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Stormwater Management Report and Site Servicing Study

**Proposed Commercial Development
524 Lacolle Way, Ottawa, ON**

Prepared for:

Patrice Houle Holdings Inc.
2360 Old Highway 17
Rockland, Ontario
K4K 1K7

Attention: Mr. Patrice Houle

LRL File No.: 240203

December 18th, 2024
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1 INTRODUCTION

LRL Associates Ltd. has been retained by Patrice Houle Holdings Inc. to prepare a Stormwater Management Report and Site Servicing in support of a proposed commercial development located at 524 Lacolle Way, Ottawa, Ontario.

This report has been prepared in consideration of the survey carried out by Annis, O'Sullivan, Vollebakk Ltd. for the proposed development. This report should be read in conjunction with the grading and drainage, site servicing, and stormwater management plans prepared by LRL Associates.

1.1 Site Description

The legal address of the subject site is known as Part of Lots 30 and 31, and Part of the Road Allowance between Lots 30 and 31, Concession 1 (Old Survey) in the geographic Township of Cumberland being Part 33 and 34 on Registered Plan 50R-6232; refer to Figure 1. The subject land is 0.85 ha in area and has an irregular shape with a frontage on Lacolle Way of 45m and an average lot depth of +/-150m.



Figure 1 Aerial view of the location of the proposed development

1.2 Proposed Development

The proposed development will see the construction of a commercial building with a total of 2 units and 2000.8 m² of total commercial area. The building will be fronted by a drive aisle and parking spaces. There will also be parking located to the south of the building. The proposed development will be serviced from the municipal infrastructure located within Lacolle Way.

2 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site measures **0.85 ha** and the property lot is a vacant green-field covered by wild grasses. The property is bound to the north by Lacolle Way; to the east by a gymnastics facility and the yard of a school; to the south by two residential properties; and to the west by a light industrial facility.

The property drains toward Lacolle Way with slopes ranging from 1% close to Lacolle Way up to 13% closer to the back of the site. A servicing easement has been identified to the south-west of the property. There is an existing municipal storm sewer and manhole located in the south-west area of the site, which will be maintained, and the ground elevations above the storm sewer will remain unchanged to ensure that the existing earth cover is maintained.

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

Lacolle Way:

- 300mm Ø Watermain
- 250mm Ø Sanitary sewer
- 1350mm Ø Storm sewer

3 SCOPE OF WORK

As per the City of Ottawa guidelines, the scope of work includes the following:

Sanitary services

- Describe the existing sanitary sewers available to receive wastewater from the building.
- Calculate peak flow rates from the development.
- Describe the proposed sanitary service system.
- Review the impact of increased sanitary flow on downstream sanitary sewer.

Water supply services

- Calculate the expected water supply demand at average and peak conditions.
- Calculate the fire flow as per the Fire Underwriter's Survey (FUS) method.
- Confirm the adequacy of water supply and pressure during peak flow and fire flow.



- Describe the proposed water service and connection to the existing system.

Stormwater management

- Determine the allowable stormwater release rate.
- Calculate the anticipated post development stormwater release rates.
- Demonstrate how the target quantity objectives will be achieved.

4 APPLICABLE TECHNICAL GUIDELINES

The following references and technical guidelines were consulted in the present study:

- City of Ottawa Sewer Design Guidelines, second edition (2012)
- City of Ottawa Design Guidelines – Water Distribution, first edition (2010)
- Ministry of Environment (MOE) Guidelines for the Design of Water Systems (2008)
- MOE Guidelines for the Design of Sanitary Sewage Systems (2008)

5 SANITARY SERVICING

The proposed site will be serviced with a 250mm Ø sanitary sewer, which will connect to the 250mm Ø sanitary sewer on Lacolle Way via a proposed 1200mm Ø. manhole.

The parameters used to calculate the anticipated site sanitary flows are: a light industrial average flow demand of 35000 L/ha/day, a light industrial peaking factor of 6.8 (based on Appendix 4-B of the Ottawa Sewer Guidelines) and an infiltration rate of 0.28 L/s/ha. Based on these parameters and the total site area of 0.85 ha, the total anticipated sanitary flow will be **2.62 L/s**. Refer to **Appendix C** for the site sanitary sewer design sheet.

As requested in the pre-consultation with City staff, included in **Appendix A**, a sanitary monitoring manhole is provided on the private property. Refer to Civil plans in **Appendix E** for the location of the proposed monitoring manhole.

Moreover, as requested in the pre-consultation with City staff, the calculated sanitary demands for the proposed development were coordinated with the City of Ottawa to confirm there is sufficient capacity in the downstream municipal sewers. As per the correspondence attached in **Appendix A**, the downstream municipal sewers can sufficiently accommodate the increase in sanitary flows from the proposed development.

6 WATER SERVICING

The respective water demand for the proposed development was calculated according to the method prescribed by the Ministry of Environment (MOE) Design Guidelines for Drinking Water Systems (2008). The water supply systems were designed to satisfy the maximum day peak flow rate.



6.1 Industrial Flow Demand

The subject site is anticipated to house a commercial building which can be categorized under 'Industrial- Light' property type with a unit rate of 35,000 L/ha/d. To service the proposed development, one (1) 150mm Ø water service lateral connection to the existing 300mm Ø watermain located within Lacolle Way is proposed. The connection will service the proposed building as well as the proposed on-site fire hydrant. Refer to *Site Servicing Plan C.401* in **Appendix E** for servicing layout and connection points.

For the proposed development:

- the average day demand = **0.35 L/s**;
- the maximum daily demand = **0.52 L/s**; and
- the maximum hour demand = **0.93 L/s**

For detailed calculations, please refer to **Appendix B** - Water Demand Calculations.

6.2 Boundary Conditions

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand, as indicated in the boundary request correspondence included in **Appendix B**. The subject property lies within the City of Ottawa 1E water distribution network pressure zone. The maximum pressure has been determined to be 81.7 psi which exceeds the static pressure of 80psi. Hence, a pressure-reducing valve (to be designed by mechanical engineer) has been proposed downstream of the water meter. The City of Ottawa recommends a pressure check at completion of construction to determine if pressure control is required.

6.3 Fire Flow Calculations

The fire flow rate was calculated using the Fire Underwriters Survey (FUS) method. The estimated fire flow for the proposed buildings was calculated in accordance with *ISTB-2018-02*. The following parameters were provided by the Architect, see **Appendix B** for collaborating correspondence:

- Type of construction – Non-Combustible.
- Occupancy type – Combustible Contents; and

The estimated fire flow demand was estimated to be **10,000 L/min**, see **Appendix B** for details. The minimum required fire flow was calculated to be **166.7 L/s**. The required duration of the fire flow is **2 hours**. Please refer to **Appendix B** - Water Demand Calculations. The proposed building's front entrances are more than 75m (via straight lines) from the two existing fire hydrants in Lacolle Way in front of the adjacent properties at 520 & 530 Lacolle Way. Therefore, a new fire hydrant is to be installed on-site. The new fire hydrant is proposed to be serviced by an independent 150mm Ø water service lateral connection within Lacolle Way. These fire



hydrants will provide a total fire flow of **13,248 L/min**. Refer to **Appendix B** for fire hydrant locations.

6.4 Water Service Pipe Sizing

To service the new development, the minimum required pipe size for the proposed water service was calculated to be 26mm Ø. With the potential of future increase in water demand and sprinklers being provided in the building, a 150mm Ø water service is proposed to service the development. Please refer to detailed calculations in **Appendix B** - Water Demand Calculations. The proposed on-site hydrant will be serviced using a standard 150mm PVC DR-18 lead.

7 STORMWATER MANAGEMENT

7.1 Design Criteria

The stormwater management criteria for this development are based on the *Taylor Creek Business Park Guidelines for On-Site Detention Design by McNeely Engineering dated April 1989* and the City of Ottawa Sewer Design Guidelines. A copy of the Taylor Creek Business Park Guidelines has been included in **Appendix F**.

7.1.1 Water Quality

As per the pre-consultation with the city staff, enhanced (80% minimum) TSS removal should be provided.

7.1.2 Water Quantity

In pre-development conditions, the extent of this site is vacant, with grass, soil, and small shrubs being the majority of the land coverage. With post-development conditions introducing an increase in the impervious surfaces such as the building rooftop and asphalt parking area, therefore quantity control will be implemented.

For the 5 year post-development flows, the allowable release rate is **22.52 L/s** and the site will be controlled to **19.52 L/s**. The 100 year post development flows will be released overland to Lacolle Way as specified by the Taylor Creek Guidelines.

7.2 Method of Analysis

The Rational Method has been used to calculate the runoff rate from the drainage catchment to quantify the detention storage for all control measures, which is in keeping within the requirements. Refer to **Appendix D** for all stormwater calculations and storm sewer design sheet.



7.3 Allowable Release Rate

The allowable release rate from the site to the municipal sewer is based on 26.4 L/s/ha for the 5 year storm event and the site area totaling 0.85 ha is permitted a release rate of **22.52 L/s**. The site is permitted to flow uncontrolled to Lacolle Way for storm events greater than the 5 year event.

The site will have a controlled release rate of **19.52 L/s** for the 5 year storm event.

7.4 Proposed Stormwater Quantity Controls

The proposed stormwater management quantity controls for this development will be accomplished by means of an outlet pipe equipped with a flow restrictor, and overland ponding storage on the site to meet the required storage volume.

The site has been analyzed and post-development watersheds have been allocated. The site is divided into a total of eight (8) catchment areas. Please refer to Post-development Catchments Plan C702 included in **Appendix E**. The post-development 5year storm runoff from catchment areas CA-1 to CA-6 will be controlled via proposed 77mm Ø PVC Orifice plate ICD at proposed CBMH6. Runoff exceeding the post development 5year storm event will back up from the proposed drainage structures CBMH3 to CBMH5 and CB1 and pond around these structures. Once ponding occurs, the excess runoff will flow overland, eventually making its way to Lacolle Way. Runoff at CBMH1 and CBMH2 will not back up or overflow from these structures under any circumstances. Stormwater from the building rooftop and the landscape area to the north-west of the building will be captured via a swale-subdrain and will be directed to CB1, and will eventually outlet to CBMH6. The exact location and number of roof drains will be determined by the mechanical engineer. The roof drains are indicated on the civil drawings to illustrate the intended stormwater flow. Catchment area CA-7 and CA-8 will be uncontrolled and will sheet drain off-site to Lacolle Way.

The total storage required for this site is **119.86 m³** and the maximum storage provided is **121.34 m³**. This is a combination of the underground storage (in the proposed drainage structures and pipes), contributing 54.72 m³, and the maximum ponding storage of 66.62 m³. This storage capacity will be possible using inlet control device (orifice plate) to be installed in proposed CBMH6; at a controlled release rate of 19.52 L/s.

The orifice plate is necessary at the above mentioned structure to send the stormwater above ground, and utilise each individual ponding locations.

Please refer to Stormwater Management Plan C601 included in **Appendix E** for an illustration of the maximum ponding extents which, when combined with the underground storage, provide a maximum storage volume of 121.34 m³ which exceeds the post 5year stormwater storage requirement of 119.86 m³.



For events greater than the maximum HGL, a major overland flow route was identified; the grading was designed to direct major storm events away from the building and spill-out to Lacolle Way.

7.5 Proposed Stormwater Quality Controls

Based on the above, the enhanced protection level of 80% total suspended solid (TSS) removal criterion must be achieved for this project. An oil/grit separator Stormceptor EF04 is proposed and will be located downstream of the proposed ICDs. Refer to **Appendix D** for the selection, the type, and for more information on the treatment unit.

8 EROSION AND SEDIMENT CONTROL

During all construction activities, erosion and sedimentation shall be controlled by the following techniques:

- Installation of filter cloth between frame and cover of catch basins
- A visual inspection shall be completed daily on sediment control barriers and any damage repaired immediately. Care will be taken to prevent damage during construction operations
- In some cases barriers may be removed temporarily to accommodate the construction operations. The affected barriers will be reinstated at night when construction is completed
- The sediment control devices will be cleaned of accumulated silt as required. The deposits will be disposed of as per the requirements of the contract
- During the course of construction, if the engineer believes that additional prevention methods are required to control erosion and sedimentation, the contractor will install additional silt fences or other methods as required to the satisfaction of the engineer, and
- Construction and maintenance requirements for erosion and sediment controls to comply with Ontario Provincial Standard Specification OPSS 577, and City of Ottawa specifications.

Please refer to Erosion and Sediment Control Plan C101.

9 MAINTENANCE

Maintenance is the key issue for all types of stormwater management practices. It ensures the performance efficiency of the facilities and prevents undesirable consequences such as flooding or event contamination to the neighboring properties.



The proposed quality control Stormceptor (oil and grit separator) maintenance would consist of inspecting the structure (inlet, outlet, cover) on a periodic basis as well as routine cleaning to remove sedimentation buildup as deemed necessary. It is the responsibility of the Owner to maintain and clean the treatment unit and keep a log of all the maintenance activities.

As previously discussed, the proposed septic system will require regular maintenance including regularly scheduled cleaning to ensure it never exceeds capacity

10 CONCLUSION

This Stormwater Management and Servicing Report for the development proposed at 524 Lacolle Way presents the rationale and details for the servicing requirements for the subject property.

In accordance with the report objectives, the servicing requirements for the development are summarized below:

Sanitary Service

- The total calculated wet wastewater flow from the proposed development is **2.62 L/s**.
- The proposed development will discharge **2.62 L/s** to the existing 250mm Ø sanitary sewer within Lacolle Way via a proposed 250mm Ø sanitary service lateral.

Water Service

- The minimum required fire flow was calculated at **10,000 L/min** using the FUS method.
- The site will be serviced by two (2) existing fire hydrants and one (1) proposed fire hydrant on-site. They will provide a combined fire flow of **13,248 L/min** to the site.
- The new development will be serviced with 150mm Ø water service connection to be connected to the existing 300mm Ø watermain within Lacolle Way.
- Boundary conditions received from the City of Ottawa indicate that sufficient pressure is available to service the proposed site.

Stormwater Management

- Stormwater quantity control objectives for 5year storm event will be met through an outlet pipe equipped with a flow restrictor, and overland ponding storage on the site stormwater storage.
- Runoff exceeding the post development 5year storm event will flow overland, eventually making its way to Lacolle Way.
- The post-development 5year storm runoff from catchment areas CA-1 to CA-6 will be controlled via proposed 77mm Ø PVC Orifice plate ICD at proposed CBMH6 which will limit the flow at a controlled release rate of **19.52 L/s**.



- The required stormwater storage volume is **119.86m³** and a combination of the underground storage (in the proposed drainage structures and pipes) and maximum ponding storage will provide a total storage of **121.34m³**.
- The stormwater quality control objectives will be met via Stormceptor EF04 (or approved equivalent) oil and grit separator, proposed downstream of the ICDs.

It is our professional opinion that this Stormwater analysis demonstrates that the 1:5 year post-development runoff discharge can be controlled to the 1:5 year pre-development level at all times. Also, during construction, best management practices related to sediment and erosion control are recommended in order to reduce impact on downstream watercourses.

11 REPORT CONDITIONS AND LIMITATIONS

The report conclusions apply only to this specific project described in the preceding pages. Any changes, modifications or additions will require a subsequent review by LRL Associates Ltd. to ensure the compatibility with the recommendations contained in this document.

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

If you have any questions or comments, please contact the undersigned.

Yours truly,

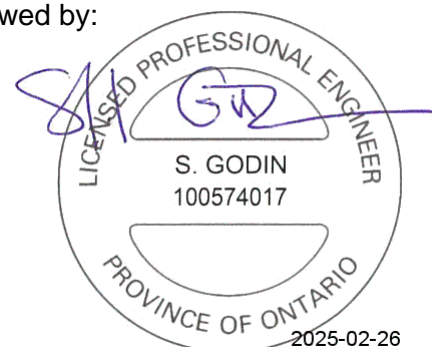
LRL Associates Ltd.

Prepared by:

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APPENDIX A

Pre-Consultation/ Correspondence



June 28, 2024

Matthew McElligott
Fotenn Consultants Inc.
Via email: mcelligott@fotenn.com

**Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 524 Lacolle Way**

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on June 26, 2024.

Pre-Consultation Preliminary Assessment

1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input checked="" type="checkbox"/>	5 <input type="checkbox"/>
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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.

Next Steps

1. A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. As of June 6, 2024, planning pre-consultations are no longer mandatory as per the Province of Ontario’s Bill 185.
2. If the applicant chooses to proceed with further pre-consultation, please complete a Phase 3 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.
3. In your subsequent pre-consultation submission, please ensure that all comments or issues detailed herein are addressed. A detailed cover letter stating how each issue has been addressed must be included with the submission materials. Please coordinate the numbering of your responses within the cover letter with the comment number(s) herein.
4. Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, it is recommended that you complete the Phase 2 pre-consultation process.

Submission Requirements and Fees

1. 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. These ToR and Guidelines outline the specific requirements that must be met for each plan or study to be deemed adequate.
3. All of the above comments or issues should be addressed to ensure the effectiveness of the application submission review.

Consultation with Technical Agencies

You are encouraged to consult with technical agencies early in the development process and throughout the development of your project concept. A list of technical agencies and their contact information is enclosed.

Planning

Comments:

1. The site is within the Suburban Transect of the [City of Ottawa's Official Plan \(2022\)](#) and is designated Mixed Industrial within the Trim Protected Major Transit Station Area (PMTSA). Further, the site is designated Local Production and Entertainment in the [Orléans Corridor Secondary Plan](#) (OCSP). The site is zoned IL4H(21).
2. The following reports are required as part of a formal application for Site Plan Control:
 - a. A [Planning Rationale](#) demonstrating how the new development will be consistent with the vision, goals, and objectives of the Provincial Policy Statement, Official Plan (OP) and Secondary Plan. The Rationale should also describe how the proposed uses are permitted under the IL4 zone. This report is triggered by Section 4.1.1 of the OCSP.
 - b. A [Zoning Confirmation Report](#) that shows conformity with the City of Ottawa's Zoning By-law (ZBL).
 - c. An [Archaeological Assessment](#) since the site is identified by the City's Archaeological Resource Potential Mapping Study as having potential for archaeological resources:



Figure 1: geoOttawa showing 524 Lacolle Way identified as having archaeological potential.

3. Revise the required and provided vehicular parking rates based on the proposed uses and square footage of the building per sections [101 – Minimum Parking Space Rates](#) and [113 – Loading Space Rates and Provisions](#) of the ZBL. The parking should be kept to the required minimums with the goal of reducing hardscaping on the site to provide for more space for trees. Parking stalls must be fully dimensioned and clearly identified by type.
4. Staff have provided the original Taylor Creek Business Park Building and Site Development Guidelines for the applicant’s better understanding of the site. Staff emphasize that these Guidelines are dated, particularly regarding the Planting Requirements, and will not replace any updated directions by policy or staff.
5. Provide a complete list of the easements required to facilitate the development and an accompanying reference plan showing all of the Parts subject to easements.
6. Regardless of any previous approvals granted for the subject property, including approvals of associated plans and studies, any new application for Site Plan Control Approval will be reviewed upon its own merit against current policies, standards, and terms of reference. New plans and/or studies, or updates to previously approved plans and/or studies, may be required at the discretion of staff.

Please contact Jerrica Gilbert, Planner II, for follow-up questions related to planning policy and the application process.

Urban Design

Comments:

7. As part of a complete application, staff require detailed architectural plans including Building Elevations and a Landscape Plan. An Urban Design Brief is not required.
8. Consider the Taylor Creek Business Park Building and Site Development Guidelines as you develop your proposal.
9. Ensure that there is a clear pedestrian connection from Lacolle Way to the site.
10. Provide additional trees along the perimeter of the property.

Please contact Nader Kadri, Planner II, for follow-up questions, related to Urban Design.

Engineering

Comments:

Water:

11. Frontage charges do not apply at this time.
12. Accessible Watermain: direct municipal watermain connection on Lacolle Way.
13. Water-related submission documents must include the following:

- a. Boundary Conditions:

Civil consultant is to request boundary conditions from the City's assigned Project Manager, Development Review. Water boundary conditions request must include the location of the service and the expected loads required by the proposed development. Please provide all the following information:

- i. Location of service (show on a plan or map);
- ii. Type of development;
- iii. Average daily demand: ___ l/s.;
- iv. Maximum daily demand: ___ l/s.;
- v. Maximum hourly daily demand: ___ l/s.;
- vi. Required fire flow and completed FUS Design Declaration if applicable; and
- vii. Supporting calculations for all demands listed above and required fire flow as per Ontario Building Code or Fire Underwriter Surveys (See technical Bulletin ISTB-2021-03).

- b. Watermain system analysis demonstrating adequate pressure per Section 4.2.2 of the Water Distribution Guidelines.
- c. Demonstrate adequate hydrant coverage for fire protection. Please review Technical Bulletin ISTB-2018-02, Appendix I Table 1 – maximum flow to be considered from a given hydrant.
- d. Any proposed emergency route (to be satisfactory to Fire Services).

Sanitary Sewers:

- 14. Accessible Sanitary Sewer: direct municipal sanitary connection available on Lacolle Way.
- 15. Monitoring maintenance hole is required on private property.
- 16. Provide the proposed peak wet weather sanitary flow rate, along with supporting calculations, to our Asset Management team for analysis to demonstrate that there is adequate residual capacity in the receiving and downstream wastewater system to accommodate the proposed development. This information can be provided in an email to the Project Manager, and we will circulate internally.
- 17. Apply the wastewater design flow parameters in Technical Bulletin PIEDTB-2018-01.
- 18. For laterals connecting to main with 50% pipe diameter or over, provide a manhole.

Stormwater Management:

- 19. Accessible Storm Sewer: direct connection to municipal storm sewer on Lacolle Way.
- 20. For laterals connecting to main with 50% pipe diameter or over, a manhole must be provided.
- 21. Quality Control – Suspended Solids:
 - a. Provide enhanced level of protection (80%) for suspended solids removal.
 - b. Demonstrate ISO 14034 Environmental Technology Verification (ETV) protocol for sizing OGS units.
- 22. Quantity Control:
 - a. Runoff Coefficient of 0.5 or existing is to be used, whichever is lesser.

- b. Minor and major system design requirements: control the 5-year post-development peak flowrate to 26.4 L/ha/s, with all excess drainage being directed towards the Right-of-Way, per the Taylor Creek Business Park Guidelines for On-site Detention Design.

23. Ponding Notes:

- a. Maximum permissible ponding of 350mm for the 100-year storm event. No spilling to adjacent sites.
- b. 100-year spill elevation must be 300mm lower than any building opening or ramp.
- c. Demonstrate that emergency overland flow in excess of the 100-year storm event will be directed towards the right-of-way.

MECP ECA Requirements:

- 24. Municipal works ECA to be required if site is to share any services with adjacent sites. If required, to be provided prior to Site Plan Control approval.

Additional Comments:

- 25. No road moratorium that would impact the application has been identified.
- 26. Any easement identified should be shown on all plans.
- 27. For any proposed exterior light fixtures, please provide certification from a licensed professional engineer confirming lighting has been designed only using fixtures that meet the criteria for full cut-off classification, as recognized by the Illuminating Engineering Society of North America and result in minimal light spillage onto adjacent properties (maximum allowable spillage is 0.5 fc). Please include in the submission the location of the fixtures and fixture type, such as the make, model, part number and mounting height.
- 28. Sensitive Marine Clay is widely found across Ottawa - geotechnical reports should include Atterberg Limits, consolidation testing, sensitivity values, and vane shear testing.
- 29. Infrastructure Requirements for Site Plan Control Application:
 - a. Grading & Drainage Plan
 - b. Servicing Plan
 - c. Erosion & Sediment Control Plan
 - d. Servicing & Stormwater Management Report

- e. Geotechnical Investigation with Slope Stability Study
- f. Environmental Site Assessment Report(s)

Please contact Cam Elsby, Infrastructure Project Manager, for questions related to infrastructure engineering comments.

Noise

- 30. No comments or studies required.

Please contact Rochelle Fortier, Transportation Project Manager, for follow-up questions related to noise comments.

Transportation

Comments:

- 31. A Transportation Impact Assessment (TIA) is not required. Correct the screening form as the site is within the Trim PMTSA and meets the location trigger.
- 32. Provide turning movement diagrams for the largest vehicle accessing the site.
- 33. Consider providing a new sidewalk along Lacolle Way across the property frontage. This sidewalk should be continuous across the access per City Specification 7.1.
- 34. As the proposed site is commercial/industrial and for general public use, Accessibility for Ontarians with Disabilities Act (AODA) legislation applies.
 - a. Ensure all crosswalks located internally on the site provide a Tactile Walking Surface Indicator (TWSI) at the depressed curb, per requirements of the Integrated Accessibility Standards Regulation under the AODA.
 - b. Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).
 - c. Consider using the [City's Accessibility Design Standards](#), which provide a summary of AODA requirements.
- 35. Right-of-way (ROW) protection.
 - a. See [Schedule C16 of the Official Plan](#).
 - b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

36. On site plan:

- a. Ensure site accesses meet the [City's Private Approach Bylaw](#) and all driveways/aisles meet the requirements outlined in [Section 107 of the Zoning By-law](#).
- b. Show all details of the roads abutting the site; include such items as pavement markings, accesses and/or sidewalks.
- c. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.
- d. Turning movement diagrams required for internal movements (loading areas, garbage).
- e. Show all curb radii measurements; ensure that all curb radii are reduced as much as possible and fall within TAC guidelines (Figure 8.5.1).
- f. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)

Please contact Rochelle Fortier, Transportation Project Manager, for follow-up questions related to transportation comments.

Environment

Comments:

37. There are no natural heritage features, surface water features, or species-at-risk habitat on or near the site that trigger the need for an Environmental Impact Statement (EIS). An EIS is not required as part of this submission.
38. Review the City's [Bird Safe Design Guidelines](#) and incorporate mitigation measures from that document where relevant.
39. Section 4.8 of the OP contains strong tree planting policies to achieve the 40% urban forest canopy goals as well as to reduce the impacts of climate change and the urban heat island effect. The Landscape Plan should maximize the amount of tree plantings in the available space. The City prefers that all tree plantings be of native and non-invasive species.

Please contact Mark Elliott, Environmental Planner, for follow-up questions related to environment comments.

Forestry

Comments:

40. A Tree Conservation Report and Landscape Plan are submission requirements for a Site Plan Application. The two reports can be combined if all required information is provided.
41. Section 4.8.2 of the Official Plan provides tree planting policies for growth, development, and intensification. All development sites must preserve and provide space for mature, healthy trees on private and public property, including the provision of adequate volumes of high-quality soil. Large canopy trees, preferably native species, must be incorporated on the site and within the ROW.
42. Section 4.1.4 (11) of the OP directs surface parking lots to incorporate trees. Ensure the site plan complies with this policy.

Tree Conservation Report

43. The following Tree Conservation Report (TCR) requirements have been adapted from the Schedule E of the Urban Tree Protection Guidelines.
 - a. A Tree Conservation Report (TCR) must be supplied for review along with the suite of other plans/reports required by the City
 - b. Any tree 10 cm in diameter or greater and City-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.
 - c. The TCR must contain two separate plans/maps:
 - i. Plan/Map 1 - show existing conditions with tree cover information.
 - ii. Plan/Map 2 - show proposed development with tree cover information
 - d. The TCR must list all trees on site, as well as off-site trees if the CRZ (critical root zone) extends into the developed area, by species, diameter, and health condition. Please note that averages can be used if there are forested areas.
 - e. Please identify trees by ownership – private onsite, private on adjoining site, city owned, co-owned (trees on a property line)
 - f. If trees are to be removed, the TCR must clearly show where they are, and document the reason they cannot be retained.
 - g. The removal of trees on a property line will require the permission of both property owners.

- h. 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
- i. 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.
- j. Removal of a City tree is not permitted unless justified. If justified, monetary compensation for the value of the tree must be paid before a tree removal permit is issued.

Landscape Plan (LP) requirements.

- 44. [Landscape Plan Terms of Reference](#) must be adhered to for all tree planting.

Additional Elements for Tree Planting in the Right-of-Way:

- 45. Please ensure any retained trees in the ROW are shown on the LP.
- 46. Please follow the City's 2017 Tree Planting in Sensitive Marine Clay Guidelines.
- 47. Please demonstrate per the Landscape Plan Terms of Reference that the available soil volumes for new plantings will meet or exceed the minimum soil volumes requested.
- 48. The City requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.
- 49. Provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The LP shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. Provide a projection of the future canopy cover for the site to 40 years.
- 50. Minimum Setbacks
 - a. Maintain 1.5m from sidewalk or Multi-use Pathway (MUP)/cycle track or water service laterals.
 - b. Maintain 2.5m from curb.
 - c. Coniferous species require a minimum 4.5m setback from curb, sidewalk, or MUP/cycle track/pathway.
 - d. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas.

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

51. Tree specifications

- f. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.
- g. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage.
- h. Tree planting on city property shall be in accordance with the City of Ottawa's [Tree Planting Specification](#); and if possible, include watering and warranty as described in the specification.
- i. No root barriers, dead-man anchor systems, or planters are permitted.
- j. No tree stakes unless necessary, and only one on the prevailing winds side of the tree.

52. Hard surface planting

- a. A planting detail must be provided if hard surface plantings are proposed.
- b. Curb-style planters are highly recommended.
- c. No grates are to be used. If guards are required, City of Ottawa standard (which can be provided) shall be used.
- d. Trees are to be planted at grade.

Please contact Hayley Murray, Forester, for follow-up questions related to forestry.

Parkland

Comments:

53. Cash-in-lieu of parkland / parkland dedication:

- a. Parkland Dedication [By-law No. 2022-280](#)
- b. Parkland Dedication is required in the form of cash in lieu of parkland dedication.

54. If parkland dedication has already been paid, the applicant must provide proof of payment in order to waive the above cash-in-lieu requirement.

Please contact Jessica Button, Parks Planner, for follow-up questions related to parkland.

Other

55. The High Performance Development Standard (HPDS) is a collection of voluntary and required standards that raise the performance of new building projects to achieve sustainable and resilient design. The HPDS was passed by Council on April 13, 2022.

- a. At this time, the HPDS is not in effect and Council has referred the 2023 HPDS Update Report back to staff with direction to bring forward an updated report to Committee with recommendations for revised phasing timelines, resource requirements and associated amendments to the Site Plan Control By-law.
- b. Please refer to the HPDS information attached and ottawa.ca/HPDS for more information.

If you have any questions about the above comments, please contact myself or the contact identified for the above areas / disciplines.

Yours Truly,

Jerrica Gilbert, Planner II

Encl. Study and Plan Identification List
List of Technical Agencies
Supplementary Design Information
Accessible Design Standards Site Plan Checklist
HPDS Overview for Applicants
HPDS Example Checklist

c.c. Cam Elsby
Cass Sclauzero
Kelly Livingstone
Kelsey Charie
Justin Armstrong
Nader Kadri
Rochelle Fortier
Hayley Murray
Mark Elliott
Jessica Button
Mark McElligott
Virginia Johnson
Yvon Simoneau
Maxime Longtin
Kenneth Blouin
Sarthak Vora

APPENDIX B
Water Supply Calculations



Water Supply Calculations

LRL File No. : 240203

Project: Proposed Commercial Development

Location: 524 Lacolle Way, Ottawa

Date: 25 September, 2024

Designed: S.Vora

Checked: S.Godin, P.Eng

Dwg Reference: C401

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

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate (L/ha/d)	Area (ha)	Demand (L/d)
Industrial- Light	35000	0.852	29820

Average Day Demand	29,820 L/d	0.345 L/s
Maximum Day Factor	1.5	(Design Guidelines-Water Distribution Table 4.2)
Maximum Daily Demand	44,730 L/d	0.518 L/s
Peak Hour Factor	1.8	(Design Guidelines-Water Distribution Table 4.2)
Maximum Hour Demand	80,514 L/d	0.932 L/s

TOTAL DEMAND			
Average Day Demand	29,820 L/d	0.35 L/s	
Maximum Daily Demand	44,730 L/d	0.52 L/s	
Maximum Hour Demand	80,514 L/d	0.93 L/s	

Water Service Pipe Sizing

$$Q = VA$$

Where: V = velocity (m/s)

A = area of pipe (m²)

Q = flow rate (L/s)

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

$$\begin{aligned} \text{Minimum pipe diameter (d)} &= (4Q/\pi V)^{1/2} \\ &= 0.026 \quad \text{m} \\ &= 26 \quad \text{mm} \end{aligned}$$

$$\begin{aligned} \text{Proposed pipe diameter (d)} &= 150 \quad \text{mm} && \text{(to be confirmed with hydraulic pressure analysis)} \\ &= 6 \quad \text{Inches} \end{aligned}$$



Fire Flow Calculations

LRL File No. 240203

Project: Proposed Commercial Development

Location: 524 Lacolle Way, Ottawa

Date: September 10, 2024

Method: Fire Underwriter's Survey (FUS)

Prepared by: S.Vora

Step	Task	Term	Options	Multiplier	Choose:	Value	Unit	Fire Flow
Structural Framing Material								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame	1.5	Non-combustible construction	0.8		
			Ordinary Construction	1.0				
			Non-combustible construction	0.8				
			Fire resistive construction <2 hrs	0.7				
			Fire resistive construction >2 hrs	0.6				
Floor Space Area (A)								
2			Total area			2,182	m ²	
3	Obtain fire flow before reductions	Required fire flow (rounded to nearest 1000)	Fire Flow = 220 x C x A ^{0.5}				L/min	9,000
Reductions or surcharge due to factors affecting burning								
4	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Non-combustible	-25%	Combustible	0%	L/min	9,000
			Limited combustible	-15%				
			Combustible	0%				
			Free burning	15%				
			Rapid burning	25%				
5	Choose reduction for sprinklers	Sprinkler reduction	Full automatic sprinklers	-30%	False	0%	L/min	9,000
			Water supply is standard for both the system and fire department hose lines	-10%	False	0%		
			Fully supervised system	-10%	False	0%		
6	Choose separation	Exposure distance between units	North side	20.1 to 30m	10%	L/min	9,900	
			East side	30.1 to 45m	0%			
			South side	30.1 to 45m	0%			
			West side	30.1 to 45m	0%			
Net required fire flow								
7	Obtain fire flow, duration, and volume	Minimum required fire flow rate (rounded to nearest 1000)					L/min	10,000
		Minimum required fire flow rate					L/s	166.7
		Required duration of fire flow					hr	2



FIRE HYDRANT FIGURE

LEGEND

- Hydrants within 75m
- Hydrants within 150m

Distance to buildings ^a		Maximum capacity ^b	
(ft)	(m)	(gpm)	(L/min)
≤ 250	≤ 76	1500	5678
> 250 and ≤ 500	> 76 and ≤ 152	1000	3785
> 500 and ≤ 1000	> 152 and ≤ 305	750	2839

^a Measured in accordance with 18.5.1.4 and 18.5.1.5.

^b Minimum 20 psi (139.9 kPa) residual pressure.

Sarthak Vora

From: Elsby, Cam <Cam.Elsby@ottawa.ca>
Sent: Friday, September 20, 2024 3:15 PM
To: Sarthak Vora
Cc: Maxime Longtin; Virginia Johnson; Matt McElligott; Yvon Simoneau; Charie, Kelsey
Subject: Re: Boundary Conditions Request: 524 Lacolle Way (City of Ottawa File No, PC2024-0250) (LRL 240203)
Attachments: 524_Lacolle_Boundary Condition.docx

Hi Sarthak,

Good timing! Please find attached boundary condition result as requested.

Please don't hesitate to reach out should you have any questions or concerns, and have a great weekend!

Kind regards,

Cam Elsby, P.Eng.

Project Manager, Infrastructure Approvals
Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)
Development Review – East 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 21443
cam.elsby@ottawa.ca

From: Sarthak Vora <svora@lrl.ca>
Sent: Friday, September 20, 2024 2:55 PM
To: Elsby, Cam <Cam.Elsby@ottawa.ca>
Cc: Maxime Longtin <mlongtin@lrl.ca>; Virginia Johnson <vjohanson@lrl.ca>; Matt McElligott <mcelligott@fotenn.com>; Yvon Simoneau <yvonsimoneau@gmail.com>
Subject: RE: Boundary Conditions Request: 524 Lacolle Way (City of Ottawa File No, PC2024-0250) (LRL 240203)

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

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Good Afternoon, Cam,

Kindly following up on our request for the Boundary conditions. We are nearing completion of our submission file and aim to have the Civil Deliverables packaged by mid-next week to meet our September 30th submission deadline.

Thank you for your attention. I look forward to your feedback.

Sarthak Vora, EIT

Civil Engineer-In-Training

LRL Engineering | lrl.ca

Cell: (613)915-7633 | svora@lrl.ca



From: Elsby, Cam <Cam.Elsby@ottawa.ca>

Sent: Wednesday, September 11, 2024 4:15 PM

To: Sarthak Vora <svora@lrl.ca>

Cc: Maxime Longtin <mlongtin@lrl.ca>; Virginia Johnson <vjohnson@lrl.ca>

Subject: Re: Boundary Conditions Request: 524 Lacolle Way (City of Ottawa File No, PC2024-0250) (LRL 240203)

Hi Sarthak,

Confirmed no concerns with the proposed 2.62 L/s peak sanitary flow. I'll be sure to reach out as soon as I hear back about the water boundary condition request.

Kind regards,

Cam Elsby, P.Eng.

Project Manager, Infrastructure Approvals

Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)

Development Review – East 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 21443

cam.elsby@ottawa.ca

From: Elsby, Cam <Cam.Elsby@ottawa.ca>

Sent: Wednesday, September 11, 2024 11:57 AM

To: Sarthak Vora <svora@lrl.ca>

Cc: Maxime Longtin <mlongtin@lrl.ca>; Virginia Johnson <vjohnson@lrl.ca>

Subject: Re: Boundary Conditions Request: 524 Lacolle Way (City of Ottawa File No, PC2024-0250) (LRL 240203)

Hi Sarthak,

I've reviewed the boundary condition request and sanitary peak flow calculations and all meets our guidelines, so I've passed these requests onto our asset management team for processing. Note that turnaround time is approximately 2 weeks due to a high volume of requests at this time.

Please don't hesitate to reach out should you have any questions or concerns.

Kind regards,

Cam Elsby, P.Eng.

Project Manager, Infrastructure Approvals

Planning, Development and Building Services Department (PDBS) | Direction générale des services de la planification, de l'aménagement et du bâtiment (DGSPAB)

Development Review – East 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 21443

cam.elsby@ottawa.ca

From: Sarthak Vora <svora@lrl.ca>

Sent: Tuesday, September 10, 2024 12:46 PM

To: Elsby, Cam <Cam.Elsby@ottawa.ca>

Cc: Maxime Longtin <mlongtin@lrl.ca>; Virginia Johnson <vjohnson@lrl.ca>

Subject: Boundary Conditions Request: 524 Lacolle Way (City of Ottawa File No, PC2024-0250) (LRL 240203)

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Good Afternoon,

I would like to request boundary conditions and confirmation on the Sanitary sewer capacity for the Proposed Commercial Development located at 524 Lacolle Way.

We are proposing a service connection to the 300mm municipal watermain within Lacolle Way (see image below for connection point). Please provide the boundary conditions using the following revised proposed development demands:

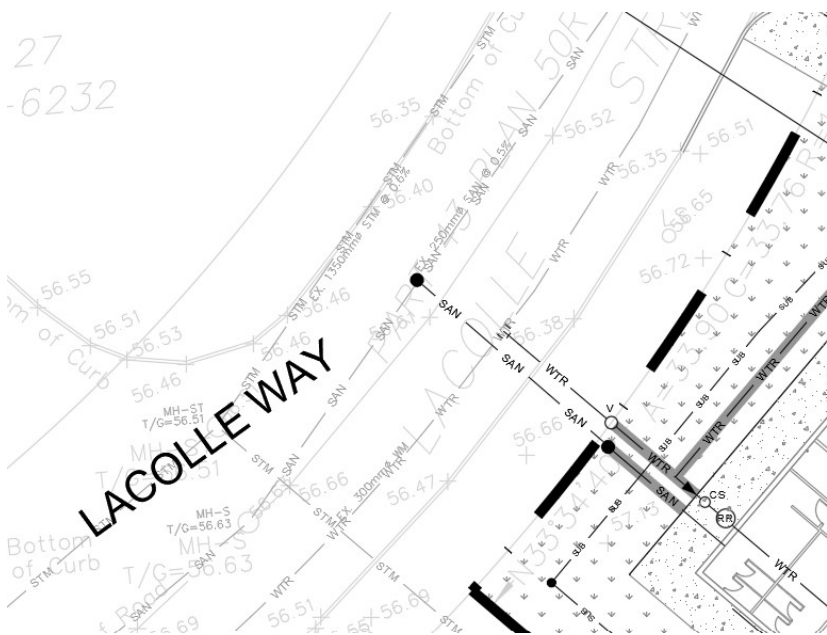
	Demand (L/s)
Avg. Daily	0.35
Max. Day + FUS	0.52+ 167
Peak Hour	0.93

Sanitary Connection

We also determined that the sanitary sewer discharge from the site would be equal to **2.62L/s**. We are proposing to tie into the 250mm sanitary sewer within Lacolle Way (see image below for connection

point). Please confirm if the existing sanitary sewer will have sufficient capacity to accommodate our discharge.

Attached are the copies of the design sheets for your reference. If any additional information is required, please let me know.



Thanks

Sarthak Vora, EIT

Civil Engineer-In-Training

LRL Engineering | lrl.ca

Cell: (613)915-7633 | svora@lrl.ca



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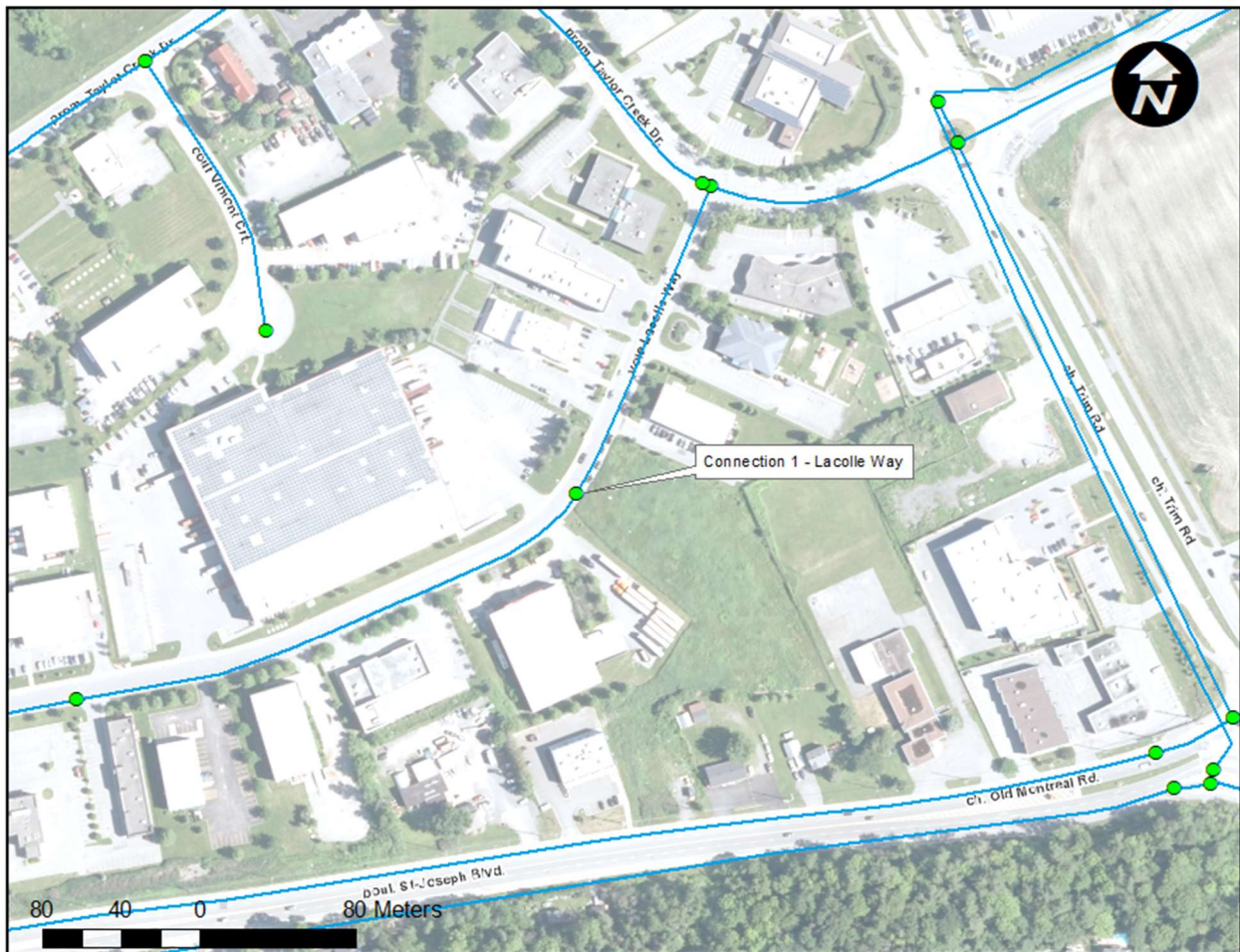
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Boundary Conditions 524 Lacolle Way

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	21	0.35
Maximum Daily Demand	31	0.52
Peak Hour	56	0.93
Fire Flow Demand #1	10,000	166.67

Location



Results

Connection 1 – Lacolle Way

Demand Scenario	Head (m)	Pressure¹ (psi)
Maximum HGL	114.1	81.7
Peak Hour	109.4	75.1
Max Day plus Fire Flow	103.9	67.2

¹ Ground Elevation = 56.6 m

Notes

1. *As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:*
 - *If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.*
 - *Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.*

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.

APPENDIX C
Sanitary Service Calculations

LRL Associates Ltd.
Sanitary Sewer Design Sheet



LRL File No.: 240203
Project: Proposed Commercial Development
Location: 524 Lacolle Way, Ottawa
Designed: S.Vora
Checked: S.Godin, P.Eng
Date: 17 September, 2024
DWG. Reference: C401

Sanitary Design Parameters

Commercial & Institutional Flow = 28000 L/ha/day
 Light Industrial Flow = 35000 L/ha/day
 Heavy Industrial Flow = 55000 L/ha/day
 Maximum Residential Peak Factor = 4.0
 Commercial & Institutional Peak Factor = 1.5

Average Daily Flow = 280 L/p/day
 Industrial Peak Factor = as per Appendix 4-B
 Extraneous Flow = 0.33 L/s/ha

Pipe Design Parameters

Maximum Velocity = 3.00 m/s
 Minimum Velocity = 0.60 m/s
 Manning's n = 0.013

LOCATION			RESIDENTIAL					COMMERCIAL		INDUSTRIAL		INSTITUTIONAL		C+I+I	INFILTRATION			TOTAL FLOW, Q	PIPE									
STREET	FROM	TO	AREA	POP.	ACCU. AREA	POP.	PEAK FACT.	PEAK FLOW	AREA	ACCU. AREA	AREA	ACCU. AREA	PEAK FACT.	AREA	ACCU. AREA	PEAK FLOW	TOTAL AREA		ACCU. AREA	INFILT. FLOW	LENGTH	DIA.	SLOPE	MATERIAL	CAP. Q(FULL)	VEL. V(FULL)	RATIO Q/QFULL	
			(Ha)		(Ha)			(L/s)	(Ha)	(Ha)		(Ha)		(Ha)	(Ha)	(L/s)	(Ha)	(Ha)	(L/s)	(L/s)	(m)	(mm)	(%)		(L/s)	(m/s)		
	BLDG	SAN MH 1									0.85	0.85	6.8			2.34	0.850	0.850	0.28	2.62	7.5	250	5.00%	PVC	132.97	2.71	0.02	
	SAN MH 1	San MH2/ Street										0.85	6.8			2.34		0.850	0.28	2.62	12.5	250	8.00%	PVC	168.20	3.43	0.02	

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

APPENDIX D

Stormwater Management Calculation

Stormwater Quality Treatment Unit

LRL Associates Ltd.

Storm Watershed Summary



LRL File No. 240203

Project: Proposed Commercial Development

Location: 524 Lacolle Way, Ottawa, ON

Date: 17 December, 2024

Designed: S.VORA

Checked: S. Godin, P.Eng

Dwg Reference: C701, C702

Pre-Development Catchments

Watershed	C = 0.20	C = 0.80	C = 0.90	Total Area (ha)	Combined C
ECA-01 (uncontrolled)	0.853	0.000	0.000	0.853	0.20
Total	0.853	0.000	0.000	0.853	0.20

Post-Development Catchments

Watershed	C = 0.20	C = 0.8	C = 0.90	Total Area (ha)	Combined C
CA-01 (controlled)	0.061	0.000	0.219	0.280	0.75
CA-02 (controlled)	0.060	0.000	0.083	0.143	0.61
CA-03 (controlled)	0.081	0.000	0.098	0.179	0.58
CA-04 (controlled)	0.023	0.000	0.077	0.100	0.74
CA-05 (controlled)	0.033	0.000	0.0600	0.093	0.65
CA-06 (controlled)	0.009	0.000	0.032	0.041	0.75
CA-07 (un-controlled)	0.000	0.000	0.003	0.003	0.90
CA-08 (un-controlled)	0.007	0.000	0.007	0.014	0.55
Total	0.274	0.000	0.579	0.853	0.68



LRL File No. 240203
Project: Proposed Commercial Development
Location: 524 Lacolle Way, Ottawa, ON
Date: 17 December, 2024
Designed: S.VORA
Drawing Ref.: C.702

**Stormwater Management
Design Sheet**

Allowable Release Rate

Site Area = 0.853 ha
 Release Rate Q= 26.4 L/s/ha
Allowable Release Rate Q= 22.52
 Controlled Release Rate Q= 19.52 L/s

As per Taylor Creek Business Park Guidelines for On-Site Detention Design, by McNeely Engineering, dated April 1989

Catchment Area and Runoff Coefficient (Post-development)

	Individual Watersheds	Total Area (ha)	Grass Area (ha)	Gravel Area (ha)	Bldg. / Asph. / Conc. Area (ha)	ΣR_s
Controlled	CA-1	0.280	0.061	0.000	0.219	0.75
	CA-2	0.143	0.060	0.000	0.083	0.61
	CA-3	0.179	0.081	0.000	0.098	0.58
	CA-4	0.100	0.023	0.000	0.077	0.74
	CA-5	0.093	0.033	0.000	0.060	0.65
	CA-6	0.041	0.009	0.000	0.032	0.75
Un-controlled	CA-7	0.003	0.000	0.000	0.003	0.90
	CA-8	0.014	0.007	0.000	0.007	0.55

					1:5 YEAR	
		Total Site Area =	0.853	ha	$\Sigma R =$	0.66
Controlled	Bldg. / Asph. / Conc. Area =		0.569	ha	R=	0.90
	Gravel Area =		0.000	ha	R=	0.85
	Grass Area =		0.267	ha	R=	0.20
	Total Controlled =		0.836	ha	$\Sigma R =$	0.68
Uncontrolled	Bldg. / Asph. / Conc. Area =		0.010	ha	R=	0.90
	Gravel Area =		0.000	ha	R=	0.85
	Grass Area =		0.007	ha	R=	0.20
	Total Uncontrolled =		0.017	ha	$\Sigma R =$	0.61



LRL File No. 240203
Project: Proposed Commercial Development
Location: 524 Lacolle Way, Ottawa, ON
Date: 17 December, 2024
Designed: S.VORA
Drawing Ref.: C.702

**Stormwater Management
Design Sheet**

Post-development Stormwater Management

5 Year Post-development:

Intensity:

$I_s = 998.071 / (T_c + 6.053)^{0.814}$ as per City of Ottawa Guidelines

where: I = intensity in mm/hr

Tc = Time of Concentration

1:5 YEAR STORM EVENT					
Time (min)	Intensity (mm/hr)	Peak Flow (L/s)	Release Rate (L/s)	Storage Rate (L/s)	Storage Volume (m ³)
10	104.2	163.80	19.52	144.28	86.57
15	83.6	131.36	19.52	111.84	100.66
20	70.3	110.44	19.52	90.92	109.11
25	60.9	95.73	19.52	76.21	114.32
30	53.9	84.78	19.52	65.26	117.47
35	48.5	76.27	19.52	56.75	119.18
40	44.2	69.46	19.52	49.94	119.86
45	40.6	63.87	19.52	44.35	119.75
50	37.7	59.19	19.52	39.67	119.02
55	35.1	55.22	19.52	35.70	117.80
60	32.9	51.79	19.52	32.27	116.17

Inlet Control Device Parameters

PVC Orifice Plate at Prop. STM CBMH6

HWL = 56.90 m
 Grate Level = 56.90 m
 Outlet Pipe Invert = 54.40 m
 Outlet Pipe Dia. = 250 mm
 Max. Flow = 19.52 L/s
 Max. Ponding Depth = 0.00 m (at this structure)
 ICD Centerline = 54.53
 HWL Head = 2.38 m (from centerline)
 C= 0.61
 Orifice Area = 0.005 m²
 Orifice Diameter = **77** mm (min. 75mm)

Onsite Stormwater Retention

Total Storage Required = 119.86 m³
 Pipe Storage = 27.45 m³
 CB/MH Storage = 27.27 m³
 Ponding Storage = 66.62 m³
Total Available Storage = 121.34 m³
 Underground Storage Required = 0.00 m³

LRL Associates Ltd.
Storm Design Sheet



LRL File No. 120548
Project: Proposed Commercial Development
Location: 524 Lacolle Way, Ottawa, ON
Date: 17 December, 2024
Designed: S. Vora
Drawing Reference: C.702

Rational Method Q = 2.78CIA

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

Storm Design Parameters

Runoff Coefficient (C)
Grass 0.2
Gravel 0.85
Bldg. / Asph. / Conc. 0.9

IDF Curve Ottawa Macdonald-Cartier International Airport
Storm Event 5 years
Formula $I = a / (T_c + b)^c$
a = 998.07 b = 6.053 c = 0.814

Pipe Design Parameters

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

LOCATION			AREA (ha)			FLOW					STORM SEWER								MANHOLE					WATERSHED		AVAILABLE STORAGE						
CATCHMENT / STREET	From Structure	To Structure	Grass C=0.20	Gravel C=0.85	Bldg./Asph./Conc. C=0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc. (min.)	Rainfall Intensity (mm/hr)	Peak Flow Q (L/s)	Pipe Diameter (mm)	Type	Slope (%)	Length (m)	Capacity Full (L/s)	Spare Capacity (L/s)	Velocity Full (m/s)	Time of Flow (min.)	Ratio (Q/Q _{FULL})	Up Invert (m)	Down Invert (m)	T/G Up Stream (m)	T/G Down Stream (m)	Up Depth obv (m)	Down Depth obv (m)	Up Depth inv (m)	Total Area (ha)	Combined C	Pipe Storage (m ³)	Upstream CB/MH Size (m)	Water Depth (m)	CB/MH Storage (m ³)
CA-01	Prop. CB1	Prop. CBMH6	0.061	0.000	0.219	0.58	0.58	20.00	70.25	40.88	250	PVC	0.432%	9.9	39.09	-1.79	0.80	0.21	1.05	54.74	54.69	56.60	56.90	1.61	1.96	1.86	0.280	0.75	N/A	0.60	1.86	0.67
CA-02	Prop. CBMH1	Prop. CBMH2	0.060	0.000	0.083	0.24	0.24	20.00	70.25	16.93	525	Conc.	0.160%	19.2	172.02	155.09	0.79	0.40	0.10	55.00	54.97	57.12	56.91	1.60	1.42	2.12	0.143	0.61	4.16	1.50	1.90	3.36
CA-03	Prop. CBMH2	Prop. CBMH3	0.081	0.000	0.098	0.29	0.53	20.40	69.38	36.86	525	Conc.	0.160%	26.0	172.02	135.17	0.79	0.55	0.21	54.94	54.90	56.91	56.60	1.45	1.18	1.97	0.179	0.58	5.63	1.50	1.96	3.46
CA-04	Prop. CBMH3	Prop. CBMH4	0.023	0.000	0.077	0.21	0.74	20.00	70.25	51.75	525	Conc.	0.160%	38.6	172.02	120.27	0.79	0.81	0.30	54.87	54.81	56.60	56.75	1.21	1.42	1.73	0.100	0.74	8.36	1.50	1.73	3.06
CA-05	Prop. CBMH4	Prop. CBMH5	0.033	0.000	0.060	0.17	0.91	20.81	68.52	62.02	525	Conc.	0.160%	33.3	172.02	110.00	0.79	0.70	0.36	54.78	54.73	56.75	56.80	1.45	1.55	1.97	0.093	0.65	7.21	1.80	1.97	5.01
CA-06	Prop. CBMH5	Prop. CBMH6	0.009	0.000	0.032	0.09	0.99	21.51	67.11	66.45	525	Conc.	0.430%	9.7	282.01	215.56	1.30	0.12	0.24	54.70	54.66	56.80	56.90	1.57	1.72	2.10	0.041	0.75	2.10	1.80	2.10	5.34
CA-07	Prop. CBMH6	Prop. O/G Separator	0.000	0.000	0.003	0.01	1.58	21.63	66.86	19.52	250	PVC	0.432%	10.4	39.09	19.57	0.80	0.22	0.50	54.40	54.35	56.90	56.40	2.25	1.80	2.50	0.003	0.90	N/A	1.80	2.50	6.36
N/A	Prop. O/G Separator	Exist. MH	N/A	N/A	N/A	N/A	N/A	21.85	66.44	19.52	250	PVC	0.432%	14.0	39.09	19.57	0.80	0.29	0.50	54.28	54.22	56.40	56.34	1.87	1.87	2.12	0.000	0.55	N/A	N/A	N/A	N/A
Note: Flow restrictors have been incorporated.																										27.45		27.27				

100yr HWL 56.90
Total Storage 54.72

Imbrium® Systems
ESTIMATED NET ANNUAL SEDIMENT (TSS) LOAD REDUCTION

12/13/2024

Province:	Ontario
City:	Ottawa
Nearest Rainfall Station:	OTTAWA CDA RCS
Climate Station Id:	6105978
Years of Rainfall Data:	20

Project Name:	524 Lacolle Way
Project Number:	240203
Designer Name:	Brandon O'Leary
Designer Company:	Rinker Pipe
Designer Email:	brandon.oleary@RinkerPipe.com
Designer Phone:	905-630-0359
EOR Name:	Sarthak Vora
EOR Company:	LRL Associates Ltd.
EOR Email:	
EOR Phone:	

Site Name:	524 Lacolle Way rev
Drainage Area (ha):	0.84
Runoff Coefficient 'c':	0.68

Particle Size Distribution:	Fine
Target TSS Removal (%):	80.0

Required Water Quality Runoff Volume Capture (%):	90.00
Estimated Water Quality Flow Rate (L/s):	18.44
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	No
Peak Conveyance (maximum) Flow Rate (L/s):	19.52
Influent TSS Concentration (mg/L):	200
Estimated Average Annual Sediment Load (kg/yr):	586
Estimated Average Annual Sediment Volume (L/yr):	477

Net Annual Sediment (TSS) Load Reduction Sizing Summary	
Stormceptor Model	TSS Removal Provided (%)
EFO4	81
EFO6	91
EFO8	95
EFO10	98
EFO12	99

Recommended Stormceptor EFO Model: EFO4
Estimated Net Annual Sediment (TSS) Load Reduction (%): 81
Water Quality Runoff Volume Capture (%): > 90

THIRD-PARTY TESTING AND VERIFICATION

► **Stormceptor® EF and Stormceptor® EFO** are the latest evolutions in the Stormceptor® oil-grit separator (OGS) technology series, and are designed to remove a wide variety of pollutants from stormwater and snowmelt runoff. These technologies have been third-party tested in accordance with the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** and performance has been third-party verified in accordance with the **ISO 14034 Environmental Technology Verification (ETV)** protocol.

PERFORMANCE

► **Stormceptor® EF and EFO** remove stormwater pollutants through gravity separation and floatation, and feature a patent-pending design that generates positive removal of total suspended solids (TSS) throughout each storm event, including high-intensity storms. Captured pollutants include sediment, free oils, and sediment-bound pollutants such as nutrients, heavy metals, and petroleum hydrocarbons. Stormceptor is sized to remove a high level of TSS from the frequent rainfall events that contribute the vast majority of annual runoff volume and pollutant load. The technology incorporates an internal bypass to convey excessive stormwater flows from high-intensity storms through the device without resuspension and washout (scour) of previously captured pollutants. Proper routine maintenance ensures high pollutant removal performance and protection of downstream waterways.

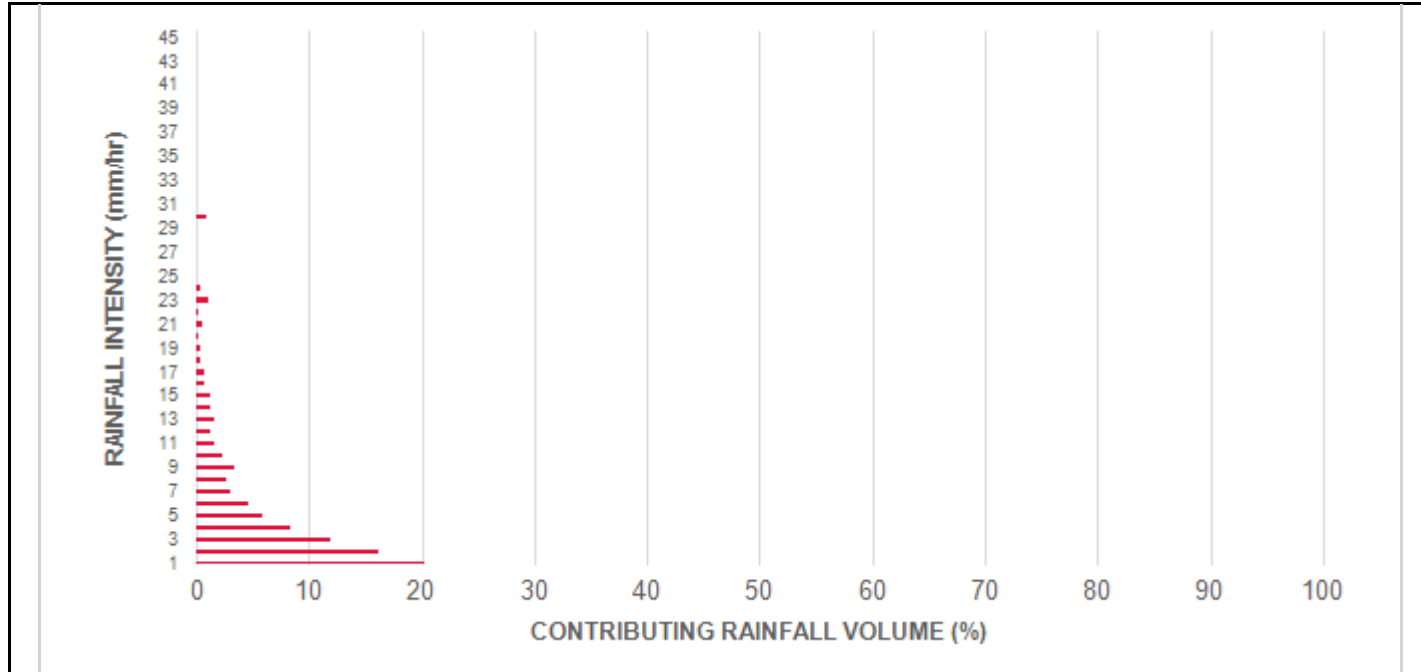
PARTICLE SIZE DISTRIBUTION (PSD)

► The **Canadian ETV PSD** shown in the table below was used, or in part, for this sizing. This is the identical PSD that is referenced in the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators** for both sediment removal testing and scour testing. The Canadian ETV PSD contains a wide range of particle sizes in the sand and silt fractions, and is considered reasonably representative of the particle size fractions found in typical urban stormwater runoff.

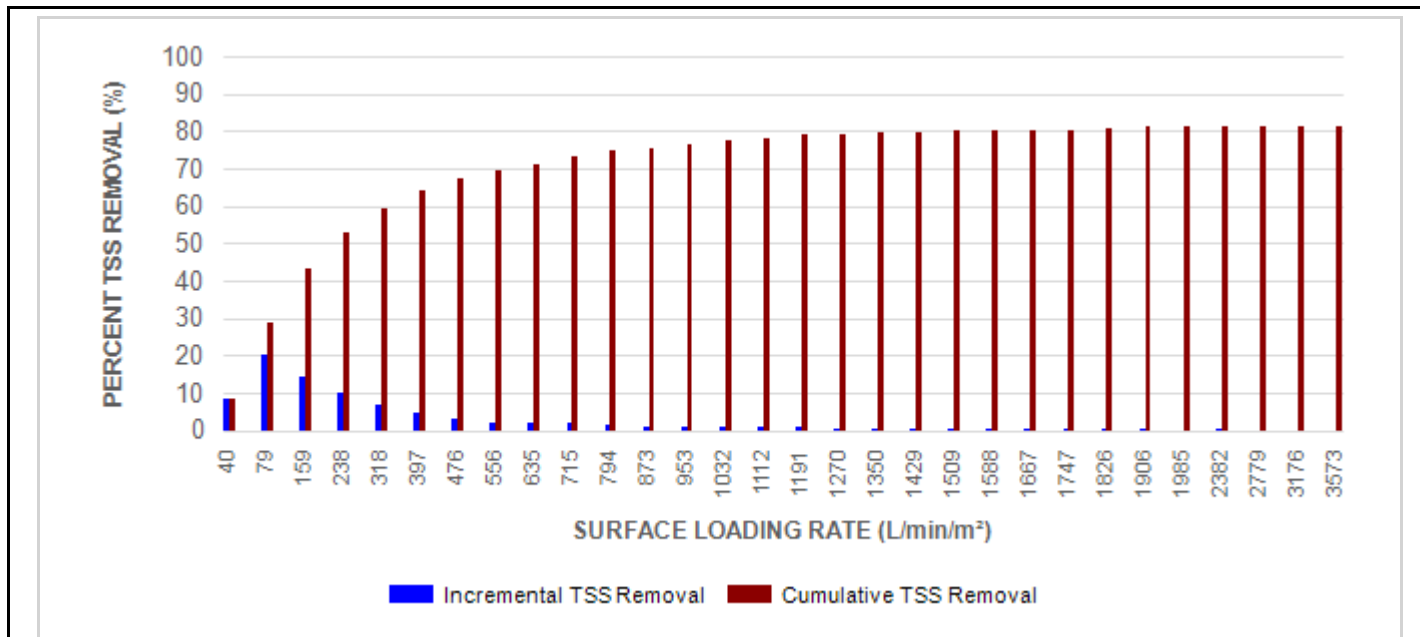
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m ²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	0.79	48.0	40.0	100	8.6	8.6
1.00	20.3	29.0	1.59	95.0	79.0	98	20.0	28.6
2.00	16.2	45.2	3.18	191.0	159.0	89	14.5	43.2
3.00	12.0	57.2	4.76	286.0	238.0	82	9.8	53.0
4.00	8.4	65.6	6.35	381.0	318.0	78	6.6	59.5
5.00	5.9	71.6	7.94	476.0	397.0	74	4.4	64.0
6.00	4.6	76.2	9.53	572.0	476.0	71	3.3	67.2
7.00	3.1	79.3	11.12	667.0	556.0	67	2.1	69.3
8.00	2.7	82.0	12.70	762.0	635.0	64	1.8	71.1
9.00	3.3	85.3	14.29	857.0	715.0	64	2.1	73.2
10.00	2.3	87.6	15.88	953.0	794.0	63	1.5	74.6
11.00	1.6	89.2	17.47	1048.0	873.0	63	1.0	75.6
12.00	1.3	90.5	19.06	1143.0	953.0	62	0.8	76.4
13.00	1.7	92.2	20.64	1239.0	1032.0	61	1.0	77.5
14.00	1.2	93.5	22.23	1334.0	1112.0	59	0.7	78.2
15.00	1.2	94.6	23.82	1429.0	1191.0	57	0.7	78.9
16.00	0.7	95.3	25.41	1524.0	1270.0	55	0.4	79.2
17.00	0.7	96.1	26.99	1620.0	1350.0	53	0.4	79.6
18.00	0.4	96.5	28.58	1715.0	1429.0	51	0.2	79.8
19.00	0.4	96.9	30.17	1810.0	1509.0	49	0.2	80.0
20.00	0.2	97.1	31.76	1906.0	1588.0	46	0.1	80.1
21.00	0.5	97.5	33.35	2001.0	1667.0	44	0.2	80.3
22.00	0.2	97.8	34.93	2096.0	1747.0	42	0.1	80.4
23.00	1.0	98.8	36.52	2191.0	1826.0	40	0.4	80.9
24.00	0.3	99.1	38.11	2287.0	1906.0	39	0.1	81.0
25.00	0.0	99.1	39.70	2382.0	1985.0	37	0.0	81.0
30.00	0.9	100.0	47.64	2858.0	2382.0	31	0.3	81.2
35.00	0.0	100.0	55.58	3335.0	2779.0	27	0.0	81.2
40.00	0.0	100.0	63.52	3811.0	3176.0	24	0.0	81.2
45.00	0.0	100.0	71.46	4287.0	3573.0	21	0.0	81.2
Estimated Net Annual Sediment (TSS) Load Reduction =								81 %

Climate Station ID: 6105978 Years of Rainfall Data: 20

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

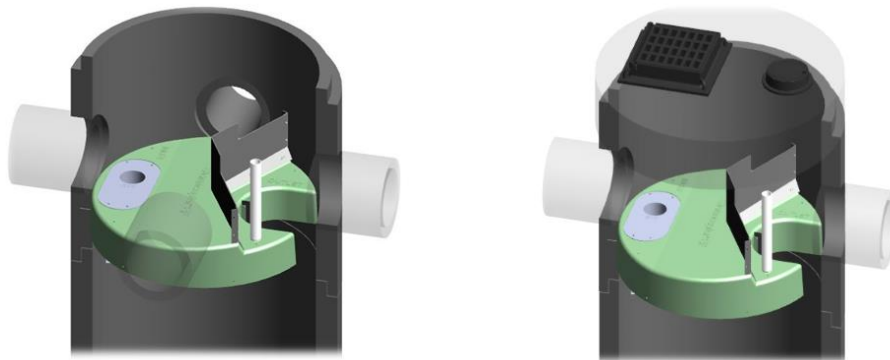
► **Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test performance has been third-party verified in accordance with the ISO 14034 ETV protocol. As a result, Stormceptor EF and EFO are approved for online installation, eliminating the need for costly additional bypass structures, piping, and installation expense.

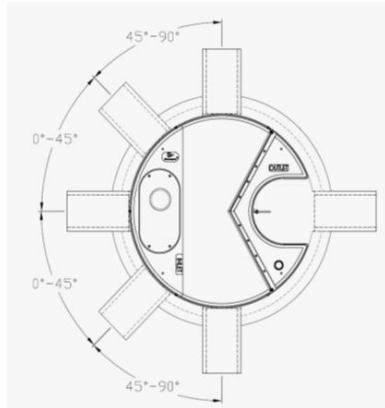
DESIGN FLEXIBILITY

► **Stormceptor® EF and EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend angle, and can be modified to ensure performance in submerged conditions.

OIL CAPTURE AND RETENTION

► While Stormceptor® EF will capture and retain oil from dry weather spills and low intensity runoff, **Stormceptor® EFO** has demonstrated superior oil capture and greater than 99% oil retention in third-party testing according to the light liquid re-entrainment testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**. Stormceptor EFO is recommended for sites where oil capture and retention is a requirement.





INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.

0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.

45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1.

For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft ³)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity

** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft³)

Feature	Benefit	Feature Appeals To
Patent-pending enhanced flow treatment and scour prevention technology	Superior, verified third-party performance	Regulator, Specifying & Design Engineer
Third-party verified light liquid capture and retention for EFO version	Proven performance for fuel/oil hotspot locations	Regulator, Specifying & Design Engineer, Site Owner
Functions as bend, junction or inlet structure	Design flexibility	Specifying & Design Engineer
Minimal drop between inlet and outlet	Site installation ease	Contractor
Large diameter outlet riser for inspection and maintenance	Easy maintenance access from grade	Maintenance Contractor & Site Owner

STANDARD STORMCEPTOR EF/EFO DRAWINGS

For standard details, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

For specifications, please visit <http://www.imbriumsystems.com/stormwater-treatment-solutions/stormceptor-ef>

STANDARD PERFORMANCE SPECIFICATION FOR “OIL GRIT SEPARATOR” (OGS) STORMWATER QUALITY TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

This section specifies requirements for selecting, sizing, and designing an underground Oil Grit Separator (OGS) device for stormwater quality treatment, with third-party testing results and a Statement of Verification in accordance with ISO 14034 Environmental Management – Environmental Technology Verification (ETV).

1.2 REFERENCE STANDARDS & PROCEDURES

ISO 14034:2016 Environmental management – Environmental technology verification (ETV)

Canadian Environmental Technology Verification (ETV) Program’s **Procedure for Laboratory Testing of Oil-Grit Separators**

1.3 SUBMITTALS

1.3.1 All submittals, including sizing reports & shop drawings, shall be submitted upon request with each order to the contractor then forwarded to the Engineer of Record for review and acceptance. Shop drawings shall detail all OGS components, elevations, and sequence of construction.

1.3.2 Alternative devices shall have features identical to or greater than the specified device, including: treatment chamber diameter, treatment chamber wet volume, sediment storage volume, and oil storage volume.

1.3.3 Unless directed otherwise by the Engineer of Record, OGS stormwater quality treatment product substitutions or alternatives submitted within ten days prior to project bid shall not be accepted. All alternatives or substitutions submitted shall be signed and sealed by a local registered Professional Engineer, based on the exact same criteria detailed in Section 3, in entirety, subject to review and approval by the Engineer of Record.

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

The OGS device shall include a sump for sediment storage, and a protected volume for the capture and storage of petroleum hydrocarbons and buoyant gross pollutants. The minimum sediment & petroleum hydrocarbon storage capacity shall be as follows:

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m ³ sediment / 265 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m ³ sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m ³ sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m ³ sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m ³ sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

The OGS stormwater quality treatment device shall be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV). The OGS stormwater quality treatment device shall remove oil, sediment and gross pollutants from stormwater runoff during frequent wet weather events, and retain these pollutants during less frequent high flow wet weather events below the insert within the OGS for later removal during maintenance. The Manufacturer shall have at least ten (10) years of local experience, history and success in engineering design, manufacturing and production and supply of OGS stormwater quality treatment device systems, acceptable to the Engineer of Record.

3.2 SIZING METHODOLOGY

The OGS device shall be engineered, designed and sized to provide stormwater quality treatment based on treating a minimum of 90 percent of the average annual runoff volume and a minimum removal of an annual average 60% of the sediment (TSS) load based on the Particle Size Distribution (PSD) specified in the sizing report for the specified device. Sizing of the OGS shall be determined by use of a minimum ten (10) years of local historical rainfall data provided by Environment Canada. Sizing shall also be determined by use of the sediment removal performance data derived from the ISO 14034 ETV third-party verified laboratory testing data from testing conducted in accordance with the Canadian ETV protocol Procedure for Laboratory Testing of Oil-Grit Separators, as follows:

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m² to 1400 L/min/m², and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m² and 1400 L/min/m² shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m² shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m². No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m².

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m² shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m², and shall be calculated using a simple proportioning formula, with 1400 L/min/m² in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m².

The OGS device shall also have sufficient annual sediment storage capacity as specified and calculated in Section 2.1.

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in

accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**.

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m².

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid Re-entrainment Simulation Testing in accordance with the Canadian ETV **Program's Procedure for Laboratory Testing of Oil-Grit Separators**, with results reported within the Canadian ETV or ISO 14034 ETV verification. This re-entrainment testing is conducted with the device pre-loaded with low density polyethylene (LDPE) plastic beads as a surrogate for light liquids such as oil and fuel. Testing is conducted on the same OGS unit tested for sediment removal to assess whether light liquids captured after a spill are effectively retained at high flow rates.

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m² to 2600 L/min/m²) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators**. However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

Sarthak Vora

From: Kent Campbell <stanley.campbell@rinkerpipe.com>
Sent: Friday, December 13, 2024 1:42 PM
To: Sarthak Vora
Cc: Stephane Godin; Brandon O'Leary
Subject: RE: [EXTERNAL] FW: Re: LRL 240203_524 Lacolle Way_OGS Sizing Report
Attachments: 121324 524 Lacolle Ottawa LRL Stormceptor EFO Sizing Report-524 Lacolle Way- 524 Lacolle Way rev (1).pdf; 240203-01_Civil Plan_Revised (2024-12-11)-C401.pdf

Hello Sarthak,

Hope all is well, thank you for reaching out. Please find revised sizing report attached per revised parameters below.

The Stormceptor EFO 4 remains the recommended model. The configuration on C-401 are good for the EFO 4 as well.

Take care and have a great weekend!

Regards,
Kent Campbell
Stormwater Specialist
Cambridge Plant
Cell 519 588-7473
stanley.campbell@rinkerpipe.com



From: Sarthak Vora <svora@lrl.ca>
Sent: Friday, December 13, 2024 12:30 PM
To: Kent Campbell <stanley.campbell@rinkerpipe.com>
Cc: Stephane Godin <SGodin@lrl.ca>
Subject: [EXTERNAL] FW: Re: LRL 240203_524 Lacolle Way_OGS Sizing Report

CAUTION: This email originated from outside of the organization. Exercise caution when opening attachments or clicking links, especially from UNKNOWN senders.

Hello Kent,

Could you please assist me with the OGS sizing request below!!
Please let me know if any additional info is required.

Thanks,

Sarthak Vora, Civil E.I.T



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From: Sarthak Vora
Sent: Friday, December 13, 2024 12:23 PM
To: Brandon O'Leary <brandon.oleary@RinkerPipe.com>
Cc: Stephane Godin <SGodin@lrl.ca>
Subject: RE: Re: LRL 240203_524 Lacole Way_OGS Sizing Report

Hi Brandon,

Just following up on my request below. We're hoping to submit this file early next week and would really appreciate an answer before then.

Please let me know if any additional info is required.

Thanks

Sarthak Vora, Civil E.I.T



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From: Sarthak Vora
Sent: Wednesday, December 11, 2024 1:01 PM
To: Brandon O'Leary <brandon.oleary@RinkerPipe.com>
Cc: Stephane Godin <SGodin@lrl.ca>
Subject: Re: LRL 240203_524 Lacole Way_OGS Sizing Report

Hello Brandon,

I'd like to request a sizing report for an OGS.

We are reapplying for SPC for the subject site at 524 Lacolle Way with revised parameters such as contributing area, coefficient or release rate. Can you give us an update based on the following information?

The stormwater from the entire site except catchment CA-08 (See attached pdf C702) is to be controlled and treated by the OGS. We have proposed a 250mm dia PVC pipes to convey water from the ICDs to the OGS. **The contributing area is 0.836 ha, with a coefficient of 0.68 and a release rate of 19.52 L/s.**

Additionally, can you confirm the following configuration and inverts can be accommodated within the structure?

Let me know if any additional information is required.

Regards,

Sarthak Vora, Civil E.I.T



LRL ENGINEERING | INGÉNIERIE

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APPENDIX E
Civil Engineering Drawings

PROPOSED COMMERCIAL BUILDING 524 LACOLLE WAY, OTTAWA, ON

REVISION 02



KEY PLAN (N.T.S.)

DRAWING INDEX	
TITLE PAGE	
SEDIMENT AND EROSION CONTROL PLAN	C101
GRADING AND DRAINAGE PLAN	C301
SERVICING PLAN	C401
STORMWATER MANAGEMENT PLAN	C601
PRE-DEVELOPMENT WATERSHED PLAN	C701
POST-DEVELOPMENT WATERSHED PLAN	C702
CONSTRUCTION DETAIL PLAN	C901



LRL

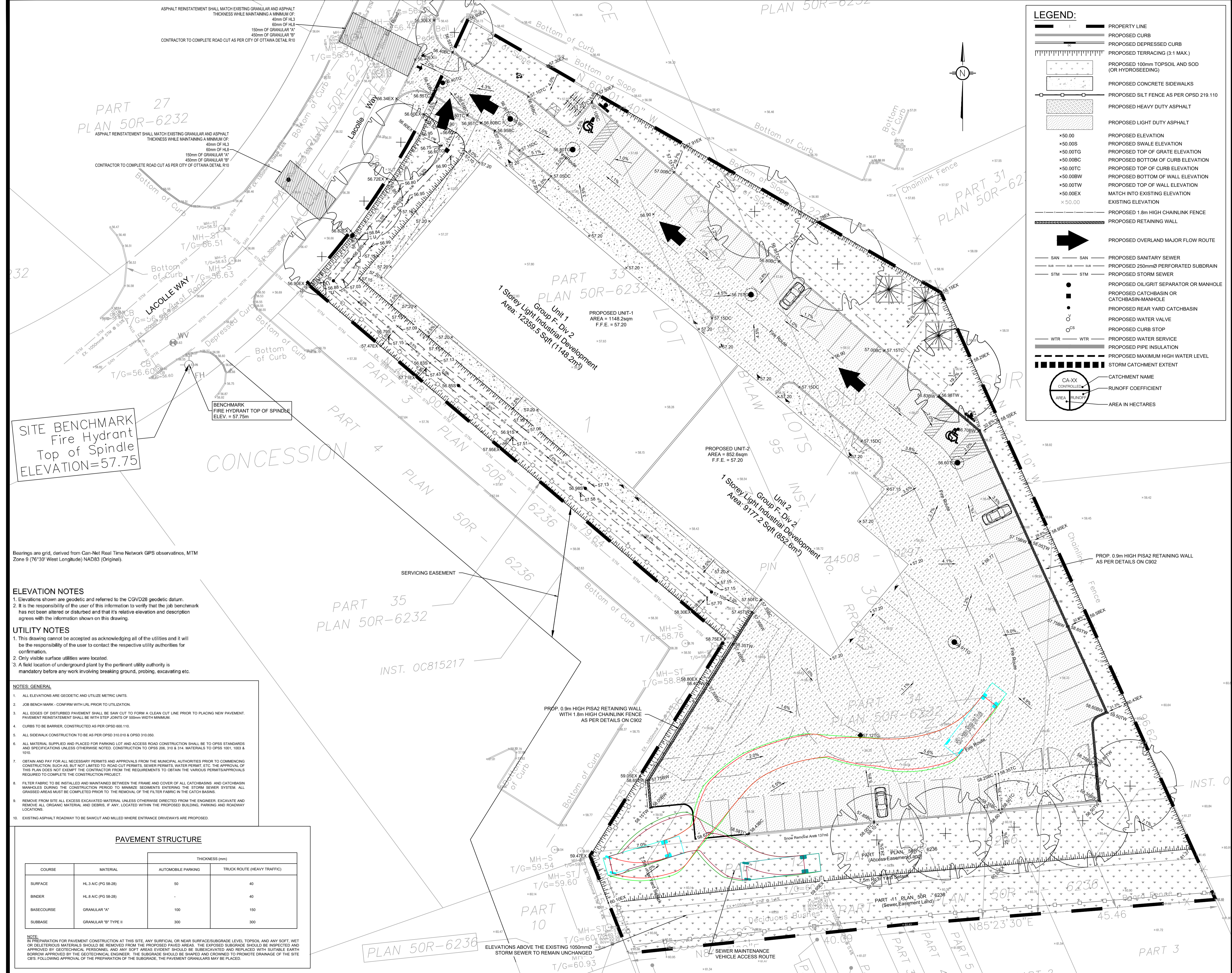
ENGINEERING | INGÉNIERIE

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

PROPOSED COMMERCIAL BUILDING
524 LACOLLE WAY, OTTAWA, ON
REV.02 : RE-ISSUED FOR APPROVAL - FEBRUARY 2025
LRL PROJECT no: 240203



NOT AUTHENTIC UNLESS SIGNED AND DATED



LEGEND:

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED 100mm TOPSOIL AND SOD (OR HYDROSEEDING)
- PROPOSED CONCRETE SIDEWALKS
- PROPOSED SILTY FENCE AS PER OPSD 219.110
- PROPOSED HEAVY DUTY ASPHALT
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- MATCH INTO EXISTING ELEVATION
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CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

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CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

5m 0 5 10m
SCALE: 1:250

02	RE-ISSUED FOR APPROVAL	S.V.	26 FEB 2025
01	ISSUED FOR APPROVAL	S.V.	18 DEC 2024
No.	REVISIONS	BY	DATE

PROFESSIONAL ENGINEER
S. GODIN
100574017
PROVINCE OF ONTARIO
2025-02-26

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGENIERIE
5430 Canotek Road 1 Ottawa, ON, K1J 9G2
www.lrl.ca | (613) 842-3434

CLIENT
PATRICE HOULE HOLDING INC.

DESIGNED BY: S.V. DRAWN BY: S.V. APPROVED BY: S.G.

PROJECT
524 LACOLLE WAY, OTTAWA, ON

DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT NO.
240203

DATE
SEPTEMBER 2024

C301

PART 27
PLAN 50R-6232

ASPHALT REINSTATEMENT SHALL MATCH EXISTING GRANULAR AND ASPHALT THICKNESS WHILE MAINTAINING A MINIMUM OF:
40mm OF HL3
60mm OF HL2
150mm OF GRANULAR "A"
450mm OF GRANULAR "B"
CONTRACTOR TO COMPLETE ROAD CUT AS PER CITY OF OTTAWA DETAIL R10

SITE BENCHMARK
Fire Hydrant
Top of Spindle
ELEVATION=57.75

Bearings are grid, derived from Can-Net Real Time Network GPS observations, MTM Zone 9 (76°30' West Longitude) NAD83 (Original).

ELEVATION NOTES

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

UTILITY NOTES

- This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
- Only visible surface utilities were located.
- A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

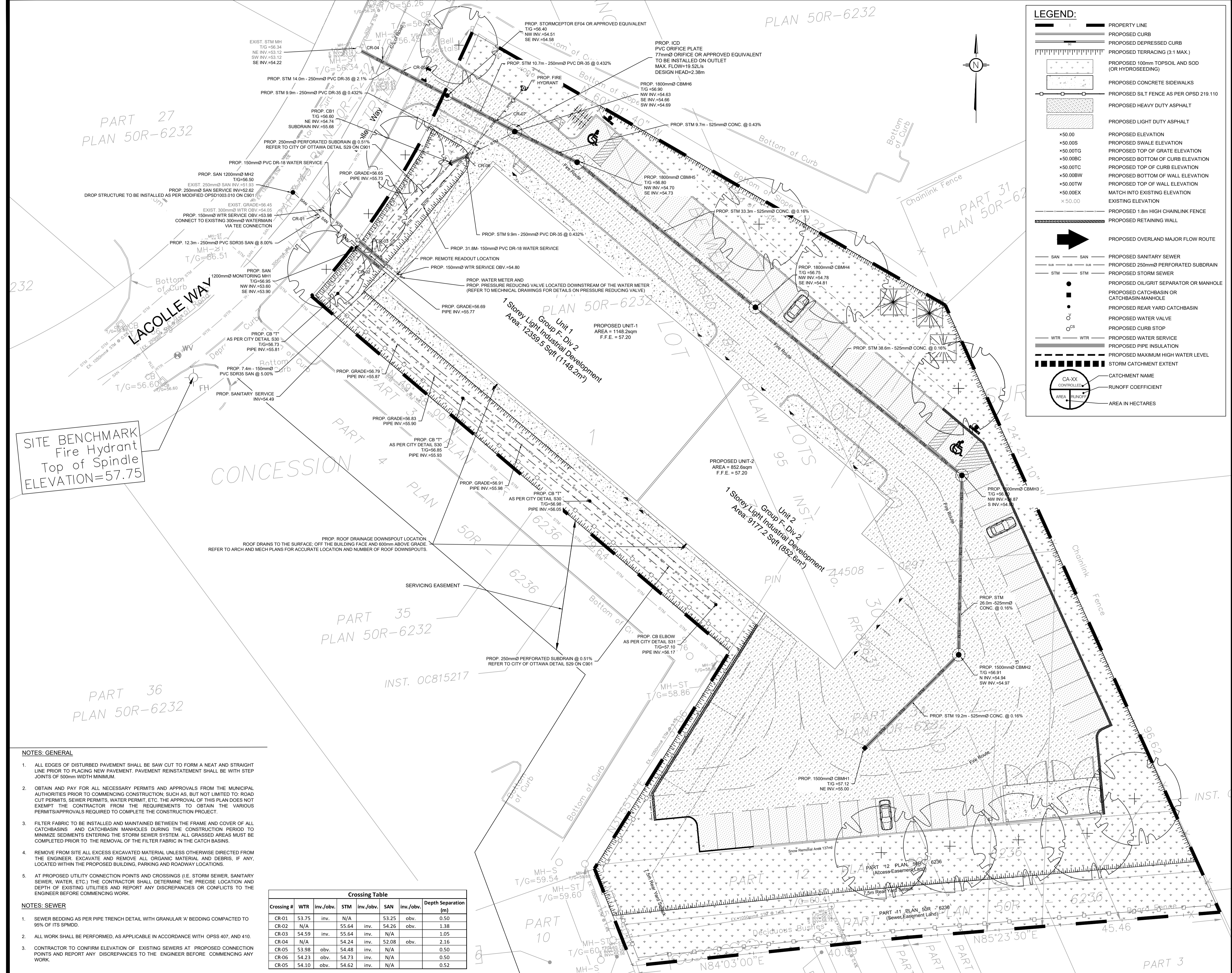
NOTES - GENERAL

- ALL ELEVATIONS ARE GEODETIC AND UTILIZE METRIC UNITS.
- JOB BENCH MARK - CONFIRM WITH LRL PRIOR TO UTILIZATION.
- EDGES OF DISTURBED PAVEMENT SHALL BE SAW CUT TO FORM A CLEAN CUT LINE PRIOR TO PLACING NEW PAVEMENT. PAVEMENT REINSTATEMENT SHALL BE WITH STEP JOINTS OF 500mm WIDTH MINIMUM.
- CURBS TO BE BARRIER, CONSTRUCTED AS PER OPSD 600.110
- ALL SIDEWALK CONSTRUCTION TO BE AS PER OPSD 310.010 & OPSD 310.050.
- ALL MATERIAL SUPPLIED AND PLACED FOR PARKING LOT AND ACCESS ROAD CONSTRUCTION SHALL BE TO OPSD STANDARDS AND SPECIFICATIONS UNLESS OTHERWISE NOTED. CONSTRUCTION TO OPSD 206, 310 & 314. MATERIALS TO OPSD 1001, 1003 & 1010.
- OBTAIN AND PAY FOR ALL NECESSARY PERMITS AND APPROVALS FROM THE MUNICIPAL AUTHORITIES PRIOR TO COMMENCING CONSTRUCTION SUCH AS BUT NOT LIMITED TO ROAD CUT PERMITS, SEWER PERMITS, WATER PERMIT, ETC. THE APPROVAL OF THIS PLAN DOES NOT EXEMPT THE CONTRACTOR FROM THE REQUIREMENTS TO OBTAIN THE VARIOUS PERMITS/APPROVALS REQUIRED TO COMPLETE THE CONSTRUCTION PROJECT.
- FILTER FABRIC TO BE INSTALLED AND MAINTAINED BETWEEN THE FRAME AND COVER OF ALL CATCHBASINS AND CATCHBASIN MANHOLES DURING THE CONSTRUCTION PERIOD TO MINIMIZE SEDIMENTS ENTERING THE STORM SEWER SYSTEM. ALL GRASSSED AREAS MUST BE COMPLETED PRIOR TO THE REMOVAL OF THE FILTER FABRIC IN THE CATCH BASINS.
- REMOVE FROM SITE ALL EXCESS EXCAVATED MATERIAL UNLESS OTHERWISE DIRECTED FROM THE ENGINEER. EXCAVATE AND REMOVE ALL ORGANIC MATERIAL AND DEBRIS, IF ANY, LOCATED WITHIN THE PROPOSED BUILDING, PARKING AND ROADWAY LOCATIONS.
- EXISTING ASPHALT ROADWAY TO BE SAWCUT AND MILLED WHERE ENTRANCE DRIVEWAYS ARE PROPOSED.

PAVEMENT STRUCTURE

COURSE	MATERIAL	THICKNESS (mm)	
		AUTOMOBILE PARKING	TRUCK ROUTE (HEAVY TRAFFIC)
SURFACE	HL3 A/C (PG 58-28)	50	40
BINDER	HL8 A/C (PG 58-28)	-	40
BASECOURSE	GRANULAR "A"	100	150
SUBCOURSE	GRANULAR "B" TYPE II	300	300

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



LEGEND:

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- SUB SUB PROPOSED 250mm PERFORATED SUBDRAIN
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02 RE-ISSUED FOR APPROVAL S.V. 26 FEB 2025

01 ISSUED FOR APPROVAL S.V. 18 DEC 2024

No. REVISIONS BY DATE

PROFESSIONAL ENGINEER
S. GODIN
100574017
PROVINCE OF ONTARIO
2025-02-26

NOT AUTHENTIC UNLESS SIGNED AND DATED

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CLIENT
PATRICE HOULE HOLDING INC.

DESIGNED BY: S.V. DRAWN BY: S.V. APPROVED BY: S.G.

PROJECT
524 LACOLLE WAY, OTTAWA, ON

DRAWING TITLE
SERVICING PLAN

PROJECT NO.
240203

DATE
SEPTEMBER 2024

C401

SITE BENCHMARK
Fire Hydrant
Top of Spindle
ELEVATION=57.75

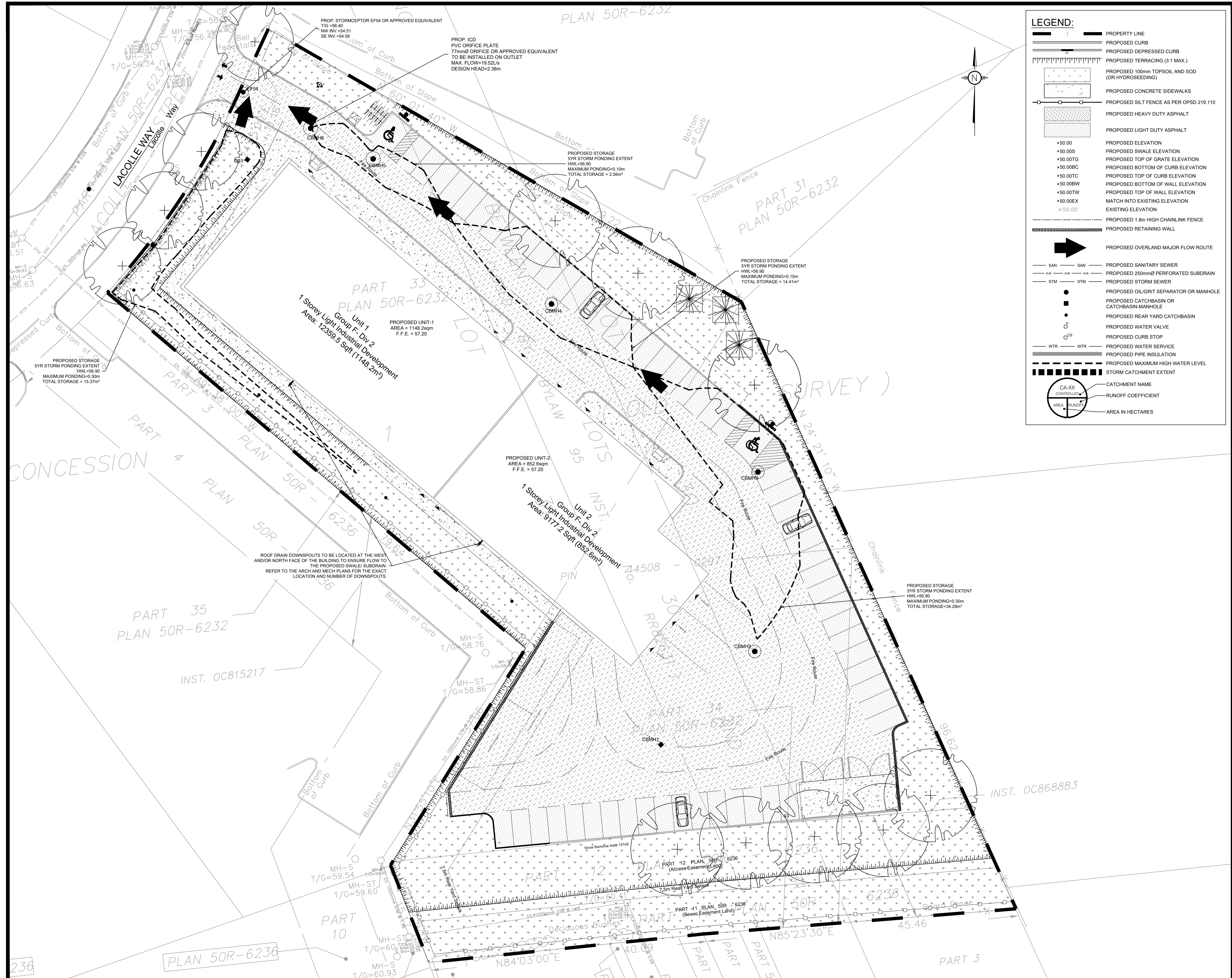
NOTES: GENERAL

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- AT PROPOSED UTILITY CONNECTION POINTS AND CROSSINGS (I.E. STORM SEWER, SANITARY SEWER, WATER, ETC.) THE CONTRACTOR SHALL DETERMINE THE PRECISE LOCATION AND DEPTH OF EXISTING UTILITIES AND REPORT ANY DISCREPANCIES OR CONFLICTS TO THE ENGINEER BEFORE COMMENCING WORK.

NOTES: SEWER

- SEWER BEDDING AS PER PIPE TRENCH DETAIL WITH GRANULAR 'A' BEDDING COMPACTED TO 95% OF ITS SPMD.
- ALL WORK SHALL BE PERFORMED, AS APPLICABLE IN ACCORDANCE WITH OPS 407, AND 410.
- CONTRACTOR TO CONFIRM ELEVATION OF EXISTING SEWERS AT PROPOSED CONNECTION POINTS AND REPORT ANY DISCREPANCIES TO THE ENGINEER BEFORE COMMENCING ANY WORK.

Crossing Table							
Crossing #	WTR	inv./obv.	STM	inv./obv.	SAN	inv./obv.	Depth Separation (m)
CR-01	53.75	inv.	N/A	53.25	obv.	0.50	
CR-02	N/A		55.64	inv.	54.26	obv.	1.38
CR-03	54.59	inv.	55.64	inv.	N/A		1.05
CR-04	N/A		54.24	inv.	52.08	obv.	2.16
CR-05	53.98	obv.	54.48	inv.	N/A		0.50
CR-06	54.23	obv.	54.73	inv.	N/A		0.50
CR-05	54.10	obv.	54.62	inv.	N/A		0.52



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UNAUTHORIZED CHANGES:

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IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PRIOR AUTHORIZATION.

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CONTRACTOR TO VERIFY ALL DIMENSIONS AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES BEFORE WORK COMMENCES. DO NOT SCALE DRAWINGS.

No.	REVISIONS	BY	DATE
02	RE-ISSUED FOR APPROVAL	S.V.	26 FEB 2025
01	ISSUED FOR APPROVAL	S.V.	18 DEC 2024

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGENIERIE

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

CLIENT: **PATRICE HOULE HOLDING INC.**

DESIGNED BY: S.V. DRAWN BY: S.V. APPROVED BY: S.G.

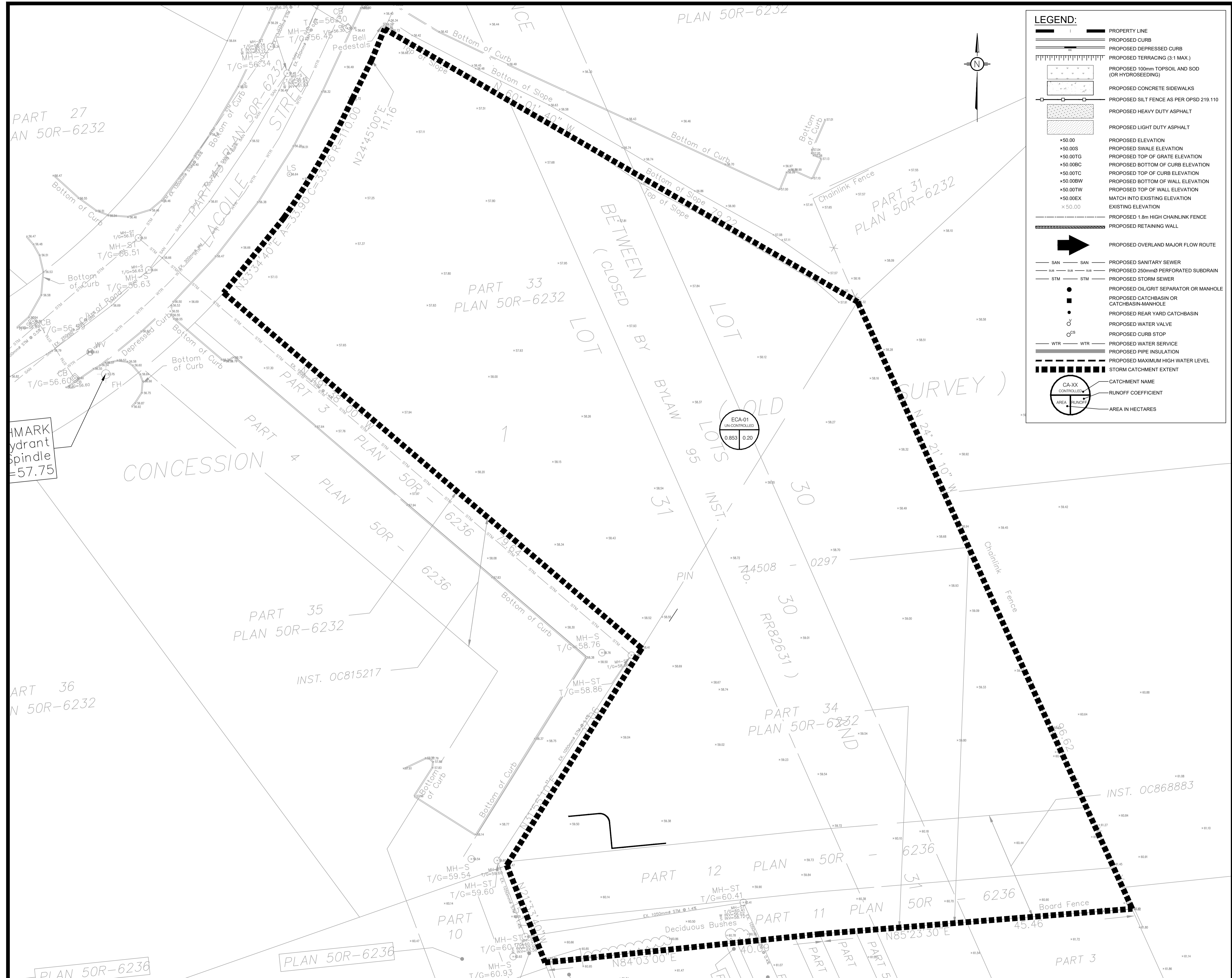
PROJECT: **524 LACOLLE WAY, OTTAWA, ON**

DRAWING TITLE: **STORMWATER MANAGEMENT PLAN**

PROJECT NO.: 24203

DATE: SEPTEMBER 2024

C601



LEGEND:

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED 100mm TOPSOIL AND SOD (OR HYDROSEEDING)
- PROPOSED CONCRETE SIDEWALKS
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED ELEVATION
- PROPOSED SWALE ELEVATION
- PROPOSED TOP OF GRATE ELEVATION
- PROPOSED BOTTOM OF CURB ELEVATION
- PROPOSED TOP OF CURB ELEVATION
- PROPOSED BOTTOM OF WALL ELEVATION
- PROPOSED TOP OF WALL ELEVATION
- MATCH INTO EXISTING ELEVATION
- EXISTING ELEVATION
- PROPOSED 1.8m HIGH CHAINLINK FENCE
- PROPOSED RETAINING WALL
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- PROPOSED SANITARY SEWER
- PROPOSED 250mmØ PERFORATED SUBDRAIN
- PROPOSED STORM SEWER
- PROPOSED OIL/GRIT SEPARATOR OR MANHOLE
- PROPOSED CATCHBASIN OR CATCHBASIN-MANHOLE
- PROPOSED REAR YARD CATCHBASIN
- PROPOSED WATER VALVE
- PROPOSED CURB STOP
- PROPOSED WATER SERVICE
- PROPOSED PIPE INSULATION
- PROPOSED MAXIMUM HIGH WATER LEVEL
- STORM CATCHMENT EXTENT
- CATCHMENT NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

USE AND INTERPRETATION OF DRAWINGS

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IN ADDITION, THE CLIENT AGREES TO INCLUDE IN ANY CONTRACTS FOR CONSTRUCTION APPROPRIATE LANGUAGE THAT PROHIBITS THE CONTRACTOR OR ANY SUBCONTRACTORS OF ANY TIER FROM MAKING ANY CHANGES OR MODIFICATIONS TO LRL'S CONSTRUCTION DOCUMENTS WITHOUT THE PRIOR WRITTEN APPROVAL OF LRL AND THAT FURTHER REQUIRES THE CONTRACTOR TO INDEMNIFY BOTH LRL AND THE CLIENT FROM ANY LIABILITY OR COST ARISING FROM SUCH CHANGES MADE WITHOUT SUCH PROPER AUTHORIZATION.

GENERAL NOTES:

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No.	REVISIONS	BY	DATE
02	RE-ISSUED FOR APPROVAL	S.V.	26 FEB 2025
01	ISSUED FOR APPROVAL	S.V.	18 DEC 2024

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

CLIENT: **PATRICE HOULE HOLDING INC.**

DESIGNED BY: S.V. DRAWN BY: S.V. APPROVED BY: S.G.

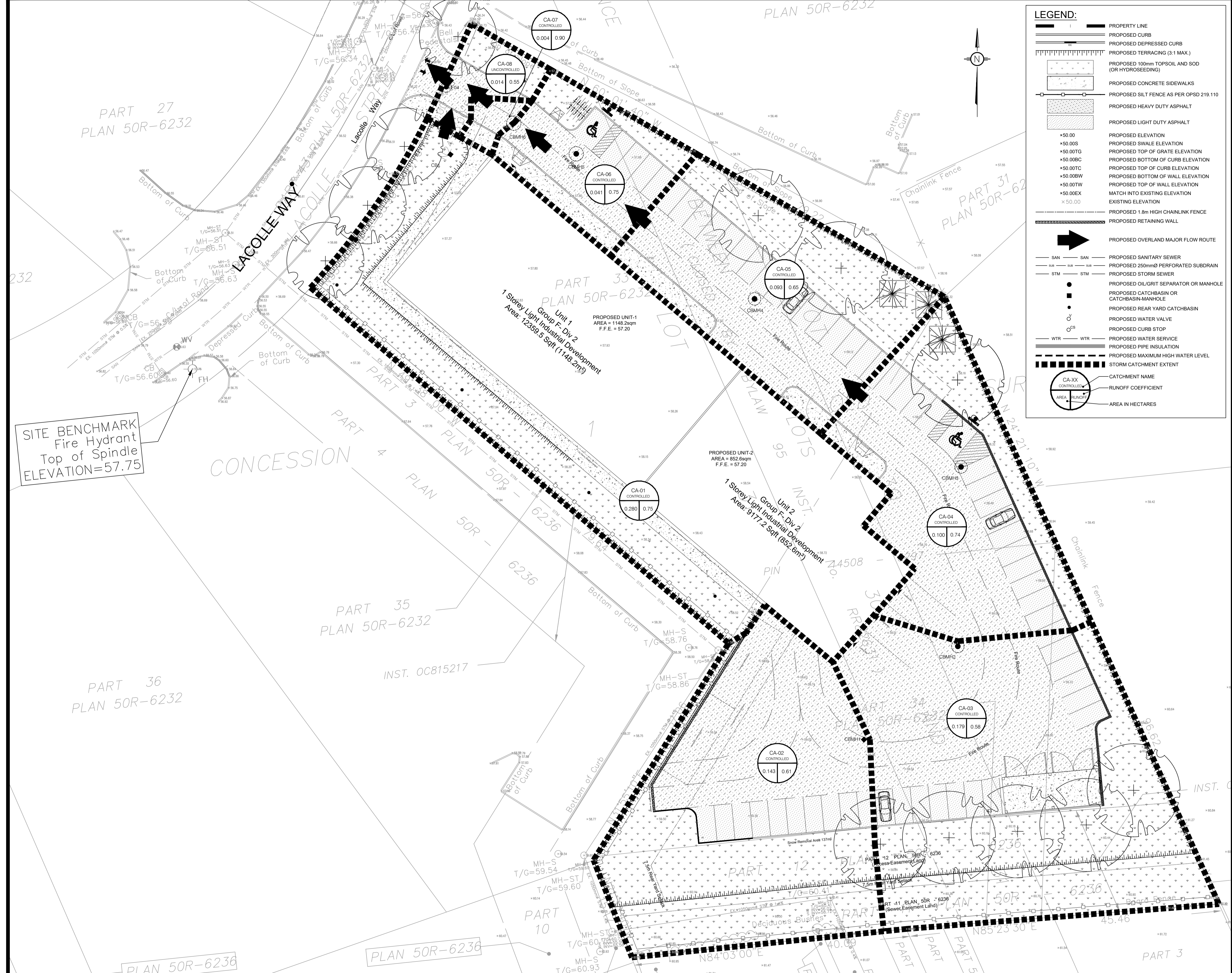
PROJECT: **524 LACOLLE WAY, OTTAWA, ON**

DRAWING TITLE: **PRE-DEVELOPMENT WATERSHED PLAN**

PROJECT NO: **240203**

DATE: **SEPTEMBER 2024**

C701



LEGEND:

- PROPERTY LINE
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MAX.)
- PROPOSED 100mm TOPSOIL AND SOD (OR HYDROSEEDING)
- PROPOSED CONCRETE SIDEWALKS
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED ELEVATION
- PROPOSED SWALE ELEVATION
- PROPOSED TOP OF GRATE ELEVATION
- PROPOSED BOTTOM OF CURB ELEVATION
- PROPOSED TOP OF CURB ELEVATION
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- PROPOSED TOP OF WALL ELEVATION
- MATCH INTO EXISTING ELEVATION
- EXISTING ELEVATION
- PROPOSED 1.8m HIGH CHAINLINK FENCE
- PROPOSED RETAINING WALL
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- SAN SAN PROPOSED SANITARY SEWER
- SUB SUB PROPOSED 250mmØ PERFORATED SUBDRAIN
- STM STM PROPOSED STORM SEWER
- PROPOSED OIL/GRIT SEPARATOR OR MANHOLE
- PROPOSED CATCHBASIN OR CATCHBASIN-MANHOLE
- PROPOSED REAR YARD CATCHBASIN
- PROPOSED WATER VALVE
- PROPOSED CURB STOP
- WTR WTR PROPOSED WATER SERVICE
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- AREA IN HECTARES

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01	ISSUED FOR APPROVAL	S.V.	18 DEC 2024

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www.lrl.ca | (613) 842-3434

CLIENT: PATRICE HOULE HOLDING INC.

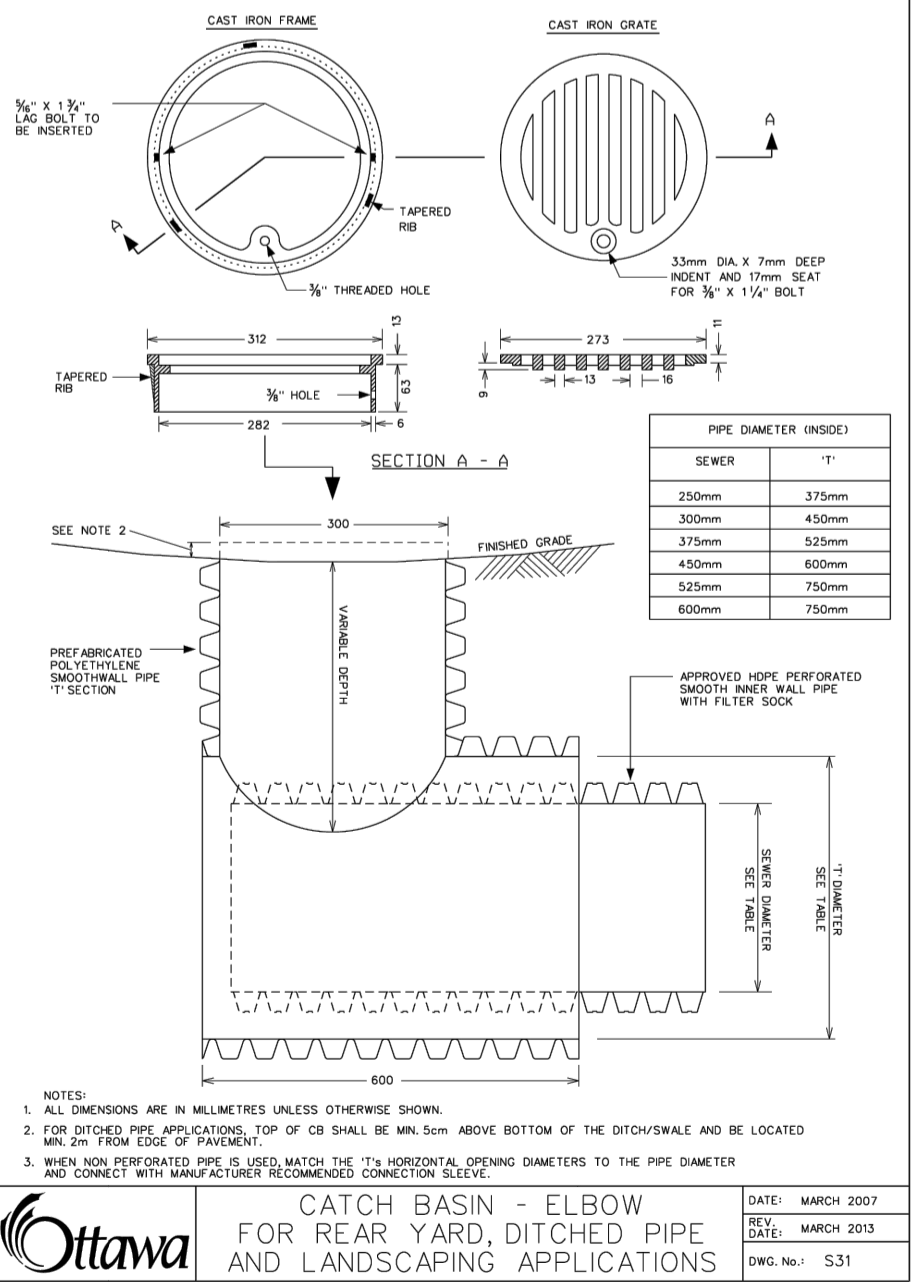
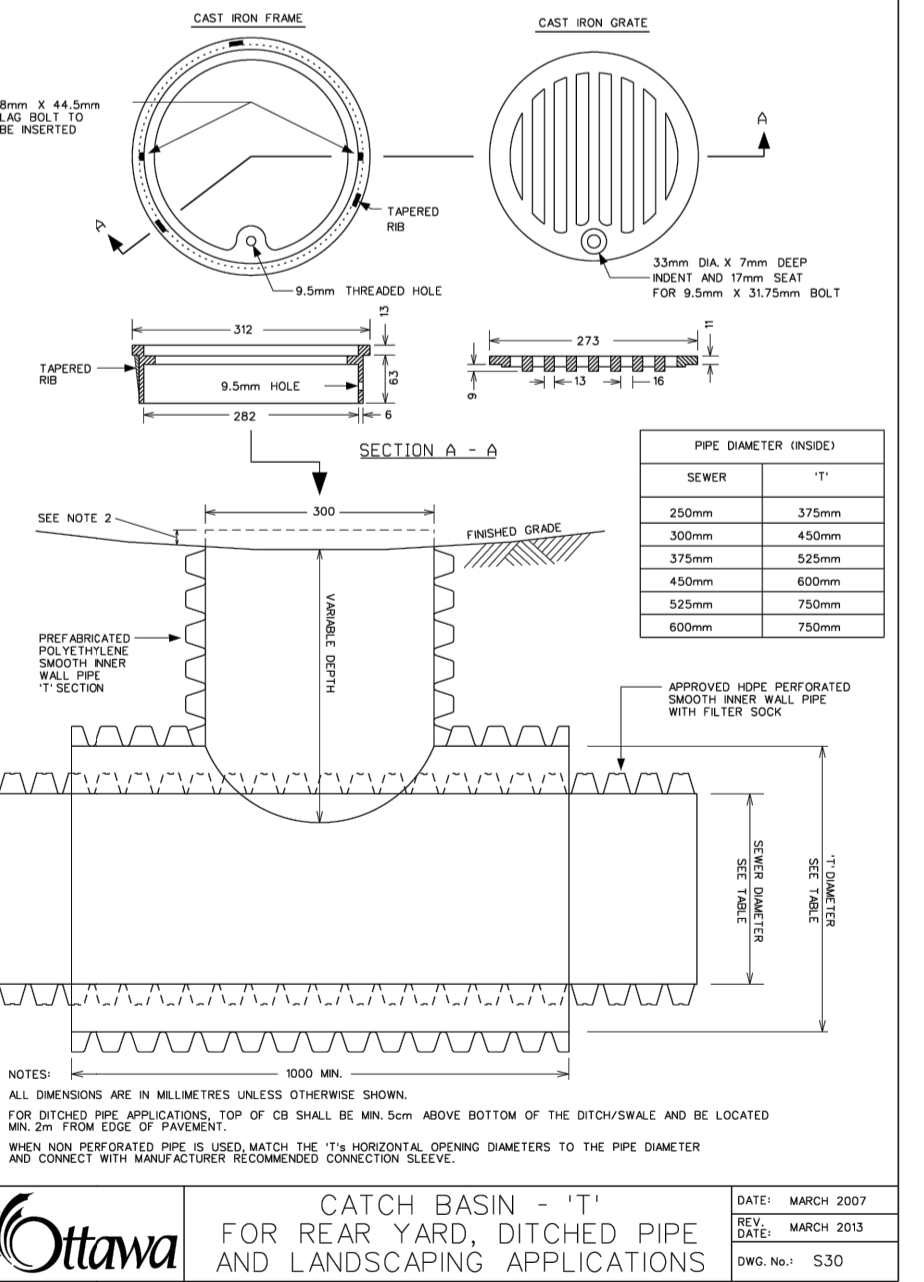
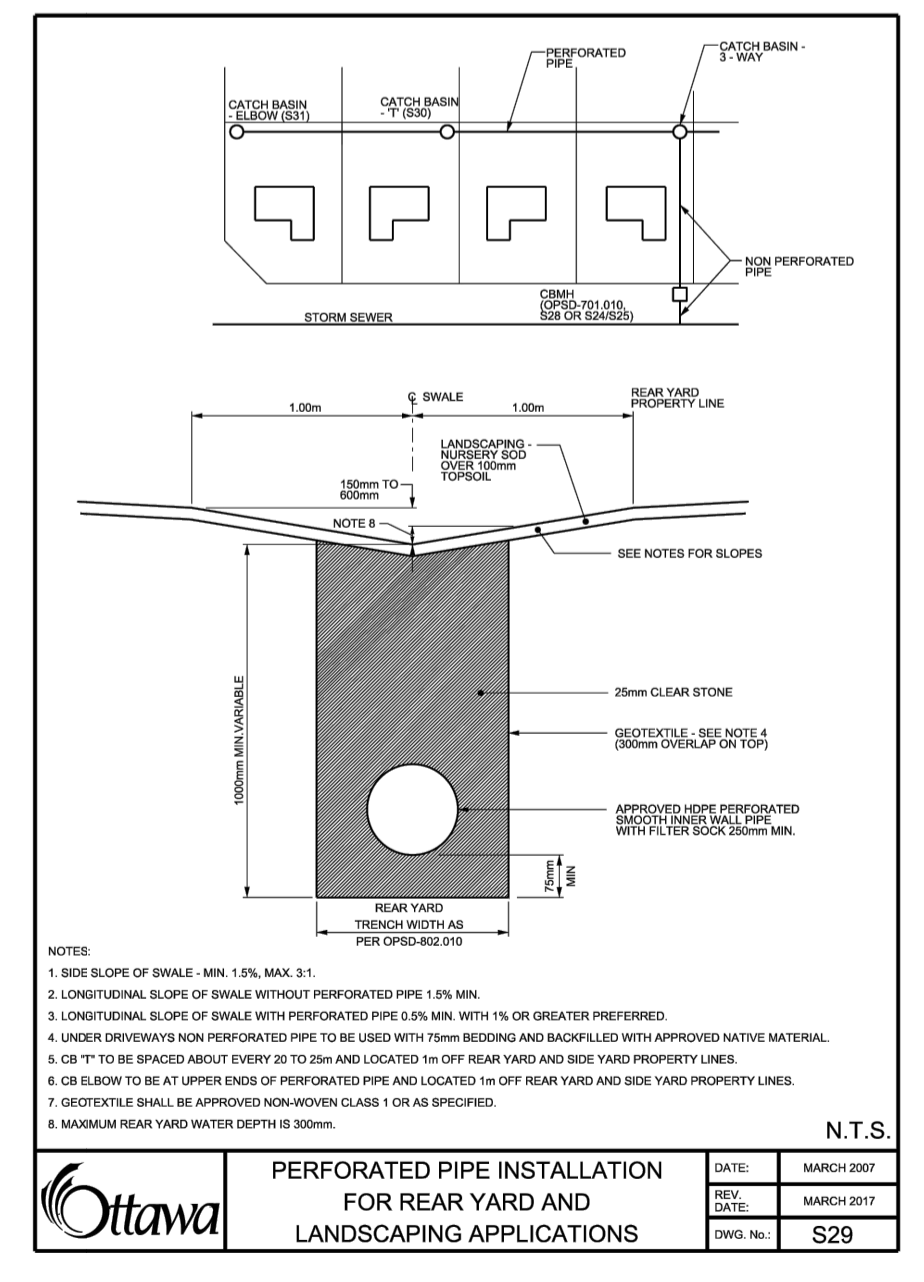
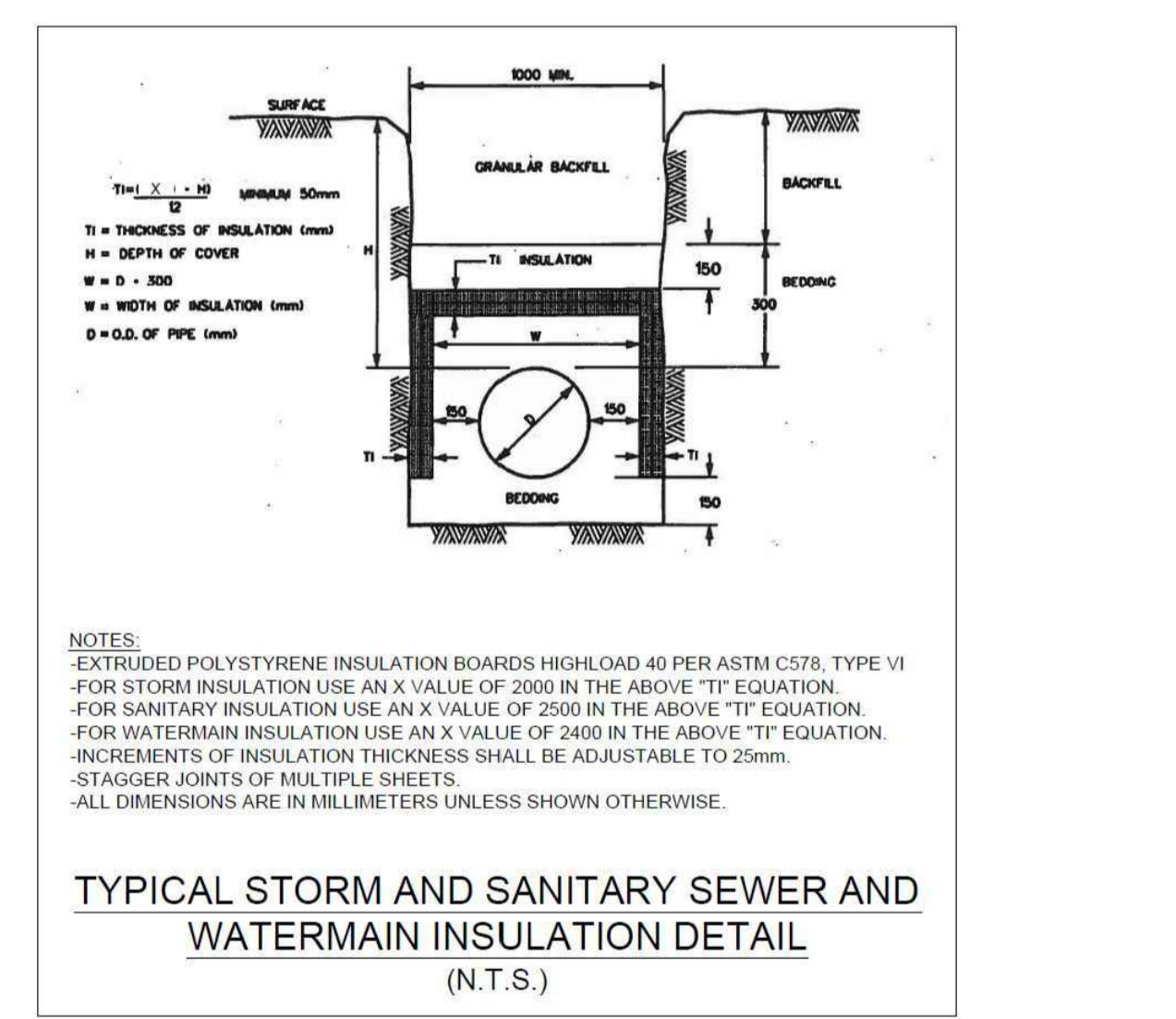
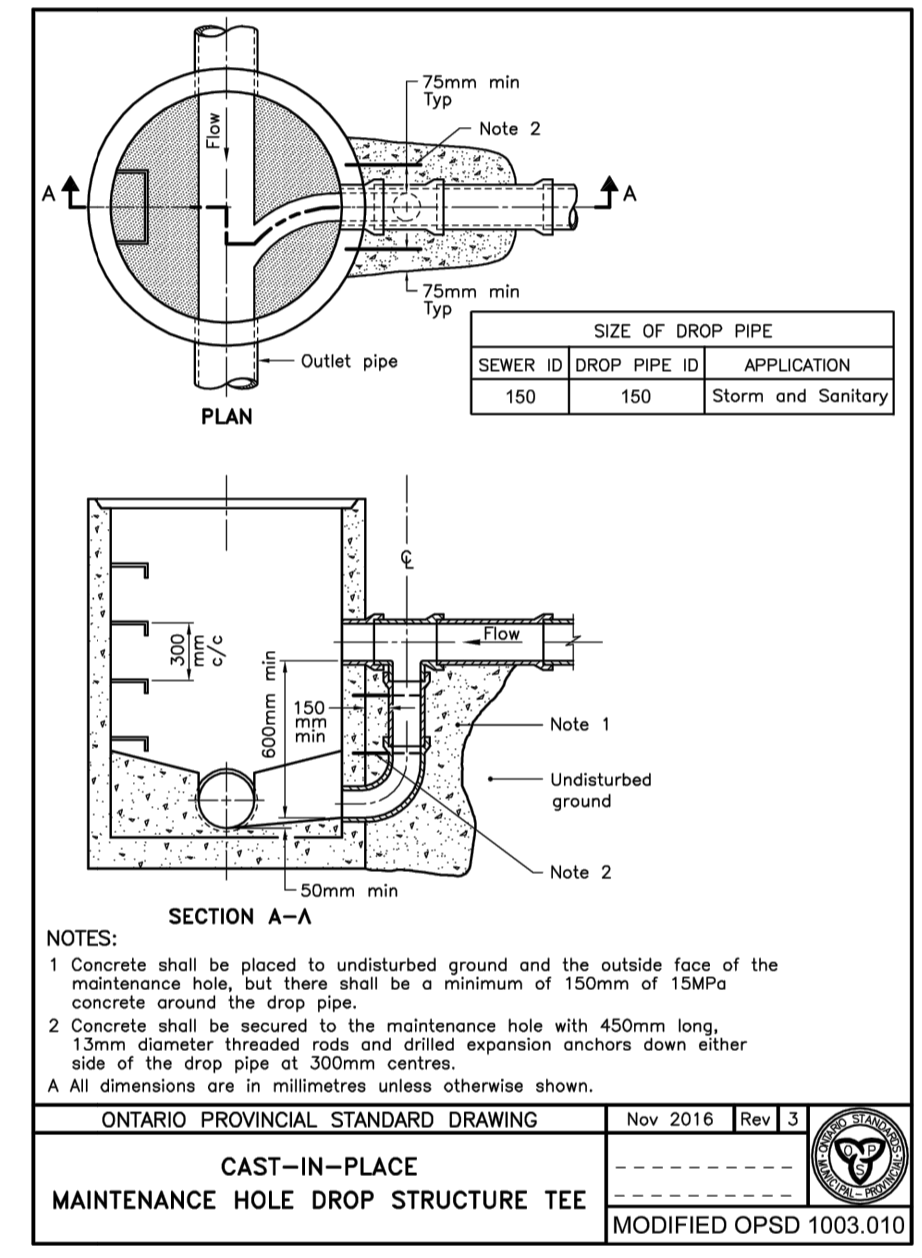
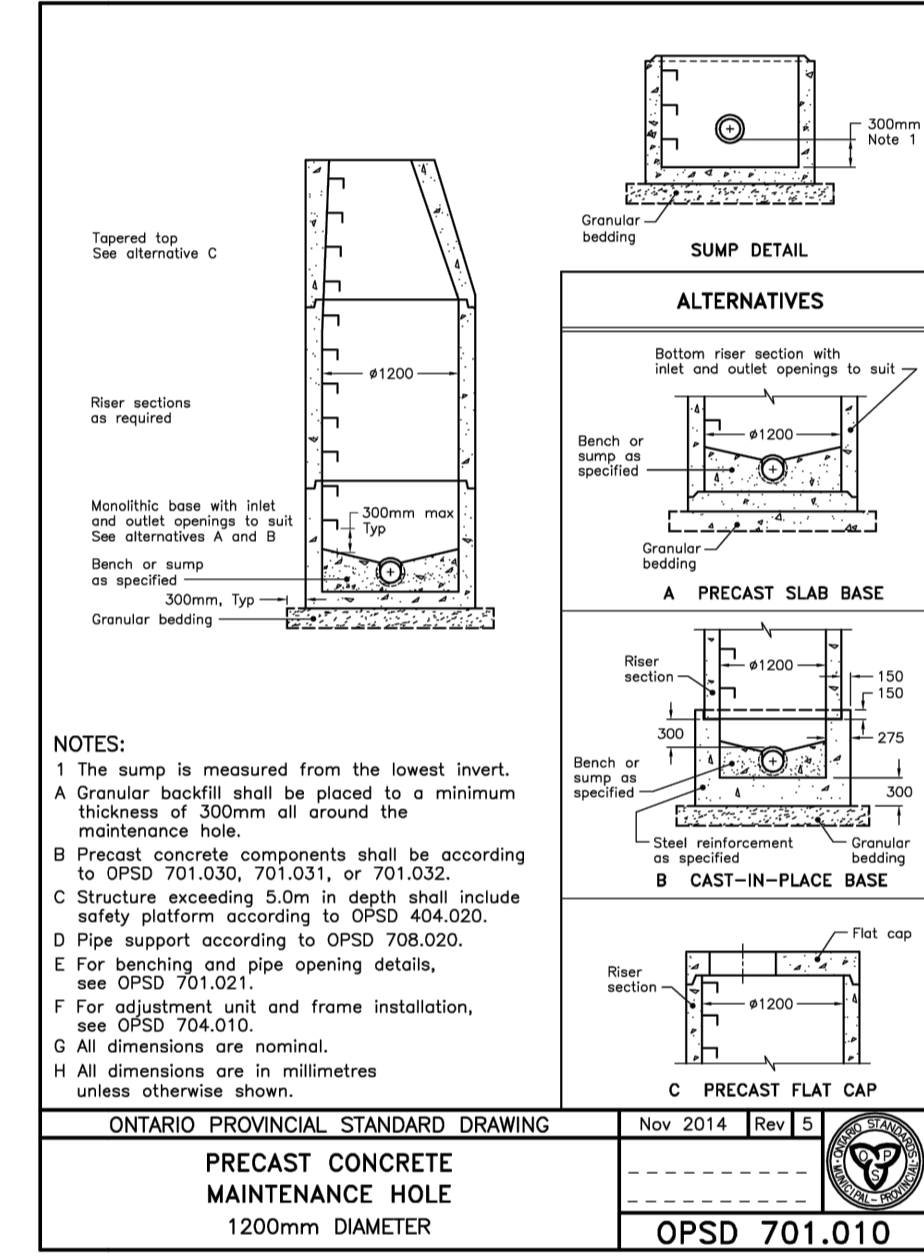
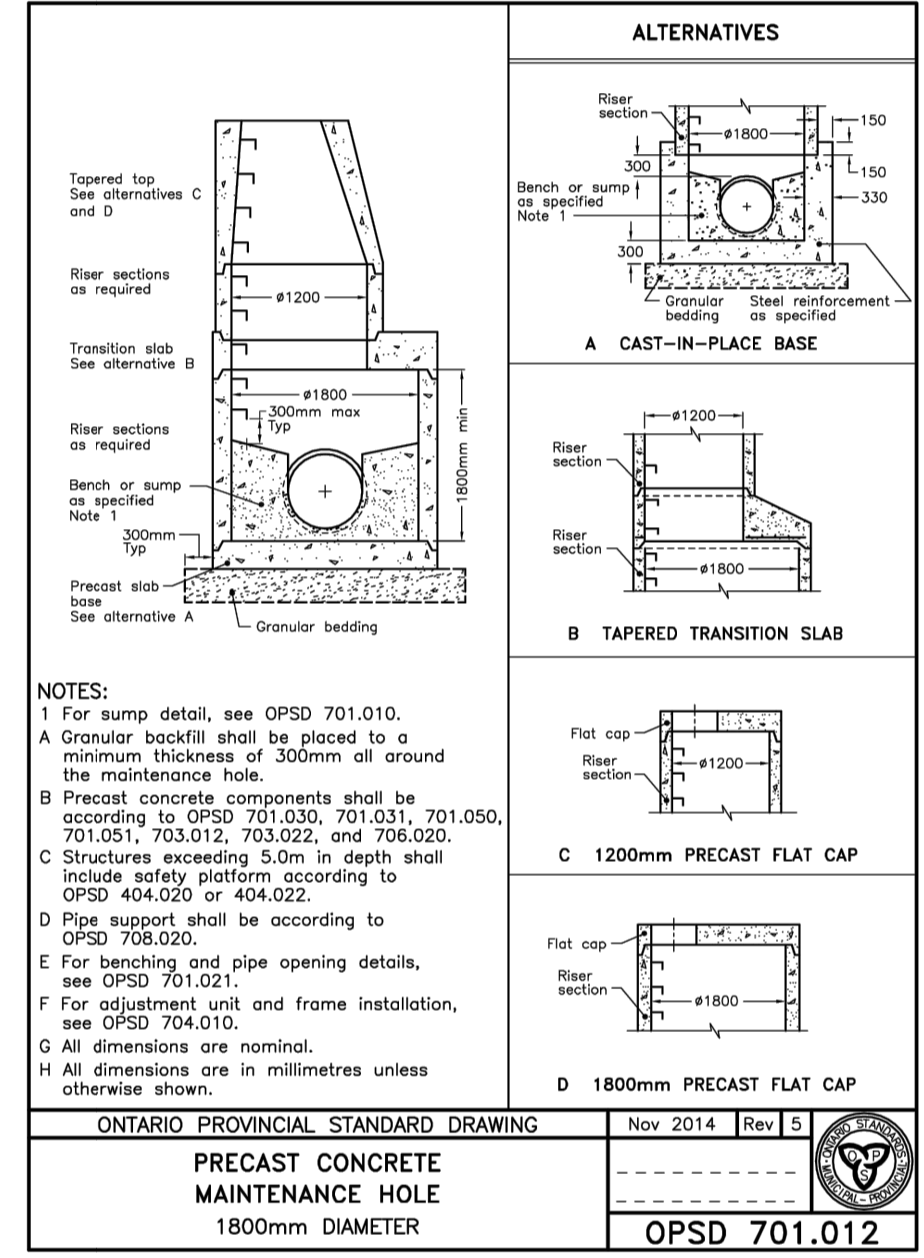
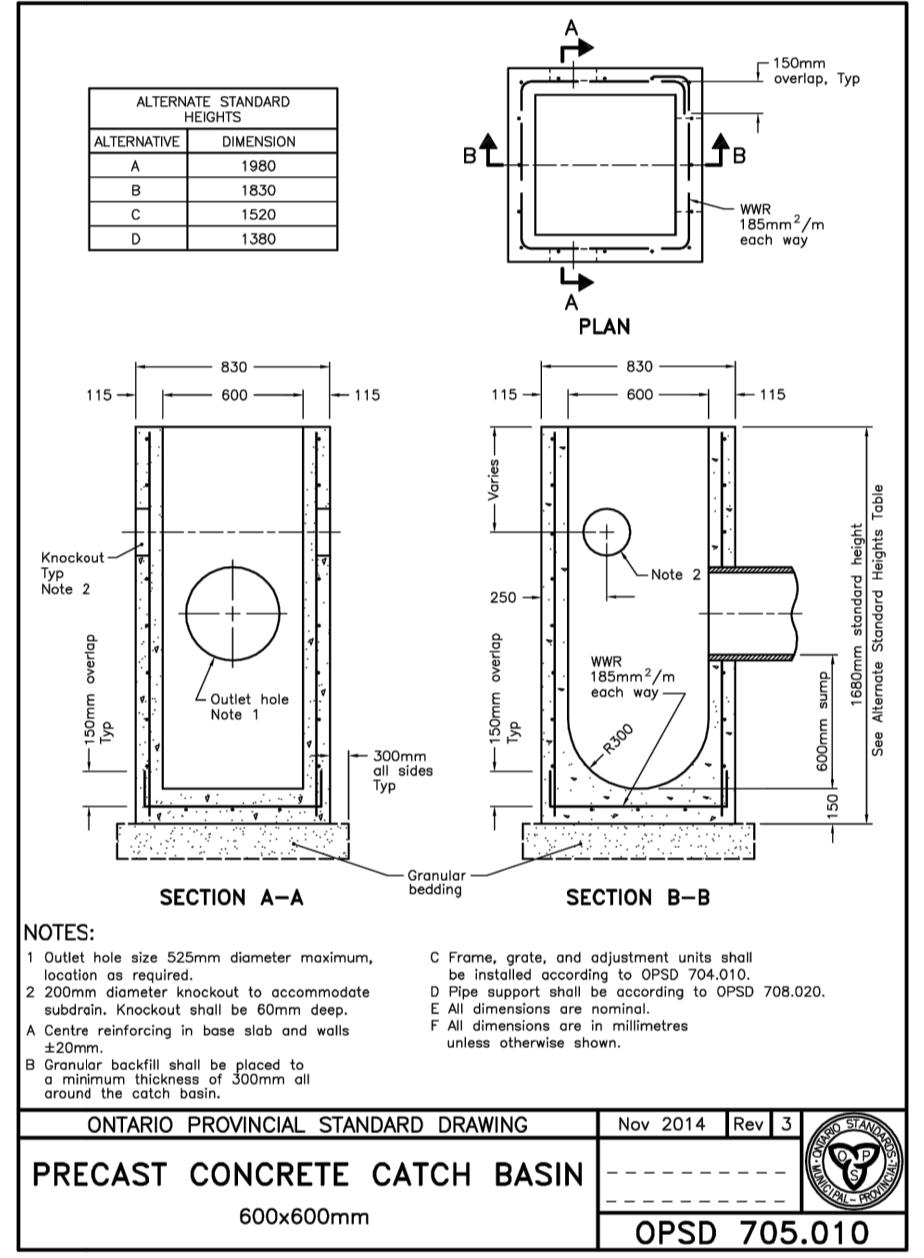
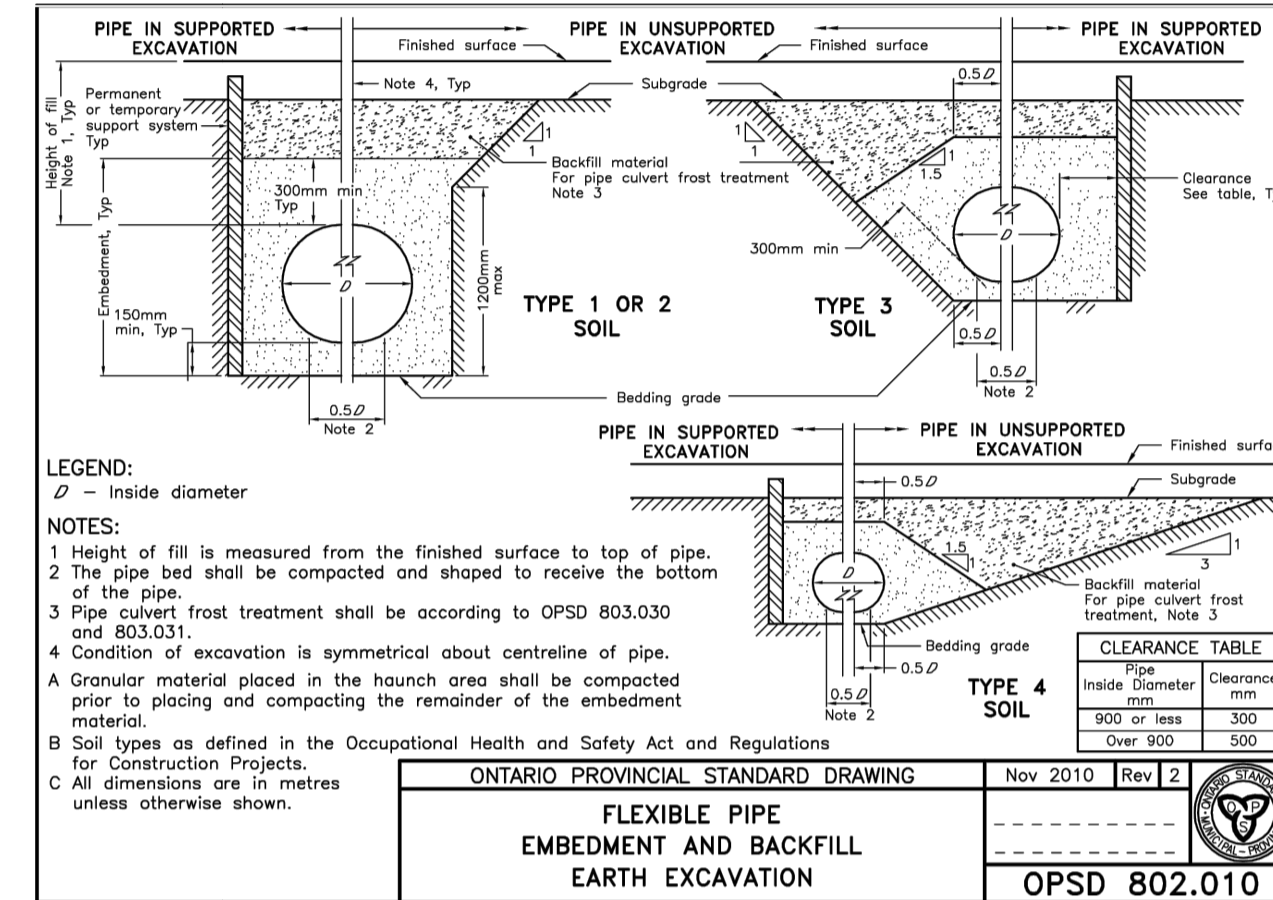
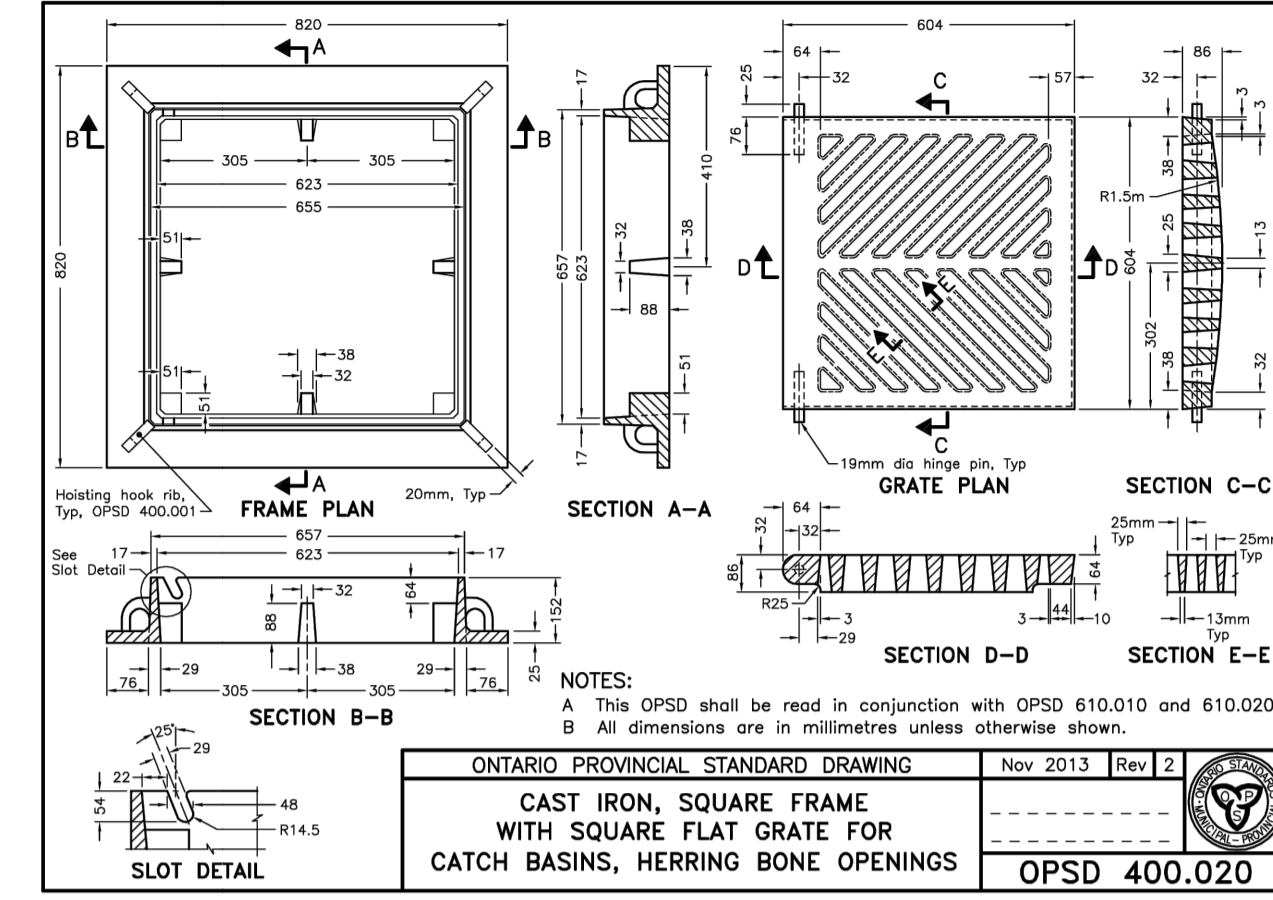
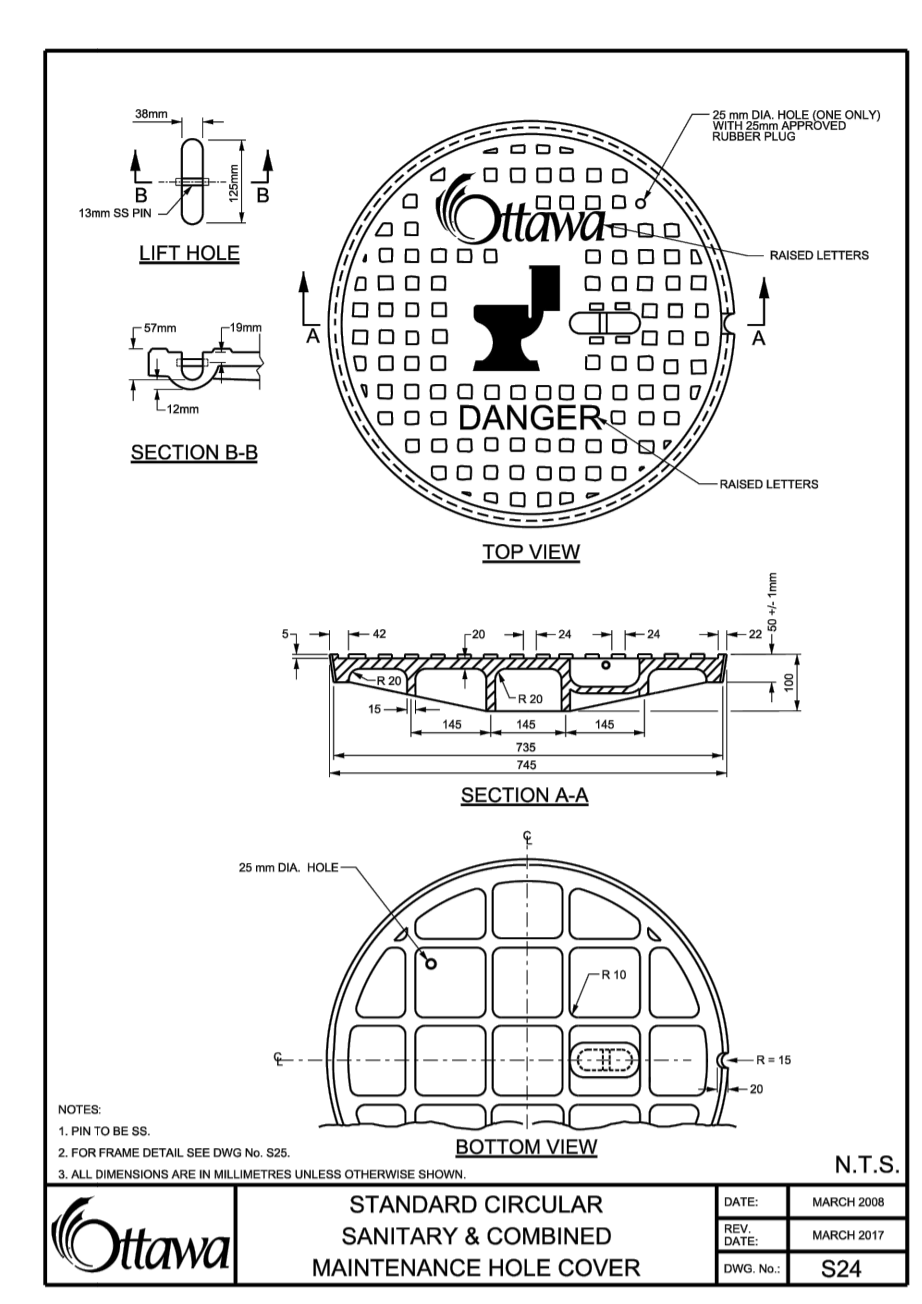
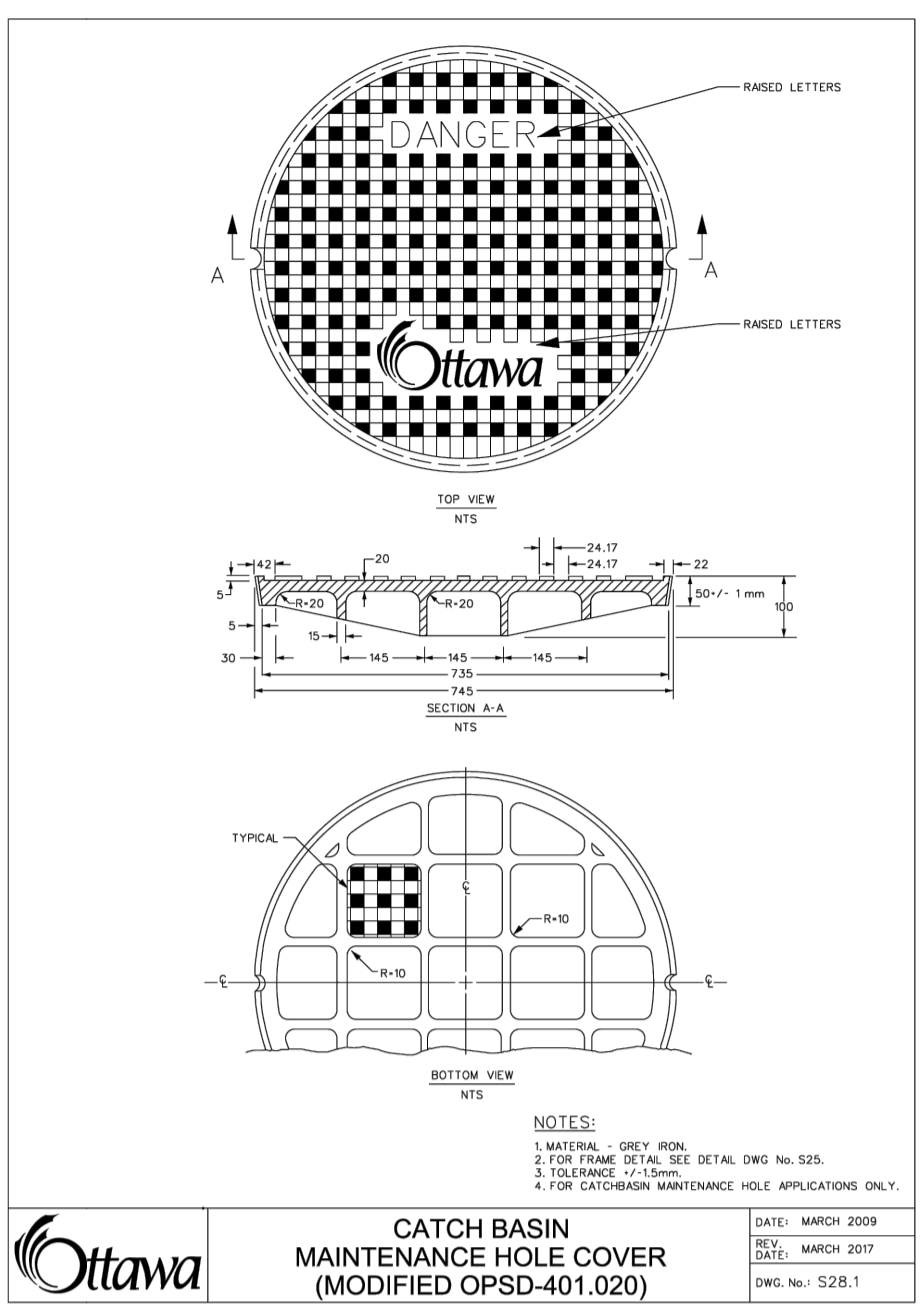
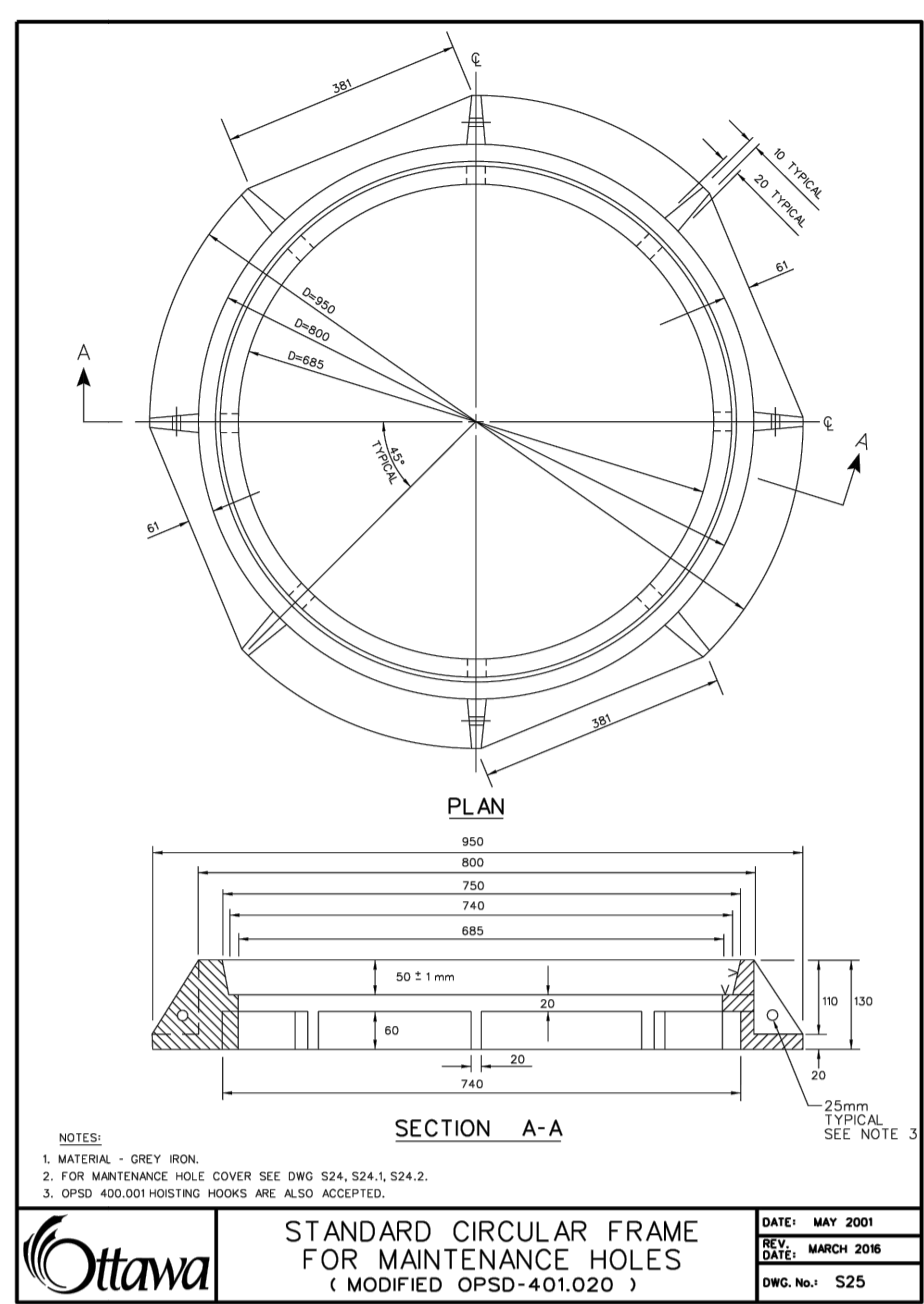
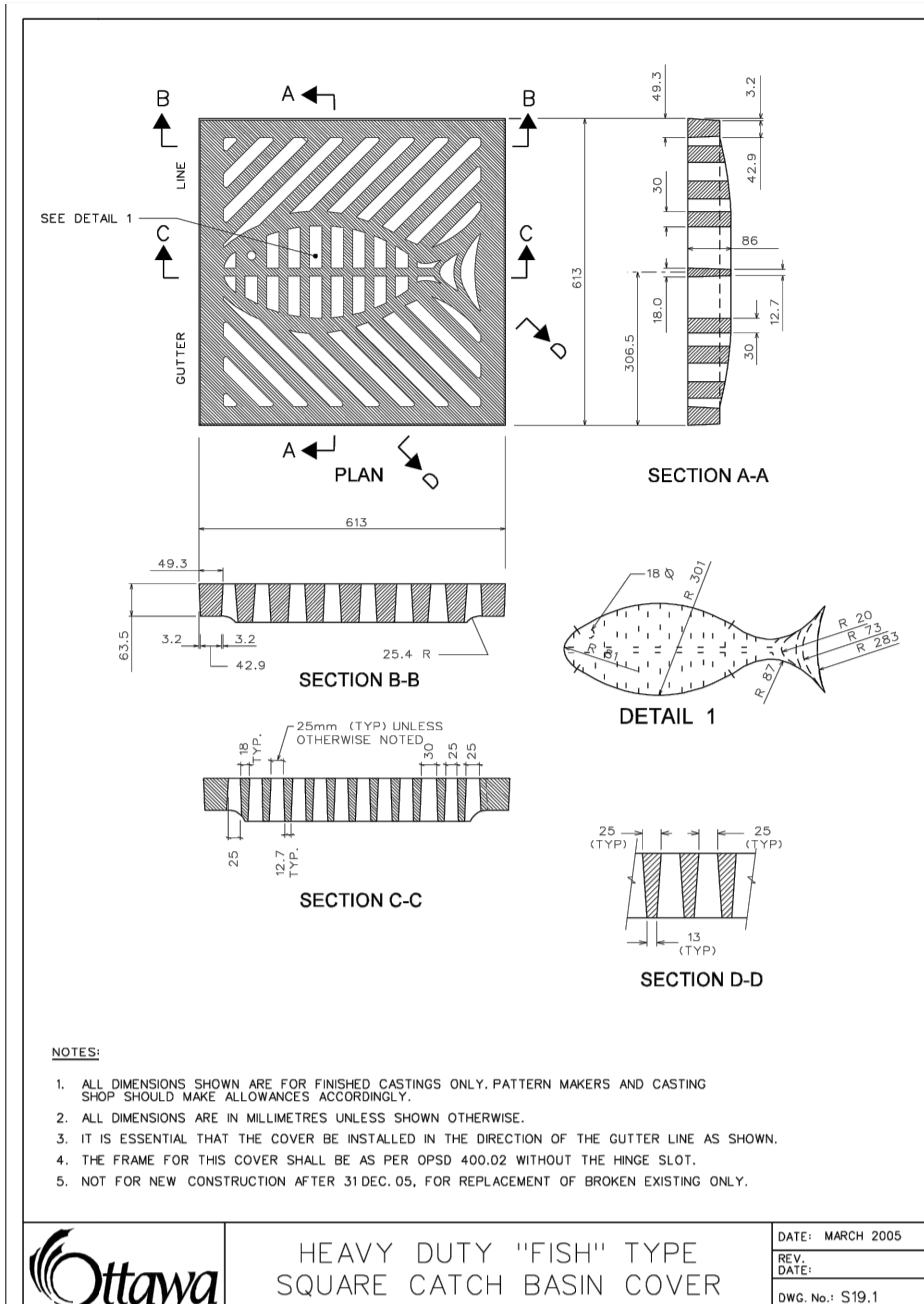
DESIGNED BY: S.V. DRAWN BY: S.V. APPROVED BY: S.G.

PROJECT: 524 LACOLLE WAY, OTTAWA, ON

DRAWING TITLE: POST-DEVELOPMENT WATERSHED PLAN

PROJECT NO: 240203
DATE: SEPTEMBER 2024

C702



USE AND INTERPRETATION OF DRAWINGS

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PROFESSIONAL ENGINEER
S. GODIN
100574017
PROVINCE OF ONTARIO
2025-02-26

NOT AUTHENTIC UNLESS SIGNED AND DATED

LRL
ENGINEERING | INGENIERIE
5430 Canotek Road 1 Ottawa, ON, K1J 9G2
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CLIENT: **PATRICE HOULE HOLDING INC.**

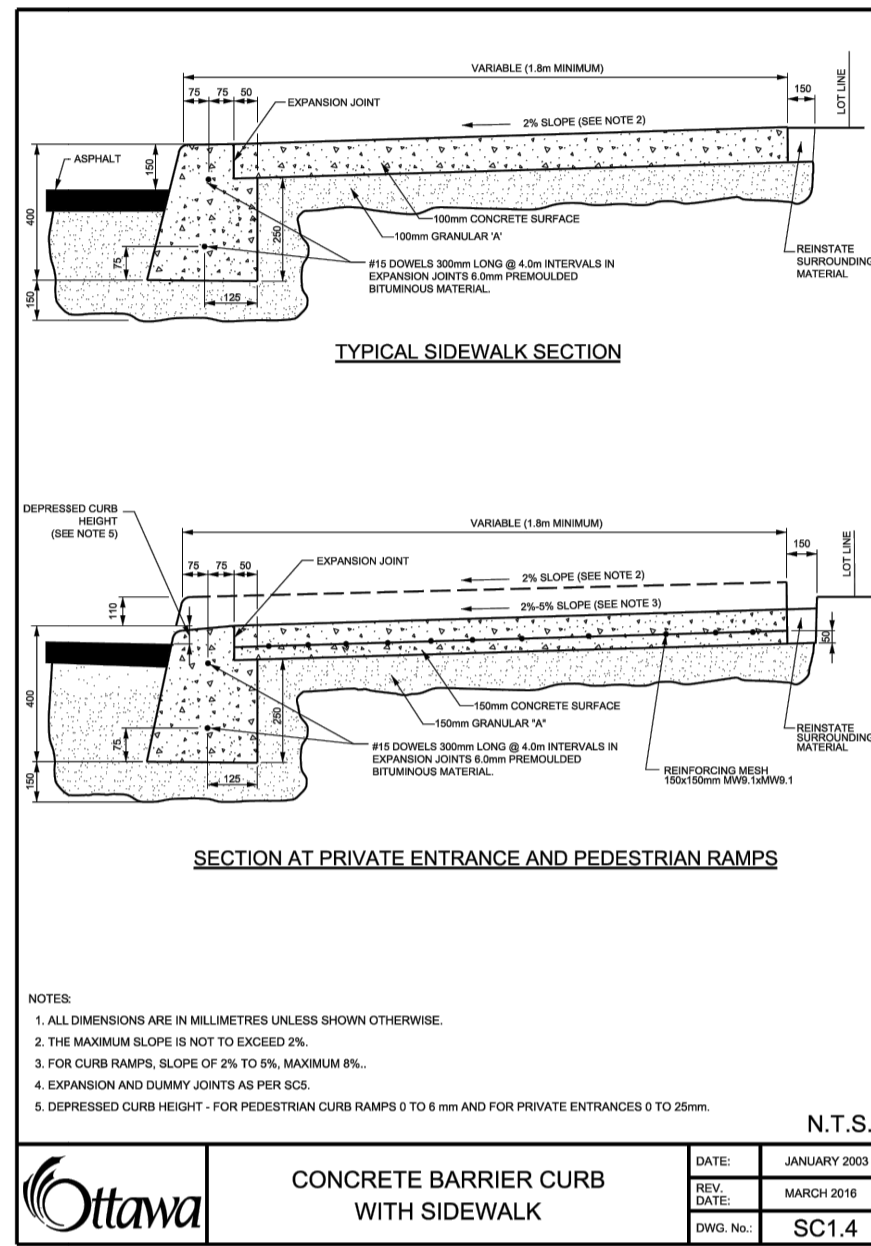
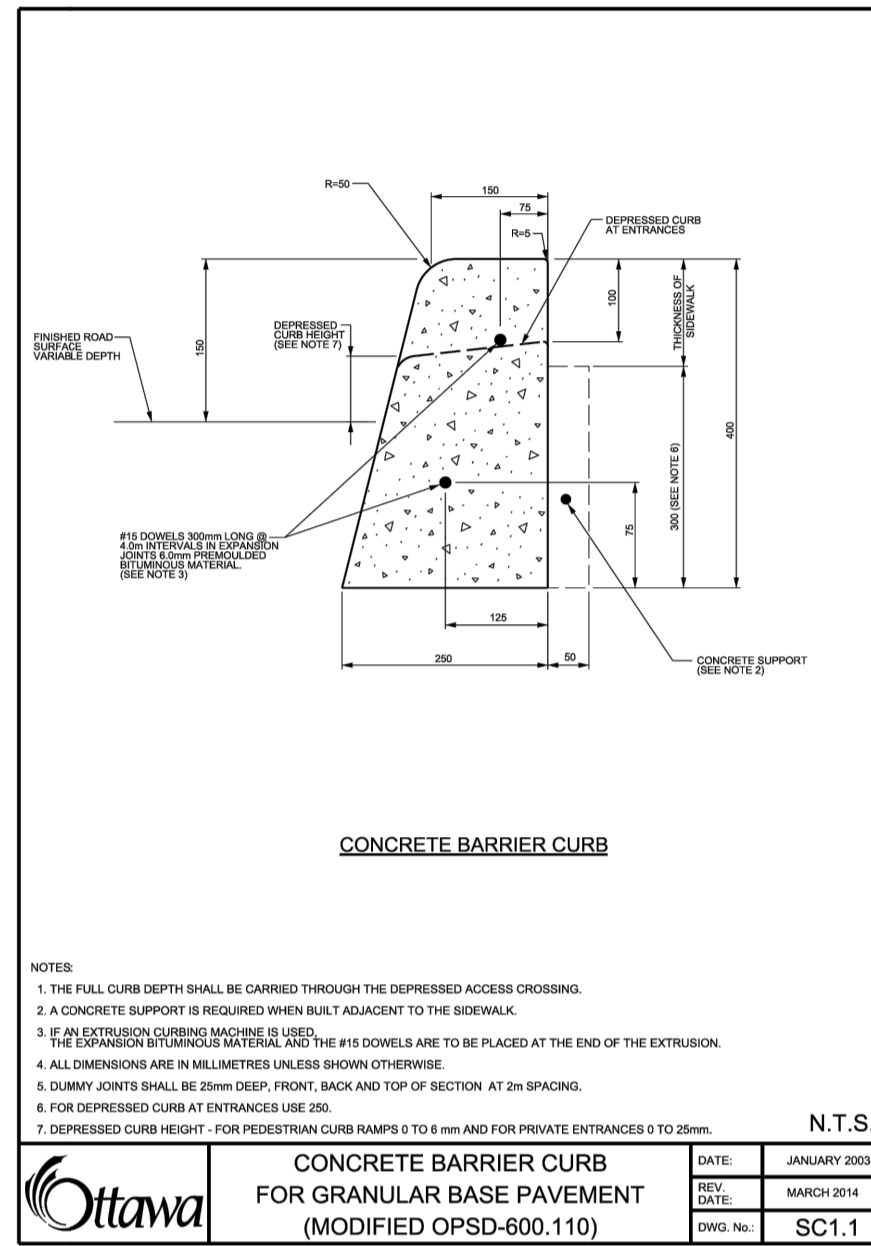
DESIGNED BY: S.V. DRAWN BY: S.V. APPROVED BY: S.G.

PROJECT: **524 LACOLLE WAY, OTTAWA, ON**

DRAWING TITLE: **CONSTRUCTION DETAIL PLAN**

PROJECT NO: 240203
DATE: SEPTEMBER 2024

C901



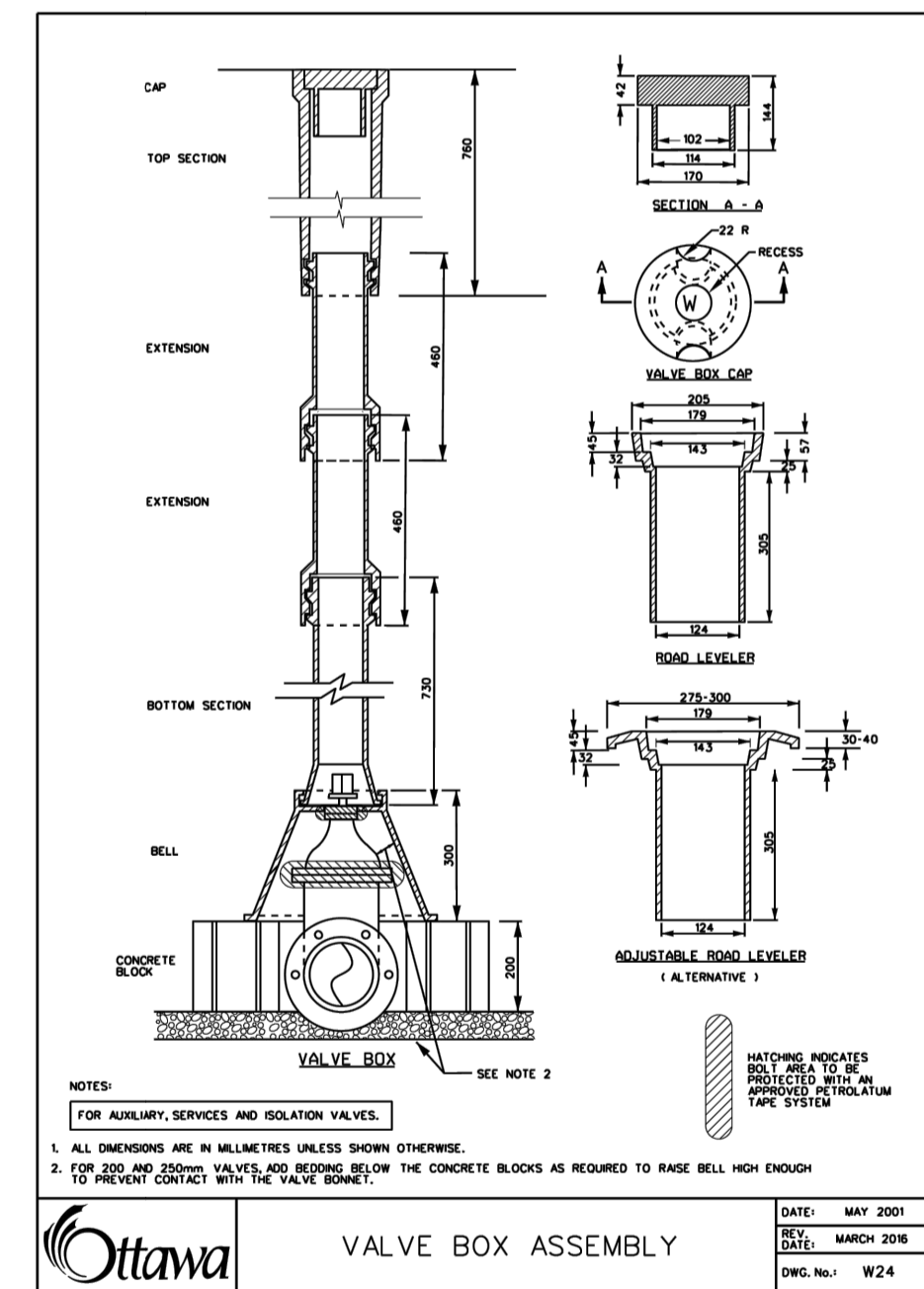
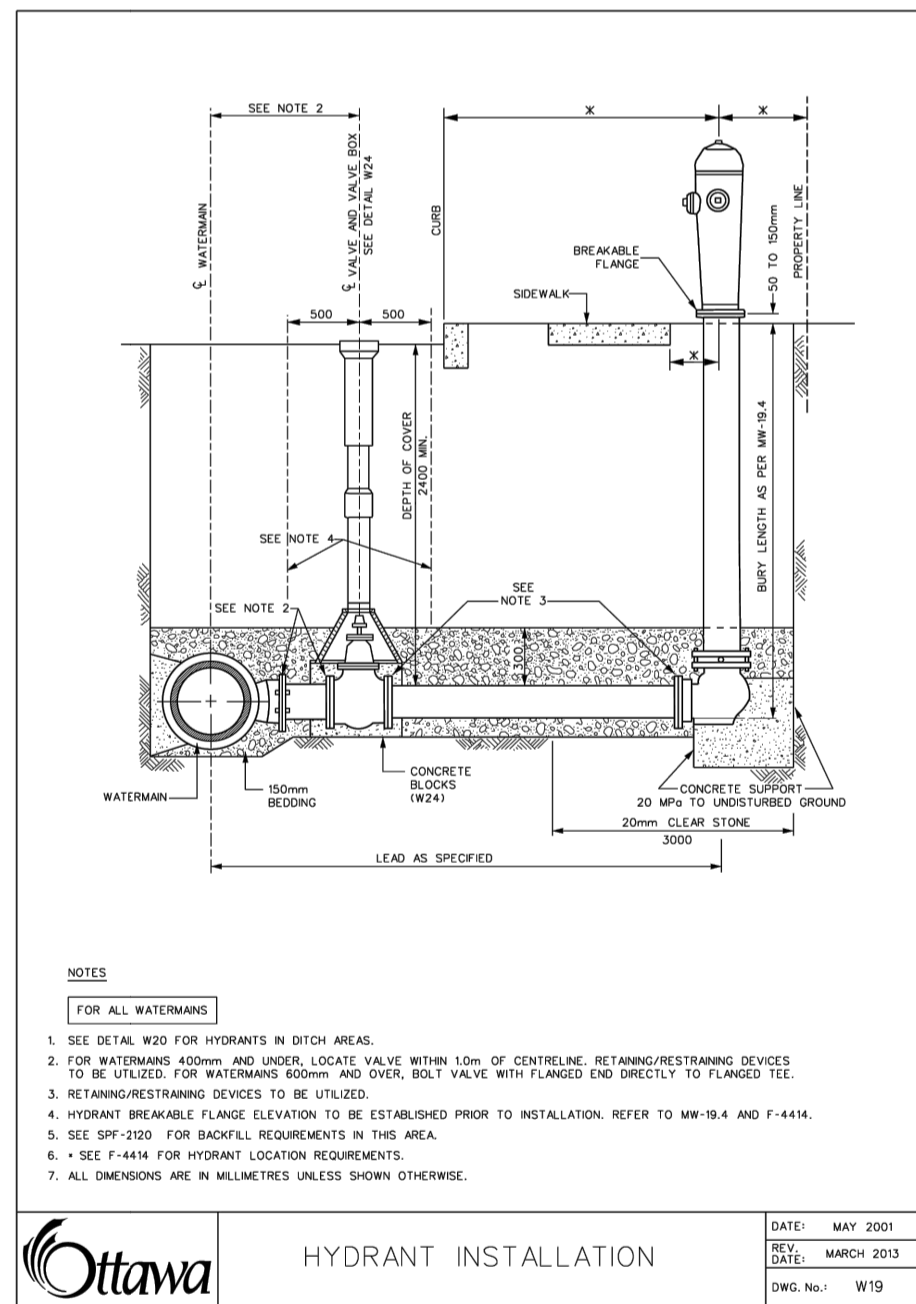
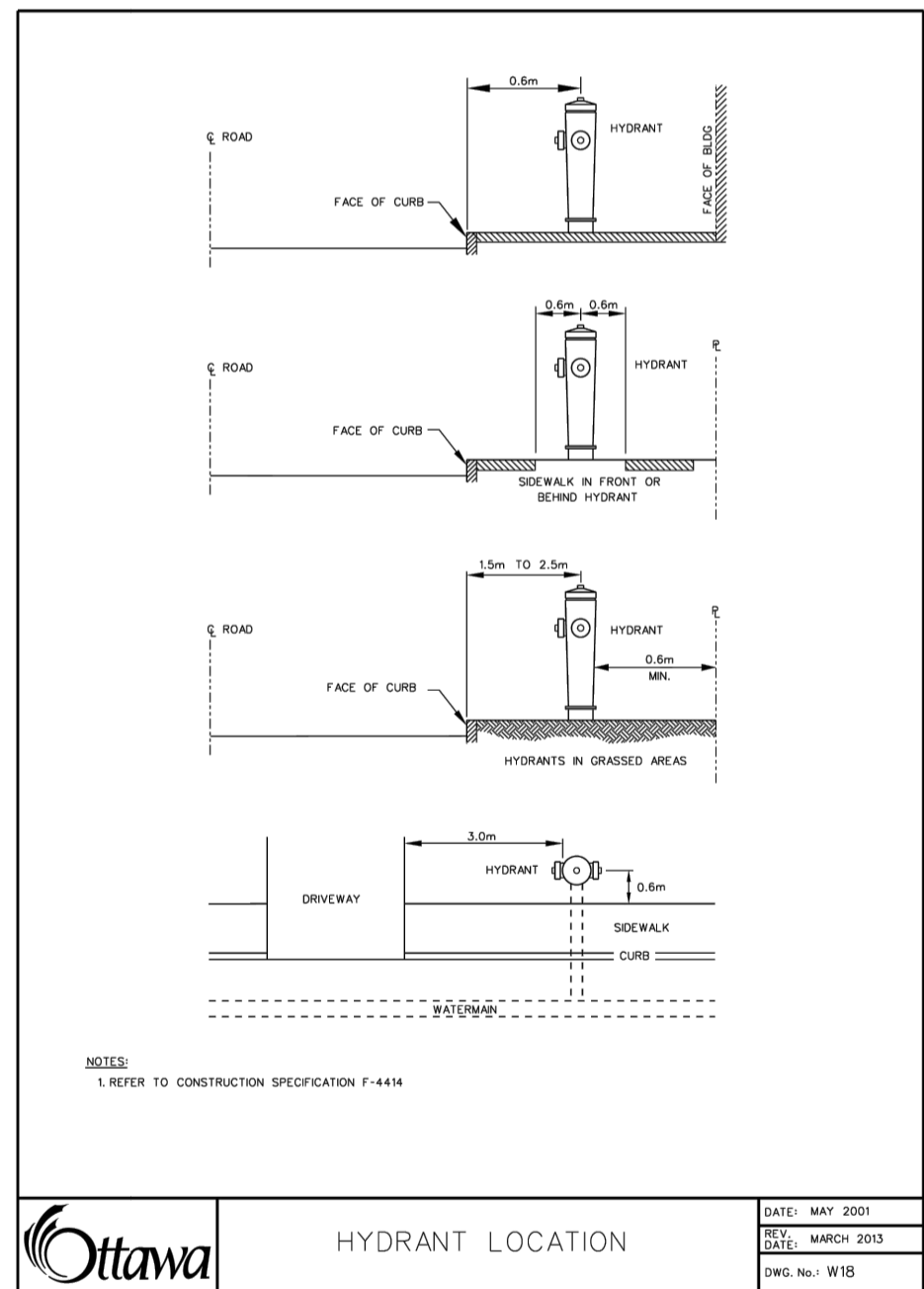
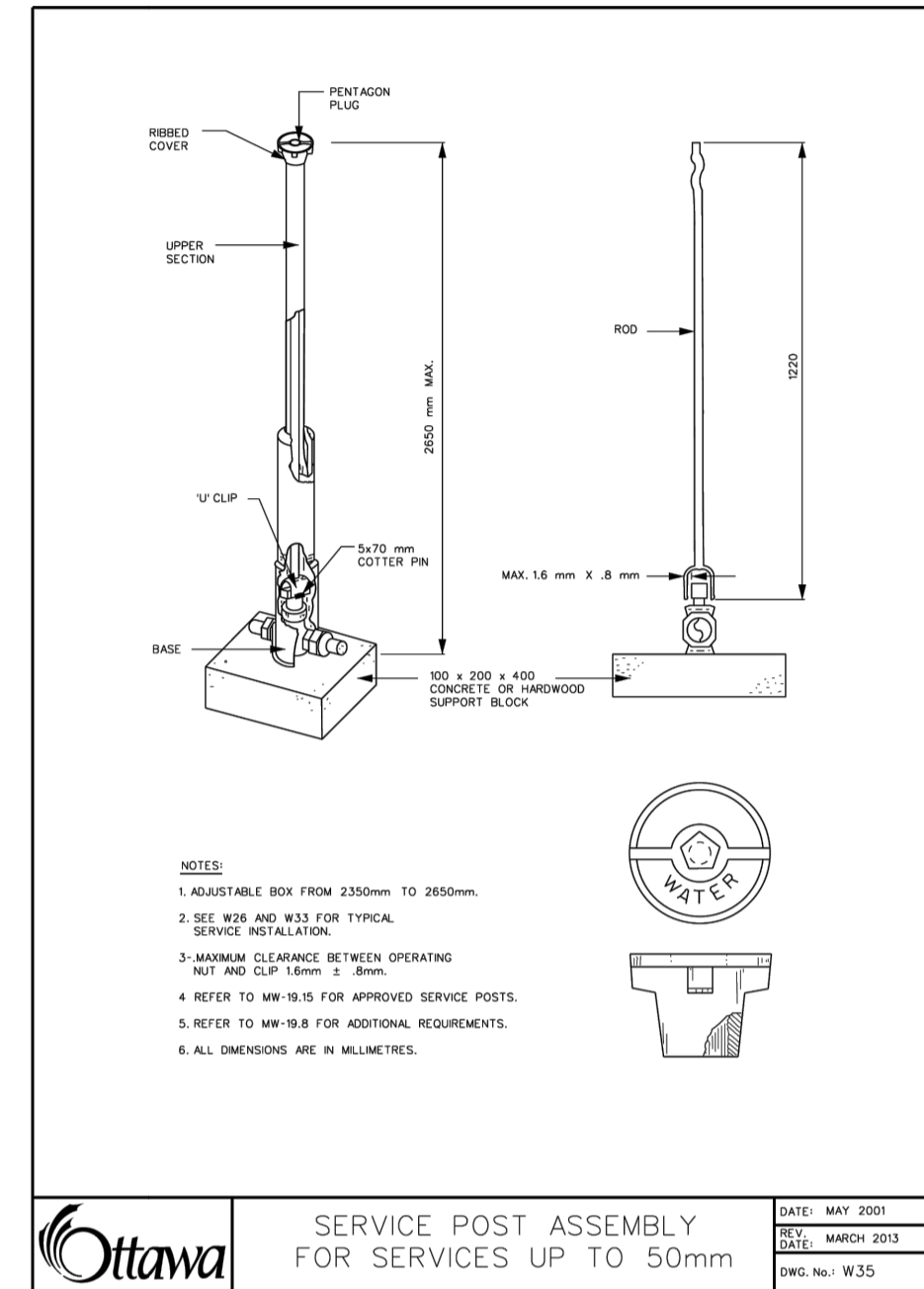
HEIGHT OF FILL TABLE
 REINFORCED CONCRETE PIPE - CONFINED TRENCH
 CLASS 50-D, 65-D, 100-D, and 140-D

PIPE DIA mm	BEDDING CLASS	CONFINED TRENCH			
		50-D	65-D	100-D	140-D
300	A	5.1	5.1	5.1	5.1
	B	2.9	2.9	2.9	2.9
375	A	6.0	6.0	6.0	6.0
	B	3.0	3.0	3.0	3.0
450	A	7.8	7.8	7.8	7.8
	B	3.9	3.9	3.9	3.9
525	A	9.7	9.7	9.7	9.7
	B	4.9	4.9	4.9	4.9
600	A	11.6	11.6	11.6	11.6
	B	5.8	5.8	5.8	5.8
675	A	13.5	13.5	13.5	13.5
	B	6.8	6.8	6.8	6.8
750	A	15.4	15.4	15.4	15.4
	B	7.7	7.7	7.7	7.7
825	A	17.3	17.3	17.3	17.3
	B	8.7	8.7	8.7	8.7
900	A	19.2	19.2	19.2	19.2
	B	9.6	9.6	9.6	9.6
975	A	21.1	21.1	21.1	21.1
	B	10.6	10.6	10.6	10.6
1050	A	23.0	23.0	23.0	23.0
	B	11.5	11.5	11.5	11.5
1200	A	27.8	27.8	27.8	27.8
	B	13.9	13.9	13.9	13.9
1350	A	32.6	32.6	32.6	32.6
	B	16.3	16.3	16.3	16.3
1500	A	37.4	37.4	37.4	37.4
	B	18.7	18.7	18.7	18.7
1650	A	42.2	42.2	42.2	42.2
	B	21.1	21.1	21.1	21.1
1800	A	47.0	47.0	47.0	47.0
	B	23.5	23.5	23.5	23.5

LEGEND:
 NL = No Limit

NOTES:
 A Height of fill is measured from the finished surface to top of pipe.
 B The load factor used for the calculation of the working bedding factor is: Class A bedding=2.0, Class B bedding=1.5, and Class C bedding=1.0.
 C The excavation width is based on OPSD 802.030 and is the width of the excavation measured at the top of the pipe.
 D Minimum height of fill over top of pipe shall be 600mm.
 E Strength designations are 50-D, 65-D, 100-D, and 140-D according to CSA A257.2.
 F The table is based on specific gravity of 1900 kg/m³.
 G For confined trench K₁=0.130.
 H Conditions other than those indicated shall be calculated from first principles.
 I All dimensions are in metres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING Nov 2015 Rev 3
 HEIGHT OF FILL TABLE
 REINFORCED CONCRETE PIPE - CONFINED TRENCH
 CLASS 50-D, 65-D, 100-D, and 140-D
 OPSD 807.010



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02	RE-ISSUED FOR APPROVAL	S.V.	26 FEB 2025
01	ISSUED FOR APPROVAL	S.V.	18 DEC 2024
No.	REVISIONS	BY	DATE



NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT
PATRICE HOULE HOLDING INC.

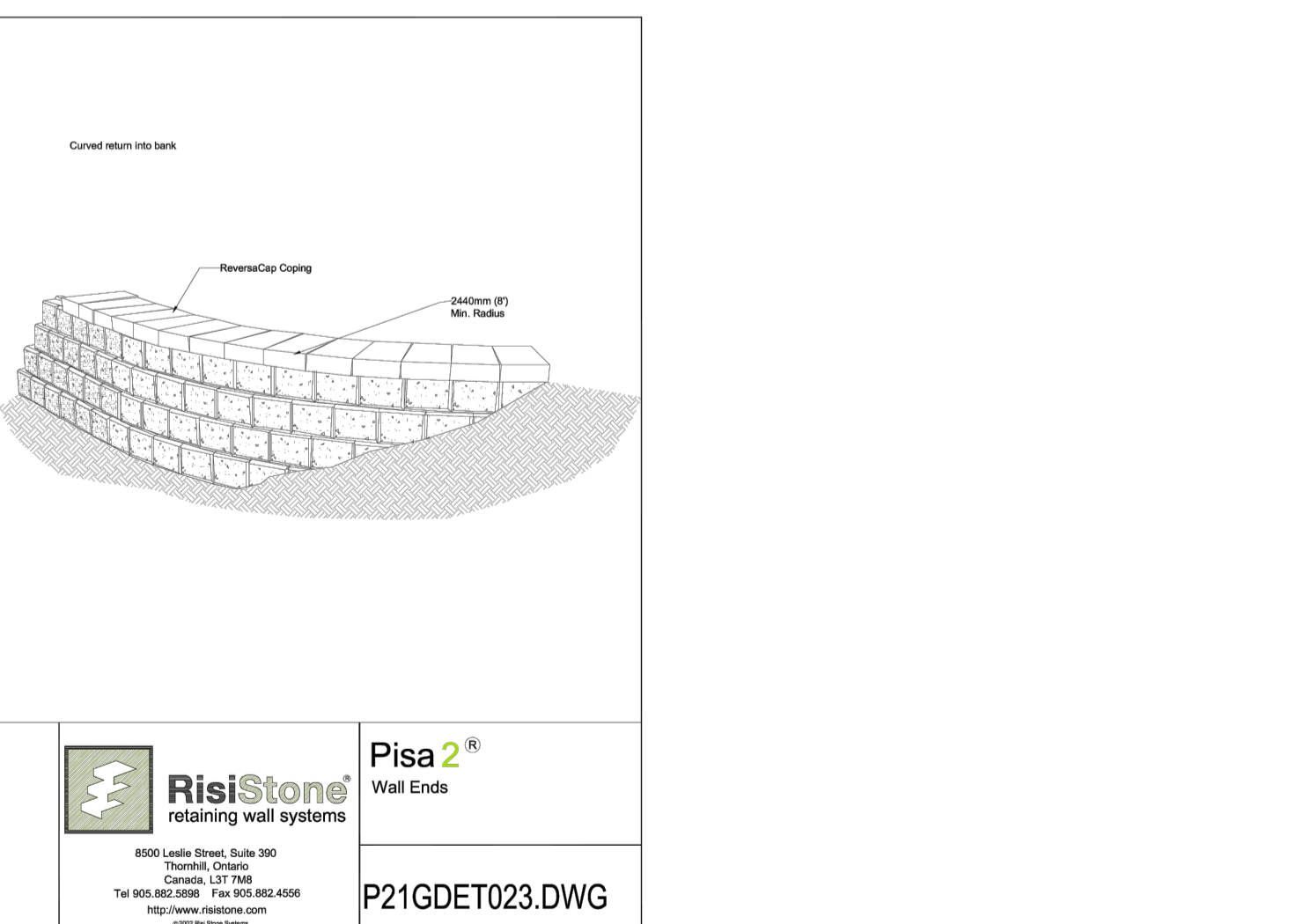
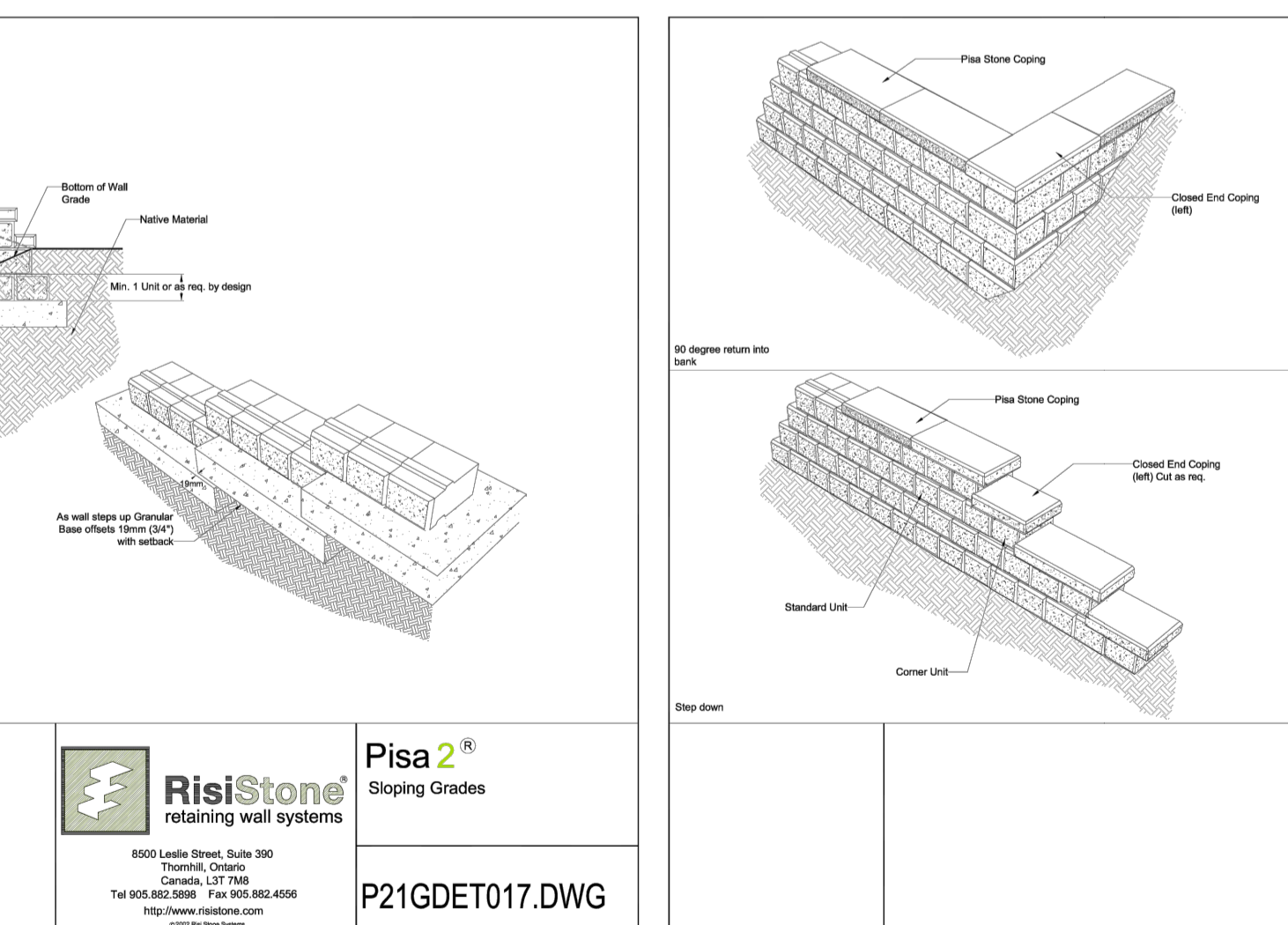
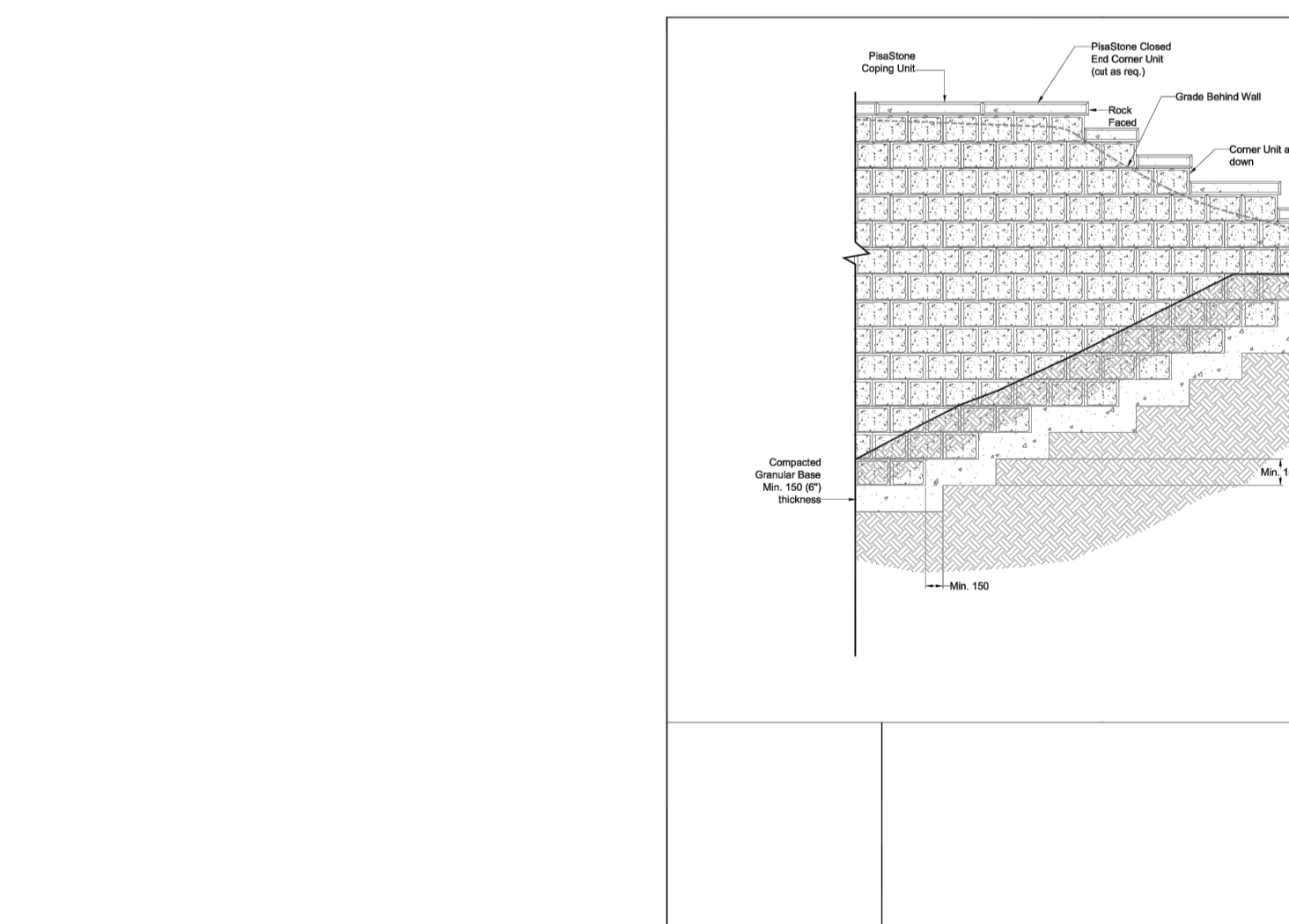
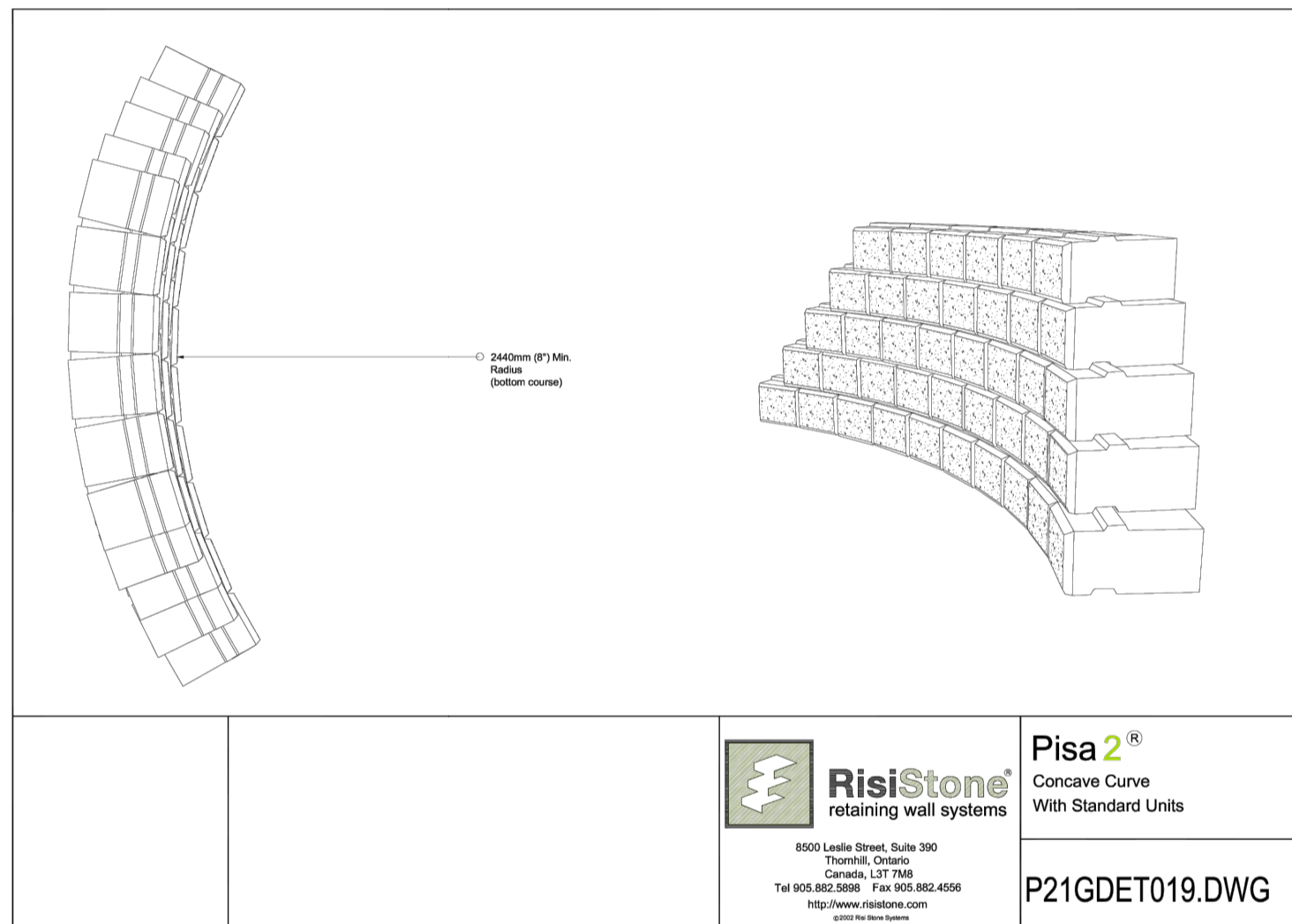
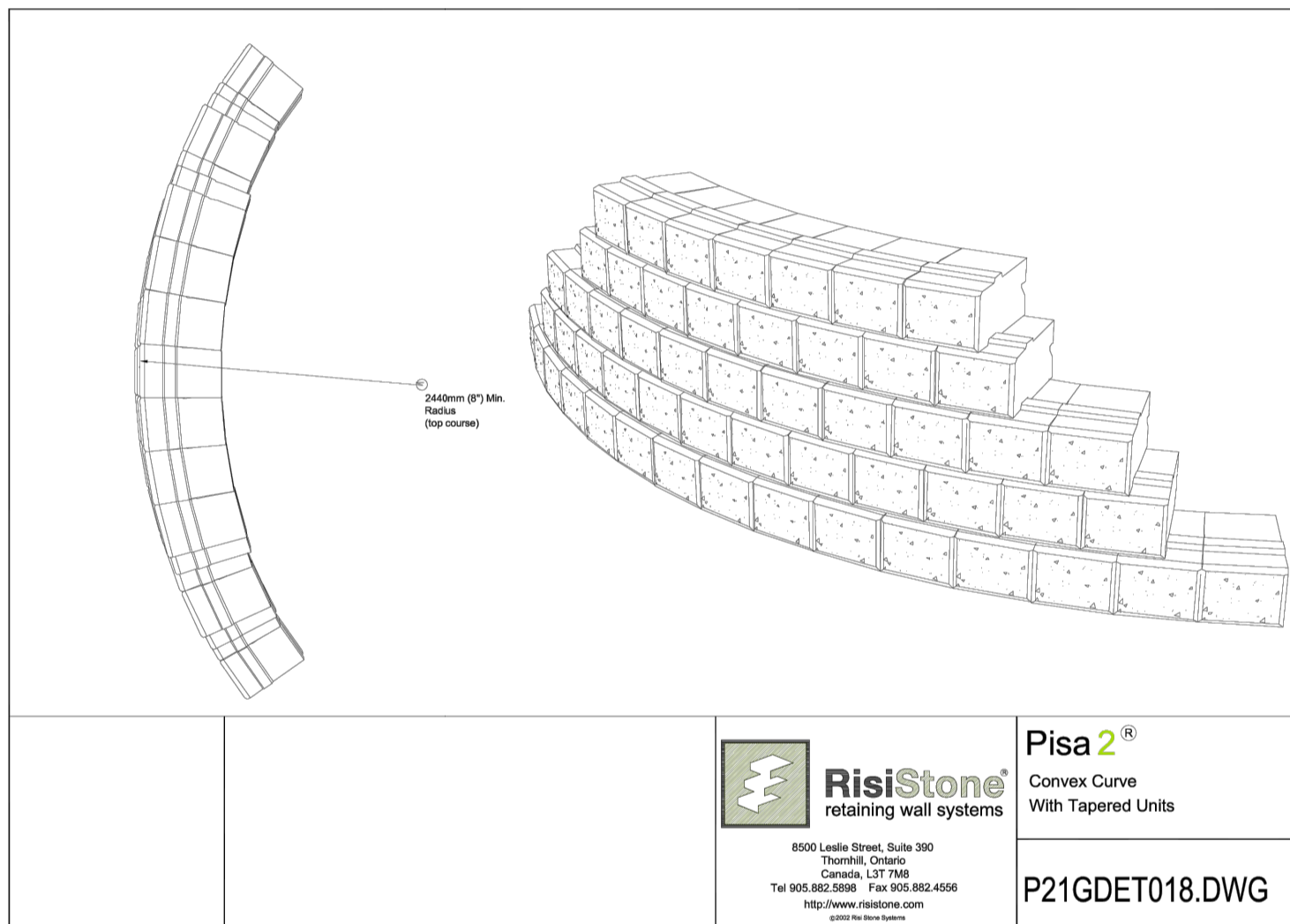
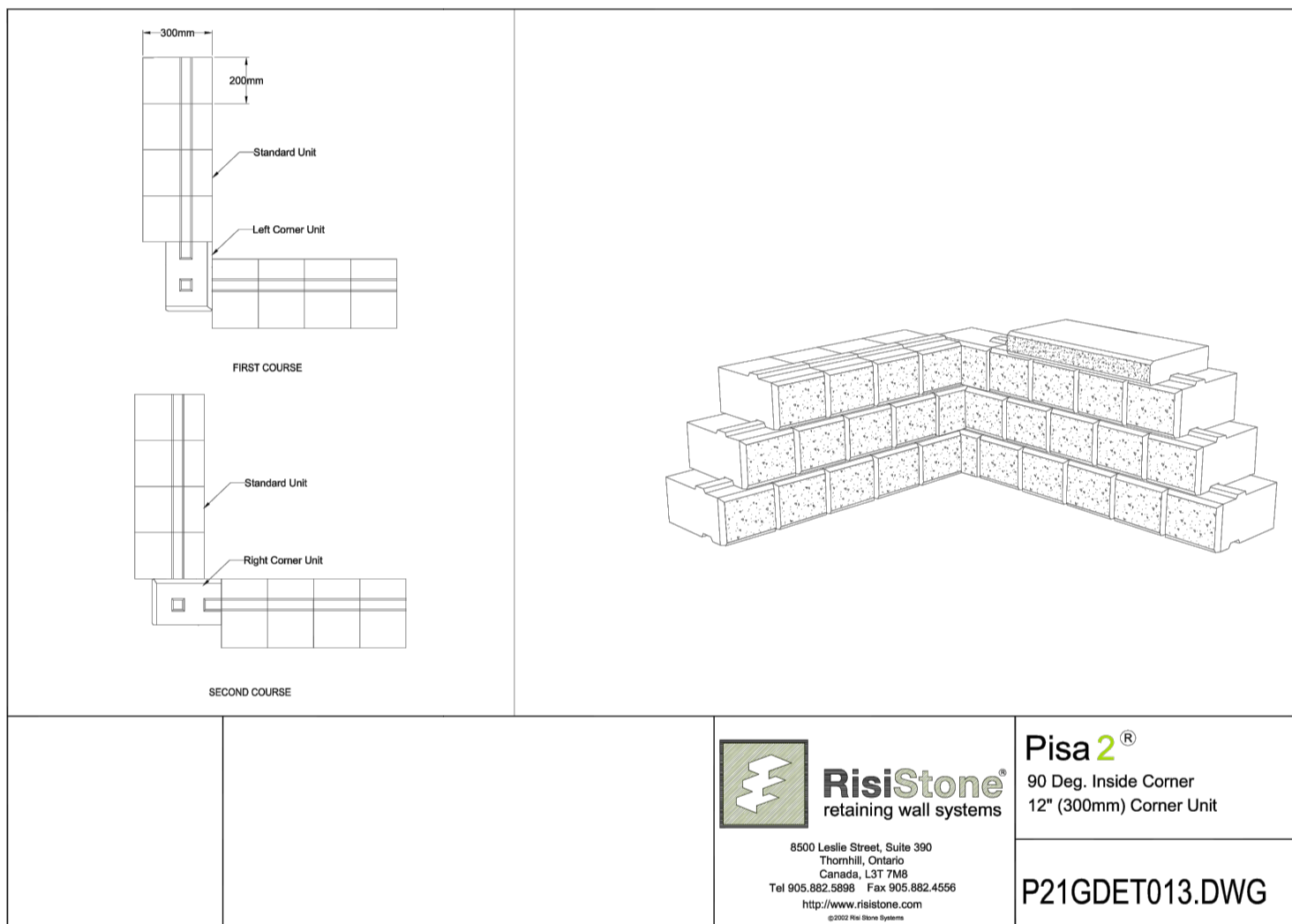
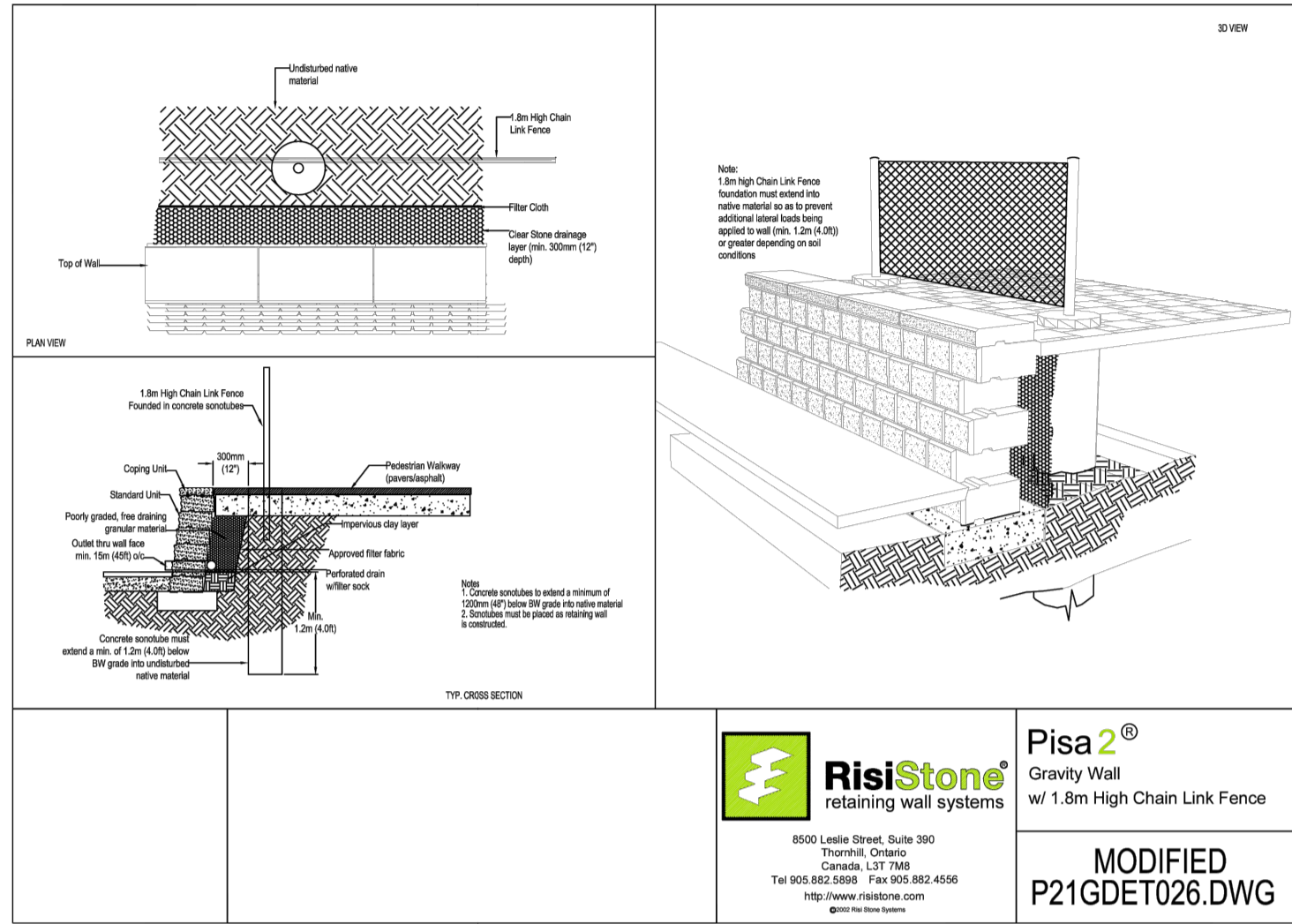
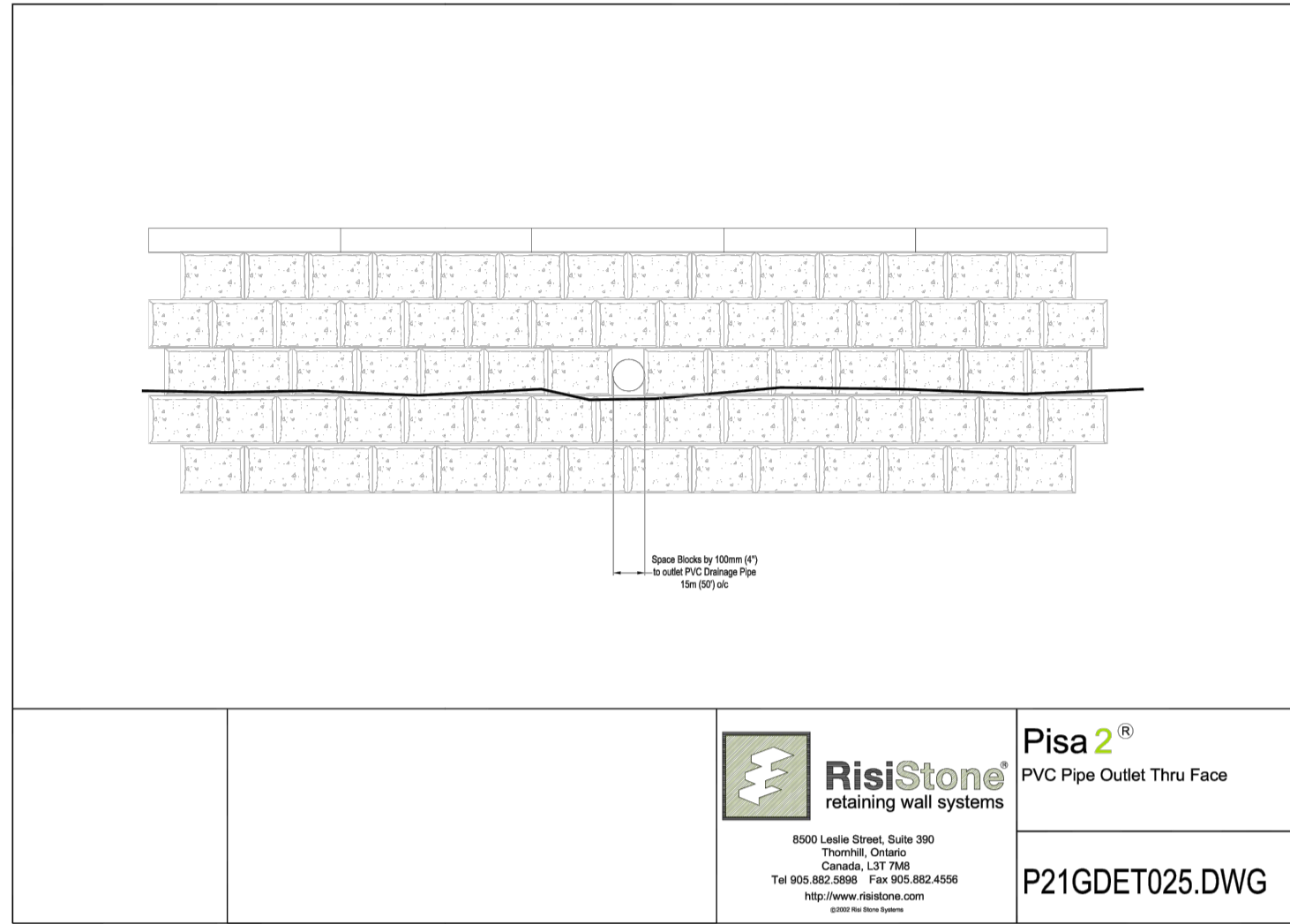
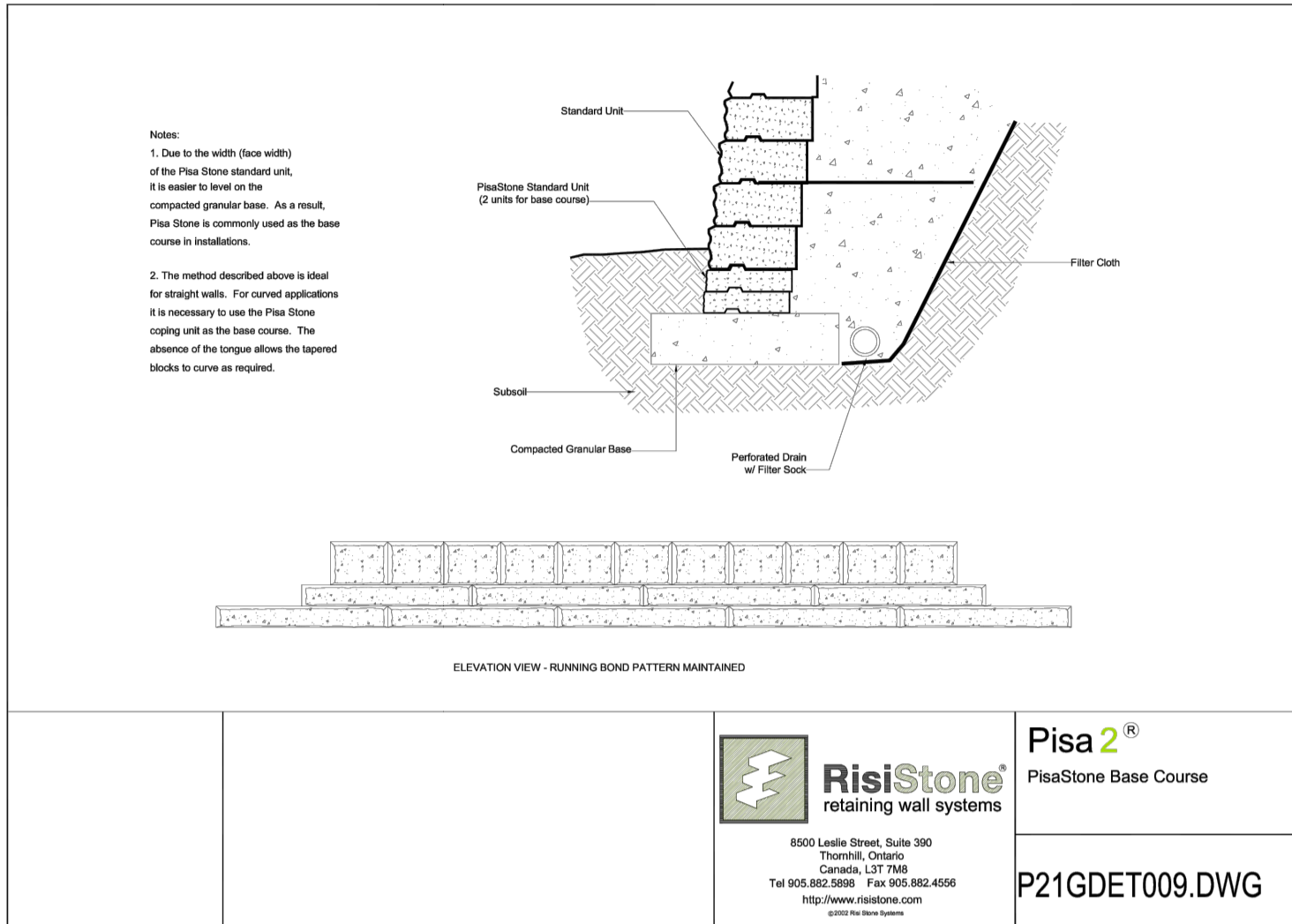
DESIGNED BY: S.V. DRAWN BY: S.V. APPROVED BY: S.G.

PROJECT
524 LACOLLE WAY, OTTAWA, ON

DRAWING TITLE
CONSTRUCTION DETAIL PLAN

PROJECT NO.
240203
 DATE
SEPTEMBER 2024





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No.	REVISIONS	BY	DATE
02	RE-ISSUED FOR APPROVAL	S.V.	26 FEB 2025
01	ISSUED FOR APPROVAL	S.V.	18 DEC 2024



CLIENT: PATRICE HOULE HOLDING INC.

DESIGNED BY: S.V. DRAWN BY: S.V. APPROVED BY: S.G.

PROJECT: 524 LACOLLE WAY, OTTAWA, ON

DRAWING TITLE: CONSTRUCTION DETAIL PLAN

PROJECT NO: 240203
DATE: SEPTEMBER 2024
C903

APPENDIX F

Taylor Creek Business Park Guidelines for On-Site Detention Design



McNEELY ENGINEERING

DRAFT

✓ GUIDELINES FOR ✓ ON-SITE DETENTION DESIGN

IN THE TAYLOR CREEK BUSINESS PARK
TOWNSHIP OF CUMBERLAND

Matt

Wingate

8 Pages inc

W.

April 1989

McNEELY ENGINEERING LIMITED

**GUIDELINES FOR
ON-SITE DETENTION DESIGN
IN THE TAYLOR CREEK BUSINESS PARK
TOWNSHIP OF CUMBERLAND**

A. INTRODUCTION

According to updated Master Plan studies, on-site detention (OSD) storage is implemented for the Taylor Creek Business Park development in order to control the five-year peak flow to 30 percent of its peak. In order to achieve this criterion and accounting for the uncontrolled flow from streets, it was found that the maximum release rate from lot areas to the storm sewers is 26.4 l/s/ha.

For larger storms, while the maximum sewer inflow from lots is also to be restricted to 26.4 l/s/ha, overflows from OSDs can be released to streets. If street elevations are higher than lots, and this overflow is not possible, OSDs will have to be sized to provide storage also for the larger storms up to the July 1, 1979 storm.

OSDs can be implemented on roof and parking lots. It is recommended that roof storage be used only if the volume of storage on the parking lot is not adequate. The minimum release rate from roofs is 30 - 40 l/s/ha to avoid frequent ponding. If roof storage is not used, roof leaders have to discharge onto the parking lots.

The following guidelines are given to assist consultants for developers with the OSD analysis based on these criteria.

If specific conditions on some lots change, deviations from the proposed procedure are accepted with adequate justification.

The proposed method is based on the interpretation of computer storage computations with variable and uniform storms. Results are presented in graphs to facilitate the use by non-modellers. The method was developed with the assistance of Dr. Paul Wisner, PEng and Mr. Curtis Rampersad, PEng.

B. RELEASE RATES

1. Conduct a preliminary review of lot grades and compare with street elevations to determine if overland flows from lots can be conveyed to streets.

- . If yes, OSD volume is required only for the five-year storm (see graphs 1 and 4).

- . If no, OSD volume is also required for the July 1, 1979 storm (see graphs 1 and 5).

2. Determine the lot area and calculate the total lot release rate from lot (QLC) to storm sewers:

$$QLC = 26.4 \text{ l/s/ha} \times \text{lot area (ha)}$$

3. Select minimum controlled release rate from the roof storage, QRC, based on roof size and roof control device, e.g., Zurn Control - Flo Roof Drains (attached). As shown in section A, above, minimum release rate from roofs to be considered is:

30 l/s/ha - 40 l/s/ha for roof area which represents not more than 40 percent of the lot area.

NOTES: (i) Scuppers are required on roof storages to avoid higher depth of flow on roofs than required.

(ii) If roof storage is not used, QRC = 0.

4. Conduct a site-grading analysis and define the following:

i) Area of lot which will flow uncontrolled directly to the street, A_o , and calculate uncontrolled five-year flow, Q5 LUC (Rational Method, 10-minute intensity):

$$Q5 \text{ LUC} = (278 CA_o) \text{ l/s};$$

C = runoff coefficient (based on imperviousness ratio;

A_o = area in hectares.

NOTE: Indicate this area clearly on the site plan.

ii) Determine locations on the parking lot where volume for storage can be accommodated as well as contributing area. This will dictate the number of catchbasins on the parking lots.

NOTE: Catchbasins should be avoided where storage is not possible. If this cannot be avoided, the uncontrolled flow should be considered in (A_o), above. The number

of catchbasins should be minimized to
avoid small flow rates for inlet control
devices (ICDs).

5. Total release rate, QPC, from controlled parking lot
(and landscaped areas which eventually drain to the
parking lot):

$$QPC = QLC - (Q5 LUC) - QRC$$

C. INLET CONTROLS AND DETAILED DESIGN

6. Determine ICD control rate, QICD.

$$QICD = \frac{QPC}{\text{No. of CB}}$$

Select ICD type as follows:

QICD < 5 l/s This gives very small orifices.
It is recommended to use a
single ICD, to be installed at
special outlet manhole in order
to avoid clogging. This outlet
control will be sized for a
release rate (QPC + QRC).

5 l/s < QICD < 14 l/s Use Hydrovex ICD.

14 l/s < QICD < 22 l/s Use Sceptor or equivalent
tested ICD.

NOTES: 1. QICD can be increased to minimize clogging by
reduction of the No. of CB.

2. Indicate on drawing the type of restriction.
3. Give in the report the manufacturer's $Q = f(H)$ graph.
7. Find volumes of OSD storages on roof and parking lot, using the attached graphs for either the five-year storm or the July 1, 1979 storm as defined in section B (graphs 1 and 4 or graphs 1 and 5).
8. Find maximum depth on parking lot OSD based on slopes.
9. Plot flooded area on parking lot for five-year, 100-year and July 1, 1979 storms. The maximum permitted depth is 10 cm for the five-year storm, and 20 cm for the 100-year or July 1, 1979 storms.
10. Show overland escape flow route for the 100-year and July 1, 1979 storms based on peak flows from graphs 2 and 3. Compare water levels with openings in the building for normal operation and with orifices clogged.

NOTE: OSDs on parking lots should be graded so that they can overflow into each other before overflowing to the streets if the ICD is located at the outlet manhole.

11. Define pipe schematics with maximum CB inflows for the selected scheme.
12. Rational Method for pipe sizing does not apply if flows are uniform and equal to ICD release rate! Select minimum pipe sizes and check hydraulic grade line for inflows and free surface outfall.

D. REPORT AND DRAWINGS

A detailed report is only required if the procedure described above is not followed.

If the procedure is followed, the project memorandum should only have the following:

- 1) A site plan with all contributing areas (controlled and uncontrolled), surface water elevations, volumes, type of ICD and roof outlet, etc. If used, indicate number of roof controls, type, location.
- 2) A summary checklist with the following data:
 - a) Criterion for release five-year
(see B-1) July 1, 1979;
 - b) TOTAL LOT RELEASE RATE, QLC (see B-2);
 - c) Roof release rate, QRC, based on number and type of controls (see B-3);
 - d) Uncontrolled flow, Q LUC (refer to specific area on plan) (see B-4);
 - e) Total release rate from parking, QPC (see B-5);
 - f) Type of ICD and control rate, QICD (see C-6). Attach graph, $Q = f(h)$ by manufacturer;
 - g) Table with OSD volumes for each controlled catchbasin, giving contributing area, release rate, volume and maximum depth (see C-7, C-8);

- h) Table with HGL pipe computation (see C-11, C-12) (attach schematic);
- i) Note on building openings and elimination of flood risks for very large storms (see C-10).

FINAL REMARKS

OSDs save costs for land required by off-site ponds and reduce pipe sizes. Their design, however, has to be done very carefully since failure can lead to flooding or accidents. The procedure described above does not require hydrologic training, but attention to all details is very important.

The same applies to inspection to make sure that grading, roof discharges, roof protection, installation of inlets, etc. are done according to the design.

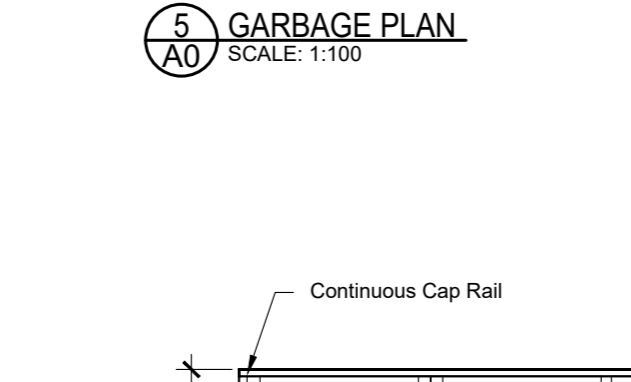
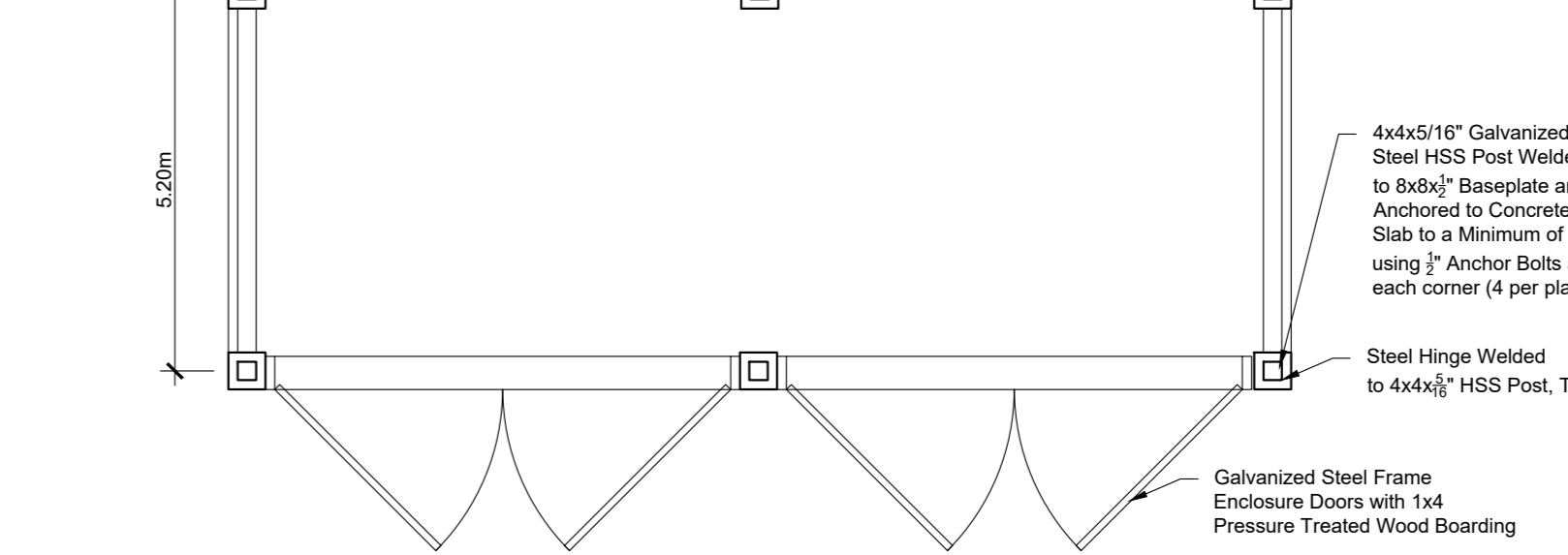
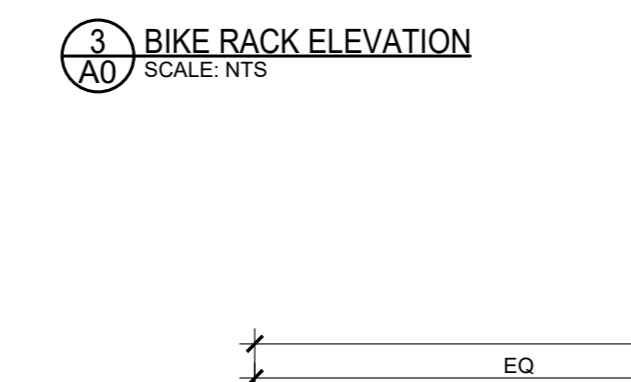
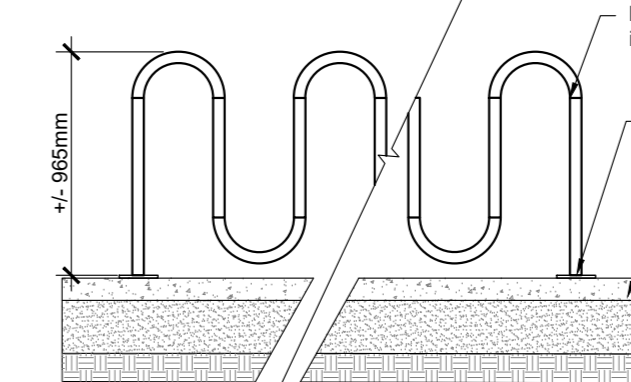
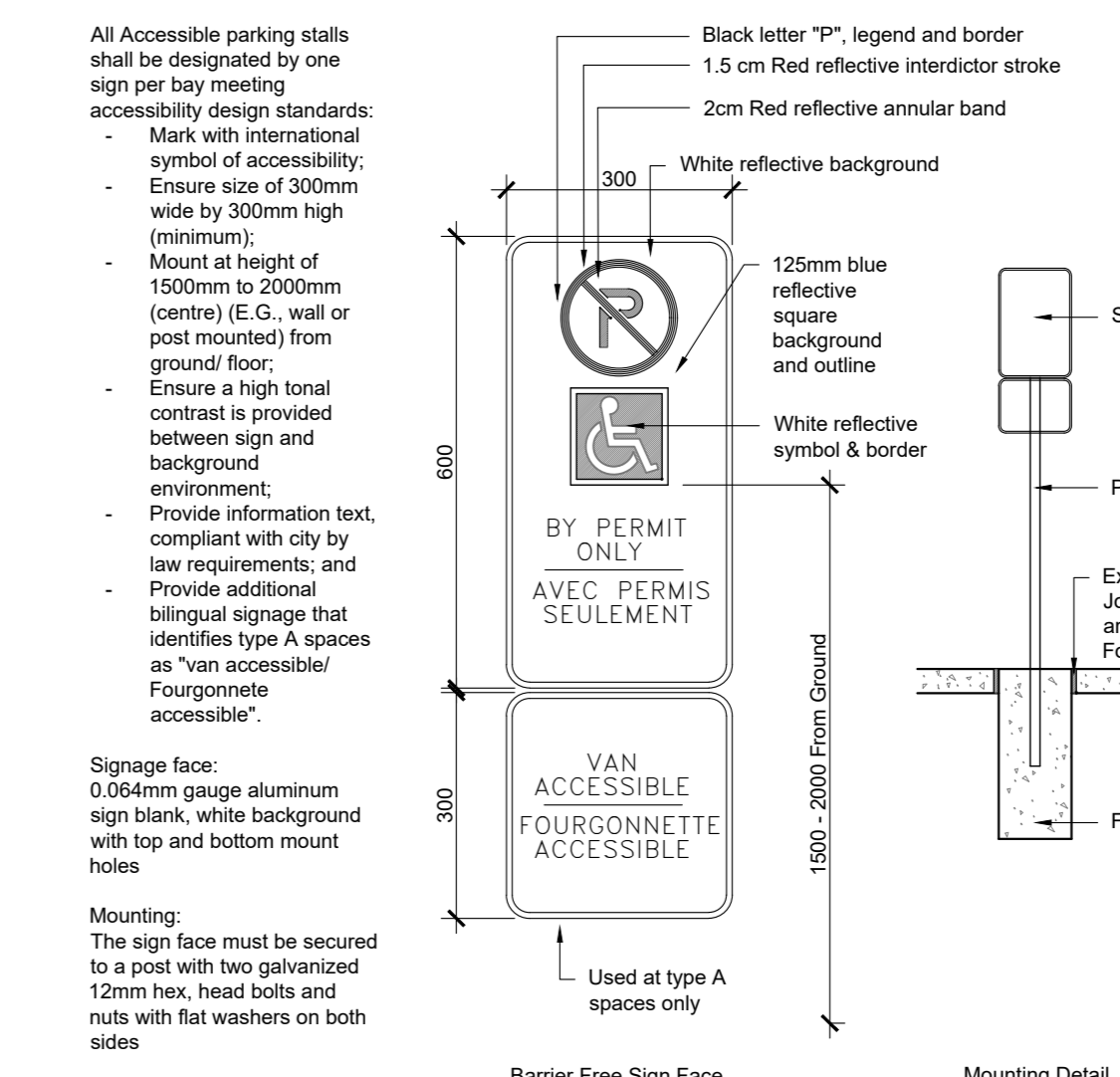
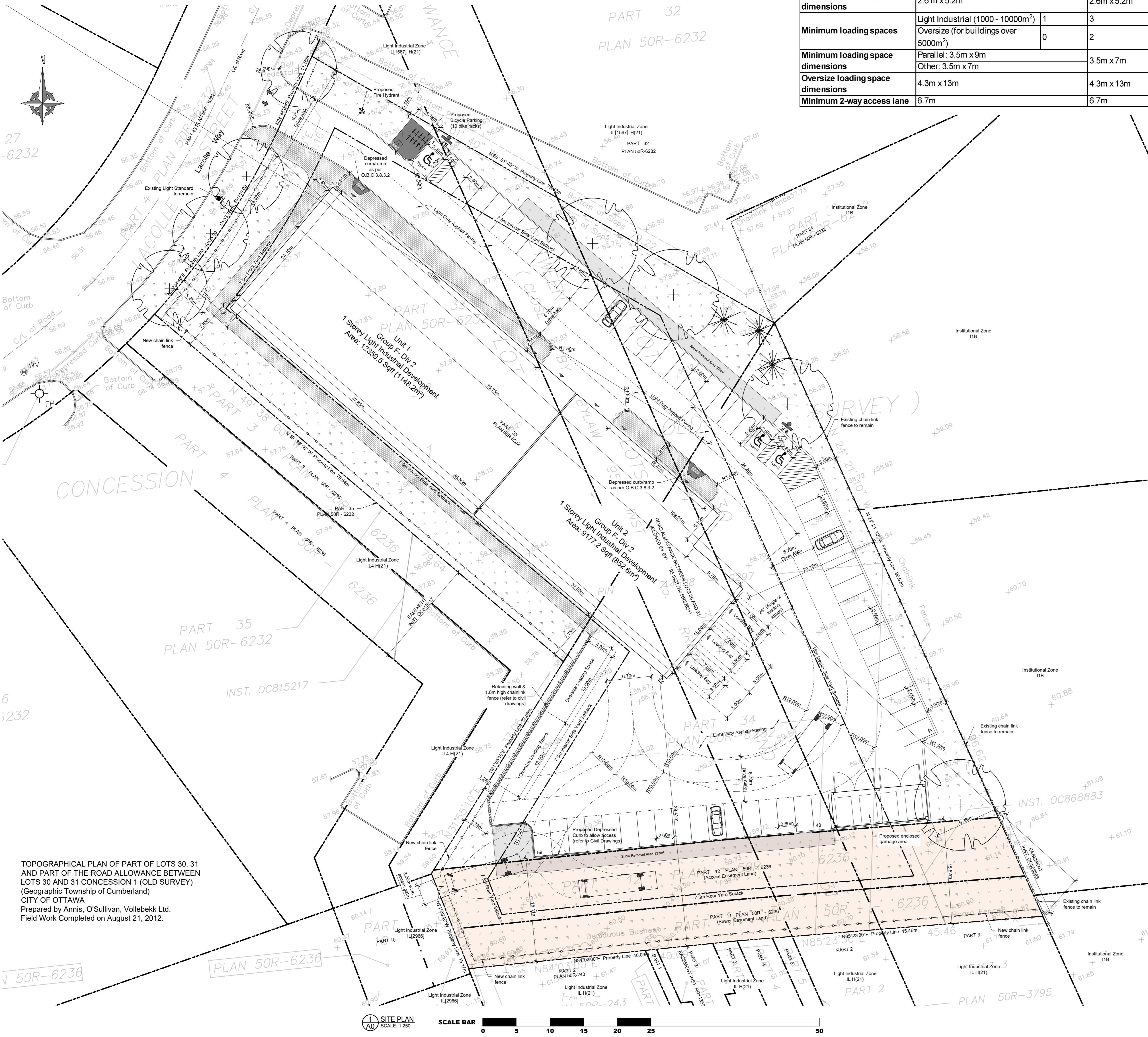
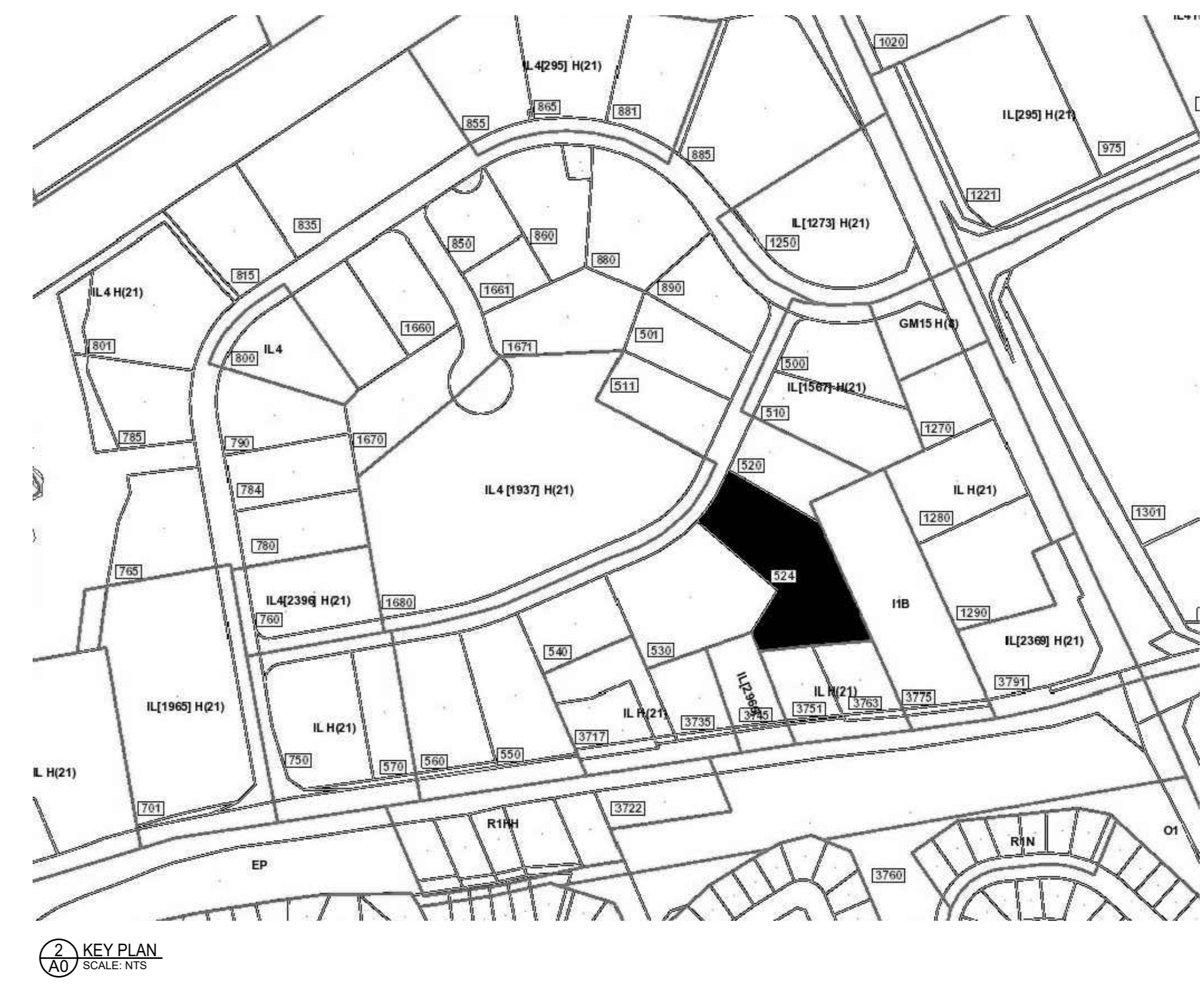
Legal documents should prevent owners from changing any of the specific OSD features and allow for township inspection.

APPENDIX G
Proposed Site Plan
Legal Survey



Building Analysis	
Building Area:	
Ground Floor Area:	2000.8m ² (21537 sqft)
Mezzanine Floor Area:	241.18m ² (2596 sqft)
Gross Floor Area:	2241.98m ² (24132.47 sqft)
O.B.C. Requirements	
3.2.2.70	
Classification:	Group F, Div2, up to 4 Storeys
No. of Storeys:	1
No. of Facing Streets:	1
Sprinkler System:	No
Maximum Area:	3200m ²
Construction:	Combustible or Noncombustible Construction

Mechanism	Provision	Provided
Minimum lot area	2000m ²	8520m ²
Minimum lot width	n/a	44.83m
Maximum lot coverage	65%	23.48%
Minimum front yard setback	7.5m	7.7m
Minimum corner side yard setback	7.5m	n/a
Minimum interior side yard setback	Where abutting Institutional Zone: 15m Otherwise 7.5m	20.18m Abutting IL Zone: 7.65m
Minimum rear yard setback	Where abutting Institutional Zone: 15m Otherwise 7.5m	n/a Abutting IL Zone: 39.42m
Maximum floor space index	2	0.26
Maximum building height	21m	7m
Minimum width of landscaped area	Where abutting street: 3m Where abutting Institutional Zone: 3m Otherwise: n/a	5.25m 3m Abutting IL Zone: 0.56m
Minimum required parking	Light Industrial (Area C on Schedule 1A): 0.8 per 100m ² (2241.98m ²) Accessible Type A (3.4m wide) 1 Accessible Type B (2.4m wide) 2	56 Parkings and 3 Accessible Parkings Total 59 Parkings
Minimum loading spaces	Light Industrial (2000 - 4999m ²) 1 Office (350 - 999m ²) 0 Oversized (0 - 5000m ²) 1	0 0 3
Minimum bicycle parking	Office: 1 per 1500m ² Office: 1 per 250m ²	1 10
Minimum parking space dimensions	2.6 m x 5.2m	2.6m x 5.2m
Minimum loading spaces	Light Industrial (1000 - 10000m ²) 1 Oversize (for buildings over 5000m ²) 0	3 2
Minimum loading space dimensions	Parallel: 3.5m x 9m Other: 3.5m x 7m	3.5m x 7m
Oversize loading space dimensions	4.3m x 13m	4.3m x 13m
Minimum 2-way access lane	6.7m	6.7m



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SEAL:

LEGEND:

Item	Description
[Symbol]	Sodded Areas (Landscape Design by Others)
[Symbol]	Tactile Attention Indicator as per O.B.C. 3.8.3.18
[Symbol]	Concrete Pad
[Symbol]	Permeable Pavers
[Symbol]	Two way traffic
[Symbol]	Entrance to Building
[Symbol]	Fire Route Sign as per City Standard
[Symbol]	Barrier Free Parking Sign

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5	Re-issued for Site Plan Application	16 Dec 2024
6	Re-issued for Site Plan Application	12 Feb 2025

SITE ADDRESS:
524 Lacolle Way
Ottawa, ON K4A 0N9

OWNER INFORMATION:
Patrice Houle Holdings Inc.
2380 Old Highway 17
Rockland, ON K4K 1K7

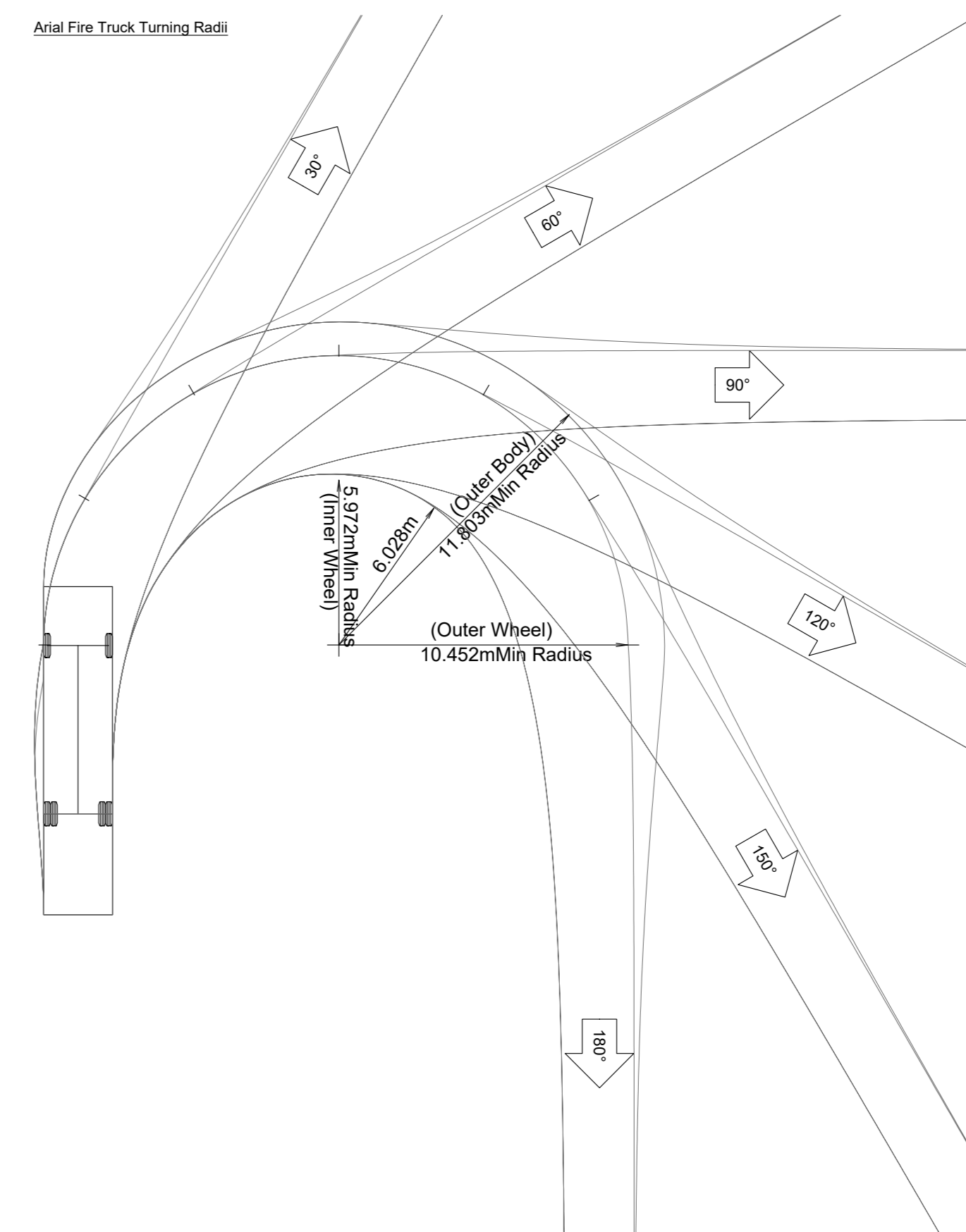
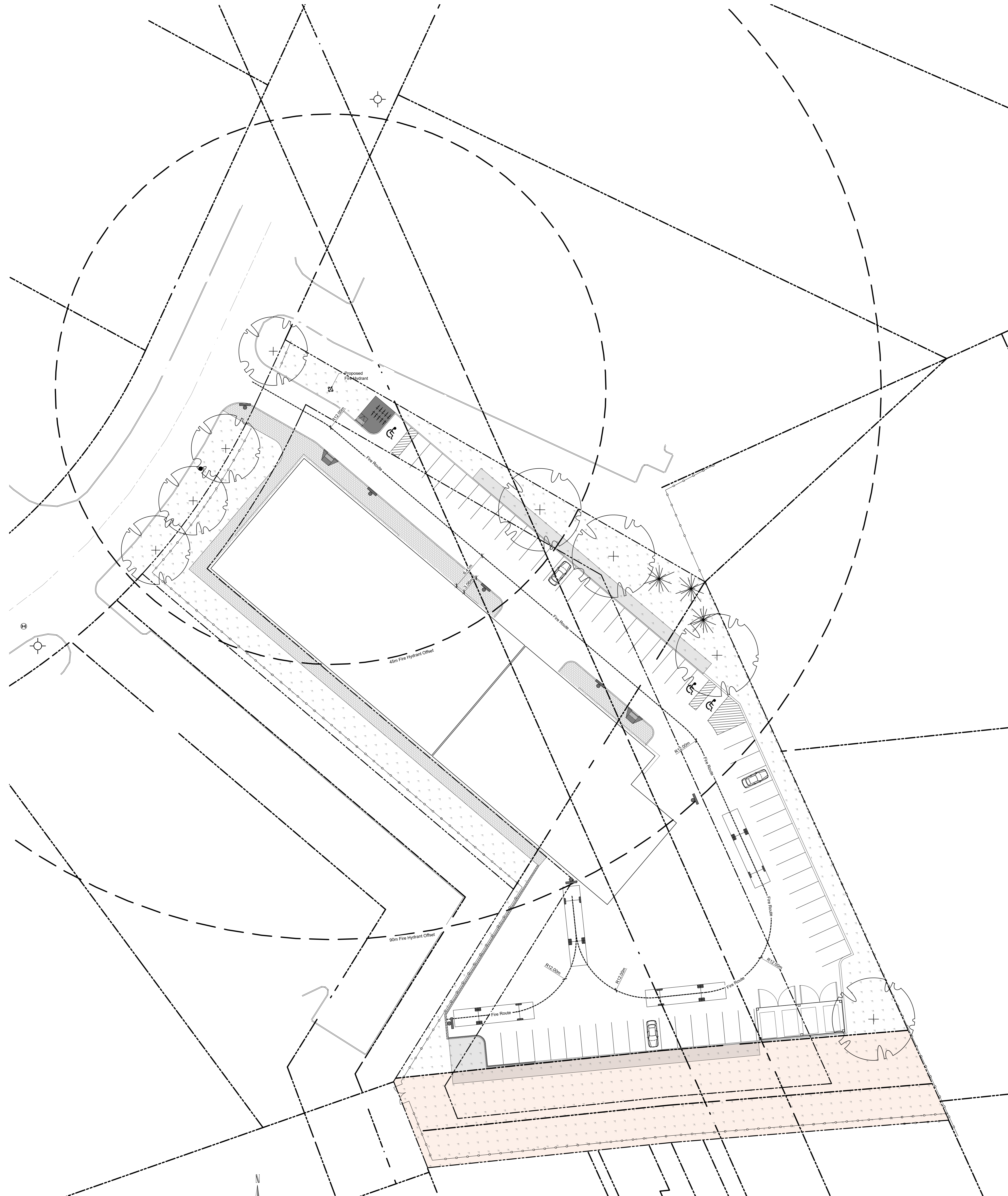
ARCHITECTS:
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Email: nicole@ignitearchitecture.ca

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ENGINEERING & ENGINEERS
5430 Carleton Place, Ottawa, ON, K1J 9G2
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SURVEYORS:
ANNIS, O'SULLIVAN, VOLLEBEKK LTD.
P.O. Box 204, Ottawa, ON
Phone: (613) 462-2847 Fax: (613) 462-2228

DRAWING TITLE:
SITE PLAN

PROJECT:	DWG NO.:
2412	A0

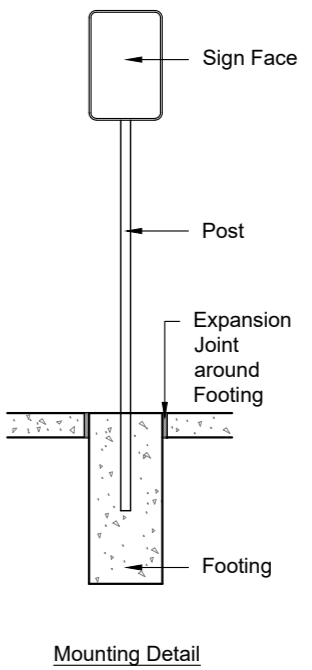
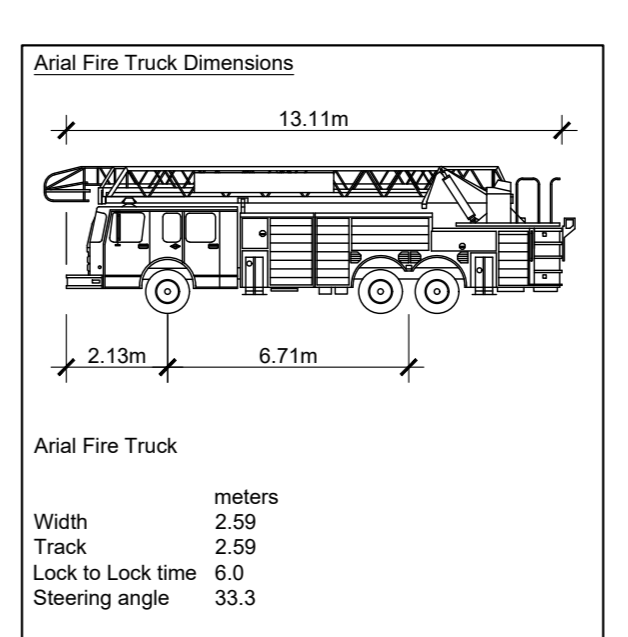


As per BYLAW 2003-499, Schedule B: Fire Routes, a sign prohibiting parking in a fire route shall:

- Be not less than 450mm in height and not less than 300mm in width.
- Bear the markings and message that the area is a fire route where parking is prohibited and include double arrows, except at the end of a fire route where single arrows shall be included.
- Include in black letters of a min height of 4cm, the English language message "Fire Route" and the French language message "Route Des Pompiers" before the message "Fire Route".
- Have the design as thus illustrated.
- Be located no more than 20.0m apart unless otherwise specifically approved.
- Have the lower edge of each sign be between 2.0m and 2.5m above grade.

Signage face:
0.64mm gauge aluminum sign blank, white background with top and bottom mount holes

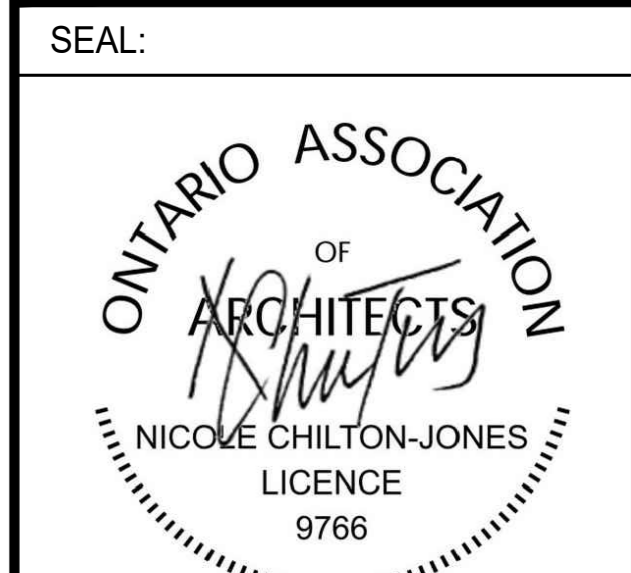
Mounting:
The sign face must be secured to a post with two galvanized 12mm hex, head bolts and nuts with flat washers on both sides



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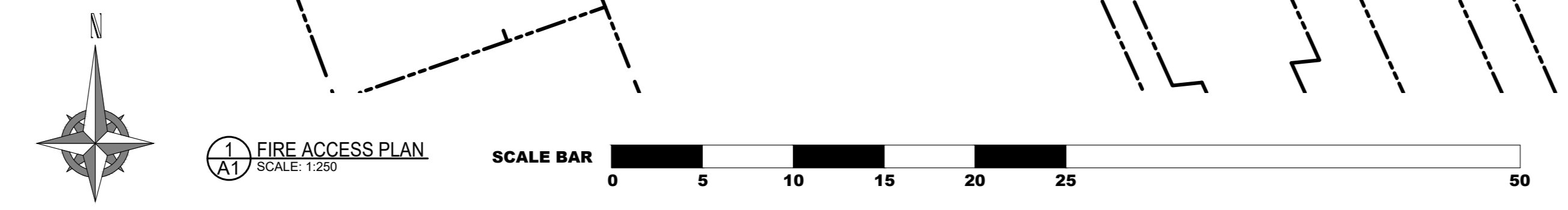
ARCHITECTS:
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ARCHITECTURE INC.
Ignite Architecture Inc.
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Phone: 613-912-1832
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P.O. Box 274, Ottawa, Ontario
K1P 5R6
Phone: (613) 462-2847 / Fax: (613) 462-2829

DRAWING TITLE:
FIRE ACCESS ROUTE

PROJECT: 2412
DWG NO: A1

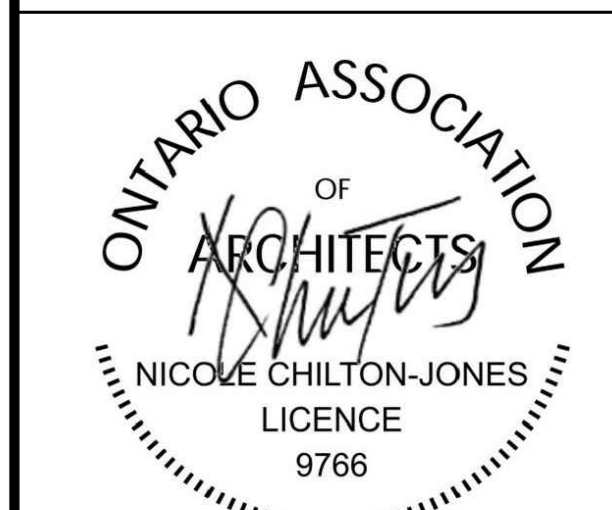


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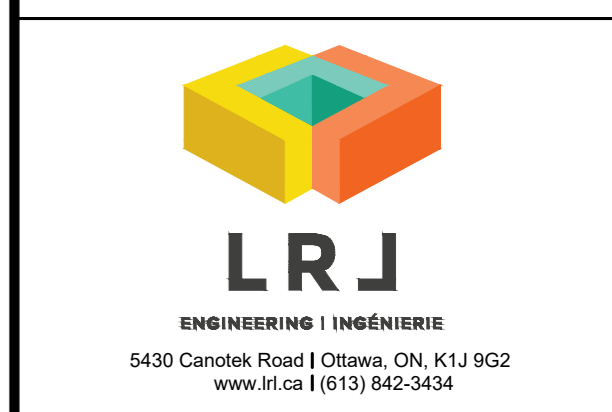
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ENGINEERS



SURVEYORS

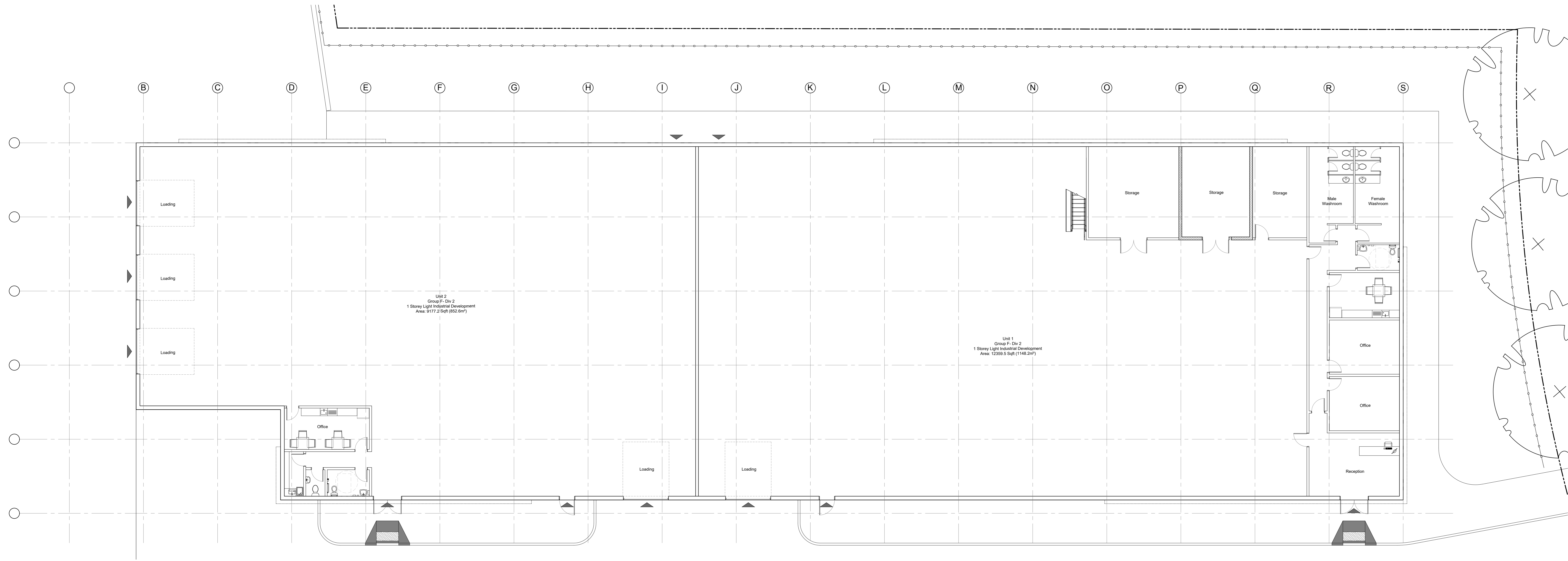
ANNIS, O'SULLIVAN, VOLLEBECK LTD.
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Ottawa, Ontario K1G 0H6
Phone: (613) 463-2841 / Fax: (613) 463-2829

DRAWING TITLE:

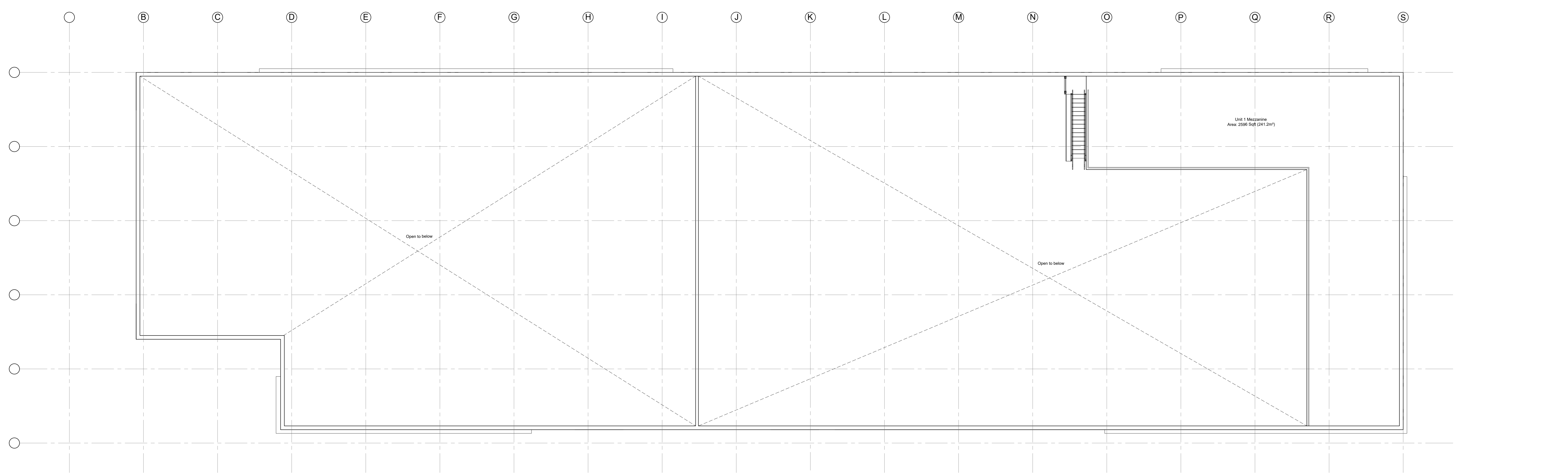
PLANS

PROJECT: DWG NO:

2412 A2



1 GROUND FLOOR PLAN
SCALE: 1:100



1 MEZZANINE FLOOR PLAN
SCALE: 1:100



A NORTH - EAST ELEVATION - LACOLLE WAY
SCALE: NTS



B NORTH - WEST ELEVATION - LACOLLE WAY
SCALE: NTS

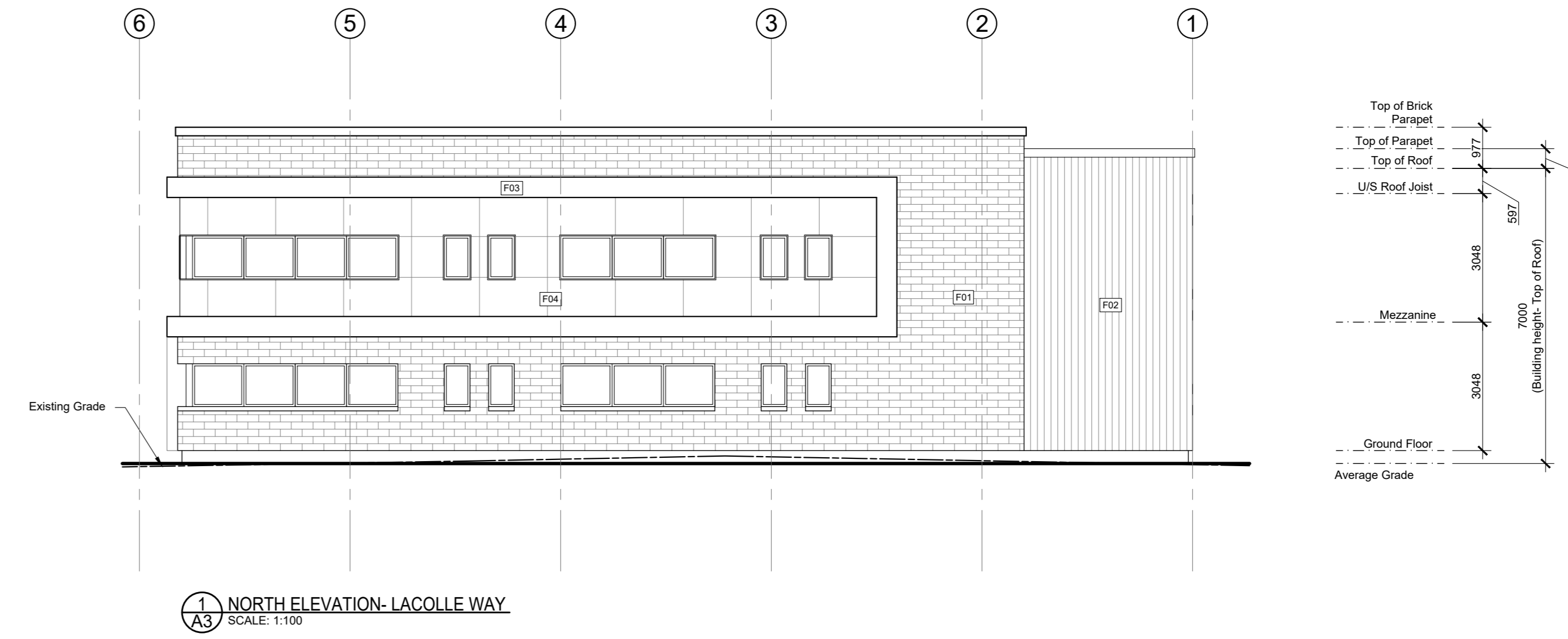


C SOUTH - EAST ELEVATION
SCALE: NTS

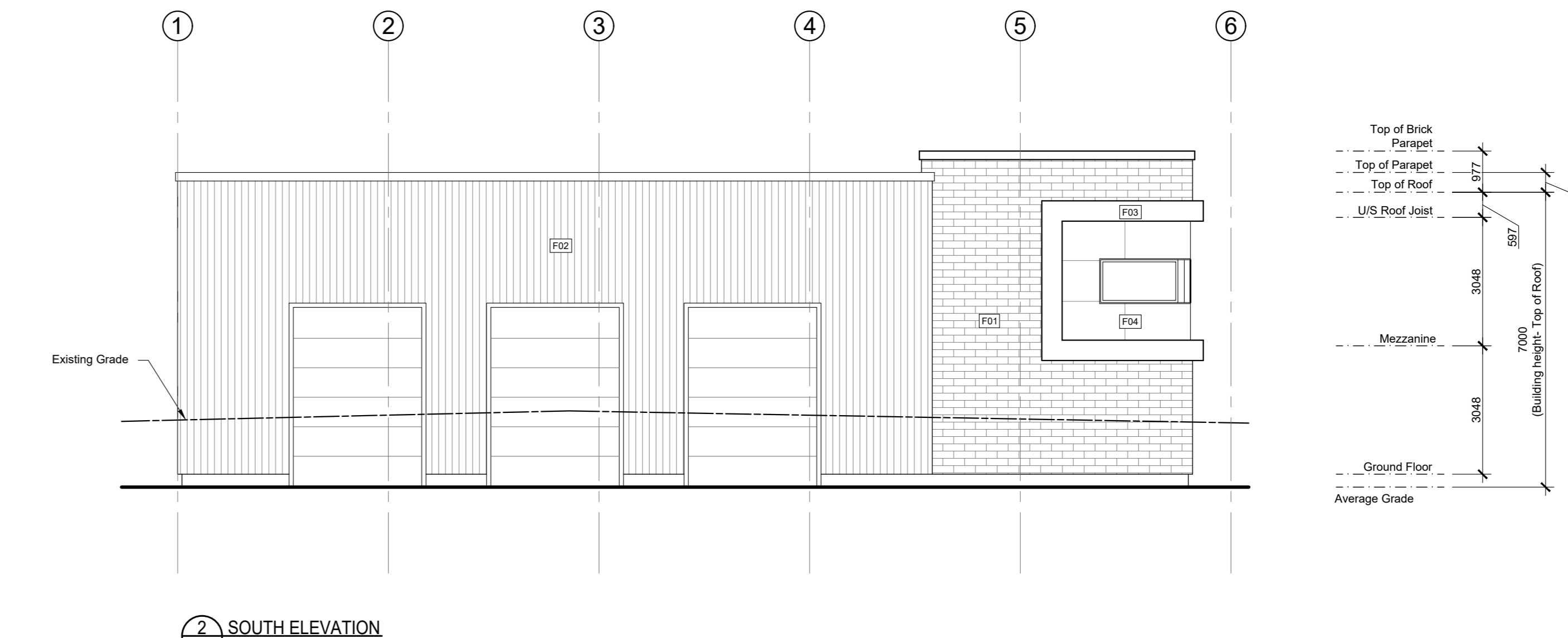


D SOUTH - WEST ELEVATION
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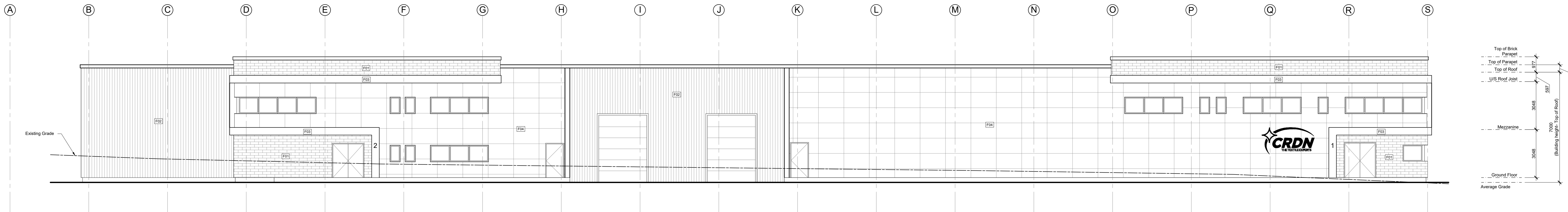
- F01 PERMACON ARCHITECTURAL BRICK
- F02 ALUMINUM SIDING
- F03 ALUMINUM PANELS - URETHANE COATING
- F04 JAMES HARDIE FIBRE CEMENT PANELS - HARDIE PANEL



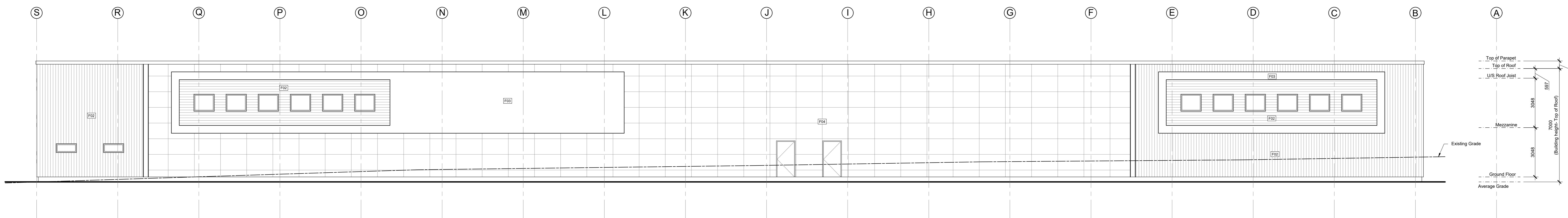
1 NORTH ELEVATION - LACOLLE WAY
SCALE: 1/100



2 SOUTH ELEVATION
SCALE: 1/100



3 EAST ELEVATION
SCALE: 1/100



4 WEST ELEVATION
SCALE: 1/100

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SURVEYORS

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DRAWING TITLE:

ELEVATIONS & PERSPECTIVES

PROJECT: DWG NO:

2412 A3

TOPOGRAPHICAL PLAN OF

**PART OF LOTS 30, 31 AND
PART OF THE ROAD ALLOWANCE
BETWEEN LOTS 30 AND 31
CONCESSION 1 (OLD SURVEY)
(Geographic Township of Cumberland)
CITY OF OTTAWA**

Prepared by Annis, O'Sullivan, Vollebekk Ltd.
Field Work Completed on August 21, 2012.

Scale 1 : 500



Metric

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

Notes & Legend

Denotes

- MH-ST " Maintenance Hole (Storm Sewer)
- MH-S " Maintenance Hole (Sanitary)
- LS " Light Standard
- CB " Catch Basin
- FH " Fire Hydrant
- WV " Water Valve
- T/G " Top of Grate
- + 65.00 " Location of Elevations
- C/L " Centreline
- " Property Line

SITE AREA = 8520 m²

BOUNDARY INFORMATION BASED ON FIELD SURVEY.

Bearings are grid, derived from Can-Net Real Time Network GPS observations, MTM Zone 9 (76°30' West Longitude) NAD83 (Original).

ELEVATION NOTES

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

UTILITY NOTES

1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

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Ontario
Land Surveyors Job No. E-5761-12

