

Servicing & Stormwater Management

Final

Alexander Community Centre Expansion
960 Silver Street, Ottawa, ON K1Z 7X3

August 20, 2026

Jp2g Project # 25-1170A

City of Ottawa File No. D07-12-26-0038



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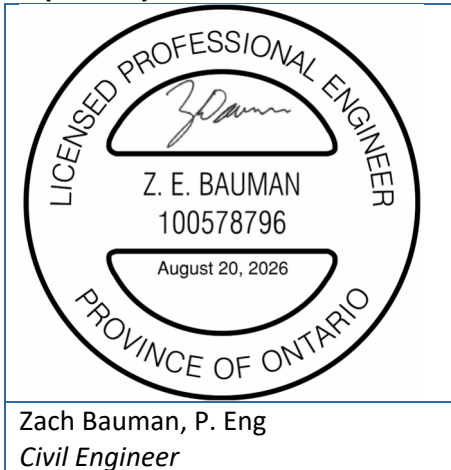
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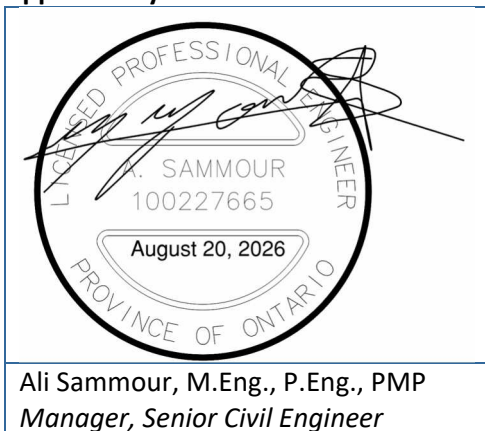
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Author and Review Panel

Prepared by:



Approved by:



1 Introduction

1.1 Site Description and Proposed Development

Jp2g Consultants Inc. (Jp2g) was retained by Hobin Architecture Inc. to complete a Servicing & Stormwater Management Report suitable for the City of Ottawa Site Plan Control Application, for the Alexander Community Centre Expansion located at 960 Silver Street, hereafter referred to as the 'site'.

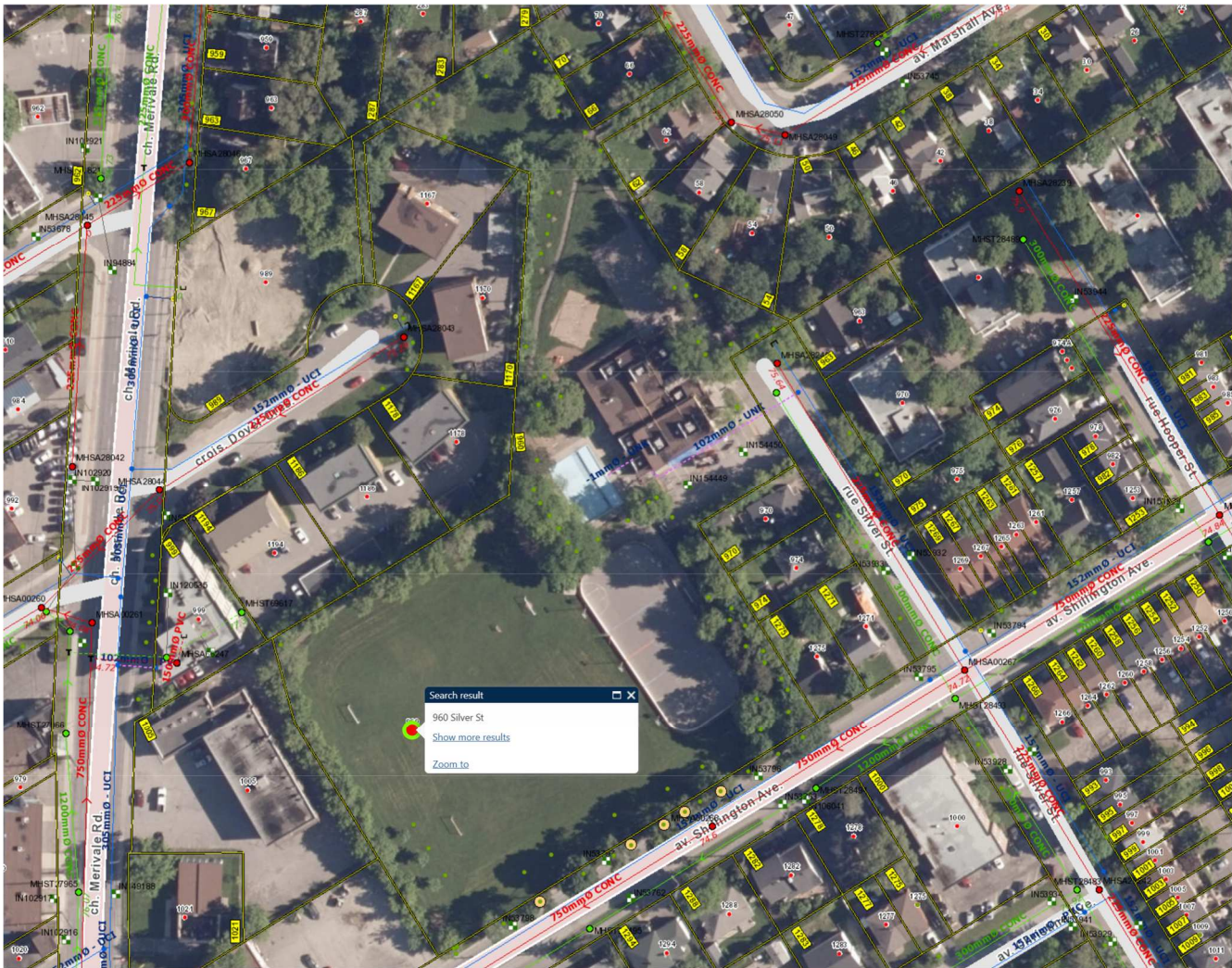


Figure 1: Site Location

The site is approximately 1.67 ha in size and is bound by existing residential developments to the north and east, commercial developments to the west, and Shillington Ave to the south. The existing site contains an existing community centre operated by the City of Ottawa with soccer fields, a hockey rink / basketball courts, a wading pool, playground equipment, and serves as a central hub for indoor and outdoor recreational programming. The existing facility does not meet the needs of the community.

The proposed development includes an expansion to the community centre, including a new gym, multipurpose recreational room, community kitchen, changerooms, etc. The existing building footprint is approximately 820m² and the proposed addition footprint is 1240m². Exterior modifications include rerouting existing walkways surrounding the addition, and relocation of playground equipment. No additional hardsurface parking area is proposed.



A pre-consultation meeting was held with City of Ottawa staff on February 20, 2025, to determine the project constraints and requirements. The following report details the site servicing and stormwater management calculations used for capacity and water quantity control in accordance with the City's requirements.

1.2 Existing City Infrastructure

Full municipal services are available for connection surrounding the subject site:

Water

A 152mm diameter UCI watermain is available on Silver Street. A 152mm diameter UCI watermain is available on Shillington Avenue, and a 152mm diameter UCI watermain is available on Marshall Ave. A City of Ottawa firehydrant is available at the corner of Silver Street and Shillington Ave connected to the Shillington Avenue watermain. The existing community centre is serviced with a 100mm watermain connected to the 152mm Silver Street watermain.

Sanitary

A 225mm diameter concrete sanitary sewer is available on Silver Street. A 750mm diameter concrete sanitary sewer is available on Shillington Avenue, however, connection to the trunk collector sewer shall be avoided. The existing community centre is serviced with a 150mm sanitary sewer connected to the 225mm concrete sanitary sewer on Silver Street.

Storm

A 300mm diameter concrete storm sewer is available on Silver Street, and a 1200mm diameter concrete storm sewer is available on Shillington Avenue. The existing site contains catch basins and on-site storm sewers conveying drainage from the parking lot and grassed areas to the 300mm concrete storm sewer on Silver Street. The existing community centre building has a storm sewer service that is connected to the upstream manhole on Silver Street.

1.3 List of Relevant Guidelines and Studies

The following guidelines were used as reference related to the design of the proposed servicing, and grading considerations for the subject site:

- City of Ottawa Sewer Design Guidelines
- Chapter 8 of the City of Ottawa Sewer Design Guidelines (Stormwater guidelines)
- City of Ottawa Stormwater Management Policies
- City of Ottawa Water Design Guidelines
- City of Ottawa Design Specifications
- Ministry of Environment (MOE) Guidelines for the Design of Water Distribution Systems and Design of Sanitary Sewage Systems
- Stormwater Management Planning and Design Manual 2003
- Ontario Building Code

1.4 Design Drawings

The following reference civil design drawings are included in Appendix A:

- C0 – Site Removals Plan
- C1 – Site Servicing Plan
- C2 – Site Grading, Erosion and Sediment Control Plan
- C3 – Details, Notes and Schedules
- C4 – Stormwater Management, Erosion and Sediment Control Plan
- FIG.1 – Pre-Development Drainage Areas

- FIG.2 – Post-Development Drainage Areas
- FIG.3 – Fire Hydrant Coverage Areas

1.5 Environmental Compliance Assessment

Our understanding is an environmental compliance assessment for the site is not required. This site is exempt by O. Reg. 525/98, applicable as follows:

“Subsections 53 (1) and (3) of the Act do not apply to the use, operation, establishment, alteration, extension or replacement of or a change in the storm water management facility that,

- (a) is designed to service one lot or parcel of land;*
- (b) discharges into a storm sewer that is not a combined sewer;*
- (c) does not service industrial land or a structure located on industrial land; and*
- (d) is not located on industrial land. O. Reg. 525/98, s. 3; O. Reg. 40/15, s. 4.”*

2 Objective

The objective of this study is to outline the servicing requirements for the development of the site and identify the impact of the development on the existing municipal services, including water, storm, and sanitary.

3 Stormwater Management

3.1 Stormwater Management Criteria

3.1.1 Quantity Control

Per preconsultation with the City of Ottawa, the quantity control criteria for this site is to control the 100-year post-development peak flow rate to a 2-year predevelopment peak flow rate. The predevelopment runoff shall be determined from the lower of the existing runoff coefficient, or a maximum equivalent of ‘C’ of 0.50. A predevelopment time of concentration shall be calculated but in no case less than 10 minutes. Flows to the storm sewer in excess of the predevelopment 2-year release rate, up to and including the 100-year storm must be detained on-site.

3.1.2 Quality Control

Per preconsultation with the City of Ottawa, quality control is not required for this application.

3.2 Pre-Development Conditions

The existing site contains an existing community centre, private parking area and concrete walkways, an asphalt access path throughout the site, soccer fields, and a dual use hard surface hockey rink / basketball court area. The existing site contains private catch basins and a private storm sewer system understood to be connected to the storm sewer on Silver Street. A topographic survey was provided by Annis O’Sullivan land surveyors. Predevelopment drainage areas were analyzed using the PCSWMM watershed delineation tool to divide the existing site’s drainage into several subcatchments. A predevelopment drainage plan is included in [Appendix A as Figure 1 Predevelopment Drainage Plan](#). Weighted runoff coefficients were determined using the land use coverage coefficients for grass, gravel, and hard surface impervious areas from the City of Ottawa Sewer Design Guidelines section 5.3.5. The composite drainage area of the site’s existing drainage, including areas capturing any known offsite drainage, was determined to be 1.93 ha with a weighted runoff coefficient of C=0.42, corresponding to preconsultation comments requiring the predevelopment conditions to be determined per the existing conditions or a maximum C of 0.5. Land use and runoff coefficient data, and detailed predevelopment drainage area parameter calculations are included in [Appendix B as Tables B-1 and B-2](#) respectively.



Area A1:

Predevelopment drainage area A1 was identified as the area north of the existing building. This area contains a portion of the play area north of the building, the existing asphalt pad / parking area, asphalt walkways, and the grassed area north of the building. As topographic survey is limited to the site's boundary, a direct surface outlet could not be identified. This area appears to surface drain to the low-lying grassed area north of the building, adjacent to the northern property line bounding the residential areas.

Area B1:

Predevelopment drainage area B1 consists of the existing community centre building. It is understood that the existing building's roof drainage is serviced with an existing storm service to the storm sewer manhole on Silver Street.

Area B2:

Predevelopment drainage area B2 consists of the area west of the existing building adjacent to the western property line. Predevelopment drainage area B2 is collected in an on-site catch basin north west of the existing building which is understood to connect to Silver Street through the private on-site storm sewer.

Area B3:

Area B3 consists of the grassed area adjacent to the northwest property line. Predevelopment drainage area B3 is collected in the on-site catch basin near the north west property line and is understood to connect to Silver Street through the private on-site storm sewer.

Area B4:

Area B4 consists of a portion of the soccer field and the hard surface walkway areas to the west of the existing community centre. Predevelopment drainage area B4 is collected in an on-site catch basin between the existing play structure and the hockey rink/basketball area and is understood to connect to Silver Street through the private on-site storm sewer.

Area B5:

Area B5 consists of a portion of the hockey/basketball area and the grassed area along the eastern property line between the existing residential area. Predevelopment drainage area B5 is collected in the on-site catch basin near the eastern property line and is understood to connect to Silver Street through the private on-site storm sewer.

Area B6:

Area B6 consists of the parking areas along the south of the existing building and the hard surface walkways to the existing building's main entrance. Predevelopment drainage area B6 is collected within the catch basins in the existing parking lot, or sheet drains directly to the Silver Street ROW.

Area C1:

Area C1 consists of the western portion of the soccer field, and appears to surface drain south westerly across the western and southern property line.

Area C2:

Area C2 consists of a portion of the southern soccer field and hockey rink and appears to surface drain to Shillington Avenue.

3.2.1 Predevelopment Allowable Flow Rates

Site development will occur within the predevelopment drainage areas A1 and B2. The existing building, and the remainder of the site will remain as the existing conditions. Per consultation with the City of Ottawa, the

stormwater management criteria is to limit flows to the 2-year predevelopment release rate. As such, the predevelopment release rate was determined as the 2-year release rate from areas A1 and B2. The existing drainage from the existing building and the remainder of the site, areas B1, B3 through B6 and C1 and C2 will remain undeveloped and as such have been excluded from the predevelopment 2-year allowable release rates.

The times of concentration for the predevelopment drainage areas were determined using the Airport Formula or Bransby Williams Formula where appropriate. Each subcatchment watershed slope was approximated using the 85/10 method for use in the time of concentration calculations. Refer to [Appendix B Tables B-3 and B-4](#), for detailed calculations regarding the 85/10 method, and calculated times of concentration. Predevelopment flow rates were calculated based on the calculated time of concentration for each predevelopment drainage area based on the City of Ottawa IDF curves in section 5.4.2 of the City of Ottawa Sewer Design Guidelines. Detailed predevelopment flow rate calculations are included in [Appendix B as Table B-5](#). The 2-year predevelopment allowable release rate was determined to be **35.9 L/s** from areas A1 and B2.

3.3 Post-Development Conditions

The proposed site development includes the construction of a new community centre expansion with an approximate footprint of 1,240m². Site development includes reworking of hard surface access pathways, rerouting the existing access pathways around the building addition footprint to connect to the existing pathway connection to Marshall Ave, Silver Street, and along the western side of the existing community centre. The playground equipment area will be relocated to the existing grassed area on the north side of the community centre. Under post-development conditions, site drainage will be captured in a new on-site storm sewer network connected to the Silver Street storm sewer manhole.

3.3.1 Post-development Drainage Areas

Subcatchment drainage areas were delineated based on the proposed grading design to provide a separate drainage area for each storm sewer inlet. Area-weighted runoff coefficients were determined using a value of 0.20 for pervious areas and a value of 0.90 for impervious areas. Runoff coefficients were increased by 25% for the 100-year event, to a maximum value of 1.00. A post-development drainage plan is included in [Appendix A as Figure 2 – Post-development Drainage Plan](#).

Area A1:

Post-development area A1 is representative of the area developed overlapping predevelopment area A1. Post-development area was subdivided into additional subcatchments, A1a representing the area captured on the building addition roof, A1b collected in catch basin CB-1, A1c collects in RYCB-2 in the landscaped area north of the addition, and A1e and A1d are collected in rear yard catch basins along the eastern property line adjacent to the building addition.

Due to site grading constraints, a small portion along the rear of the site, area A1f will continue to sheet drain uncontrolled towards the northwest property line due to the existing grading low-lying area in the northwest corner of the site. This portion could not be regraded towards the existing storm sewer due to the shallow storm sewer outlet and site grading constraints. Under post-development conditions, the 100-year uncontrolled flow from area A1f towards the existing low grade in the northwest corner is calculated to be 3.71 L/s. Under predevelopment conditions, drainage from area A1 appearing to sheet drain towards the same low lying area in the northwest corner of the property was calculated to have a predevelopment runoff rate of 27.5 L/s for the 2-year storm event and 63.9 L/s for the 100-year storm event. Post-development uncontrolled runoff from area A1f has been minimized as much as possible and is less than the predevelopment conditions. The majority of runoff from predevelopment area A1 will be redirected towards the proposed on-site sewer system.

Area B2:

Post-development area B2 is representative of the area developed overlapping predevelopment area B2. A swale running along the western property line will collect drainage from area B2 and runoff will be collected in RYCB-1.

The remainder of predevelopment drainage areas identified, areas B1, B3, B4, B5, B6, C1, and C2, will remain or be reinstated to existing conditions. As mentioned, these areas have been excluded from the storm water management analysis as these areas are not being developed.

Detailed calculations and information for each post-development subcatchment area are shown in [Appendix B as Appendix B-6: Post-development Summary](#).

3.3.2 Stormwater Management Controls

Stormwater management control is provided by a combination of roof drain controls and Inlet Control Devices (ICDs), which are orifice control plates installed at the outlet pipes of certain catchbasin and catchbasin-manhole structures, as follows:

- ICD-1 located in structure CB-1, which controls subcatchments A1b, A1c, and B2
- Roof drains which control roof drainage from subcatchment A1a.
- Subcatchments A1d, A1e, and A1f flow uncontrolled

For roof drainage, parabolic weirs (Watts Drainage Adjustable Flow Control Roof Drains, or equivalent approved product) will be used to control flow. 7 roof drains are proposed in the “1/4 Opening Exposed” position, which each deliver a flow rate of 15 gpm (0.94 L/s) at a maximum 6” / 152mm of head. To ensure the maximum release rate based on the head provided in the roof drain specifications, scuppers are to be provided on the building roof at 150mm above the roof drain elevation, to ensure each flow control roof drain will restrict flow to the 0.94 L/s maximum. Refer to the attached roof drain flow control product sheet in Appendix B. The modified rational method is used to determine peak storage requirements behind each control device. Based on the restricted flow rates, and the roof discharge curve, storage requirements for the roof area is calculated to be 48.92m³ for the 100-year storm event whereas 49.6m³ of storage is provided based on the roof area, 0.12m roof ponding depth and the total 100-year roof drain discharge at 0.12m of head. Detailed flow control and storage calculations for the roof area, subcatchment A1a, is included as [Appendix B-7: Roof Calculations](#).

Civil 3D stage-storage analysis was used to determine the available surface storage upstream of the proposed inlet control device based on the proposed site grading. The modified rational method was used to determine peak storage requirements behind each control device. The orifice equation was used to size the proposed orifice plates based on the respective headwater levels and orifice invert. Detailed modified rational method calculations, including a stage-storage-discharge analysis for the control device at CB-1 is included in [Appendix B-8: ICD-1 Calculations](#). Provided surface storage, as determined through civil 3D stage-storage analysis exceeds required storage for the restricted release rate.

The minimum proposed orifice size is 83 mm, in accordance with the City of Ottawa Sewer Design Guidelines. Surface storage is proposed within a landscaped area, with a maximum ponding depth of 0.20 m and maximum ponding elevation of 78.04 m during the 100-year storm event. The proposed 100-year ponding elevation provides a minimum clearance of 0.61 m to the building finished floor elevation of 78.65 m, exceeding the minimum 300 mm clearance to building openings and ramps. Under the 100-year plus 20% rainfall event, the maximum ponding elevation is 78.06 m, corresponding to a maximum ponding depth of 0.22 m and providing a minimum clearance of 0.59 m to the building finished floor elevation. Therefore, the proposed surface storage satisfies the maximum ponding depth and minimum building opening/ramp clearance criteria under both the 100-year and 100-year plus 20% rainfall events. Proposed stormwater management controls and ponding limits



are shown in **Appendix A – C4 Stormwater Management Plan**. Additionally, no surface ponding is required within paved areas during the 2-year storm event, in accordance with the City of Ottawa Sewer Design Guidelines.

3.3.3 Post-Development Site Outflow

Resultant post-development site outflow for all developing areas, accounting for summation of all 100-year flow controls and 100-year uncontrolled flow, is shown in Table 3-2 below. Evidently, the resultant post-development site outflow is restricted to the allowable release rate of 35.9 L/s identified in section 3.2.1 above, for all storms up to and including the 100-year storm event.

Full details including inflows, outflows, and storage calculations for each stormwater management control are included in **Appendix B**.

Table 3-2: Post-Development 100-year Outflow Summary

Source	100 Yr Release Rate (L/s)
ICD-1	11.40
Roof	5.90
100 Year Uncontrolled	18.53
Total	35.83
Allowable	35.86
Difference	0.03

3.4 Proposed Storm Sewer Servicing

The proposed on-site storm sewer pipe design has been sized to convey the 5-year event, or the restricted flow control, in accordance with City requirements. Sewers were sized and sloped such that design flows do not exceed 85% of full-flow capacity, while maintaining the minimum slopes specified in the City of Ottawa Sewer Design Guidelines. A storm sewer design sheet is included in **Appendix B**.

The proposed-on-site storm sewer system is shallow, ranging from approximately 1.5m of cover at the connection on Silver Street, to 0.6m of cover at CB-1. The storm sewer system is proposed to be insulated in accordance with the City of Ottawa detail S35 for sewer insulation. It is acknowledged that catch basin manholes are preferred at catch basin location points serving as a junction; however, due to shallow cover constraints, a catch basin maintenance hole cannot be provided at CB-1.

Foundation drainage for the community centre addition will be pumped through a sump pit within the internal building's plumbing. The sump pit will be pumped through the internal buildings storm plumbing and will outlet to the 200mm diameter storm sewer provided for the building addition roof drainage.

The existing building's storm sewer service will remain, servicing the existing roof drain connections for the existing building. A CCTV inspection of the existing building's storm sewer service was conducted by Clean Water Works, refer to CCTV report dated April 1, 2026 included in **Appendix E**. The pipe segment *manhole to 21.0 m (building)* shows the inspection of the existing storm sewer service from the manhole on Silver Street, to the building connection, and appears to be in fair condition. The pipe segment *stack cleanout to foundation* is understood to be the internal building's storm plumbing to the exterior storm sewer connection. The CCTV report does not appear to note any structural or operational defects and is therefore proposed to remain.

3.5 Overland Flow Route

In the case of system blockages, an emergency overland flow route must be provided to the city ROW. Drainage from area A1d will flow towards A1e, and from A1e towards the ROW on Silver Street. Site grading has been



designed to provide an overflow route such that surface runoff will be directed to the ROW, where feasible, before touching any part of the building envelope. Refer to [Appendix A](#) Drawing C4 Stormwater Management and Erosion Sediment Control Plan for overland flow route, and ponding elevations for the 100-year + 20% stress test storm event.

Adjacent to the building addition, drainage will be directed overland through the grassed and landscaped area in the northwest corner triangle of the site to the existing low laying area in the northwest corner of the site. Area B2 will flow to A1b, from A1b to A1c, and from A1fc to A1f. Existing elevations and survey are limited in this corner beyond the property line. The existing overland flow route from predevelopment area A1 is towards this low laying area in the northwest corner. Due to site grading constraints of meeting existing grades at the property line, this existing overland flow route to the northwest corner triangle of the property line has been maintained. The majority of post-development drainage that appeared to sheet drain to this area under predevelopment conditions has been rerouted through the proposed on-site storm sewer system, to the Silver Street Storm Sewer.

4 Sanitary Servicing

4.1 Existing Sanitary Servicing

The existing building is serviced with a 150mm sanitary service connection on the south side of the existing building. The sanitary service from the west side of the building is connected to a 150mm sanitary sewer through the parking lot, connected to the 225mm concrete sanitary sewer on Silver Street. As part of the building addition, renovation, and mechanical plumbing design, it is understood that the total fixture count between the existing building, and the renovated current building plus the addition is roughly the same and thus the plumbing demands on the sanitary service are expected to be similar to the current conditions. From the preliminary mechanical plumbing drawings, the existing 150mm sanitary service is proposed to be maintained, and no new sanitary service is required.

A CCTV inspection of the existing sanitary service, and on-site sanitary sewer segment to the connection to Silver Street was conducted by clean water works, refer to CCTV report included in [Appendix E](#). The CCTV report dated April 1, 2026, pipe segment *cleanout to city main*, is understood to be the internal plumbing's sanitary service segment connection to the on-site exterior sanitary sewer. The CCTV report dated July 14, 2026 pipe segment *MH-S --> MAIN* shows the CCTV inspection of the existing 150mm sanitary sewer from the on-site manhole to the City of Ottawa sanitary sewer on Silver Street. The inspection was terminated at an approximate distance of 22.0m, from the existing on-site manhole towards the main connection, due to the presence of an offset joint in the existing sanitary sewer. It is proposed for the contractor to locate the offset joint, remove a portion of the existing pipe as necessary, and provide a new PVC SDR35 sanitary segment to reconnect and correct the offset joint in the existing on-site sanitary sewer. The sewer segment will be re CCTV'd upon completion of the corrected offset joint to verify condition of the pipe that was unable to be inspected.

5 Water Servicing

5.1 Design Criteria

The water servicing design for the site is to conform to the City of Ottawa Water Distribution, and the MOE Design Guidelines for Drinking Water Systems. The following criteria were used to estimate the peak water servicing demands, and to determine the required water servicing for the site:

- Normal operating pressure of 345 kPa – 552 kPa (50 – 80 psi) under max day flow
- Pressure not to be less than 276 kPa (40 psi) under max hour conditions
- Under max day plus fire flow the residual pressure at any point in the system is not to be less than 140 kPa (20 psi)

- Fire department connections to comply to OBC 3.2.5.16
- Consumption rate of 28,000 L/ha/d (Table 4.2 of City of Ottawa Design Guidelines Water Distribution)
- Minimum depth of cover = 2.4m or insulated as per City of Ottawa Detail W22

5.2 Existing Water Servicing

The existing community centre building is serviced with a 100mm/4" water service connected to the 152mm diameter watermain on Silver Street. The existing building is not equipped with a sprinkler system, and there are no on-site private fire hydrants. From review of street view, there is a City of Ottawa fire hydrant at the corner of Silver Street and Shillington Ave, painted with a light blue cap indicating a Class AA fire hydrant capable of providing 1500 GPM (~95 L/s) of fire flow at a residual 20 psi.

5.3 Domestic Water Demand

The domestic water demands for the proposed community centre expansion are calculated based on Table 4.2 of the City's 2010 *Ottawa Design Guidelines - Water Distribution*. A domestic consumption demand of 28,000 L/ha/d for a commercial use site was applied. The average daily domestic water demand rate, and the maximum daily and hourly peaking factors, are obtained from Table 4.2 of the *Ottawa Design Guidelines - Water Distribution*. Based on the 28,000 L/ha/d commercial use site average day demand, a maximum day factor of 1.5x average day demand, and peak hour factor of 1.8x maximum day demand, the domestic water demands are summarized in table 5-1 below, and detailed calculations are included in [Appendix D as Appendix D-1: Water Distribution Calculations](#).

Table 5-1: Domestic Water Demand

Parameter	Value	Unit	Source
Demand Type	Other Commercial		Site plan
Average Daily Rate	28000	L/ha/d	<i>Ottawa Design Guidelines - Water Distribution</i> Table 4.2
Amount of ha	1.68	ha	Site plan
Average Daily Demand	47040	L/d	<i>Ottawa Design Guidelines</i> 4.3.1: Service Areas with a basic day demand greater than 50m ³ /d shall be connected with a minimum of two feeder mains to avoid the creation of a vulnerable service
	47.04	m ³ /d	
	0.54	L/s	
Maximum Daily Factor	1.5	x avg. day	<i>Ottawa Design Guidelines - Water Distribution</i> Table 4.2
Maximum Daily Demand	0.82	L/s	
Maximum Hourly Factor	1.8	x max day	<i>Ottawa Design Guidelines - Water Distribution</i> Table 4.2
Maximum Hourly Demand	1.47	L/s	

5.4 Fire Flow Demand

Fire flow demands accounting for the proposed community centre addition were calculated using the OBC method for fire flow demands. Based on the OBC 3.2.5.7 method calculations, the required fire flow demand is **60 L/s**. Refer to [Appendix D-2](#) for detailed calculations.

5.4.1 Fire Hydrant Coverage

An existing City of Ottawa fire hydrant is located at the corner of Shillington Ave and Silver Street. From review of google street view, this hydrant is painted with a light blue cap, indicating a Class AA fire hydrant. Based on Table 1 of Appendix I of the City of Ottawa *Technical Bulletin ISTB-2018-02*, a class AA hydrant at a separation distance of greater than 75m provides maximum contributing fire flow of 3,800 L/min (63 L/s). Fire flow contribution from the existing fire hydrant has been reviewed and coordinated with the City of Ottawa water resources team. The building is proposed to be sprinklered, and as such a private fire hydrant is proposed near the main entrance of the building to provide hydrant coverage such that distance from the fire department connection to a hydrant is not more than 45m and is unobstructed in accordance with OBC 3.2.5.16. This private fire hydrant is not considered to add additional fire flow contribution and is added for the purposes of providing a satisfactory hydrant for the fire department connection. Refer to Table 5-2 below for summary of available fire hydrant coverage. The available fire hydrant contribution from the existing City of Ottawa fire hydrant exceeds the OBC required fire flow demand of 60 L/s.

Table 5-2: Fire Hydrant Coverage

Fire Hydrant	Distance to Building (m)	Contributing Fire Flow (L/s)
Shillington / Silver	90	63
Private Firehydrant	15	N/A
Total Fire Flow		63

5.5 Proposed Water Servicing

The existing 100mm water service is proposed to remain, and a new 150mm water service is proposed connecting from the existing 150mm diameter watermain on Silver Street, to service the existing community centre and addition. A private fire hydrant is proposed to be connected to the new water service to provide a fire hydrant within 45m of the fire department connection. The proposed water servicing for the building and fire hydrants meet the City of Ottawa normal operating pressure requirements as mentioned in sections 5.6 below.

5.6 Boundary Conditions Pressure Check

The domestic demand and fire flow requirements were provided to the City of Ottawa for the hydraulic analysis of the boundary conditions at the proposed connection location. Boundary conditions provided by the City of Ottawa are included in [Appendix D-3](#).

Using the provided boundary conditions for the proposed connection to the Silver Street watermain, pressure checks within the system were conducted for the max hour demand, and max day + fire demand. Frictional loss calculations for the max hour demand and max day + fire demand are included in [Appendix D-5 and D-6](#) respectively, calculating the friction loss through the system using the Hazen Williams Formula. Operating pressures of the water supply system were between the 345-552 kPa pressure range for the municipal connection at the maximum hourly demand, above the 276 kPa requirement at the building connection for the maximum hour demand, as well as above the minimum 140 kPa requirement for the maximum daily + fire flow demand scenario at the building connections. Detailed calculations are shown in [Appendix D](#). Requirements for a pressure reducing valve at the building connection will be coordinated with the mechanical engineer.

6 Sediment and Erosion Control

Erosion and sediment control measures will be implemented during construction to protect downstream water quality and prevent sediment from entering the catch basins and storm sewer system. The following recommendations will be included in the contract documents, refer to [Appendix A Drawing C4 – Stormwater Management, Erosion and Sediment Control Plan](#).

1. The contractor shall implement best management practices to provide for protection of the area drainage system and receiving water course during construction activities. This includes:
2. Limiting the amount of exposed soil
3. Revegetation on exposed areas as soon as possible
4. A silt barrier/fence will be installed around the perimeter of the site in order to prevent sedimentation from leaving the site.
5. Installing and maintaining mudmats at the construction entrance to prevent migration of sedimentation to the city ROW
6. Providing filter cloths / bags on downstream catch basins and storm structures, and the newly constructed catch basins until construction has been complete.
7. Construction works to be scheduled at times which avoid flooding during seasonal rains



The contractor will be required to inspect the erosion and sediment control measure after every rainfall. Inspection measures include:

1. Inspection of silt fence to ensure water and sediments are not flowing underneath the silt fence
2. Inspection of sedimentation traps on all catch basins and catch basin manholes

Upon completion of construction, erosion and sedimentation control will be provided through the on-site storm system. All catch basins and catch basin manhole will be constructed with 600mm or 300mm sumps, collecting sediments and suspended solids from the finished surface. The catch basin and manhole sumps will be required to be cleaned and maintained by the owner after construction completion in accordance with the manufacturers instructions.

7 Conclusions

The proposed community centre expansion with new on-site storm sewers, and water mains connecting, and the existing sanitary service connected to existing City of Ottawa infrastructure in accordance with the City of Ottawa Design Sewer Design Guidelines, Water Design Guidelines and standards.

Storm servicing will be provided through a connection to the existing 300mm concrete storm sewer at the manhole on Silver Street. Quantity control will be provided in accordance with the City of Ottawa preconsultation requirements of controlling the post-development release rate for all storms up to and including the 100-year event to the 2-year predevelopment release rate as determined by the existing conditions, but in no case a 'C' greater than 0.50.

Site grading will provide accessibility to the proposed addition in accordance with AODA standards, and City of Ottawa standard details. Site grading has been designed to provide an adequate overland flow route allowing for a minimum 15cm vertical clearance between the overland flow route and the lowest building elevation within the vicinity of the spill elevation.

The existing 150mm sanitary sewer service will remain. The total fixture count between the existing community centre, and the renovation of the existing building plus the expansion is similar. Sanitary demands of the expansion project are anticipated to be roughly the same as the current conditions.

The existing 100mm water service is proposed to remain. A new secondary 150mm water service is proposed from the existing 152mm diameter watermain on Silver Street to service the expansion and existing building. A private fire hydrant will be connected to the new 150mm water service to provide fire hydrant coverage for the fire department connection. Boundary conditions provided by the City of Ottawa were analyzed to confirm the operating pressures of the proposed water servicing are in accordance with the City of Ottawa Water Design Guidelines.

Erosion and sediment control will be provided during construction through the installation of a silt fence around the perimeter of construction and installing filter cloths in all catch basins / catch basin manholes. An erosion and sediment control plan will be included in the contract documents, requiring the contractor to follow best management practices, and provide regular maintenance of the measures. Long term sediment control will be provided in catch basin sumps. The owner will be responsible for the regular maintenance of the sumps upon completion of construction.

It is recommended that this report be filed in support of the proposed development. No adverse impacts are anticipated on the existing services as a result of the approval and construction of this development.

End of report.



Appendix A

Design Drawings



INFRASTRUCTURE SERVICES
DESIGN AND CONSTRUCTION

SERVICES D'INFRASTRUCTURE
DIRECTION DE CONCEPTION ET DE CONSTRUCTION

FOR / POUR
Client - Department
Infrastructure and Water Services Department
Design & Construction

6			
5	ISSUED FOR SITE PLAN CONTROL REV-2	2606/00	R.I. / Z.B.
4	ISSUED FOR DEMOLITION TENDER	2606/13	R.I. / Z.B.
3	ISSUED FOR 90% REVIEW / PERMIT	2606/26	R.I. / Z.B.
2	ISSUED FOR 60%	2604/17	R.I. / Z.B.
1	ISSUED FOR SITE PLAN CONTROL REV-1	2604/14	R.I. / Z.B.
NUMBERS / NUMÉROS	MILESTONE / FAT SAILLANT	DATE: (Y/M/D) / DATE: (Y/M/D)	INITIALS / INITIALES

ISSUED BY / CONCÉDÉ PAR ZACH BAUMAN	DRAWN BY / DÉSSINÉ PAR RAFAT ISMAIL	DESIGNED BY / VÉRIFIÉ PAR ALI SAMMOUR	SCALE: ÉCHELLE 1:250
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DETAIL NUMBER 1 DRAWING TITLE A1.1 SCALE: SHEET NUMBER

THIS DRAWING IS THE PROPERTY OF THE CITY OF OTTAWA AND ALL COPYRIGHT IS RESERVED. DIMENSIONS ON DRAWING ARE FOR ESTIMATING PURPOSES ONLY. IT IS THE RESPONSIBILITY OF EACH CONTRACTOR AND SUB-CONTRACTOR OR CONSULTANT TO CHECK AND VERIFY ALL DIMENSIONS AND CONDITIONS ON SITE. NOTIFY OWNER OF ANY ERRORS OR OMISSIONS PRIOR TO COMMENCING THE WORK. DO NOT SCALE THE DRAWINGS.

CE DESSIN CONSTITUE LA PROPRIÉTÉ DE LA VILLE D'OTTAWA ET TOUT DROIT D'AUTEUR EST RÉSERVÉ. LES DIMENSIONS UTILISÉES LE SONT À DES FINS D'ESTIMATION SEULEMENT. IL INCOMBE À CHAQUE ENTREPRENEUR, SOUS-CONTRACTANT OU CONSULTANT DE VÉRIFIER TOUTES LES DIMENSIONS ET LES CONDITIONS SUR LE CHANTIER. VEUILLEZ INFORMER LE PROPRIÉTAIRE DE TOUTE ERREUR OU OMISSION AVANT D'ENTAMER LES TRAVAUX. NE DRESSÉZ PAS LES PLANS À L'ÉCHELLE.

ARCHITECT / ARCHITECTE	CONSULTANT / EXPERT-CONSEIL
------------------------	-----------------------------

CONSULTANT / EXPERT-CONSEIL LICENSED PROFESSIONAL ENGINEER Z. E. BAUMAN 100578796 August 20, 2026 PROVINCE OF ONTARIO	CONSULTANT / EXPERT-CONSEIL LICENSED PROFESSIONAL ENGINEER ALI SAMMOUR 100227665 August 20, 2026 PROVINCE OF ONTARIO
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PROJECT / LOCATION / PROJET / ENDROIT

ALEXANDER COMMUNITY
CENTRE EXPANSION

960 Silver Street
OTTAWA, ONTARIO

DRAWING / DESSIN

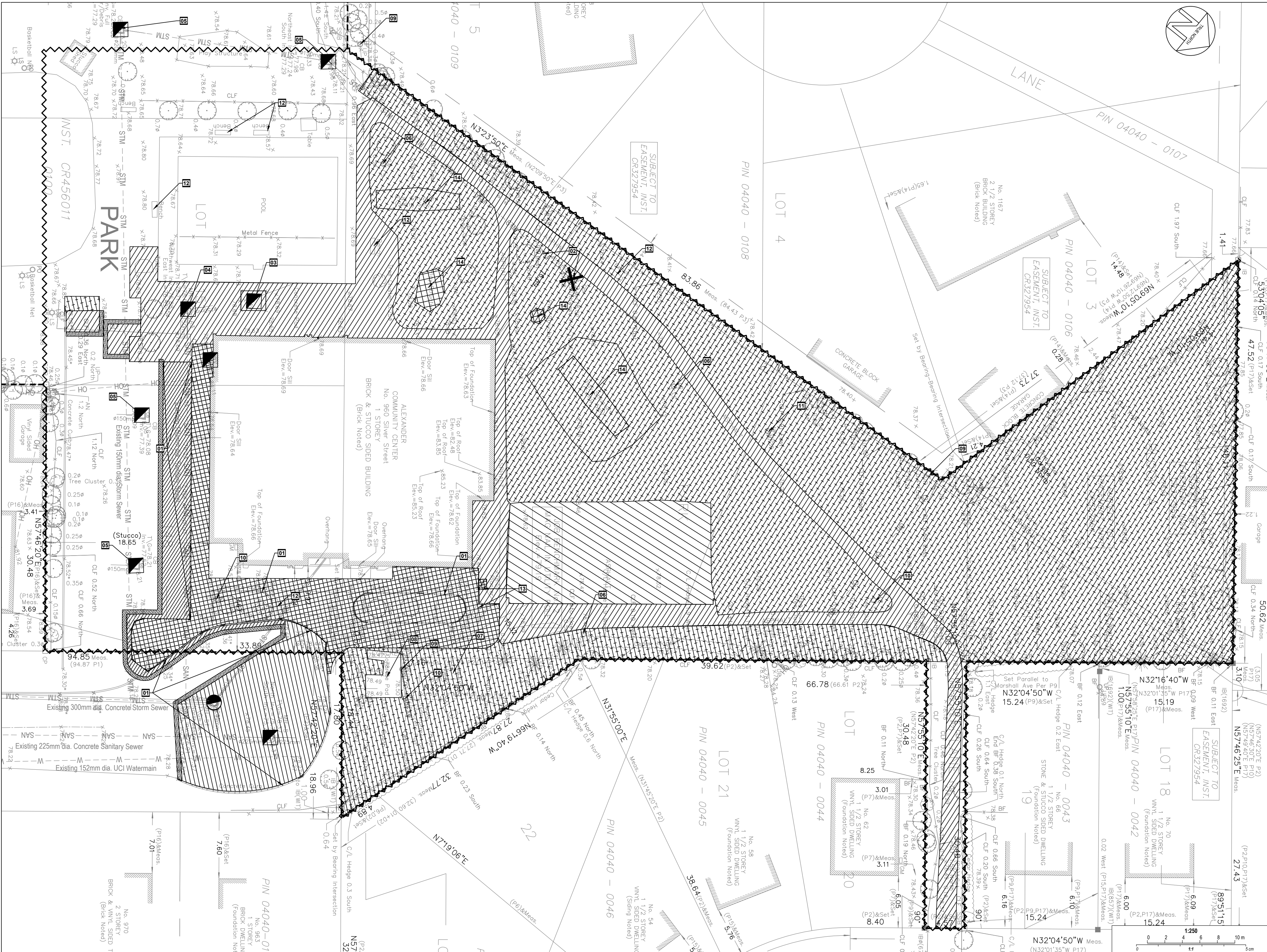
SITE REMOVALS PLAN

BUSINESS ENTITY / NUMÉRO DE L'ENTITÉ BUILDING NUMBER / NUMÉRO DU BÂTIMENT CF001822	SHEET NO. / FEUILLE NO. 25-1170A	C.00
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REMOVALS
FULL DEPTH ASPHALT REMOVAL (ROADWAY, DRIVEWAY, SIDEWALK) 50mm ASPHALT MILLING CONCRETE REMOVAL (SIDEWALK, ROADWAY, DRIVEWAY) CLEARING, GRUBBING, TOPSOIL STRIPPING, EARTH REMOVAL REMOVAL ITEM (PIPE, CURB, ETC.) REMOVAL ITEM (STRUCTURE, POST, ETC.) ITEMS TO REMAIN AND BE PROTECTED DURING CONSTRUCTION

- GENERAL NOTES
- REFER TO LANDSCAPE DRAWINGS FOR TREE REMOVALS, TREES TO REMAIN, AND TREE PROTECTION DETAILS.
 - REFER TO ARCHITECTURAL DRAWINGS D1.01 AND D1.02 FOR ADDITIONAL SITE REMOVALS.
 - REFER TO ELECTRICAL DRAWINGS FOR ADDITIONAL EXTENTS OF ELECTRICAL SITE REMOVALS.
 - DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
 - THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS WITH RESPECT TO SITE CONDITIONS AND ALL MATERIALS TO THE PROJECT. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
 - ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE CONTRACT DOCUMENTS.
 - CONTRACTOR MUST COMPLY WITH LOCAL BY-LAWS, ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL REGULATIONS SET BY AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
 - CONTRACTOR RESPONSIBLE FOR OBTAINING ALL REQUIRED UTILITY LOCATES, DAYLIGHTING, INSPECTIONS, PERMITS, AND APPROVALS, INCLUDING ALL ASSOCIATED COSTS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION.

- DRAWING NOTES
- REMOVE EXISTING CURB TO FACILITATE NEW SIDEWALK AND CONCRETE WORKS.
 - REMOVE EXISTING CATCH BASIN AND CATCH BASIN LEAD. PROVIDE WATERTIGHT CONNECTION AT EXISTING CATCH BASIN TO REMAIN.
 - EXISTING STORM MANHOLE AND CONCRETE PAD TO REMAIN AND BE PROTECTED DURING CONSTRUCTION.
 - EXISTING SANITARY MANHOLE TO REMAIN AND BE PROTECTED DURING CONSTRUCTION.
 - EXISTING CATCH BASIN TO REMAIN AND BE PROTECTED DURING CONSTRUCTION.
 - EXISTING LIGHT STANDARD TO BE REMOVED, REFER TO ELECTRICAL.
 - EXISTING HYDRO TRANSFORMER AND CONCRETE PAD TO REMAIN.
 - EXISTING BIKE RACK AND CONCRETE PAD TO REMAIN.
 - EXISTING UTILITY POLE TO REMAIN.
 - EXISTING LIGHT STANDARD HEAD TO BE REMOVED AND REPLACED, REFER TO ELECTRICAL.
 - EXISTING UTILITY POLE TO BE REMOVED.
 - EXISTING BENCH TO BE REMOVED / RELOCATED, REFER TO LANDSCAPE DRAWINGS.
 - REMOVE / RELOCATE EXISTING CONCRETE PLANTER.
 - EXISTING PLAYGROUND EQUIPMENT TO BE REMOVED / RELOCATED, REFER TO LANDSCAPE DRAWINGS.

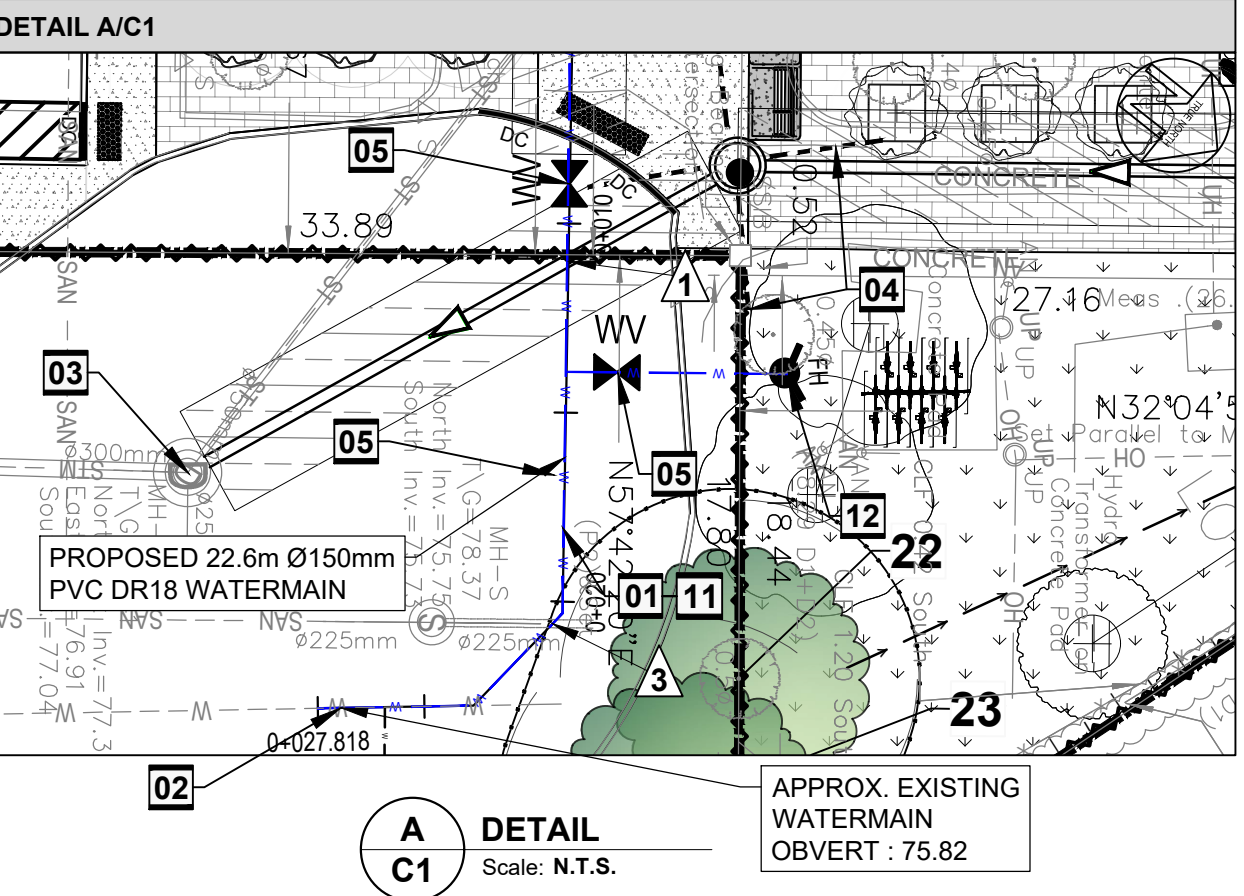


LEGEND	
	PROPERTY LINE
	NEW BUILDING
	DEPRESSED CURB
	BREAK OF SLOPE - NEW
	EXISTING SANITARY SEWER
	EXISTING STORM SEWER
	EXISTING WATERMAIN
	EXISTING FENCE
	NEW STORM SEWER
	NEW WATERMAIN
	NEW PROPOSED SWALE
	NEW PERIMETER FOUNDATION DRAINAGE
	NEW LIGHT DUTY ASPHALT AS PER DETAIL 1 / C3
	NEW HEAVY DUTY ASPHALT AS PER DETAIL 2 / C3
	NEW CONCRETE PATHWAY
	MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT AS PER DETAIL 3 / C3
	NEW PRECAST PAVERS (SEE LANDSCAPE)
	NEW ASPHALT PATHWAY AS PER DETAIL SC20
	100mm TOPSOIL AND SOD
	HIGH LOAD RIGID INSULATION AS PER CITY DETAIL S35

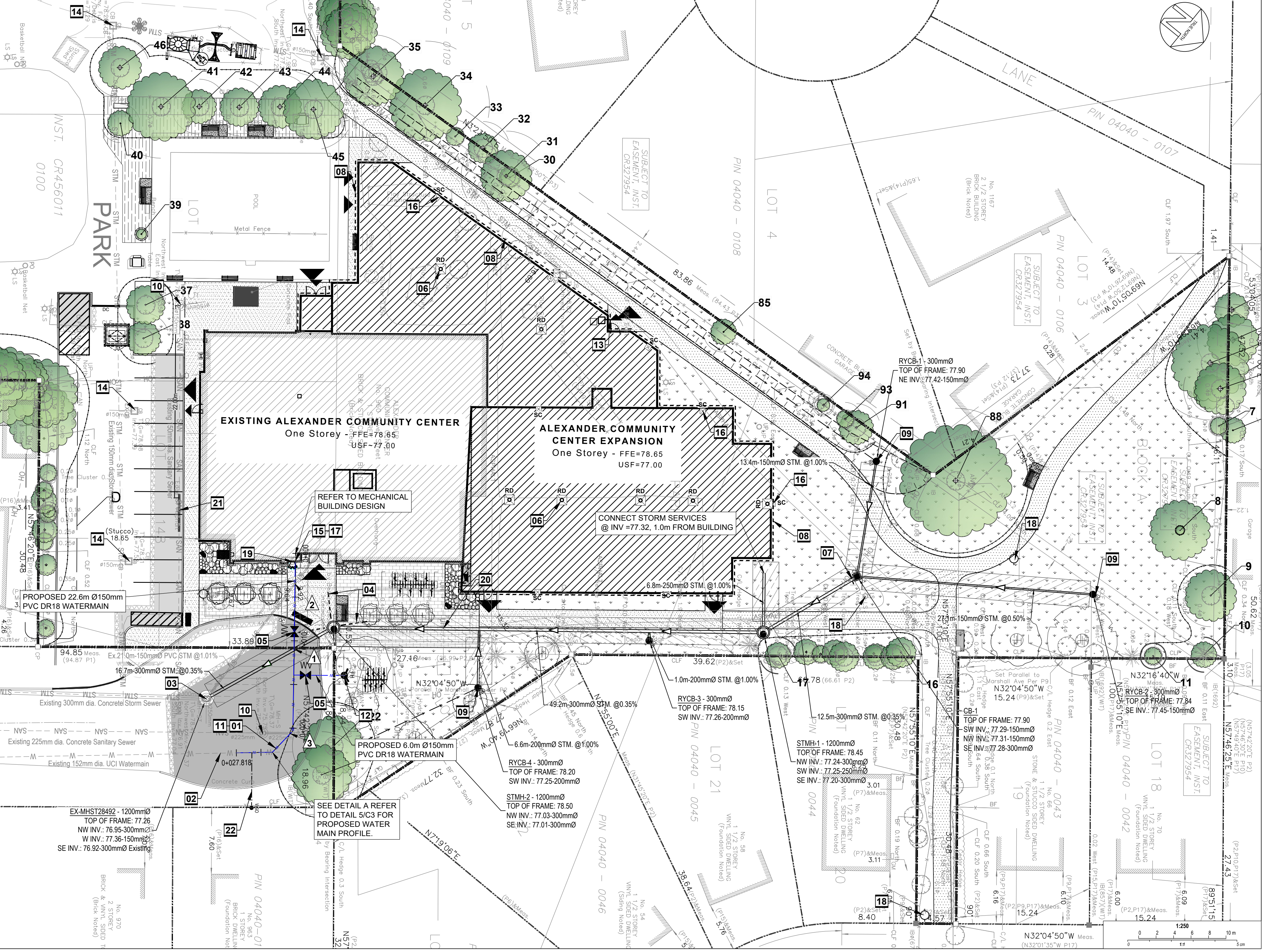
LEGEND CONTINUED	
	NEW CONCRETE CURB
	EXISTING CONCRETE CURB
	EXISTING CATCHBASIN
	EXISTING STORM MANHOLE
	EXISTING SANITARY MANHOLE
	EXISTING FIRE HYDRANT
	EXISTING WATER VALVE
	EXISTING LIGHT STANDARD
	NEW CATCHBASIN
	NEW STORM MANHOLE / CATCHBASIN MANHOLE
	NEW REAR YARD CATCH BASIN
	NEW FIRE HYDRANT
	NEW WATER VALVE
	NEW INLET CONTROL DEVICE
	NEW ROOF DRAIN
	NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
	SEWER FLOW DIRECTION
	BUILDING ENTRANCE
	SEE SHEET NUMBER "C3"

LEGEND CONTINUED	
	EXISTING TREES
	NEW TREES
	REFER TO LANDSCAPE
	NEW MULCH

- GENERAL NOTES**
- DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
 - THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS WITH RESPECT TO SITE CONDITIONS AND ALL MATERIALS TO THE PROJECT. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
 - THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
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 - CONTRACTOR MUST COMPLY WITH LOCAL BY-LAWS, ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL REGULATIONS SET BY AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
 - CONTRACTOR RESPONSIBLE FOR OBTAINING ALL REQUIRED UTILITY LOCATES, DAYLIGHTING, INSPECTIONS, PERMITS, AND APPROVALS, INCLUDING ALL ASSOCIATED COSTS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION.
 - FOR EXACT LOCATIONS AND NUMBERS OF ROOF DRAINS AND SCUPPERS, REFER TO MECHANICAL STRUCTURE AND ARCHITECTURAL DRAWINGS.



- DRAWING NOTES**
- SUPPLY AND INSTALL NEW 150mm Ø PVC DR18 WATER MAIN SERVICE, MINIMUM 2.4m COVER, OTHERWISE PROVIDE HL40 THERMAL INSULATION IN ACCORDANCE WITH OPSD 1109.030. COORDINATE NEW WATER SERVICE CONNECTION WITH MECHANICAL PLANS. THRUST BLOCKS SHALL BE AS PER OPSD 1103.010 & 1103.020.
 - CONTRACTOR SHALL BE RESPONSIBLE FOR COMMUNICATING, COORDINATING, OBTAINING AND PAYING FOR ALL REQUIRED PERMITS NOT LIMITED TO THE FOLLOWING:
 - WITH CITY OF OTTAWA FOR A WATER PERMIT NEW WATER SERVICE CONNECTION, FIRE HYDRANT ON SITE CONNECTION TO PROPOSED BUILDING, INSPECTION DISSECTION CHLORINATION, TESTING, WATER METERING AND ALL REQUIREMENTS FOR A COMPLETE SYSTEM COMMISSIONING AS PER MUNICIPAL REQUIREMENTS.
 - WITH CITY OF OTTAWA FOR A ROAD CUT PERMIT.
 - WITH CITY OF OTTAWA FOR UTILITY LOCATES, EXCAVATION, SUPPORTING UTILITIES DURING CONSTRUCTION IF REQUIRED, INSPECTION AND BACKFILLING.
 - CONNECT TO EXISTING WATERMAIN AT APPROX. OBVERT 75.82. REMOVE PORTION OF EXISTING WATERMAIN AS NECESSARY TO FACILITATE NEW WATERMAIN INSTALLATION. CONNECTION TO EXISTING MUNICIPAL WATERMAIN TO BE COMPLETED BY CITY OF OTTAWA FORCES. EXCAVATION, BACKFILL, AND RE-INSTATEMENT BY CONTRACTOR. CONTRACTOR TO CONFIRM EXISTING WATERMAIN OBVERT PRIOR TO CONSTRUCTION AND ADVISE OF ANY DISCREPANCY.
 - EXISTING 1200mm DIAMETER STORM MANHOLE. EXISTING 300mm INVERT SOUTH = 75.92. EXISTING 150mm INVERT WEST = 77.36. CONTRACTOR TO CONFIRM INVERTS PRIOR TO CONSTRUCTION AND ADVISE OF ANY DISCREPANCY. BREAK INTO EXISTING MANHOLE TO PROVIDE CONNECTION OF NEW 300mm STORM SEWER AT INVERT NORTH=75.95. PARGE AND PROVIDE WATER TIGHT CONNECTION.
 - INSTALL FOUR WAY 3.0m LONG 150mm Ø PERFORATED SUBDRAIN WRAPPED IN GEOTEXTILE SOCK EXTENDING FROM CB/SCMH AT PAVEMENT SUBGRADE LEVEL. PROVIDE WATER TIGHT CONNECTION (TYP).
 - SUPPLY AND INSTALL NEW 150mm WATER VALVE, VALVEBOX ASSEMBLY AS PER CITY OF OTTAWA STANDARD DETAIL DRAWING W24 AND W50.
 - SUPPLY AND INSTALL WATTS ROOF DRAIN CONTROLS TO BE INSTALLED ON ROOF DRAINS. SPECIFIC WIR SETTINGS IN 1/4 OPEN POSITION. MAXIMUM DISCHARGE 5.80 l/s TOTAL. MAXIMUM ROOF PONDING DEPTH 120mm. 100 YEAR PONDING VOLUME = 49.8m³.
 - SUPPLY AND INSTALL NEW INLET CONTROL DEVICE FLOW REGULATOR AT MANHOLE, CB-1 OUTLET. MAXIMUM DISCHARGE 11.40 l/s AT 0.81m HEAD AND ORIFICE DIAMETER AT 83mm.
 - PROVIDE NEW 100mm PERIMETER FOUNDATION DRAINAGE WITH FILTER SOCK AROUND PERIMETER OF NEW ADDITION. INVERT AT 77.00 AT USF ELEVATION.
 - INSTALL NEW REAR YARD CATCH BASIN AS PER CITY OF OTTAWA DETAIL S30.
 - EXISTING SANITARY MANHOLE TO BE PROTECTED DURING CONSTRUCTION.
 - ALL WATERMAIN SHALL BE PROVIDED WITH TRACER WIRE AS PER CITY OF OTTAWA STANDARD DETAILS AND SPECIFICATIONS.
 - NEW FIRE HYDRANT AS PER CITY OF OTTAWA W19. CONTRACTOR IS RESPONSIBLE TO PROVIDE FIRE HYDRANT TESTING AND PAINTING OF CAP AS PER MUNICIPAL STANDARD. INSTALL VALVE ON HYDRANT LEAD PER CITY DETAIL W24 & W50.
 - CONNECT PERMITTER FOUNDATION DRAINAGE TO SUMP PIT. REFER TO MECHANICAL DRAWINGS.
 - EXISTING CATCHBASIN TO BE PROTECTED DURING CONSTRUCTION.
 - WATER SERVICE ENTRY TO BUILDING SERVICES. TOP OF WATERMAIN AT 77.15 TO BE ABOVE EXISTING FOOTING AND SLEEVED THROUGH FOUNDATION WALL. COORDINATE WITH STRUCTURAL AND MECHANICAL DRAWINGS. INSULATE PER CITY OF OTTAWA W22 WHERE LESS THAN 2.4m COVER IS PROVIDED.
 - ROOF TOP SCUPPERS TO BE PROVIDED AT 150mm ABOVE LEVEL OF ROOF DRAINS.
 - PRESSURE REDUCING VALVE TO BE INSTALLED AS PER ONTARIO PLUMBING CODE. COORDINATE WITH MECHANICAL CONTRACTOR.
 - NEW LIGHT STANDARD. REFER TO ELECTRICAL DRAWINGS. COORDINATE INSTALLATION OF NEW LIGHT STANDARD LIGHTING CONDUITS WITH INSTALLATION OF NEW STORM SEWER. LIGHTING CONDUITS TO CROSS OVER / ABOVE STORM SEWER AS NECESSARY.
 - FIRE DEPARTMENT CONNECTION. REFER TO ARCHITECTURAL AND MECHANICAL DRAWINGS FOR DETAILS.
 - APPROXIMATE LOCATION OF EXISTING BUILDING SECONDARY DUCT BANK. APPROXIMATE BOTTOM OF DUCT ELEVATION AT 77.45. CONTRACTOR TO HYDROVAC AND DAYLIGHT TO CONFIRM EXISTING SECONDARY DUCT ELEVATION PRIOR TO STORM SEWER CONSTRUCTION, AND ADVISE OF ANY DISCREPANCY WITH NEW STORM SEWER. PROVIDE HYDROVAC AND TEMPORARY UTILITY SUPPORT FOR EXCAVATION OF NEW STORM SEWER.
 - APPROXIMATE LOCATION OF OFFSET JOINT IN EXISTING 150mm DIA. ASBESTOS-CEMENT SANITARY WATERMAIN. 22.0m FROM EXISTING SANITARY MANHOLE AS MEASURED BY CITY. CONTRACTOR TO EXCAVATE AND CONFIRM LOCATION AND CONDITION OF OFFSET JOINT IN FIELD. REMOVE EXISTING PIPE AS REQUIRED AND INSTALL NEW 150mm DIA. PVC DR-35 SANITARY SEWER TO CORRECT OFFSET JOINT AND MAINTAIN EXISTING SEWER ALIGNMENT AND GRADE. INSTALL PIPE BEDDING AND COVER IN ACCORDANCE WITH STANDARD TRENCH DETAIL 403 AND CITY OF OTTAWA DETAIL S6. PROVIDE APPROVED WATER TIGHT TRANSITION COUPLINGS BETWEEN EXISTING ASBESTOS-CEMENT PIPE AND NEW PVC PIPE. HANDLING, REMOVAL AND DISPOSAL OF ASBESTOS-CEMENT PIPE SHALL BE IN ACCORDANCE WITH APPLICABLE REGULATIONS. CONTRACTOR TO MAINTAIN EXISTING SANITARY SEWER SERVICE DURING CONSTRUCTION AND PROVIDE TEMPORARY BYPASS PUMPING, IF REQUIRED. PROVIDE POST-CONSTRUCTION CCTV INSPECTION OF REPAIRED SANITARY SEWER.
 - CONFIRM LOCATION OF EXISTING WATER SERVICE FOR 863 SILVER STREET. CONTRACTOR TO CARRY PROVISIONAL ITEM IN TENDER FOR NEW WATER SERVICE CONNECTION TO PROPERTY LINE. COMPLETE WITH CURB STOP. IF EXISTING SERVICE CONNECTION NEEDS TO BE ALTERED TO FACILITATE NEW WATERMAIN WORK, WATER SERVICE CONNECTION TO BE PROVIDED PER CITY OF OTTAWA DETAIL W26 AND CONFORM TO APPROVED CITY OF OTTAWA SERVICE TUBING MATCH EXISTING SERVICE SIZE.



SERVICES D'INFRASTRUCTURE
DIRECTION DE CONCEPTION ET DE CONSTRUCTION

FOR / POUR
Client - Department
Infrastructure and Water Services Department
Design & Construction

6			
5			
4	ISSUED FOR SITE PLAN CONTROL REV-2	2605020	R.I. / Z.B.
3	ISSUED FOR 90% REVIEW / PERMIT	2605026	R.I. / Z.B.
2	ISSUED FOR 80%	2604177	R.I. / Z.B.
1	ISSUED FOR SITE PLAN CONTROL REV-1	2604164	R.I. / Z.B.
NUMBER / NUMÉRO	MILESTONE / FAIT SAILLANT	DATE / DATE	INITIALS / INITIALES
ISSUED BY / CONCÉDÉ	DESIGNED BY / DÉSIGNÉ PAR	SCALE / ÉCHELLE	
ZACH BAUMAN	ALI SAMMOUR	1:250	
DRAWN / DÉSSINÉ PAR	RAFAEL ISMAIL		

DRAWING TITLE
1.1.1 SCALE: SHEET NUMBER

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ARCHITECT / ARCHITECTE	CONSULTANT / EXPERT-CONSEIL
CONSULTANT / EXPERT-CONSEIL	CONSULTANT / EXPERT-CONSEIL

LICENSED PROFESSIONAL ENGINEER
Z. E. BAUMAN
100578796
August 20, 2026
PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER
S. SAMMOUR
100227665
August 20, 2026
PROVINCE OF ONTARIO

PROJECT / LOCATION / PROJET / ENDROIT
ALEXANDER COMMUNITY CENTRE EXPANSION

960 Silver Street
OTTAWA, ONTARIO

DRAWING / DESSIN
SITE SERVICING PLAN

BUSINESS ENTITY / NUMÉRO DE L'ENTITÉ BUILDING NUMBER / NUMÉRO DU BÂTIMENT	SHEET NO. / FEUILLE NO. C.01
CITY PROJECT NO. / NUMÉRO DE PROJET CF001822	CONS. PROJECT NO. / NUMÉRO DE PROJET 25-1170A

LEGEND	
	PROPERTY LINE
	NEW BUILDING
	DEPRESSED CURB
	BREAK OF SLOPE - NEW
	NEW PROPOSED SWALE
	LIMIT OF HIGH POINT
	NEW LIGHT DUTY ASPHALT AS PER DETAIL 1/C3
	NEW HEAVY DUTY ASPHALT AS PER DETAIL 2/C3
	NEW CONCRETE PATHWAY
	MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT AS PER DETAIL 3/C3
	PRECAST PAVERS (SEE LANDSCAPE)
	NEW ASPHALT PATHWAY AS PER DETAIL SC20
	100mm TOP SOIL AND SOD
	EXISTING CONCRETE CURB
	NEW CONCRETE CURB
	EXISTING CATCHBASIN
	EXISTING STORM MANHOLE
	EXISTING SANITARY MANHOLE
	EXISTING FIRE HYDRANT

LEGEND CONTINUED	
	EXISTING WATER VALVE
	EXISTING UTILITY POLE
	EXISTING LIGHT STANDARD
	NEW CATCHBASIN
	NEW STORM MANHOLE / CATCHBASIN MANHOLE
	NEW REAR YARD CATCH BASIN
	NEW FIRE HYDRANT
	NEW WATER VALVE
	NEW INLET CONTROL DEVICE
	NEW ROOF DRAIN
	NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
	SEWER FLOW DIRECTION
	BUILDING ENTRANCE
	PROPOSED ELEVATION & EXISTING NATURAL GRADE
	PROPOSED ELEVATION
	PROPOSED BOTTOM OF CURB ELEVATION
	PROPOSED TOP OF CURB ELEVATION
	PROPOSED SLOPE
	OVERLAND FLOW ROUTE

LEGEND CONTINUED	
	EXISTING TREES REFER TO LANDSCAPE
	NEW TREES REFER TO LANDSCAPE
	NEW MULCH

GEOTECHNICAL NOTES	
1.	A GEOTECHNICAL ENGINEER LICENSED IN THE PROVINCE OF ONTARIO SHALL INSPECT ALL SUBGRADE SURFACES FOR FOOTING AND TRENCHES, PIPE BEDDING AND PAVEMENT STRUCTURES PRIOR TO CONSTRUCTION.
2.	IT IS STRICTLY RECOMMENDED TO REFER GEOTECHNICAL INVESTIGATION REPORT - PROPOSED ADDITION TO ALEXANDER COMMUNITY CENTRE 960 SILVER STREET OTTAWA, ONTARIO BY EXP SERVICES INC.
3.	IT IS ANTICIPATED THAT THE MAJORITY OF THE MATERIAL REQUIRED FOR BACKFILLING PURPOSES AND FOR TRENCH BACKFILL WOULD HAVE TO BE IMPORTED AND SHOULD CONFORM TO THE RECOMMENDATION STATED IN THE GEOTECHNICAL REPORT.
4.	CONTRACTOR BIDDING ON THIS PROJECT MUST REVIEW AVAILABLE DATA AND DECIDE ON THEIR OWN THE BEST METHOD FOR THE EXCAVATION OF THE BEDROCK IF DEEMED REQUIRED.
5.	IT IS RECOMMENDED THAT THE BEDDING FOR THE UNDERGROUND SERVICES INCLUDING MATERIAL SPECIFICATIONS, THICKNESS OF COVER MATERIAL AND COMPACTION REQUIREMENTS CONFORM TO MUNICIPAL REQUIREMENTS AND/OR ONTARIO PROVINCIAL STANDARD SPECIFICATION AND DRAWINGS (OPSS AND OPSD).
6.	IT IS RECOMMENDED THAT THE PIPE BEDDING BE 300mm THICK AND CONSIST OF OPSS GRANULAR A. THE BEDDING MATERIAL SHOULD BE PLACED ALONG THE SIDES AND ON TOP OF THE PIPE TO PROVIDE A MINIMUM COVER OF 300mm. THE BEDDING SHOULD BE COMPACTED TO AT LEAST 98 PERCENT OF THE SPMD.
7.	THE BEDDING THICKNESS MAY BE FURTHER INCREASED IN AREAS WHERE THE SUBGRADE BECOMES DISTURBED.
8.	SINCE PAVED SURFACES WILL BE LOCATED OVER SERVICE TRENCHES, IT IS RECOMMENDED THAT THE TRENCH BACKFILL MATERIAL WITHIN THE FROST ZONE (UP TO 1.8 M BELOW FINISHED GRADE), SHOULD MATCH THE EXISTING MATERIAL IN THE ROADWAY TO MINIMIZE DIFFERENTIAL FROST HEAVING OF THE SUBGRADE. THE TRENCH BACKFILL SHOULD BE PLACED IN 300mm THICK LIFTS AND EACH LIFT SHOULD BE COMPACTED TO 95 PERCENT SPMD.
9.	THE BEDROCK/AUGER REFUSAL DEPTHS ACROSS THE SITE WERE VARIABLE. SHALLOW BEDROCK AND LARGE Boulders SHOULD BE EXPECTED DURING THE INSTALLATION OF ANY SERVICES AT THE SITE AND CONTRACTORS BIDDING ON THIS WORK SHOULD ANTICIPATE THESE CONDITIONS.

GEOTECHNICAL NOTES CONTINUED	
10.	IT IS ANTICIPATED THAT THE MAJORITY OF THE MATERIAL REQUIRED FOR TRENCH BACKFILL AND SUBGRADE FILL IN PARKING AREA AND ACCESS ROADS WOULD HAVE TO BE IMPORTED AND SHOULD CONFORM TO OPSS 1010 SELECT SUBGRADE MATERIAL (SSM) - COMPACTED TO 95 PERCENT OF THE SPMD AND THE UPPER 300 MM OF THE SUBGRADE FILL MUST BE COMPACTED TO 98% SPMD.
11.	AS PART OF THE SUBGRADE PREPARATION, THE PROPOSED PARKING AREA, PAVED AREA AND ACCESS ROADS SHOULD BE STRIPPED OF TOPSOIL AND OTHER OBVIOUSLY UNSUITABLE MATERIAL. THE SUBGRADE SHOULD BE PROPERLY SHAPED, CROWNED, THEN PROOF ROLLED WITH A HEAVY VIBRATORY ROLLER IN THE FULL-TIME PRESENCE OF A REPRESENTATIVE OF THE GEOTECHNICAL ENGINEER. ANY SOFT OR SPONGY SUBGRADE AREAS DETECTED SHOULD BE SUB EXCAVATED AND PROPERLY REPLACED WITH SUITABLE APPROVED BACKFILL COMPACTED TO 95 PERCENT SPMD (ASTM D608-12E2).
12.	THE SUBDRAINS ILLUSTRATED ON PLANS ARE SCHEMATIC. FULL SCHEME OF SUBDRAINS SHOULD BE INSTALLED ON BOTH SIDES OF THE ACCESS ROAD(S). SUBDRAINS SHOULD BE INSTALLED ON BOTH SIDES OF THE ACCESS ROAD(S). SUBDRAINS MUST BE INSTALLED IN THE PROPOSED PARKING AREA AT LOW POINTS AND SHOULD BE CONTINUOUS BETWEEN CATCHBASINS TO INTERCEPT EXCESS SURFACE AND SUBSURFACE MOISTURE AND TO PREVENT SUBGRADE SOFTENING. THIS WILL ENSURE NO WATER COLLECTS IN THE GRANULAR COURSE, WHICH COULD RESULT IN PAVEMENT FAILURE DURING THE SPRING THAW. THE LOCATION AND EXTENT OF SUBDRAINS REQUIRED WITHIN THE PAVED AREAS SHOULD BE REVIEWED BY THE GEOTECHNICAL ENGINEER IN CONJUNCTION WITH THE PROPOSED SITE GRADING.
13.	TO MINIMIZE THE PROBLEMS OF DIFFERENTIAL MOVEMENT BETWEEN THE PAVEMENT AND CATCHBASIN/MANHOLE DUE TO FROST ACTION, THE BACKFILL AROUND THE STRUCTURES SHOULD CONSIST OF FREE-DRAINING GRANULAR PREFERABLY CONFORMING TO OPSS GRANULAR B TYPE II MATERIAL. WEEP HOLES SHOULD BE PROVIDED IN THE CATCHBASIN/MANHOLE TO FACILITATE DRAINAGE OF ANY WATER THAT MAY ACCUMULATE IN THE GRANULAR FILL.
14.	THE MOST SEVERE LOADING CONDITIONS ON LIGHT-DUTY PAVEMENT AREAS AND THE SUBGRADE MAY OCCUR DURING CONSTRUCTION. CONSEQUENTLY, SPECIAL PROVISIONS SUCH AS RESTRICTED LANES, HALF-LOADS DURING PAVING, TEMPORARY CONSTRUCTION ROADWAYS, ETC., MAY BE REQUIRED, ESPECIALLY IF CONSTRUCTION IS CARRIED OUT DURING UNFAVORABLE WEATHER.
15.	THE FINISHED PAVEMENT SURFACE SHOULD BE FREE OF DEPRESSIONS AND SHOULD BE SLOPED (PREFERABLY AT A MINIMUM CROSS FALL OF 2 PERCENT) TO PROVIDE EFFECTIVE SURFACE DRAINAGE TOWARDS CATCH BASINS. SURFACE WATER SHOULD NOT BE ALLOWED TO POND ADJACENT TO THE OUTSIDE EDGES OF PAVED AREAS.

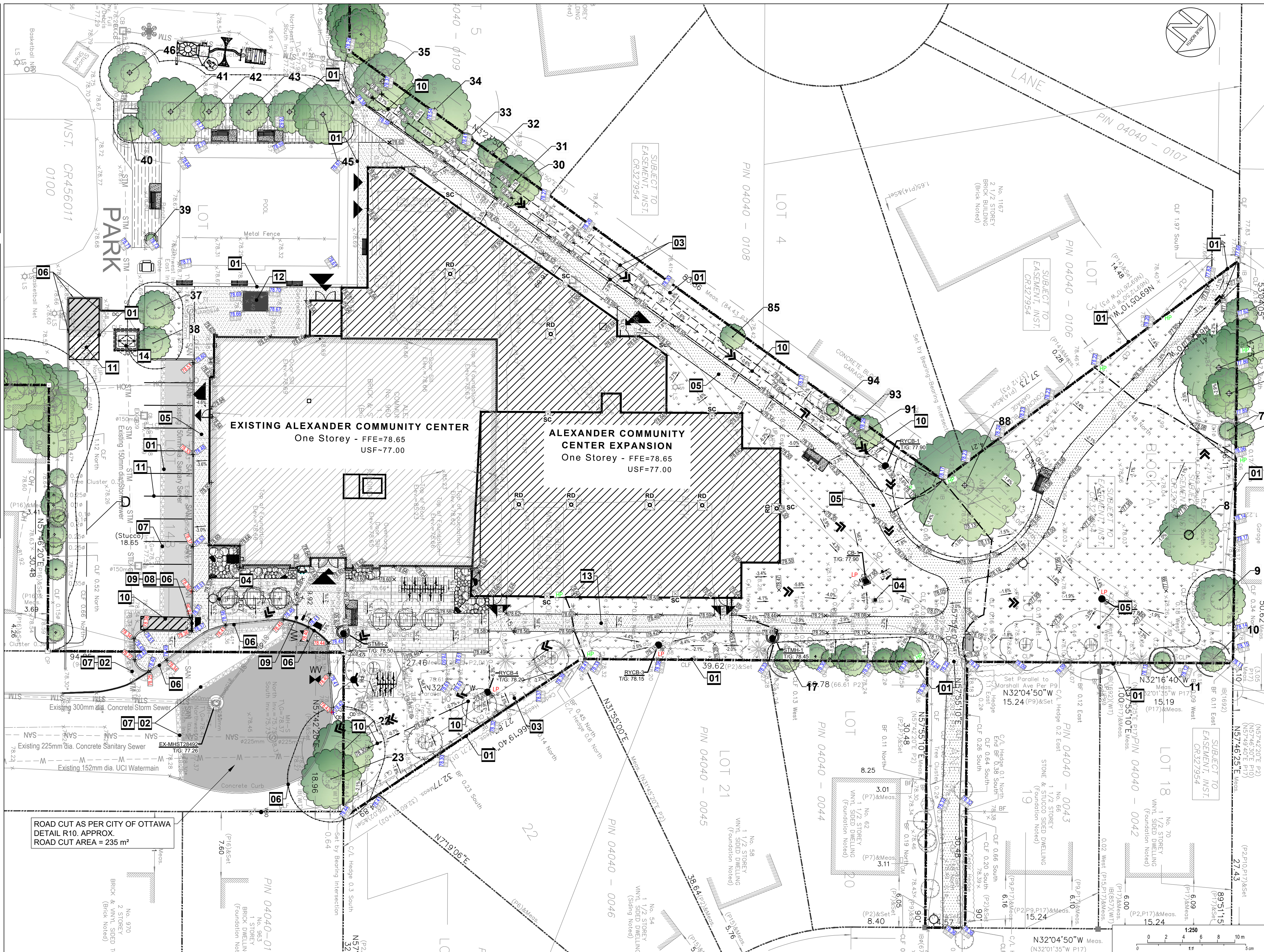
GEOTECHNICAL NOTES CONTINUED	
16.	RELATIVELY WEAKER SUBGRADE MAY DEVELOP OVER SERVICE TRENCHES AT SUBGRADE LEVEL. THESE AREAS MAY REQUIRE THE USE OF THICKER/COARSER SUB-BASE MATERIAL AND THE USE OF A GEOTEXTILE AT THE SUBGRADE LEVEL. IF THIS IS THE CASE, IT IS RECOMMENDED THAT ADDITIONAL 150 MM THICK GRANULAR SUB-BASE, OPSS GRANULAR B TYPE II, SHOULD BE PROVIDED IN THESE AREAS, IN ADDITION TO THE USE OF A GEOTEXTILE AT THE SUBGRADE LEVEL.
17.	THE GRANULAR MATERIALS USED FOR PAVEMENT CONSTRUCTION SHOULD CONFORM TO ONTARIO PROVINCIAL STANDARD SPECIFICATIONS (OPSS 1010) FOR GRANULAR A AND GRANULAR B TYPE II AND SHOULD BE COMPACTED TO 100 PERCENT OF THE SPMD.
18.	THE ASPHALTIC CONCRETE USED, AND ITS PLACEMENT SHOULD MEET OPSS 1150 OR 1151 REQUIREMENTS. IT SHOULD BE COMPACTED FROM 92 PERCENT TO 97 PERCENT OF THE MMD (ASTM D2041). ASPHALT PLACEMENT SHOULD BE IN ACCORDANCE WITH OPSS 310 AND OPSS 313.
19.	ALL EARTHWORK ACTIVITIES FROM PLACEMENT AND COMPACTION OF FILL IN THE SERVICE TRENCHES TO SUBGRADE PREPARATION, PLACEMENT AND COMPACTION OF GRANULAR MATERIALS AND ASPHALTIC CONCRETE SHOULD BE INSPECTED BY QUALIFIED GEOTECHNICALS TO ENSURE THAT CONSTRUCTION OF THE SEWERS AND PAVEMENT PROCEEDS ACCORDING TO THE SPECIFICATIONS.
20.	STRINGENT CONSTRUCTION CONTROL PROCEDURES SHOULD BE MAINTAINED TO ENSURE THAT UNIFORM SUBGRADE MOISTURE AND DENSITY CONDITIONS ARE ACHIEVED.
21.	SHOULD SURFACE AND SUBSURFACE WATER SEEPAGE OCCUR DURING THE EXCAVATIONS COLLECT ANY WATER ENTERING THE EXCAVATIONS AND REMOVE IT BY PUMPING FROM SUMP.
22.	IF THE BACKFILL IN THE SERVICE TRENCHES WILL CONSIST OF GRANULAR FILL, CLAY SEALS SHOULD BE INSTALLED IN THE SERVICE TRENCHES AT SELECT INTERVALS (SPACING) PER CITY OF OTTAWA DRAWING NO. S8. THE SEALS SHOULD BE 1m WIDE, EXTEND OVER THE ENTIRE TRENCH WIDTH AND FROM THE BOTTOM OF THE TRENCH TO THE UNDERSIDE OF THE PAVEMENT STRUCTURE. THE CLAY SHOULD BE COMPACTED TO 95 PERCENT SPMD. THE PURPOSE OF THE CLAY SEALS IS TO PREVENT THE PERMANENT LOWERING OF THE GROUNDWATER LEVEL. CLAY SEAL LOCATIONS SHALL BE APPROVED BY THE GEOTECHNICAL ENGINEER.
23.	IT IS RECOMMENDED THAT A GEOTEXTILE BE PLACED ON THE SURFACE OF THE SUBGRADE PRIOR OF PLACEMENT OF ANY GRANULAR SUB-BASE. THIS MUST BE ALLOWED FOR BY THE CONTRACTOR AND INSTALLED WHEN DIRECTED BY THE GEOTECHNICAL ENGINEER.
24.	THE MUNICIPAL SERVICES SHOULD BE INSTALLED IN SHORT OPEN TRENCH SECTIONS THAT ARE EXCAVATED AND BACKFILLED THE SAME DAY.

GENERAL NOTES

- DESIGN AND CONSTRUCTION IS TO BE IN ACCORDANCE WITH MOST RECENT ONTARIO BUILDING CODE.
- THE CONTRACTOR IS RESPONSIBLE FOR CHECKING AND VERIFYING ALL DIMENSIONS WITH RESPECT TO SITE CONDITIONS AND ALL MATERIALS TO THE PROJECT. ANY DISCREPANCY SHALL BE REPORTED TO THE ENGINEER.
- THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL MATERIAL RELEVANT TO THE PROJECT.
- ADDITIONAL DRAWINGS MAY BE ISSUED FOR CLARIFICATION TO ASSIST PROPER EXECUTION OF WORK. SUCH DRAWINGS WILL HAVE THE SAME MEANING AND INTENT AS IF THEY WERE INCLUDED WITH THE CONTRACT DOCUMENTS.
- CONTRACTOR MUST COMPLY WITH LOCAL BY-LAWS, ONTARIO OCCUPATIONAL HEALTH AND SAFETY ACT AND ALL REGULATIONS SET BY AUTHORITIES HAVING JURISDICTION. IN CASE OF CONFLICT OR DISCREPANCY, THE MORE STRINGENT REQUIREMENTS SHALL APPLY.
- CONTRACTOR RESPONSIBLE FOR OBTAINING ALL REQUIRED UTILITY LOCATES, DAYLIGHTING, INSPECTIONS, PERMITS, AND APPROVALS, INCLUDING ALL ASSOCIATED COSTS. LOCATION OF EXISTING UTILITIES ARE APPROXIMATE ONLY AND BASED ON BEST AVAILABLE INFORMATION.
- IN THE EVENT THAT EXCAVATION IS REQUIRED ON THE CITY OF OTTAWA ROW OR ADJACENT PROPERTY, CONTRACTOR IS RESPONSIBLE TO ENSURE ADDITIONAL PERMIT AND/OR PERMISSION.

DRAWING NOTES

- MATCH EXISTING GRADES AT PROPERTY LINE AND LIMITS OF WORK.
- ANY DISTURBED AREA WITHIN THE RIGHT-OF-WAY SHALL BE REINTEGRATED TO EQUAL OR BETTER CONDITION TO THE SATISFACTION OF THE CITY OF OTTAWA.
- TOP OF BANK. PROVIDE MAXIMUM 4:1 SLOPE TO TIE INTO EXISTING / PROPOSED GRADES.
- EXISTING LIGHT STANDARD TO BE PROTECTED DURING CONSTRUCTION.
- CONSTRUCT SIDEWALK AS PER CITY OF OTTAWA STANDARD DETAIL SC2 & SC5. PROVIDE MAXIMUM SLOPE OF 2.0% INSTALL REINFORCING MESH 150X150mm MMS 13MMV1 THROUGHOUT NEW SIDEWALK. STOP WIRE MESH AT EXPANSION JOINTS.
- CONSTRUCT CONCRETE BARRIER / DEPRESSED CURB AS PER CITY OF OTTAWA STANDARD DETAIL SC1.1.
- SAW CUT INTO EXISTING ASPHALT AS PER DETAIL 3/C3. MATCH EXISTING PAVEMENT AND GRANULAR STRUCTURE.
- NEW ACCESSIBLE PARKING ACCESS RAMP. PROVIDE MAXIMUM 8% SLOPE.
- TWIS AS PER CITY STANDARDS.
- CONSTRUCT NEW SWALE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD DETAIL DRAWING S29.
- NEW TRAFFIC MARKING PAINT. REFER TO ARCHITECTURAL.
- EXISTING MANHOLE STRUCTURE TO REMAIN.
- CONSTRUCT SIDEWALK AS PER CITY OF OTTAWA DETAIL SC4.
- PROPOSED GARBAGE ENCLOSURE PAD, REFER TO ARCHITECTURAL AND STRUCTURAL FOR DETAILS. PROTECT EXISTING STORM SEWER DURING CONSTRUCTION AND EXCAVATION.



- DRAWINGS TO BE READ IN CONJUNCTION WITH ARCHITECTURAL AND LANDSCAPE DRAWINGS.
- SERVICES NOTED ON THE CONTRACT DRAWINGS AND INSTALLATION SHALL BE IN ACCORDANCE WITH THE LATEST STANDARDS AND REGULATIONS OF THE CITY OF OTTAWA STANDARD SPECIFICATIONS FOR HIGHWAYS, OTTAWA PROVINCIAL SPECIFICATION STANDARD SPECIFICATION (SPSS) AND OTARIO PROVINCIAL ROAD BOARD DRINKING WATER SPECIFICATIONS UNLESS OTHERWISE SPECIFIED, TO THE SATISFACTION OF THE CITY OF OTTAWA AND THE CONSULTANT.
- EXISTING ABOVE GROUND POLE LINES, CONDUITS, WATERMANS, SEWERS AND OTHER UNDERGROUND AND ABOVEGROUND UTILITIES, STRUCTURES AND OBSTACLES IS TO BE IDENTIFIED BY THE ENGINEER ON THE CONTRACT DRAWING, AND WHERE SHOWN, THE ACCURACY OF THE POSITION OF SUCH UTILITIES AND STRUCTURES IS TO BE VERIFIED BY THE ENGINEER PRIOR TO ANY WORK. THE CONTRACTOR SHALL SATISFY HIMSELF OF THE EXACT LOCATION OF ALL SUCH UTILITIES AND STRUCTURES, AND SHALL ASSUME ALL LIABILITY FOR DAMAGE TO THEM DURING THE COURSE OF CONSTRUCTION. ANY RELOCATION OF EXISTING UTILITIES OR STRUCTURES OR THE DEVELOPMENT OF SUBJECT LANDS IS TO BE UNDERTAKEN AT CONTRACTOR'S EXPENSE.
- THE CONTRACTOR MUST NOTIFY ALL EXISTING UTILITY COMPANIES FIVE (5) BUSINESS DAYS PRIOR TO START OF CONSTRUCTION AND HAVE ALL EXISTING UTILITIES AND SERVICES LOCATED AND MARKED PRIOR TO EXPOSED PRIOR TO THE START OF CONSTRUCTION, INCLUDING BUT NOT LIMITED TO POWER, COMMUNICATION AND GAS.
- ALL TRENCHING AND EXCAVATIONS TO BE IN ACCORDANCE WITH THE LATEST REVISIONS OF THE OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS AND AS PER THE RECOMMENDATIONS INCLUDED IN THE GEOTECHNICAL REPORT.
- REFER TO ARCHITECTS PLANS FOR BUILDING DIMENSIONS, LAYOUT AND REMOVALS. REFER TO LANDSCAPE PLAN FOR FINISHED DETAILS AND OTHER RELEVANT INFORMATION. ALL WORK SHALL BE COMPLETED PRIOR TO COMMENCEMENT OF CONSTRUCTION.
TOPOGRAPHIC SURVEY AND PROPERTY BOUNDARY INFORMATION FOR CONSTRUCTION PURPOSES FROM ANNE O'SULLIVAN, VOLLEBECK LTD. JOB NO.: N-2805-26, DATED FEBRUARY 13, 2026; CONTRACTOR TO VERIFY IN THE FIELD THAT THE EXISTING CONSTRUCTION WORK AND NOT THE ENGINEER OF ANY DISCREPANCIES.
- ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS. ALL ELEVATION BENCHMARKS HAVE NOT BEEN ALTERED OR DISTURBED.
- ALL GROUND SURFACES SHALL HAVE EVENLY GRADED WITHOUT PONDING AREAS AND WITHOUT LOW POINTS EXCEPT WHERE INDICATED OTHERWISE. DRAINAGE OUTLETS ARE PROVIDED.
- ALL EDGES OF DISTURBED PavEMENT SHALL BE SAW CUT TO A MINIMUM OF 90 DEGREES. ALL NEW GRADING, NEW PAVEMENT, PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDE MINIMUM.
- ALL DISTURBED AREAS SHALL BE PROPERLY GRADING, TO BE RESTORED TO ORIGINAL ELEVATIONS AND CONDITIONS UNLESS OTHERWISE SPECIFIED. ALL DISTURBANCE SHALL BE DONE IN ACCORDANCE WITH THE GEOTECHNICAL REQUIREMENTS FOR BACKFILL AND COMPACTION
- ADJUSTING PROPERTY GRADDES TO BE MATCHED UNLESS OTHERWISE STATED BELOW.
- CONTRACTOR SHALL OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL CORPORATION PRIOR TO ANY CONSTRUCTION ACTIVITIES, INCLUDING WATER PERMIT AND ROAD CUT PERMIT.
- MINIMIZE DISTURBANCE TO EXISTING VEGETATION DURING THE EXECUTION OF ALL WORKS.
- EXCAVATE AND REMOVE ALL ORGANIC MATERIAL, AND DEBRIS LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS, ALL EXCESS SOIL TO BE PROPERLY TESTED AND REMOVED IN ACCORD WITH CURRENT O.R.G. 406/19, ALL ASSOCIATED COSTS TO BE BORNE BY THE CONTRACTOR.
- AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS TO STREET SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRESENT CONDITION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.
- CONTRACTOR TO OBTAIN POST-CONSTRUCTION TOPOGRAPHIC SURVEY TO BE CONDUCTED BY QLS OR PENG CONFIRMING COMPLIANCE WITH DESIGN GRADING AND ELEVATIONS. THEY ARE TO INCLUDE LOCALITY AND INVERTS FOR BURIED UTILITIES.
- ABIDE BY RECOMMENDATIONS OF GEOTECHNICAL REPORT. REPORT ANY VARIATIONS IN OBSERVED CONDITIONS FROM THOSE DESCRIBED THEREIN.
- REPORT REFERENCES:
GEOTECHNICAL INVESTIGATION
PROPOSED ADDITION TO ALEXANDER COMMUNITY CENTRE
960 SILVER STREET - OTTAWA, ONTARIO
PREPARED BY EXP. PROJECT NO.: 017-32011957-00
DATED FEBRUARY 13, 2026
- PROVIDE CCTV INSPECTION REPORT FOR ALL SEWERS AND CATCHBASINS LEADS 200mm DIAMETER AND LARGER. PROVIDE INSPECTION FOLLOWING RECTIFICATION OF ANY DEFICIENCIES.

PRIOR TO START OF CONSTRUCTION:

- 1.1. INSTALL SILT FENCE IN LOCATION SHOWN ON DWG C4.
- 1.2. INSTALL FIBER FABRIC OR SILT SACK FILTERS IN ALL THE DRAINAGE DITCHES AND DRAINAGES TO PREVENT EROSION. CONSTRUCTION WITHIN THE SITE (SEE TYPICAL DETAIL).
- 1.3. INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.

2. DURING CONSTRUCTION:

- 2.1. MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE AND IMPACTS TO EXISTING GRADING.
- 2.2. PERMITTER VOUCHER TO REMAIN IN PLACE UNTIL PERMANENT EROSION CONTROL MEASURES ARE IN PLACE AND EROSION IS IMMEDIATELY INSTALL SILT FENCE WHEN THE EXISTING SITE IS DISTURBED AT THE PERMITTER.
- 2.3. MINIMIZE DISTURBANCE TO ADJACENT OVERLAND FLOW BY PROVIDING TEMPORARY SWALES TO THE SATISFACTION OF THE FIELD ENGINEER. TIE-IN TEMPORARY SWALE TO EXISTING C&S AS REQUIRED.
- 2.4. PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IN DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
- 2.5. INSPECT SILT FENCES, FIBER FABRIC FILTERS AND CATCH BASINS REGULARLY AND REPAIR IMMEDIATELY AFTER A STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
- 2.6. DRAWING TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION AND TO THE SATISFACTION OF THE ENGINEER.
- 2.7. EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.

DO NOT LOCATE TOPSOIL, PILES AND EXCAVATION MATERIAL WITHIN 2.0 METERS OF ANY PAVED SURFACE. THE AREA WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL, PILES ARE TO BE SEED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH TO BE SEED. (SEE DWG C5)

- 3.1. CONTROL WIND-BLOWN DUST OFF SITE BY SEEDING TOPSOIL, PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED) AND TO THE SATISFACTION OF THE ENGINEER.

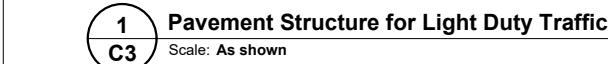
NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE FIELD ENGINEER.

- 4.1. CITY OF OTTAWA ROADWAY AND SIDEWALK TO BE CLEARED OF ALL MATERIAL FROM THE ROADWAY AND SIDEWALKS PRIOR TO DURING WET CONDITIONS. TRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPPED.
- 4.2. ANY MIDWATERAL TRACKED ONTO THE ROAD SHALL BE CLEARED IMMEDIATELY AFTER THE TRACKING OF THE TRACKER.
- 4.3. TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO THE ROAD PRIOR TO THE END OF THE DAY OF CONSTRUCTION AND PROCEED IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.
- 4.4. ALL EROSION CONTROL STRUCTURES TO REMAIN IN PLACE UNTIL EROSION CONTROL MEASURES ARE IN PLACE AND EROSION IS EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.

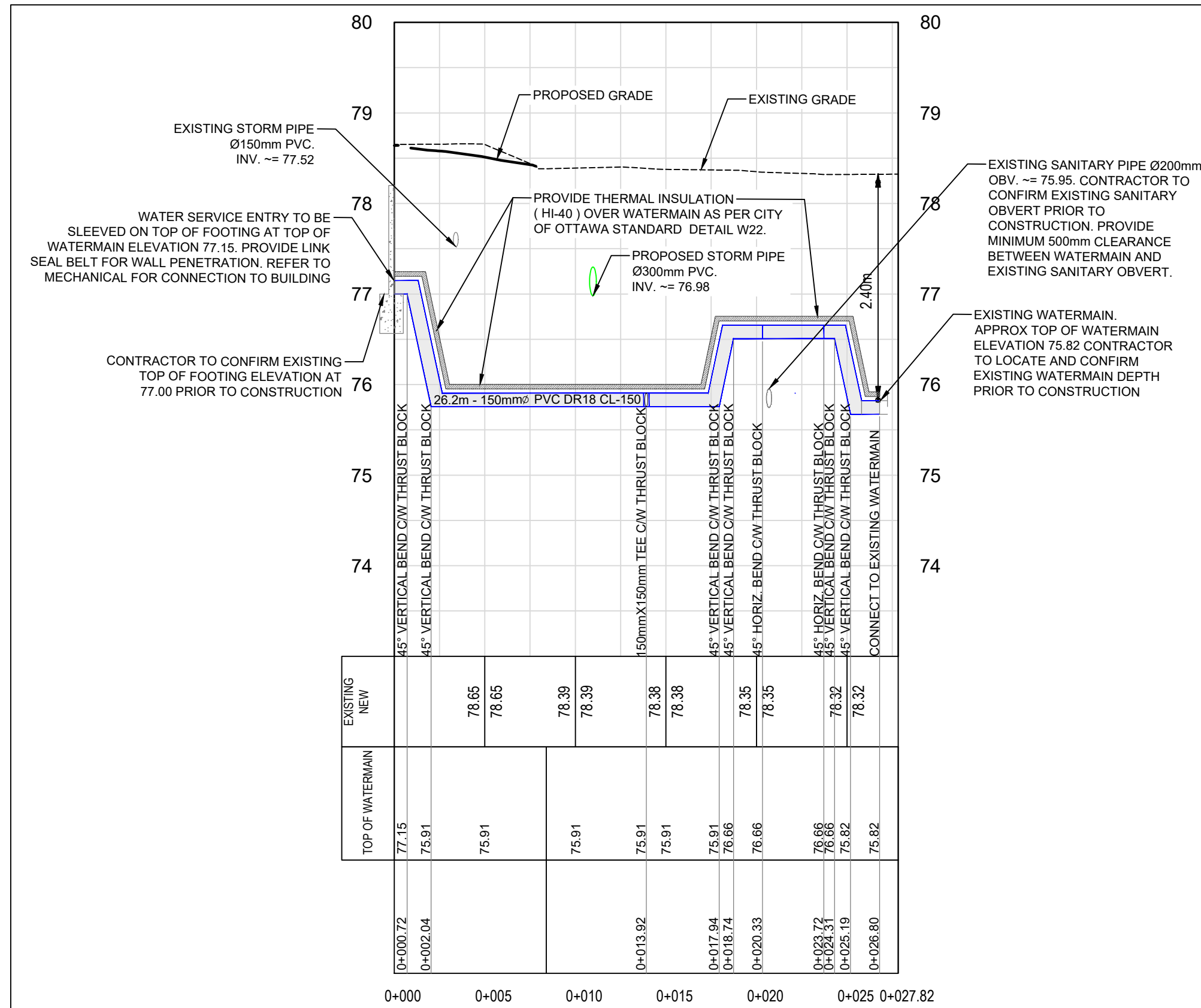
THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES, TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE, DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF THE RECEIVING WATERCOURSE. FAILURE TO IMPLEMENT APPROPRIATE EROSION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

1. ALL STORM SEWER MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE CURRENT CITY OF OTTAWA STANDARDS AND SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW STORM SEWERS, SERVICES AND CB LADS.
2. STORM SEWERS 375mm DIAMETER AND SMALLER SHALL BE PER CSA-355, WITH RUMBLE GRATES PER CSA A-257.3.
3. STORM SEWERS 450mm AND LARGER SHALL BE REINFORCED CONCRETE CLASS 100.
4. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL 56.
5. ALL STORM MANHOLES TO BE AS PER MANHOLE AND CATCHBASIN SCHEDULE.
6. ANY NEW OR EXISTING STORM SEWER WITH LESS THAN 10% COVER, REQUIRE REPAIR TO MEET MINIMUM COVER CITY OF OTTAWA STANDARD S35, OR APPROVED BY THE ENGINEER.
7. CATCH BASIN LANDSCAPE AREAS SHALL BE AS PER CITY OF OTTAWA STANDARD Z29, S30 AND S31.
8. CATCH-BASIN LEADS TO BE MINIMUM 200mm DIAMETER AT MINIMUM 1.0% SLOPE UNLESS OTHERWISE SPECIFIED.
9. LOTS CHAIN-BASIN CHAINS AS PER PSD 705.010 AND FRAME/COVER AS PER CITY STANDARD DRAWINGS S19.
10. ANY MANHOLE'S IN EXISTING LOT CHAIN-BASIN CHAIN ADJUSTMENT SECTIONS SHALL BE AS PER PSD 704.010.
11. INSTALLATION OF FLOW CONTROL ICDS TO BE VERIFIED BY QUALITY VERIFICATION ENGINEER RETAINED BY CONTRACTOR.

1. CONTRACTOR TO REINSTATE ROAD CUTS AS PER CITY OF OTTAWA DETAIL R10.
2. CONTRACTOR TO PREPARE SUBGRADE, INCLUDING PROOFROLLING, TO THE SATISFACTION OF THE GEOTECHNICAL CONSULTANT PRIOR TO THE COMMENCEMENT OF PLACEMENT OF GRANULAR B MATERIAL.
3. FILL TO BE PLACED AND COMPACTED PER THE GEOTECHNICAL CONSULTANT'S REQUIREMENTS.
4. CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR B MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
5. GRANULAR A MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
6. CONTRACTOR TO SUPPLY, PLACE AND COMPACT GRANULAR A MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
7. ASPHALT MATERIAL TO BE PLACED ONLY UPON APPROVAL BY THE GEOTECHNICAL CONSULTANT OF GRANULAR A PLACEMENT.
8. CONTRACTOR TO SUPPLY, PLACE AND COMPACT ASPHALT MATERIAL IN ACCORDANCE WITH THE RECOMMENDATIONS OF THE GEOTECHNICAL CONSULTANT. CONTRACTOR TO PROVIDE FOR TESTING AND CERTIFICATION FROM THE GEOTECHNICAL CONSULTANT THAT THE MATERIAL MEETS THE REQUIREMENTS SPECIFIED IN THE GEOTECHNICAL REPORT.
9. CONTRACTOR IS RESPONSIBLE FOR ESTABLISHING LINE AND GRADE IN ACCORDANCE WITH THE PLANS, AND FOR PROVIDING THE MATERIAL WITH VARIATIONS TO THE PLANS.
10. ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED OF AT AN APPROVED DUMP SITE. SHOULD THE CONTRACTOR DISCOVER ANY HAZARDOUS MATERIAL, CONTRACTOR IS TO NOTIFY CONSULTANT. CONTRACTOR TO DETERMINE APPROPRIATE DISPOSAL METHODOLOGY.
11. PAVEMENT STRUCTURE (MATERIAL TYPES AND THICKNESS) FOR PAVEMENT STRUCTURE TO BE USED FOR THE PROJECT IS PROVIDED IN THE GEOTECHNICAL REPORT AND SHOWN ON THE PLANS.



NEW CATCH BASIN AND MANHOLE STRUCTURE SCHEDULE					
MANHOLE NO.	DESCRIPTION	T/GRATE ELEVATION	INVERT ELEVATION / PIPE DIAMETER	OPSD No. & COO	FRAME (CITY OF OTTAWA)
CB-1	600x600mm CATCHBASIN	77.90	SW INV.: 77.29 - 150mmØ NW INV.: 77.31 - 150mmØ SE INV.: 77.28 - 300mmØ	705.010	S19
RYCB-1	300mmØ DRAINAGE BASIN	77.90	NE INV.: 77.42 - 150mmØ	S30	S30
RYCB-2	300mmØ DRAINAGE BASIN	77.84	SE INV.: 77.45 - 150mmØ	S30	S30
RYCB-3	300mmØ DRAINAGE BASIN	78.15	SW INV.: 77.26 - 200mmØ	S30	S30
RYCB-4	300mmØ DRAINAGE BASIN	78.20	SW INV.: 77.25 - 200mmØ	S30	S30
STMH-1	1,200mmØ MAINTENANCE HOLE	78.45	NW INV.: 77.24 - 300mmØ SW INV.: 77.25 - 250mmØ SE INV.: 77.20 - 300mmØ	701.010	S24.1 / S25
STMH-2	1,200mmØ MAINTENANCE HOLE	78.50	NW INV.: 77.03 - 300mmØ SE INV.: 77.01 - 300mmØ	701.010	S24.1 / S25



1. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND SOILS TO A MINIMUM OF 18" BELOW THE FOUNDATION. PAVED AREAS, SUBURBANS AND SERVICE TRENCHES. EXCESS MATERIAL REMOVAL FROM SITE SHALL BE TO THE APPROVED LOCAL ENVIRONMENTAL ENGINEER'S RECOMMENDATION.
2. CONTRACTOR TO STOCKPILE UN-USABLE FILL TO BE REMOVED FROM SITE TO ALLOW THE GEOTECHNICAL ENGINEER IN 10 DAYS TO INSPECT THE MATERIALS AND TO PROVIDE GUIDANCE TO CONTRACTOR PRIOR TO DISPOSAL. CONTRACTOR SHALL MAINTAIN RECORDS OF THE STOCKPILE AREA. EXCESS MATERIALS SHALL BE DISPOSED AS PER THE REQUIREMENTS OF OPSS 1806.
3. IF CONTAMINATION HAZARDOUS MATERIAL IS SUSPECTED DURING CONSTRUCTION, CONTRACTOR SHALL ADVISE THE CONTRACTOR. CONTRACTOR MUST NOTIFY THE PROPERTY OWNER(S), PROJECT LEADER, PRIME CONSULTANT, AND ENVIRONMENTAL ENGINEER OF ANY FINDINGS. HOW TO PROCEED ACCORDING TO FEDERAL AND PROVINCIAL REGULATION. CONTRACTOR SHALL DETERMINE HOW THE GUIDANCE OF A QUALIFIED PERSON, MUST DETERMINE IF ADDITIONAL SAMPLING (INCLUDING LEACHATE TESTING) IS REQUIRED TO MEET THE REQUIREMENTS OF THE ENVIRONMENTAL ENGINEER'S SAMPLING PROVISIONS UNDER O. REG. 406/19 (AS AMENDED).
4. EXCESS SOIL MANAGEMENT, TESTING AND DISPOSAL MUST COMPLY WITH O. REG. 406/19.
5. ALL SOIL HAULAGE RECORDS SHALL BE KEPT AND PROVIDED BY THE CONTRACTOR AND SUBMITTED TO THE CONSULTANT.
6. ALL EXCESS MATERIAL TO BE HAULED OFFSITE AND DISPOSED AT AN APPROVED DUMP SITE BY CONTRACTOR.

1. ALL WATERMAIN AND WATERPANEL APPURTENANCES,
VALVES, CONNECTIONS AND FITTINGS SHALL
CONFORM TO THE CURRENT CITY OF OTTAWA AND
MINISTRY OF ENVIRONMENT STANDARDS AND
REGULATIONS.
2. ALL WATERMAIN 300mm DIAMETER AND SMALLER TO BE
POLY VINYL CHLORIDE (PVC) CLASS 150 DR 18 MEETING
THE SPECIFICATION FOR POLYMER PIPE
3. ALL WATERMAIN TO BE INSTALLED AT MINIMUM COVER OF
2.4m BELOW FINISHED GRADE. WHERE WATERMAINS
CROSS OVER OTHER UTILITIES, A MINIMUM 0.50m
CLEARANCE SHALL BE MAINTAINED. WHERE WATERMAINS
CROSS UNDER OTHER UTILITIES, A MINIMUM 0.50m
CLEARANCE SHALL BE MAINTAINED. THE WATERMAIN
PROTECTION SHOULD NOT BE ACHIEVED, THE WATERMAIN
TO BE INSTALLED AS PER CITY OF OTTAWA STANDARD
W25 AND W26.2. WHERE 2.4m MINIMUM
DEPTH CANNOT BE ACHIEVED, THERMAL INSULATION
SHALL BE PROVIDED AS PER CITY OF OTTAWA STANDARD
W27, WHERE A WATERMAIN IS IN CLOSE PROXIMITY TO AN
EXISTING STRUCTURE, THERMAL INSULATION SHALL BE
PROVIDED AS PER CITY OF OTTAWA STANDARD W23.
4. CONCRETE THROUST BLOCKS AND MECHANICAL
FITTINGS ARE TO BE USED TO SUPPORT ALL BENDS,
HYDRANTS, REDUCERS, ENDS OF MAINS AND
CONNECTIONS 100mm AND LARGER. IN ACCORDANCE
WITH CITY OF OTTAWA STANDARD W29.
5. CATHODIC PROTECTION REQUIRED FOR ALL IRON
FITTINGS AS PER CITY OF OTTAWA STANDARD W4 & W4.2.
6. ALL VALVES AND VALVE BOXES AND CHAMBERS,
HYDRANTS, AND HYDRANT BOXES AND CHAMBERS
SHALL BE INSTALLED AS PER CITY OF OTTAWA STANDARD
W20.
7. FIRE HYDRANT LOCATION AND INSTALLATION AS PER CITY
OF OTTAWA STANDARD W21. FIRE HYDRANTS TO BE
PROVIDE FLOW TEST AND PAINTING OF NEW HYDRANT IN
CONFORMANCE WITH CITY OF OTTAWA STANDARD W22.
8. IF WATER MAIN MUST BE DEFLECTED TO MEET
ALIGNMENT, ENSURE THAT THE AMOUNT OF DEFLECTION
IS LESS THAN HALF THAT RECOMMENDED BY THE
MANUFACTURER.

1. ALL SANITARY SEWER, SANITARY SEWER APPURTENANCES AND CONSTRUCTION METHODS SHALL CONFORM TO THE REQUIREMENTS OF THE CITY OF OTTAWA STANDARD SPECIFICATIONS. PROVIDE CCTV INSPECTION REPORTS FOR ALL NEW SANITARY PIPE. PROVIDE DYE TESTING FOR NEW SERVICES.
2. SANITARY SEWER PIPE SIZE: 150mm DIAMETER AND CUESATOR TO PVC SDR-35 (UNLESS SPECIFICALLY OTHERWISE) WITH RUBBER GASKET TYPE JOINTS IN CONFORMANCE WITH CSA A-182.2.3.4.
3. SEWER BEDDING AS PER CITY OF OTTAWA DETAIL 56.
4. ALL SANITARY MANHOLES 1200mm IN DIAMETER TO BE AS PER OPSD 701.01. FRAME AND COVER TO BE AS PER CITY OF OTTAWA STANDARD S25 AND S24.
5. MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES AS PER THE OPSD 101.021
6. ANY SANITARY SEWER WITH LESS THAN 2.0m COVER REQUIRES A MINIMUM OF 10% PER CITY OF OTTAWA STANDARD S35, OR APPROVED BY THE ENGINEER.

EROSION AND SEDIMENT CONTROL NOTES

** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES.**

- PRIOR TO START OF CONSTRUCTION:
 - INSTALL SILT FENCE IN LOCATION SHOWN ON DRAWINGS.
 - INSTALL FILTER FABRIC OR SILT SACK FILTERS IN ALL THE CATCHBASINS AND MANHOLES TO REMAIN DURING CONSTRUCTION WITHIN THE SITE (SEE TYPICAL DETAIL).
 - INSPECT MEASURES IMMEDIATELY AFTER INSTALLATION.
- DURING CONSTRUCTION:
 - MINIMIZE THE EXTENT OF DISTURBED AREAS AND THE DURATION OF EXPOSURE AND IMPACTS TO EXISTING GRADING.
 - PERIMETER VEGETATION TO REMAIN IN PLACE UNTIL PERMANENT STORM WATER MANAGEMENT IS IN PLACE. OTHERWISE, IMMEDIATELY INSTALL SILT FENCE WHEN THE EXISTING SITE IS DISTURBED AT THE PERIMETER.
 - PROTECT DISTURBED AREAS FROM OVERLAND FLOW BY PROVIDING TEMPORARY SWALES TO THE SATISFACTION OF THE FIELD ENGINEER. TIE-IN TEMPORARY SWALE TO EXISTING CB'S AS REQUIRED.
 - PROVIDE TEMPORARY COVER SUCH AS SEEDING OR MULCHING IF DISTURBED AREA WILL NOT BE REHABILITATED WITHIN 30 DAYS.
 - INSPECT SILT FENCES, FILTER FABRIC FILTERS AND CATCH BASIN SUMP WEEKLY AND WITHIN 24 HOURS AFTER A STORM EVENT. CLEAN AND REPAIR WHEN NECESSARY.
 - DRAWING TO BE REVIEWED AND REVISED AS REQUIRED DURING CONSTRUCTION.
 - EROSION CONTROL FENCING TO BE ALSO INSTALLED AROUND THE BASE OF ALL STOCKPILES.

EROSION AND SEDIMENT CONTROL NOTES CONTINUED

** CONTRACTOR IS RESPONSIBLE FOR ALL INSTALLATION, MONITORING, REPAIR AND REMOVAL OF ALL EROSION AND SEDIMENT CONTROL FEATURES.**

- DO NOT LOCATE TOPSOIL PILES AND EXCAVATION MATERIAL CLOSER THAN 2.5m FROM ANY PAVED SURFACE, OR ONE WHICH IS TO BE PAVED BEFORE THE PILE IS REMOVED. ALL TOPSOIL PILES ARE TO BE SEEDDED IF THEY ARE TO REMAIN ON SITE LONG ENOUGH FOR SEEDS TO GROW LONGER THAN 30 DAYS.
- CONTROL WIND-BLOWN DUST OFF SITE BY SEEDING TOPSOIL PILES AND OTHER AREAS TEMPORARILY (PROVIDE WATERING AS REQUIRED AND TO THE SATISFACTION OF THE ENGINEER).
- NO ALTERNATE METHODS OF EROSION PROTECTION SHALL BE PERMITTED UNLESS APPROVED BY THE FIELD ENGINEER.
- CITY OF OTTAWA ROADWAY AND SIDEWALK TO BE CLEANED OF ALL SEDIMENT FROM VEHICULAR TRACKING AS REQUIRED.
- DURING WET CONDITIONS, TIRES OF ALL VEHICLES/EQUIPMENT LEAVING THE SITE ARE TO BE SCRAPED.
- ANY MUD/MATERIAL TRACKED ONTO THE ROAD SHALL BE REMOVED IMMEDIATELY BY HAND OR RUBBER TIRE LOADER.
- TAKE ALL NECESSARY STEPS TO PREVENT BUILDING MATERIAL, CONSTRUCTION DEBRIS OR WASTE BEING SPILLED OR TRACKED ONTO ADJUTING PROPERTIES OR PUBLIC STREETS DURING CONSTRUCTION AND PLACE IMMEDIATELY TO CLEAN UP ANY AREAS SO AFFECTED.
- ALL EROSION CONTROL STRUCTURE TO REMAIN IN PLACE UNTIL ALL DISTURBED GROUND SURFACES HAVE BEEN STABILIZED EITHER BY PAVING OR RESTORATION OF VEGETATIVE GROUND COVER.
- THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATERCOURSE DURING CONSTRUCTION ACTIVITIES. THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENT CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.

LEGEND

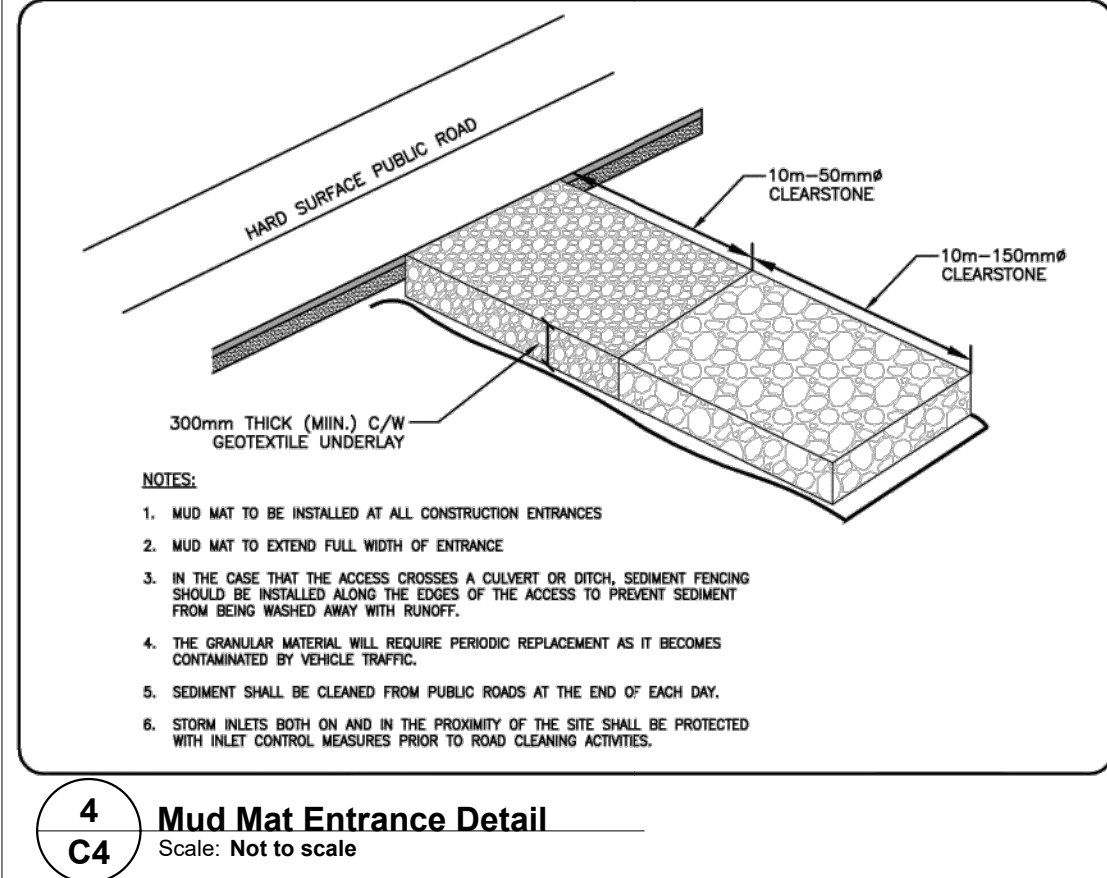
- PROPERTY LINE
- NEW BUILDING
- DEPRESSED CURB
- BREAK OF SLOPE - NEW
- NEW PROPOSED SWALE
- NEW SILT FENCE
- LIMIT OF HIGH POINT
- NEW LIGHT DUTY ASPHALT AS PER DETAIL 1 / C3
- NEW HEAVY DUTY ASPHALT AS PER DETAIL 2 / C3
- NEW CONCRETE PATHWAY
- MILLING & OVERLAY 50mm THICK HEAVY DUTY ASPHALT AS PER DETAIL 3 / C3
- NEW PRECAST PAVERS (TYPE-1 SEE LANDSCAPE)
- NEW ASPHALT PATHWAY AS PER DETAIL SC20
- 100mm TOPSOIL AND SOD
- EXISTING CONCRETE CURB
- NEW CONCRETE CURB
- PONDING LIMIT

LEGEND CONTINUED

- EXISTING CATCHBASIN
- EXISTING STORM MANHOLE
- EXISTING SANITARY MANHOLE
- EXISTING FIRE HYDRANT
- EXISTING WATER VALVE
- EXISTING UTILITY POLE
- EXISTING LIGHT STANDARD
- NEW CATCHBASIN
- NEW STORM MANHOLE / CATCHBASIN MANHOLE
- NEW REAR YARD CATCH BASIN
- NEW FIRE HYDRANT
- NEW WATER VALVE
- NEW INLET CONTROL DEVICE
- NEW ROOF DRAIN
- NEW SCUPPER AT 150mm ABOVE ROOF DRAIN LEVEL
- SEWER FLOW DIRECTION
- BUILDING ENTRANCE
- OVERLAND FLOW ROUTE

LEGEND CONTINUED

- EXISTING TREES

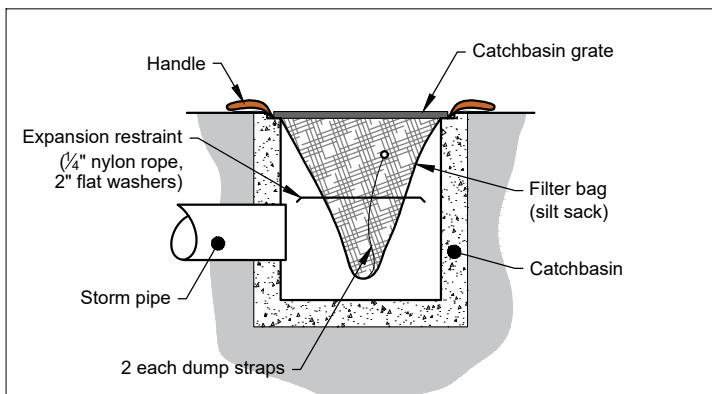
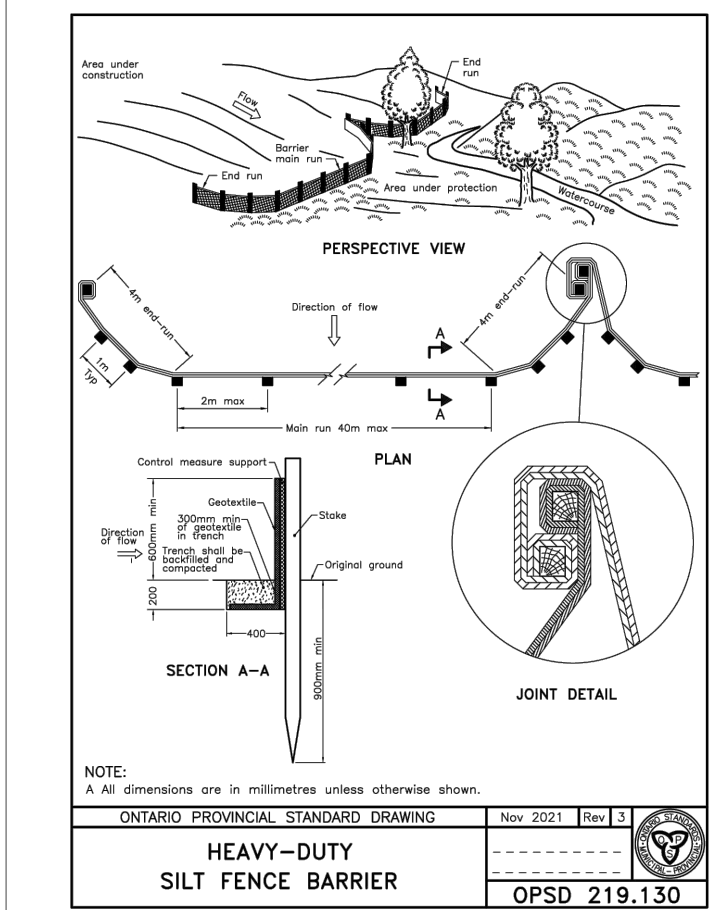


DRAWING NOTES

- INSTALL SILT FENCE IN ACCORDANCE WITH OPSD 219.130.
- INSTALL FILTER BAG (SILT SACK) TO PROTECT EXISTING CATCHBASINS & CATCHBASIN MANHOLES AS PER DETAIL 2/C4.
- INSTALL MUD MAT AS PER DETAIL 3/C4 DURING CONSTRUCTION.

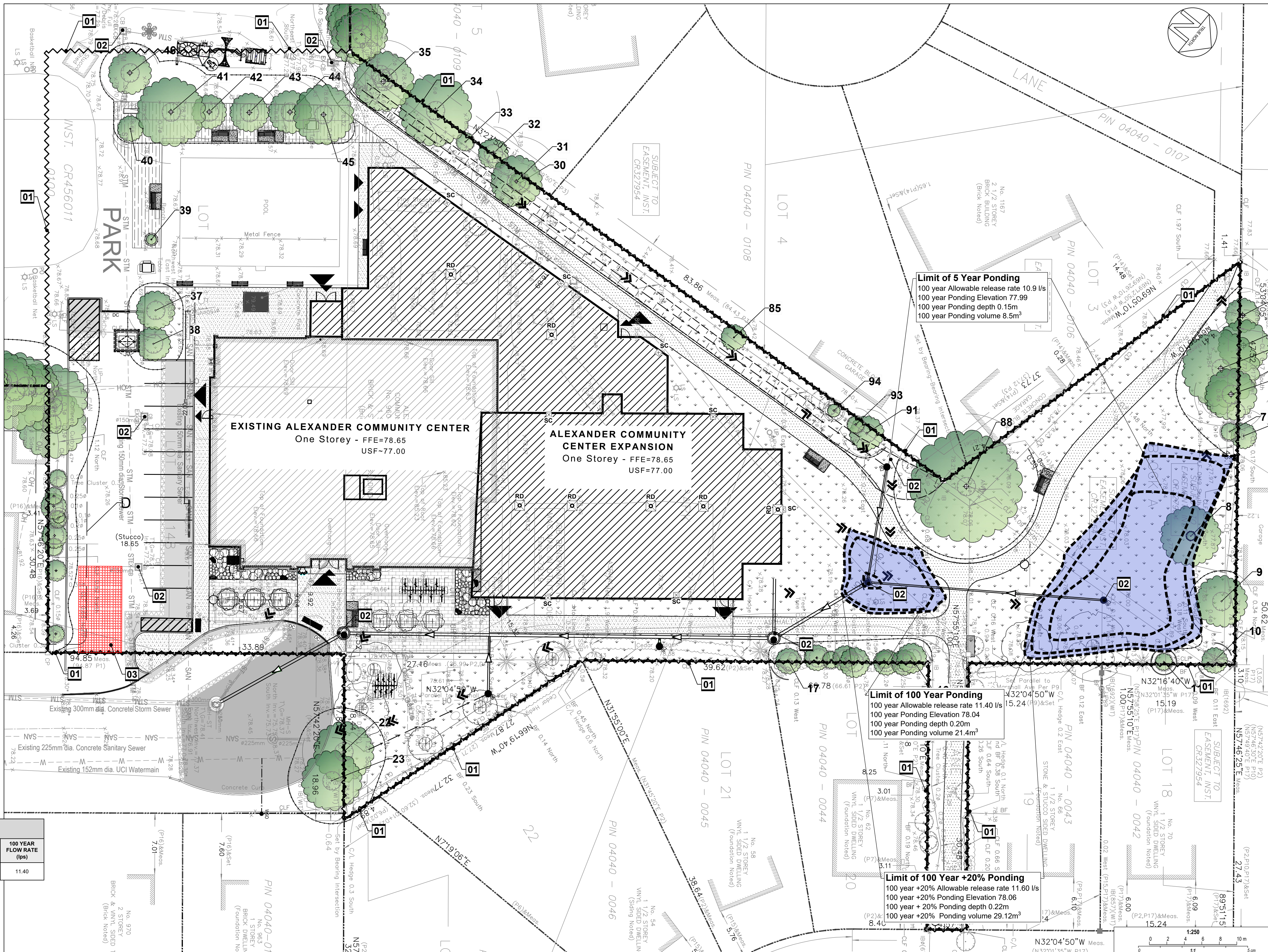
EROSION AND SEDIMENT CONTROL NOTES

- THE CONTRACTOR SHALL IMPLEMENT BEST MANAGEMENT PRACTICES TO PROVIDE FOR PROTECTION OF THE AREA DRAINAGE SYSTEM AND THE RECEIVING WATER COURSE DURING CONSTRUCTION ACTIVITIES. THIS INCLUDES LIMITING THE AMOUNT OF EXPOSED SOIL, INSTALLING SILT FENCES AND OTHER EFFECTIVE SEDIMENT TRAPS, AND INSTALLING AND MAINTAINING MUD MATS FOR OUTGOING CONSTRUCTION TRAFFIC DURING CONSTRUCTION ACTIVITIES.
- PREVENT SOIL LOSS DURING CONSTRUCTION (BY STORM WATER RUNOFF OR WIND EROSION).
- PROTECT TOPSOIL BY STOCKPILING FOR REUSE.
- PREVENT SEDIMENTATION OF STORM SEWERS AND RECEIVING STREAMS.
- PREVENT AIR POLLUTION FROM DUST AND PARTICULATE MATTER.
- ALL STORM MANHOLES AND CATCHBASIN MANHOLES TO HAVE 300mm SUMP. ALL CATCHBASINS TO HAVE 600mm SUMP.
- INSTALL FILTER BAG INSERT IN ALL STORM MANHOLES AND CATCH BASINS IMPACTED DURING CONSTRUCTION, INCLUDING CATCH BASINS IN THE RIGHT OF WAY.
- SEDIMENT AND EROSION CONTROL MEASURES MAY BE MODIFIED IN THE FIELD AT THE DISCRETION OF THE CITY OF OTTAWA INSPECTOR OR CONSERVATION AUTHORITY.
- STORM WATER PUMPED INTO MUNICIPALITY OF CITY OF OTTAWA SERVICE SHALL FLOW THROUGH A FILTER SOCK.
- THE CONTRACTOR ACKNOWLEDGES THAT FAILURE TO IMPLEMENT APPROPRIATE EROSION AND SEDIMENTATION CONTROL MEASURES MAY BE SUBJECT TO PENALTIES IMPOSED BY ANY APPLICABLE REGULATORY AGENCY.



ICD SCHEDULE

ICD	LOCATION	PIPE SIZE (mm)	ICD SIZE (mm)	100 YEAR HEAD (m)	100 YEAR FLOW RATE (l/s)
ICD-1	CB-1	300	83	0.61	11.40



6			
5			
4	ISSUED FOR SITE PLAN CONTROL REV-2	2608020	R.I. / Z.B.
3	ISSUED FOR 90% REVIEW / PERMIT	2605026	R.I. / Z.B.
2	ISSUED FOR 60%	260417	R.I. / Z.B.
1	ISSUED FOR SITE PLAN CONTROL REV-1	260414	R.I. / Z.B.
NUMBER / NUMERO	MILESTONE / FAT SAILLANT	DATE / DATE	INITIALS / INITIALES
DESIGNED BY / CONCEPTEUR	ZACH BAUMAN	DRAWN BY / DESSINEUR	ALI SAMMOUR
SCALE / ECHELLE	1:250		

DETAIL NUMBER	1
DRAWING TITLE	A1.1
SCALE	
SHEET NUMBER	

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ARCHITECT / ARCHITECTE	CONSULTANT / EXPERT-CONSEIL
CONSULTANT / EXPERT-CONSEIL	CONSULTANT / EXPERT-CONSEIL

LICENSED PROFESSIONAL ENGINEER Z. E. BAUMAN 100578796 PROVINCE OF ONTARIO	LICENSED PROFESSIONAL ENGINEER ALI SAMMOUR 100227665 PROVINCE OF ONTARIO
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PROJECT / LOCATION / PROJET / ENDROIT
**960 Silver Street
CENTRE EXPANSION**

950 Silver Street
OTTAWA, ONTARIO

DRAWING / DESSIN

**STORM WATER MANAGEMENT
AND EROSION SEDIMENT
CONTROL PLAN**

BUSINESS ENTITY / NUMERO DE L'ENTITE BUILDING NUMBER / NUMERO DU BATIMENT	SHEET NO. / FEUILLE NO. C.04
CITY PROJECT NO. / NO. DE PROJET CF001822	CONS. PROJECT NO. / NUMERO DE PROJET 25-1170A

6			
5			
4	ISSUED FOR SITE PLAN CONTROL REV.2	2608/20	R.I./Z.B.
3	ISSUED FOR 90% REVIEW / PERMIT	2605/26	R.I./Z.B.
2	ISSUED FOR 60%	2604/17	R.I./Z.B.
1	ISSUED FOR SITE PLAN CONTROL REV.1	2604/14	R.I./Z.B.
MILESTONE / FAIT SAILLANT		DATE: (Y/M/D)	INITIALS / INITIALES
ZACH BAUMAN		ALI SAMMOUR	
DRAWN BY / DESINÉ PAR		SCALE / ÉCHELLE	
RAFAT ISMAIL		1:250	

1	DRAWING TITLE
A11	SCALE
	SHEET NUMBER

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ARCHITECT / ARCHITECTE
CONSULTANT / EXPERT-CONSEIL

CONSULTANT / EXPERT-CONSEIL	CONSULTANT / EXPERT-CONSEIL
LICENSED PROFESSIONAL ENGINEER Z.E. BAUMAN 100578796 August 20, 2026 PROVINCE OF ONTARIO	LICENSED PROFESSIONAL ENGINEER ALI SAMMOUR 100227665 August 20, 2026 PROVINCE OF ONTARIO

PROJECT / LOCATION / PROJET / ENDROIT

960 Silver Street
CENTRE EXPANSION

950 Silver Street
OTTAWA, ONTARIO

DRAWING / DESSIN

DETAILS-I

BUSINESS ENTITY / NUMERO DE L'ENTITE
BUILDING NUMBER / NUMERO DU BATIMENT

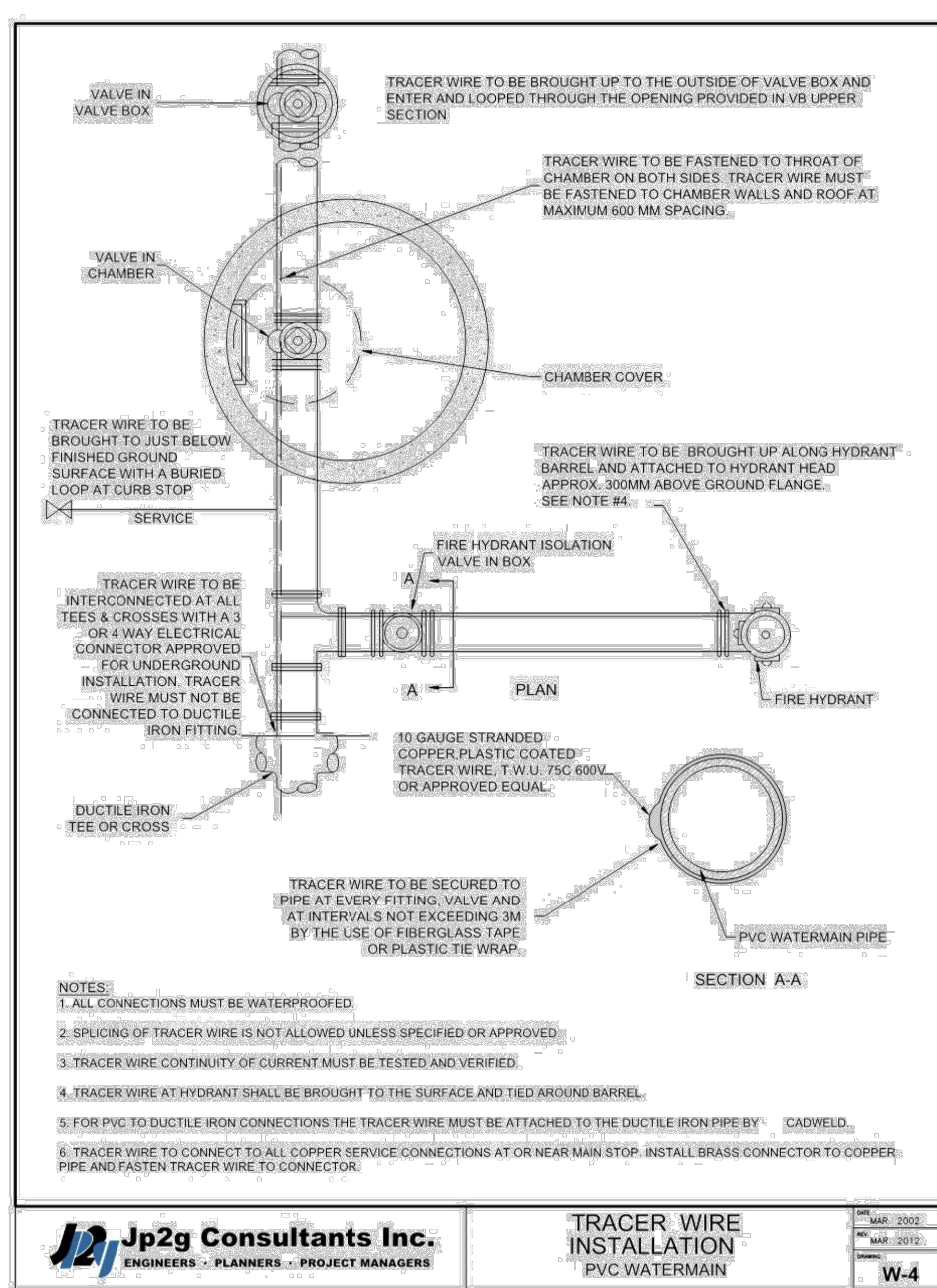
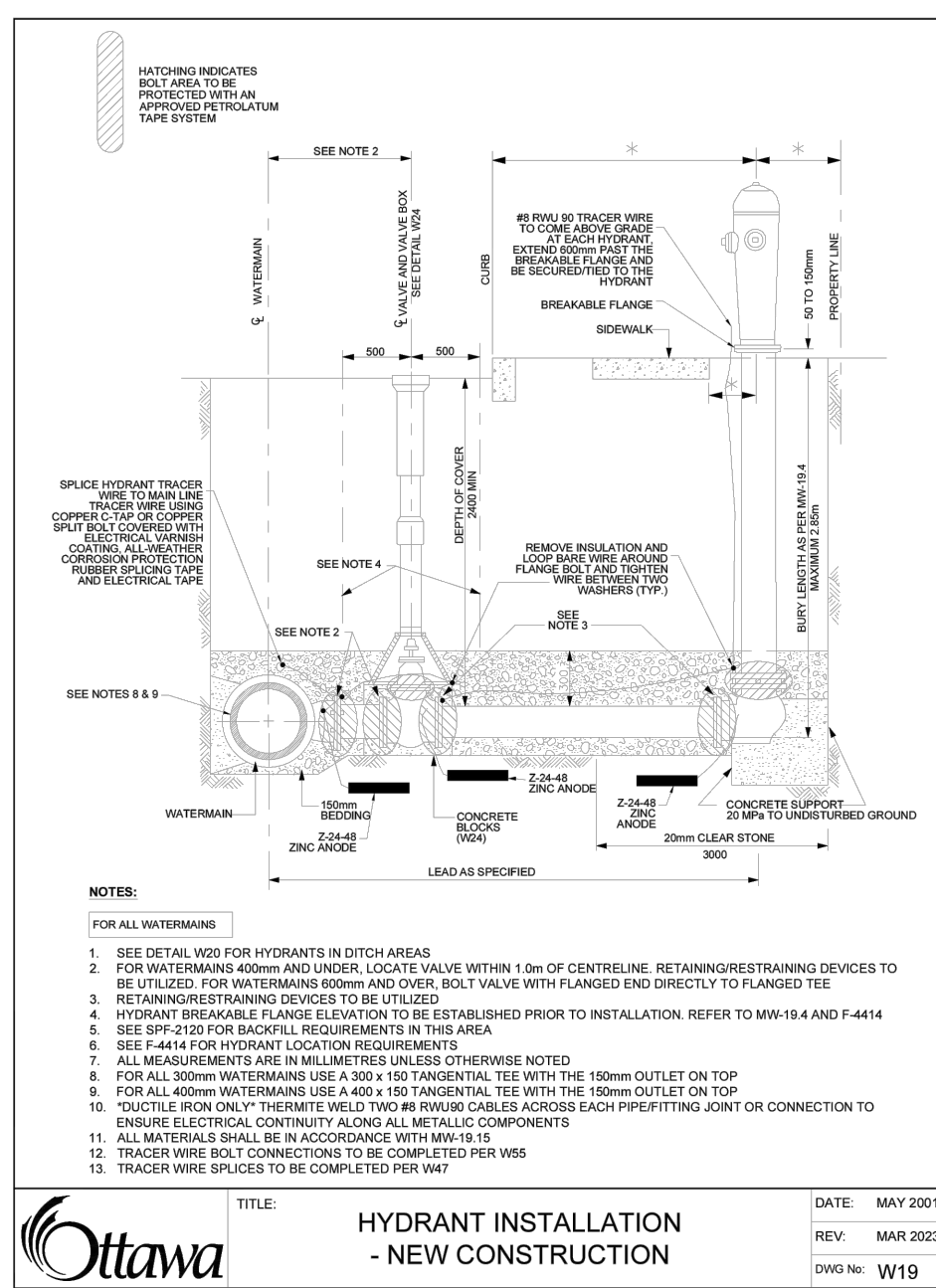
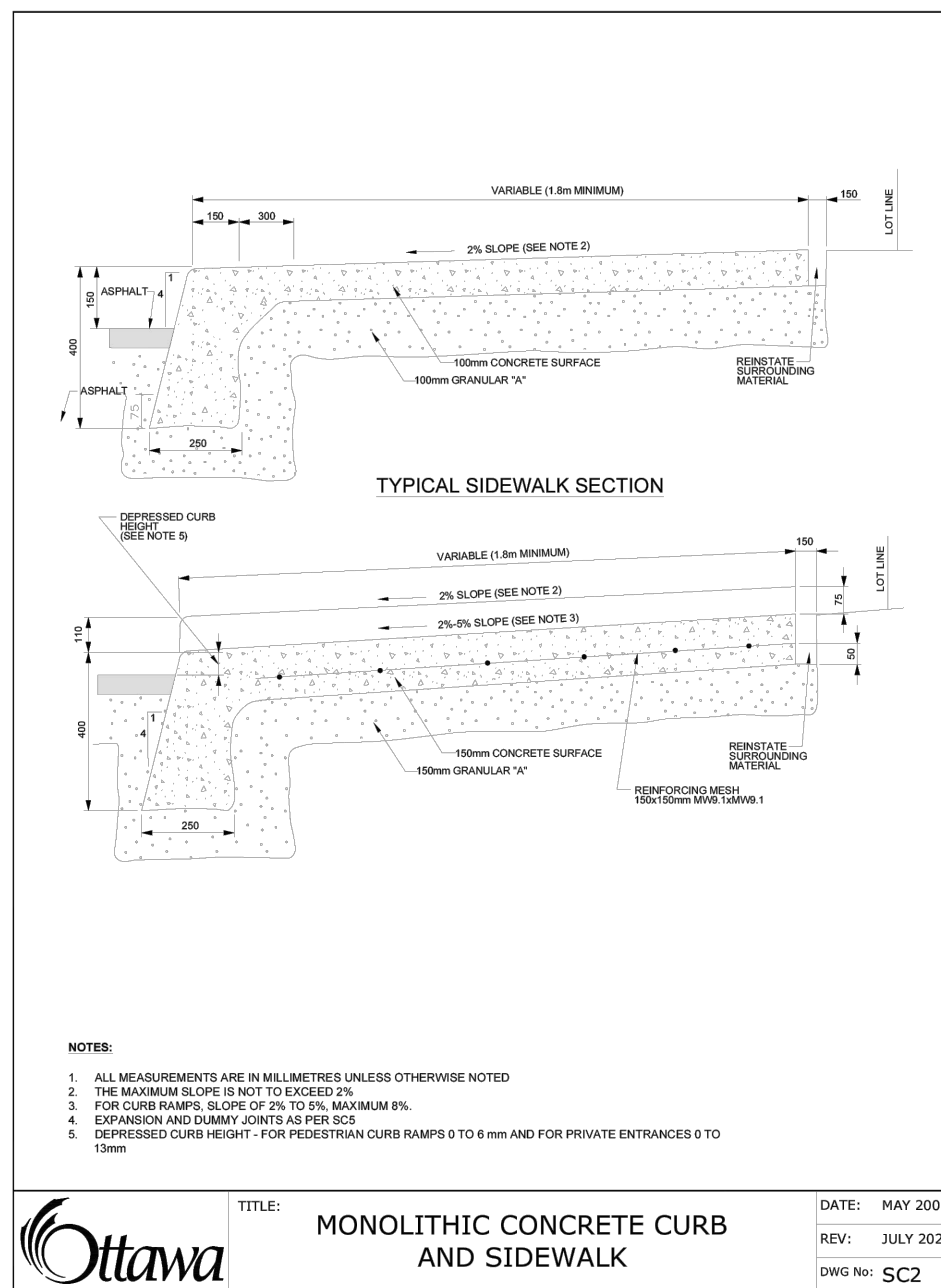
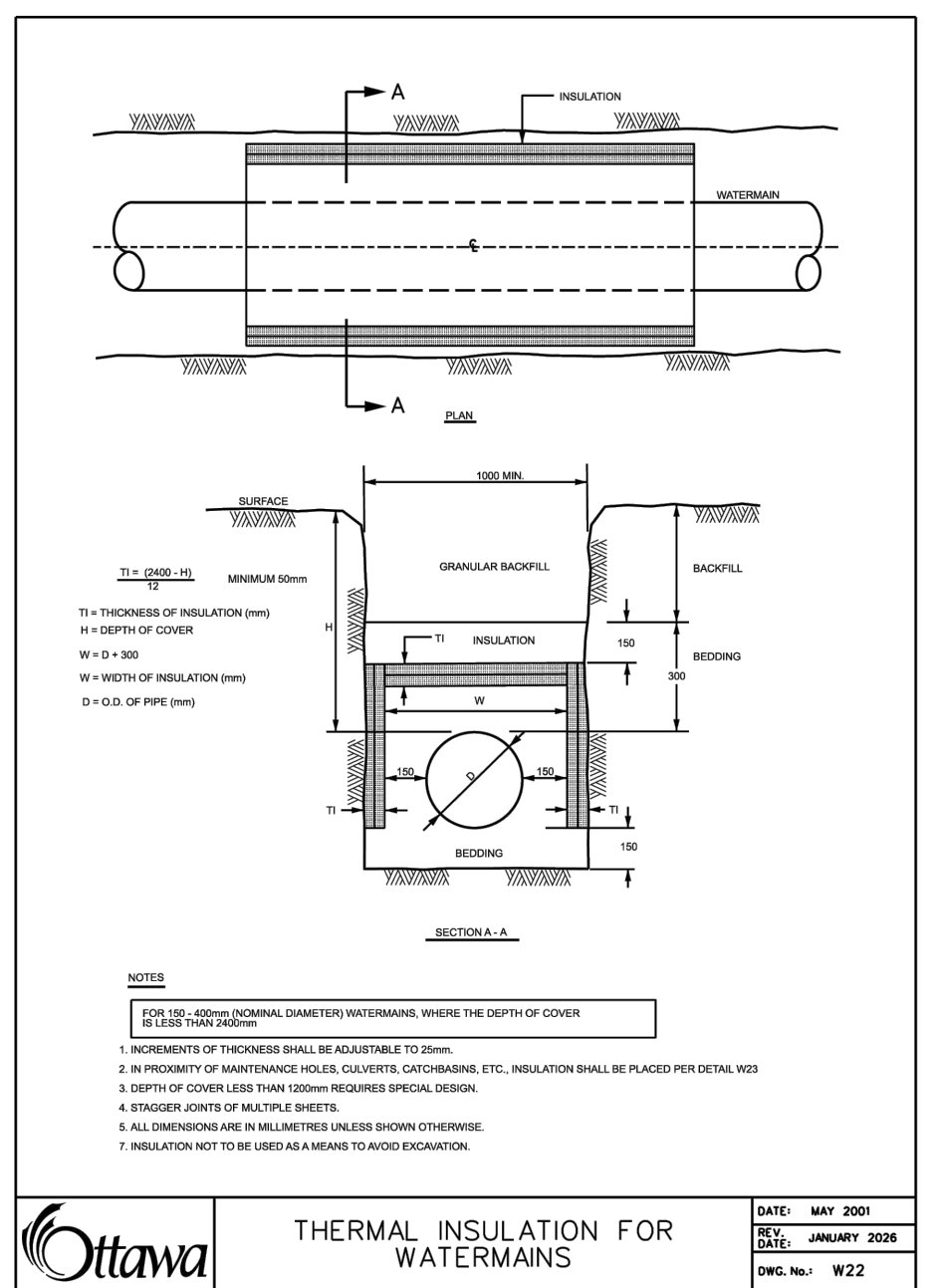
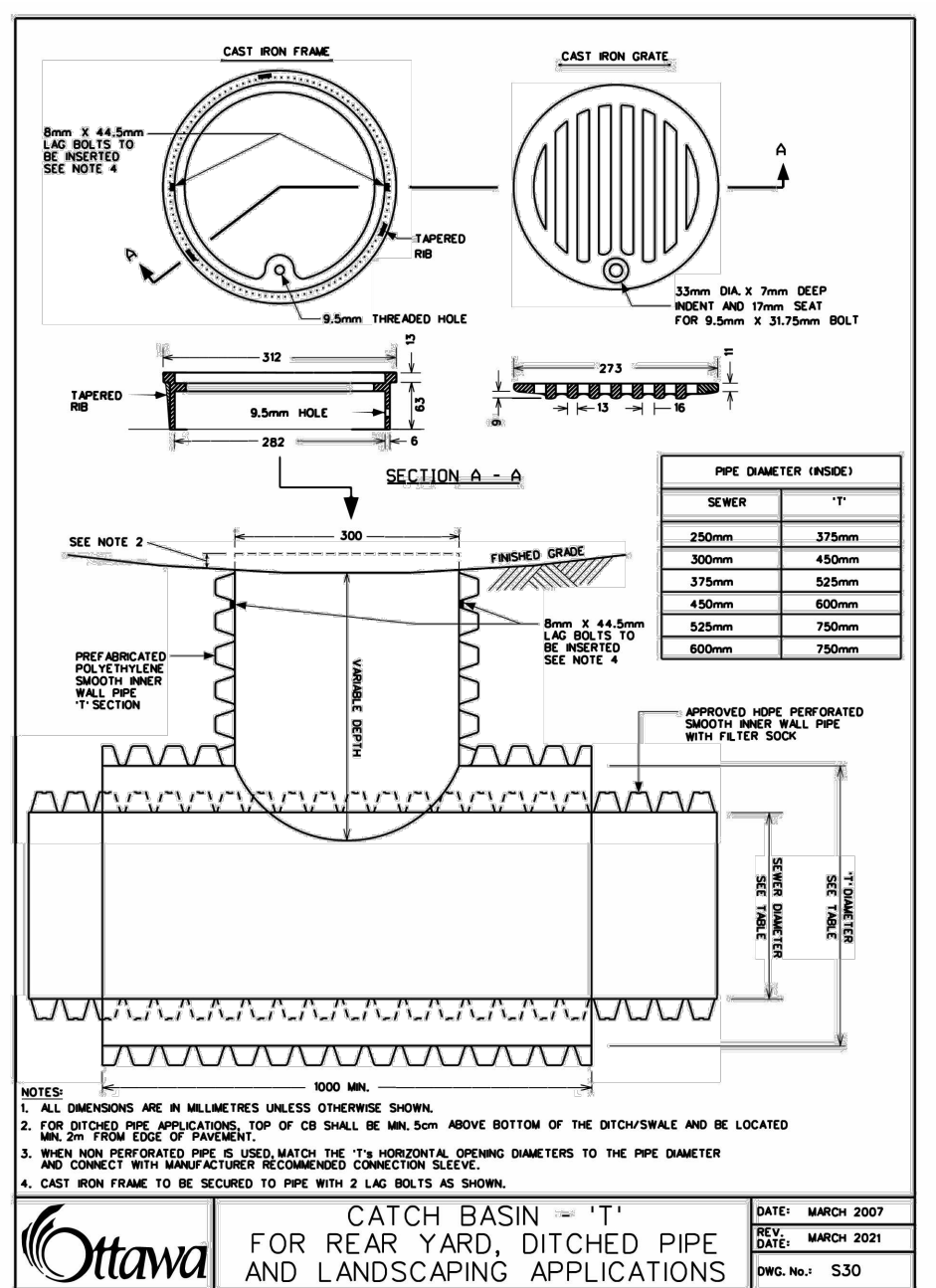
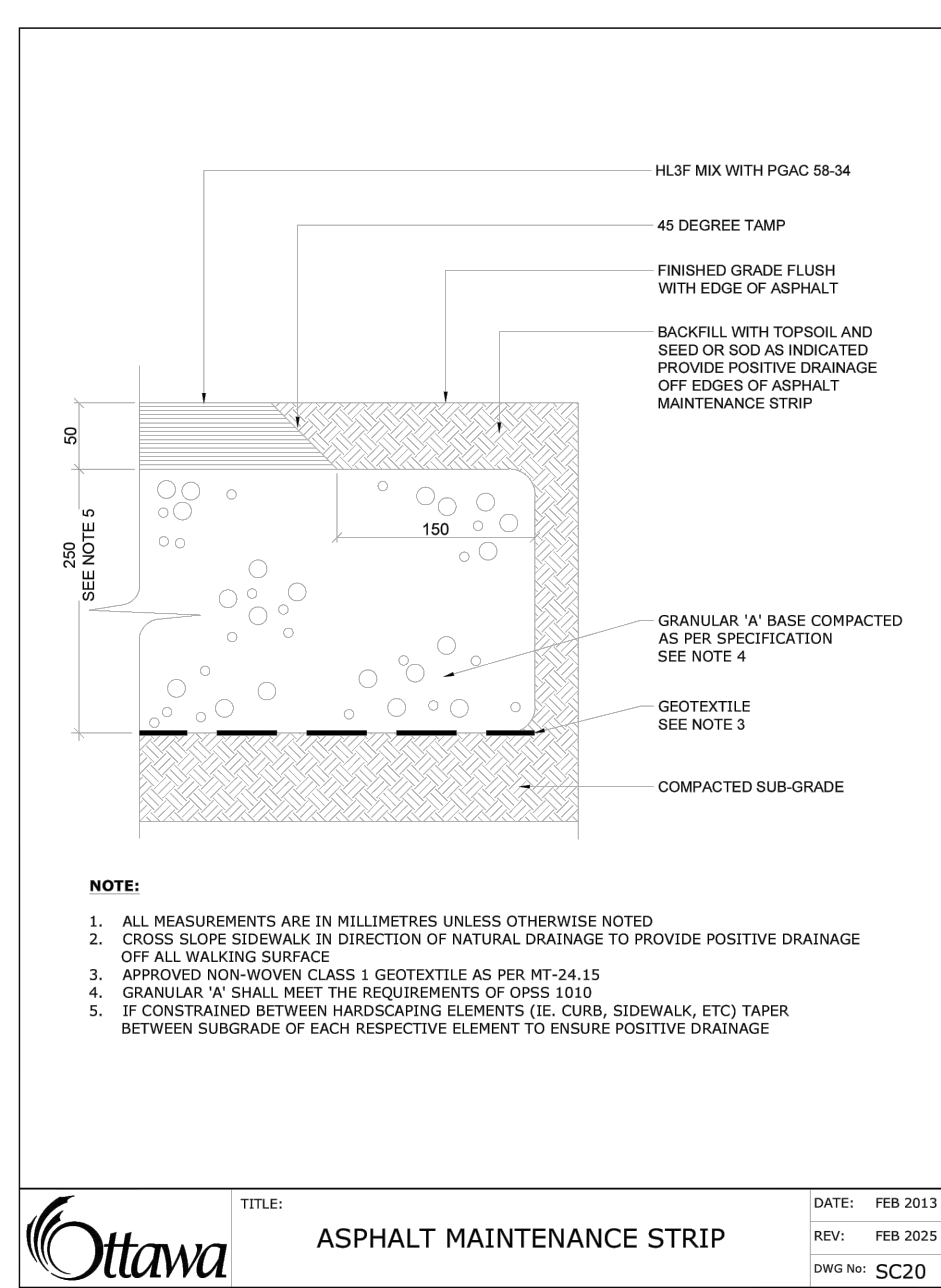
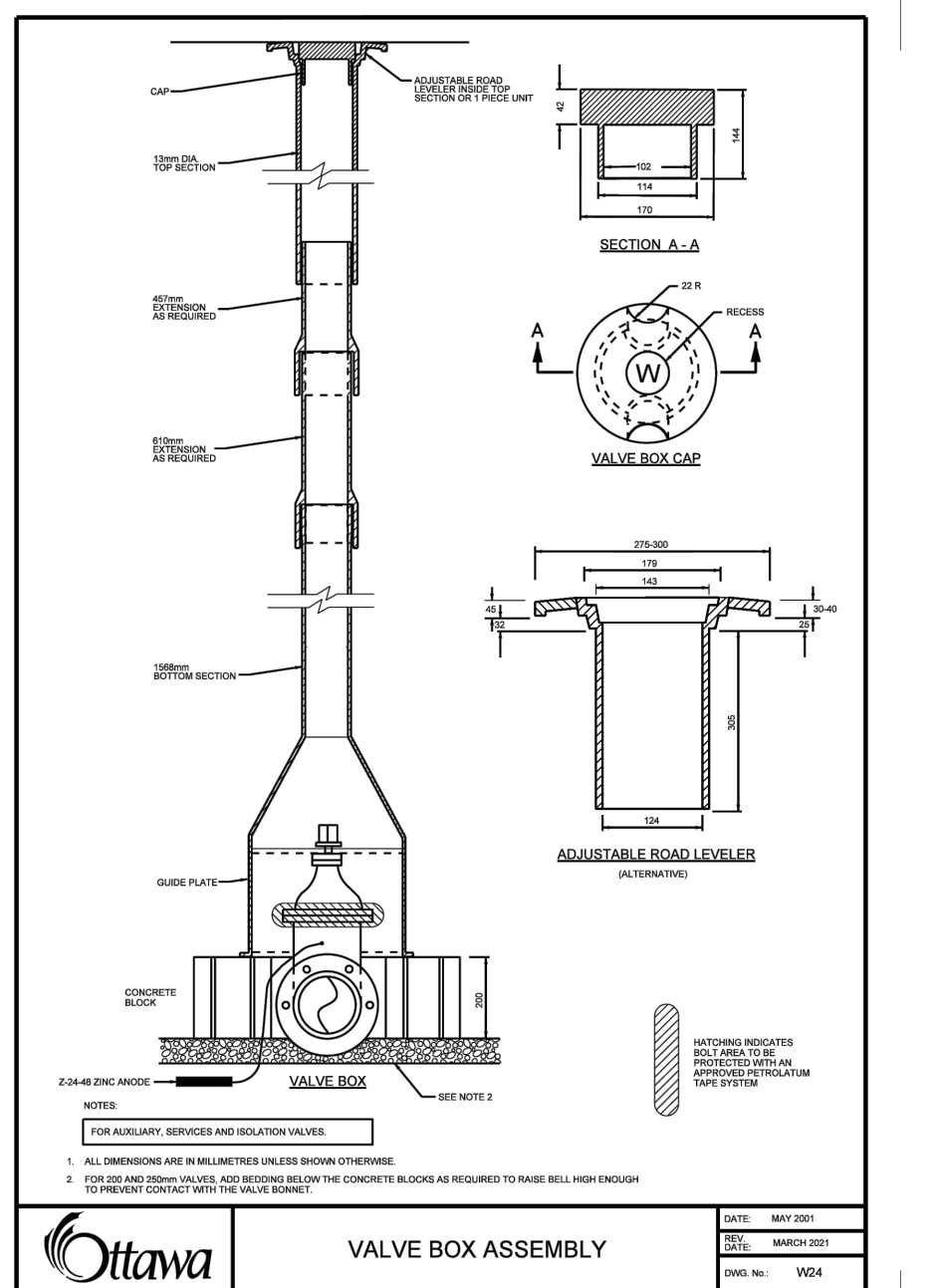
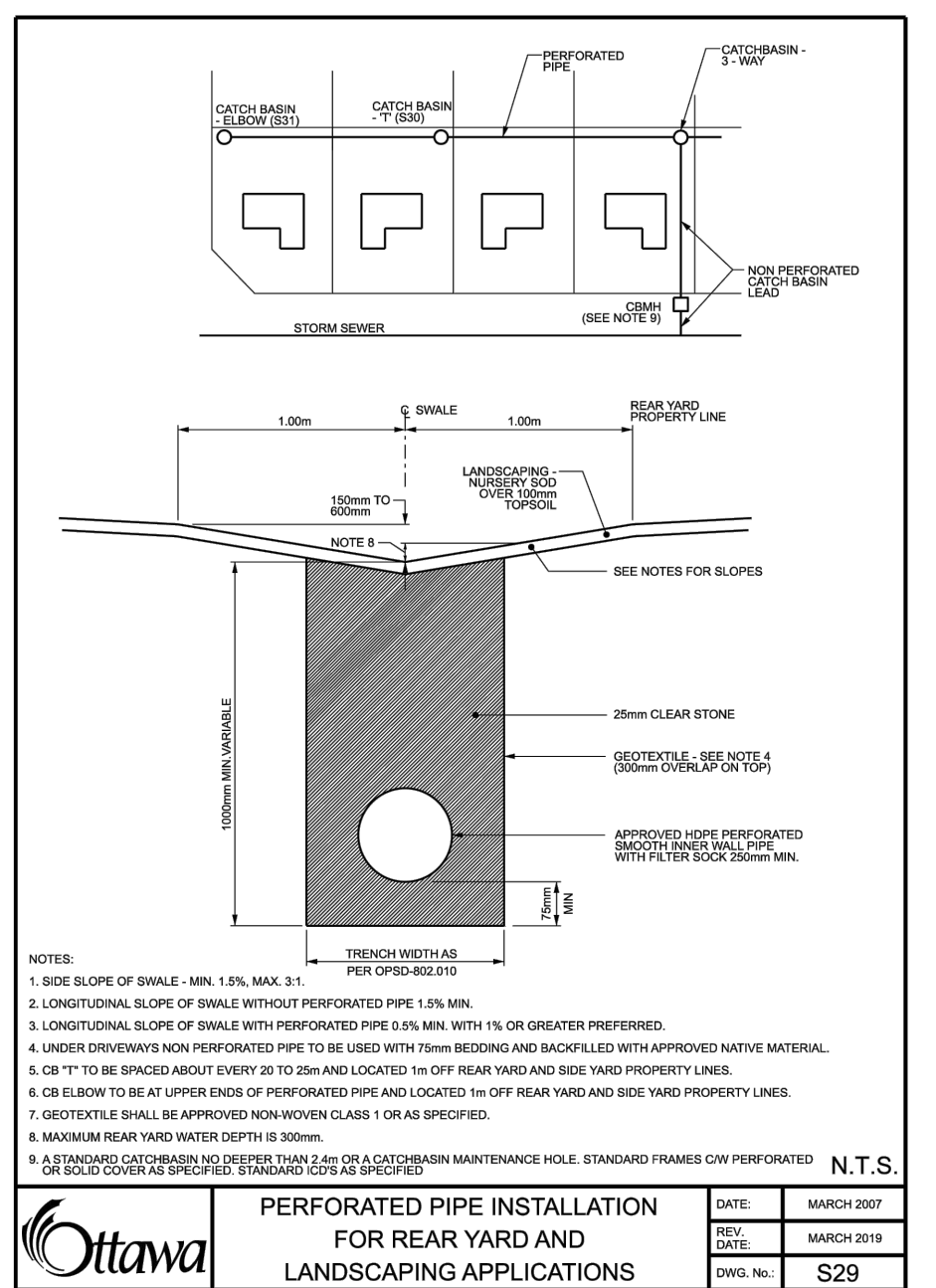
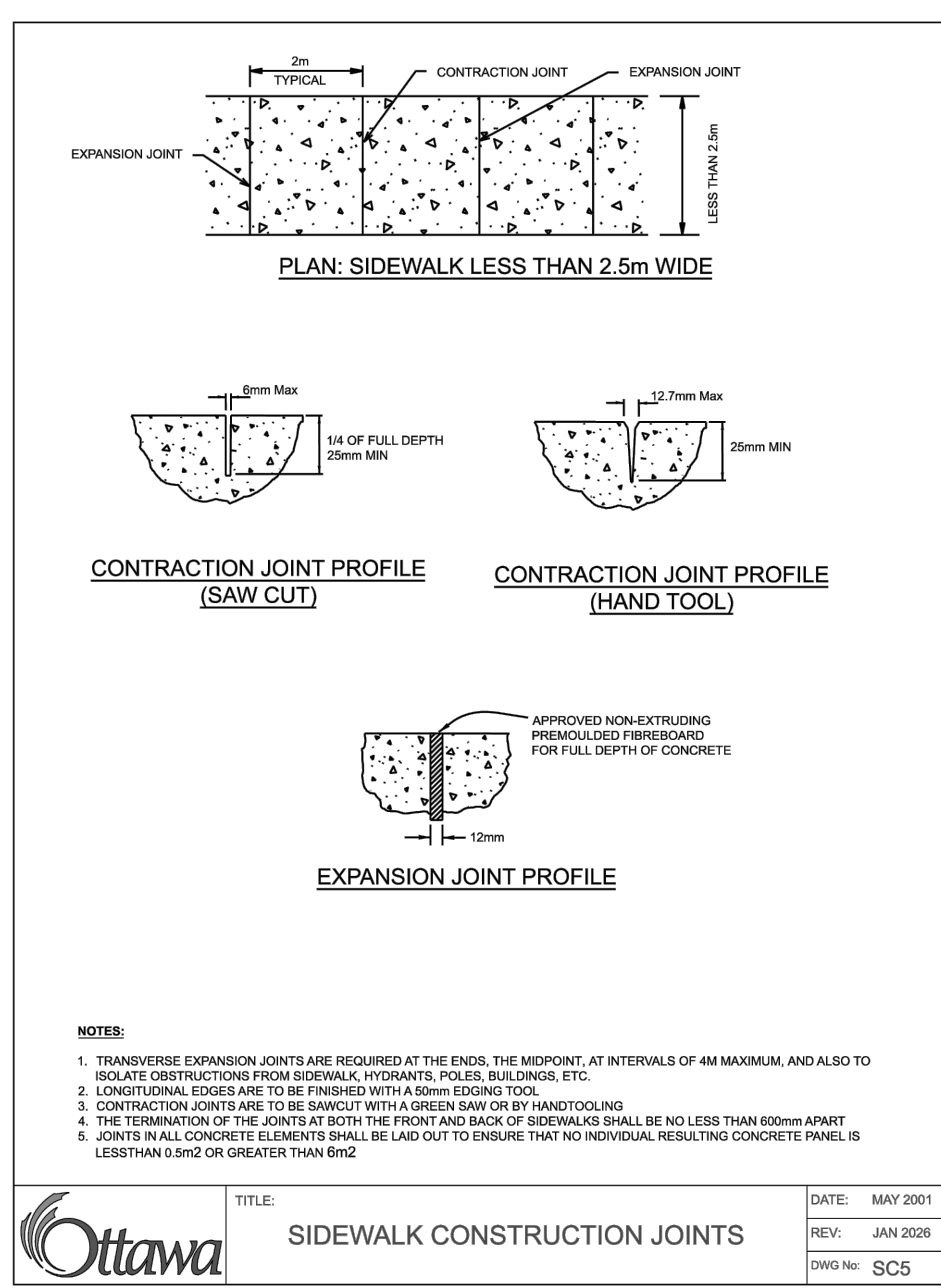
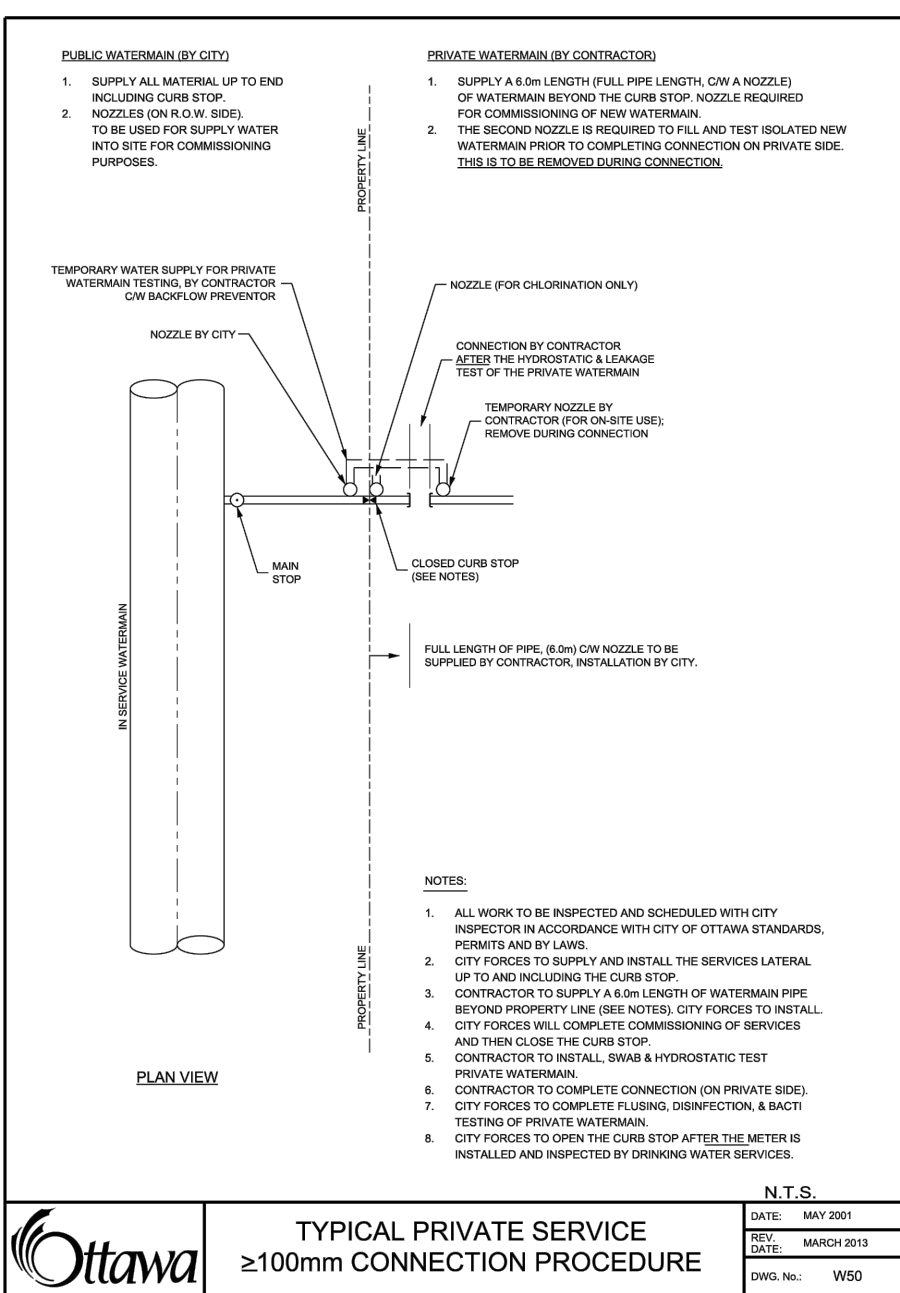
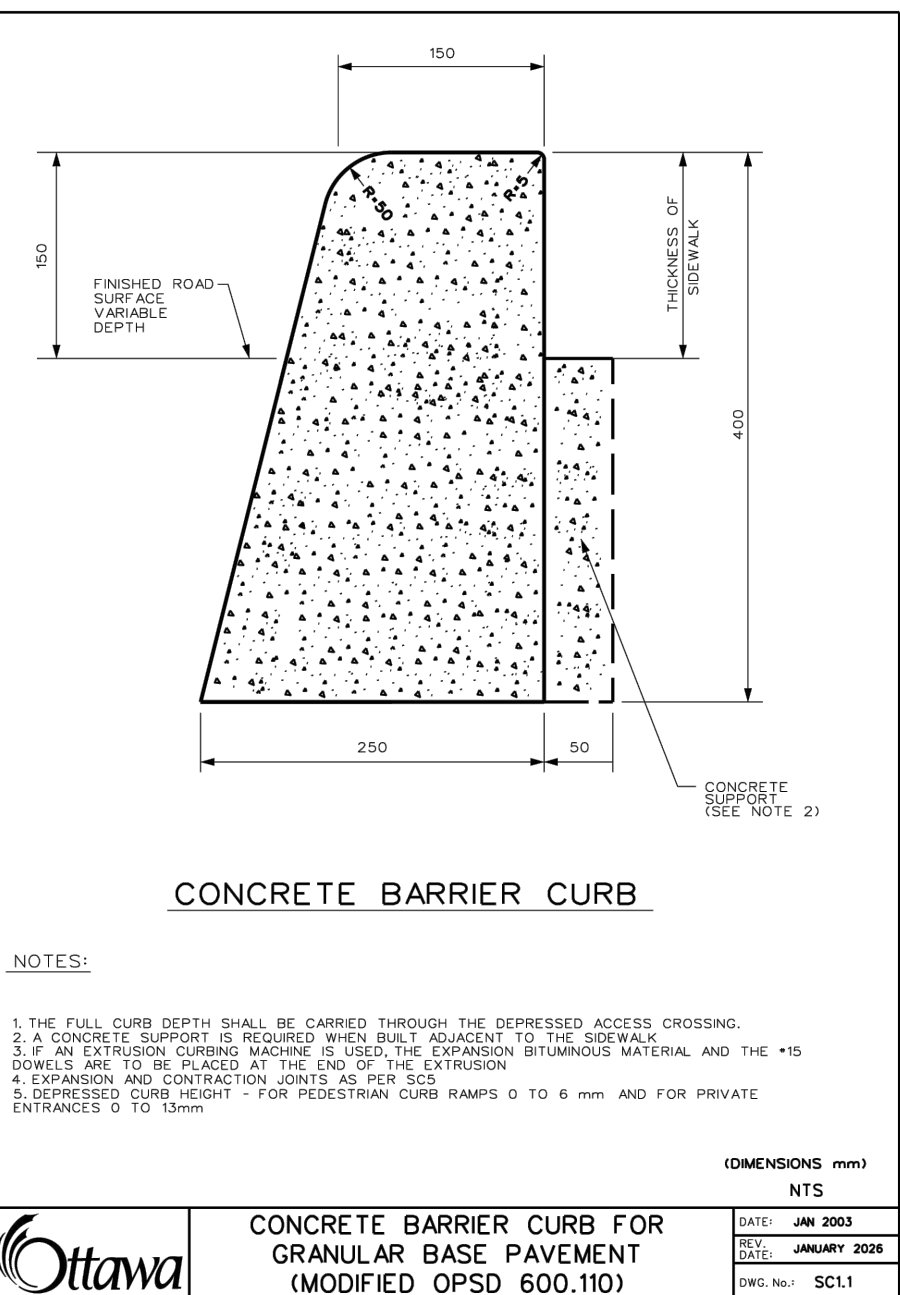
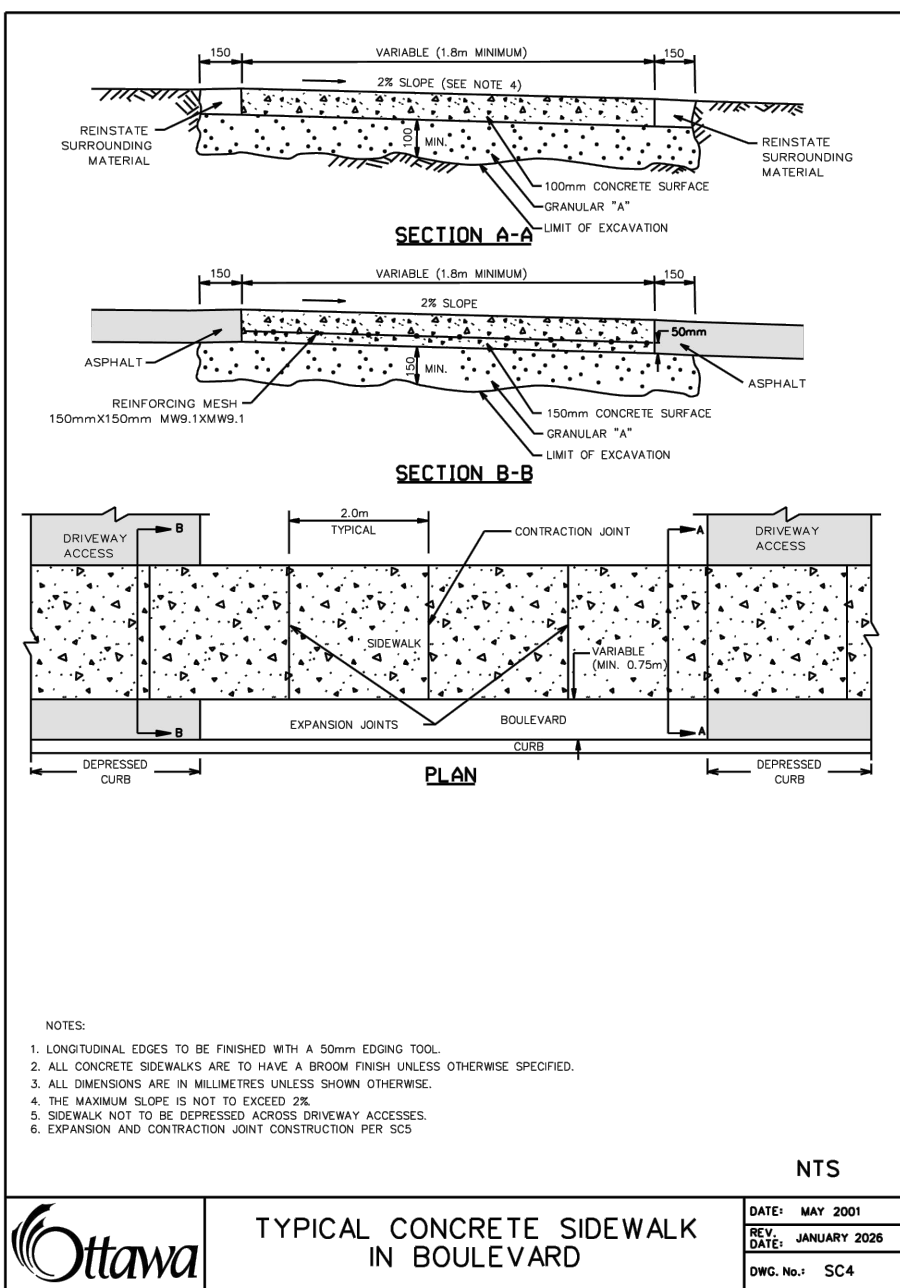
CITY PROJECT NO. /
NUMERO DE PROJET

CONS. PROJECT NO. /
NUMERO DE PROJET

DET-1

CF001822

25-1170A



FILE NAME: I:\MCA TELUS\DESIGN\2025\1159 - ALEXANDER COMMUNITY CENTRE EXPANSION\DRAWINGS\TYPICAL - ALEXANDER COMMUNITY CENTRE EXPANSION\ISSUED FOR RFP-20 AUGUST 20 2020 TELUS.DWG, SAVDT, SET 1, DETAIL, SAVED ON 2020-08-20

CONCRETE THRUST BLOCK

PLAN TEE

PLAN

PLAN TYPICAL BEND

ELEVATION TYPICAL END

SECTION X-X

1. CONCRETE SHALL BE PLACED TO WITHIN 50mm OF FACE OF THE BELL.

2. BEFORE THRUST BLOCKS ARE USED BETWEEN CONCRETE AND FITTINGS.

3. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

4. REFER TO W25.4 FOR ADDITIONAL REQUIREMENTS.

5. THRUST BLOCKS SHALL BE 20 MPa CONCRETE AND AS SHOWN ON ABOVE DRAWINGS UNLESS OTHER DIRECTED BY THE CONTRACT ADMINISTRATOR. THE BLOCK SHALL BE CENTERED ON THE THRUST FORCE AND SHALL ALSO PARTIALLY GRADE THE FITTING TO DISTRIBUTE THE FORCE.

6. THE SIZES OF THE BLOCK SHALL BE SIZED FROM THE JOINT ON EITHER SIDE OF THE BEND OR TEE, ON WHICHE IT WOULD COME IN CONTACT WITH EXISTING OR FUTURE INFRASTRUCTURE.

7. THE THRUST BLOCK SHALL BE DESIGNED BY A PROFESSIONAL ENGINEER.

8. EXCEPT FOR THE ADDITION OF WATER, CONCRETE FOR THRUST BLOCKS SHALL COME PREMIXED FROM A CONCRETE SUPPLIER. AS READY MIX CONCRETE IN THE TRENCH.

9. ON-SITE MIXING OF CEMENT, SAND AND AGGREGATE ETC. BY THE CONTRACTOR FOR THE PURPOSE OF MAKING CONCRETE THRUST BLOCKS/ANCHORS WILL NOT BE ACCEPTED.

DATE: MAY 2001

REV: MARCH 2002

DWG. NO.: W25.3

CONCRETE THRUST BLOCKS FOR PVC AND DI PIPE 400mm AND UNDER

1. SOIL DESCRIPTION: VERY FINE SANDS, SANDY CLAYS, CLAYS

SOILS WITH TYPICAL BEARING STRENGTH OF 100 TO 150 KPa

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	250	250	200	200
152	400	400	250	300
203	550	550	300	450
254	650	650	400	500
305	800	800	450	650
406	1050	1050	600	850

2. SOIL DESCRIPTION: SILTY SAND GRAVELS OR CLAYEY SAND GRAVEL

SOILS WITH TYPICAL BEARING STRENGTH OF 200 TO 250 KPa

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	200	200	150	150
152	250	250	200	200
203	300	300	250	270
254	450	450	300	350
305	500	500	350	400
406	750	750	400	600

3. SOIL DESCRIPTION: SANDS, GRAVELS AND GRAVEL-SAND MIXTURES, LITTLE OR NO FINES

SOILS WITH TYPICAL BEARING STRENGTH OF 300 KPa AND OVER

PIPE DIAMETER	DIMENSION NOTED ON W25.3			
	A	B	C	D
102	150	150	150	150
152	200	200	200	200
203	300	300	200	250
254	400	400	250	270
305	450	450	300	300
406	600	600	350	450

1. THE BLOCK MUST BE FULL EMBEDDED INTO OR EXPOSED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS.

2. THE ASSUMPTIONS MADE FOR THE BLOCK CALCULATIONS ARE AS FOLLOWS:

4. MAXIMUM OPERATING PRESSURE OF 100 psi

6. MAXIMUM SURGE PRESSURE WITH A FLOW VELOCITY CHANGE OF 0.4 m/s

OF 10 psi (70 kPa) FOR CLASSED 1 AND 2 FOR PVC MAX. SURGE IS 10 psi

7. THE TABLES APPLY TO BOTH HDPE AND PVC. WHERE ONE LENGTH IS REQUIRED TO COVER THE OTHER THE LONGER LENGTH WAS USED.

8. DIMENSIONS MAY BE ADJUSTED TO SUIT THE BEARING SURFACE AREA OF THE THRUST BLOCK IS NOT REDUCED.

9. TO BE USED IN CONJUNCTION WITH W25.1.

DATE: MAY 2001

REV: JAN 2008

DWG. NO.: W25.4

THRUST BLOCK DIMENSION TABLES FOR PVC AND DI PIPE 400mm AND UNDER

DEAD ENDS, CAPS, PLUGS AND ISOLATION VALVES

HORIZONTAL BENDS

VERTICAL BENDS

TEES

REDUCERS

1. ANY JOINT THAT FALLS WITHIN THE RECOMMENDED LENGTH (L) SHALL BE RESTRAINED. SEE DRAWING W25.5.

2. TO REDUCE THE NUMBER OF RESTRAINTS REQUIRED THE USE OF FULL PIPE LENGTHS IS RECOMMENDED IN THESE AREAS.

DATE: MAY 2001

REV: JAN 2008

DWG. NO.: W25.5

RESTRAINING AND RETAINING RINGS FOR PVC AND DI PIPE 400mm AND UNDER

TABLE OF RESTRAINED LENGTHS FOR DI AND PVC WATERMAIN PIPE IN STANDARD GRANULAR 'A' EMBEDMENT IN SOILS OF BEARING CAPACITY OF 100 KPa AND OVER

REDUCERS	LARGER DIAMETER SIDE (TO BE RESTRAINED)					
	100mm	150mm	200mm	250mm	300mm	400mm
SMALLER DIAMETER (UNRESTRAINED)						
100mm	N/A	3	6	8	10	14
150mm	N/A	N/A	4	6	9	13
200mm	N/A	N/A	N/A	3	6	11
250mm	N/A	N/A	N/A	N/A	4	9
300mm	N/A	N/A	N/A	N/A	N/A	7
400mm	N/A	N/A	N/A	N/A	N/A	N/A

 PIPE DIAMETER | 100mm | 150mm | 200mm | 250mm | 300mm | 400mm | |-------|-------|-------|-------|-------|-------| | | | | | | | |

DEAD ENDS, CAPS, PLUGS, VALVES

BEFORE CAPS AND EITHER SIDE OF VALVES - L	5	8	6	10	12	18

VERTICAL BENDS

LENGTH HIGH SIDE - LHS	3	4	5	6	7	9
LENGTH LOW SIDE - LLS <td>1.5</td> <td>2</td> <td>2.5</td> <td>3</td> <td>3.5</td> <td>4.5</td>	1.5	2	2.5	3	3.5	4.5

TEES

LENGTH ALONG THE BRANCH - L	1	1	1	1	1	1
LENGTH ALONG THE RUN - L _R <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td> <td>3</td>	3	3	3	3	3	3

HORIZONTAL BENDS

11.25, 22.5, AND 45 DEGREE BENDS	1	1.5	1.5	2	2	2.5

NOTES:

1. THE ABOVE RESTRAINED LENGTHS MEET OR EXCEED THE WATERMAIN DESIGN CRITERIA FOR FUTURE ALTERATIONS AUTHORIZED UNDER A STANDARD WATER MAIN PERMIT.

2. THE ASSUMPTIONS MADE FOR THE ABOVE CALCULATIONS ARE AS FOLLOWS:

4. MAXIMUM OPERATING PRESSURE OF 100 psi

6. MAXIMUM SURGE PRESSURE WITH A FLOW VELOCITY CHANGE OF 0.4 m/s

OF 10 psi (70 kPa) FOR CLASSED 1 AND 2 FOR PVC MAX. SURGE IS 10 psi

7. FOR SOFTWIRE CALCULATIONS A TEST PRESSURE OF 100 psi AND A SAFETY FACTOR OF 1.5 WAS USED WHICH RESULTS IN 200 psi MAXIMUM PRESSURE.

8. DEPTH TO BURY 2.4 METRES EXCEPT FOR VERTICAL BENDS WHERE THE HIGH SIDE IS AT 1.8 METRES.

9. EMBEDMENT MATERIAL: GRANULAR 'A' WITH DRAINAGE QUALITY OF AREA CLASS 400.

10. IF WALLS ARE DISCONTINUOUS (BENDS, BRANCHES, DRIVING AND DRIVEN ENDS, MADE WITH UTG OR NO FINES).

11. L_R MUST BE OF SOLID PIPE WITHOUT JOINTS, FITTINGS, ETC.

12. THE TABLES APPLY TO BOTH EXPOSED BELL AND PVC. WHERE ONE LENGTH EXCEEDS THE OTHER THE LONGER LENGTH WAS USED.

13. RESTRAINED LENGTHS ARE IN METRES.

DATE: MAY 2001

REV: JAN 2008

DWG. NO.: W25.6

TABLES OF RESTRAINED LENGTHS FOR PVC AND DI PIPE 400mm AND UNDER

PLAN VIEW

VERTICAL SECTION

1. FOR TRENCH (SEE NOTE 1) SEE P11.3 IF CLEARANCE IS AVAILABLE. SHAPE AND ACROSS THE BOTTOM OF THE TRENCH TO ACCOMMODATE THERMAL EXPANSION.

2. DIRECT TAP TO PIPE WITH APPROVED TAP OR WITH STANDARD APPROVED TRENCH.

3. FOR PVC USE EITHER APPROVED JOINT OR USE OF UNDESIRABLE JOINTS "WET" OR "WET" (WET) APPROVED JOINT. THIS JOINT TYPE IS NOT TO BE USED IN THIS AREA.

4. SEE OF 4.00 FOR SPECIAL REQUIREMENTS IN THIS AREA.

5. ALL DIMENSIONS ARE IN MILLIMETERS.

6. DRAINAGE PROTECTION MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH P10.100 AND P10.101.

7. TRENCH WIRE REQUIRED FOR PVC AND CAPS INSTALLED PER P10.100 AND P10.101.

DATE: MAY 2001

REV: JAN 2008

DWG. NO.: W25

TYPICAL SERVICE LINE 19 & 25mm (NOMINAL) DIAMETER

STANDARD TRENCH REINSTATEMENT IN PAVED SURFACE

1. THE TRENCH SHALL BE TO BE REINSTATEMENT TO BE IN ACCORDANCE WITH THE TRENCH REINSTATEMENT CRITERIA. THE TRENCH SHALL BE REINSTATEMENT TO BE IN ACCORDANCE WITH THE TRENCH REINSTATEMENT CRITERIA. THE TRENCH SHALL BE REINSTATEMENT TO BE IN ACCORDANCE WITH THE TRENCH REINSTATEMENT CRITERIA.

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DATE: MAY 2001

REV: JAN 2008

DWG. NO.: R10

STANDARD TRENCH REINSTATEMENT IN PAVED SURFACE

INFRASTRUCTURE SERVICES DESIGN AND CONSTRUCTION

SERVICES D'INFRASTRUCTURE DIRECTION DE CONCEPTION ET DE CONSTRUCTION

FOR / POUR Client - Department Infrastructure and Water Services Department Design & Construction

6			
5			
4	ISSUED FOR SITE PLAN CONTROL REV-2	2606020	R.I. / Z.B.
3	ISSUED FOR 90% REVIEW	2606026	R.I. / Z.B.
2	ISSUED FOR 60%	260417	R.I. / Z.B.
1	ISSUED FOR SITE PLAN CONTROL REV-1	260414	R.I. / Z.B.

NUMBER: MILESTONE / FAT SAILANT DATE: (Y/M/D) INITIALS: (Y/M/D)

DESIGNED BY / CONCEPTEUR: ZACH BAUMAN SCALE: 1:250

DRAWN BY / DRESSÉ PAR: RAFAT ISMAIL

11.11 DRAWING TITLE SCALE: SHEET NUMBER

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CE DESSIN CONSTITUE LA PROPRIÉTÉ DE LA VILLE D'OTTAWA ET TOUT DROIT D'AUTEUR EST RÉSERVÉ. LES DIMENSIONS UTILISÉES LE SONT À DES FINS D'ESTIMATION SEULEMENT. IL INCOMBE À CHAQUE ENTREPRENEUR, SOUS-CONTRACTANT OU CONSULTANT DE VÉRIFIER TOUTES LES DIMENSIONS ET LES CONDITIONS SUR LE CHANTIER. VEUILLEZ INFORMER LE PROPRIÉTAIRE DE TOUTE ERREUR OU OMISSION AVANT D'ENTAMER LES TRAVAUX. NE DRESSÉZ PAS LES PLANS À L'ÉCHELLE.

ARCHITECT / ARCHITECTE

CONSULTANT / EXPERT-CONSEIL

CONSULTANT / EXPERT-CONSEIL

CONSULTANT / EXPERT-CONSEIL

LICENSED PROFESSIONAL ENGINEER Z. E. BAUMAN 100578796 August 20, 2026 PROVINCE OF ONTARIO

LICENSED PROFESSIONAL ENGINEER SAMMOUR 100227665 August 20, 2026 PROVINCE OF ONTARIO

PROJECT / LOCATION / PROJET / ENDROIT

ALEXANDER COMMUNITY CENTRE EXPANSION

960 Silver Street OTTAWA, ONTARIO

DRAWING / DESSIN

DETAILS-II

BUSINESS ENTITY / NUMERO DE L'ENTITE BUILDING NUMBER / NUMERO DU BATIMENT

CITY PROJECT NO. / NO. DE PROJET

CONS. PROJECT NO. / NO. DE PROJET

25-1170A

SHEET NO. / FEUILLE NO.

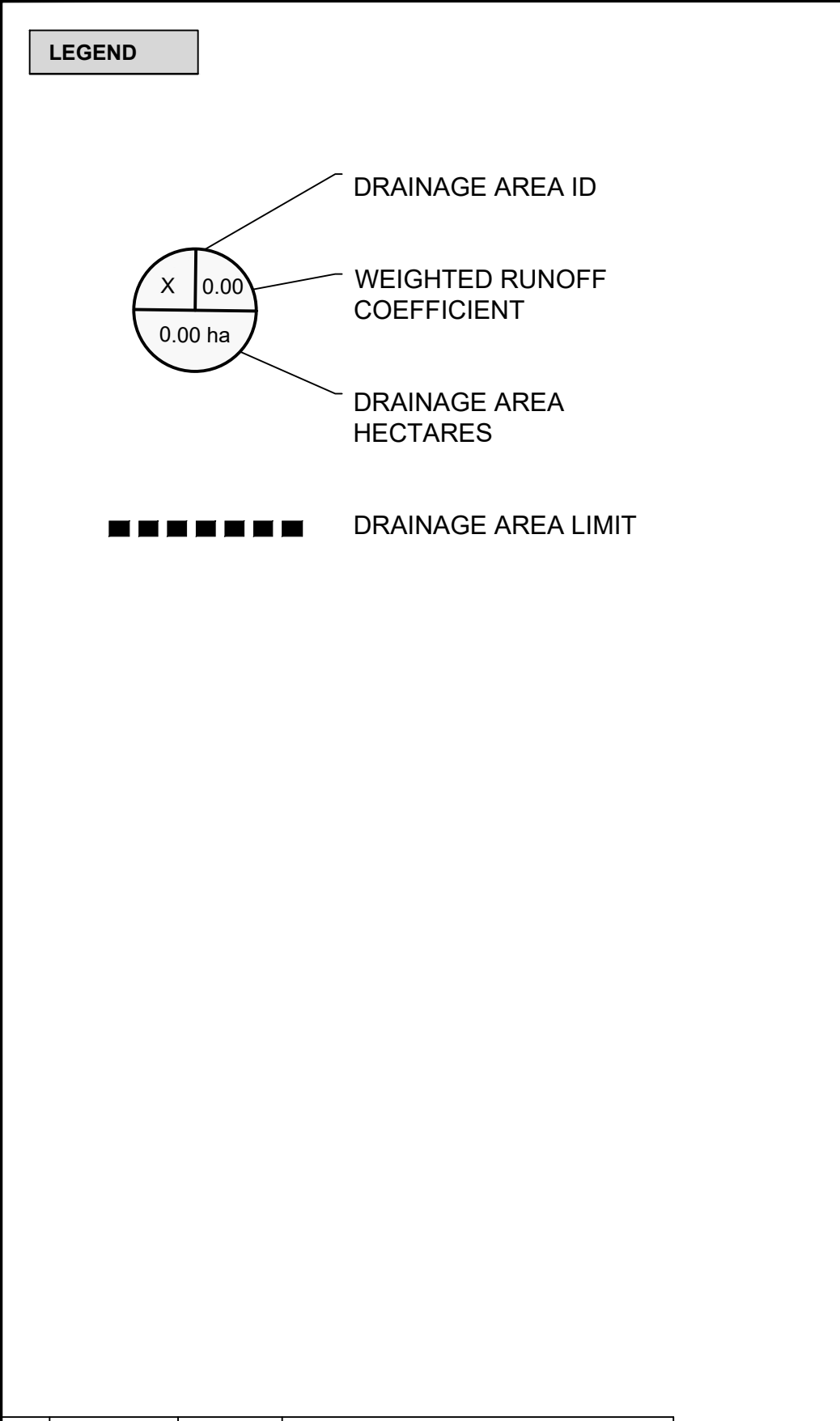
DET-2

CF001822

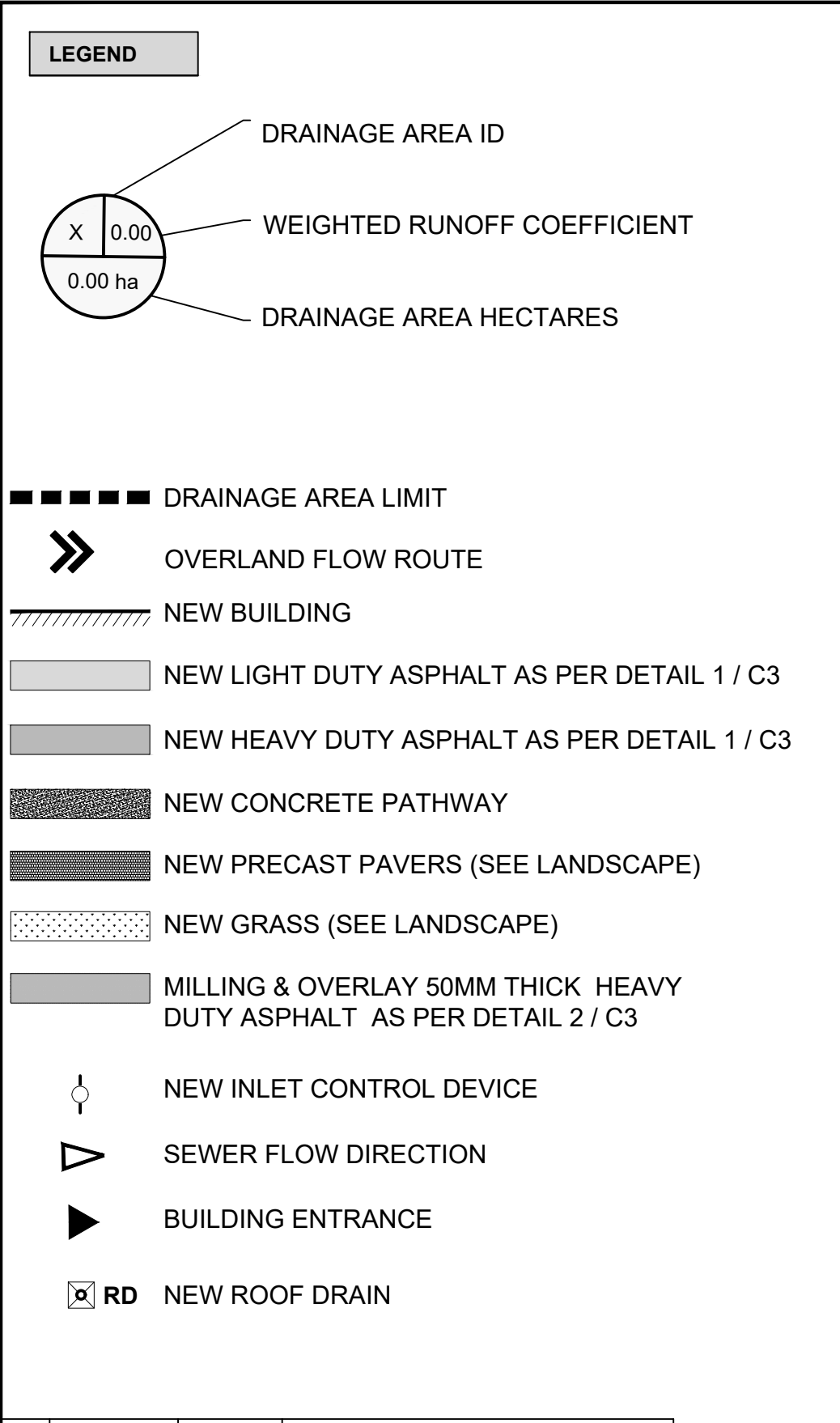
DOT-12-26-0038

PLAN #19468

DWG NAME: J11-MULTIDISCIPLINE 2025-25-1170A - HOBIN - ALEXANDER COMMUNITY CENTRE EXPANSION 05 DRAWINGS 1 ONGOING 35 1170A_ALEXANDER CC EXPANSION ISSUED FOR SPC R2 AUGUST 20 2026 TBD DWG LAYOUT: FIG.1_PRE_DEVELOPMENT_AREA SAVED ON 2026-08-20



DWG NAME: J11-MULTIDISCIPLINE 2025-1170A - ALEXANDER COMMUNITY CENTRE EXPANSION 05 DRAWINGS 1170A - HOBIN - ALEXANDER COMMUNITY CENTRE EXPANSION ISSUED FOR SPC R2 AUGUST 20 2026 TBD DWG LAYOUT: FIG.2_POST_DEVELOPMENT_AREA SAVED ON 2026-08-20





Appendix B

Stormwater Management

TABLE B-1: SOIL AND RUNOFF COEFFICIENT DATA

User Input: Land Use Name	Runoff Coefficient	
	Vegetation: Topography	RC
Hard Surface Impervious	Paved or Roofs	0.90
Grassed	Grassed area, parkland - 5 year event	0.20
Gravel	Gravel	0.60

TABLE B-2: PRE DEVELOPMENT DRAINAGE AREA PARAMETERS AND DATA

Drainage Area ID	Comment	Area (ha)	Weighted Runoff Coefficient				Land Use	Land Use Area (ha)	Runoff Coefficient			
			<= 10-Year	25-Year Increase	50-Year Increase	100-Year Increase			<= 10-Year	25-Year	50-Year	100-Year
Pre Development												
A1	North of Existing Building	0.32	0.40	0.40	0.40	0.40	Hard Surface Impervious	0.07	0.90	0.90	0.90	0.90
							Gravel	0.04	0.60	0.60	0.60	0.60
							Grassed	0.21	0.20	0.20	0.20	0.20
B1	Existing Community Centre	0.08	0.90	0.90	0.90	0.90	Hard Surface Impervious	0.08	0.90	0.90	0.90	0.90
							Gravel	0.00	0.60	0.60	0.60	0.60
							Grassed	0.00	0.20	0.20	0.20	0.20
B2	West of Existing Building	0.09	0.45	0.45	0.45	0.45	Hard Surface Impervious	0.03	0.90	0.90	0.90	0.90
							Gravel	0.01	0.60	0.60	0.60	0.60
							Grassed	0.05	0.20	0.20	0.20	0.20
B3	West of Existing Building	0.05	0.30	0.30	0.30	0.30	Hard Surface Impervious	0.01	0.90	0.90	0.90	0.90
							Gravel	0.00	0.60	0.60	0.60	0.60
							Grassed	0.04	0.20	0.20	0.20	0.20
B4	Existing Play Area	0.21	0.40	0.40	0.40	0.40	Hard Surface Impervious	0.06	0.90	0.90	0.90	0.90
							Gravel	0.00	0.60	0.60	0.60	0.60
							Grassed	0.15	0.20	0.20	0.20	0.20
B5	South East Play Area	0.18	0.58	0.58	0.58	0.58	Hard Surface Impervious	0.10	0.90	0.90	0.90	0.90
							Gravel	0.00	0.60	0.60	0.60	0.60
							Grassed	0.08	0.20	0.20	0.20	0.20
B6	Existing Parking Area	0.28	0.70	0.70	0.70	0.70	Hard Surface Impervious	0.20	0.90	0.90	0.90	0.90
							Gravel	0.00	0.60	0.60	0.60	0.60
							Grassed	0.08	0.20	0.20	0.20	0.20
C1	West Soccer Field	0.43	0.21	0.21	0.21	0.21	Hard Surface Impervious	0.01	0.90	0.90	0.90	0.90
							Gravel	0.00	0.60	0.60	0.60	0.60
							Grassed	0.42	0.20	0.20	0.20	0.20
C2	South Soccer Field	0.28	0.27	0.27	0.27	0.27	Hard Surface Impervious	0.03	0.90	0.90	0.90	0.90
							Gravel	0.00	0.60	0.60	0.60	0.60
							Grassed	0.26	0.20	0.20	0.20	0.20
D'	Composite Drainage Area	1.93	0.42	0.42	0.42	0.42	Hard Surface Impervious	0.03	0.90	0.90	0.90	0.90
							Gravel	0.00	0.60	0.60	0.60	0.60
							Grassed	0.26	0.20	0.20	0.20	0.20

TABLE B-3: PRE-DEVELOPMENT WATERSHED SLOPE - 85/10 METHOD

$$S_w = \frac{100 * (\Delta h - h_f)}{0.75L - L_f}$$

Where:

S_w = watershed slope, %

Δh = difference in elevation, m, between the 85% point and the 10% point obtained from contours, airphotos, etc.

h_f = sum of heights of rapids and waterfalls between 10% and 85% points, m.

L = the total length of the main channel, includes the undefined flow path, to head of basin, m.

L_f = the sum of lengths of rapids and waterfalls, up to 10% of L , m.

Drainage Area ID	85% Elevation (m)	10% Elevation (m)	Total Height Difference (m)	Waterfalls Height	Main Channel Length (m)	Waterfalls Length	Slope, S_w (%)	Drainage Area Topography
A1	78.66	77.91	0.75	0	94.00	0	1.06	Flat
B1	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
B2	78.69	78.02	0.67	0	34.00	0	2.63	Flat
B3	78.54	77.98	0.56	0	32.00	0	2.33	Flat
B4	78.69	78.20	0.49	0	32.00	0	2.04	Flat
B5	78.36	77.93	0.43	0	22.00	0	2.61	Flat
B6	78.68	78.08	0.60	0	20.00	0	4.00	Flat
C1	78.58	77.99	0.59	0	57.00	0	1.38	Flat
C2	78.58	77.91	0.67	0	53.00	0	1.69	Flat

TABLE B-4: PRE DEVELOPMENT TIME OF CONCENTRATION

The Airport Formula

$$t_c = \frac{3.26 (1.1-C) L^{0.5}}{S_w^{0.33}}$$

where:

t_c =	time of concentration, min.
C =	runoff coefficient
S_w =	watershed slope, %
L =	watershed length, m.

The Bransby Williams Formula

$$t_c = \frac{0.057 \cdot L}{(S_w^{0.2} \cdot A^{0.1})}$$

where t_c = time of concentration, min.
 C = runoff coefficient
 S_w = watershed slope, %
 L = watershed length, m.

[illegible]

*if $T_c < 10$ use $T_c = 10$ min as a minimum for the Rational Method.

TABLE B-5: PRE DEVELOPMENT DRAINAGE AREA AND FLOWS

STORM INFORMATION											
Area	Time of concentration (min.)					City of Ottawa IDF Curve					
	<=10-Year	25-Year	50-Year	100-Year		2-Year (mm/hr)	5-Year (mm/hr)	10-Year (mm/hr)	25-Year (mm/hr)	50-Year (mm/hr)	100-Year (mm/hr)
A1	10.0	10.0	10.0	10.0		76.8	104.2	122.1	144.7	161.5	178.6
B1	10.0	10.0	10.0	10.0		76.8	104.2	122.1	144.7	161.5	178.6
B2	10.0	10.0	10.0	10.0		76.8	104.2	122.1	144.7	161.5	178.6
B3	11.5	11.5	11.5	11.5		71.5	96.8	113.5	134.4	150.0	165.8
B4	10.3	10.3	10.3	10.3		75.8	102.8	120.5	142.7	159.3	176.1
B5	10.0	10.0	10.0	10.0		76.8	104.2	122.1	144.7	161.5	178.6
B6	10.0	10.0	10.0	10.0		76.8	104.2	122.1	144.7	161.5	178.6
C1	19.7	19.7	19.7	19.7		52.5	70.9	83.0	98.2	109.5	121.1
C2	16.6	16.6	16.6	16.6		58.3	78.8	92.3	109.2	121.9	134.8
IDF Curve- City of Ottawa											

PRE-DEVELOPMENT RUNOFF COEFFICIENT CALCULATIONS, RATIONAL METHOD											
Drainage Area ID	Drainage Area (ha)	Weighted R ₀ Coeff. (C) <=10-yr	Weighted R ₀ Coeff. (C) 25-yr	Weighted R ₀ Coeff. (C) 50-yr	Weighted R ₀ Coeff. (C) 100-yr	2-Year Flow Rate (L/s)	5-Year Flow Rate (L/s)	10-Year Flow Rate (L/s)	25-Year Flow Rate (L/s)	50-Year Flow Rate (L/s)	100-Year Flow Rate (L/s)
A1	0.32	0.40	0.40	0.40	0.40	27.5	37.3	43.7	51.8	57.8	63.9
B1	0.08	0.90	0.90	0.90	0.90	15.8	21.4	25.1	29.7	33.2	36.7
B2	0.09	0.45	0.45	0.45	0.45	8.4	11.4	13.3	15.8	17.6	19.5
B3	0.05	0.30	0.30	0.30	0.30	3.1	4.2	4.9	5.8	6.5	7.2
B4	0.21	0.40	0.40	0.40	0.40	17.6	23.9	28.1	33.2	37.1	41.0
B5	0.18	0.58	0.58	0.58	0.58	22.1	30.0	35.2	41.7	46.5	51.4
B6	0.28	0.70	0.70	0.70	0.70	42.2	57.3	67.1	79.5	88.7	98.1
C1	0.43	0.21	0.21	0.21	0.21	13.1	17.7	20.7	24.4	27.3	30.1
C2	0.28	0.27	0.27	0.27	0.27	12.5	16.9	19.8	23.4	26.1	28.9
Developing Area Site Allowable 2 Year Release Rate (A1+B2)						35.9					

25-1170A -Alexander Community Centre Expansion

Appendix B-6: Post Development Summary

Subcatchment Runoff

Subcatchment Runoff							5 Year			100 Year			Structure Elevation (m)
Receiving Structure	Subcatchment	Area (ha)	Impervious Area (C = 0.90)		Pervious Area (C = 0.20)		C =<10yr	Rainfall Intensity (mm/hr)	Runoff (L/s)	C (25% Increase) 100yr	Rainfall Intensity (mm/hr)	Runoff (L/s)	
			(m ²)	(ha)	(m ²)	(ha)							
Controlled													
Roof	A1a	0.12	1249	0.125	0	0.000	0.90	104.2	32.56	1.00	178.6	62.00	-
RYCB-1	B2	0.06	165	0.017	388.00	0.039	0.41	104.2	6.55	0.47	178.6	13.01	77.90
CB-1	A1b	0.07	174	0.017	486	0.049	0.38	104.2	7.35	0.45	178.6	14.67	77.90
RYCB-2	A1c	0.09	69	0.007	781	0.078	0.26	104.2	6.32	0.31	178.6	13.12	77.84
Total Controlled		0.33					0.55	52.8		0.63	102.8		
RYCB-3	A1d	0.01	45	0.005	100	0.010	0.42	104.2	1.75	0.48	178.6	3.47	78.15
RYCB-4	A1e	0.05	143	0.014	342	0.034	0.41	104.2	5.71	0.47	178.6	11.34	78.20
Overland	A1f	0.02	37	0.004	151	0.015	0.34	104.2	1.84	0.40	178.6	3.71	N/A
Total Uncontrolled		0.08					0.39	9.3		0.46	18.5		
Total Assuming No Control		0.41					62.1			121.3			

SWM Control Summary - Refer to Individual Sheets

ICD	100 Year Outflow <i>(L/s)</i>	100 Yr Required Storage <i>(m³)</i>	Structure Elevation <i>(m)</i>	Spill Elevation <i>(m)</i>	100 Yr Ponding Elevation <i>(m)</i>	100 Yr Ponding Depth <i>(m)</i>	Outlet Invert <i>(m)</i>	Pipe Diameter <i>(mm)</i>	Head over Centroid <i>(m)</i>	Orifice Coefficient	Orifice Diameter <i>(mm)</i>
ICD-1	11.4	19.20	77.84	78.04	78.04	0.20	77.28	300	0.61	0.61	83
Roof	5.90	48.92	0.00	Na	0.15	0.15	n/a - roof drain control				
Total	17.30	68.12									

Total Site Outflow Summary

Source	100 Yr Release Rate (L/s)
ICD-1	11.40
Roof	5.90
100 Year Uncontrolled	18.53
Total	35.83
Allowable	35.86
Difference	0.03

25-1170A - Alexander Community Centre Expansion

Appendix B-7: Roof Calculations

Roof

Upstream Structure	Subcatchment	Area (ha)	C <10yr	C 100yr	Rim. Elev. (m)	Q _{ultimate} (L/s)			Storage Requirements			Ponding Elev. (m)	Spill Elev. (m)	Storage Depth (m)
						2Yr	5 Yr	100 Yr	2 Yr (m ³)	5 Yr (m ³)	100 Yr (m ³)			
Roof	A1a	0.125	0.90	1.00	-									
Roof Total		0.125	0.90	1.00	0.00	3.5	5.0	5.9	16.06	24.50	48.92	0.15	0.150	0.15

Stage below ponding (m)

0.10

Roof - Rational Method 2 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q _{actual} (L/s)	Q _{ultimate} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)
45	30.2	9.45	3.50	5.95	16.06
50	28.0	8.76	3.50	5.26	15.79
55	26.2	8.18	3.50	4.68	15.44
60	24.6	7.67	3.50	4.17	15.03
65	23.2	7.23	3.50	3.73	14.57
70	21.9	6.85	3.50	3.35	14.06
75	20.8	6.50	3.50	3.00	13.52
80	19.8	6.20	3.50	2.70	12.94
85	18.9	5.92	3.50	2.42	12.34
90	18.1	5.67	3.50	2.17	11.72
95	17.4	5.44	3.50	1.94	11.07

Roof - Rational Method 5 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q _{actual} (L/s)	Q _{ultimate} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)
45	40.6	14.11	5.00	9.11	24.59
50	37.7	13.07	5.00	8.07	24.22
55	35.1	12.25	5.00	7.20	23.75
60	32.9	11.44	5.00	6.44	23.18
65	31.0	10.78	5.00	5.78	22.54
70	29.4	10.20	5.00	5.20	21.83
75	27.9	9.68	5.00	4.68	21.08
80	26.6	9.22	5.00	4.22	20.27
85	25.4	8.81	5.00	3.81	19.42
90	24.3	8.43	5.00	3.43	18.54
95	23.3	8.09	5.00	3.09	17.63

Roof - Rational Method 100 Year Storage Requirements Calculation

Time (min.)	Intensity (mm/hr)	Q _{actual} (L/s)	Q _{ultimate} (L/s)	Q _{stored} (L/s)	V _{stored} (m ³)
45	69.1	23.98	5.90	18.08	48.80
50	64.0	22.21	5.90	16.31	48.92
55	59.6	20.70	5.90	14.80	48.85
60	55.9	19.41	5.90	13.51	48.63
65	52.6	18.28	5.90	12.38	48.28
70	49.8	17.29	5.90	11.39	47.83
75	47.3	16.41	5.90	10.51	47.29
80	45.0	15.62	5.90	9.72	46.66
85	43.0	14.91	5.90	9.01	45.97
90	41.1	14.27	5.90	8.37	45.22
95	39.4	13.69	5.90	7.79	44.42

Roof - Stage-Storage Table

Elevation (m)	Incremental Depth (m)	Total Depth (m)	Cumulative Volume (m ³)				Total Volume (m ³)	Roof Drain Head (m)	Roof Drain Flow (L/s)	Rainfall Event
			Area (m ²)							
0.00	0.00	0.00	1240.52				0.0	0.00	0.0	
0.02	0.02	0.02	1240.52				8.3	0.02	1.8	
0.04	0.02	0.04	1240.52				16.5	0.04	3.5	2 Yr
0.06	0.02	0.06	1240.52				24.8	0.06	4.6	
0.08	0.02	0.08	1240.52				33.1	0.08	5.0	5 YR
0.10	0.02	0.10	1240.52				41.4	0.10	5.4	
0.12	0.02	0.12	1240.52				49.6	0.12	5.9	100 Yr
0.14	0.02	0.14	1240.52				57.9	0.14	6.4	
0.15	0.01	0.15	1240.52				62.0	0.15	6.6	

No. of Drain 7

Elevation (m)
0.00
0.02
0.04
0.06
0.08
0.10
0.12
0.14
0.15

Roof Drain Selection - Gallons Per Minute Per Roof Drain

Weir Setting	1	2	3	4	5	6
Fully Exposed	5.00	10.00	15.00	20.00	25	30
0.75	5.00	10.00	13.75	17.50	21	25
0.50	5.00	10.00	12.50	15.00	18	20
0.25	5.00	10.00	11.25	12.50	14	15
Closed	5.00	5.00	5.00	5.00	5	5

Roof Drain Selection - Litres Per Second Per Roof Drain

Weir Setting	25.4	50.8	76.2	101.6	127	152.4
Fully Exposed	0.32	0.63	0.95	1.26	1.58	1.89
0.75	0.32	0.63	0.87	1.10	1.34	1.58
0.50	0.32	0.63	0.79	0.95	1.10	1.26
0.25	0.32	0.63	0.71	0.79	0.87	0.95
Closed	0.32	0.32	0.32	0.32	0.32	0.32

Interpolated Roof Drain Flow Rates (Per Roof Drain)

Head (mm)	Flow
0	0.00
10	0.13
20	0.25
25.4	0.32
30	0.38
40	0.50
50	0.62
50.8	0.63
60	0.66
70	0.69
76.2	0.71
80	0.72
90	0.74
100	0.77
101.6	0.79
110	0.82
120	0.85
127	0.87
130	0.88
140	0.91
150	0.94
152.8	0.95

Stage below ponding	
(m)	78.03

t (min.)	mean (mm/hr)	σ_{surface} (μS)	$\sigma_{\text{subsurface}}$ (μS)	σ_{depth} (μS)	σ_{error} (m^{-1})
10	76.8	14.91	10.50	4.41	2.6
15	61.8	11.95	10.50	1.49	1.3
20	52.0	10.10	10.50	0.40	0.5
25	45.2	8.77	10.50	-1.73	-2.6
30	40.0	7.77	10.50	-2.73	-4.9
35	36.1	7.00	10.50	-3.50	-7.4
40	32.9	6.38	10.50	-4.12	-9.9
45	30.2	5.87	10.50	-4.63	-12.5
50	28.0	5.44	10.50	-5.06	-15.2
55	26.2	5.08	10.50	-5.42	-17.9
60	24.6	4.77	10.50	-5.73	-20.6

time (min.)	intensity (mm/hr)	ϵ_{actual} (L/s)	$\epsilon_{\text{available}}$ (L/s)	ϵ_{used} (L/s)	ϵ_{stored} (m ³)
10	104.2	23.80	10.90	12.90	7.7
15	83.6	19.05	10.90	8.19	7.4
20	70.3	16.05	10.90	5.15	6.2
25	60.9	13.91	10.90	3.01	6.6
30	53.9	12.32	10.90	1.42	2.6
35	48.5	11.08	10.90	0.18	0.4
40	44.2	10.09	10.90	-0.81	-1.9
45	40.6	9.28	10.90	-1.62	-4.4
50	37.7	8.60	10.90	-2.30	-6.9
55	35.1	8.02	10.90	-2.88	-9.5
60	32.9	7.53	10.90	-3.37	-12.1

time (min)	intensity (mW/m ²)	$\langle I_{\text{actual}} \rangle$ (J/s)	$\langle I_{\text{theoretical}} \rangle$ (J/s)	$\langle I_{\text{actual}} \rangle$ (J/s)	$\langle I_{\text{theoretical}} \rangle$ (J/s)
10	178.6	40.79	11.40	29.39	17.6
15	142.9	32.64	11.40	21.24	19.1
20	120.0	27.46	11.40	16.00	19.0
25	103.8	23.72	11.40	12.32	18.5
30	91.9	20.99	11.40	9.59	17.3
35	82.6	18.86	11.40	7.46	15.7
40	75.1	17.17	11.40	5.77	13.8
45	69.1	15.77	11.40	4.37	11.8
50	64.0	14.61	11.40	3.21	9.6
55	59.6	13.62	11.40	2.22	7.3
60	55.9	12.77	11.40	1.37	4.9

time (min)	intensity (mm/hr)	$\frac{I_{\text{obs}}}{I_{\text{sat}}}$	$\frac{I_{\text{obs}}}{I_{\text{sat}}}$	$\frac{I_{\text{obs}}}{I_{\text{sat}}}$	$\frac{I_{\text{obs}}}{I_{\text{sat}}}$	$\frac{I_{\text{obs}}}{I_{\text{sat}}}$
10	2143	48.95	11.40	37.55		22.2
15	1715	39.17	11.40	27.77		25.0
20	1419	32.88	11.40	21.48		25.6
25	1246	28.47	11.40	17.07		27.6
30	110.2	25.18	11.40	13.78	24.8	
35	99.1	22.64	11.40	11.24	23.6	
40	90.2	20.60	11.40	9.20	22.1	
45	82.9	18.93	11.40	7.53	20.3	
50	76.7	17.53	11.40	6.13	18.4	
55	71.5	16.35	11.40	4.95	16.3	
60	67.1	15.32	11.40	3.92	14.1	

Orifice Sizing							
Elevation	Outlet Structure	Pipe Diameter (mm)	Pipe invert (m)	Area (m2)	Area (mm2)	Orifice Diameter (mm)	100 Yr Orifice Head (m)
	CE-2	300.06	77.28	0.01	5402.07	83	0.61

77.84
77.85
77.86
77.87
77.88
77.89
77.90
77.91
77.92
77.93
77.94
77.95
77.97
77.98
77.99
78.00
78.01
78.02
78.03
78.04
78.05
78.06

$Q \text{ (cms)} = 0.61 * A * \text{sqrt}(2 * g * H)$

Where: Q = release rate in cms
0.61 = coefficient
A = Area of the orifice (m2)
g = gravitational constant (9.81 m/s2)
H = Head above centerline of orifice (m).
if orifice is not submerged.

Elevation	Outlet Structure	Pipe Diameter (mm)	Pipe invert (m)	Area (m ²)	Area (mm ²)	Orifice Diameter (mm)	100 Yr Orifice Head (m)
(m)	CP-4	300.0	77.26	0.01	5402.0	83	0.61
77.84							
77.85							
77.86							
77.87							
77.88							
77.89							
77.90							
77.91							
77.92							
77.93							
77.94							
77.95							
77.96							
77.97							
77.98							
77.99							
78.00							
78.01							
78.02							
78.03							
78.04							
78.05							
78.06							

$$Q \text{ (cms)} = 0.61 * A * \text{sqrt}(2 * g * H)$$

Where Q = release rate in cms
0.61 = coefficient
A = Area of the orifice (m²)
g = gravitational constant (9.81 m/s²)
H = Head above centerline of orifice (m).
if orifice is not submerged.

STORM SEWER DESIGN SHEET

LOCATION					CONTRIBUTING AREA				FLOW				STORM SEWER DESIGN								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
ROAD SEGMENT	FROM	TO	SEWER TYPE (Lateral or Trunk)	AREA ID	AREA (A) (ha)	RUNOFF COEFF. (C) (--)	SECTION (C*A) [6]x[7] (ha)	ACCUM. (C*A) [8]+ prev[9] (ha)	TIME OF CONCEN. (Tc) (min)	RAINFALL INTENSITY (I) (mm/hr)	ACTUAL FLOW (Q =2.78*C*A*I) 2.78x[9]x[11] (L/s)	ACTUAL FLOW [12] or CONTROLLED FLOW (L/s)	LENGTH (m)	SLOPE (%)	DIA. (mm)	FULL FLOW CAPACITY (L/s)	% OF PIPE CAPACITY (%)	FULL FLOW VELOCITY (m/s)	TIME OF FLOW IN PIPE (min)	TIME OF CONCEN AFT. PIPE (min)	COMMENTS
	RYCB-2	CB-1	Trunk	A1c	0.09	0.26	0.022	0.022	10.00	104.193	6.32	6.32	27.1	0.50%	150	10.77	59%	0.61	0.74	10.74	
	RYCB-1	CB-1	Lateral	B2	0.06	0.41	0.023	0.023	10.00	104.193	6.55	6.55	14.3	1.00%	150	15.23	43%	0.86	0.28	10.28	
	CB-1	STMH-1	Trunk	A1b	0.07	0.38	0.025	0.070	10.00	104.193	20.22	11.40	12.5	0.35%	300	57.21	20%	0.81	0.26	10.26	ICD-1
	Roof	STMH-1	Lateral	A1a	0.12	0.90	0.112	0.112	10.00	104.193	32.56	5.90	6.8	1.00%	250	59.47	10%	1.21	0.09	10.09	Roof Drain
	RYCB-3	Conn.	Lateral	A1d	0.01	0.42	0.006	0.006	10.00	104.193	1.75	1.75	1.0	1.00%	200	32.80	5%	1.04	0.02	10.02	
	RYCB-4	Conn.	Lateral	A1e	0.05	0.41	0.020	0.020	10.00	104.193	5.71	5.71	6.6	1.00%	200	32.80	17%	1.04	0.11	10.11	
	STMH-1	STMH-2	Lateral	-	0.00	0.00	0.000	0.208	10.26	102.853	59.47	24.76	49.2	0.35%	300	57.21	43%	0.81	1.01	11.27	
	STMH-2	Silver St.	Trunk	-	0.00	0.00	0.000	0.208	11.27	97.929	56.62	24.76	16.7	0.35%	300	57.21	43%	0.81	0.34	11.61	

Notes:

Project Name:Alexander Community Centre Expansion

Jp2g Project No.:25-1170A

Client Ref No.:

Prepared By:Zach B

Reviewed By:Ali S

Approved By:Ali S

Date:August 20 2026

Revision:2

Storm Event:1:5 Year

Rainfall Intensity Formula:Ottawa IDF

Mannings, n =0.013

Rational Method:

$Q = 2.78 * C * A * I$

where, Q = peak flow (L/s)

C = runoff coefficient

I = average rainfall intensity (mm/hr)

A = area (ha)



Adjustable Accutrol Weir

Tag: _____

Adjustable Flow Control for Roof Drains

ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

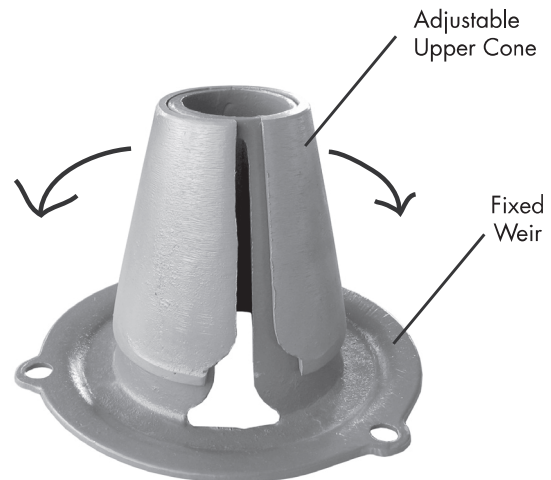
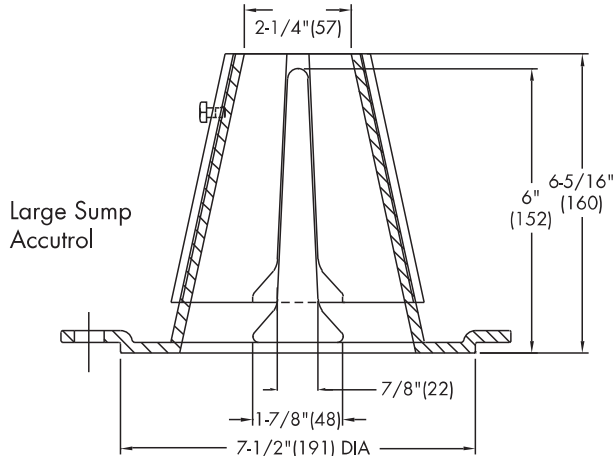
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

Note: Flow rates are directly proportional to the amount of weir opening that is exposed.

EXAMPLE:

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

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



1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name _____

Contractor _____

Job Location _____

Contractor's P.O. No. _____

Engineer _____

Representative _____

Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change or modify product design, construction, specifications, or materials without prior notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.

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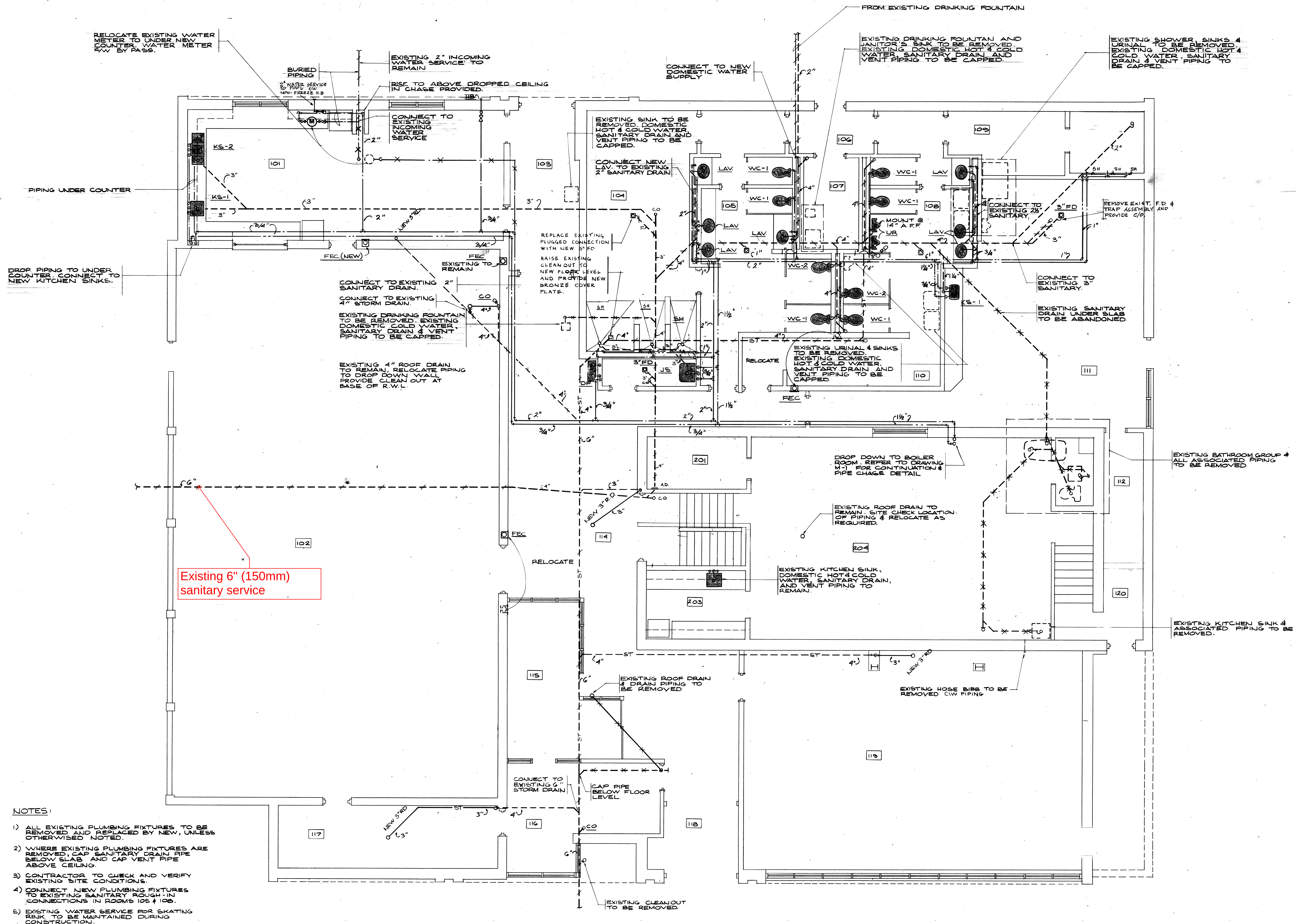


A Watts Water Technologies Company



Appendix C

Sanitary Servicing Info

FOR
COMMUNITY DEVELOPMENT

NOTES:

- 1) ALL EXISTING PLUMBING FIXTURES TO BE REMOVED AND REPLACED BY NEW, UNLESS OTHERWISE NOTED.
- 2) WHERE EXISTING PLUMBING FIXTURES ARE REMOVED, CAP SANITARY DRAIN PIPE BELOW SLAB AND CAP VENT PIPE ABOVE CEILING.
- 3) CONTRACTOR TO CHECK AND VERIFY EXISTING SITE CONDITIONS.
- 4) CONNECT NEW PLUMBING FIXTURES TO EXISTING SANITARY ROUGH-IN CONNECTIONS IN ROOMS 105 & 108.
- 5) EXISTING WATER SERVICE FOR SKATING RINK TO BE MAINTAINED DURING CONSTRUCTION.

REVISED AS PER AS-BUILT DWGS	2	2/1/04	LM
ISSUED FOR TENDER	1	10/2/03	ML
REVISION	no.	date	by



drawn	ED
checked	DE
date	JAN 84
scale	1/4" = 1'-0"

DEPARTMENT OF PHYSICAL ENVIRONMENT
 PROPERTY BRANCH
 PROJECT IMPLEMENTATION DIVISION
 C. SIM P. ENG. COMMISSIONER
 M.C. INSTANCE P. ENG. DIRECTOR
 D.M. UNDERHILL M.R.A.I.C. CHIEF ARCHITECT

PROJECT/LOCATION
 RENOVATIONS & ADDITIONS TO THE
 ALEXANDER COMMUNITY CENTER
 SHILLINGTON AND SILVER STREET
 OTTAWA

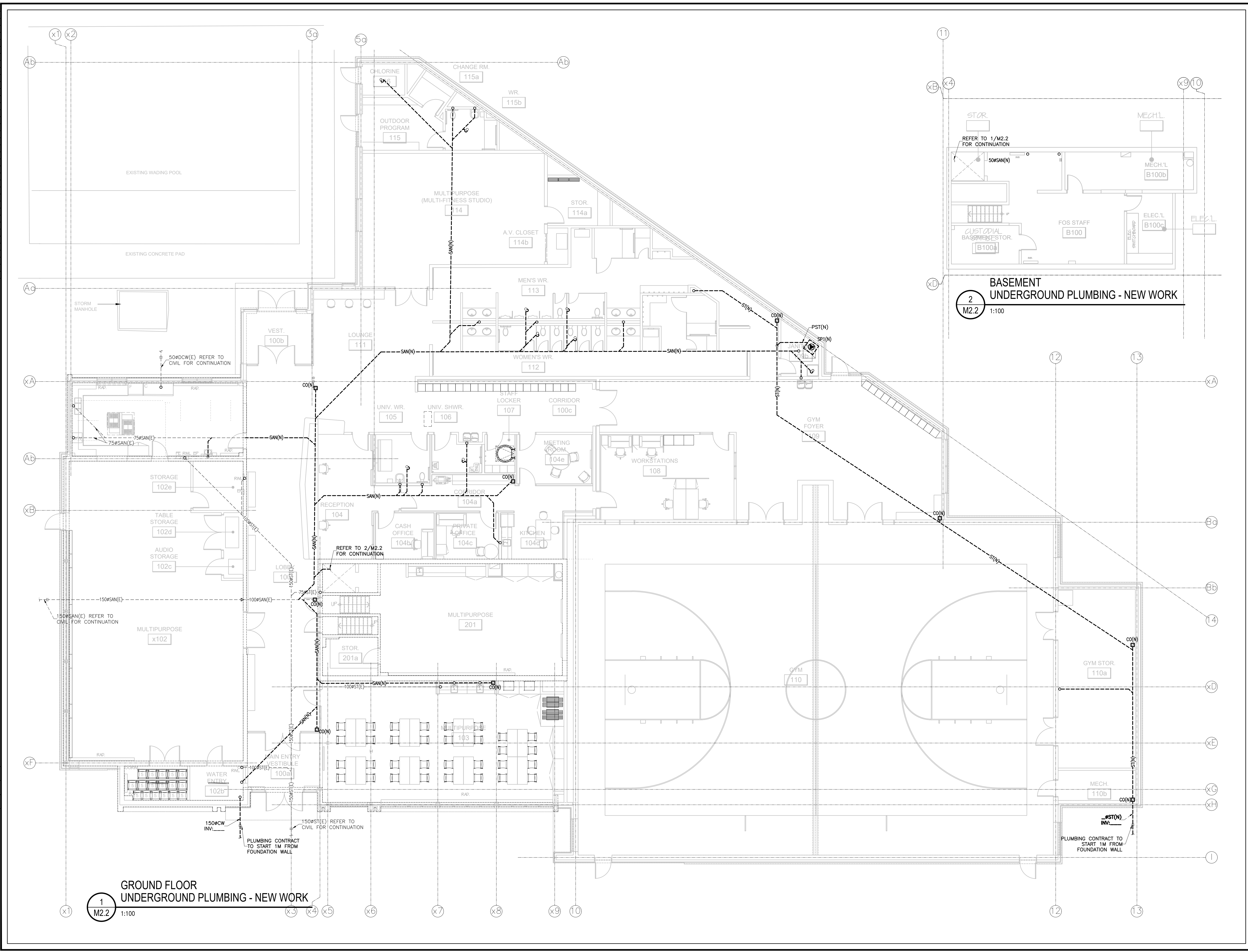
CONSULTANT	drawn
 Smith and Andersen Consulting Engineering Ottawa / Ontario / 232-2651	checked
	date
	scale

DRAWING	SHEET NO.
PLUMBING AND DRAINAGE	M-2 of 5

CONTRACT NO. 82-0918



NOTE
 REVISED AS BUILT DRAWING.
 THIS DRAWING HAS BEEN REVISED TO
 INCORPORATE CHANGES AS INDICATED ON
 THE CONTRACTORS MARKED UP PRINT.





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6			
5			
4			
3			
2			
1	ISSUED FOR 33% SUBMISSION	26/03/20	
NUMBER	1	DATE	INITIALS
REVISIONS BY / REVISIONS PAR	D. NEWTON	SCALE / ÉCHELLE	P. MCCLURE
DRAWN BY / DRESSÉ PAR	K.A.T.K.	SCALE / ÉCHELLE	AS NOTED

DETAIL NUMBER
1
A1.1
SCALE:
SHEET NUMBER

DRAWING TITLE

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CE DESSIN CONSTITUE LA PROPRIÉTÉ DE LA VILLE D'OTTAWA ET TOUT DROIT D'AUTEUR EST RÉSERVÉ. LES DIMENSIONS UTILISÉES LE SONT À DES FINS D'ESTIMATION SEULEMENT. IL INCOMBE À CHAQUE ENTREPRENEUR, SOUS-CONTRACTANT OU CONSULTANT DE VÉRIFIER TOUTES LES DIMENSIONS ET LES CONDITIONS SUR LE CHANTIER. VEULEZ INFORMER LE PROPRIÉTAIRE DE TOUTE ERREUR OU OMISSION AVANT D'ENTAMER LES TRAVAUX. NE DRESSÉZ PAS LES PLANS À L'ÉCHELLE.

ARCHITECT / ARCHITECTE	CONSULTANT / EXPERT-CONSEIL
CONSULTANT / EXPERT-CONSEIL	CONSULTANT / EXPERT-CONSEIL

PROJECT / LOCATION / PROJET / ENDROIT

ALEXANDER COMMUNITY CENTRE EXPANSION

950 Silver Street
OTTAWA, ONTARIO

DRAWING / DESSIN

MECHANICAL UNDERGROUND PLUMBING - NEW WORK

BUSINESS ENTITY / NUMÉRO DE L'ENTITÉ BUILDING NUMBER / NUMÉRO DU BÂTIMENT	SHEET NO. / FEUILLE NO.
CITY PROJECT NO. / NUMÉRO DE PROJET	2025-565

M2.2



Appendix D

Water Servicing Calculations

Alexander Community Centre Expansion - 960 Silver Street
Appendix D-1: Water Distribution Calculations

Domestic Demand - Known Number & Type of Units

Parameter	Value	Unit	Source
Unit Type			Site plan
Persons Per Unit	N/A	p/unit	<i>Ottawa Design Guidelines - Water Distribution Table 4.1</i>
Number of Units		units	Site plan
Number of Persons	N/A	p	

Domestic Demand - Pre-Zoned Land

Parameter	Value	Unit	Source
Demand Type	Other Commercial		Site plan
Average Daily Rate	28000	L/ha/d	<i>Ottawa Design Guidelines - Water Distribution Table 4.2</i>
Amount of ha	1.68	ha	Site plan
Average Daily Demand	47040	L/d	<i>Ottawa Design Guidelines 4.3.1: Service Areas with a basic day demand greater than 50m³/d shall be connected with a minimum of two feeder mains to avoid the creation of a vulnerable service</i>
	47.04	m ³ /d	
	0.54	L/s	
Maximum Daily Factor	1.5	x avg. day	<i>Ottawa Design Guidelines - Water Distribution Table 4.2</i>
Maximum Daily Demand	0.82	L/s	
Maximum Hourly Factor	1.8	x max day	<i>Ottawa Design Guidelines - Water Distribution Table 4.2</i>
Maximum Hourly Demand	1.47	L/s	

Appendix D- Fire Flow Demand Requirements OBC

Project Number25-1170A
Date20-Feb-26
Designed ByZB
Checked ByAS

Appenix D-2: OBC 3.2.5.7 CALCULATIONS:

Calculate minimum water supply flow rate using OBC table 3.2.5.7(3) Table 2 lookup from Minimum Water Supply (Q)

Minimum Water Supply (Q) formula

$$Q = KVS_{tot}$$

WATER SUPPLY COEFFICIENT (K)

Select appropriate coefficient from OBC App A-3.2.5.7(3), Table 1

TYPE OF CONSTRUCTION	CLASSIFICATION BY GROUP OR DIVISION IN ACCORDANCE WITH TABLE 3.1.2.1 OBC				
	A2 B1 B2 B3 C D	A4 F3	A1 A3	E F2	F1
Building is of Noncombustible construction with fire separation and fire-resistance ratings provided in accordance with Subsection 3.2.2 of the OBC, including loadbearing walls, columns and arches.	10	12	14	17	23
Building is of Noncombustible construction or of heavy timber construction conforming to Article 3.1.4.6 of the OBC. Floor assemblies are fire separations but no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	16	19	22	27	37
Building is of Combustible Construction with fire separations and fire-resistance ratings provided in accordance with Subsection 3.2.2 of the OBC, including loadbearing walls, columns and arches. Noncombustible construction may be used in lieu of fire resistance rating where permitted in subsection 3.2.2 of the OBC	18	22	25	31	41
Building is of combustible construction. Floor assemblies are fire separations but with no fire-resistance rating. Roof assemblies, mezzanines, loadbearing walls, columns and arches do not have a fire-resistance rating.	23	28	32	39	53

SELECTED SUPPLY COEFFICIENT (K)	16
BUILDING CLASSIFICATION	A2

SPATIAL COEFFICIENTS (S_{adj})

Calculate total spatial coefficients from a review of exposure distances and spacial coefficient lookups.

	DISTANCE (m)	S _{site}
North	Exposure Distance 1 (m) over 10m	0
	Exposure Distance 2 (m) over 10m	0
East	Exposure Distance 3 (m) over 10m	0
South	Exposure Distance 4 (m) over 10m	0.0
West		
	S _{tot}	1.00

BUILDING VOLUME

Calculate building volumes

Building Length (m)	
Building Width (m)	
Building Area (sq.m.)	2061.21
Building Height (m)	3.5
Stories	1

COMMENT ON BUILDING HEIGHT
To u/s of roof decking.

VOLUME (cu.m.)	7,214
----------------	-------

MINIMUM WATER SUPPLY (Q)

Calculate Minimum Water Supply (Q) from formula

$$Q = KVS_{tot}$$

K	16
V	7,214
S _{tot}	1.00

Q	115,428	Minimum Water Supply (Litres)
---	---------	-------------------------------

MINIMUM SUPPLY FLOW RATE

Calculate Minimum Water Supply Flow Rate from OBC App A-3.2.5.7 Table 2 Lookup

BUILDING CODE, PART 3 BUILDINGS	REQUIRED MINIMUM WATER SUPPLY FLOW RATE (L/min)	
One Story Buildings with Building area not exceeding 600 m2 (excluding F1 Occupancy)		1,800
All Other Buildings	if Q > and	Q<=
	0	108,000
	108,000	135,000
	135,000	162,000
	162,000	190,000
	190,000	270,000
	270,000	

MINIMUM WATER SUPPLY FLOW RATE (L/min)	3,600	or	60 L/s
GPM (US)	951		

VOLUME OF WATER

Under OBC 3.2.5.7. (c) 30min of fire fighting water is to be provided.

VOLUME (cu.m.)	108
----------------	-----

$$Q = KVS_{tot}$$

From: Cassidy, Tyler <tyler.cassidy@ottawa.ca>
Sent: Friday, February 27, 2026 3:01 PM
To: Zachary Bauman
Cc: Ali Sammour; Wendy Brawley; Madelyn Byrtus
Subject: RE: 960 Silver Street Boundary Conditions Request
Attachments: [960 Silver Street February 2026.pdf](#)

Hi Zach,

Please find the results to your boundary condition request at 960 Silver Street below:

******The following information may be passed on to the consultant, but do NOT forward this e-mail directly.******

The following are boundary conditions, HGL, for hydraulic analysis at 960 Silver Street (zone 2W2C) assumed to be connected in two (2) separate scenarios as identified below: (see attached PDF for location).

Scenario 1 – 152 mm on Silver St. (dead end)

Minimum HGL = 124.8 m

Maximum HGL = 131.9 m

Available fire flow at a residual 20 psi (assuming 78.4 m elevation) = **38 L/s**

Scenario 2 – 152 mm on Marshall Ave.

Minimum HGL = 124.9 m

Maximum HGL = 132.0 m

Max Day + OBC Fire Flow (60.0 L/s) = 106.6 m

Available fire flow at a residual 20 psi (assuming 78.3 m elevation) = **81 L/s**

These are for current conditions and are based on computer model simulation.

Disclaimer: The boundary condition information is based on current operation of the city water distribution system. The computer model simulation is based on the best information available at the time. The operation of the water distribution system can change on a regular basis, resulting in a variation in boundary conditions. The physical properties of watermains deteriorate over time, as such must be assumed in the absence of actual field test data. The variation in physical watermain properties can therefore alter the results of the computer model simulation. 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.

If you have any further questions, please feel free to reach out to me.

Thank you,

Tyler Cassidy, P.Eng

Infrastructure Project Manager,

Planning, Development and Building Services department (PDBS)/ Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB) - South Branch

City of Ottawa | Ville d'Ottawa

110 Laurier Avenue West Ottawa, ON | 110, avenue. Laurier Ouest. Ottawa (Ontario) K1P 1J1

613.580.2424 ext./poste 12977, Tyler.Cassidy@ottawa.ca

Appendix D-4 - Existing Water Boundary Conditions Analysis - Silver Street

Water Demands

Average Daily Demand:	0.54 l/s
Maximum Daily Demand:	0.82 l/s
Maximum Hour Demand:	1.47 l/s
Fire Flow Demand:	60.00 l/s
Maximum Daily + Fire Flow Demand:	60.82 l/s

Design Parameters

Pipe Diameter:	150 mm
Pipe Material:	PVC
Pipe Length (total network):	22.1 m
Finished Floor Elevation:	78.65
Pavement (R.O.W.) Elevation:	78.40

Boundary Conditions

Max. HGL:	131.9 m
Min HGL:	124.8 m
Available Fire Flow at 20 PSI (assuming 78.4m elevation) = 38 L/s	

Boundary Condition Check

Check water pressure at municipal connection:

Min. HGL - Pavement elevation =	46.40 m	
=	65.98 psi*	*Normal operating pressure ranges between 345 kPa (50 psi) and 552 kPa (80 psi) under a condition of
=	454.91 kPa*	maximum daily flow as per City of Ottawa Design Guidelines - Water Distribution (Section 4.2.2)

Pressure at municipal connection

OK

Check water pressure at building connection (at max. hour demand):

Min. HGL - Finished floor elevation - Friction Loss** =	46.15 m	**Friction loss calculated using the Hazen-Williams Equation
=	65.62 psi***	***Under maximum hourly demand conditions the pressures shall not be less than 276 kPa (40
=	452.45 kPa***	psi) as per City of Ottawa Design Guidelines - Water Distribution (Section 4.2.2)

Pressure at building connection (at max. hour demand)

OK

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

Min. HGL - Finished floor elevation - Friction Loss** =	44.86 m	**Friction loss calculated using the Hazen-Williams Equation
=	63.79 psi****	****Under maximum day and fire flow demand conditions the residual pressure at any point in
=	439.80 kPa****	the system shall not be less than 140 kPa (20 psi) as per City of Ottawa Design Guidelines -
		Water Distribution (Section 4.2.2)

Pressure at municipal connection (at max. day + fire demand)

OK

Appendix D-5: Hazen Williams Friction Loss Max Hour
Hazen-Williams Equation for Pressure Loss in Pipes
SI Units

Specified Data			
l = length of pipe (m)	22.1		
<u>c = Hazen-Williams roughness constant</u>	150		
q = volume flow (liter/sec)	1.47	0.00147	m3/s
dh = inside or hydraulic diameter (mm)	150		
Calculated Pressure Loss			
f = friction head loss in mm of water per 100 m of pipe (mm H2O per 100 m pipe)	<u>5.92</u>		
f = friction head loss in kPa per 100 m of pipe (kPa per 100 m pipe)	<u>0.06</u>		
Head loss (mm H2O)	<u>1.31</u>	0.001308	METERS
Head loss (kPa)	<u>0.01</u>		
Calculated Flow Velocity			
v = flow velocity (m/s)	<u>0.08</u>		

Material	Hazen-Williams Coefficient - c -
ABS - Acrylonite Butadiene Styrene	130
Aluminum	130 - 150
Asbestos Cement	140
Asphalt Lining	130 - 140
Brass	130 - 140
Brick sewer	90 - 100
Cast-Iron - new unlined (CIP)	130
Cast-Iron 10 years old	107 - 113
Cast-Iron 20 years old	89 - 100
Cast-Iron 30 years old	75 - 90
Cast-Iron 40 years old	64-83
Cast-Iron, asphalt coated	100
Cast-Iron, cement lined	140
Cast-Iron, bituminous lined	140
Cast-Iron, sea-coated	120
Cast-Iron, wrought plain	100
Cement lining	130 - 140
Concrete	100 - 140
Concrete lined, steel forms	140
Concrete lined, wooden forms	120
Concrete, old	100 - 110
Copper	130 - 140
Corrugated Metal	60
Ductile Iron Pipe (DIP)	140
Ductile Iron, cement lined	120
Fiber	140
Fiber Glass Pipe - FRP	150
Galvanized iron	120
Glass	130
Lead	130 - 140
Metal Pipes - Very to extremely smooth	130 - 140
Plastic	130 - 150
Polyethylene, PE, PEH	140
Polyvinyl chloride, PVC, CPVC	150
Smooth Pipes	140
Steel new unlined	140 - 150
Steel, corrugated	60
Steel, welded and seamless	100
Steel, interior riveted, no projecting rivets	110
Steel, projecting girth and horizontal rivets	100
Steel, vitrified, spiral-riveted	90 - 110
Steel, welded and seamless	100
Tin	130
Vitrified Clay	110
Wrought iron, plain	100
Wooden or Masonry Pipe - Smooth	120
Wood Stave	110 - 120

Appendix D-6: Hazen Williams Friction Loss Max Day + FF

Hazen-Williams Equation for Pressure Loss in Pipes

SI Units

Specified Data

l = length of pipe (m)	22.1	
<u>c = Hazen-Williams roughness constant</u>	150	
q = volume flow (liter/sec)	60.82	0.06082 m3/s
dh = inside or hydraulic diameter (mm)	150	

Calculated Pressure Loss

f = friction head loss in mm of water per 100 m of pipe (mm H2O per 100 m pipe)	<u>5841.41</u>
f = friction head loss in kPa per 100 m of pipe (kPa per 100 m pipe)	<u>57.30</u>

Head loss (mm H2O)	<u>1290.95</u>	1.290951 METERS
Head loss (kPa)	<u>12.66</u>	

Calculated Flow Velocity

v = flow velocity (m/s)	<u>3.44</u>
-------------------------	-------------

Material	Hazen-Williams Coefficient - c -
ABS - Acrylonite Butadiene Styrene	130
Aluminum	130 - 150
Asbestos Cement	140
Asphalt Lining	130 - 140
Brass	130 - 140
Brick sewer	90 - 100
Cast-Iron - new unlined (CIP)	130
Cast-Iron 10 years old	107 - 113
Cast-Iron 20 years old	89 - 100
Cast-Iron 30 years old	75 - 90
Cast-Iron 40 years old	64-83
Cast-Iron, asphalt coated	100
Cast-Iron, cement lined	140
Cast-Iron, bituminous lined	140
Cast-Iron, sea-coated	120
Cast-Iron, wrought plain	100
Cement lining	130 - 140
Concrete	100 - 140
Concrete lined, steel forms	140
Concrete lined, wooden forms	120
Concrete, old	100 - 110
Copper	130 - 140
Corrugated Metal	60
Ductile Iron Pipe (DIP)	140
Ductile Iron, cement lined	120
Fiber	140
Fiber Glass Pipe - FRP	150
Galvanized iron	120
Glass	130
Lead	130 - 140
Metal Pipes - Very to extremely smooth	130 - 140
Plastic	130 - 150
Polyethylene, PE, PEH	140
Polyvinyl chloride, PVC, CPVC	150
Smooth Pipes	140
Steel new unlined	140 - 150
Steel, corrugated	60
Steel, welded and seamless	100
Steel, interior riveted, no projecting rivets	110
Steel, projecting girth and horizontal rivets	100
Steel, vitrified, spiral-riveted	90 - 110
Steel, welded and seamless	100
Tin	130
Vitrified Clay	110
Wrought iron, plain	100
Wooden or Masonry Pipe - Smooth	120
Wood Stave	110 - 120



Appendix E

Additional Documents

Ottawa (Head Office)

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St-Laurent, Quebec H4T 1E7

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☎ 514.738.9762



INTEGRATED SEWER SOLUTIONS



**970 SILVER ST
Ottawa, Ontario**

SEWER CCTV INSPECTION REPORT

Report Id
153924SA1

Sewer Type
Sanitary

Completion Date
July 14, 2026

Total Distance
26.30 meters

THE WAY IS CLEAR™

- Watermain Swabbing
- Hydro Vacuum Excavation
- CCTV Inspection of Sewers

- Plumbing & Drain Services
- Structural Rehabilitation of Manholes
- Cured-in-Place-Pipe Lining & Spot Repairs

- Grouting, Test & Seal Joints, Manholes & Services
- Lateral Sewer Inspection & Locates From Main
- Sewer Cleaning, Flushing & Pumping

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3. O&M rating	4
4. Pipe summary and condition details	5
5. Vision Report© Legend	9

1. Index of pipes

2 items

Pipe	Upstream	Downstream	Street	Date	Direction	Height	Inspected	Total	Page
CONCRETE TANK MH-S	CONCRETE TANK	MH-S	970 SILVER ST	14/07/2026, 8:27 AM	U - Upstream	150	4.3	6.5	5
MH-S MAIN	MH-S	MAIN	970 SILVER ST	14/07/2026, 9:00 AM	D - Downstream	150	22	48.5	7
							Total: 26.3	Total: 55	

2. Structural rating

2 items

3 - Moderate defect grade (1 of 2 items)

Score	Quick	Index	Pipe	Start/End	Direction	Street	Page
19	3611	2.7	MH-S MAIN	MH-S --> MAIN	Direction of flow	970 SILVER ST	7

0 - No Defects (1 of 2 items)

Score	Quick	Index	Pipe	Start/End	Direction	Street	Page
0	0000	0	CONCRETE TANK MH-S	MH-S --> CONCRETE TANK	Against flow	970 SILVER ST	5

3. O&M rating

2 items

5 - Most significant defect grade (1 of 2 items)

Score	Quick	Index	Structural	Pipe	Start/End	Direction	Street	Page
5	5100	5	0	CONCRETE TANK MH-S	MH-S --> CONCRETE TANK	Against flow	970 SILVER ST	5

0 - No Defects (1 of 2 items)

Score	Quick	Index	Structural	Pipe	Start/End	Direction	Street	Page
0	0000	0	3	MH-S MAIN	MH-S --> MAIN	Direction of flow	970 SILVER ST	7

4. Pipe summary and condition details

Pipe identification

Pipe:	CONCRETE TANK MH-S	Direction of inspection:	MH-S --> CONCRETE TANK
Direction of flow:	CONCRETE TANK --> MH-S	Direction:	Against flow

Pipe location

Road:	970 SILVER ST	<u>UPSTREAM</u>	<u>DOWNSTREAM</u>
Crossroad:		Easting (X):	Easting (X):
Drainage Area:		Northing (Y):	Northing (Y):
City:	OTTAWA ON	Elevation (Z):	Elevation (Z):
Location:	Yard	GPS Accuracy:	
Owner:	CITY OF OTTAWA	Coordinate System:	
Road segment:		Vertical Datum:	

Pipe characteristics

Sewer Use:	Sanitary	Inspected length:	4.3
Height:	150	Total length:	6.5
Width:		Rim/Inv.:	
Shape:	Circular	Grade/Inv.:	
Material:	Asbestos Cement	Rim/Grade:	
Lining:		Rim/Inv.:	
Joint length:	4	Grade/Inv.:	
Year laid:		Rim/Grade:	
Year renewed:		Sewer category:	

Additional details

Inspection standard:	PACP 6.0	Location details:	
Date:	14/07/2026, 8:27 AM	Surveyed by:	Derek B
Project Number:		Certificate #:	U-815--07000446
Customer:	CITY OF OTTAWA	Pre-Cleaning:	Not Known
PO number:		Date cleaned:	
Work order:	153924	Unit of measurement:	Metric
Purpose:	Not Known	Media label:	
Weather:	Dry	Sheet #:	
Flow control:	Not Controlled		

Structural rating

O&M rating

Overall rating

Peak:	0	Peak:	5	Peak:	5
Quick rating:	0000	Quick rating:	5100	Quick rating:	5100
Score:	0	Score:	5	Score:	5
Index:	0	Index:	5	Index:	5

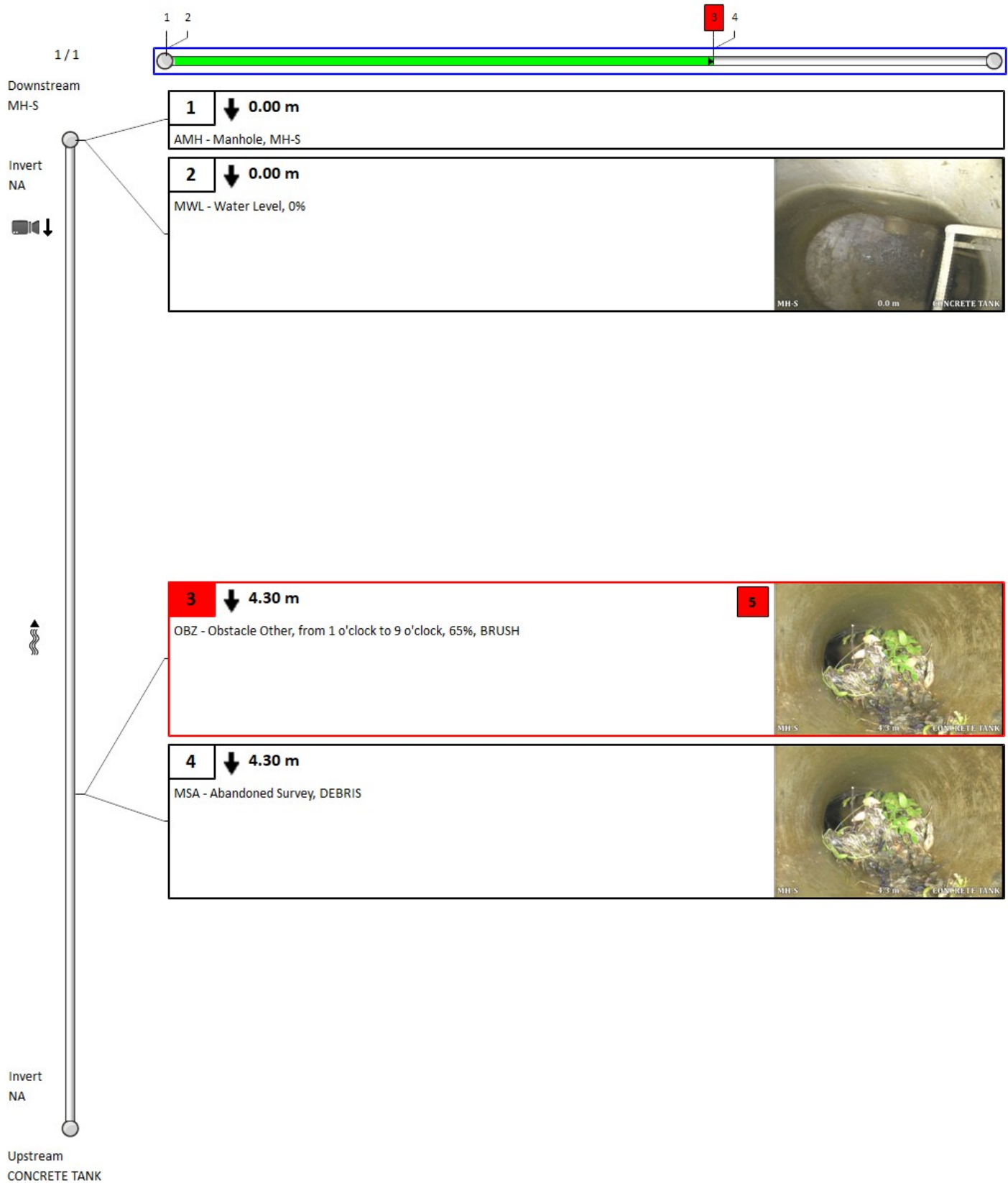
Additional information

--

Other information

Report ID:	153924SA1	Other 6:	
Other 2:		Other 7:	
Other 3:		Other 8:	
Other 4:		Other 9:	
Other 5:		Other 10:	

4. Pipe summary and condition details



4. Pipe summary and condition details

Pipe identification

Pipe: MH-S MAIN	Direction of inspection: MH-S --> MAIN
Direction of flow: MH-S --> MAIN	Direction: Direction of flow

Pipe location

Road: 970 SILVER ST	<u>UPSTREAM</u>	<u>DOWNSTREAM</u>
Crossroad:	Easting (X):	Easting (X):
Drainage Area:	Northing (Y):	Northing (Y):
City: OTTAWA ON	Elevation (Z):	Elevation (Z):
Location: Parking Lot	GPS Accuracy:	
Owner: CITY OF OTTAWA	Coordinate System:	
Road segment:	Vertical Datum:	

Pipe characteristics

Sewer Use: Sanitary	Inspected length: 22
Height: 150	Total length: 48.5
Width:	Rim/Inv.:
Shape: Circular	Grade/Inv.:
Material: Asbestos Cement	Rim/Grade:
Lining:	Rim/Inv.:
Joint length: 4	Grade/Inv.:
Year laid:	Rim/Grade:
Year renewed:	Sewer category:

Additional details

Inspection standard: PACP 6.0	Location details:
Date: 14/07/2026, 9:00 AM	Surveyed by: Derek B
Project Number:	Certificate #: U-815--07000446
Customer: CITY OF OTTAWA	Pre-Cleaning: No Pre-Cleaning
PO number:	Date cleaned:
Work order: 153924	Unit of measurement: Metric
Purpose: Not Known	Media label:
Weather: Dry	Sheet #:
Flow control: Not Controlled	

Structural rating

O&M rating

Overall rating

Peak: 3	Peak: 0	Peak: 3
Quick rating: 3611	Quick rating: 0000	Quick rating: 3611
Score: 19	Score: 0	Score: 19
Index: 2.7	Index: 0	Index: 2.7

Additional information

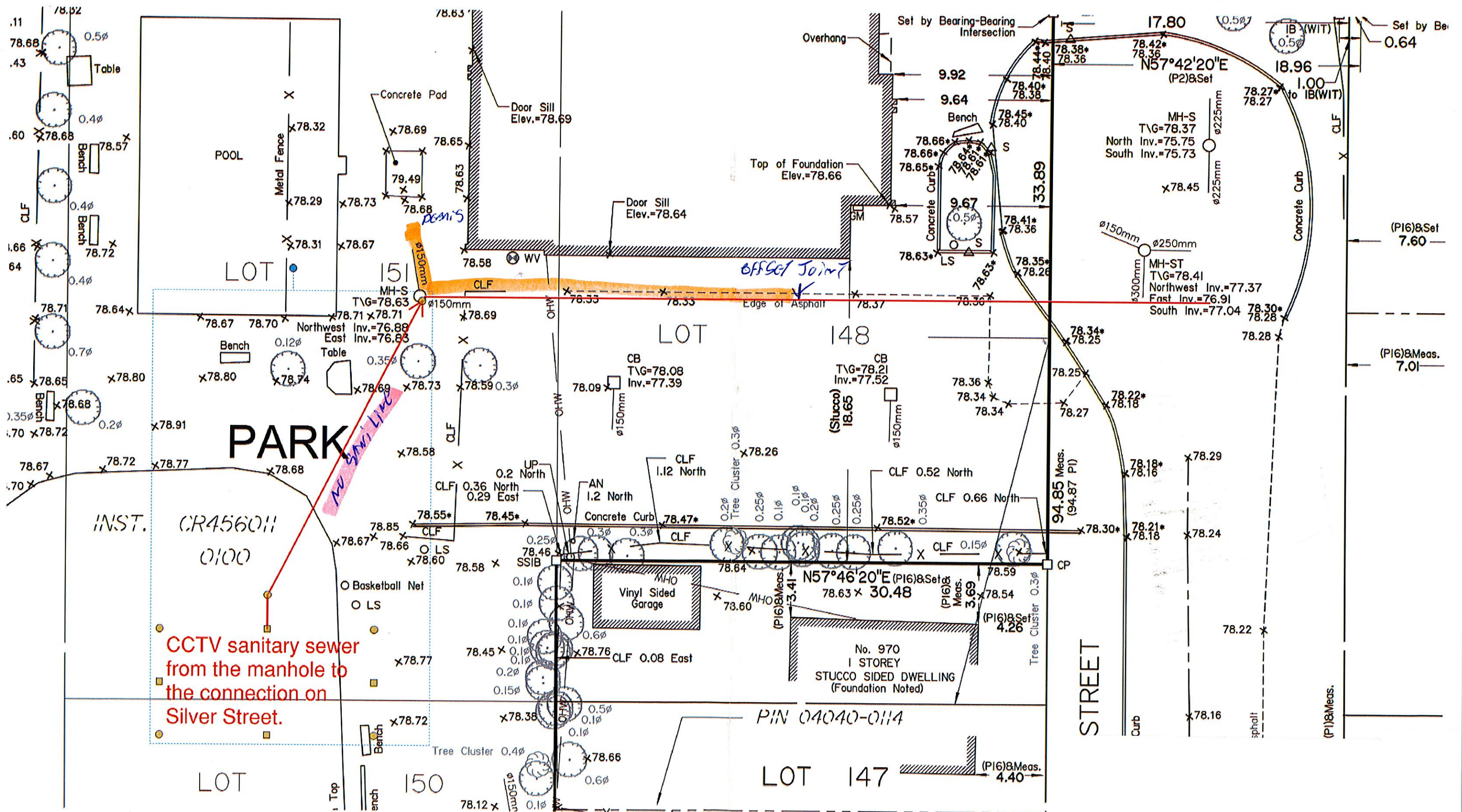
OFFSET JOINT

Other information

Report ID: 153924SA1	Other 6:
Other 2:	Other 7:
Other 3:	Other 8:
Other 4:	Other 9:
Other 5:	Other 10:

Clean Water Works





20m

-8430019.413 5681637.356 Meters

970 Silver St



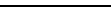
Show search results for 970 silver street



20m

-8430165.122 5681598.242 Meters

Vision Report © Legend

	The numbers sequentially identify each observation. They allow you to find complete descriptions and related photos throughout the pages. Note that when the pipe contains too many observations, the Vision© report hides the least important observations to optimize the display*.
60	A number with neither a square nor circle indicates a general observation.
	A circled number indicates a structural anomaly. The color of the circle indicates the severity of the anomaly on a scale of 1 to 5, 5 being the most severe: green=1, blue=2, magenta=3, orange=4 and red=5.
	A number in a square indicates an operation and maintenance anomaly. The color of the square indicates the severity of the anomaly on a scale of 1 to 5, 5 being the most severe: green=1, blue=2, magenta=3, orange=4 and red=5.
◀ 3 / 31 ▶	Indicates the current page number of the inspection report.
	The blue square indicates a section of the pipe; this section is covered in detail on the current page of the report.
	The green line indicates the inspected part of the pipe. The remaining white line indicates the uninspected part of the pipe.
	Indicates the hold points on the camera during an inspection.
	Indicates the hold points on the camera during the reverse inspection.
	Indicates that a reverse inspection was carried out, however the camera did not reach the initial inspection hold point. (the hold point of the initial inspection)
	Indicates that a reverse inspection was carried out and that it has joined (has arrived at) the initial inspection hold point.
401-059B 	Identifies the start manhole number. Note that this manhole is not necessarily the upstream manhole of the pipe.
401-631 	Identifies the end manhole number. Note that this manhole is not necessarily the downstream manhole of the pipe.
	A downward arrow indicates that the inspection was carried out in the direction of the current, whereas an upward arrow indicates an inspection against the current. Note that the manhole located on the upper left of the page is always the start manhole, but not necessarily the upstream manhole of the pipe.
	This camera followed by a downward arrow is located on the upper left of the vertical pipe; it indicates that an inspection was done from this manhole.
	When the second camera appears on the bottom left page it means that a reverse inspection was carried out. Information about the reverse inspection is included in the report, thereby combining both inspections.
Invert 3.40	The measurement shown under the word <Invert> indicates the measurements between the frame and the pipe captured during the inspection. This measurement is available at the top left for the start manhole and the bottom left for the end manhole. If the invert was not measured during the inspection, an <NA> mark will be displayed.
	The downward bold arrow to the right of the observation number indicates that this observation was captured during the initial inspection.
	The blank arrow pointing upwards and located to the right of the observation number indicates that this observation was taken during the reverse inspection period, thereby confirming that this report combined both inspections.
18.40 m	Located to the right of the observation number is a number identifying the observation distance in relation to the start of the pipe.
SRV - Armature visible	A full description of the observation code according to the protocol used.

*Any hidden observations are readily accessible from the database as well as in other CTSpec report templates.

** CTSpec inc. reserves the right to modify, eliminate or add to the product features described in this pamphlet without notice.

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INTEGRATED SEWER SOLUTIONS

SEWER CCTV INSPECTION REPORT

City of Ottawa

960 Silver St Ottawa, ON

Work Order:
152188

Completion Date
April 1 2026

Sewer Type
Sanitary & Storm

Inspected Length:
Various

THE WAY IS CLEAR™

- Watermain Swabbing
- Hydro Vacuum Excavation
- CCTV Inspection of Sewers

- Plumbing & Drain Services
- Structural Rehabilitation of Manholes
- Cured-in-Place-Pipe Lining & Spot Repairs

- Grouting, Test & Seal Joints, Manholes & Services
- Lateral Sewer Inspection & Locates From Main
- Sewer Cleaning, Flushing & Pumping

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	Page
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2. Pipe summary and condition details	4

1. Index of pipes

3 items

Inspected length : 67.50
 Total length : 0.00

Pipe	Start/End	Direction	Road	Date	Inspected	Total	Page
Cleanout to City Main	Cleanout --> City Main	Direction of flow	960 Silver St	01/04/2026, 12:00 PM	21.5		4
Manhole to 21.0 Meters (Building)	21.0 Meters (Building) --> Manhole	Against flow	960 Silver St	01/04/2026, 12:00 PM	21		8
Stack Cleanout to Foundation	Stack Cleanout --> Foundation	Direction of flow	960 Silver St	01/04/2026, 12:00 PM	25		12

2. Pipe summary and condition details

Pipe identification

Pipe:	Cleanout to City Main	Direction of inspection:	Cleanout --> City Main
Direction of flow:	Cleanout --> City Main	Direction:	Direction of flow

Pipe location

Road:	960 Silver St	<u>UPSTREAM</u>	<u>DOWNSTREAM</u>
Drainage Area:		Easting (X):	Easting (X):
City:	Ottawa	Northing (Y):	Northing (Y):
Location:		Elevation (Z):	Elevation (Z):
Owner:	City of Ottawa	Vertical Datum:	

Pipe characteristics

Category:	Sanitary	Size:	4
Material:	Cast iron	Width:	
Lining:		Total length:	
Type:	Lateral	Pipe unit length:	
Invert (upstream):		Year laid:	
Depth (upstream):		Invert (downstream):	
Cover level (upstream):		Depth (downstream):	
		Cover level (downstream):	

Additional details

Date:	01/04/2026, 12:00 PM	Survey Abandoned:	
Project Number:	CCTV Inspection	Inspected length:	21.5
Contractor project #:		Pre-cleaning:	☐
Client:	City of Ottawa	Blocked flow:	☐
Purpose:		Regular CCTV:	☐
Operator:	Don	Reinspect with ZOOM:	☐
Analyst:		Medium #:	
		Start position:	
		End position:	

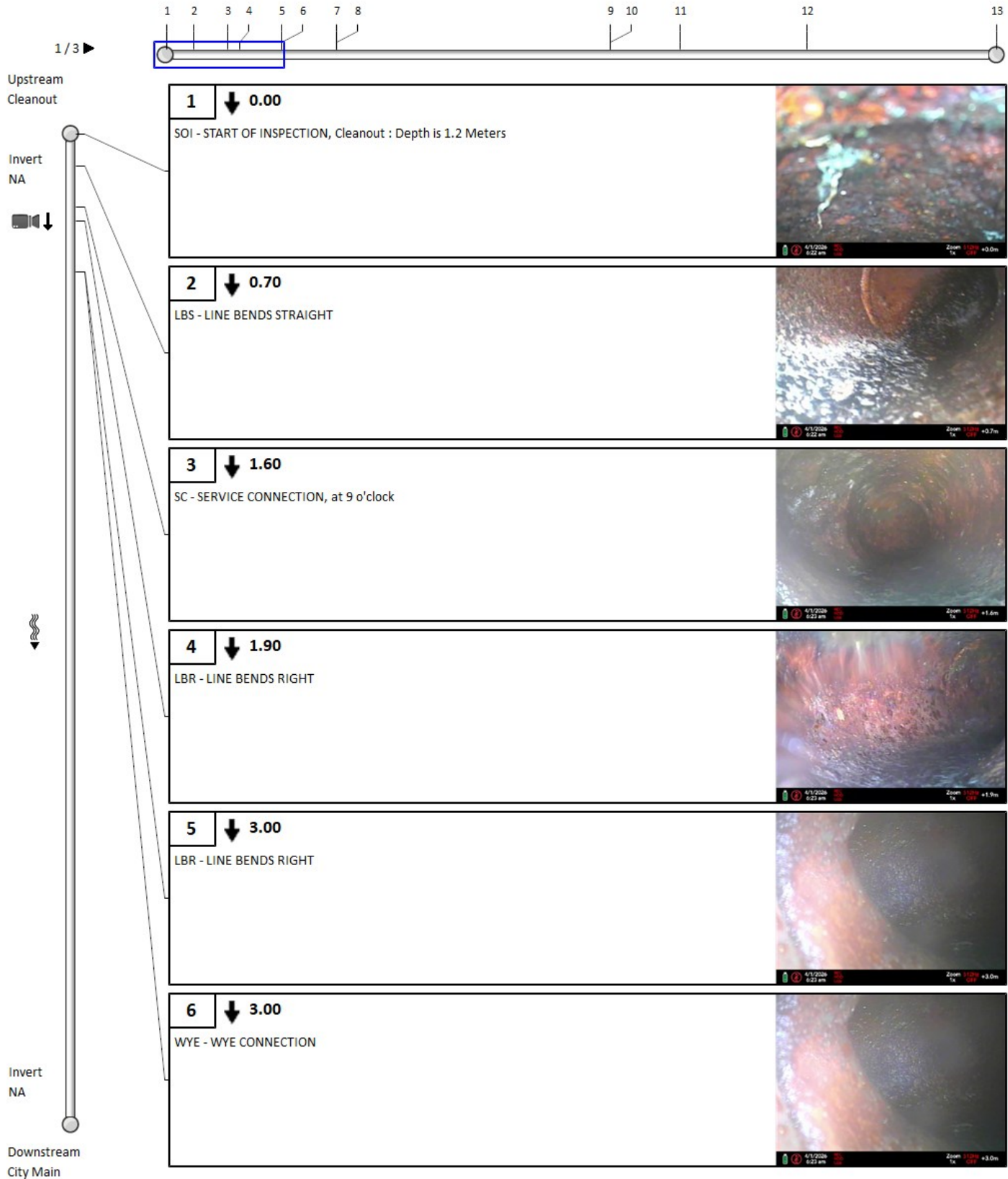
Comments

CCTV Inspection From Sanitary Cleanout to City Main

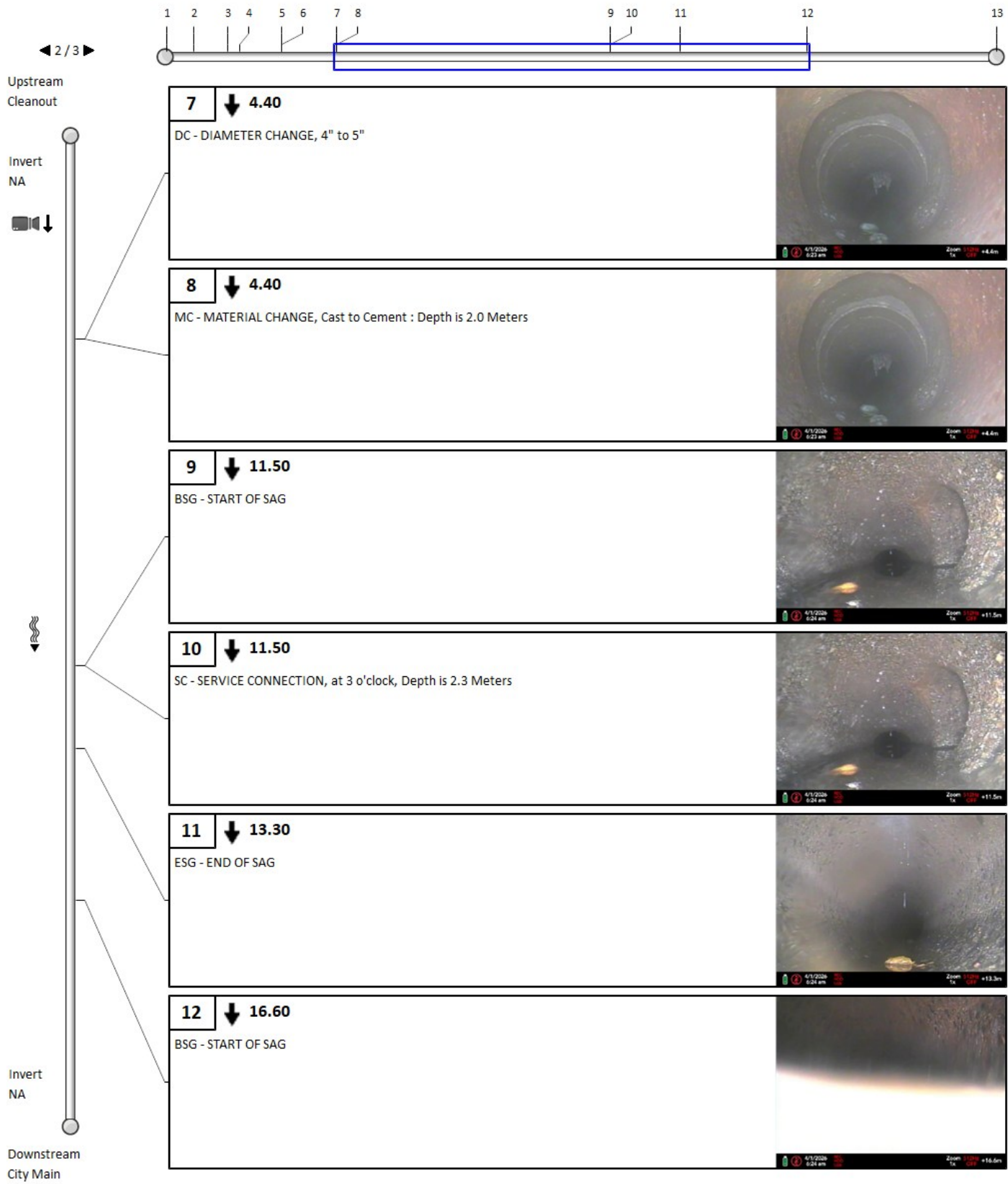
Other information

Date:	April 1 2026	Information 7:	
Work Order#:	152188	Information 8:	
Start of Location:	Cleanout	Information 9:	
End of Location:	City Main	Information 10:	
Location:	Basement - Storage Room	PI5 (MAMR):	0
Information 6:		PI6 (MAMR):	0

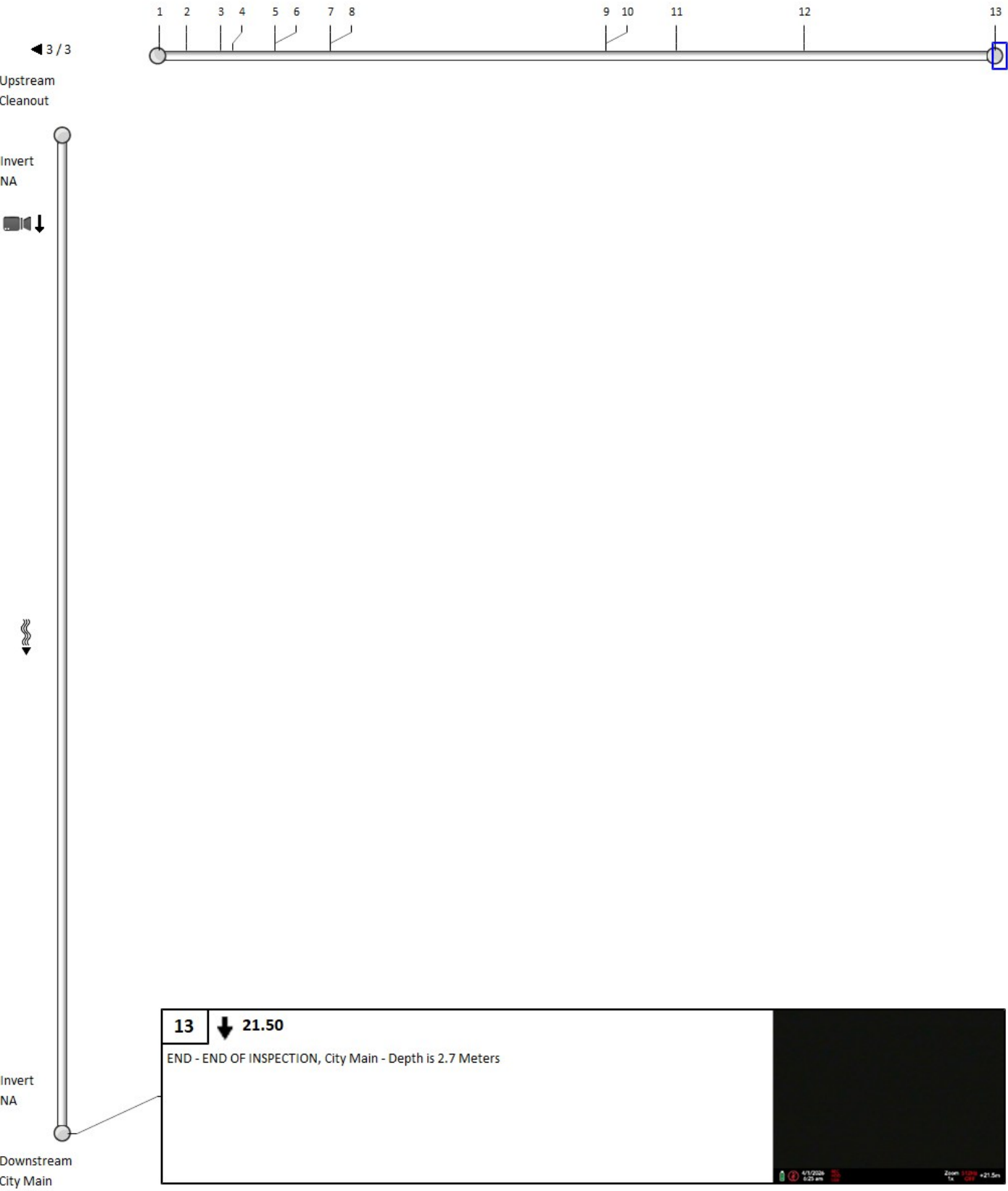
2. Pipe summary and condition details



2. Pipe summary and condition details



2. Pipe summary and condition details



2. Pipe summary and condition details

Pipe identification

Pipe:	Manhole to 21.0 Meters (Building)	Direction of inspection:	21.0 Meters (Building) --> Manhole
Direction of flow:	Manhole --> 21.0 Meters (Building)	Direction:	Against flow

Pipe location

Road:	960 Silver St	<u>UPSTREAM</u>	<u>DOWNSTREAM</u>
Drainage Area:		Easting (X):	Easting (X):
City:	Ottawa	Northing (Y):	Northing (Y):
Location:		Elevation (Z):	Elevation (Z):
Owner:	City of Ottawa	Vertical Datum:	

Pipe characteristics

Category:	Storm	Size:	5
Material:	Polyvinyl chloride	Width:	
Lining:		Total length:	
Type:	Lateral	Pipe unit length:	
Invert (upstream):		Year laid:	
Depth (upstream):		Invert (downstream):	
Cover level (upstream):		Depth (downstream):	
		Cover level (downstream):	

Additional details

Date:	01/04/2026, 12:00 PM	Survey Abandoned:	
Project Number:	CCTV Inspection	Inspected length:	21
Contractor project #:		Pre-cleaning:	☐
Client:	City of Ottawa	Blocked flow:	☐
Purpose:		Regular CCTV:	☐
Operator:	Don	Reinspect with ZOOM:	☐
Analyst:		Medium #:	
		Start position:	
		End position:	

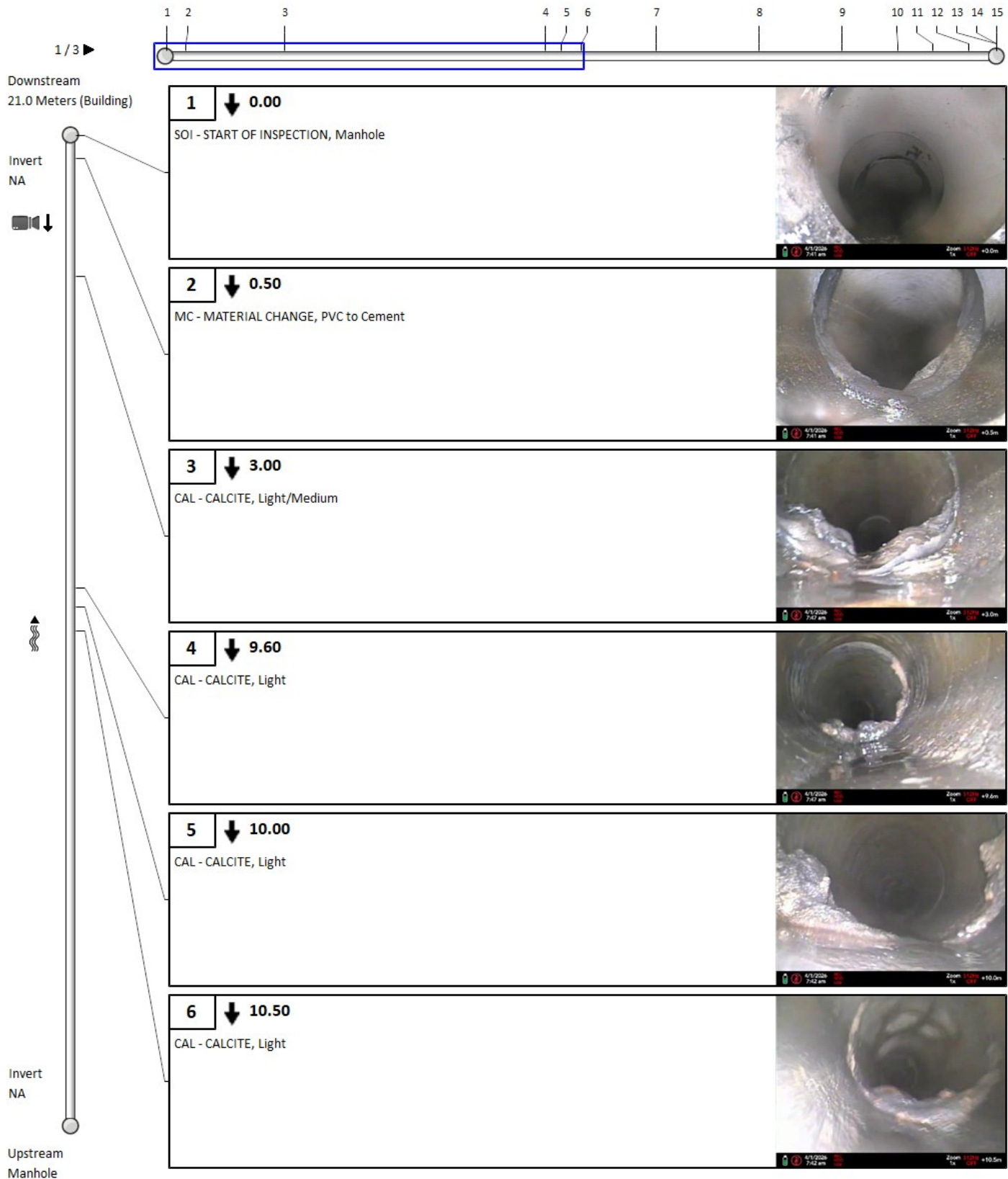
Comments

CCTV Inspection From Manhole to 21.0 Meters (Building) Light to Medium Calcite on Almost Every Joint

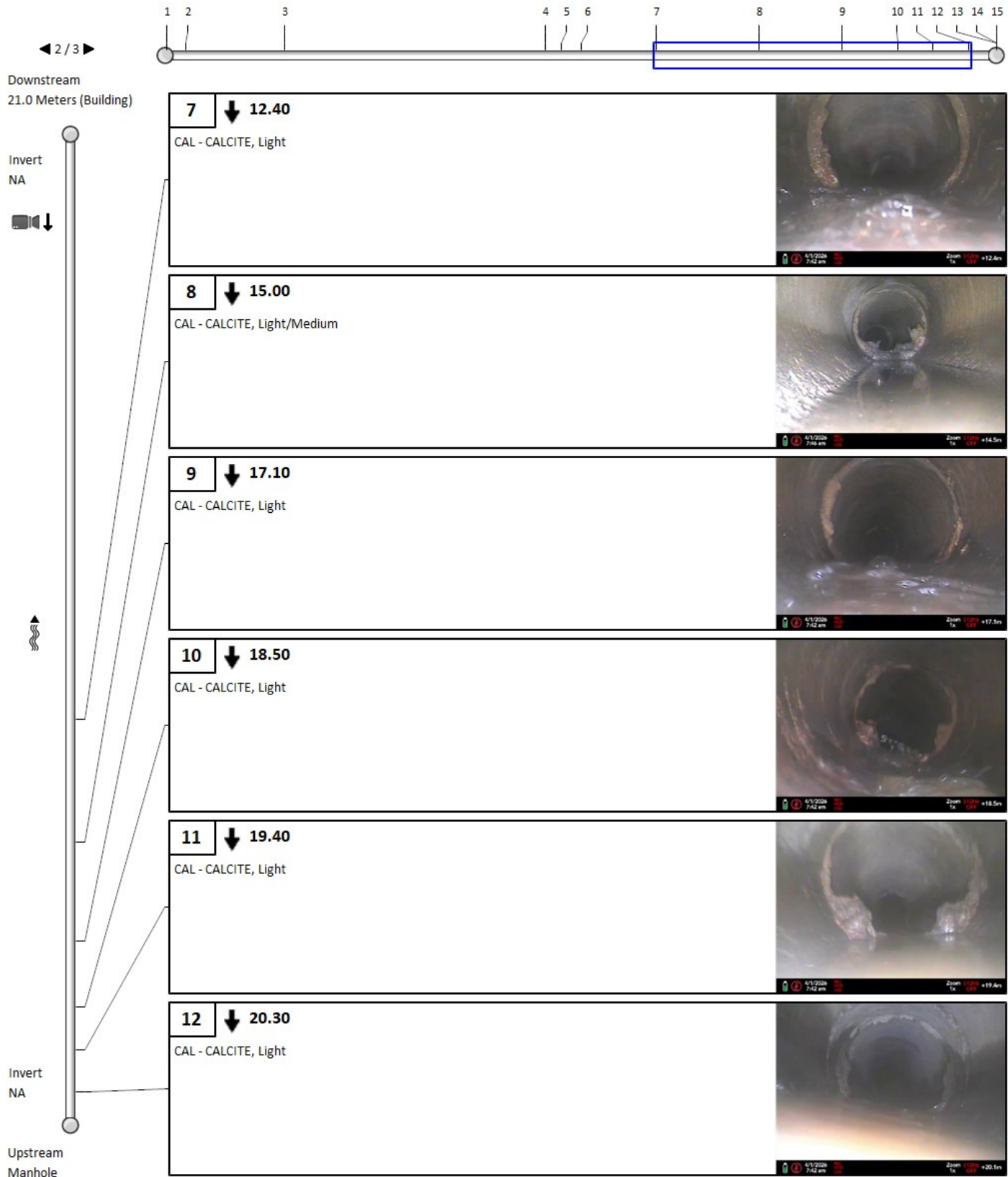
Other information

Date:	April 1 2026	Information 7:	
Work Order#:	152188	Information 8:	
Start of Location:	Manhole	Information 9:	
End of Location:	21.0 Meters (Building)	Information 10:	
Location:	Road	P15 (MAMR):	0
Information 6:		P16 (MAMR):	0

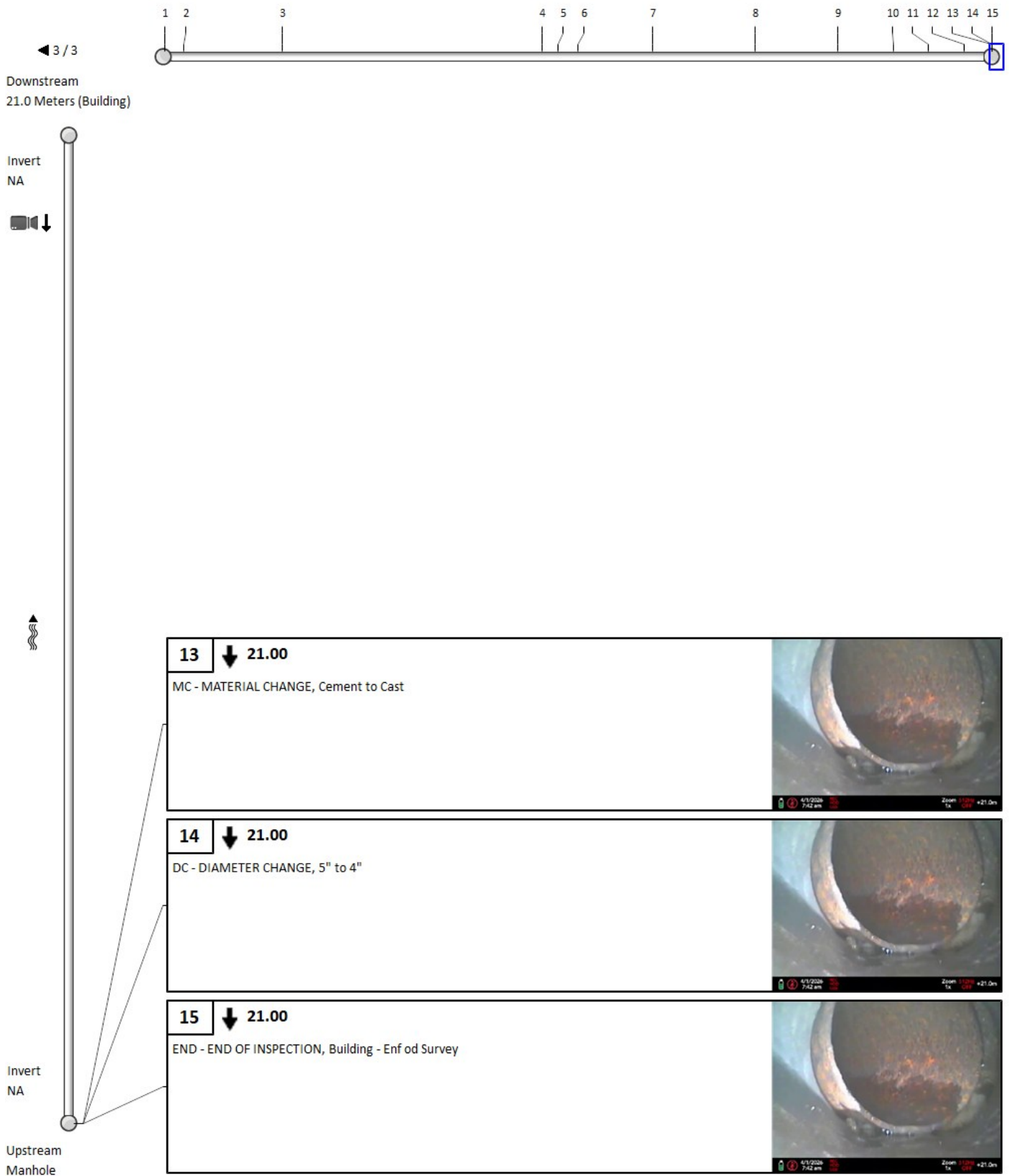
2. Pipe summary and condition details



2. Pipe summary and condition details



2. Pipe summary and condition details



2. Pipe summary and condition details

Pipe identification

Pipe:	Stack Cleanout to Foundation	Direction of inspection:	Stack Cleanout --> Foundation
Direction of flow:	Stack Cleanout --> Foundation	Direction:	Direction of flow

Pipe location

Road:	960 Silver St	<u>UPSTREAM</u>	<u>DOWNSTREAM</u>
Drainage Area:		Easting (X):	Easting (X):
City:	Ottawa	Northing (Y):	Northing (Y):
Location:		Elevation (Z):	Elevation (Z):
Owner:	City of Ottawa	Vertical Datum:	

Pipe characteristics

Category:	Storm	Size:	3
Material:	Cast iron	Width:	
Lining:		Total length:	
Type:	Lateral	Pipe unit length:	
Invert (upstream):		Year laid:	
Depth (upstream):		Invert (downstream):	
Cover level (upstream):		Depth (downstream):	
		Cover level (downstream):	

Additional details

Date:	01/04/2026, 12:00 PM	Survey Abandoned:	
Project Number:	CCTV Inspection	Inspected length:	25
Contractor project #:		Pre-cleaning:	☐
Client:	City of Ottawa	Blocked flow:	☐
Purpose:		Regular CCTV:	☐
Operator:	Don	Reinspect with ZOOM:	☐
Analyst:		Medium #:	
		Start position:	
		End position:	

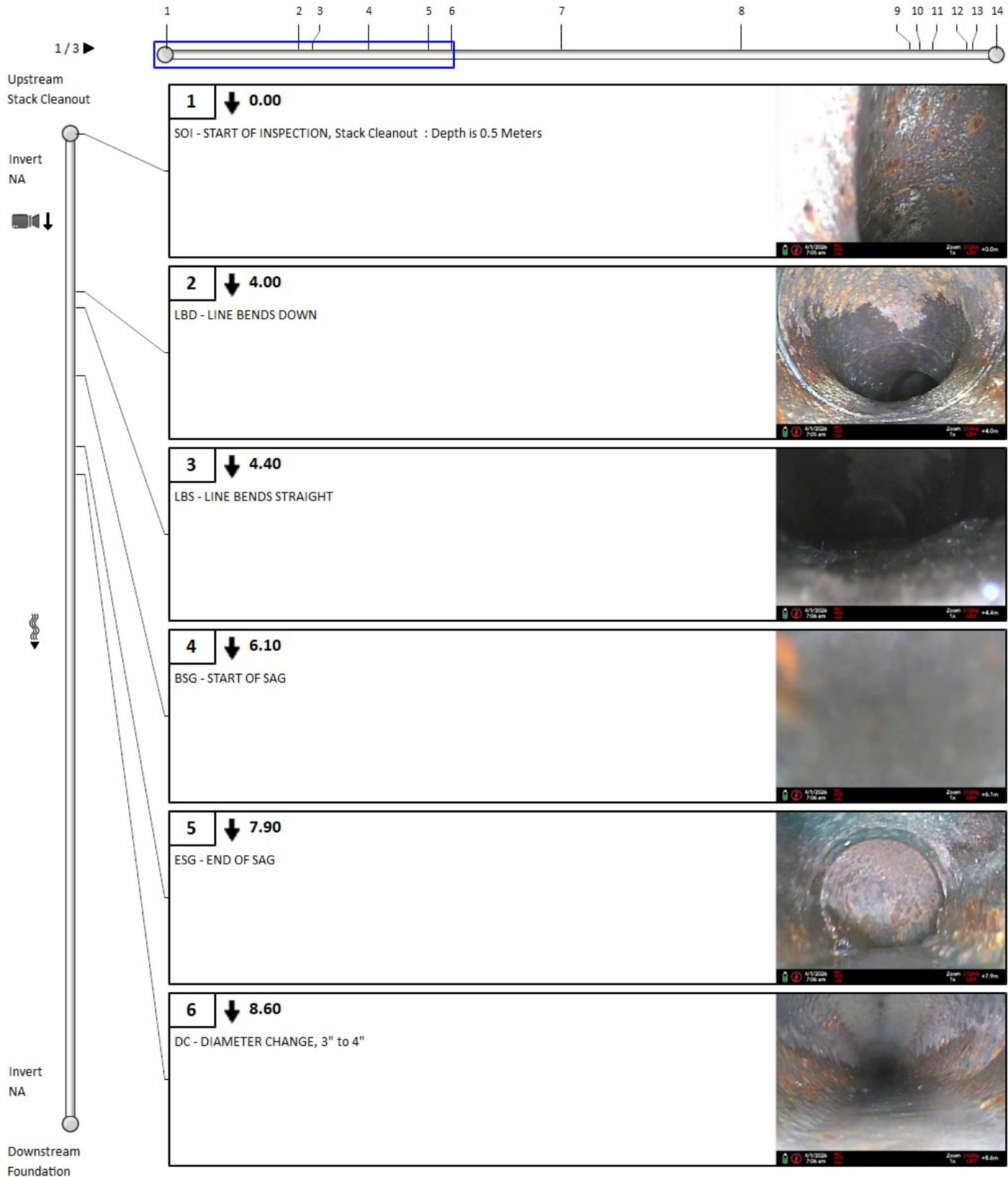
Comments

CCTV Inspection of The Storm Lateral From Stack Cleanout to Foundation
--

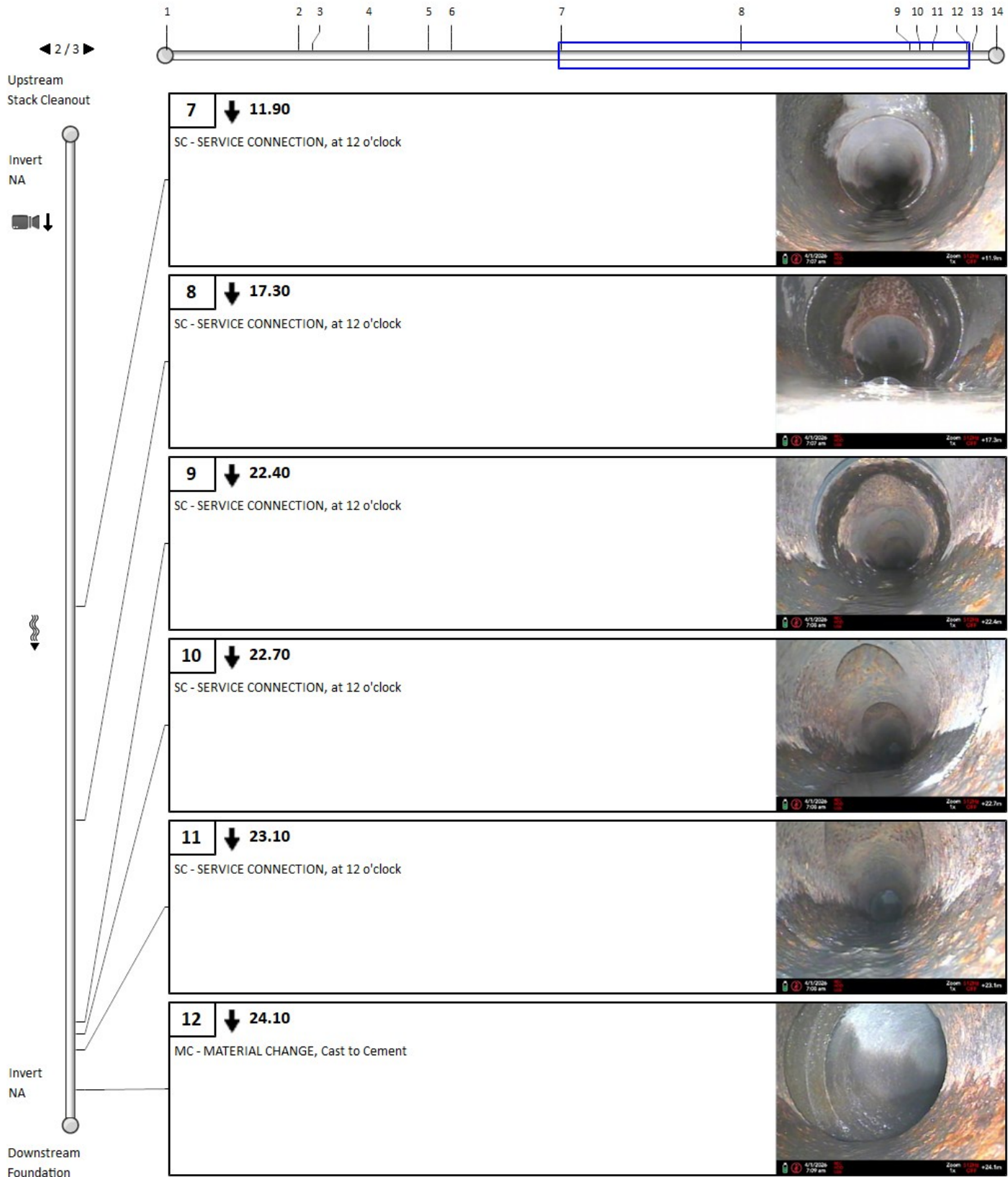
Other information

Date:	April 1 2026	Information 7:	
Work Order#:	152188	Information 8:	
Start of Location:	Stack Cleanout	Information 9:	
End of Location:	Foundation	Information 10:	
Location:	Main Floor - Kitchen	PI5 (MAMR):	0
Information 6:		PI6 (MAMR):	0

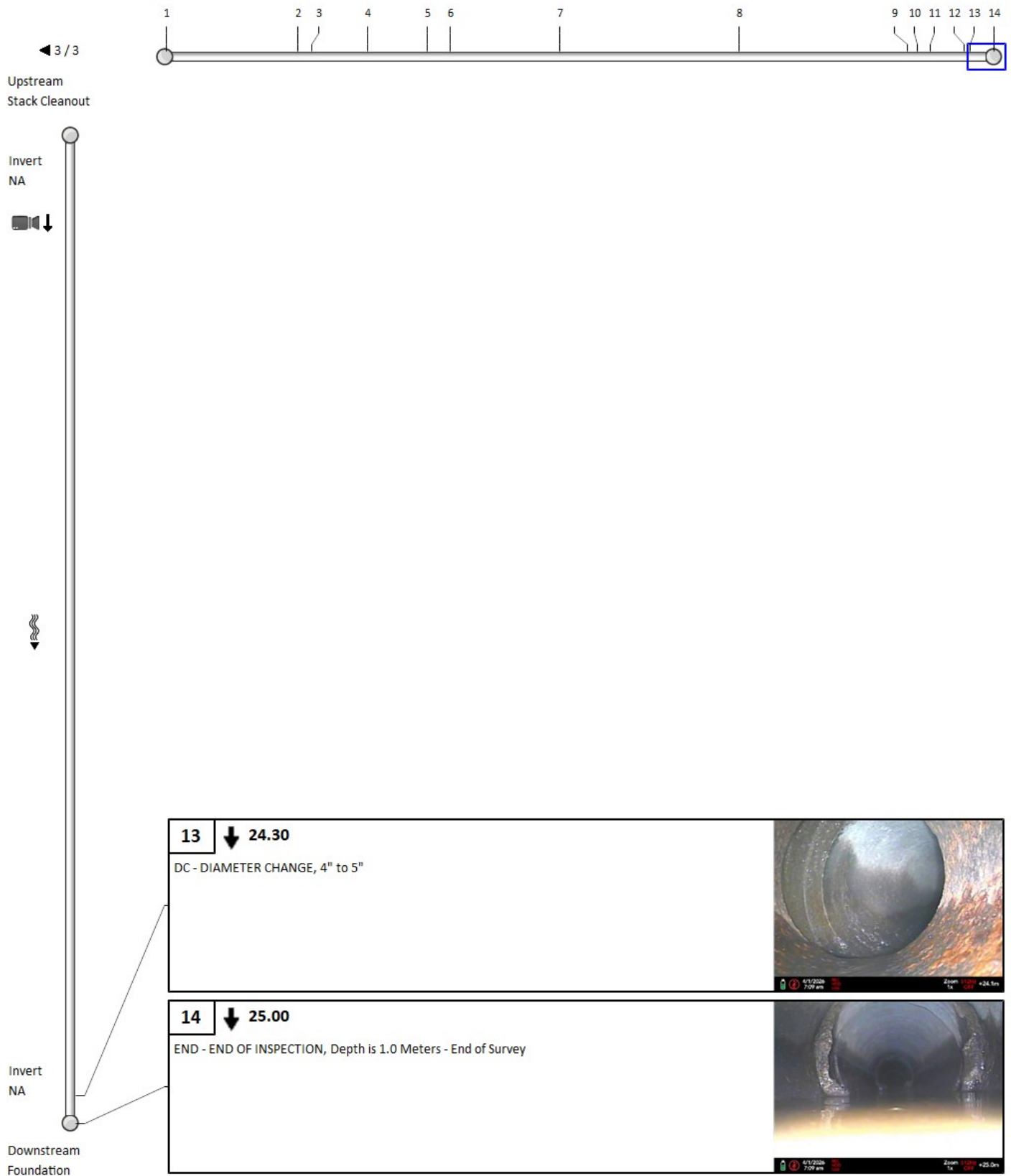
2. Pipe summary and condition details



2. Pipe summary and condition details



2. Pipe summary and condition details



February 20, 2025

Mike Russett
Planner III, Parks & Facilities Planning
Via email: mike.russett@ottawa.ca

**Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 960 Silver Street**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on February 14, 2025.

Pre-Consultation Preliminary Assessment

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

Supporting Information and Material Requirements

The attached **Study and Plan Identification List** outlines the information and material that has been identified, during this phase of pre-consultation, as either required (R) or advised (A) as part of a future complete application submission.

The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.

Planning Comments:

1. The Official Plan designates the site Neighbourhood (Evolving Neighbourhood Overlay) in the Outer Urban Transect.
2. The site is zoned Community Leisure Facility Zone (L1). The L1 zone prescribes a maximum building height of 11 metres (approx. 3 storeys) and minimum 7.5 metre setback for the front, rear, interior, and corner side yards. The site is an irregularly shaped lot. From a zoning perspective, Silver Street is the front lot line.
3. Minimum Parking rates (Section 101):
 - Community Centre: 2 spaces per 100 sqm of GFA
 - Park, Sport Field: The greater of 1 space per 8 fixed seats or 2 spaces per sports field
 - Bicycle parking: 1 per 1500 sqm of GFA

- Barrier Free Parking: For a parking lot with 26 to 50 spaces, 2 barrier free parking spaces are required (1 Type A and 1 Type B)
4. Preliminary comments on the concept plan:
 5. Additional parking is likely required (34 to 38 spaces total) based on the total gross floor area of the Community Centre and existing sports fields.
 - Shift the proposed accesses and parking spaces off Shillington north to avoid impacts to the root zones of the existing trees on Shillington Avenue.
 - Explore additional tree planting opportunities along both Silver and Shillington frontages.
 6. The site is adjacent to the Veterans' Housing Character Area. The City's Heritage Planners developed a set of guidelines that were approved by Council in May 2022 to encourage the conservation of houses and manage change in the character area. [Veterans' Housing Character Area: Guidelines and context](#)

Heritage Planning staff confirmed that they do not have any comments on the proposal.

Urban Design Comments:

7. An Urban Design Brief and elevation drawings are required.
8. Ensure pedestrian connections are clearly defined and make appropriate connections between the community centre and parking areas.

Engineering Comments:

9. The Stormwater Management Criteria, for the subject site, is to be based on the following:
 - a. Application of the IDF information derived from the Meteorological Services of Canada rainfall data, taken from the MacDonald Cartier Airport, collected 1966 to 1997.
 - b. In separated areas, the pre-development runoff shall be the lower of the existing coefficient or a maximum equivalent 'C' of 0.5, whichever is less (§ 8.3.7.3).
 - a. A calculated time of concentration (cannot be less than 10 minutes).
 - b. Flows to the storm sewer in excess of the 2-year storm release rate, up to and including the 100-year storm event, must be detained on site.
 - c. Storm sewer outlets should not be submerged.
 - d. The quantity control criteria is to control the 100-year post-development peak flow rate to the 2-year pre-development peak flow rate. It should be noted that the receiving downstream storm sewer is surcharging in frequent events, and additional mitigation measures are recommended.
 - e. Quality control is not required for this application.

10. Deep Services (Storm, Sanitary and/or Water Supply)

Water:

- a. It is recommended to reuse the community centres existing water service. In the event an additional connection is required to meet the fire flow or basic day demands, the following existing public services are available:
 - i. Silver Street – 152 mm dia. UCI watermain.
 - ii. Shillington Avenue – 152 mm dia. UCI watermain.
 - iii. Marshall Avenue – 152 mm dia. UCI watermain.

Sanitary

- b. It is recommended to reuse the community centres existing sanitary service. A CCTV inspection will be required to assess the condition of the existing lateral. In the event the service is in a state of disrepair and needs replacement or upsizing, then the following existing public service is available:
 - i. Silver Street – 225 mm dia. Conc. SAN sewer.
- c. A connection to the Cave Creek Trunk Collector sewer on Shillington Avenue shall be avoided. If a connection to the trunk is contemplated, contact Tyler Cassidy with the proposed wastewater flows and a rationale for not outletting to the Silver Street SAN sewer.
- d. A monitoring maintenance hole is not required.

Storm

- e. It is recommended to reuse the community centres existing storm service. A CCTV report indicating the existing lateral is in good condition will be required. In the event a new storm service connection is required, the following existing infrastructure is available for connection:
 - i. 300 mm dia. Conc. Storm on Silver Street.
 - ii. 1200 mm dia. Conc Storm on Shillington Avenue
- f. Sewer connections to be made above the springline of the sewermain as per:
 - i. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.
 - ii. Std Dwg S11 (For rigid main sewers) – lateral must be less than 50% the diameter of the sewermain,
 - iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain,

- iv. 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.

11. An MECP Environmental Compliance Approval **Private Sewage Works** may be required for the proposed development. Please have your consultant provide a statement in the Servicing Report on the MECP ECA requirements and exemptions. If a discussion is required, a Ministry contact has been provided below but please work with City staff on the need (or not) of an application.

- a. Shannon Hamilton-Browne at (613) 521-3450 or Shannon.Hamilton-Browne@ontario.ca

12. Water

- a. Boundary conditions should be provided to the City Project Manager (listed below) early on in the design process to assess system capacity.
- b. Water Data Card will need to be completed post-approval to determine if the existing meter is sufficient for the proposed flows.
- c. Fire Flow Requirements need to be calculated using the FUS2020 methodology.
- d. Water Boundary condition requests must include the location of the service (map or plan with connection location(s) indicated) and the expected loads required by the proposed development, including calculations. Please provide the following information:
 - i. Location of service
 - ii. Type of development
 - iii. The amount of fire flow required (per FUS).
 - iv. Average daily demand: ____ l/s.
 - v. Maximum daily demand: ____ l/s.
 - vi. Maximum hourly daily demand: ____ l/s.

13. Sewer (sanitary)

- a. Proposed peak flow rates should be provided to the City Project Manager listed below as early as possible to determine if there are any downstream capacity constraints.

14. Slope stability/global stability analysis is required if there are any proposed retaining walls greater than 1.0m in height.

15. Frontage Charges: none applicable to this application

If you have any questions, please contact Tyler Cassidy, P.Eng., Infrastructure Project Manager at tyler.cassidy@ottawa.ca.

Transportation Comments:

16. Shillington private approaches should be unidirectional.

17. The additional 890 square meters does not trigger a TIA.

If you have any questions, please contact Mike Giampa, Transportation Project Manager, at mike.giampa@ottawa.ca

Forestry Comments:

18. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City

a) approved TCR is a requirement of Site Plan approval.

b) The TCR may be combined with the Landscape Plan

19. As of January 1 2021, any removal of privately or publicly (City) owned trees 10cm or larger in 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.

20. The Planning Forester from Strategic Initiatives 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

21. The TCR must list all trees on site by species, diameter, and health condition

22. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)

23. The TCR must list all trees on adjacent sites if they have a critical root zone that extends onto the development site

24. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained

25. 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 a plan
- b) show the critical root zone of the retained trees
- c) if excavation will occur within the critical root zone, please show the limits of excavation

26. 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.

27. Landscape Plan tree planting requirements:

a) Minimum Setbacks

- i) Maintain 1.5m from sidewalk or MUP/cycle track.
- ii) Maintain 2.5m from curb
- iii) Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.
- iv) Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing.

- b) Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

28. Tree specifications

- a) Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- b) Maximize the use of large deciduous species wherever possible to maximize future canopy coverage
- c) 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).
- d) Plant native trees whenever possible
- e) No root barriers, dead-man anchor systems, or planters are permitted.
- f) No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

29. Hard surface planting

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

30. Soil Volume

a) Please ensure adequate soil volumes are 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

31. Sensitive Marine Clay

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

If you have any questions, please contact John Hoogendoorn, Forester, at john.hoogendoorn@ottawa.ca

Submission Requirements and Fees

1. Site Plan Control application subtype (Standard or Complex) will depend on the proposed size and parking. If the addition exceeds 1,860 sq. m or the parking includes more than 10 spaces, the application will trigger a Complex Site Plan Control application.
Additional information regarding fees related to planning applications can be found [here](#).
2. The attached **Study and Plan Identification List** outlines the information and material that has been identified as either required (R) or advised (A) as part of a future complete application submission.
 - a. The required plans and studies must meet the City's Terms of Reference (ToR) and/or Guidelines, as available on Ottawa.ca. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.
3. All the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

Should there be any questions, please do not hesitate to contact the contact identified for the above areas / disciplines.

Regards,

Wendy Tse
Planner III
Development Review South



Encl. Study and Plan Identification List

c.c. Siobhan Kelly, Planner II
Tyler Cassidy, IPM
Mike Giampa, TPM
John Hoogendoorn, Forester