[1] 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)

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
Infrastrcuture / 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

From: Polyak, Alex <alex.polyak@ottawa.ca>
Sent: January 23, 2023 11:35 AM
To: Yang, Winston <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
www.Ottawa.ca

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

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
Infrastrcuture / 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

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'

Fire Flow Design Sheet (FUS)
1001 Noella Leclair Way & 4200 Innes Road
City of Ottawa
WSP Project No. 221-12376-00
Date: 20-Jan-23

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^2
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% x 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% x 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% x 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)

Based on method described in:
"Water Supply for Public Fire Protection - A Guide to Recommended Practice", 2020
by Fire Underwriters Survey

Water Demand Calculation Sheet

Project:	**1001 Noella Leclair Way & 4200 Innes Road**	**Date:**	**2023-01-20**
Location:	**City of Ottawa**	**Design:**	**WY**
WSP Project No.	**221-12376-00**	**Page:**	**1 of 1**

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

Residentail	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
- PRE-DEVELOPMENT DRAINAGE AREA PLAN
- STORM SEWER DESIGN SHEET

STORM SEWER DESIGN SHEET

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

LOCATION				AREA (Ha)						RATIONAL DESIGN FLOW												PROPSOED 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)	AVAIL CAP (2yr) (%)
To Noella Leclair Way Exxtension																														
	S-102	CB01	CBMH101-STMH102	0.033				0.045		0.136	0.136	10.00	10.04	76.81	104.19	178.56		10.41				10.41		PVC DR-35	200.0	1.00	2.25	32.83	1.04	0.04	22.42	68.30%
	S-103	CB02	CBMH101-STMH102	0.031				0.053		0.154	0.154	10.00	10.04	76.81	104.19	178.56		11.84				11.84		PVC DR-35	200.0	1.00	2.48	32.83	1.04	0.04	20.99	63.94%
	S-101	CBMH101	STMH102	0.024				0.048		0.137	0.426	10.04	11.11	76.65	103.98	178.20		32.69				32.69		PVC DR-35	250.0	0.70	65.08	49.80	1.01	1.07	17.12	34.37%
	S-104	CB03	STMH102	0.040				0.050		0.153	0.153	10.00	10.05	76.81	104.19	178.56		11.74				11.74		PVC DR-35	200.0	1.00	3.05	32.83	1.04	0.05	21.09	64.23%
	S-105	CB04	STMH102-STMH103	0.035				0.064		0.184	0.184	10.00	10.06	76.81	104.19	178.56		14.17				14.17		PVC DR-35	200.0	1.00	3.45	32.83	1.04	0.06	18.66	56.85%
		STMH102	STMH103							0.000	0.764	11.11	11.92	72.79	98.68	169.01		55.60				55.60		PVC DR-35	300.0	1.00	66.40	96.80	1.37	0.81	41.20	42.56%
	S-106	CB05	STMH103-STMH104	0.039				0.049		0.150	0.150	10.00	10.05	76.81	104.19	178.56		11.50				11.50		PVC DR-35	200.0	1.00	3.43	32.83	1.04	0.05	21.33	64.98%
	S-107	CB06	STMH103-STMH104	0.015				0.046		0.126	0.126	10.00	10.06	76.81	104.19	178.56		9.64				9.64		PVC DR-35	200.0	1.00	3.86	32.83	1.04	0.06	23.19	70.64%
		STMH103	STMH104							0.000	1.039	11.92	12.87	70.15	95.04	162.74		72.88				72.88		PVC DR-35	375.0	0.50	64.10	124.10	1.12	0.95	51.22	41.27%
	S-108	CB07	STMH104-CBMH105	0.106				0.086		0.289	0.289	10.00	10.07	76.81	104.19	178.56		22.18				22.18		PVC DR-35	200.0	1.00	4.26	32.83	1.04	0.07	10.65	32.43%
		STMH104	CBMH105							0.000	1.328	12.87	13.45	67.30	91.13	155.98		89.36				89.36		CONC 100D	525.0	0.50	48.93	304.41	1.40	0.58	215.04	70.64%
	S-109	CBMH105	STMH106	0.111				0.050		0.202	1.530	10.07	10.21	76.54	103.84	177.94		117.12				117.12		CONC 100D	525.0	0.50	11.62	304.41	1.40	0.14	187.28	61.52%
	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	*EX.STMH1001*							0.000	2.603	13.45	13.64	65.68	88.92	152.15		170.99				170.99		CONC 100D	525.0	0.50	15.86	304.41	1.40	0.19	133.42	43.83%

Definition:
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 2 Year
i = 1174.184/(TC+6.014)^0.816 5 Year
i = 1735.688/(TC+6.014)^0.820 100 Year

Notes:
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^.33]
Where: Longest Watercourse Length, L (m). S (%)
Runoff Coef.C = Impervious

No.	L (m)	S %	Tc (min)
			#DIV/0!

Designed: J.T.
Checked: D.B.Y.
Dwg. Reference: C005

No.	Revision	Date
1.	City Submission No. 1	2023-03-20

File Reference: 221-04473-00
Date: 2023-03-20
Sheet No: 1 of 1

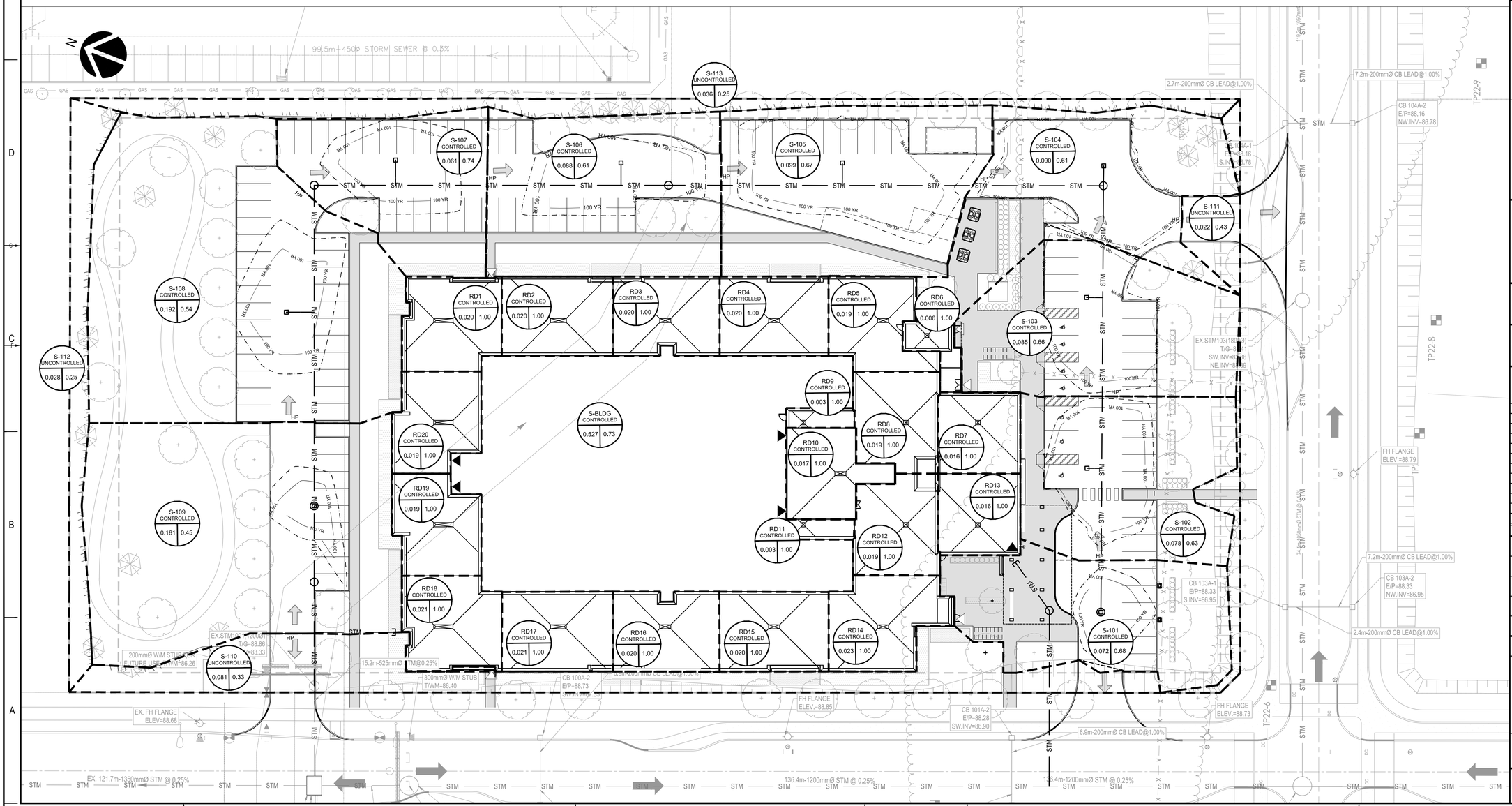
Drainage Area	CB NO.	Total (Ha)	Grass C=0.25	Asphalt C=0.90	Roof C=1.0	Cavg	Max Ponding Area	Max Ponding Elev	Max Ponding Depth	Max Ponding Volume	100YR Ponding Depth	100YR Ponding Area	100YR Ponding Volume	100YR Ponding Depth+20% Depth	100YR+20% Depth Ponding Area	100YR+20% Depth Ponding Volume
			0.25	0.90	1.00											
S-101	CBMH101	0.072	0.024	0.048		0.68	156.79	88.68	0.200	10.45	0.13	70.09	3.04	0.17	119.9	6.79
S-102	CB01	0.078	0.033	0.045		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	0.084	0.031	0.053		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	0.090	0.040	0.050		0.61	389.84	88.62	0.300	38.98	0.29	363.85	35.17	0.30	382.09	38.21
S-105	CB04	0.099	0.035	0.064		0.67	524.87	88.65	0.300	52.49	0.25	363.11	30.26	0.29	483.39	46.73
S-106	CB05	0.088	0.039	0.049		0.61	372.39	88.69	0.300	37.24	0.21	206.84	14.48	0.25	266.14	22.18
S-107	CB06	0.061	0.015	0.046		0.74	428.53	88.73	0.300	42.85	0.16	147.47	7.87	0.21	245.9	17.21
S-108	CB07	0.192	0.106	0.086		0.54	540.49	88.76	0.300	54.05	0.13	136.87	5.93	0.19	284.52	18.02
S-109	CBMH105	0.161	0.111	0.050		0.45	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	Refer to Roof Plan									
Uncontrolled																
S-110		0.081	0.071	0.010		0.33										
S-111		0.022	0.016	0.006		0.43										
S-112		0.028	0.028			0.25										
S-113		0.036	0.036			0.25										

Roof Drains Areas and Storage Volume Table

Roof Drainage#	Roof Area m²	Ponding Area m²	Ponding Depth m	Ponding Volume m³
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 Drains Areas and Storage Volume Table

Roof Drainage#	Roof Area m²	Ponding Area m²	Ponding Depth m	Ponding Volume m³
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



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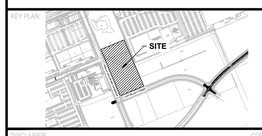
LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2023-03-20
PROVINCE OF ONTARIO

CLIENT:
EXTENDICARE CANADA INC.

CLIENT REF. #:

PROJECT:
EXTENDICARE (CANADA) INC
ORLEANS LTC HOME

KEY PLAN:


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THIS DRAWING IS NOT TO BE SCALED.

BEARING NOTE: ELEVATION = 91.50
BEARING ARE GRID, DERIVED FROM THE CAN-NET VRS NETWORK OBSERVATIONS ON NCC HORIZONTAL CONTROL MONUMENTS 19773035 AND 1568091, CENTRAL MERIDIAN, 76°30' WEST LONGITUDE MTM ZONE 9, NAD83 (ORIGINAL)
19773035 N 5030600.42 E 324688.04
1568091 N 5033956.26 E 368064.94

ISSUED FOR - REVISION:

NO.	DATE	DESCRIPTION
1	2023-03-20	ISSUED FOR SPA

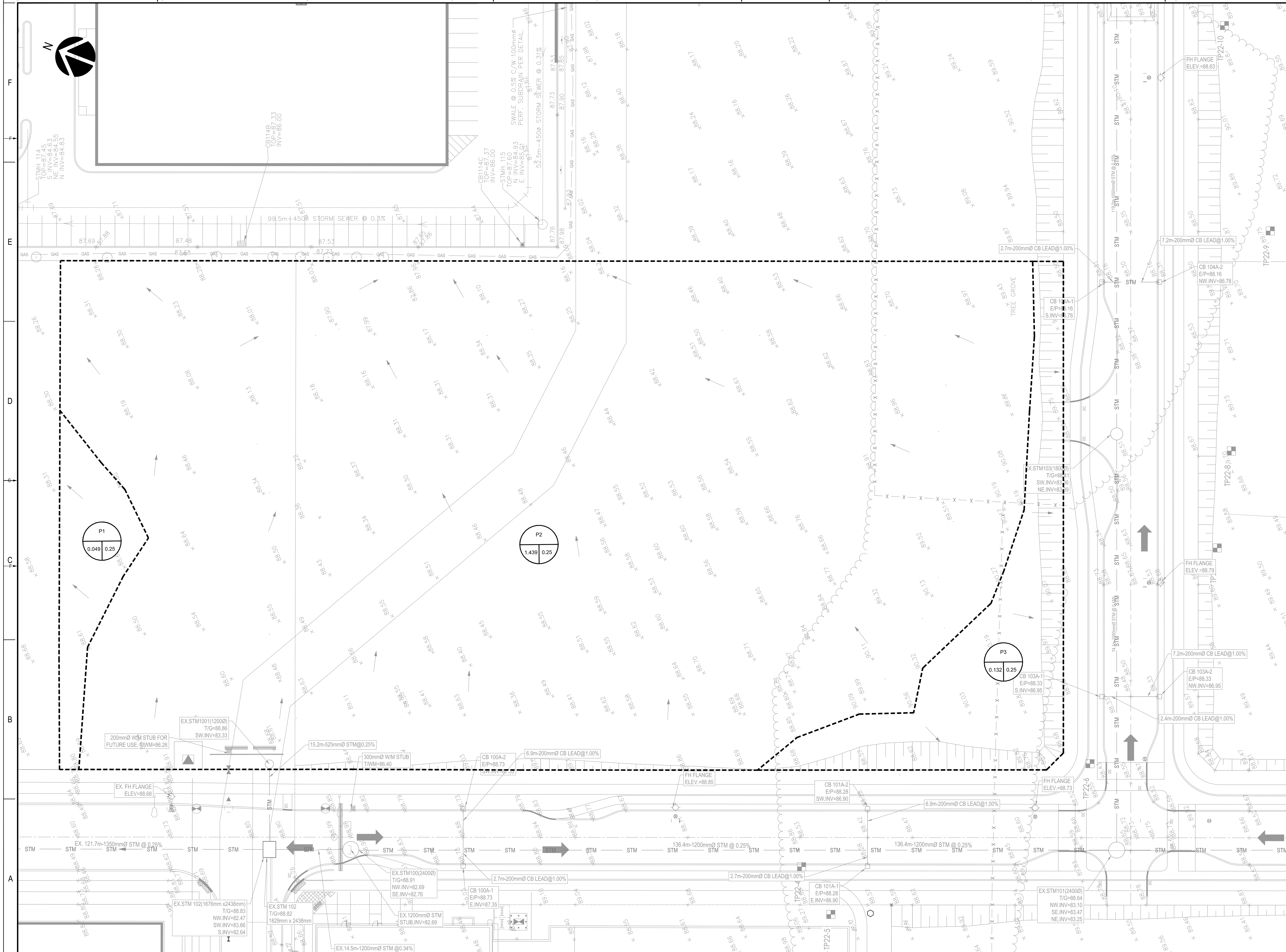
PROJECT NO: 221-12376-00
DATE: 2023-03-20
ORIGINAL SCALE: 1:300
DESIGNED BY: D.Y.
DRAWN BY: J.T.
CHECKED BY: D.Y.
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE.
25mm

DISCIPLINE:

TITLE:
STORM DRAINAGE AREA PLAN

SHEET NUMBER:
C004
SHEET #: 5 OF: 6

ISSUE: ISSUED FOR SPA
DATE OF: 2023-03-20
REV #: 0



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LICENSED PROFESSIONAL ENGINEER
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100230568
2023-03-20
PROVINCE OF ONTARIO

CLIENT:

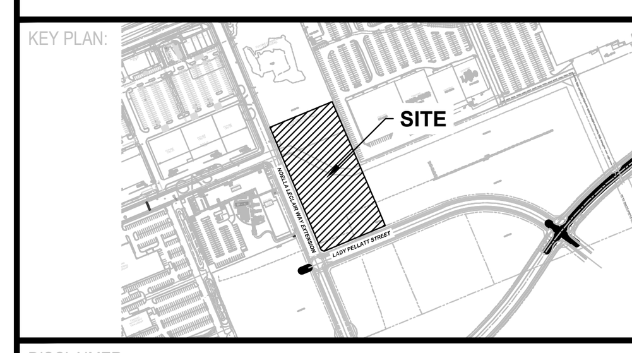
EXTENDICARE CANADA INC.

CLIENT REF. #:

PROJECT:

EXTENDICARE (CANADA) INC
ORLEANS LTC HOME

KEY PLAN:



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BEARING NOTE ELEVATION = 95.06 m

BEARING ARE GRID, DERIVED FROM THE CAN-NET VRS NETWORK OBSERVATIONS ON NCC HORIZONTAL CONTROL MONUMENTS 19773035 AND 1968091, CENTRAL MERIDIAN, 76°30' WEST LONGITUDE MTM ZONE 9. NAD83 (ORIGINAL)
19773035 N:5006060.42 E:324888.04
19680191 N:5033564.26 E:388064.94

ISSUED FOR - REVISION:

IS	RE	DATE	DESCRIPTION
1		2023-03-20	ISSUED FOR SPA

PROJECT NO: 221-12376-00	DATE: 2023-03-20
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.	25mm

DISCIPLINE:

TITLE:

PRE-DEVELOPMENT DRAINAGE
AREA PLAN

SHEET NUMBER:

C005

SHEET #: 6 OF 6

ISSUE:

ISSUED FOR SPA

DATE OF: 2023-03-20

REV #

0

APPENDIX

APPENDIX

D

- EROSION AND SEDIMENT CONTROL PLAN

PROPOSED SILT FENCE AS PER OPSD 219.210

INSTALL MUD MAT AT CONSTRUCTION ACCESS REFER TO DETAIL

SILT SACK TO BE PLACED UNDER ALL PROPOSED CB AND CBMH COVER

375mm STUB PLUGGED WITH SAND BAGS IN EX.SAN MH 14 IN THE INTERIM UNTIL FUTURE CONNECTION TO VANGUARD DRIVE IS ONSTRUCTION

SCALE: 1:300

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LICENSED PROFESSIONAL ENGINEER
D. B. YANG
100230568
2023-03-20
PROVINCE OF ONTARIO

CLIENT:
EXTENDICARE CANADA INC.

CLIENT REF. #:

PROJECT:
EXTENDICARE (CANADA) INC
ORLEANS LTC HOME

KEY PLAN:
SITE

BEARING NOTE: ELEVATION = 95.06 M.

BEARING ARE GRID, DERIVED FROM THE CAN-NET VRS NETWORK OBSERVATIONS ON NCC HORIZONTAL CONTROL MONUMENTS 19773030 AND 19680911, CENTRAL MERIDIAN 76°30' WEST LONGITUDE MTM ZONE 9, NAD83 (ORIGINAL)
19773030 N 5056092.42 E 324888.04
19680191 N 5030064.39 E 388094.94

ISSUED FOR - REVISION:

NO.	BY	DATE	DESCRIPTION
1		2023-03-20	ISSUED FOR SPA

PROJECT NO.: 221-12376-00
DATE: 2023-03-20
DRAWING SCALE: 1:300
DESIGNED BY: D.Y.
DRAWN BY: J.T.
REVIEWED BY: D.Y.
IF THIS BAR IS NOT 25mm LONG, ADJUST YOUR PLOTTING SCALE
25mm

DISCIPLINE: CIVIL

TITLE:
EROSION AND SEDIMENT CONTROL PLAN

SHEET NUMBER: C003
SHEET # 4 OF 6

ISSUE: ISSUED FOR SPA
DATE OF: 2023-03-20
REV.# 0

APPENDIX

APPENDIX

E

- SUBMISSION CHECK LIST

4.1 General Content

☒ Executive Summary (for larger reports only).

Comments: Refer to Servicing Report Section 1.1

☒ Date and revision number of the report.

Comments: *Refer to front page of the Report*

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

Comments: *Refer to Figure 1.1 Site Location for Location Map and Plan*

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

Comments: *Refer to drawing C002*

☒ 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: *Refer to Architectural Site Plan*

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

Comments: Refer to Appendix A for Pre-Consultation Meeting Notes

☒ Reference and confirm conformance to higher level studies and reports (Master Servicing Studies, Environmental Assessments, Community Design Plans), or in the case where it is not in conformance, the proponent must provide justification and develop a defendable design criteria.

Comments: *N/A*

☒ Statement of objectives and servicing criteria.

Comments: Refer to Servicing Report Section 1.7

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

Comments: *Refer to drawing C002*

☒ 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: *N/A*

☒ 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: *Refer to drawing C001*

☒ 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: *N/A*

☒ Proposed phasing of the development, if applicable.

Comments: *N/A*

☒ Reference to geotechnical studies and recommendations concerning servicing.

Comments: *N/A*

☒ 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: *Refer to drawing C001 to C004*

4.2 Development Servicing Report: Water

☒ Confirm consistency with Master Servicing Study, if available

Comments: *Refer to Servicing Report Section 2.1*

☒ Availability of public infrastructure to service proposed development

Comments: Refer to Servicing Report Section 2.1

☒ Identification of system constraints

Comments: N/A

☒ Identify boundary conditions

Comments: *Refer to Servicing Report Section 2.2*

☒ Confirmation of adequate domestic supply and pressure

Comments: *Refer to Servicing Report Section 2.3*

☒ 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: *Refer to Servicing Report Section 2.4*

☒ 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: *Refer to Servicing Report Section 2.5*

☒ Definition of phasing constraints. Hydraulic modeling is required to confirm servicing for all defined phases of the project including the ultimate design

Comments: N/A

☒ Address reliability requirements such as appropriate location of shut-off valves

Comments: Refer to Servicing Report Section 2.6

☒ Check on the necessity of a pressure zone boundary modification.

Comments: N/A

☒ Reference to water supply analysis to show that major infrastructure is capable of delivering sufficient water for the proposed land use. This includes data that shows that the expected demands under average day, peak hour and fire flow conditions provide water within the required pressure range

Comments: *Refer to Servicing Report Section 2.7*

☒ 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: *Refer to Servicing Report Section 2.8*

☒ Description of off-site required feedermains, booster pumping stations, and other water infrastructure that will be ultimately required to service proposed development, including financing, interim facilities, and timing of implementation.

Comments: Refer to Servicing Report Section 2.9

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

Comments: *Refer to Servicing Report Section 2.3 and 2.4*

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

Comments: N/A

4.3 Development Servicing Report: Wastewater

☒ Summary of proposed design criteria (Note: Wet-weather flow criteria should not deviate from the City of Ottawa Sewer Design Guidelines. Monitored flow data from relatively new infrastructure cannot be used to justify capacity requirements for proposed infrastructure).

Comments: *Refer to Servicing Report Section 3.1*

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

Comments: *Refer to Servicing Report Section 3.2*

☒ 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: *Refer to Servicing Report Section 3.3*

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

Comments: *Refer to Servicing Report Section 3.3*

☒ 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: *Refer to Servicing Report Section 3.4*

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

Comments: N/A

☒ Special considerations such as contamination, corrosive environment etc.

Comments: N/A

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: *Refer to Servicing Report Section 4.1*

☒ Analysis of available capacity in existing public infrastructure.

Comments: *Refer to Servicing Report Section 4.2*

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

Comments: *Refer to drawing C002*

☒ 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: *Refer to SWM Report*

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

Comments: Refer to SWM Report

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

Comments: *Refer to SWM Report*

☒ Set-back from private sewage disposal systems.

Comments: *N/A*

☒ Watercourse and hazard lands setbacks.

Comments: N/A

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

Comments: N/A

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

Comments: *N/A*

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

Comments: *Refer to SWM Report*

☒ 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: Refer to SWM Report

☒ 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: *Refer to SWM Report*

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

Comments: Refer to SWM Report

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

Comments: Refer to drawing C002 and C004

☒ 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: Refer to SWM Report

☒ Identification of potential impacts to receiving watercourses

Comments: Refer to SWM Report

☒ Identification of municipal drains and related approval requirements.

Comments: Refer to SWM Report

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

Comments: *Refer to SWM Report*

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

Comments: Refer to drawings C002 and C004

☒ Inclusion of hydraulic analysis including hydraulic grade line elevations.

Comments: Refer to SWM Report

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

Comments: *Refer to Servicing Report Section 5.0*

☒ Identification of floodplains - proponent to obtain relevant floodplain information from the appropriate Conservation Authority. The proponent may be required to delineate floodplain elevations to the satisfaction of the Conservation Authority if such information is not available or if information does not match current conditions.

Comments: *N/A*

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

Comments: *N/A*

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: Not applicable.

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

Comments: Not applicable.

☐ Changes to Municipal Drains.

Comments: *Not applicable.*

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

Comments: *Not applicable.*

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: *Further comments to be added following site plan application review.*

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

Comments: