Stormwater Management Report and Servicing Brief

Proposed Multiuse Building
5580 Manotick Main Street,
Ottawa, ON

Prepared for:

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Attention: Nicole Chilton-Jones

LRL File No.: 230464

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by Dr Alykhan Abdulla - Abdulla Real Estate Holdings Inc. to complete a Site Serviceability and SWM Report for the development of a on the subject property located at 5580 Manotick Main Street, Manotick, Ontario.

The subject property consists of a lot that is legally described as parts of Lot 68 Registered Plan No. 18 and Part of Lot 3 Concession “A” (Broken Front) in the Geographic Township of North Gower, City of Ottawa. The subject property is zoned Village Mixed Use, Subzone 9 (VM9).

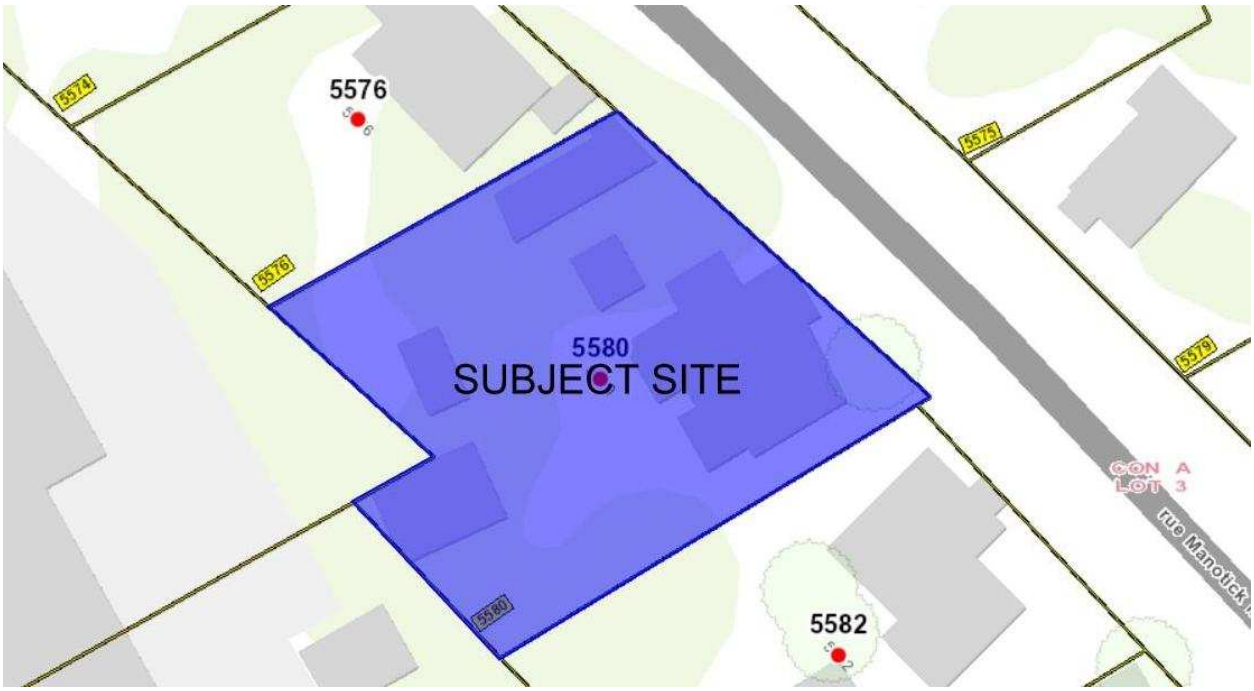


Figure 1: Aerial View of Proposed Development

The subject property is trapezoidal shaped and measures approximately 31 m in frontage along Manotick Main Street and the depth varies from approximately 30 m to 38 m. The total site area is approximately **0.10 ha**.

The proposed development will be constructed in a single phase, which includes a two (2) storey commercial/mixed-use building, approximately 300 sq.m. of gross floor area, consisting of office spaces, a pharmacy, photography studio and medical facility. Approximately 15 outdoor surface parking spaces are proposed at the ground level. Refer to ***Site Plan*** included in ***Appendix F*** for more details***.***

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 and servicing considerations, LRL Associates Ltd. should be advised to review the report recommendations.

2 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site measures ***0.10 ha*** and currently consists of a residential dwelling two (2) frame sheds, one (1) frame sunroom, garden with wooden retaining wall, covering approximately 0.02 ha of the site, which will be demolished. Elevations of existing site ranges between 92.25 m at the northwest corner to 95.75 m at the southeast corner of the subject property.

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:

Manotick Main Street:

- 305mm diameter PVC watermain
- 200mm diameter PVC sanitary sewer
- 300mm diameter AC storm sewer

3 SCOPE OF WORK

As per applicable guidelines, the scope of work includes the following:

Stormwater management

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

Water services

- Calculate the expected water supply demand at average and peak conditions.
- Calculate the required fire flow as per the Ontario Building Code (OBC).
- Confirm the adequacy of water supply and pressure during peak flow and fire flow conditions.
- Describe the proposed water distribution network and connection to the existing system.

Sanitary services

- Describe the existing sanitary sewers available to receive wastewater from the proposed building.
- Calculate peak design flow rates from the proposed development.
- Describe the proposed sanitary sewer system.

4 REGULATORY APPROVALS

An MECP Environmental Compliance Approval is not expected to be required for installation of the proposed storm and sanitary sewers within the site. A Permit to Take Water is not anticipated to be required for pumping requirements for sewer installation. The Rideau Valley Conservation Authority will need to be consulted to obtain municipal approval for site development. No other approval requirements from other regulatory agencies are anticipated.

5 WATER SUPPLY AND FIRE PROTECTION

5.1 Existing Water Supply Services and Fire Hydrant Coverage

The subject property lies within the City of Ottawa BARR water distribution network pressure zone. There is an existing 305 mm watermain within Manotick Main St. There are currently two (2) existing fire hydrants within proximity (<76m) of the subject property.

5.2 Water Supply Servicing Design

The subject property is proposed to be serviced via a 50 mm diameter service laterals connected to the existing 305 mm diameter watermain located within Manotick Main St. Refer to *Site Servicing Plan C401* in ***Appendix E*** for servicing layout and connection point.

Table 1 below summarizes the City of Ottawa Design Guidelines design parameters employed in the preparation of the water demand estimate.

Table 1: City of Ottawa Design Guidelines Design Parameters

Design Parameter	Value
Commercial Average Daily Demand	2.8 L/m^2/d
Minimum Depth of Cover	2.4 m from top of watermain to finished grade
Desired operating pressure range during Maximum Day Flow	345 kPa (50 psi) and 552 kPa (80 psi)
Minimum allowable pressure during Peak Hour Flow	275 kPa (40 psi)
Minimum allowable pressure during Fire Flow Conditions	140 kPa (20 psi)

Table 2 summarizes the proposed development estimated water demand calculated based on the City of Ottawa Design Guidelines for Water Distribution (Table 4.2).

Table 2: Estimated Domestic Water Demand

Property type	Unit Rate (L/ha/d)	Area (ha)	Demand (L/d)
Commercial	28000	0.1	2800

The following peak factors were used in calculations as per Table 4.2

- Maximum Day Factor = 1.5
- Peak Hour Factor = 1.8

Using the above-mentioned factors and average demand calculated in ***Table 2***, anticipated total demands are:

- Average day demand is **0.03 L/s**
- Maximum daily demand is **0.05 L/s**

- Maximum hour demand is **0.09 L/s**

Refer to ***Appendix B*** for water demand calculations.

The City of Ottawa was contacted to obtain boundary conditions associated with the estimated water demand; ***Table 3*** below summarizes boundary conditions for the proposed development.

Table 3: Summary of Boundary Conditions

Demand Scenario	Existing Condition	Future SUC
	Connection @ Manotick Main St* (m H2O / psi)	Connection @ Manotick Main St* (m H2O / psi)
Maximum HGL	156.2/92.9	146.6/79.3
Peak Hour	142.0/72.8	142.9/74.0
Max Day + Fire Flow	142.0/72.8	142.8/73.8

**Ground Elevation =90.8m*

As indicated in ***Table 3***, pressures in all scenarios meet the required pressure range stated in Table 1 except an existing condition maximum pressure of (92.9 psi), which exceeds an allowable pressure of 80 psi. Therefore, a pressure reducing valve is required to be installed in the proposed building, downstream of the water meter. Refer to ***Appendix A*** for Boundary Conditions correspondence.

The estimated fire flow for the proposed buildings was calculated in accordance with Ontario Building Code (OBC). The estimated fire flow demand was calculated to be **2700 L/min**, see ***Appendix B*** for details.

There are two (2) existing fire hydrants near the proposed buildings that are available to provide the required fire flow. ***Table 4*** below summarizes the aggregate fire flow of the contributing fire hydrants in close proximity to the proposed development based on Table 18.5.4.3 of *ISTB-2018-02*.

Table 4: Fire Protection Summary

Building	Fire Flow Demand (L/min)	Fire Hydrants(s) within 75m	Available Combined Fire Flow (L/min)
Proposed Mixeduse building	2700	2	(2x 5678) = 11356

The total available fire flow from contributing hydrants is equal to **11356 L/min** which is sufficient to provide required fire flow for the proposed development.

6 SANITARY SERVICE

6.1 Existing Sanitary Sewer Services

There is an existing 200 mm diameter sanitary sewer within Manotick Main Street.

6.2 Sanitary Sewer Servicing Design

The proposed development will be serviced via a 150 mm diameter sanitary service to be connected to the existing 200 mm diameter sanitary sewer within Manotick Main Street. Refer to the *Servicing Plan C401* (***Appendix E*****),** for the proposed sanitary servicing layout.

The parameters used to calculate the anticipated sanitary flows are:

- Commercial average flow of 28000 L/ha/day,
- Commercial peaking factor of 1.5
- Total infiltration rate of 0.33 L/s/ha.

Based on these parameters and the total site area of 0.10, the total anticipated wet wastewater flow was estimated **0.08 L/s**. Refer to ***Appendix C*** for the sanitary sewer design sheet.

7 STORMWATER MANAGEMENT

7.1 Existing Stormwater Infrastructure

Stormwater runoff from the subject property is tributary to the City of Ottawa sewer systems. As such, approvals for the proposed development within this area are under the approval authority of the City of Ottawa.

In pre-development conditions, drainage from the subject site is depicted by existing catchment areas ECA-01 (0.102 ha) which flow uncontrolled overland towards southwest low-lying area, and a small portion draining towards Manotick Main St right-of-way (ROW). Refer to the *Pre-development Watershed Plan C701* included in ***Appendix E*** for pre-development drainage characteristics. There is currently an existing 300 mm diameter concrete storm sewer within the ROW of Manotick Main Street, approximately 10 m away from the north corner the subject site).

7.2 Design Criteria

The stormwater management criteria for this development are based on the pre-consultation with City of Ottawa officials, the City of Ottawa Sewer Design Guidelines (2012) as well as the Ministry of the Environment's Stormwater Management Planning and Design Manual, 2003.

7.2.1 Water Quality

The subject property lies within the Rideau River watershed area and is therefore subject to review by the Rideau Valley Conservation Authority (RVCA). It was determined that an enhanced level

of treatment (80% TSS Removal) is required for the treatment of stormwater runoff from the proposed development.

7.2.2 Water Quantity

Based on the City requirements, the following stormwater management quantity control requirements were identified for the subject site:

- 100-yr post-development peak flow must match the 2-yr pre-development peak flow rate.
- Attenuate all storms up to and including the City of Ottawa 100-yr storm event on site.

Utilizing the above parameters, the total allowable storm release rate was calculated to be **9.06 L/s**. Refer to ***Appendix D*** for calculations.

7.3 Method of Analysis

The Modified Rational Method has been used to calculate the runoff rate from the site and to quantify the detention storage required for quantity control. Refer to the design sheets included in ***Appendix D*** for storage calculations.

7.4 Proposed Stormwater Quantity Controls

The proposed stormwater management quantity control for this development will be accomplished using controlled catchment area with an Inlet Control Device (ICD) to be installed at the outlet of STM MH02. Storage required, as a result of quantity control measure, will be accommodated overground in the parking lot surface. Briefly, in post-development condition, the site will have six (6) catchments as outlined below.

- Catchment CA-01 consisting of the building envelope and parking lot will be captured by a catchbasin (CBMH01) and controlled by the ICD installed at downstream manhole (STM MH02).
- Catchment CA-02 consisting of grass area will flow uncontrolled towards Manotick Main St ROW.
- Catchment CA-03 & CA-04 consisting of grass area will flow uncontrolled off the site towards south/east, as it did in pre-development conditions.
- Catchment CA-05 consisting of grass area will flow uncontrolled partially towards Manotick Main St ROW, and off the site towards west as it did in pre-development conditions.

Table 5 below summarizes post-development drainage areas and runoff coefficients. Refer to ***Appendix D*** for detailed calculations.

Table 5: Drainage Areas and Runoff Coefficient

Catchment	Area (ha)	Weighted Runoff Coefficient (C)	100 Year Weighted Runoff Coefficient (25% increase)
CA-01 (controlled)	0.081	0.89	1.00
CA-02 (uncontrolled)	0.010	0.20	0.25
CA-03 (uncontrolled)	0.004	0.20	0.25
CA-04 (uncontrolled)	0.003	0.20	0.25
CA-05 (uncontrolled)	0.004	0.20	0.25
Total	**0.102**	**0.75**	**0.94**

The subject site peak runoff is controlled at STM MH02 using an ICD Hydrovex 75VHV-1(or approved equivalent). As such the total runoff from the subject site does not exceed the allowable release rate established in Section 7.2.2. A proposed 250 mm diameter free-flowing storm sewer will discharge controlled flows to the proposed Oil/Grit Separator (OGS) which will outlet to the proposed STM MH03 and eventually to the proposed 250 mm diameter storm sewer along Manotick Main Street. The proposed servicing layout and connection points are shown on drawing C401 in ***Appendix E,*** and detailed calculations can be found in ***Appendix D***.

Table 6 below summarizes the release rates and storage volumes required to meet the allowable release rate of **9.06 L/s** for a 100-year flow.

Table 6: Stormwater Release Rate & Storage Volume Summary (100 Year)

Catchment	Area (ha)	100-year Release Rate (L/s)	100-Year Required Storage (m^3)	Available Surface Storage (m^3)
CA-01 (Controlled)	0.081	6.44	25.41	26.74
CA-02 to CA-05 (Uncontrolled)	0.021	2.62	N/A	N/A
Total	**0.102**	**9.06**	**25.41**	**26.74**

To attenuate flows to the allowable release rate of **9.06 L/s**, it is calculated that a total of **25.41 m^3** of storage will be required for the 100-year storm event. The required storage is proposed to be met via surface ponding in the paved parking lot. The 100-yr and 2-yr maximum ponding extent can be found on *Stormwater Management Plan C601* in ***Appendix E***.

To meet stormwater quality control objective, an Oil/Grit Separator (SDD3-1200 or approved equivalent) is proposed located downstream of STM MH02 which will provide an enhanced level of treatment i.e. > 80% TSS removal. Refer to *Servicing Plan C401* for location of OGS and **Appendix D** for sizing report and specifications.

8 EROSION AND SEDIMENT CONTROL

During construction, erosion and sediment controls will be provided primarily via a sediment control fence to be erected along the perimeter of the site where runoff has the potential of leaving the site. Inlet sediment control devices are also to be provided in any catch basin and/or manholes in and around the site that may be impacted by the site construction. Construction and maintenance requirements for erosion and sediment controls are to comply with Ontario Provincial Standard Specification OPSS.MUNI 805. Refer to drawing C101 for erosion and sediment control details.

9 CONCLUSION

This Stormwater Management and Servicing Report for the development proposed at 5580 Manotick Main Street 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:

Water Service

- The peak hour domestic water demand of the proposed site is 0.09 L/s.
- The maximum required fire flow was calculated at 2700 L/min, using the OBC method.
- There are two existing fire hydrants available in proximity to service the proposed development.
- The proposed development will be serviced with a 50 mm diameter water service to be connected to the existing 305 mm diameter watermain within Manotick Main Street.
- Boundary conditions received from the City of Ottawa indicate that sufficient pressure is available to service the proposed site.

Sanitary Service

- The total anticipated wastewater design flow from the proposed development is 0.08 L/s.
- The proposed development will discharge to the existing 200 mm dia. sanitary sewer within Manotick Main Street via a proposed 150 mm diameter sanitary service lateral.

Stormwater Management

- An OGS (SDD3-1200 or approved equivalent) is proposed to meet the required water quality control objective of 80% TSS removal.
- The stormwater release rates from the proposed development will meet calculated allowable release rate of **9.06 L/s.**
- Stormwater quantity control objectives will be met using an inlet control device and on-site storm water storage in the parking lot.

10 REPORT CONDITIONS AND LIMITATIONS

The report conclusions are applicable 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.

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

Prepared by:
LRL Associates Ltd.

Maxime Longtin
Civil Engineering Technologist

Mohan Basnet, P.Eng.
Civil Engineer

APPENDIX A

Pre-consultation

December 4, 2023 File No.: PC2023-0177

Nicole Chilton-Jones
Ignite Architecture Inc.
Via email: nicole@ignitearchitecture.ca

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 5580 Manotick Main St

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on November 29, 2023.

A new two storey commercial/mixed-use building, approximately 300 sq.m. of gross floor area, is proposed with office spaces, a pharmacy, photography studio and medical facility. A ramp down to 15 parking spaces at the rear of the building and under a cantilever of the upper storey is proposed.

Pre-Consultation Preliminary Assessment

1 ☐	**2** ☐	**3** ☐	**4** ☒	**5** ☐

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

- A review of the proposal and materials submitted for the above-noted pre-consultation has been undertaken. Please proceed to complete a Phase 2 Pre-consultation Application Form and submit it together with the necessary studies and/or plans to planningcirculations@ottawa.ca.

- 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.

- Please note, if your development proposal changes significantly in scope, design, or density before the Phase 3 pre-consultation, you may be required to repeat the Phase 2 pre-consultation process.

Supporting Information and Material Requirements

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

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

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:

Official Plan & Secondary Plan

1. The subject property is designation Village Core in the Official Plan. Manotick Main Street has been identified as a Scenic Entry Route on Schedule C13 of the Official Plan.

2. The subject property is also designated Village Core in the Village of Manotick Secondary Plan and a part of the Main Street Character Area. The Main Street character area permits a variety of commercial uses such as retail, office and personal service uses and institutional uses.

3. The proposed development requires a Site Plan Control application as it is located within the Design Priority Area as defined on Schedule C7B of the Official Plan and the associated parking area exceeds nine parking spaces, as outlined in the Site Plan Control By-law.

4. The Village of Manotick Secondary Plan identifies a proposed sidewalk along the frontage of the subject property.

5. The Secondary Plan states new buildings will be designed to be pedestrian oriented, which includes providing entrances and clear windows that face the street. Development in the Village Core will contribute to a lively pedestrian-oriented environment.

6. In accordance with Schedule C16 of the Official Plan, Manotick Main Street has a protected right of way of 23 metres.

Zoning By-law

7. The subject property is zoned Village Mixed Use, Subzone 9 (VM9). The permitted uses include artist studio, medical facility, office, personal service business, and retail store.

8. In accordance with Section 3 (5) of the Zoning By-law, development is permitted on a village lot existing as of June 25, 2008 and which is legally non-complying with respect to lot width or lot area provided:

    a. The proposed use is a use permitted in the zone in which the lot is located,

    b. The proposed use does not contravene any other provisions of the Zoning By-law, and;

    c. The lot is zoned V1, V2, V3 or VM (which includes the subzone VM9).

    If the proposed development does not comply with the provisions of Section 3 (5) of the Zoning By-law, a minor variance application to the Committee of Adjustment, or a Zoning By-law Amendment application may be required to address the undersized minimum lot area and any other deficiencies that may arise. A more detailed Site Plan is required in order to confirm if all other provisions of the Zoning By-law have been met.

9. Please ensure the Site Plan meets the requirements of the Terms of Reference. Outlined below are some of the items currently missing from the Site Plan but does not include a comprehensive list:

    a. Please clearly identify the provided lot frontage.

    b. Please identify the setbacks front all lot lines.

    c. The Site Plan should list the zoning provisions in a chart which clearly identifies the required and provided information for each provision.

10. The parking requirements must be shown on the Site Plan. The parking requirements are as follows for each use:

    a. Artist studio requires 3.4 spaces per 100 m^2 of gross leasable floor area, with a minimum of 5 spaces.

    b. Medical facility requires 4 spaces per 100 m^2 of gross leasable floor area.

    c. Personal service business requires 3.4 spaces per 100 m^2 of gross leasable floor area.

    d. Retail store requires 3.4 spaces per 100 m^2 of gross leasable floor area.

e. Office space requires 2.4 spaces per 100 m^2 of gross leasable floor area.

f. Minimum parking space requirements are to be rounded to the nearest whole number.

g. Use of the Shared Parking Provisions within Section 104 of the Zoning By-law could be explored.

11. Bicycle parking spaces are required at a rate of:

d. 1 space per 250 m^2 of gross floor area for an office or retail store

e. 1 space per 500 m^2 of gross floor area for personal service business

f. 1 space per 1000 m^2 of gross floor area for medical facility

g. 1 space per 1500 m^2 of gross floor area for all other non-residential uses

12. The parking lot must meet the landscaping provisions of Section 110 of the Zoning By-law, which requires 15% of the parking lot to include landscaped area. The Site Plan currently submitted does not include any landscaped areas.

13. Please review the drive aisle, driveway widths and driveway gradient in accordance with Section 107 & 108 of the Zoning By-law.

Discussion

14. The subject property is within a Design Priority Area. Design review will focus on achieving streetscape improvements and high design standards for both public and private sector development projects.

15. The property is within the Village of Manotick Groundwater Contaminant Plume. A notice on title will be required and should be considered in the design of the site.

16. Questions regarding setbacks from the hydro lines can be directed to Hydro One Networks at Ottawa.circulations@hydroone.com

Feel free to contact Erica Ogden-Fedak (Erica.Ogden-Fedaak@ottawa.ca), Planner II, for follow-up questions.

Urban Design

Comments:

17. Design Brief required – please see attached TOR.

18. Design Priority Area – UDRP review may be required subject to the plans provided as part of your next pre-consultation review.

19. Please explore the potential to reorient the building so that it has a greater presence along Manotick Main Street.

20. Please ensure that the ground floor has transparent windows and active uses facing out onto Manotick Main Street.

21. Please confirm that the public realm will be bolstered with an accessible sidewalk and street trees.

22. Please consider context when selecting materials for the building, especially facing out to Manotick Main Street.

23. Please bolster sustainability where possible – light material choices for roof, green roof if possible, triple pane windows, permeable paving surfaces, etc.

Feel free to contact Nader Kadri (nader.kadri@ottawa.ca), Urban Designer, for follow-up questions.

Engineering

24. General:

a. For a complete description of the Terms of Reference and application submission requirements, please reference the City's web site : Planning application submission information and materials | City of Ottawa .

b. All drawings and reports submitted for engineering review must be stamped and dated by a Professional Civil Engineer, Civil Engineering Technologist registered in the Province of Ontario, or Ontario Land Surveyor.

c. The ROW requirement for this section of Manotick Main is a width of 23 metres. As part of a complete application, a survey of the property is required that shows the distance from the centreline of Manotick Main to the property. If this distance is less than 11.5 metres, the required area must be dedicated to the City for future road widening projects.

d. The City will require an Exterior Lighting Certificate certified by a qualified engineer.

e. Applicant is advised to review the following:

    i. Village of Manotick Secondary Plan

    ii. Manotick BIA (Business Improvement Area)

    iii. Official Plan (City of Ottawa) Annex 8B – Subwatershed Studies and Environmental Plans

iv. Mud Creek Subwatershed Study

f. The sloped driveway and retaining walls appear to extend into the widened City of Ottawa right-of-way. These features must stop at the property line.

25. Environmental Site Assessment (Phase 1 & 2 ESA)

a. A Phase One ESA is required for the review of this site.

b. Environmental Site Assessments (ESA's) are required to ensure that development only takes place on sites where the environmental conditions are suitable for the proposed use in accordance with provincial legislation and regulations.

c. The Phase 1 ESA report will determine whether a Phase 2 ESA is required.

d. Please note that this site may be within the old subsurface Manotick drycleaning fluid plume, an area known as an Environmental Risk Management Area (ERMA). This contaminant should be discussed, and any risks outlined in the report. For more information, please contact the City's Environmental Remediation Unit (ERU) at ERU-UAE@ottawa.ca .

e. Note that ESA reports expire after eighteen months.

f. REF: Environmental Site Assessment (Phase 1 & Phase 2), City of Ottawa, Terms of Reference.

26. Geotechnical Study

a. A Geotechnical report is required to support the design and construction of this project.

b. The Geotechnical report should provide sufficient soils and engineering information to confirm that the site(s) are suitable or can be made suitable for development. The geotechnical report shall adequately discuss the fill requirements, grade raise restrictions, and other limitations and earthworks required for development within a floodplain or adjacent to a watercourse, and wetland.

c. The report should clearly state whether sensitive marine clays or organic soils are present on this site, or not. The report might include: Atterberg limits, consolidation testing, shear strength testing, grade raise restrictions, or a sieve analysis as required.

d. The report should clearly state whether soil liquefaction is a risk on this site, or not.

27. Grading and Drainage Plan

a. A Grading Plan is required to support the design and construction of this project.

b. A Grading and Drainage Plan establishes the grading relationships between connecting (or abutting) properties. It serves as the basis for controlling surface runoff. A grading plan directs water from the building. The focus is on the landscaping around the house and soil elevation. The goal is to provide proper yard grading for drainage away from buildings.

c. Grading Plans provided to the City of Ottawa should include:

i. All elevations must be referenced to a geodetic reference point.

ii. All measurements must be in metric units, imperial measure may be provided as a secondary measurement.

iii. Please indicate the Site Benchmark and the external reference that provides the horizontal and vertical datum of the reference used to set this benchmark.

iv. Provide top of curb (TC) and bottom of curb (BC) elevations.

v. Please maintain a minimum 150 mm difference between the proposed finished floor elevation and the finished grade at the structure. Maintain positive surface drainage away from the foundation wall.

vi. A 0.3m freeboard should be provided between the 100-year water elevation and the finished floor elevation.

vii. Please include the Pavement Design provided in the Geotechnical Report. Typically, this should include a low-density and a heavy-duty pavement design.

viii. Grading in grassed areas must be between 2% to 7%. Grades in excess of 7% will require a maximum 3:1 terracing. Terracing will not be permitted in Amenity areas or Access Easements.

ix. Grading on driveways shall not exceed 6%.

28. Site Servicing Study

a. A Site Servicing Study is required to support the design and construction of this project.

b. Applications for new development are required to demonstrate, to the City's satisfaction, that adequate services are available and can be allocated to support the proposal.

c. There is no storm sewer in front of the subject property.

d. Assessment of Adequacy of Public Services Review

i. A Site Servicing or Assessment of Adequacy of Public Services Report is required in support of the design and construction of this project.

ii. Applications for new development are required to demonstrate, to the City's satisfaction, that adequate services will be designed and constructed to support the proposal.

iii. A completed Water Data Card will be required for the accurate sizing and costing of the proposed water meter at detailed design.

iv. REF: Site Servicing Study, Terms of Reference.

e. Erosion and Sediment Control Plan/Brief

i. An Erosion and Sediment Control Plan is required in support of the design and construction of this project.

f. Stormwater Management Report

i. A Stormwater Management report is required in support of the design and construction of this project.

ii. Stormwater design must adhere to the City's 'Ottawa Design Guidelines - Sewer', Second Edition, document no. SDG002, October 2012, City of Ottawa, including technical bulletins: ISDTB-2014-01, PIEDTB-2016-01, ISTB 2018-01, ISTB-2018-04, ISTB-2019-02.

iii. The report may require an evaluation of the downstream watercourse or sewers, determination of stormwater management criteria, and/or identify any in-stream works needed to mitigate the impacts of the development. It may also require coordination with planning of services for adjacent development areas and amendment of an approved Master Servicing Study for those areas.

iv. The quantity criteria for the development are that the 100-yr post development peak flow rate must match the 2-year pre-development peak flow rate.

v. The stormwater management quality criteria for this site are 80% TSS removal.

vi. A calculated time of concentration (Cannot be less than 10 minutes) is required.

vii. Runoff volumes must be calculated using the 'C' values found in Ottawa Design Guidelines (Sewer), Section 5.4.5.2.1 page 5.26. There are no standard or maximum 'C' values in the Rural area.

viii. Stormwater must outlet to a legal and sufficient outlet.

ix. A 0.3m freeboard should be provided between the 100-year high-water elevation and the finished floor elevation.

x. Stormwater or Drainage plans must include the ponding depth, volume, and ponding extent for 2-year and 100-year storm events.

xi. Please provide pre- & post- development drainage plans clearly identifying the sub-drainage zones, their areas, and 'C' values.

xii. The rear yard area is much lower than the street side. How will rainwater runoff in the rear yard (a low area) be redirected to the street?

xiii. Additional stormwater requirements may be found in the Mud Creek Subwatershed Study (October 2015).

g. Sewer connections to be made above the spring-line of the sewermain as per:

i. Std Dwg S11.1 for flexible main sewers – connections made using approved tee or wye fittings.

ii. Std Dwg S11 (For rigid main sewers) – lateral must be less than 50% the diameter of the sewermain,

iii. Std Dwg S11.2 (for rigid main sewers using bell end insert method) – for larger diameter laterals where manufactured inserts are not available; lateral must be less than 50% the diameter of the sewermain,

iv. Connections to manholes permitted when the connection is to rigid main sewers where the lateral exceeds 50% the diameter of the sewermain. – Connect obvert to obvert with the outlet pipe unless pipes are a similar size.

v. No submerged outlet connections.

h. Water Boundary Conditions Review

i. In order to check the capacity of City water supply, the consultant must supply an estimate of water demand of the proposed structure.

ii. Requests for Water Boundary conditions must include:

- Location of service (plan or drawing).

- Type of development and the amount of fire flow required (as per FUS).
- Average daily demand: ___ L/s.
- Maximum daily demand: ___L/s.
- Maximum hourly daily demand: ___ L/s.

29. Fire Services

a. The applicant should contact Allan Evans (Allan.Evans@ottawa.ca) with Ottawa Fire Services to determine the water supply requirements for firefighting at the site.

b. Fire truck routes should be shown on civil plans. Fire Routes now require designation with By-law through the Site Plan application process by contacting fireroutes@ottawa.ca.

30. Slope Stability Study

a. A Slope Stability Review is required for the review and approval of this application.

b. Retaining walls over 1.0 metres in height requires a drawing and report stamped, signed by an engineer licensed in the Province of Ontario.
REF: Slope Stability Guidelines for Development Applications (City of Ottawa, Jun 2020).
REF: Slope Stability Study, Terms of Reference.

31. Ministry of the Environment, Conservation and Parks Review

a. An ECA application and approval may be required for Site Plan approval of the proposed development.

b. Please contact the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation.

c. It is the applicant's responsibility to confirm which of the several types of ECA approvals may be required for this application. If a Direct Submission is by the nature of the application required by the MECP, the applicant can request a Transfer of Review in its place by contacting Charles Warnock, Charles.warnock@ottawa.ca.

d. Stormwater management on commercial sites typically require ECA approval from the MECP.

e. For any water taking of volumes greater than 50,000 L/day, either an Environmental Activity and Sector Registration (EASR) or a Permit To Take

Water (PTTW) is required from the MECP, dependent on dewatering requirements.

f. MECP/City of Ottawa ECA Contact info:

- Charlie Primeau at (613) 521-3450, ext. 251 or Charlie.Primeau@ontario.ca
- Emily Diamond at (613) 521-3450, ext. 238 or Emily.Diamond@ontario.ca
- Charles Warnock at 613-580-2424 ext. 27809 or Charles.warnock@ottawa.ca .

29. Site Lighting Certificate

a. The City will require an Exterior Lighting Certificate certified by a qualified engineer before issuing Site Plan Approval.

b. Any exterior lighting proposed for the site is required by the City of Ottawa to be certified by a qualified engineer conforming the design complies with the following criteria:

i. It must be designed using only fixtures that meet the criteria for Full-Cut-Off (Sharp cut-off) Classification, as recognized by the illuminating Engineering Society of North America (IESNA or IES).

ii. It must result in minimal light spillage onto adjacent properties. As a guide, 0.5 foot-candle is normally the maximum allowable spillage.

iii. The location of the fixtures, fixture types (make, model, and part number) and the mounting heights must be provided.

Feel free to contact Brian Morgan (Brian.Morgan@ottawa.ca), Infrastructure Project Manager, for follow-up engineering questions.

Noise

Comments:

32. Noise Impact Studies required for the following:

a. Stationary, if there will be any exposed mechanical equipment due to the proximity to neighboring noise sensitive land uses.

33. Noise Control Guidelines, it is best practice to address noise for the following types of spaces: general offices, reception areas, individual or semi-private office, and retail stores. It is therefore recommended to review the roadway noise for the site due to the proximity to Manotick Main and to ensure mitigation is provided (as required) so that workers and visitors are not adversely affected.

Feel free to contact Rochelle Fortier (Rochelle.Fortier@ottawa.ca), Transportation Project Manager, for follow-up questions.

Transportation

Comments:

34. A TIA is not required.

35. A driveway crossing the roadway at 90 degrees is preferred. As the driveway is angled to the roadway, the driveway is sloped, and there is street parking adjacent to the site, a safety review of the access is required. Ensure sightlines can be achieved when cars are parked on-street.

36. Ensure that the development proposal complies with the Right-of-Way protection requirements of the Official Plan's Schedule C16.

    a. ROW must be unincumbered and conveyed at no cost to the City. Note that conveyance of the ROW will be required prior to registration of the SP agreement. Additional information on the conveyance process can be provided upon request.

    b. Any requests for exceptions to ROW protection requirements must be discussed with Transportation Planning and concurrence provided by Transportation Planning management.

37. Clear throat length requirements for offices (GFA less than 5,000m^2) on an arterial is 15m. Ensure this length is provided and dimension it on the Site Plan. The clear throat length is measured from the ends of the driveway curb return radii at the roadway and the point of first conflict on-site. Note the minimum throat length provided must be maintained with the future ROW protection (as applicable).

38. The Village of Manotick Secondary Plan identifies a proposed sidewalk along the frontage of the subject property.

39. As the proposed site is for general public use, AODA legislation applies.

    a. 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).
    b. Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements. https://ottawa.ca/en/city-hall/creating-equal-inclusive-and-diverse-city/accessibility-services/accessibility-design-standards-features#accessibility-design-standards

40. On site plan:

    a. Ensure site access meets the City's Private Approach Bylaw (https://ottawa.ca/en/living-ottawa/laws-licences-and-permits/laws/laws-z/private-approach-law-no-2003-447).
    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. 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).
    e. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)
    f. Show slope of driveway on site plan.
    g. Parking stalls at the end of dead-end parking aisles require adequate turning around space
    h. Grey out any area that will not be impacted by this application.

Feel free to contact Rochelle Fortier (Rochelle.Fortier@ottawa.ca), Transportation Project Manager, for follow-up questions.

Environment and Trees

Comments:

41. Significant environmental features

    a. Rideau River NHS layer. About 60m distant.

42. Species at risk

    a. No concerns.

43. Environmental Impact Statements

    a. Though this site is technically within the 120m buffer to a natural heritage system feature, the need for an Environmental Impact Statement (EIS) can be waived. There is a substantial amount of development between the site and the protected features. This waiver is supported by the EIS Guidelines which state that an EIS can be waived in the case of "Minor developments (i.e., single lot severance, construction of a single-detached dwelling and/or accessory buildings on an existing lot, minor site alteration or minor changes in existing land use) where the natural feature(s) that triggered the EIS requirement are located adjacent to, not on, the subject property." Though this development may not be minor, the existing intervening development is enough to mitigate the difference.

44. Bird-Safe Design Guidelines

    a. Though this building does not meet the height for which the Bird Safe mitigation measures are required, the applicant is recommended to consider adopting some of these measures regardless. The site's proximity to the Rideau River makes birdstrikes on the large glass windows likely, as the river is a major migration corridor. Incorporating some reduced-transparency glazing, reducing light pollution, or adding visual markers would be effective in reducing the likelihood of bird mortality.

45. Tree Comments:

    a. Section 4.8.2 of the New Official Plan provides strong direction to maintain the urban forest canopy and its ecosystem services during intensification noting when considering the impacts on individual trees, planning and development decisions, including Committee of Adjustment decisions, shall give priority to the retention and protection of large, healthy trees over replacement plantings and compensation. Applications must address the cumulative impacts on the urban forest, over time and space, with the goal of 40% urban forest canopy cover in mind. Site plan control applications must create tree planting areas within the site and in the adjacent boulevard, meeting the City's soil volume requirements and planting standards.

        i. A Tree Conservation Report is required with this application in accordance with Schedule E of the Tree Protection By-law.

        ii. In this ward City trees are protected under the Tree Protection By-law and plans must be designed to allow for their retention and adequate protection. It appears that the proposed location for the new driveway entrance may impact the City oak tree – this must be determined, and if so, consider other locations for the driveway entrance.

        iii. The TCR must confirm ownership of the trees along all property lines. Proposed plans (including parking, servicing, and grading) must be designed to limit impacts to boundary and adjacent trees, otherwise permission from the owners is required.

        iv. The TCR must include a canopy cover assessment to determine the overall change to canopy cover based on the proposed impacts to existing trees from the design and proposed space for planting.

        v. There appears to be a significant tree near the jog in the rear property line. If this is determined to be healthy in the TCR, it is strongly recommended to design the site to allow for its retention.

b. A Landscape Plan is required with this application, in accordance with the Landscape Plan Terms of Reference, to show available softscape areas for tree planting, meeting the soil volume recommendations listed in the Tree Planting Requirements list below.

c. The Official Plan requires that "On urban properties subject to site plan control or community planning permits, development shall create tree planting areas within the site and in the adjacent boulevard, as applicable, that meet the soil volume requirements in any applicable City standards or best management practices or in accordance with the recommendation of a Landscape Architect;"

    i. Soft-scaped areas need to be created on site or within the Right of Way to provide adequate space to plant large-growing trees.

d. A permit is required prior to any tree removal on site. The tree permit will be released upon site plan approval. Please contact the planner associated with the file or the Planning Forester, Nancy Young (Nancy.Young@ottawa.ca) for information on obtaining the tree permit.

e. To ensure that no harm is caused to breeding birds, tree removal and vegetation clearing should be avoided during the migratory bird season (April 15 – August 15) as specified by The City of Ottawa's Environmental Impact Study Guidelines.

46. Tree Conservation Report Requirements:

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

    i. an approved TCR is a requirement of Site Plan approval.

    ii. The TCR may be combined with the LP provided all information is supplied

b. Any removal of privately-owned trees 10cm or larger in diameter, or city-owned trees of any diameter requires a tree permit issued under the Tree Protection Bylaw (Bylaw 2020 – 340); the permit will be based on an approved TCR and made available at or near plan approval.

c. Compensation may be required for the removal of city owned trees.

d. The TCR must contain 2 separate plans:

    i. Plan/Map 1 - show existing conditions with tree cover information

    ii. Plan/Map 2 - show proposed development with tree cover information

iii. Please ensure retained trees are shown on the landscape plan

e. the TCR must list all trees on site, as well as off-site trees if the CRZ extends into the developed area, by species, diameter and health condition

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

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

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 location of tree protection fencing must be shown on the plan

   ii. show the critical root zone of the retained trees

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. For more information on the process or help with tree retention options, contact Nancy Young (Nancy.young@ottawa.ca) or on City of Ottawa

47. Landscape Plan Tree Planting Requirements:

a. Minimum Setbacks

   i. Maintain 1.5m from sidewalk or MUP/cycle track or water service laterals.

   ii. Maintain 2.5m from curb

   iii. Coniferous species require a minimum 4.5m setback from curb, sidewalk or MUP/cycle track/pathway.

   iv. Maintain 7.5m between large growing trees, and 4m between small growing trees. Park or open space planting should consider 10m spacing, except where otherwise approved in naturalization / afforestation areas. Adhere to Ottawa Hydro's planting guidelines (species and setbacks) when planting around overhead primary conductors.

b. Tree Specifications

i. Minimum stock size: 50mm tree caliper for deciduous, 200cm height for coniferous.

ii. Maximize the use of large deciduous species wherever possible to maximize future canopy coverage

iii. Tree planting on city property shall be in accordance with the City of Ottawa's Tree Planting Specification; and include watering and warranty as described in the specification (can be provided by Forestry Services).

iv. Plant native trees whenever possible

v. No root barriers, dead-man anchor systems, or planters are permitted.

vi. No tree stakes unless necessary (and only 1 on the prevailing winds side of the tree)

c. Hard Surface Planting

i. Curb style planter is highly recommended

ii. No grates are to be used and if guards are required, City of Ottawa standard (which can be provided) shall be used.

iii. Trees are to be planted at grade

d. Soil Volume

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

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

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

e. Sensitive Marine Clay

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

48. Tree Canopy

    a. The landscape plan shall show how the proposed tree planting will replace and increase canopy cover on the site over time, to support the City's 40% urban forest canopy cover target.

    b. At a site level, efforts shall be made to provide as much canopy cover as possible, through tree planting and tree retention, with an aim of 40% canopy cover at 40 years, as appropriate. Indicate on the plan the projected future canopy cover at 40 years for the site.

Feel free to contact Mark Elliott, (Mark.Elliott@ottawa.ca) Environmental Planner, or Nancy Young (Nancy.Young@ottawa.ca), Forester, for follow-up questions.

Parkland

Comments:

49. Parkland Dedication By-law, Section 11- Exemptions, provides that No conveyance of land or payment of cash-in-lieu under this by-law is required for: a change of use from residential to commercial or industrial or for the alteration of an existing building resulting from a change of use from residential to commercial or industrial;

Feel free to contact Anissa McAlpine (Anissa.McAlpine@ottawa.ca), Parks Planner, for follow-up questions.

Other

50. 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 by no later than Q1 2024.

    b. Please refer to the HPDS information attached and ottawa.ca/HPDS for more information.

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

Yours Truly,

Erica C. Ogden-Fedak, MCIP, RPP
Planner II

c.c. Nader Kadri, Urban Design
Brian Morgan, Infrastructure Project Manager
Rochelle Fortier, Transportation Project Manager
Mark Elliott, Environmental Planner
Nancy Young, Forester
Anissa McAlpine, Parks Planner

Encl. Study and Plan Identification List
List of Technical Agencies to Consult
Supplemental Development Information
Urban Design Brief Terms of Reference

APPENDIX B

Water Supply Calculations

Water Supply Calculations

LRL File No. : 230464
Project: Proposed Multiuse Building
Location: 5580 Manotick Main Street,Manotick, ON
Date: 2024-11-01
Designed: M.Basnet

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)
Commercial	**28000**	**0.1**	**2800**

TOTAL DEMAND				
Average Day Demand	**2,800**	**L/d**	**0.03**	**L/s**
Maximum Day Factor	1.5		(Design Guidelines-Water Distribution Table 4.2)	
Maximum Daily Demand	**4,200**	**L/d**	**0.05**	**L/s**
Peak Hour Factor	1.8		(Design Guidelines-Water Distribution Table 4.2)	
Maximum Hour Demand	**7,560**	**L/d**	**0.09**	**L/s**

Fire Flow Calculations as per Ontario Building Code (OBC)

LRL File No. : 230464
Project : Proposed Multiuse Building
Location : 5580 Manotick Main Street, Manotick, ON
Date : January 7, 2025
Prepared by : M. Basnet

Fire Protection Water Supply Calculations

$$Q = KVS_{Tot}$$

where

Q = minimum supply of water (L)
K = water supply coefficient from Table 1 of the OBC guidelines
V = total building volume (m^3)
S_{Tot} = total of spatial coefficient values from property line exposures on all sides

$$S_{Tot} = 1.0 + (S_{side1} + S_{side2} + S_{side3} + S_{side4})$$

		Exposure Distance (m)	
S_{Side1} =	0.00	>10	(North)
S_{Side2} =	0.50	3.1	(East)
S_{Side3} =	0.00	>10	(South)
S_{Side4} =	0.00	>10	(West)
S_{Tot} =	**1.50**		

K = 18 (Group D-combustible construction)

V = 2934 **m^3**

Q = 79209 **L**

Required Minimum Water Supply Flow Rate = 2700 **L / min** (from Table 2 of the OBC guidelines)
45 L/s

FIRE HYDRANTS LOCATIONS
5880 MANOTICK MAIN STREET, MANOTICK, ON

LEGEND

Hydrants within 75m

Table 18.5.4.3 Maximum Fire Hydrant Fire Flow Capacity

Distance to Building[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

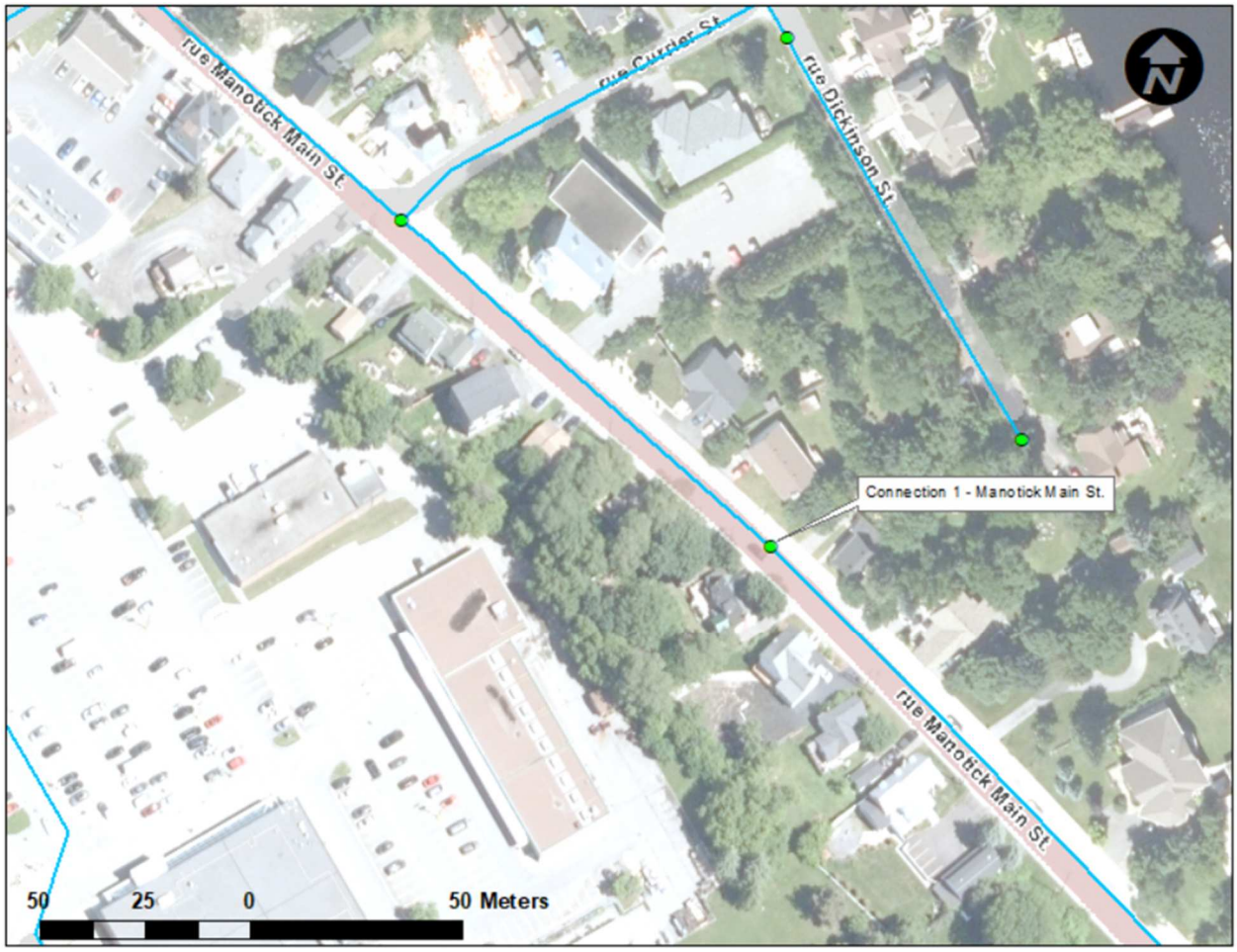
[a]Measured in accordance with 18.5.1.4 and 18.5.1.5.
[b]Minimum 20 psi (139.9 kPa) residual pressure.

Boundary Conditions
5580 Manotick Main St

Provided Information

Scenario	Demand	
	L/min	L/s
Average Daily Demand	2	0.03
Maximum Daily Demand	3	0.05
Peak Hour	5	0.09
Fire Flow Demand #1	2,700	45.00

Location



Results

Existing Condition
Connection 1 – Manotick Main St

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	156.2	92.9
Peak Hour	142.0	72.8
Max Day plus Fire Flow #1	142.0	72.8

[1] Ground Elevation = 90.8 m

Future SUC
Connection 1 – Manotick Main St

Demand Scenario	Head (m)	Pressure[1] (psi)
Maximum HGL	146.6	79.3
Peak Hour	142.9	74.0
Max Day plus Fire Flow #1	142.8	73.8

[1] Ground Elevation = 90.8 m

Notes

1. Results present are for preliminary assumed connection on Manotick Main Street water main. Boundary condition results should be updated with final requested connection once available.
2. As per the Ontario Building Code in areas that may be occupied, the static pressure at any fixture shall not exceed 552 kPa (80 psi.) Pressure control measures to be considered are as follows, in order of preference:
    a. If possible, systems to be designed to residual pressures of 345 to 552 kPa (50 to 80 psi) in all occupied areas outside of the public right-of-way without special pressure control equipment.
    b. Pressure reducing valves to be installed immediately downstream of the isolation valve in the home/ building, located downstream of the meter so it is owner maintained.

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

Wastewater Collection Calculations

LRL Associates Ltd.
Sanitary Sewer Design Sheet

LRL File No.: 230464
Project: Proposed Multiuse Building
Location: 5580 Manotick Main St, Ottawa, ON
Designed: M.L.
Checked: M.B.
Date: January 17, 2025
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	ACCU. 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							0.10	0.10						0.05	0.10	0.100	0.03	0.08	2.8	150	2.50%	PVC	24.08	1.36	0.003
Manotick Main Street	SAN MH 01	Ex. SAN																		0.08	7.3	150	2.50%	PVC	24.08	1.36	0.003

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

APPENDIX D

Stormwater Management Calculations
Hydrovex ICD
Stormceptor OGS

LRL Associates Ltd.

Storm Watershed Summary

LRL File No. 230464
Project: Proposed Multiuse Building
Location: 5580 Manotick Main St, Ottawa, ON
Date: 20205-01-16
Designed: M.L.
Checked: M.B.
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)	0.070	0.000	0.032	0.102	0.42
Total	**0.070**	**0.000**	**0.032**	**0.102**	**0.42**

Post-Development Catchments

Watershed	C = 0.20	C = 0.8	C = 0.90	Total Area (ha)	Combined C
CA-01 (controlled)	0.001	0.000	0.080	0.081	0.89
CA-02 (uncontrolled)	0.010	0.000	0.000	0.010	0.20
CA-03 (uncontrolled)	0.004	0.000	0.000	0.004	0.20
CA-04 (uncontrolled)	0.003	0.000	0.000	0.003	0.20
CA-05 (uncontrolled)	0.004	0.000	0.000	0.004	0.20
Total	**0.022**	**0.000**	**0.080**	**0.102**	**0.75**

LRL File No. 230464
Project: Proposed Multiuse Building
Location: 5580 Manotick Main St, Ottawa, ON
Date: 20205-01-16
Designed: M.L.
Checked: M.B.
Drawing Ref.: C601

Stormwater Management Design Sheet

STORM - 100 YEAR

Runoff Equation

Q = 2.78CIA (L/s)

C = Runoff coefficient

I = Rainfall intensity (mm/hr) = $A / (T_d + C)^B$

A = Area (ha)

T_d = Time of duration (min)

Pre-Development Release Rate

IDF Curve Equations

$I_{100} = 1735.688 / (Td + 6.014)^{0.820}$ A = 1735.688 B = 0.820 C = 6.014

C =	0.42		
I_{100} =	178.6	mm/hr	
T_d =	10	min	
A =	0.102	ha	
100 Year Release Rate =	21.07	L/s	
2 Year Release Rate =	9.06	L/s	(Allowable Release Rate)

Post-development Stormwater Management

					$\sum R_{2\&5}$	$\sum R_{100}$
	Total Site Area =	**0.102**	**ha**	**$\sum R$ =**	**0.75**	**0.94**
	CA-01 (controlled)	0.081	ha	R =	0.89	1.00
	Total (controlled)	**0.081**	**ha**	**R =**	**0.89**	**1.00**
	CA-02 (uncontrolled)	0.010	ha	R =	0.20	0.25
	CA-03 (uncontrolled)	0.004	ha	R =	0.20	0.25
	CA-04 (uncontrolled)	0.003	ha	R =	0.20	0.25
	CA-05 (uncontrolled)	0.004	ha	R =	0.20	0.25
	Total (uncontrolled)	**0.021**	**ha**	**R =**	**0.20**	**0.25**
	Total	**0.102**	**ha**	**R =**	**0.75**	**0.94**

100 Year Post-development Stormwater Management

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	178.56	39.96	20.11	6.44	2.62	9.06
15	142.89	31.98	22.98	6.44	2.62	9.06
20	119.95	26.84	24.48	6.44	2.62	9.06
25	103.85	23.24	25.20	6.44	2.62	9.06
30	91.87	20.56	25.41	6.44	2.62	9.06
35	82.58	18.48	25.28	6.44	2.62	9.06
40	75.15	16.82	24.90	6.44	2.62	9.06
45	69.05	15.45	24.33	6.44	2.62	9.06
50	63.95	14.31	23.61	6.44	2.62	9.06
55	59.62	13.34	22.77	6.44	2.62	9.06
60	55.89	12.51	21.84	6.44	2.62	9.06
70	49.79	11.14	19.74	6.44	2.62	9.06
80	44.99	10.07	17.40	6.44	2.62	9.06
90	41.11	9.20	14.89	6.44	2.62	9.06
100	37.90	8.48	12.23	6.44	2.62	9.06
110	35.20	7.88	9.47	6.44	2.62	9.06
120	32.89	7.36	6.61	6.44	2.62	9.06

On-site stormwater detention

Storage required =	**25.41**	**m^3**	
Storage provided =	**26.74**	**m^3**	(Refer to DWG C601)

LRL File No. 230464
Project: Proposed Multiuse Building
Location: 5580 Manotick Main St, Ottawa, ON
Date: 20205-01-16
Designed: M.L.
Checked: M.B.
Drawing Ref.: C601

Stormwater Management Design Sheet

STORM - 2 YEAR

Runoff Equation

Q = 2.78CIA (L/s)

C = Runoff coefficient

I = Rainfall intensity (mm/hr) = $A / (T_d + C)^B$

A = Area (ha)

T_d = Time of duration (min)

Pre-Development Release Rate

IDF Curve Equations

$I_2 = 732.951 / (Td + 6.199)^{0.810}$ A = 732.951 B = 0.810 C = 6.199

C =	0.42	
I_2 =	76.8	mm/hr
T_d =	10	min
A =	0.102	ha
2 Year Release Rate =	9.06	L/s

Post-development Stormwater Management

					$\sum R_{2\&5}$
	Total Site Area =	**0.102**	**ha**	**∑R =**	**0.75**
	CA-01 (controlled)	0.081	ha	R =	0.89
	Total (controlled)	**0.081**	**ha**	**R =**	**0.89**
	CA-02 (uncontrolled)	0.010	ha	R =	0.20
	CA-03 (uncontrolled)	0.004	ha	R =	0.20
	CA-04 (uncontrolled)	0.003	ha	R =	0.20
	CA-05 (uncontrolled)	0.004	ha	R =	0.20
	Total (uncontrolled)	**0.021**	**ha**	**R =**	**0.20**
	Total	**0.102**	**ha**	**R =**	**0.75**

2 Year Post-development Stormwater Management

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)	Total Release Rate (L/s)
10	76.81	15.36	5.35	6.44	0.90	7.34
15	61.77	12.36	5.32	6.44	0.90	7.34
20	52.03	10.41	4.76	6.44	0.90	7.34
25	45.17	9.04	3.89	6.44	0.90	7.34
30	40.04	8.01	2.82	6.44	0.90	7.34
35	36.06	7.21	1.62	6.44	0.90	7.34
40	32.86	6.57	0.31	6.44	0.90	7.34
45	30.24	6.05	0.00	6.44	0.90	7.34
50	28.04	5.61	0.00	6.44	0.90	7.34
55	26.17	5.24	0.00	6.44	0.90	7.34
60	24.56	4.91	0.00	6.44	0.90	7.34
70	21.91	4.38	0.00	6.44	0.90	7.34
80	19.83	3.97	0.00	6.44	0.90	7.34
90	18.14	3.63	0.00	6.44	0.90	7.34
100	16.75	3.35	0.00	6.44	0.90	7.34
110	15.57	3.11	0.00	6.44	0.90	7.34
120	14.56	2.91	0.00	6.44	0.90	7.34

On-site stormwater detention

Storage required = 5.35 m^3

LRL Associates Ltd.

Storm Sewer Design Sheet

LRL
ENGINEERING | INGÉNIERIE

LRL File No. 230464
Project: Proposed Multiuse Building
Location: 5580 Manotick Main St, Ottawa, ON
Date: 20205-01-16
Designed: M.L.
Checked: M.B.
Dwg. Ref.: C401,C702

Rational Method

Q = 2.78CIA
Q = Peak flow (L/s)
A = Drainage area (ha)
C = Runoff coefficient
I = Rainfall intensity (mm/hr)

Runoff coefficient (C)

Grass = 0.2
Gravel = 0.8
Asphalt / rooftop = 0.9

IDF curve

Ottawa Macdonald-Cartier International Airport
Storm event: 5 Years

Intensity equation:

$I_5 = 998.071 / (Td + 6.053)^{0.814}$ (mm/hr)

Pipe Design Parameters

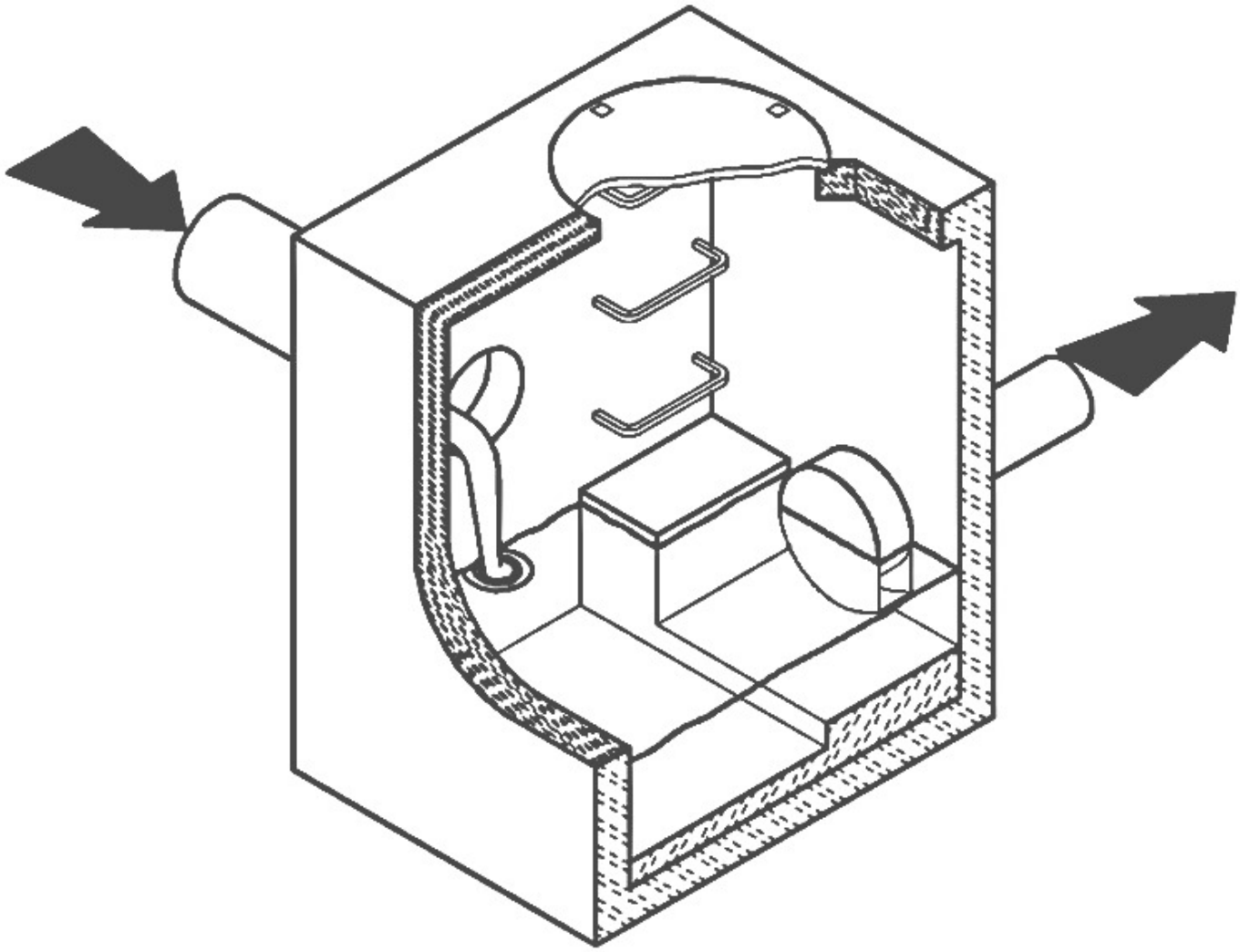
Minimum velocity = 0.80 m/s
Manning's "n" = 0.013

LOCATION			AREA (ha)			FLOW						STORM SEWER							
WATERSHED / STREET	From MH	To MH	C = 0.20	C = 0.80	C = 0.90	Indiv. 2.78AC	Accum. 2.78AC	Time of Conc.	Rainfall Intensity	Peak Flow (Q)	Controlled Flow (Q)	Pipe Dia.	Type	Slope	Length	Capacity Full (Q_{FULL})	Velocity Full	Time of Flow	Ratio Q /Q_{FULL}
								(min)	(mm/hr)	(L/s)	(L/s)	(mm)		(%)	(m)	(L/s)	(m/s)	(min)	
CA-01	CBMH01	MH02	0.001	0.000	0.080	0.20	0.20	10.00	104.19	20.84		250	PVC	0.45%	15.3	39.89	0.81	0.31	0.52
	MH02	OGS					0.20	10.31	102.56	20.52	6.44	250	PVC	0.45%	2.2	39.89	0.81	0.05	0.16
	OGS	MH03					0.20	10.36	102.33	20.47	6.44	250	PVC	0.45%	6.3	39.89	0.81	0.13	0.16
	MH03	CBMH04					0.20	10.49	101.68	20.34	6.44	250	PVC	0.45%	13.2	39.89	0.81	0.27	0.16

CSO/STORMWATER MANAGEMENT

HYDROVEX® VHV / SVHV

Vertical Vortex Flow Regulator



JOHN MEUNIER

APPLICATIONS

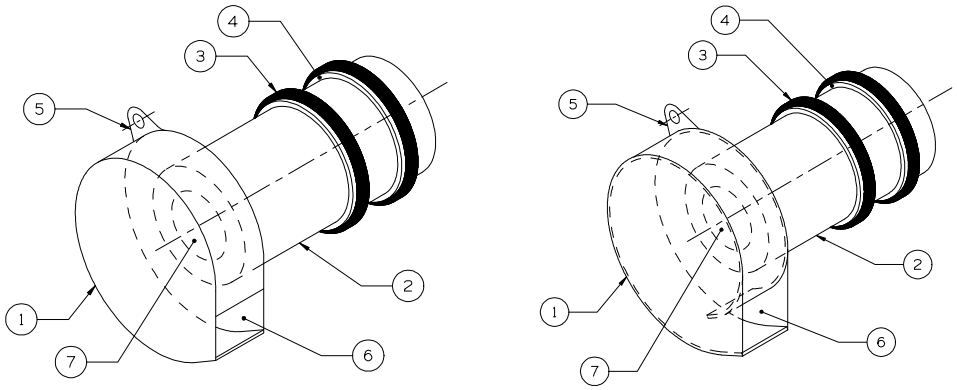
One of the major problems of urban wet weather flow management is the runoff generated after a heavy rainfall. During a storm, uncontrolled flows may overload the drainage system and cause flooding. Due to increased velocities, sewer pipe wear is increased dramatically and results in network deterioration. In a combined sewer system, the wastewater treatment plant may also experience significant increases in flows during storms, thereby losing its treatment efficiency.

A simple means of controlling excessive water runoff is by controlling excessive flows at their origin (manholes). **John Meunier Inc.** manufactures the **HYDROVEX® VHV / SVHV** line of vortex flow regulators to control stormwater flows in sewer networks, as well as manholes.

The vortex flow regulator design is based on the fluid mechanics principle of the forced vortex. This grants flow regulation without any moving parts, thus reducing maintenance. The operation of the regulator, depending on the upstream head and discharge, switches between orifice flow (gravity flow) and vortex flow. Although the concept is quite simple, over 12 years of research have been carried out in order to get a high performance.

The **HYDROVEX® VHV / SVHV** Vertical Vortex Flow Regulators **(refer to Figure 1)** are manufactured entirely of stainless steel, and consist of a hollow body (**1**) (in which flow control takes place) and an outlet orifice (**7**). Two rubber "O" rings (**3**) seal and retain the unit inside the outlet pipe. Two stainless steel retaining rings (**4**) are welded on the outlet sleeve to ensure that there is no shifting of the "O" rings during installation and use.

1. **BODY**
2. **SLEEVE**
3. **O-RING**
4. **RETAINING RINGS (SQUARE BAR)**
5. **ANCHOR PLATE**
6. **INLET**
7. **OUTLET ORIFICE**



VHV ***SVHV***

FIGURE 1: HYDROVEX® VHV-SVHV VERTICAL VORTREX FLOW REGULATORS

ADVANTAGES

- The **HYDROVEX® VHV / SVHV** line of flow regulators are manufactured entirely of stainless steel, making them durable and corrosion resistant.
- Having no moving parts, they require minimal maintenance.
- The geometry of the **HYDROVEX® VHV / SVHV** flow regulators allows a control equal to an orifice plate, having a cross section area 4 to 6 times smaller. This decreases the chance of blockage of the regulator, due to sediments and debris found in stormwater flows. **Figure 2** illustrates the comparison between a regulator model 100 SVHV-2 and an equivalent orifice plate. One can see that for the same height of water, the regulator controls a flow approximately four times smaller than an equivalent orifice plate.
- Installation of the **HYDROVEX® VHV / SVHV** flow regulators is quick and straightforward and is performed after all civil works are completed.
- Installation requires no special tools or equipment and may be carried out by any contractor.
- Installation may be carried out in existing structures.

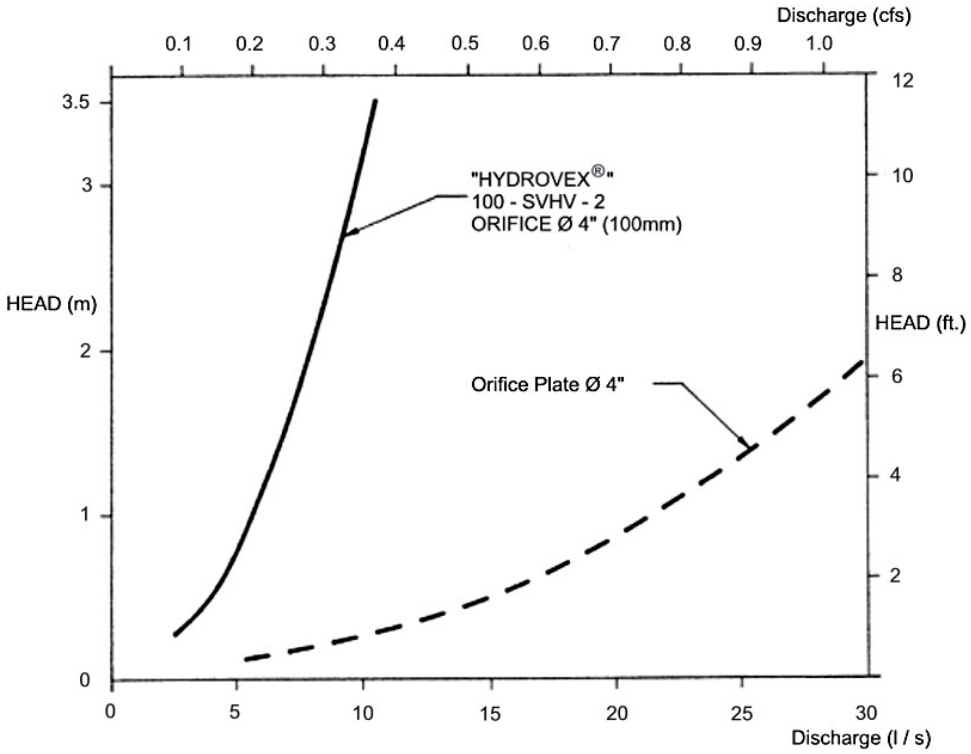


FIGURE 2: DISCHARGE CURVE SHOWING A HYDROVEX® FLOW REGULATOR VS AN ORIFICE PLATE

SELECTION

Selection of a **VHV or SVHV** regulator can be easily made using the selection charts found at the back of this brochure (see **Figure 3**). These charts are a graphical representation of the maximum upstream water pressure (head) and the maximum discharge at the manhole outlet. The maximum design head is the difference between the maximum upstream water level and the invert of the outlet pipe. All selections should be verified by John Meunier Inc. personnel prior to fabrication.

Example:

✓ Maximum design head	2m (6.56 ft.)
✓ Maximum discharge	6 L/s (0.2 cfs)
✓ Using **Figure 3** - VHV	model required is a **75 VHV-1**

INSTALLATION REQUIREMENTS

All **HYDROVEX® VHV / SVHV** flow regulators can be installed in circular or square manholes. **Figure 4** gives the various minimum dimensions required for a given regulator. ***It is imperative to respect the minimum clearances shown to ensure easy installation and proper functioning of the regulator.***

SPECIFICATIONS

In order to specify a **HYDROVEX®** regulator, the following parameters must be defined:

- The model number (ex: 75-VHV-1)
- The diameter and type of outlet pipe (ex: 6" diam. SDR 35)
- The desired discharge (ex: 6 l/s or 0.21 CFS)
- The upstream head (ex: 2 m or 6.56 ft.) *
- The manhole diameter (ex: 36" diam.)
- The minimum clearance "H" (ex: 10 inches)
- The material type (ex: 304 s/s, 11 Ga. standard)

* ***Upstream head is defined as the difference in elevation between the maximum upstream water level and the invert of the outlet pipe where the HYDROVEX® flow regulator is to be installed.***

PLEASE NOTE THAT WHEN REQUESTING A PROPOSAL, WE SIMPLY REQUIRE THAT YOU PROVIDE US WITH THE FOLLOWING:

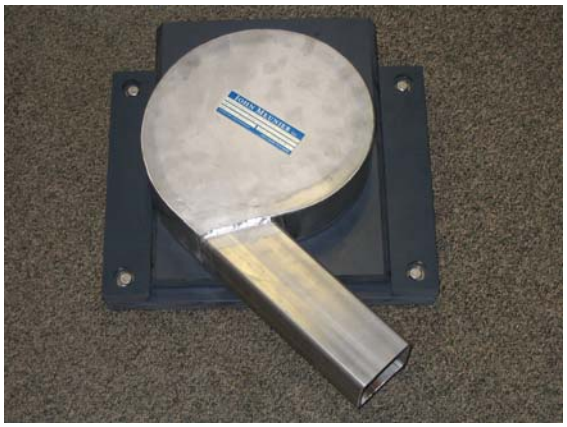
- ***project design flow rate***
- ***pressure head***
- ***chamber's outlet pipe diameter and type***

Typical VHV model in factory

OPTIONS

FV – SVHV (mounted on sliding plate)

VHV-1-O (standard model with odour control inlet)



FV – VHV-O (mounted on sliding plate with odour control inlet)

VHV with Gooseneck assembly in existing chamber without minimum release at the bottom

VHV with air vent for minimal slopes

HYDROVEX®

VHV Vertical Vortex Flow Regulator

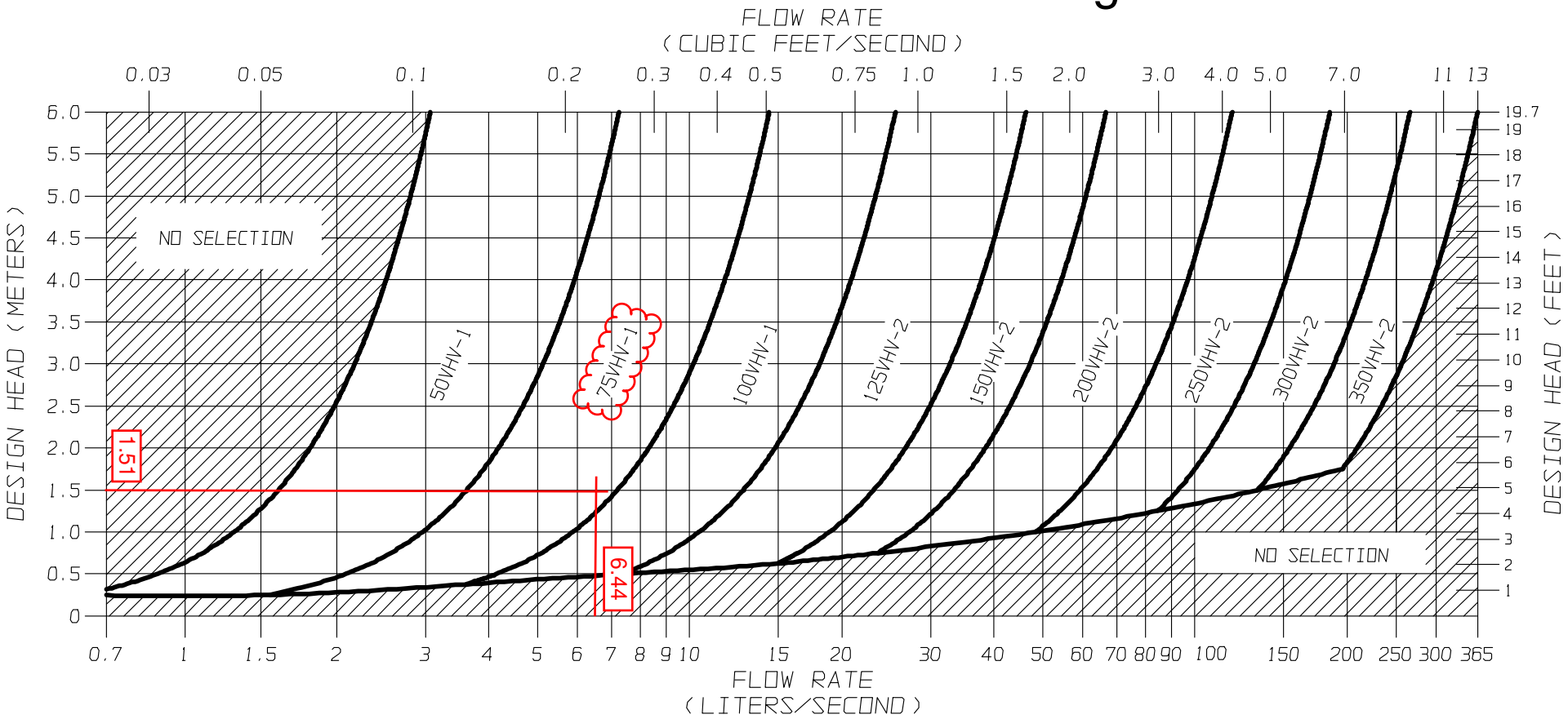
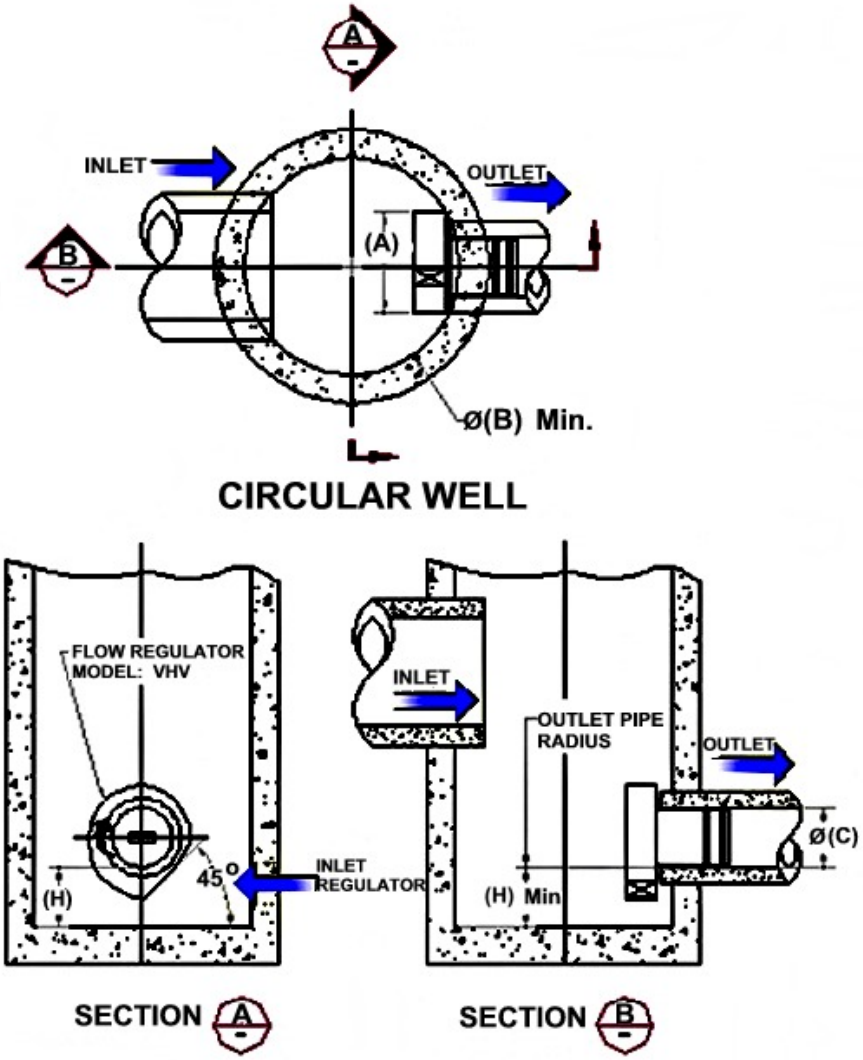


FIGURE 3 - VHV

JOHN MEUNIER

FLOW REGULATOR TYPICAL INSTALLATION IN CIRCULAR MANHOLE
FIGURE 4 (MODEL VHV)

Model Number	Regulator Diameter		Minimum Manhole Diameter		Minimum Outlet Pipe Diameter		Minimum Clearance	
	A (mm)	**A** (in.)	**B** (mm)	**B** (in.)	**C** (mm)	**C** (in.)	**H** (mm)	**H** (in.)
50VHV-1	150	6	600	24	150	6	150	6
75VHV-1	250	10	600	24	150	6	150	6
100VHV-1	325	13	900	36	150	6	200	8
125VHV-2	275	11	900	36	150	6	200	8
150VHV-2	350	14	900	36	150	6	225	9
200VHV-2	450	18	1200	48	200	8	300	12
250VHV-2	575	23	1200	48	250	10	350	14
300VHV-2	675	27	1600	64	250	10	400	16
350VHV-2	800	32	1800	72	300	12	500	20



INSTALLATION

The installation of a **HYDROVEX®** regulator may be undertaken once the manhole and piping is in place. Installation consists of simply fitting the regulator into the outlet pipe of the manhole. **John Meunier Inc.** recommends the use of a lubricant on the outlet pipe, in order to facilitate the insertion and orientation of the flow controller.

MAINTENANCE

HYDROVEX® regulators are manufactured in such a way as to be maintenance free; however, a periodic inspection (every 3-6 months) is suggested in order to ensure that neither the inlet nor the outlet has become blocked with debris. The manhole should undergo periodically, particularly after major storms, inspection and cleaning as established by the municipality

GUARANTY

The **HYDROVEX®** line of **VHV / SVHV** regulators are guaranteed against both design and manufacturing defects for a period of 5 years. Should a unit be defective, **John Meunier Inc.** is solely responsible for either modification or replacement of the unit.

John Meunier Inc.
ISO 9001 : 2008

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Revised: 2011-05-03

SDD3 SIZING REPORT

2025-01-16

PROJECT INFORMATION	
Project Name	Proposed Multiuse Building
Location	5580 Manotick Main St
Province	Ontario
Unit ID	
Project Number	

SITE INFORMATION	
Site Area (hectares)	0.081
Runoff Coefficient	0.89

SIZING CRITERA	
Rainfall Station	OTTAWA CDA RCS
Target TSS removal (%)	80
Particle Size Distribution	Fine PSD
Peak or Regulated Flow (L/s)	

STORMWATER TREATEMENT RECOMMENDATION

RESULTS SUMMARY		
Model	**TSS (%)**	**Volume(%)**
SDD3-900	83	100
SDD3-1200	84	100
SDD3-1500	85	100
SDD3-1600	85	100
SDD3-1800	85	100
SDD3-2400	85	100
SDD3-3000	85	100
SDD3-3200	85	100
SDD3-3600	85	100
SDD3-4000	85	100

Recommended Model	**SDD3-1200**

Annual TSS removal efficiency (%)[1]	Manhole Diameter (mm)	Maximum Pipe Diameter (mm)	Oil Storage Capacity (m^3)	Sediment Storage Capacity (m^3)	Height from invert to SDD floor (m)	Treatment area (m^2)	Max treatement flow (lps)
84	1220	900	0.28	3.66	2.36	1.17	51

DETAILED SDD3 SIZING REPORT

Rainfall Intensity (mm / hr)	Total Rainfall (%)	Cumulative rainfall volume (%)	Flow Rate (Lps)	Surface Loading Rate ($L/s/m^2$)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
1.0	22.30	22.3	0	0.1	84.8	18.9	19
1.5	8.90	31.2	0	0.1	84.8	7.5	26
2.0	8.90	40.1	0	0.1	84.8	7.5	34
2.5	6.55	46.7	0	0.2	84.8	5.6	40
3.0	6.55	53.2	0	0.2	84.8	5.6	45
3.5	4.60	57.8	0	0.2	84.8	3.9	49
4.0	4.60	62.4	0	0.2	84.8	3.9	53
4.5	3.25	65.7	0	0.3	84.8	2.8	56
5.0	3.25	68.9	0	0.3	84.8	2.8	58
5.5	2.55	71.5	0	0.3	84.8	2.2	61
6.0	2.55	74.0	0	0.4	84.8	2.2	63
6.5	1.70	75.7	0	0.4	84.8	1.4	64
7.0	1.70	77.4	1	0.4	84.8	1.4	66
7.5	1.50	78.9	1	0.5	84.8	1.3	67

8.0	1.50	80.4	1	0.5	84.8	1.3	68
8.5	1.80	82.2	1	0.5	84.8	1.5	70
9.0	1.80	84.0	1	0.6	84.8	1.5	71
9.5	1.25	85.3	1	0.6	84.8	1.1	72
10.0	1.25	86.5	1	0.6	84.8	1.1	73
10.5	0.85	87.4	1	0.6	84.8	0.7	74
11.0	0.85	88.2	1	0.7	84.6	0.7	75
11.5	0.70	88.9	1	0.7	84.2	0.6	75
12.0	0.70	89.6	1	0.7	83.8	0.6	76
12.5	0.95	90.6	1	0.8	83.4	0.8	77
13.0	0.95	91.5	1	0.8	83.0	0.8	78
13.5	0.65	92.2	1	0.8	82.6	0.5	78
14.0	0.65	92.8	1	0.9	82.2	0.5	79
14.5	0.65	93.5	1	0.9	81.8	0.5	79
15.0	0.65	94.1	1	0.9	81.4	0.5	80
15.5	0.40	94.5	1	1.0	81.0	0.3	80
16.0	0.40	94.9	1	1.0	80.6	0.3	80
16.5	0.40	95.3	1	1.0	80.2	0.3	81
17.0	0.40	95.7	1	1.0	79.8	0.3	81
17.5	0.20	95.9	1	1.1	79.4	0.2	81
18.0	0.20	96.1	1	1.1	79.1	0.2	81
18.5	0.25	96.4	1	1.1	78.7	0.2	81
19.0	0.25	96.6	1	1.2	78.3	0.2	82
19.5	0.10	96.7	1	1.2	77.9	0.1	82
20.0	0.10	96.8	1	1.2	77.5	0.1	82
20.5	0.25	97.1	1	1.3	77.1	0.2	82
21.0	0.25	97.3	2	1.3	76.7	0.2	82
21.5	0.15	97.5	2	1.3	76.3	0.1	82
22.0	0.15	97.6	2	1.4	76.1	0.1	82
22.5	0.55	98.2	2	1.4	76.0	0.4	83
23.0	0.55	98.7	2	1.4	75.9	0.4	83
23.5	0.15	98.9	2	1.4	75.8	0.1	83
24.0	0.15	99.0	2	1.5	75.7	0.1	83
24.5	0.00	99.0	2	1.5	75.6	0.0	83
25.0	0.00	99.0	2	1.5	75.5	0.0	83
27.5	0.50	99.5	2	1.7	75.0	0.4	84
30.0	0.50	100.0	2	1.9	74.5	0.4	84
32.5	0.00	100.0	2	2.0	74.0	0.0	84
35.0	0.00	100.0	3	2.2	73.5	0.0	84
37.5	0.00	100.0	3	2.3	73.0	0.0	84
40.0	0.00	100.0	3	2.5	72.5	0.0	84
42.5	0.00	100.0	3	2.6	71.9	0.0	84
45.0	0.00	100.0	3	2.8	71.4	0.0	84
47.5	0.00	100.0	3	2.9	70.9	0.0	84
50.0	0.00	100.0	4	3.1	70.4	0.0	84
Total cumulative rainfall (%)		100			**Net Annual TSS removal (%)**		84

1 Performance efficiency based on Fine PSD particle size distribution

SDD3 Oil Grit Separator

Performance Claim Verified by the Canadian ETV Program

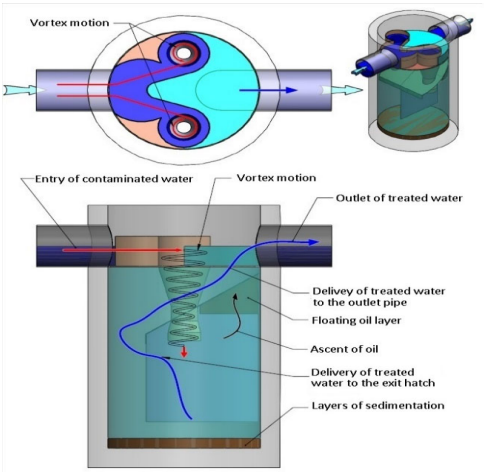


Figure 2. SDD3 operation

HOW IT WORKS

1- Untreated storm water enters the SDD3 unit through the inlet pipe

2- The storm water flow is directed and distributed by the double vortex device

3-Gravitational and hydrodynamic forces created by the double vortex device separate the suspended particles from the stormwater and settle them at the bottom of the unit.

4- Hydrodynamic and buoyancy forces concentrate and separate the oils and the flottable materials, which naturally rise and are trapped in the oil storage area.

5- Treated storm water is finally discharged through the outlet pipe.

INSTALLATION AND MAINTENANCE

- The SDD3 installation is easy and similar to a conventional manhole installation. SDD3 may be installed online or offline depending on the project requirements. The inlet and outlet pipe are located at the same elevation facilitating an easier installation process.

- Inspection and maintenance is simple and easy, with no need to enter the unit.

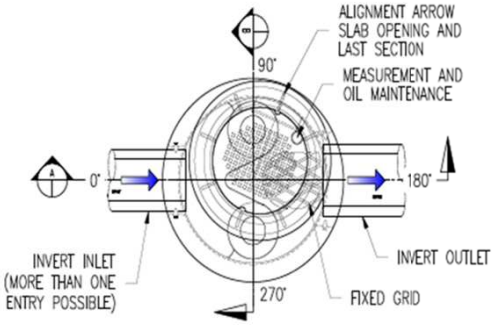
SIZING AND DESIGN

The SDD3 can be sized to meet project-specific stormwater requirements. The actual model selection will depend on the treatment flow, particle size distribution and local regulations.

Table 1. SDD3 models and standard capacities

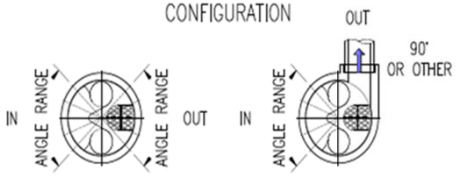
SDD3 Model	Diameter (mm)	Height from invert to SDD3 floor (m)	Sediment storage capacity (m^3)*	Oil storage capacity (m^3)
SDD3-900	915	1.39	0.51	0.12
SDD3-1200	1220	1.74	0.96	0.28
SDD3-1600	1600	2.06	1.77	0.65
SDD3-1800	1830	2.36	3.66	0.98
SDD3-2100	2130	2.79	3.94	1.55
SDD3-2400	2440	3.15	6.54	2.33
SDD3-3000	3048	3.47	9.84	4.54
SDD3-3200	3200	3.69	12.03	4.54
SDD3-3600	3660	3.95	12.39	7.87
SDD3-4000	4052	3.972	16.11	7.87

*Storage capacity can be adjusted according to the specific project requirements.

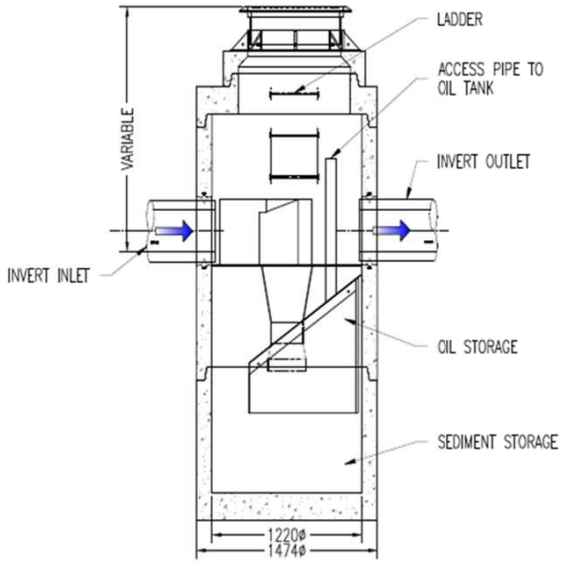


PLAN VIEW

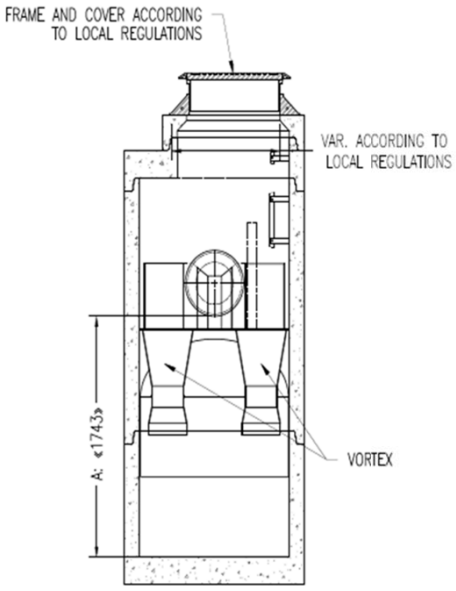
STANDARD
CONFIGURATION



NOTE:
THE CONFIGURATION VARIES DEPENDING ON THE DIAMETER OF THE DUCT
OTHER CONFIGURATIONS AVAILABLE ON REQUEST



SECTION A



SECTION B

GENERAL NOTES:

- STANDARD REFERENCE DRAWING. FOR SPECIFIC PROJECT DRAWINGS, PLEASE CONTACT NEXT STORM TECHNICAL DEPARTMENT.
- DESIGN AND DIMENSIONAL TOLERANCES ACCORDING TO LOCAL REGULATIONS
- STANDARD HEIGHTS. OTHER OPTIONS AVAILABLE ON REQUEST
- STORAGE VOLUME MES 100% 0.98m³
- CONFIGURATION: ON-LINE / OFF-LINE
- EXTERNAL REINFORCED CONCRETE STRUCTURE
- SHOULD SUPPORT A CL-625, H-25, AND HS-20 LOAD
- THIS PRODUCT IS PROTECTED BY THE US 16/901,238 PATENT
  OTHER PATENTS PENDING

SPECIFIC NOTES SDD3-1200 MODEL

- WEIGHT OF THE HEAVIEST SECTION: 3150kg.
- MAX. DIAMETER OF PIPES: ø600
  OTHER DIAMETERS AVAILABLE ON REQUEST
- SUMP TO LOWEST INVERT (A): 1.743m

PROJECT DATA

MODEL : SDD3-1200
IDENTIFICATION OF THE STRUCTURE :
QUALITY FLOW (L/S):
PEAK FLOW (L/S):

PIPE	TYPE	DIAMETER (mm)	INVERT (m)	ANGLE
INLET 1				
INLET 2				
OUTLET				
GRADE/RIM ELEVATION (m)				

NOTES:

SDD3 1200

TYPICAL DRAWING

NEXT STORM
Toll Free : 1 877 565-6260
info@nextstorm.ca
nextstorm.ca

NEXT STORM

FORMAT 11 x 17

SDD3 Oil Grit Separator

Performance Claim Verified by the Canadian ETV Program

An innnovative storm water treatment system that provides extraordinary and dependable removal of storm water pollutants while minimizing washouts

The SDD3 by *NEXT Stormwater Solutions* is a hydrodynamic oil and grit separator that utilizes both gravitational and centrifugal forces to capture and retain suspended sediments, floating particles and oils from stormwater runoff. The SDD3 unique design ensures optimal storm water treatment during light and heavy rainfall events.

KEY FEATURES AND ADVANTAGES

- **Double vortex** system specially designed to maximize separation of sediments and other pollutants from stormwater runoff.
- **Designed and manufactured in Canada** and verified by an independent third party laboratory.
- The environmental performance claim for SDD3 is **verified by the Canadian ETV Program**[1].
- SDD3 provides 91% oil removal and retention[2]
- SDD3 is suitable for both **online and offline installations** and has shown to have a negligible effect on the hydraulic grade line (HGL).
- SDD3 is available in a **wide range of models** to meet the project requirements.
- **Simple installation** for it is similar to a conventional manhole.
- **Safe and easy inspection and maintenance** for all activities are performed at the surface.

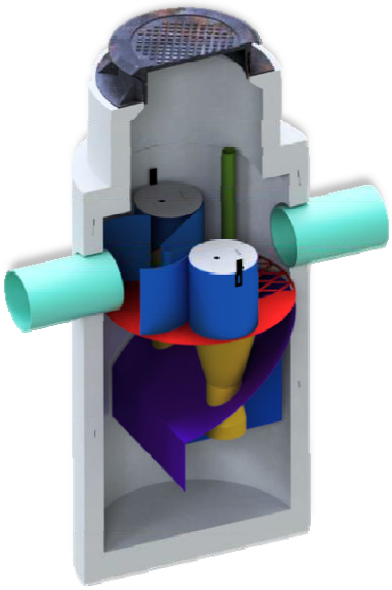


Figure 1. Typical SDD3

COMPONENTS

The SDD3 external structure is a reinforced concrete chamber that is suitable for HS-20 and CL-625 loads.

The internal components are made of high quality aluminum that have excellent mechanical properties and superior corrosion resistance.

[1]Canadien Environmental Technology Verification Program; [2]According to the most recent ETV protocol « *Light Liquid Retention Simulation Test*» (CETV 2018-09-0001).

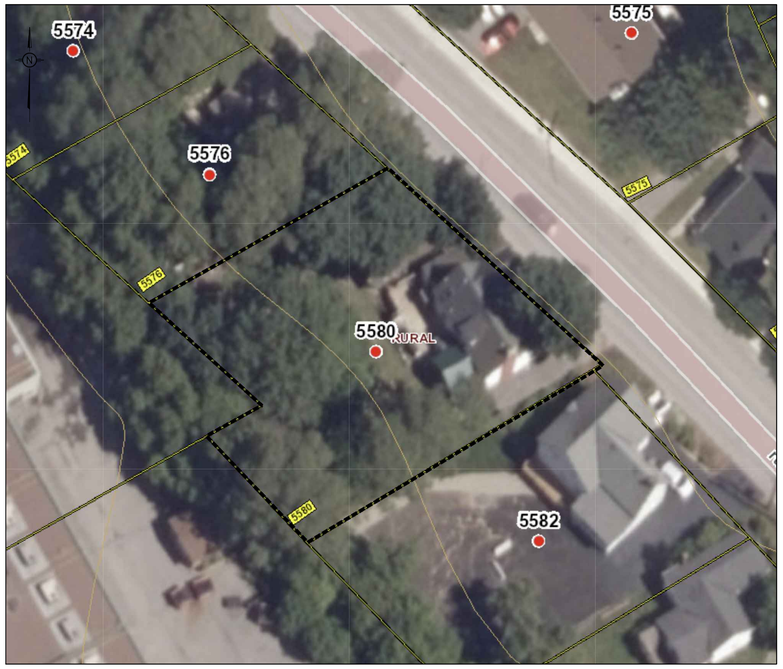
NEXT Stormwater Solutions ■ T: 647 278-7339 ■ info@nextstorm.ca ■ www.nextstorm.ca

APPENDIX E

Civil Engineering Drawings

PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

REVISION 01



KEY PLAN (N.T.S.)

DRAWING INDEX	
TITLE PAGE	
GENERAL NOTES	C000
SEDIMENT AND EROSION CONTROL PLAN	C101
DEMOLITION PLAN	C102
SITE DEVELOPMENT PLAN	C201
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 MULTI-USE BUILDING
5580 MANOTICK MAIN STREET, OTTAWA, ON
REV.01 - ISSUED FOR APPROVAL - JANUARY 17th, 2025
LRL PROJECT no: 230464

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/01/17
PROVINCE OF ONTARIO
NOT AUTHENTIC UNLESS SIGNED AND DATED

GENERAL NOTES

1. ALL WORKS MATERIALS SHALL CONFIRM TO THE LAST REVISION OF THE STANDARDS AND SPECIFICATIONS FOR THE CITY OF OTTAWA, ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS), WHERE APPLICABLE. LOCAL UTILITY STANDARDS AND MINISTRY OF TRANSPORTATION STANDARDS WILL APPLY WHERE REQUIRED.
2. THE CONTRACTORS SHALL CONFIRM THE LOCATION OF ALL EXISTING UTILITIES WITHIN THE SITE AND ADJACENT WORK AREAS. THE CONTRACTORS SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING UTILITIES TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF ANY SERVICES OR UTILITIES DISTURBED DURING CONSTRUCTION , TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION.
3. ALL DIMENSIONS SHALL BE CHECKED AND VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO THE START OF CONSTRUCTION, ANY DISCREPANCIES SHALL BE REPORTED IMMEDIATELY TO THE ENGINEER. LOST TIME DUE TO FAILURE OF THE CONTRACTORS TO CONFIRM UTILITY LOCATIONS AND NOTIFY ENGINEER OF POSSIBLE CONFLICTS PRIOR TO CONSTRUCTION WILL BE AT CONTRACTORS EXPENSE.
4. ANY AREA BEYOND THE LIMIT OF THE SITE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE. RELOCATING OF EXISTING SERVICES AND/OR UTILITIES SHALL BE AS SHOWN ON THE DRAWINGS OR DETECTED BY THE ENGINEER AT THE EXPENSE OF DEVELOPERS.
5. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE 'OCCUPATIONAL HEALTH AND SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS'. THE GENERAL CONTRACTORS SHALL BE DEEMED TO BE THE 'CONTRACTOR' AS DEFINED IN THE ACT.
6. ALL THE CONSTRUCTION SIGNAGE MUST CONFIRM TO THE MINISTRY OF TRANSPORTATION OF ONTARIO MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES PER LATEST AMENDMENT.
7. THE CONTRACTOR IS ADVISED THAT WORKS BY OTHERS MAY BE ONGOING DURING THE PERIOD OF THE CONTRACT. THE CONTRACTOR SHALL COORDINATE CONSTRUCTION ACTIVITIES TO PREVENT CONFLICTS.
8. ALL DIMENSIONS ARE IN METRES UNLESS SPECIFIED OTHERWISE.
9. THERE WILL BE NO SUBSTITUTION OF MATERIALS UNLESS PRIOR WRITTEN APPROVAL IS RECEIVED FROM THE ENGINEER.
10. ALL CONSTRUCTION SHALL BE CARRIED OUT IN ACCORDANCE WITH THE RECOMMENDATIONS MADE IN THE GEOTECHNICAL REPORT.
11. FOR DETAILS RELATING TO STORMWATER MANAGEMENT AND ROOF DRAINAGE REFER TO THE SITE SERVICING AND STORMWATER MANAGEMENT REPORT.
12. ALL SEWERS CONSTRUCTED WITH GRADES LESS THAN 1.0% SHALL BE INSTALLED USING LASER ALIGNMENT AND CHECKED WITH LEVEL INSTRUMENT PRIOR TO BACKFILLING.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING ALL PERMITS REQUIRED AND TO BEAR THE COST OF THE SAME.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ADDITIONAL BEDDING, OR ADDITIONAL STRENGTH PIPE IF THE MAXIMUM TRENCH WIDTH AS SPECIFIED BY OPSD IS EXCEEDED.
15. ALL PIPE/CULVERT SECTION SIZES REFER TO INSIDE DIMENSIONS.
16. SHOULD DEEPLY BURIED ARCHAEOLOGICAL REMAINS BE FOUND ON THE PROPERTY DURING CONSTRUCTION ACTIVITIES, THE HERITAGE OPERATIONS UNIT OF THE ONTARIO MINISTRY OF CULTURE MUST BE NOTIFIED IMMEDIATELY.
17. ALL NECESSARY CLEARING AND GRUBBING SHALL BE COMPLETED BY THE CONTRACTOR. REVIEW WITH CONTRACT ADMINISTRATOR AND THE CITY OF OTTAWA PRIOR TO ANY TREE CUTTING/REMOVAL.
18. DRAWINGS SHALL BE READ ON CONJUNCTION WITH ARCHITECTURAL SITE PLAN.
19. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ON SET OF AS CONSTRUCTED SITE SERVICING AND GRADING DRAWINGS.
20. BENCHMARKS: IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THAT THE SITE BENCHMARK(S) HAS NOT BEEN ALTERED OR DISTURBED AND THAT ITS RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION DEPICTED ON THIS PLAN.

EROSION AND SEDIMENT CONTROL NOTES

GENERAL

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

THE CONTRACTOR ACKNOWLEDGES THAT SURFACE EROSION AND SEDIMENT RUNOFF RESULTING FROM THEIR CONSTRUCTION OPERATIONS HAS POTENTIAL TO CAUSE A DETRIMENTAL IMPACT TO ANY DOWNSTREAM WATERCOURSE OR SEWER, AND THAT ALL CONSTRUCTION OPERATIONS THAT MAY IMPACT UPON WATER QUALITY SHALL BE CARRIED OUT IN MANNER THAT STRICTLY MEETS THE REQUIREMENT OF ALL APPLICABLE LEGISLATION AND REGULATIONS.

AS SUCH, THE CONTRACTOR SHALL BE RESPONSIBLE FOR CARRYING OUT THEIR OPERATIONS, AND SUPPLYING AND INSTALLING ANY APPROPRIATE CONTROL MEASURES, SO AS TO PREVENT SEDIMENT LADEN RUNOFF ENTERING ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA.

THE CONTRACTOR ACKNOWLEDGES THAT NO ONE MEASURE IS LIKELY TO BE 100% EFFECTIVELY FOR EROSION PROTECTION AND CONTROLLING SEDIMENT RUNOFF AND DISCHARGES FROM THE SITE. THEREFORE, WHERE NECESSARY THE CONTRACTOR SHALL IMPLEMENT ADDITIONAL MEASURES ARRANGED IN SUCH MANNER AS TO MITIGATE SEDIMENT RELEASE FROM THE CONSTRUCTION OPERATIONS AND ACHIEVE SPECIFIC MAXIMUM PERMITTED CRITERIA WHERE APPLICABLE. SUGGESTED ON-SITE MEASURES MAY INCLUDE, BUT SHALL NOT BE LIMITED TO, THE FOLLOWING METHODS: SEDIMENT PONDS, FILTER BAGS, PUMP FILTERS, SETTLING TANKS, SILT FENCE, STRAW BALES, FILTER CLOTHS, CATCH BASIN FILTERS, CHECK DAMS AND/OR OTHER RECOGNIZED TECHNOLOGIES AND METHOD AVAILABLE AT THE TIME OF CONSTRUCTION. SPECIFIC MEASURES SHALL BE INSTALLED IN ACCORDANCE WITH REQUIREMENTS OF OPSS 577 WHERE APPROPRIATE, OR IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

WHERE, IN THE OPINION OF THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, THE INSTALLED CONTROL MEASURES FAIL TO PERFORM ADEQUATELY, THE CONTRACTOR SHALL SUPPLY AND INSTALL ADDITIONAL OR ALTERNATIVE MEASURES AS DIRECTED BY THE CONTRACT ADMINISTRATOR OR REGULATORY AGENCY, AS SUCH, THE CONTRACTOR SHALL HAVE ADDITIONAL CONTROL MATERIALS ON SITE AT ALL TIME WHICH ARE EASILY ACCESSIBLE AND MAY BE IMPLEMENTED BY HIM AT THE MOMENT'S NOTICE.

PRIOR TO COMMENCING WORK, THE CONTRACTOR SHALL SUBMIT TO THE CONTRACT ADMINISTRATOR SIX COPIES OF A DETAILED EROSION AND SEDIMENT CONTROL PLAN (ESCP). THE ESCP WILL CONSIST OF WRITTEN DESCRIPTION AND DETAILED DRAWINGS INDICATING THE ON-SITE ACTIVITIES AND MEASURES TO BE USED TO CONTROL EROSION AND SEDIMENT MOVEMENT FOR EACH STEP OF THE WORK.

CONTRACTOR'S RESPONSIBILITIES

THE CONTRACTOR SHALL ENSURE THAT ALL WORKERS, INCLUDING SUB-CONTRACTOR, IN THE WORKING ARE ARE AWARE OF THE IMPORTANCE OF THE EROSION AND SEDIMENT CONTROL MEASURES AND INFORMED OF THE CONSEQUENCES OF THE FAILURE TO COMPLY WITH THE REQUIREMENTS OF ALL REGULATORY AGENCIES.

THE CONTRACTOR SHALL PERIODICALLY, AND WHEN REQUESTED BY THE CONTRACT ADMINISTRATOR, CLEAN OUT ACCUMULATED SEDIMENT DEPOSITS AS REQUIRED AT THE SEDIMENT CONTROL DEVICES, INCLUDING THOSE DEPOSITS THAT MAY ORIGINATE FROM OUTSIDE THE CONSTRUCTION AREA. ACCUMULATED SEDIMENT SHALL BE REMOVED IN SUCH A MANNER THAT PREVENTS THE DEPOSITION OF THIS MATERIAL INTO THE SEWER WATERCOURSE AND AVOIDS DAMAGE TO CONTROL MEASURES. THE SEDIMENT SHALL BE REMOVED FROM THE SITE AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH REQUIREMENTS FRO EXCESS EARTH MATERIAL, AS SPECIFIED ELSEWHERE IN THE CONTRACT.

THE CONTRACTOR SHALL IMMEDIATELY REPORT TO THE CONTRACT ADMINISTRATOR ANY ACCIDENTAL DISCHARGES OF SEDIMENT MATERIAL INTO EITHER THE WATERCOURSE OR THE STORM SEWER SYSTEM. FAILURE TO REPORT WILL BE CONSTITUTE A BRACH OF THIS SPECIFICATION AND THE CONTRACTOR MAY ALSO BE SUBJECT TO THE PENALTIES IMPOSED BY THE APPLICABLE REGULATORY AGENCY. APPROPRIATE RESPONSE MEASURES, INCLUDING ANY REPAIRS TO EXISTING CONTROL MEASURES OR THE IMPLEMENTATION OF ADDITIONAL CONTROL MEASURES, SHALL BE CARRIED OUT BY THE CONTRACTOR WITHOUT DELAY.

THE SEDIMENT CONTROL MEASURES SHALL ONLY BE REMOVED WHEN, IN THE OPINION OF THE CONTRACT ADMINISTRATOR, THE MEASURE OR MEASURES, IS NO LONGER REQUIRED. NO CONTROL MEASURE MAY BE PERMANENTLY REMOVED WITHOUT PRIOR AUTHORIZATION FROM THE CONTRACT ADMINISTRATOR. ALL SEDIMENT AND EROSION CONTROL MEASURES SHALL BE REMOVED IN A MANNER THAT AVOIDS THE ENTRY OF ANY EQUIPMENT, OTHER THAN HAND-HELD EQUIPMENT, INTO ANY WATERCOURSE, AND PREVENTS THE RELEASE OF ANY SEDIMENT OR DEBRIS INTO ANY SEWER OR WATERCOURSE WITHIN OR DOWNSTREAM OF THE WORKING AREA. ALL ACCUMULATED SEDIMENT SHALL BE REMOVED FROM THE WORKING AREA AT THE CONTRACTOR'S EXPENSE AND MANAGED IN COMPLIANCE WITH THE REQUIREMENTS FOR EXCESS EARTH MATERIAL

WHERE, IN THE OPINION OF EITHER THE CONTRACT ADMINISTRATOR OR A REGULATORY AGENCY, ANY OF THE TERMS SPECIFIED HEREIN HAVE NOT BEEN COMPLIED WITH OR PERFORMED IN A SUITABLE MANNER, OR TAT ALL, THE CONTRACTOR ADMINISTRATOR OR A REGULATORY AGENCY HAS THE RIGHT TO IMMEDIATELY WITHDRAW ITS PERMISSION TO CONTINUE THE WORK BUT MAY RENEW ITS PERMISSION UPON BEING SATISFIED THAT THE DEFAULTS OR DEFICIENCIES IN THE PERFORMANCE OF THIS SPECIFICATION BY THE CONTRACTOR HAVE BEEN REMEDIED.

SPILL CONTROL NOTES

1. ALL CONSTRUCTION EQUIPMENT SHALL BE RE-FUELED, MAINTAINED, AND STORED NO LESS THAN 30 METRES FROM WATERCOURSE, STEAMS, CREEKS, WOODLOTS, AND ANY ENVIRONMENTALLY SENSITIVE AREAS, OR AS OTHERWISE SPECIFIED.
2. THE CONTRACTOR MUST IMPLEMENT ALL NECESSARY MEASURES IN ORDER TO PREVENT LEAKS, DISCHARGES OR SPILLS OF POLLUTANTS, DELETERIOUS MATERIALS, OR OTHER SUCH MATERIALS OR SUBSTANCES WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT.
3. IN THE EVENT OF A LEAK, DISCHARGE OR SPILL OF POLLUTANT, DELETERIOUS MATERIAL OR OTHER SUCH MATERIAL OR SUBSTANCE WHICH WOULD OR COULD CAUSE AN ADVERSE IMPACT TO THE NATURAL ENVIRONMENT, THE CONTRACTOR SHALL:
   - 3.1. IMMEDIATELY NOTIFY APPROPRIATE FEDERAL, PROVINCIAL, AND LOCAL GOVERNMENT MINISTRIES, DEPARTMENTS, AGENCIES, AND AUTHORITIES OF THE INCIDENT IN ACCORDANCE WITH ALL CURRENT LAWS, LEGISLATION, ACTS, BY-LAWS, PERMITS, APPROVALS, ETC.
   - 3.2. TAKE IMMEDIATE MEASURES TO CONTAIN THE MATERIAL OR SUBSTANCE, AND TO TAKE SUCH MEASURES TO MITIGATE AGAINST ADVERSE IMPACTS TO THE NATURAL ENVIRONMENT.
   - 3.3. RESTORE THE AFFECTED AREA TO THE ORIGINAL CONDITION OR BETTER TO THE SATISFACTION OF THE AUTHORITIES HAVING JURISDICTION.

MUD MAT NOTES

1. THE GRANULAR MATERIAL WILL REQUIRE PERIODIC REPLACEMENT AS IT BECOMES CONTAMINATED BY VEHICLE TRAFFIC.
2. SEDIMENT SHALL BE CLEANED FROM PUBLIC ROADS AT THE END OF EACH DAY.
3. SEDIMENT SHALL BE REMOVED FROM PUBLIC ROADS BY SHOVELING OR SWEEPING AND DISPOSED OR PROPERLY IN A CONTROLLED SEDIMENT DISPOSAL AREA.

SITE GRADING NOTES

1. PRIOR TO THE COMMENCEMENT OF THE SITE GRADING WORKS, ALL SILTATION CONTROL DEVICES SHALL BE INSTALLED AND OPERATIONAL PER EROSION CONTROL PLAN.
2. ALL GRANULAR AND PAVEMENT FOR ROADS/PARKING AREAS SHALL BE CONSTRUCTED IN ACCORDANCE WITH GEOTECHNICAL ENGINEER'S RECOMMENDATIONS.
3. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD AND PARKING AREAS ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION.
4. CONCRETE CURB SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. SC1.1 PROVISION SHALL BE MADE OR CURB DEPRESSIONS AS INDICATED ON ARCHITECTURAL SITE PLAN. CONCRETE SIDEWALK SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STD SC1.4. ALL CURBS, CONCRETE ISLANDS, AND SIDEWALKS SHOWN O THIS DRAWING ARE TO BR PRICED IN SITE WORKS PORTION OF THE CONTRACT.
5. PAVEMENT REINSTATEMENT FOR SERVICE AND UTILITY CUTS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. R10 AND OPSD 509.010 AND OPSS 310.
6. GRANULAR 'A' SHALL BE PLACED TO A MINIMUM THICKNESS OF 30MM AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA.
7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 30MM LIFTS.
8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR BACKFILLING.
9. CONTRACTOR TO OBTAIN A ROAD OCCUPANCY PERMIT 48 HOURS PRIOR TO COMMENCING ANY WORK WITHIN THE MUNICIPAL ROAD ALLOWANCE, IF REQUIRED BY THE MUNICIPALITY.
10. ALL PAVEMENT MARKING FEATURES AND SITE SIGNAGE SHALL BE PLACED PER ARCHITECTURAL SITE PLAN. LINE PAINTING AND DIRECTIONAL SYMBOLS SHALL BE APPLIED WITH A MINIMUM OF TWO COATS OF ORGANIC SOLVENT PAINT.
11. REFER TO ARCHITECTURAL SITE PLAN FOR DIMENSIONS AND SITE DETAILS.
12. STEP JOINTS ARE TO BE USED WHERE PROPOSED ASPHALT MEETS EXISTING ASPHALT. ALL JOINTS MUST BE SEALED.
13. SIDEWALKS TO BE 13MM & BEVELED AT 2:1 OR 6MM WITH NO BEVEL REQUIRED BELOW THE FINISHED FLOOR SLAB ELEVATION AT ENTRANCES REQUIRED TO BE BARRIER-FREE, UNLESS OTHERWISE NOTED. ALL IN ACCORDANCE WITH OBC 3.8.1.3 & OTTAWA ACCESSIBILITY DESIGN STANDARDS.
14. WHERE APPLICABLE THE CONTRACTOR IS TO SUBMIT SHOP DRAWINGS TO THE ENGINEER FOR APPROVAL PRIOR TO CONSTRUCTION. SHOP DRAWINGS MUST BE SITE SPECIFIC, SIGNED AND SEALED BY A LICENSED STRUCTURAL ENGINEER. THE CONTRACTOR WILL ALSO BE REQUIRED TO SUPPLY AND GEOTECHNICAL CERTIFICATION OF THE AS-CONSTRUCTED RETAINING WALL TO THE ENGINEER PRIOR TO FINAL ACCEPTANCE.

ROADWORK SPECIFICATIONS

15. ROADWORK TO BE COMPLETED IN ACCORDANCE WITH GEOTECHNICAL REPORT, PREPARED BY LRL ASSOCIATES. DATED MAY 2024.
16. AL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND STOCK PILLED ON SITE AS DIRECTED BY NATIONAL MUNICIPALITY.
17. THE SUBGRADE SHALL BE CROWNED AND SLOPED AT LEAST 2% AND PROOF ROLLED WITH HEAVY ROLLERS.
18. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'A', TYPE II COMPACTED IN MAXIMUM 300MM LIFTS.
19. ALL GRANULAR FOR ROADS SHALL BE COMPACTED TO MINIMUM OF 100% STANDARD PROCTOR DENSITY MAXIMUM DRY DENSITY (SPMDD).
20. CONCRETE RAMP C/W TACTILE WALKING SURFACE INDICATORS COMPONENT AS PER OPSD 310.039. TACTILE WALKING SURFACE INDICATORS TO BE INSTALLED AT ALL RAMPS. MATERIAL TO BE POLYMER COMPOSITE, COLOR GREY.

SANITARY, FOUNDATION DRAIN, STORM SEWER AND WATERMAIN NOTES

GENERAL

1. LASER ALIGNMENT CONTROL TO BE UTILIZED ON ALL SEWER INSTALLATIONS.
2. CLAY SEALS TO BE INSTALLED AS PER CITY STANDARD DRAWING S8. THE SEALS SHOULD BE AT LEAST 1.5M LONG (IN THE TRENCH DIRECTION) AND SHOULD EXTEND FROM TRENCH WALL TO TRENCH WALL. THE SEALS SHOULD EXTEND FROM THE FROST LINE AND FULLY PENETRATE THE BEDDING, SUB-BEDDING, AND COVER MATERIAL. THE BARRIERS SHOULD CONSIST OF RELATIVELY DRY AND COMPATIBLE BROWN SILTY CLAY PLACED IN MAXIMUM 225MM LIFTS AND COMPACTED TO A MINIMUM OF 95% SPMDD. THE CLAY SEALS SHOULD BE PLACED AT THE SITE BOUNDARIES AND AT 60M INTERVALS IN THE SERVICE TRENCHES.
3. SERVICES TO BUILDING TO BE TERMINATED 1.0M FROM THE OUTSIDE FACE OF BUILDING UNLESS OTHERWISE NOTED.
4. ALL MAINTENANCE STRUCTURE AND CATCH BASIN EXCAVATIONS TO BE BACKFILLED WITH GRANULAR MATERIAL COMPACTED TO 98% STANDARD PROCTOR DENSITY. A MINIMUM OF 300MM AROUND STRUCTURES.
5. "MODULOC" OR APPROVED PRE-CAST MAINTENANCE STRUCTURE AND CATCH BASIN ADJUSTERS TO BE USED IN LIEU OF BRICKING. PARGE ADJUSTING UNITS ON THE OUTSIDE ONLY.
6. SAFETY PLATFORMS SHALL BE PER OPSD 404.02.
7. DROP STRUCTURES SHALL BE IN ACCORDANCE WITH OPSD 1003.01, IF APPLICABLE.
8. THE CONTRACTOR IS TO PROVIDE CCTV CAMERA INSPECTIONS OF ALL SEWERS, INCLUDING PICTORIAL REPORT, ONE (1) CD COPY AND TWO (2) VIDEO RECORDING IN A FORMAT ACCEPTABLE TO ENGINEER. ALL SEWER ARE TO BE FLUSHED PRIOR TO CAMERA INSPECTION. ASPHALT WEAR COURSE SHALL NOT BE PLACED UNTIL THE VIDEO INSPECTION OF SEWERS AND NECESSARY REPAIRS HAVE BEEN COMPLETED TO THE SATISFACTION OF THE ENGINEER.
9. CONTRACTOR SHALL PERFORM LEAKAGE TESTING, IN THE PRESENCE OF THE CONSULTANT, FOR SANITARY SEWERS IN ACCORDANCE WITH OPSS 407. CONTRACTOR SHALL PERFORM VIDEO INSPECTION OF ALL SEWERS. A COPY OF THE VIDEO AND INSPECTION REPORT SHALL BE SUBMITTED TO THE CONSULTANT FOR REVIEW AND APPROVAL PRIOR TO PLACEMENT OF WEAR COURSE ASPHALT.

SANITARY

10. ALL SANITARY SEWER INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD). AND SPECIFICATIONS (OPSS).
11. ALL SANITARY GRAVITY SEWER SHALL BE PVC SDR 35, IPEX 'RING-TITE' (OR APPROVED EQUIVALENT) PER CSA STANDARD B182.2 OR LATEST AMENDMENT, UNLESS SPECIFIED OTHERWISE.
12. EXISTING MAINTENANCE STRUCTURES TO BE RE-BENCHED WHERE A NEW CONNECTION IS MADE.
13. SANITARY GRAVITY SEWER TRENCH AND BEDDING SHALL BE PER CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' BEDDING, UNLESS SPECIFIED OTHERWISE.
14. SANITARY MAINTENANCE STRUCTURE FRAME AND COVERS SHALL BE PER CITY OF OTTAWA STD. S24 AND S25.
15. SANITARY MAINTENANCE STRUCTURES SHALL BE BENCHED PER OPSD 701.021.
16. 100MM THICK HIGH-DENSITY GRADE 'A' POLYSTYRENE INSULATION TO BE INSTALLED IN ACCORDANCE WITH CITY STD W22 WHERE INDICATED ON DRAWING SSP-1.

STORM

17. ALL REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.2, OR LATEST AMENDMENT. ALL NON-REINFORCED CONCRETE STORM SEWER PIPE SHALL BE IN ACCORDANCE WITH CSA A257.1, OR LATEST AMENDMENT. PIPE SHALL BE JOINED WITH STD. RUBBER GASKETS AS PER CSA A257.3, OR LATEST AMENDMENT.
18. ALL STORM SEWER TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. S6 AND S7 CLASS 'B' UNLESS OTHERWISE SPECIFIED. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY PROJECT GEOTECHNICAL ENGINEER.
19. ALL PVC STORM SEWERS ARE TO BE SDR 35 APPROVED PER C.S.A. B182.2 OR LATEST AMENDMENT, UNLESS OTHERWISE SPECIFIED.
20. CATCH BASIN SHALL BE IN ACCORDANCE WITH OPSD 705.010.
21. CATCH BASIN LEADS SHALL BE IN 200MM DIA. AT 1% SLOPE (MIN) UNLESS SPECIFIED OTHERWISE.
22. ALL CATCH BASINS SHALL HAVE 600MM SUMPS, UNLESS SPECIFIED OTHERWISE.
23. ALL CATCH BASIN LEAD INVERTS TO BE 1.5M BELOW FINISHED GRADE UNLESS SPECIFIED OTHERWISE.
24. THE STORM SEWER CLASSES HAVE BEEN DESIGNED BASED ON BEDDING CONDITIONS SPECIFIED ABOVE. WHERE THE SPECIFIED TRENCH WIDTH IS EXCEEDED , THE CONTRACTOR IS REQUIRED TO PROVIDE AND SHALL BE RESPONSIBLE FOR EXTRA TEMPORARY AND/OR PERMANENT REPAIRS MADE NECESSARY BY THE WIDENED TRENCH.
25. ALL ROAD AND PARKING LOT CATCH BASINS TO BE INSTALLED WITH ORTHOGONALLY PLACED SUBDRAINS IN ACCORDANCE WITH DETAIL. PERFORATED SUBDRAIN FOR ROAD AND PARKING LOT CATCH BASIN SHALL BE INSTALLED PER CITY STD R1 UNLESS OTHERWISE NOTED.
26. PERFORATED SUBDRAIN FOR REAR YARD AND LANDSCAPING APPLICATIONS SHALL BE INSTALLED PER CITY STD S29, S30 AND S31, WHERE APPLICABLE.
27. RIP-RAP TREATMENT SEWER AND CULVERT OUTLETS PER OPSD 810.010.
28. ALL STORM SEWER/ CULVERTS TO BE INSTALLED WITH FROST TREATMENT PER OPSD 803.031 WHERE APPLICABLE.
29. ALL STORM MANHOLES WITH PIPE LESS THAN 900MM IN DIAMETER SHALL BE CONSTRUCTED WITH A 300MM SUMP AS PER SDG, CLAUSE 6.2.6.

WATERMAIN

30. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
31. ALL PVC WATERMAINS SHALL BE AWWA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.
32. ALL WATER SERVICES LESS THAN OR EQUAL TO 50MM IN DIAMETER TO BE TYPE 'K' COPPER.
33. WATERMAIN TRENCH AND BEDDING SHALL BE IN ACCORDANCE WITH CITY OF OTTAWA STANDARD W17. UNLESS SPECIFIED OTHERWISE. BEDDING AND COVER MATERIAL SHALL BE SPECIFIED BY THE PROJECT GEOTECHNICAL ENGINEER.
34. ALL PVC WATERMAINS, SHALL BE INSTALLED WITH A 10 GAUGE STRANDED COPPER TWU OR RWU TRACER WIRE IN ACCORDANCE WITH CITY OF OTTAWA STD. W.36.
35. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD.25.5 AND W25.6.
36. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD W24.
37. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD.25.5 AND W25.6.
38. THRUST BLOCKING OF WATERMAINS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.
39. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
40. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. W25,2 AND W25, RESPECTIVELY.
41. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN 2.4M.
42. THE MINIMUM VERTICAL CLEARANCE BETWEEN WATERMAIN AND SEWER/UTILITY IS 0.5M PER MOE GUIDELINES. FOR CROSSING UNDER SEWERS, ADEQUATE STRUCTURAL SUPPORT FOR THE SEWER IS REQUIRED TO PREVENT EXCESSIVE DEFLECTION OF JOINTS AND SETTLING. THE LENGTH OF WATER PIPE SHALL BE CENTERED AT THE POINT OF CROSSING TO ENSURE THAT THE JOINTS WILL BE EQUIDISTANT AND AS FAR AS POSSIBLE FROM THE SEWER.
43. ALL WATERMAINS SHALL HAVE A MINIMUM COVER OR 2.4M, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD DWG W22.
44. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20.
45. FIRE HYDRANT INSTALLATION AS PER STD DWG W19, ALL BOTTOM OF HYDRANT FLANGE ELEVATIONS TO BE INSTALLED 0.10M ABOVE PROPOSED FINISHED GRADE AT HYDRANT; FIRE HYDRANT LOCATION AS PER STD DWG W18.
46. BUILDING SERVICE TO BE CAPPED 1.0M OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED AND MUST BE RESTRAINED A MINIMUM OF 12M BACK FROM STUB.
47. ALL WATERMAINS SHALL BE HYDROSTATICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES UNLESS OTHERWISE DIRECTED. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED.
48. ALL WATERMAINS SHALL BE BACTERIOLOGICALLY TESTED IN ACCORDANCE WITH THE CITY OF OTTAWA AND ONTARIO GUIDELINES. ALL CHLORINATED WATER TO BE DISCHARGED AND PRETREATED TO ACCEPTABLE LEVELS PRIOR TO DISCHARGE. ALL DISCHARGED WATER MUST BE CONTROLLED AND TREATED SO AS NOT TO ADVERSELY EFFECT ENVIRONMENT. IT IS RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
49. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50MM BLOW OFF UNLESS OTHERWISE NOTED.

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PROPOSED SILT FENCE BARRIER
AS PER OPSD 219.110

PROPOSED SILT FENCE BARRIER
AS PER OPSD 219,110

PROPOSED 3 STOREY
BUILDING
312.5m²
F.F.E. = 96.05
U.S.F. = VARIES
(91.12 TO 92.46)

PROPOSED SILT FENCE BARRIER
AS PER OPSD 219.130

PROPOSED 6.0m X 13.0m MUDMAT
AS PER DETAIL ON C901

PROPOSED SILT SACK IN EXISTING CATCH BASIN TO
BE FLEXSTORM CATCH-IT INLET SEDIMENT CONTROL
FILTER OR APPROVED EQUIVALENT & TO BE
INSPECTED/MAINTAINED DURING CONSTRUCTION

MANOTICK MAIN STREET

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB (DC)
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
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- EXISTING MANHOLE
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2m 0.5 0 2 4m

SCALE: 1:100

No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	M.L.	17 JAN 2025

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/01/17
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT

ABDULLA REAL ESTATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
M.L.	M.L.	M.B.

PROJECT

PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

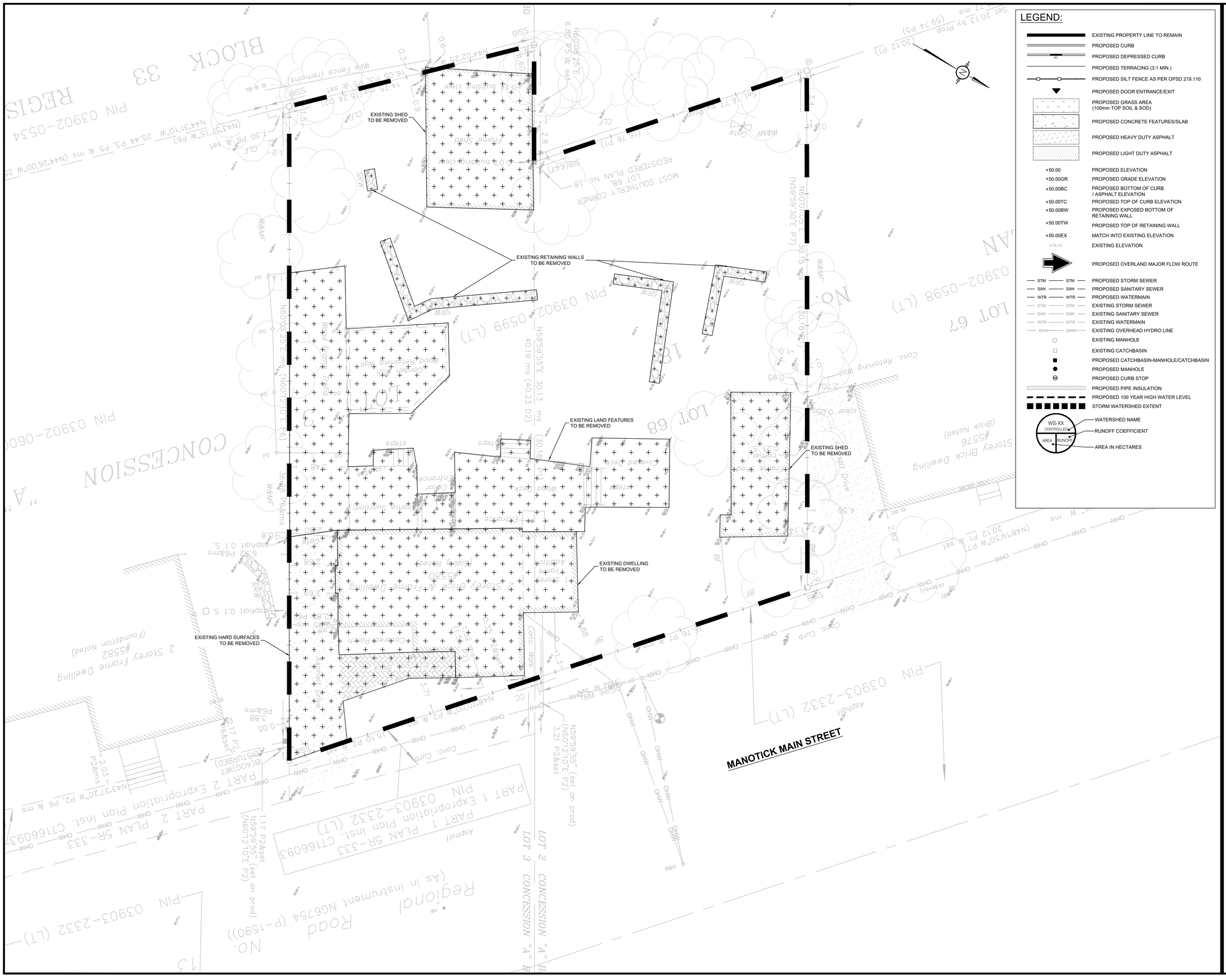
DRAWING TITLE

EROSION AND SEDIMENT
CONTROL PLAN

PROJECT NO.

230464

C101



LEGEND:

━━━	EXISTING PROPERTY LINE TO REMAIN
───	PROPOSED CURB
DC	PROPOSED DEPRESSED CURB
═══	PROPOSED TERRACING (3:1 MIN.)
─□─□─	PROPOSED SILT FENCE AS PER OPSD 219.110
▼	PROPOSED DOOR ENTRANCE/EXIT
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2m 0.5 0 2 4m

SCALE: 1:100

No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	M.L.	17 JAN 2025

M. BASNET
100501996
2025/1/17

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT
ABDULLA REAL ESTATE HOLDINGS INC.

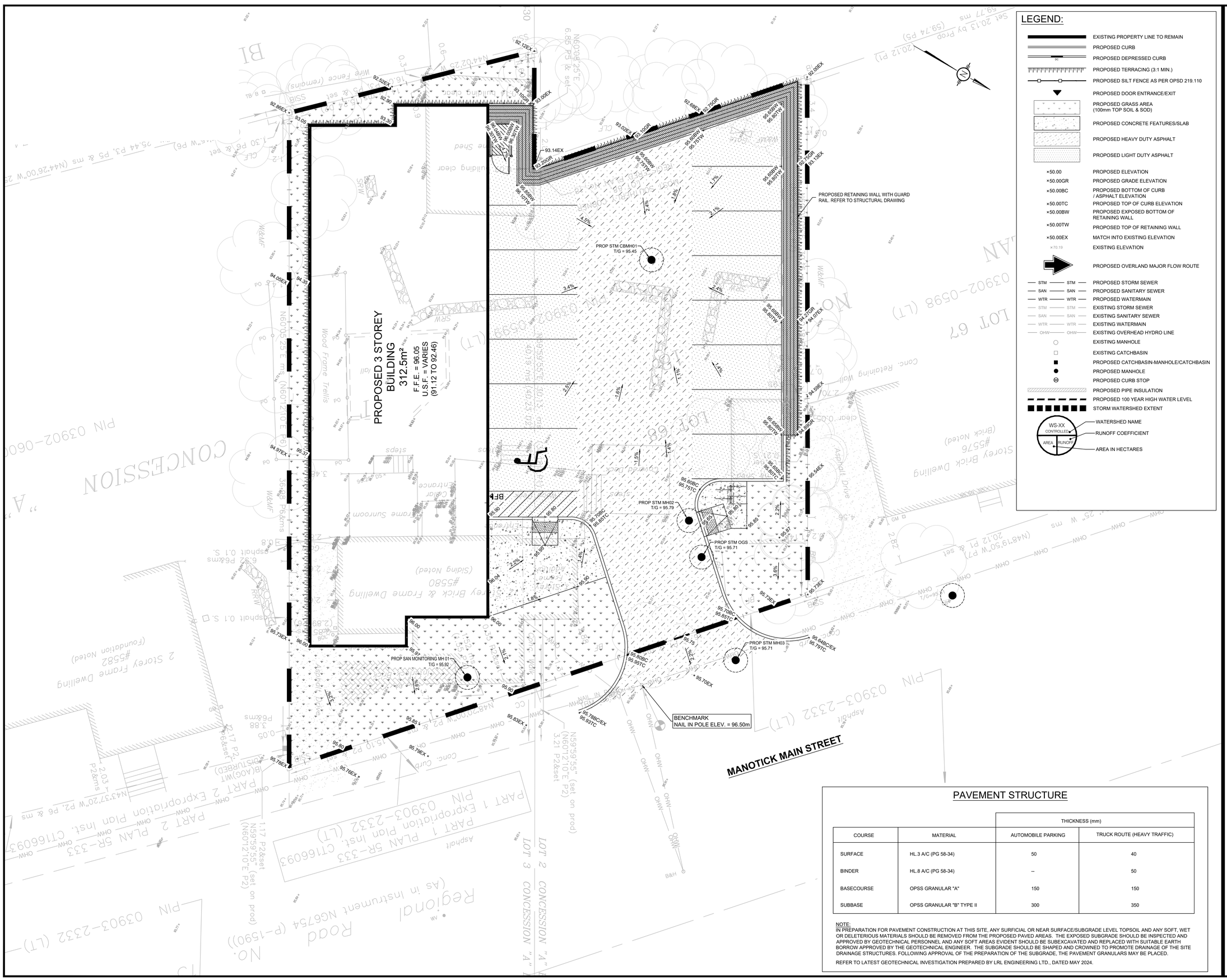
DESIGNED BY:	DRAWN BY:	APPROVED BY:
M.L.	M.L.	M.B.

PROJECT
PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

DRAWING TITLE
DEMOLITION PLAN

PROJECT NO.
230464

C102



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
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- PROPOSED SILT FENCE AS PER OPSD 219.110
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PAVEMENT STRUCTURE

COURSE	MATERIAL	THICKNESS (mm) AUTOMOBILE PARKING	THICKNESS (mm) TRUCK ROUTE (HEAVY TRAFFIC)
SURFACE	HL.3 A/C (PG 58-34)	50	40
BINDER	HL.8 A/C (PG 58-34)	--	50
BASECOURSE	OPSS GRANULAR "A"	150	150
SUBBASE	OPSS GRANULAR "B" TYPE II	300	350

NOTE:
IN PREPARATION FOR PAVEMENT CONSTRUCTION AT THIS SITE, ANY SURFICIAL OR NEAR SURFACE/SUBGRADE LEVEL TOPSOIL AND ANY SOFT, WET OR DELETERIOUS 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 SUBEXCAVATED AND REPLACED WITH SUITABLE EARTH BORROW APPROVED BY THE GEOTECHNICAL ENGINEER. THE SUBGRADE SHOULD BE SHAPED AND CROWNED TO PROMOTE DRAINAGE OF THE SITE DRAINAGE STRUCTURES. FOLLOWING APPROVAL OF THE PREPARATION OF THE SUBGRADE, THE PAVEMENT GRANULARS MAY BE PLACED.

REFER TO LATEST GEOTECHNICAL INVESTIGATION PREPARED BY LRL ENGINEERING LTD., DATED MAY 2024.

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2m 0.5 0 2 4m
SCALE: 1:100

No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	M.L.	17 JAN 2025

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/01/17
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT
ABDULLA REAL ESTATE HOLDINGS INC.

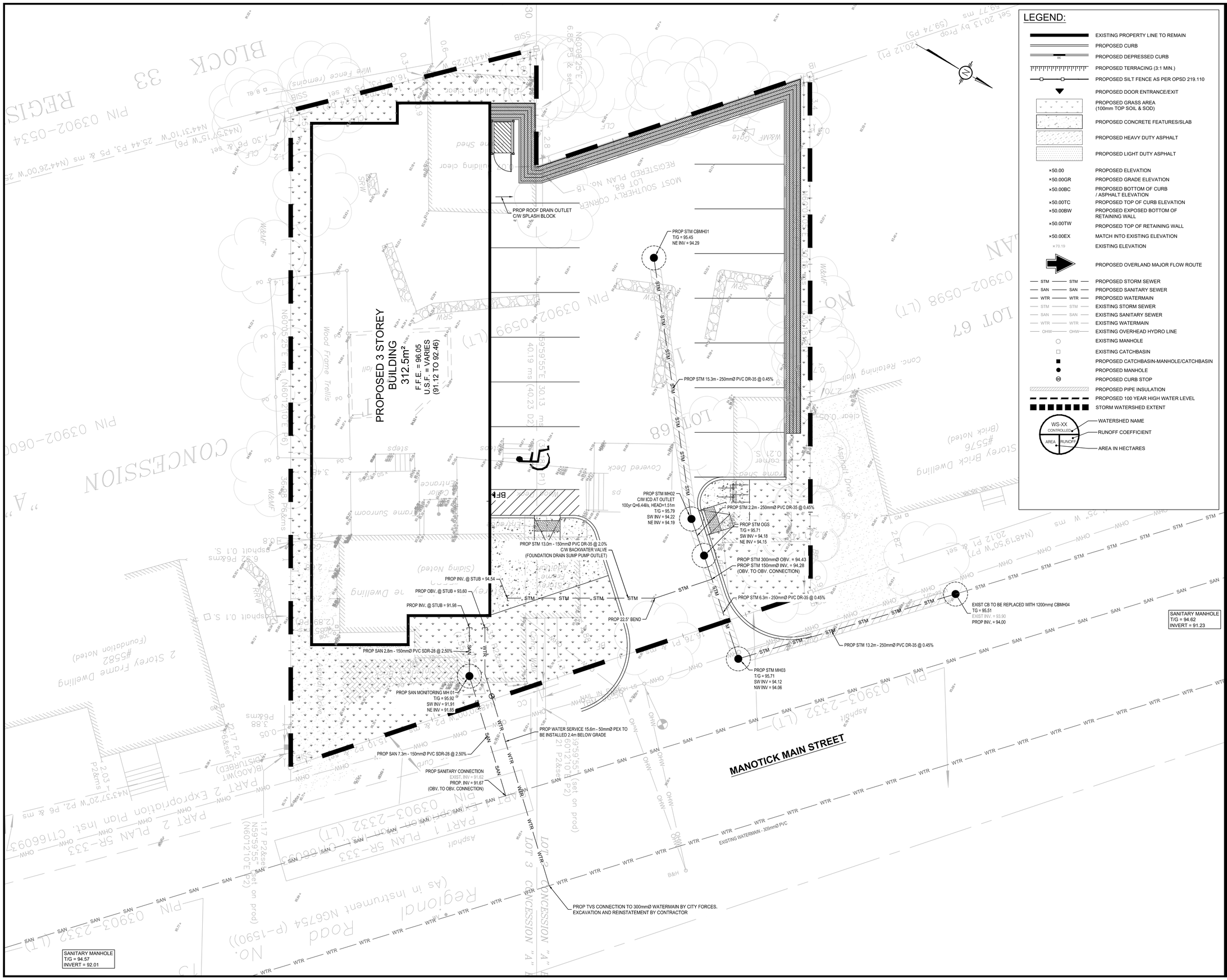
DESIGNED BY:	DRAWN BY:	APPROVED BY:
M.L.	M.L.	M.B.

PROJECT
PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT NO.
230464

C301



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01	ISSUED FOR APPROVAL	M.L.	17 JAN 2025

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/01/17
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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CLIENT

ABDULLA REAL ESTATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
M.L.	M.L.	M.B.

PROJECT

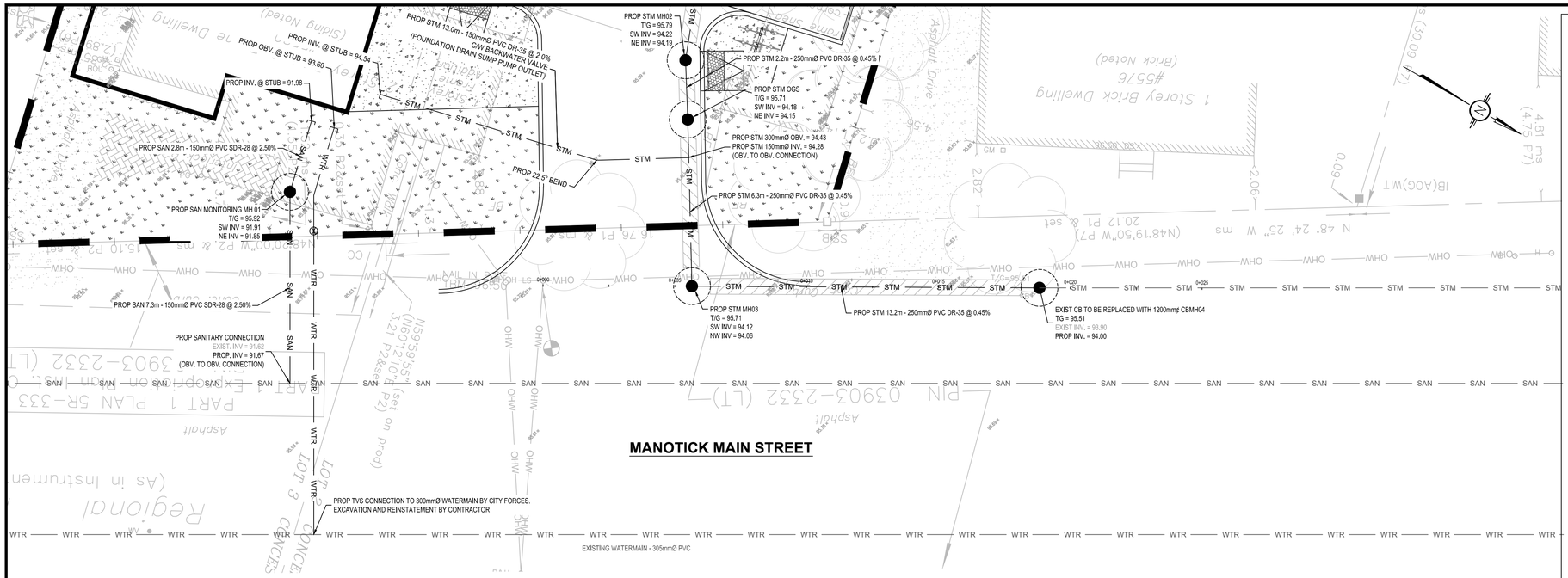
PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

DRAWING TITLE

SERVICING PLAN

PROJECT NO.

230464 C401



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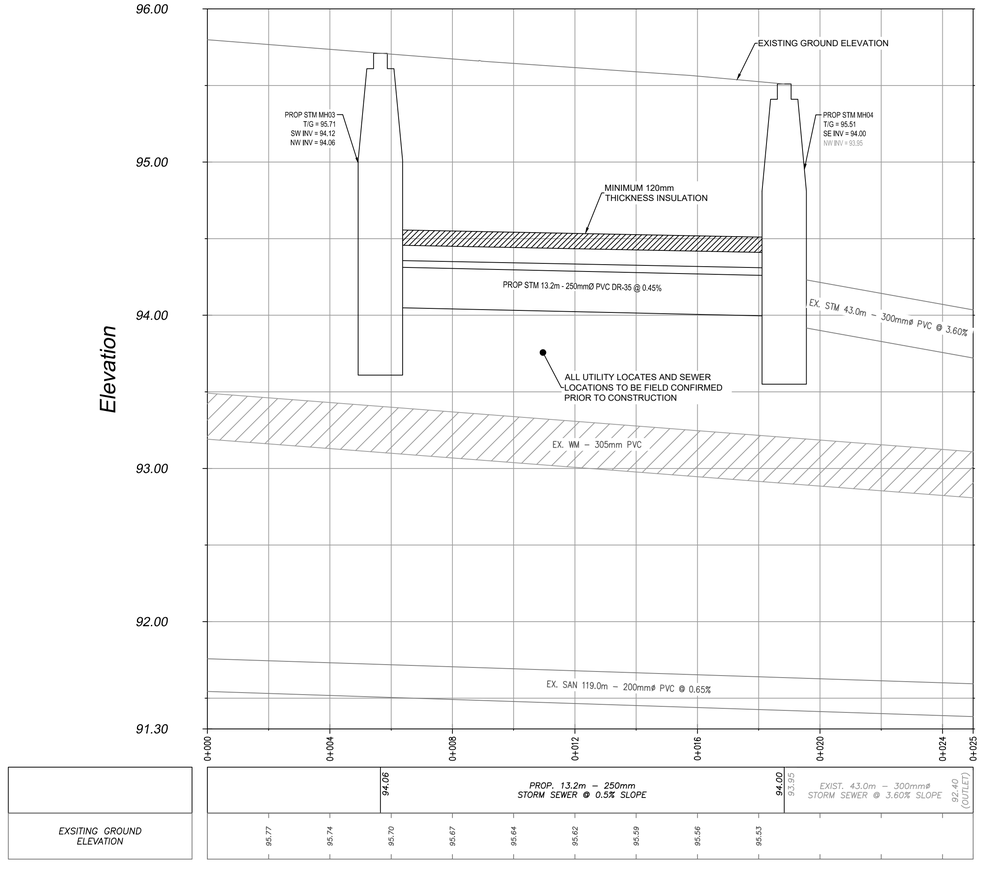
MANOTICK MAIN STREET - STORM EXTENSION



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LICENSED PROFESSIONAL ENGINEER
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PROVINCE OF ONTARIO

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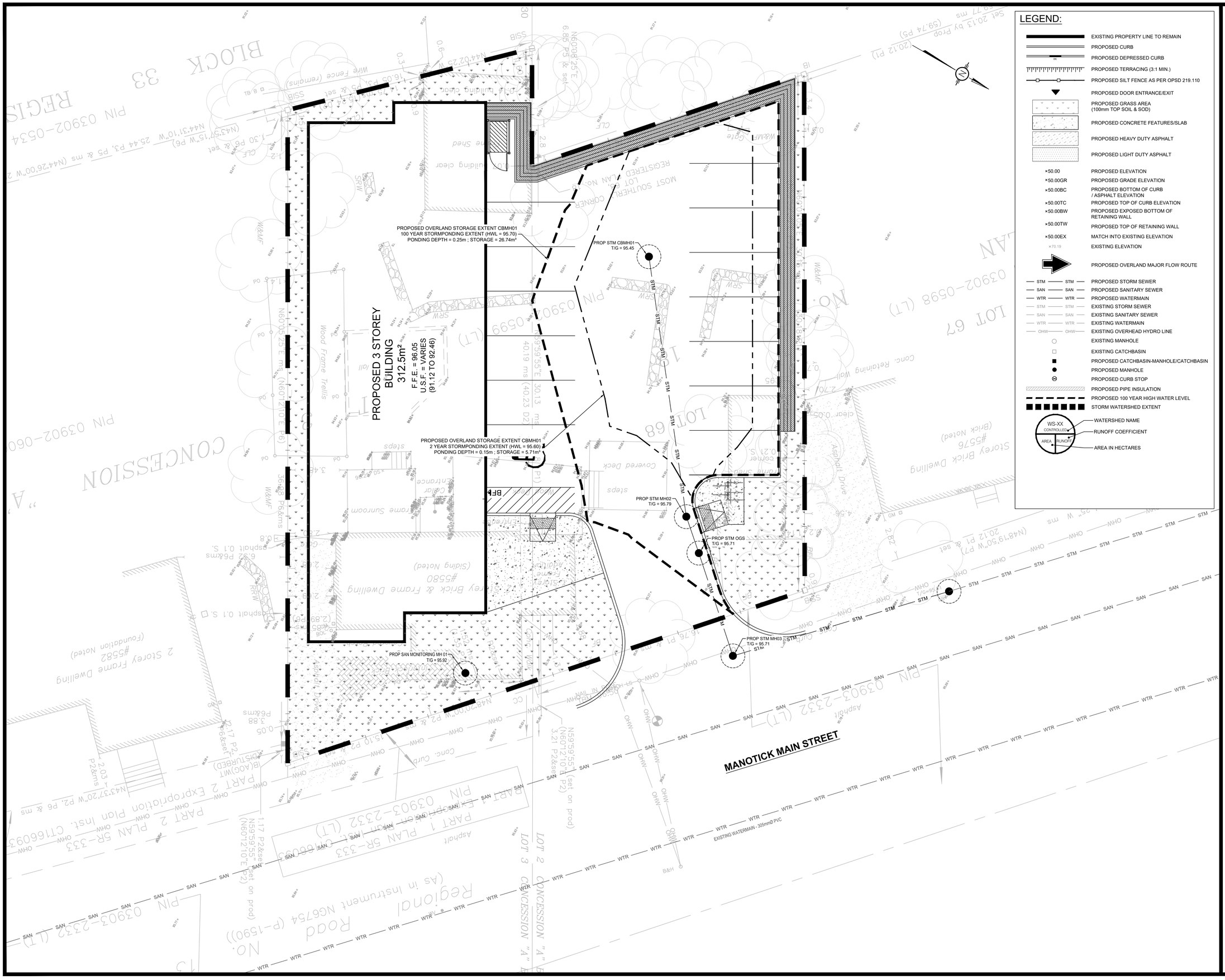
230464

C501



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2m 0.5 0 2 4m

SCALE: 1:100

No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	M.L.	17 JAN 2025

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/01/17
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT

ABDULLA REAL ESTATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
M.L.	M.L.	M.B.

PROJECT

PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

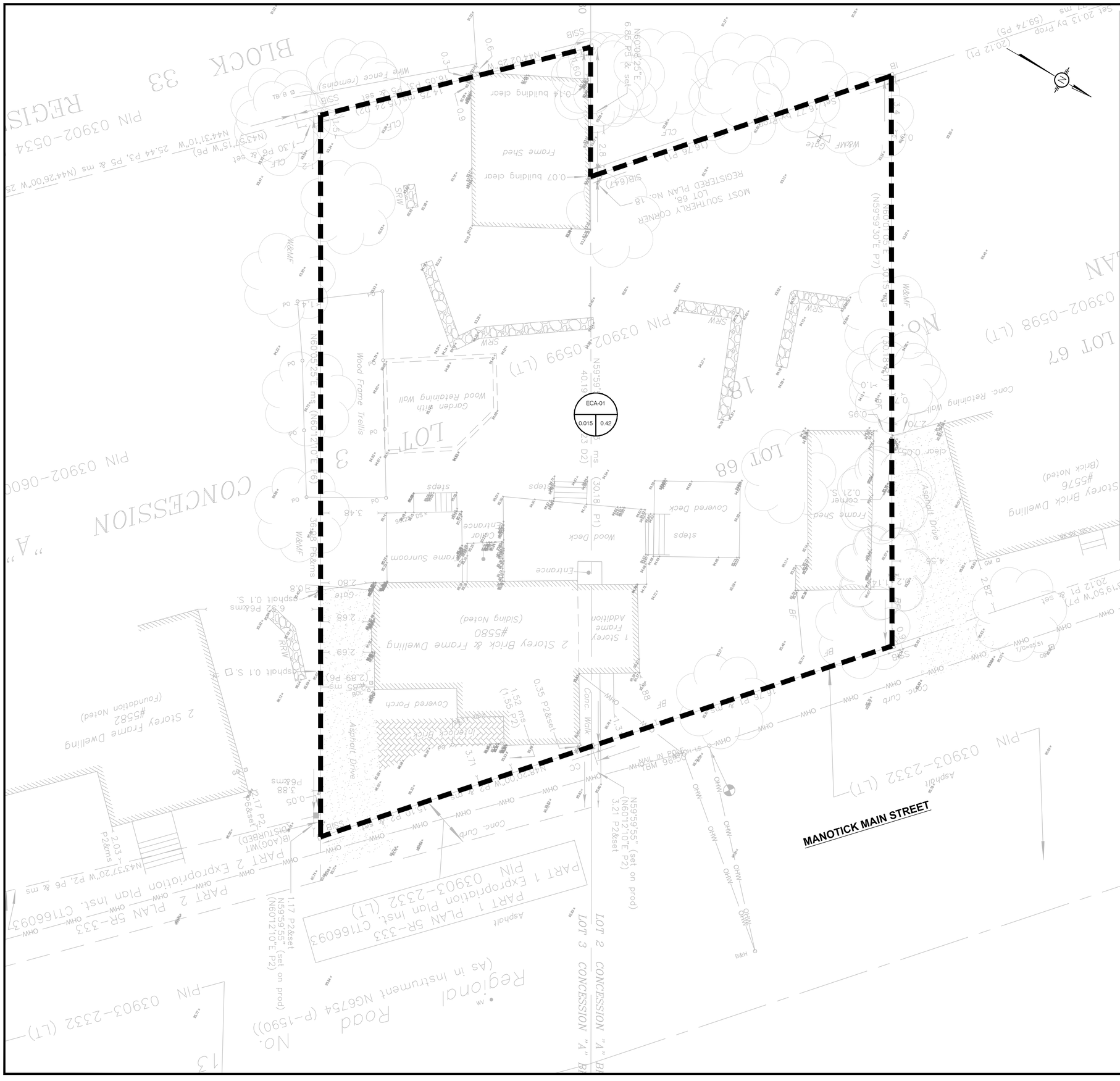
DRAWING TITLE

STORMWATER MANAGEMENT PLAN

PROJECT NO.

230464

C601



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
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- ×50.00EX MATCH INTO EXISTING ELEVATION
- ×70.19 EXISTING ELEVATION
- PROPOSED OVERLAND MAJOR FLOW ROUTE
- STM STM PROPOSED STORM SEWER
- SAN SAN PROPOSED SANITARY SEWER
- WTR WTR PROPOSED WATERMAIN
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- EXISTING MANHOLE
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT

WS-XX (CONTROLLED) — AREA | RUNOFF

- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

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LICENSED PROFESSIONAL ENGINEER — M. BASNET 100501996 — 2025/01/17 — PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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CLIENT

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PROJECT

PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

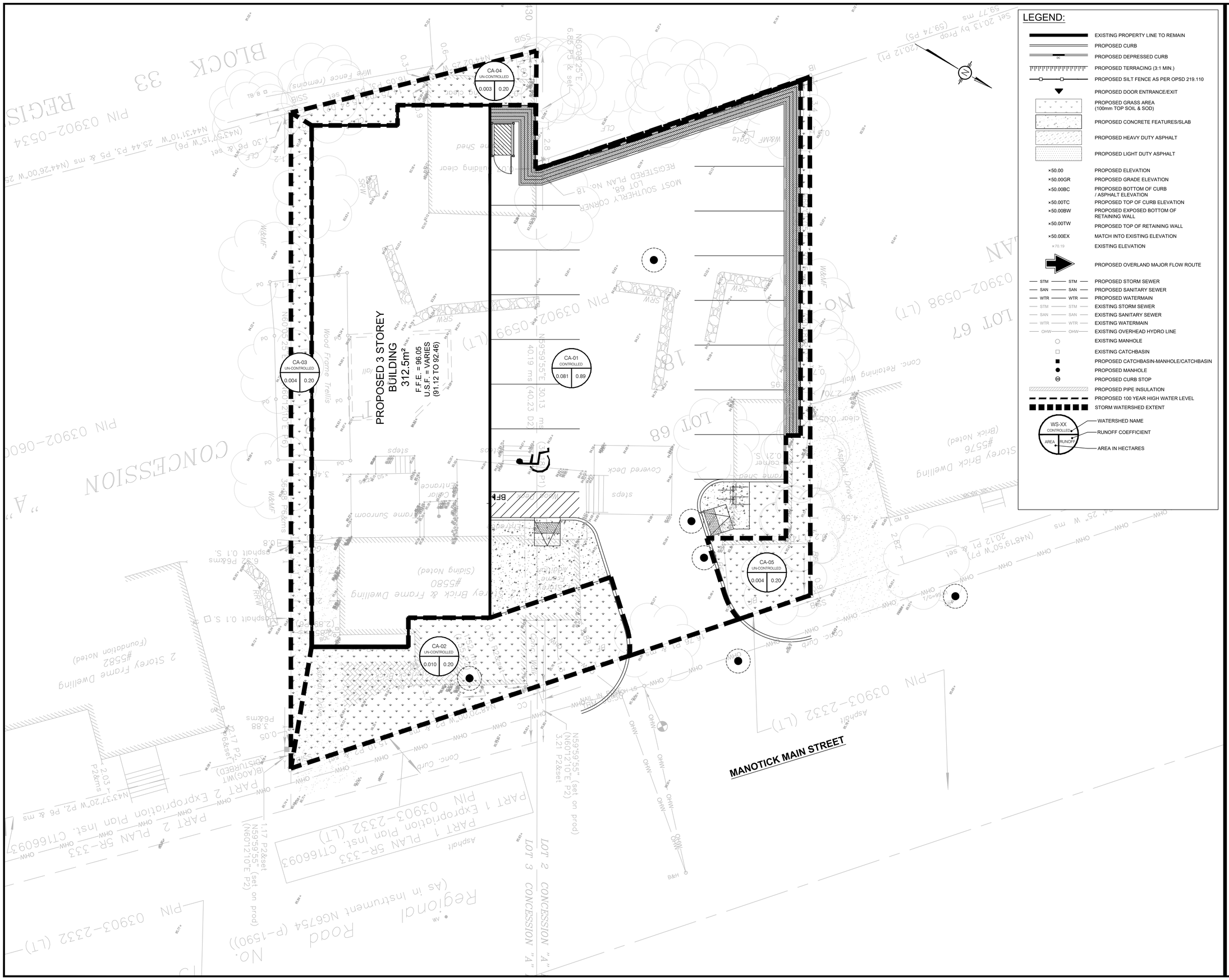
DRAWING TITLE

PRE-DEVELOPMENT
WATERSHED PLAN

PROJECT NO.

230464

C701



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LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/1/17
PROVINCE OF ONTARIO

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CLIENT
ABDULLA REAL ESTATE HOLDINGS INC.

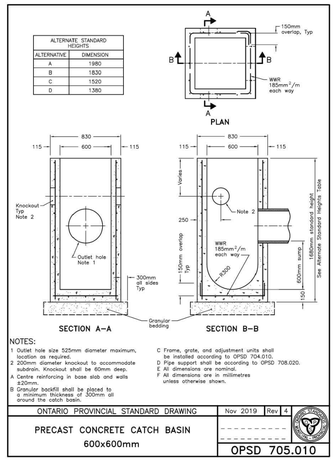
DESIGNED BY:	DRAWN BY:	APPROVED BY:
M.L.	M.L.	M.B.

PROJECT
PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

DRAWING TITLE
POST-DEVELOPMENT
WATERSHED PLAN

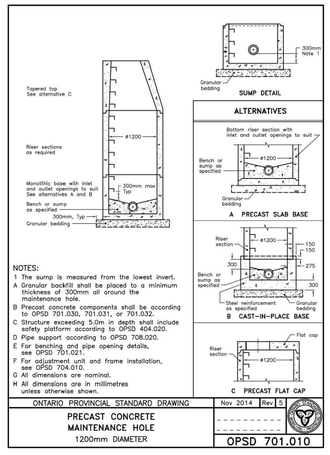
PROJECT NO.
230464

C702



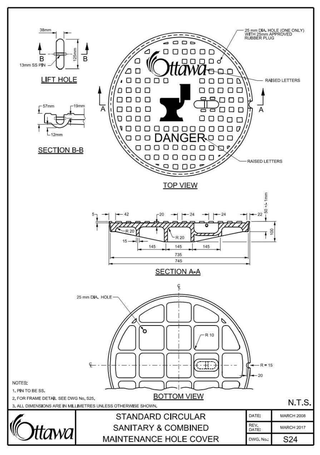
NOTES:
1 Outlet hole size 525mm diameter maximum, location as required.
2 200mm diameter knockout to accommodate subdrain. Knockout shall be 60mm deep.
A Centre reinforcing in base slab and walls unless otherwise shown.
B Granular backfill shall be placed to a minimum thickness of 300mm all around the catch basin.
C Frame, grate, and adjustment units shall be installed according to OPSD 704.010.
D Pipe support shall be according to OPSD 708.020.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2019	Rev 4
PRECAST CONCRETE CATCH BASIN 600x600mm		OPSD 705.010



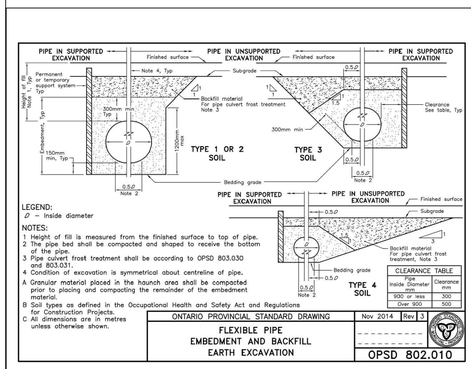
NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform according to OPSD 404.020.
D Pipe support according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER		OPSD 701.010



NOTE:
1. PIN TO BE SS.
2. FOR FRAME DETAIL SEE DWG No. S25.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

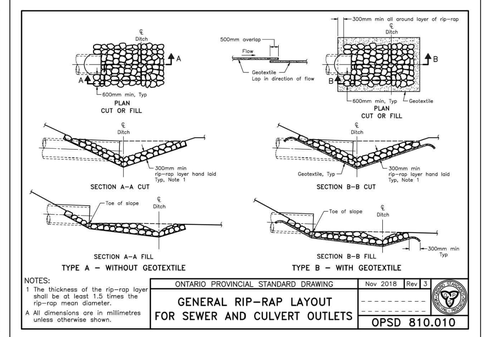
STANDARD CIRCULAR SANITARY & COMBINED MAINTENANCE HOLE COVER	DATE:	MARCH 2008
	REVISED:	MARCH 2017
	DWG. No.:	S24



LEGEND:
Ø – Inside diameter

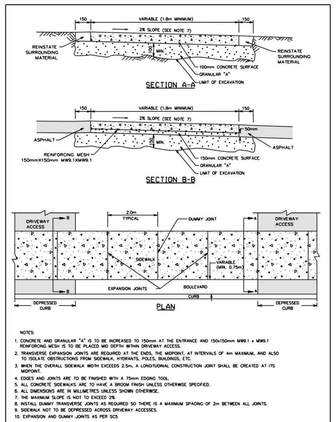
NOTES:
1 Height of fill is measured from the finished surface to top of pipe.
2 The pipe bed shall be compacted and shaped to receive the bottom of the pipe.
3 Pipe culvert frost treatment shall be according to OPSD 803.030 and 803.031.
4 Condition of excavation is symmetrical about centreline of pipe.
A Granular material placed in the haunch area shall be compacted prior to placing and compacting the remainder of the embedment material.
B Soil types as defined in the Occupational Health and Safety Act and Regulations for Construction Projects.
C All dimensions are in metres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 3
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION		OPSD 802.010



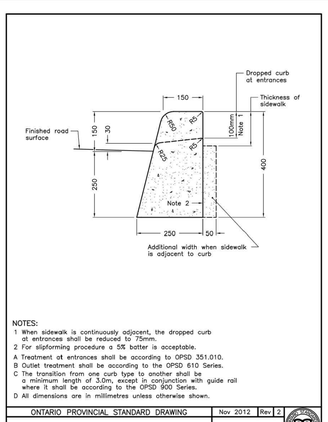
NOTES:
1 The thickness of the rip–rap layer shall be at least 1.5 times the rip–rap mean diameter.
A All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2018	Rev 3
GENERAL RIP–RAP LAYOUT FOR SEWER AND CULVERT OUTLETS		OPSD 810.010



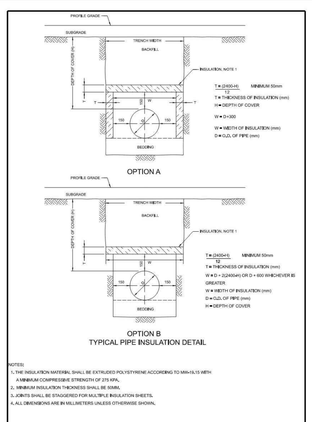
NOTES:
1. CONCRETE AND GRANULAR "A" IS TO BE INCREASED TO 150mm AT THE ENTRANCE AND 150x150mm WWR.1 x WWR.1 REINFORCING MESH IS TO BE PLACED MID DEPTH WITHIN DRIVEWAY ACCESS.
2. TRANSVERSE EXPANSION JOINTS ARE REQUIRED AT THE ENDS, THE MIDPOINT, AT INTERVALS OF 4m MAXIMUM, AND ALSO TO ISOLATE OBSTRUCTIONS FROM SIDEWALK, HYDRANTS, POLES, BUILDINGS, ETC.
3. WHEN THE OVERALL SIDEWALK WIDTH EXCEEDS 2.5m, A LONGITUDINAL CONSTRUCTION JOINT SHALL BE CREATED AT ITS MIDPOINT.
4. EDGES AND JOINTS ARE TO BE FINISHED WITH A 75mm EDGING TOOL.
5. ALL CONCRETE SIDEWALKS ARE TO HAVE A BROOM FINISH UNLESS OTHERWISE SPECIFIED.
6. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
7. THE MAXIMUM SLOPE IS NOT TO EXCEED 2%.
8. INSTALL DUMMY TRANSVERSE JOINTS AS REQUIRED SO THERE IS A MINIMUM SPACING OF 2m BETWEEN ALL JOINTS.
9. SIDEWALK NOT TO BE DEPRESSED ACROSS DRIVEWAY ACCESSES.
10. EXPANSION AND DUMMY JOINTS AS PER SC5

TYPICAL CONCRETE SIDEWALK IN BOULEVARD	DATE:	MAY 2001
	REVISED:	MARCH 2016
	DWG No.:	SC4



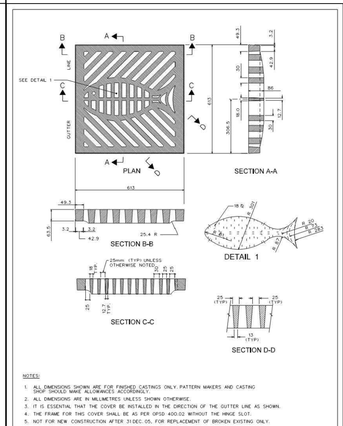
NOTES:
1 When sidewalk is continuously adjacent, the dropped curb at entrances shall be reduced to 75mm.
2 For slipforming procedure a 5% batter is acceptable.
A Treatment at entrances shall be according to OPSD 351.010.
B Outlet treatment shall be according to the OPSD 610 Series.
C The transition from one curb type to another shall be a minimum length of 3.0m, except in conjunction with guide rail where it shall be according to the OPSD 900 Series.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2012	Rev 2
CONCRETE BARRIER CURB		OPSD 600.110



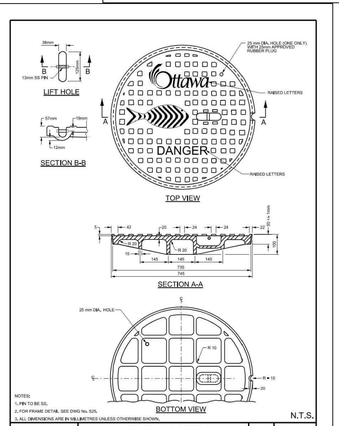
NOTES:
1. THE INSULATION MATERIAL SHALL BE EXTRUDED POLYSTYRENE ACCORDING TO MMA-IS.15 WITH A MINIMUM COMPRESSIVE STRENGTH OF 275 KPa.
2. MINIMUM INSULATION THICKNESS SHALL BE 50MM.
3. JOINTS SHALL BE STAGGERED FOR MULTIPLE INSULATION SHEETS.
4. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SHOWN.

INSULATION FOR SHALLOW SEWERS	DATE:	MARCH 2003
	REVISED:	
	DWG No.:	S35



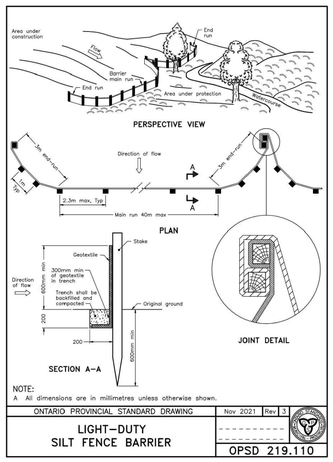
NOTES:
1. ALL DIMENSIONS SHOWN ARE FOR FINISHED CASTINGS ONLY. PATTERN MAKERS AND CASTING SHOP SHOULD MAKE ALLOWANCES ACCORDINGLY.
2. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS SHOWN OTHERWISE.
3. IT IS ESSENTIAL THAT THE COVER BE INSTALLED IN THE DIRECTION OF THE GUTTER LINE AS SHOWN.
4. THE FRAME FOR THIS COVER SHALL BE AS PER OPSD 400.02 WITHOUT THE HINGE SLOT.
5. NOT FOR NEW CONSTRUCTION AFTER 31DEC.05, FOR REPLACEMENT OF BROKEN EXISTING ONLY.

HEAVY DUTY "FISH" TYPE SQUARE CATCH BASIN COVER	DATE:	MARCH 2005
	REVISED:	
	DWG No.:	S19.1



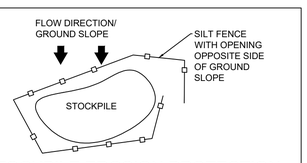
NOTES:
1. PIN TO BE SS.
2. FOR FRAME DETAIL SEE DWG No. S25.
3. ALL DIMENSIONS ARE IN MILLIMETRES UNLESS OTHERWISE SHOWN.

STANDARD CIRCULAR STORM MAINTENANCE HOLE COVER	DATE:	MARCH 2010
	REVISED:	MARCH 2017
	DWG No.:	S24.1

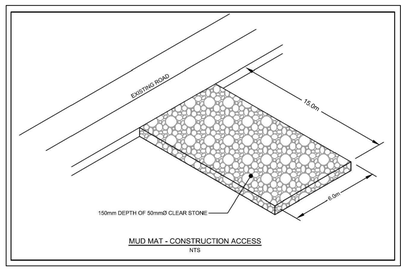


NOTE:
A All dimensions are in millimetres unless otherwise shown.

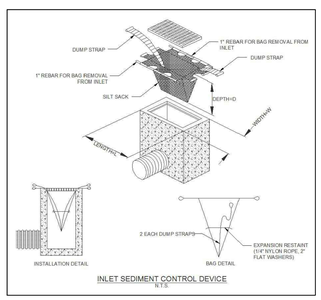
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2021	Rev 3
LIGHT–DUTY SILT FENCE BARRIER		OPSD 219.110



STOCKPILE EROSION PROTECTION
N.T.S.



MUD MAT - CONSTRUCTION ACCESS
NTS



INLET SEDIMENT CONTROL DEVICE
N.T.S.

USE AND INTERPRETATION OF DRAWINGS

GENERAL CONDITIONS OF THE CONTRACT FOR CONSTRUCTION ARE PART OF THE CONTRACT DOCUMENTS AND DESCRIBE USE AND INTENT OF THE DRAWING. THE CONTRACT DOCUMENTS INCLUDE NOT ONLY THE DRAWINGS, BUT ALSO THE OWNER-CONTRACTOR AGREEMENTS, CONDITIONS OF THE CONTRACT, THE SPECIFICATIONS, ADDENDA, AND MODIFICATIONS ISSUED AFTER EXECUTION OF THE CONTRACT. THESE CONTRACT DOCUMENTS ARE COMPLEMENTARY, AND WHAT IS REQUIRED BY ANY ONE SHALL BE BINDING AS IF REQUIRED BY ALL. WORK NOT COMPLETELY DELINEATED HEREON SHALL BE CONSTRUCTED OF THE SAME MATERIALS AND DETAILED SIMILARLY AS WORK SHOWN MORE COMPLETELY ELSEWHERE IN THE CONTRACT DOCUMENTS.

BY USE OF THE DRAWINGS FOR CONSTRUCTION OF THE PROJECT, THE OWNER CONFIRMS THAT HE HAS REVIEWED AND APPROVED THE DRAWINGS. THE CONTRACTOR CONFIRMS THAT HE HAS VISITED THE SITE, FAMILIARIZED HIMSELF WITH THE LOCAL CONDITIONS, VERIFIED FIELD DIMENSIONS AND CORRELATED HIS OBSERVATIONS WITH THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

AS INSTRUMENTS OF SERVICE, ALL DRAWINGS, SPECIFICATIONS, CADD FILES OR OTHER ELECTRONIC MEDIA AND COPIED THERE OF FURNISHED BY THE ENGINEER ARE HIS PROPERTY. THEY ARE TO BE USED ONLY FOR THIS PROJECT AND ARE NOT TO BE USED ON ANY OTHER PROJECT, INCLUDING REPEATS OF THE PROJECT, CHANGES TO THE DRAWINGS MAY ONLY BE MADE BY THE ENGINEER.

UNLESS THE REVISION TITLE IS "ISSUED FOR CONSTRUCTION", THESE DRAWINGS SHALL BE CONSIDERED PRELIMINARY AND SHALL NOT BE USED AS A CONSTRUCTION DOCUMENT.

THESE DRAWINGS ILLUSTRATES THE WORK TO BE DONE. THE ENGINEER IS NOT RESPONSIBLE FOR THE MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES USED TO DO THE WORK, OR THE SAFETY ASPECTS OF CONSTRUCTION, AND NOTHING ON THESE DRAWINGS EXPRESSED OR IMPLIED CHANGES THIS CONDITION. CONTRACTOR SHALL DETERMINE ALL CONDITIONS AT THE SITE AND SHALL BE RESPONSIBLE FOR KNOWING HOW THEY AFFECT THE WORK. SUBMITTAL OF A BID TO PERFORM THIS WORK IS ACKNOWLEDGEMENT OF THE RESPONSIBILITIES, AND THAT THEY HAVE BEEN FULLY CONSIDERED IN PLANNING OF THE WORK, AND THE BID PRICE. NO CLAIMS FOR EXTRA CHARGES DUE TO THESE CONDITIONS WILL BE FORTHCOMING.

UNAUTHORIZED CHANGES:

IN THE EVENT THE CLIENT, THE CLIENT'S CONTRACTORS OR SUBCONTRACTORS, OR ANYONE FOR WHOM THE CLIENT IS LEGALLY LIABLE MAKES OR PERMITS TO BE MADE ANY CHANGES TO ANY REPORTS, PLANS, SPECIFICATIONS OR OTHER CONSTRUCTION DOCUMENTS PREPARED BY LRL ASSOCIATES LTD. (LRL) WITHOUT OBTAINING LRL'S PRIOR WRITTEN CONSENT, THE CLIENT SHALL ASSUME FULL RESPONSIBILITY FOR THE RESULTS OF SUCH CHANGES. THEREFORE THE CLIENT AGREES TO WAIVE ANY CLAIM AGAINST LRL AND TO RELEASE LRL FROM ANY LIABILITY ARISING DIRECTLY OR INDIRECTLY FROM SUCH UNAUTHORIZED CHANGES.

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.

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:

EXISTING SERVICES AND UTILITIES SHOWN ON THESE DRAWINGS ARE TAKEN FROM THE BEST AVAILABLE RECORDS, BUT MAY NOT BE COMPLETE OR TO DATE. CONTRACTOR SHALL VERIFY IN FIELD FOR LOCATION AND ELEVATION OF PIPES AND CHECK WITH THE UTILITY COMPANIES BEFORE DIGGING OR PERFORMING WORK.

CONTRACTOR IS ADVISED TO COLLECT INFORMATION ON SOIL CONDITIONS BEFORE START OF CONSTRUCTION.

THE ENGINEER WAIVES ANY AND ALL RESPONSIBILITY AND LIABILITY FOR PROBLEMS WHICH ARISE FROM FAILURE TO FOLLOW THESE PLANS, SPECIFICATIONS AND THE DESIGN INTENT THEY CONVEY, OR FOR PROBLEMS WHICH ARISE FROM OTHERS' FAILURE TO OBTAIN AND/OR FOLLOW THE ENGINEER'S GUIDANCE WITH RESPECT TO ANY ERRORS, OMISSIONS, INCONSISTENCIES AMBIGUITIES OR CONFLICTS WHICH ARE ALLEGED.

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

No.	REVISIONS	BY	DATE
01	ISSUED FOR APPROVAL	M.L.	17 JAN 2025

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2025/01/17
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT
ABDULLA REAL ESTATE HOLDINGS INC.

DESIGNED BY:	DRAWN BY:	APPROVED BY:
M.L.	M.L.	M.B.

PROJECT
PROPOSED MULTI-USE BUILDING
5580 MANOTICK MAIN ST
OTTAWA, ON

DRAWING TITLE
CONSTRUCTION DETAIL PLAN

PROJECT NO.
230464

C901

DRAWINGS/FIGURES

Proposed Site Plan
Legal Survey
As-builts

LEGEND AND NOTES

□	DENOTES	MONUMENT PLANTED	H	DENOTES	HYDRO POLE
■	"	MONUMENT FOUND	B	"	BELL POLE
SIB	"	STANDARD IRON BAR	B&H	"	BELL & HYDRO POLE
SSIB	"	SHORT STANDARD IRON BAR	LS	"	LAMP STANDARD
IB	"	IRON BAR	OHW	"	OVERHEAD WIRES
CP	"	CONCRETE PIN	CONC.	"	CONCRETE
CC	"	CUT CROSS IN CONCRETE WALK	CLF	"	CHAIN LINK FENCE
ORP	"	OBSERVED REFERNCE POINT	BF	"	BOARD FENCE
WIT	"	WITNESS	W&MF	"	WOOD & SHEET METAL FENCE
ms	"	MEASURED	SRW	"	STONE RETAINING WALL
By Prop	"	SET BY PROPORTION	CB	"	CATCH BASIN
SRPR	"	SURVEYOR'S REAL PROPERTY REPORT	MHSAN	"	SANITARY MAINTENANCE HOLE
P1	"	REGISTERED PLAN No. 18	T/G	"	TOP OF GRATE OR LID ELEVATION
P2	"	EXPROPRIATION PLAN INSTRUMENT CT166093	TB B	"	TERMINAL BOX – BELL CANADA
P3	"	REGISTERED PLAN 4M–430	GM	"	GAS METER
P4	"	PLAN 5R–7460	BOL	"	BOLLARD
P5	"	PLAN 4R–17552	AC	"	GROUND MOUNTED AIR CONDITIONER
P6	"	SRPR DATED SEPTEMBER 16, 2011 BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. (FILE 12370–11)	DS PO	" "	DOOR SILL ELEVATION WOOD POST OR SUPPORT COLUMN
P7	"	SRPR DATED MARCH 30, 2017 BY ANNIS, O'SULLIVAN, VOLLEBEKK LTD. (FILE 19442–17)	TBM N.T.S.	" "	TEMPORARY BENCHMARK NOT TO SCALE
DI	"	INSTRUMENT N584765.			
D2	"	INSTRUMENT N720533			
647	"	H.R. FARLEY O.L.S.			
889	"	W.H. MOFFATT O.L.S.			
1175	"	H.A.K. SHIPMAN O.L.S.			
AOG	"	ANNIS, O'SULLIVAN, VOLLEBEKK LTD.			
OU	"	ORIGIN UNKNOWN			

DISTANCES:

DISTANCES SHOWN ON THIS PLAN ARE GROUND DISTANCES AND CAN BE USED TO COMPUTE GRID DISTANCES BY MULTIPLYING BY A COMBINED SCALE FACTOR OF 0.999941

BEARINGS:

BEARINGS ARE MTM GRID BEARINGS, DERIVED BY REAL TIME NETWORK GNSS OBSERVATIONS ON OBSERVED REFERENCE POINTS 'A' AND 'B' SHOWN HEREON, AND ARE REFERRED TO THE NAD83 ORIGINAL MTM ZONE 9 COORDINATE SYSTEM.

BEARING ROTATION:

FOR THE PURPOSE OF COMPARISON, ASTRONOMIC BEARINGS HAVE BEEN ROTATED AS FOLLOWS:

PLAN	ROTATION	DIRECTION
(p2 & p6)	00°30'00"	COUNTER–CLOCKWISE
(p3, p4 & p5)	00°35'25"	COUNTER–CLOCKWISE

ELEVATIONS:

ELEVATIONS ARE CANADA GEODETIC VERTICAL DATUM 28/78 DERIVED BY REAL TIME NETWORK GPS OBSERVATIONS REFERENCED TO THE CANADA HT_2 GEOID MODEL.

THE CONTOUR INTERVAL IS 0.25 METRES.

CAUTION:

THE LOCATION AND CONFIGURATION OF UNDERGROUND SERVICES AND UTILITIES IS NOT WITHIN THE SCOPE OF THIS SURVEY. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VERIFY THE CONFIGURATION AND LOCATION OF UNDERGROUND SERVICES AT THE SITE PRIOR TO CONSTRUCTION.

SURVEYOR'S CERTIFICATE

I CERTIFY THAT:

1. THIS SURVEY AND PLAN ARE CORRECT AND IN ACCORDANCE WITH THE SURVEYS ACT AND THE SURVEYORS ACT AND THE REGULATIONS MADE UNDER THEM.
2. THE SURVEY WAS COMPLETED ON THE 20th DAY OF DECEMBER, 2022.

JANUARY 6, 2023
DATE

John Gauthier
JOHN GAUTHIER
ONTARIO LAND SURVEYOR

THIS PLAN OF SURVEY RELATES TO AOLS PLAN SUBMISSION FORM NUMBER V–35837.

PLAN OF SURVEY WITH TOPOGRAPHY OF LOT 68 REGISTERED PLAN No. 18 AND PART OF LOT 3 CONCESSION "A" (BROKEN FRONT) GEOGRAPHIC TOWNSHIP OF NORTH GOWER CITY OF OTTAWA

McINTOSH PERRY SURVEYING INC.

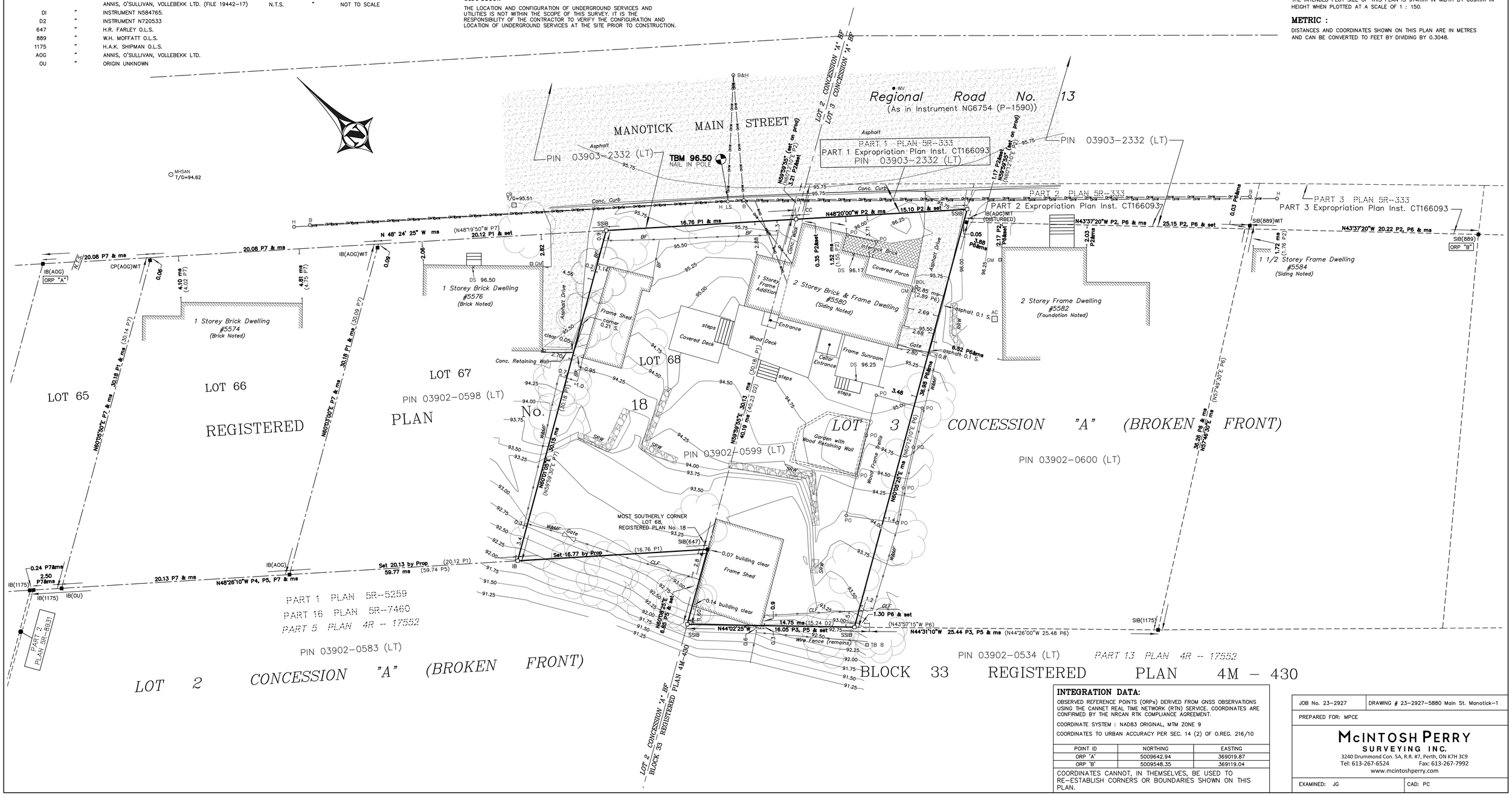
SCALE 1 : 150

0 2.5 5.0 7.5 10.0 12.5 15.0 Metres

THE INTENDED PLOT SIZE OF THIS PLAN IS 914mm IN WIDTH BY 609mm IN HEIGHT WHEN PLOTTED AT A SCALE OF 1 : 150.

METRIC :

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



INTEGRATION DATA:

OBSERVED REFERENCE POINTS (ORPs) DERIVED FROM GNSS OBSERVATIONS USING THE CANNET REAL TIME NETWORK (RTN) SERVICE. COORDINATES ARE CONFIRMED BY THE NRCAN RTK COMPLIANCE AGREEMENT.

COORDINATE SYSTEM : NAD83 ORIGINAL, MTM ZONE 9

COORDINATES TO URBAN ACCURACY PER SEC. 14 (2) OF O.REG. 216/10

POINT ID	NORTHING	EASTING
ORP 'A'	5009642.94	369019.87
ORP 'B'	5009548.35	369119.04

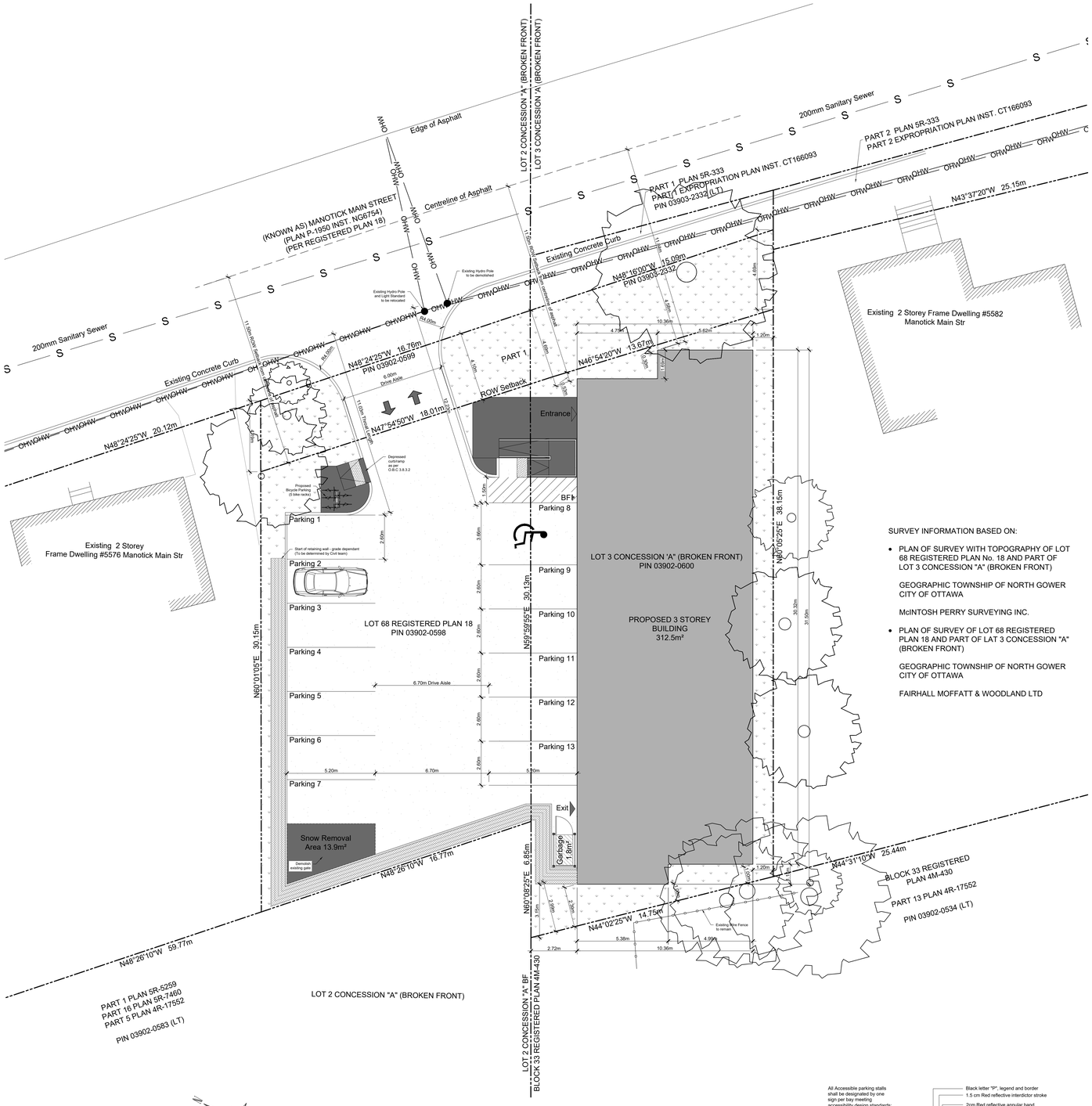
COORDINATES CANNOT, IN THEMSELVES, BE USED TO RE–ESTABLISH CORNERS OR BOUNDARIES SHOWN ON THIS PLAN.

JOB No. 23–2927
DRAWING # 23–2927–5880 Main St. Manotick–1

PREPARED FOR: MPCE

McINTOSH PERRY
SURVEYING INC.
3240 Drummond Con. 5A, R.R. #7, Perth, ON K7H 3C9
Tel: 613-267-6524 Fax: 613-267-7992
www.mcintoshperry.com

EXAMINED: JG
CAD: PC



1 / A0 SITE PLAN
SCALE: 1:100

SCALE BAR 1:100
0 5 10 15 20

SURVEY INFORMATION BASED ON:

- PLAN OF SURVEY WITH TOPOGRAPHY OF LOT 68 REGISTERED PLAN No. 18 AND PART OF LOT 3 CONCESSION "A" (BROKEN FRONT)

  GEOGRAPHIC TOWNSHIP OF NORTH GOWER
  CITY OF OTTAWA

  McINTOSH PERRY SURVEYING INC.
- PLAN OF SURVEY OF LOT 68 REGISTERED PLAN 18 AND PART OF LAT 3 CONCESSION "A" (BROKEN FRONT)

  GEOGRAPHIC TOWNSHIP OF NORTH GOWER
  CITY OF OTTAWA

  FAIRHALL MOFFATT & WOODLAND LTD

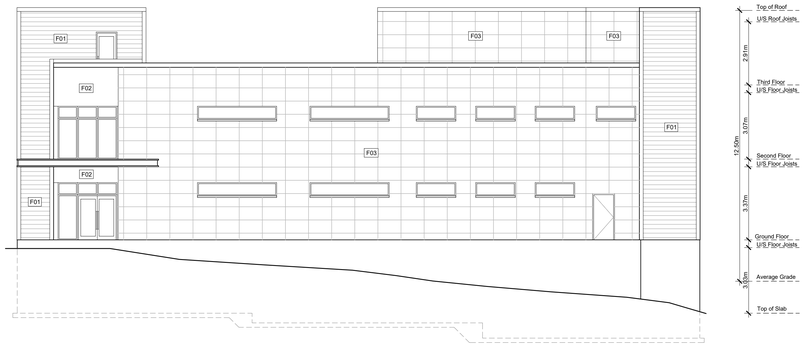
Building Analysis	
Building Area:	
Basement Floor Area:	312.5m²
Ground Floor Area:	312.5m²
Second Floor Area:	312.5m²
Third Floor Area:	157.96m²
Gross Floor Area:	1095.46m²

O.B.C. Requirements	
Classification:	3.2.2.62 Group D, up to 3 Storeys
No. of Storeys:	3
No. of Facing Streets:	1
Sprinkler System:	No
Maximum Area:	1600m²
Construction:	Combustible or Noncombustible Construction

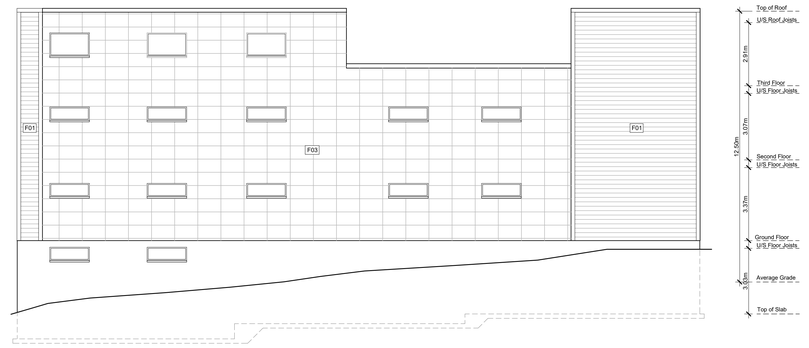
FINISH NOTES

F01 PVC "Wood-Like" Siding
F02 Aluminium Siding
F03 Fibre Cement Panels - Hardie Panel

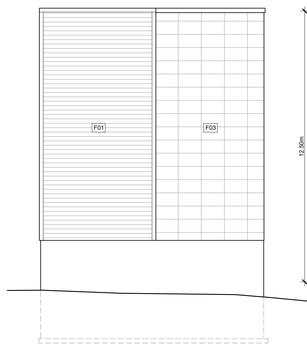
Zoning: VM9		
Mechanism	**Provision**	**Provided**
Minimum lot area	1350m²	1016.6m²
Minimum lot width	20m	31.85m
Minimum front yard setback	(i) minimum - no minimum	
	(ii) maximum - 3m	4.58m
Right of way setback	Minimum 11.5m from centreline of road	11.84m from centreline of road
Minimum corner side yard setback	(i) minimum - 3m	n/a
	(ii) maximum - 4.5m	n/a
Minimum interior side yard setback	Where abutting Residential Zone: 3m	n/a
	Where abutting any other zone: no minimum	1.2m
Minimum rear yard setback	(i) residential use building: 25% of lot depth, minimum of 7.5m	n/a
	(ii) non-residential use and mixed use buildings abutting a residential zone: 7.5m	n/a
	(iii) all other cases: no minimum	1m
Maximum building height	(i) minimum - 6.7m	n/a
	(ii) maximum - 11m	12.5m
Minimum width of landscaped area	No minimum, except that where a yard is provided and not used for required driveways, aisles, parking or loading spaces, the whole yard must be landscaped	Whole yard is landscaped
Minimum required parking	Minimum: 15 Parkings	13 Parkings



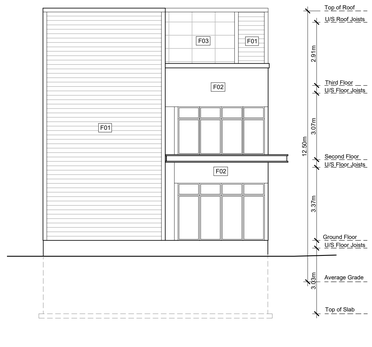
1 / A3 NORTH ELEVATION
SCALE: 1:100



1 / A3 SOUTH ELEVATION
SCALE: 1:100

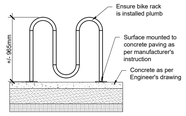


1 / A3 WEST ELEVATION
SCALE: 1:100

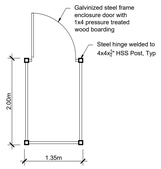


1 / A3 EAST ELEVATION
SCALE: 1:100

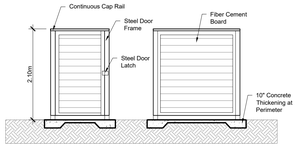
4 / A0 BIKE RACK PLAN
SCALE: 1:50



3 / A0 BIKE RACK ELEVATION
SCALE: 1:50



5 / A0 GARBAGE PLAN
SCALE: 1:50



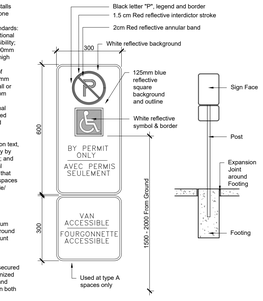
6 / A0 GARBAGE ELEVATION
SCALE: 1:50

All Accessible parking stalls shall be designated by one sign per bay meeting accessibility design standards:

- Mark with international symbol of accessibility;
- Ensure size of 300mm wide by 300mm high (minimum);
- Mount at height of 1500mm to 2000mm (centre) (E.G., wall or post mounted) from ground/ floor;
- Ensure a high tonal contrast is provided between sign and background environment;
- Provide information text, compliant with city by law requirements; and
- Provide additional bilingual signage that identifies type A spaces as "van accessible/ Fourgonnete accessible".

Signage face:
0.064mm 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



GENERAL NOTES:

- Do not scale drawings.
- The contractor shall check and verify all dimensions on site and report all discrepencies to the Architect.
- All work shall comply with the Ontario Building Code and the requirements of all authorities having jurisdiction.
- This drawing is the exclusive property of Ignite Architecture Inc. copyright reserved.

Note:
This Drawings shall be used only for the Site Plan Application, it is not to be used for Permit or Construction purposes.

SEAL:

ONTARIO ASSOCIATION OF ARCHITECTS
NICOLE CHILTON-JONES
LICENCE
9766

LEGEND:

DRAWING REVISIONS

No.	Issued for:	Date:
1	Issued for Site Plan Application	12 Dec 2024

SITE ADDRESS:

5580 Manotick Main Str
Manotick
ON K4M 1E2

OWNER INFORMATION:

Abdulla Real Estate Holdings
Box 819 Manotick
K4M 1A7

ARCHITECTS:

IGNITE ARCHITECTURE INC.
Ignite Architecture Inc.
533 Landswood Way
Ottawa, ON K2S 0A6
Phone: 613 - 912 - 1832
Email: nicole@igniteархitecture.ca

SURVEYORS:

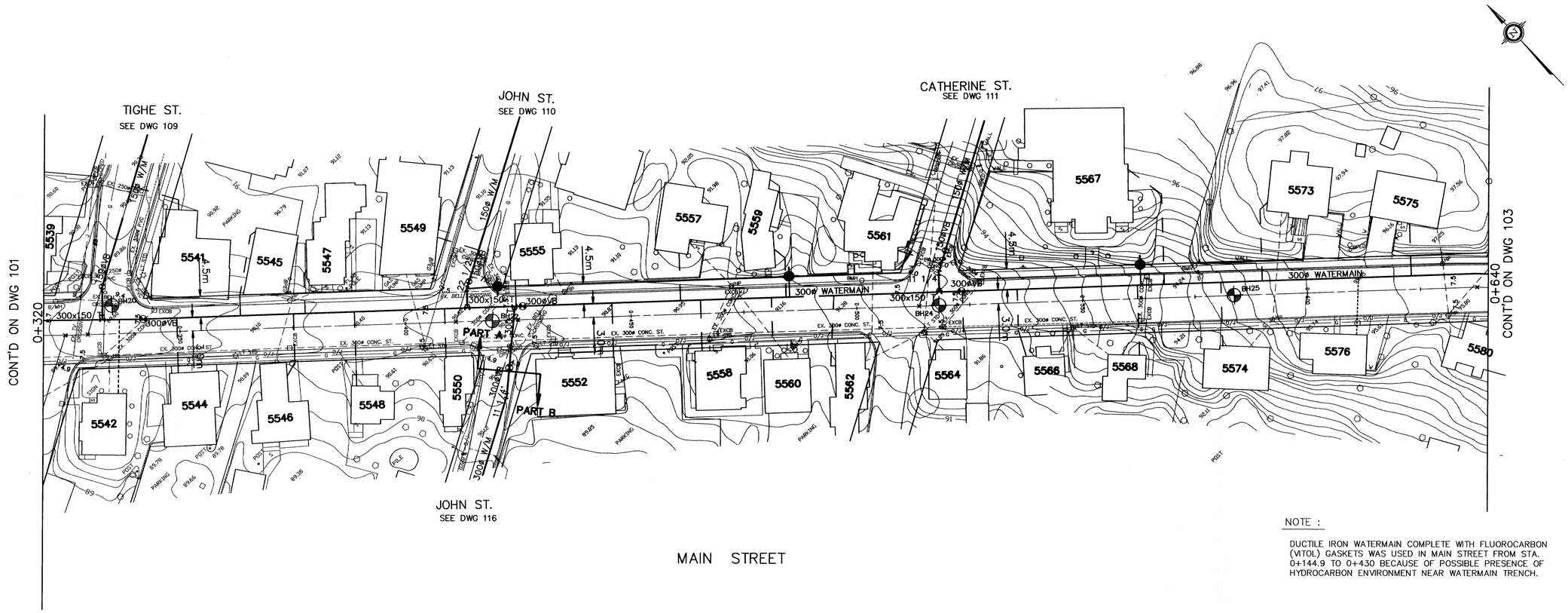
McINTOSH PERRY
SURVEYING INC.
3240 Drummond Con. 5A, R.R. # , Perth, ON K7H 3C9
Tel: 613-267-6524 Fax: 613-267-7992
www.mcintoshperry.com

Fairhall Moffatt & Woodland
LIMITED
ONTARIO LAND SURVEYORS
Surveying and Land Information Services
100-600 TERRY FOX DRIVE, KANATA, ONTARIO K2L 4B6
TEL: (613) 591--2580 FAX: (613) 591--1490
www.fmw.on.ca

DRAWING TITLE:

PROPOSED SITE PLAN AND ELEVATIONS

PROJECT:	DWG NO:
2412	A1

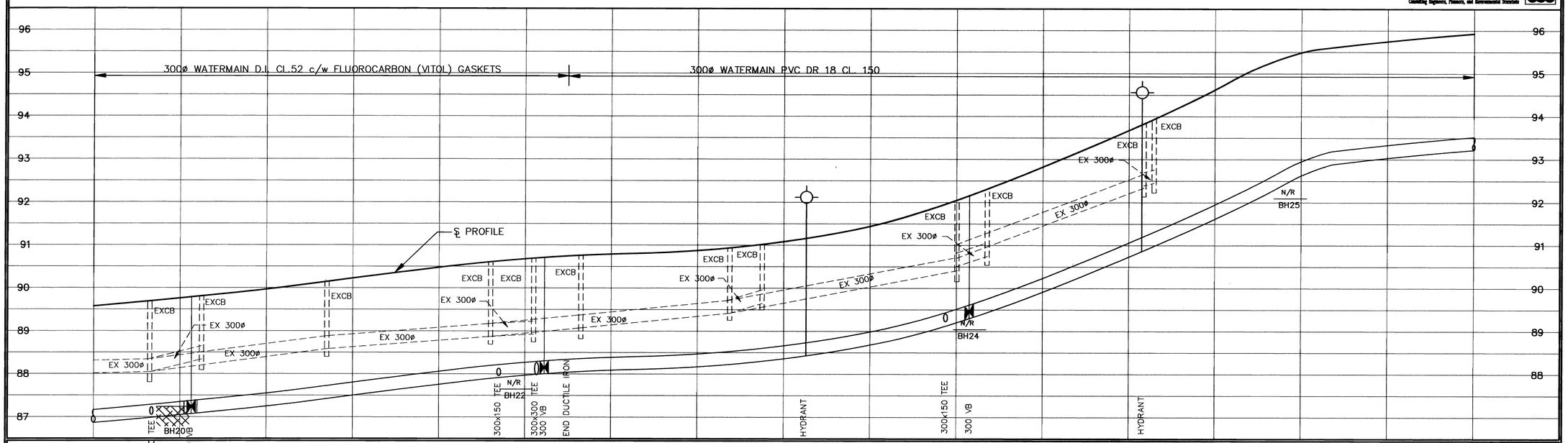


MAIN STREET

NOTE :

DUCTILE IRON WATERMAIN COMPLETE WITH FLUOROCARBON (VITOL) GASKETS WAS USED IN MAIN STREET FROM STA. 0+144.9 TO 0+430 BECAUSE OF POSSIBLE PRESENCE OF HYDROCARBON ENVIRONMENT NEAR WATERMAIN TRENCH.

Cumming Cockburn Limited
Consulting Engineers, Planners, and Environmental Scientists



STATION	PROPOSED TOP WATERMAIN	ELEVATION AT ℄
0+320	87.15	89.50
0+333.5	87.24	89.55
0+340	87.34	89.68
0+342		89.79
0+360	87.64	90.00
		90.14
0+380	87.80	90.25
		90.39
0+400	88.08	90.50
0+414	88.22	90.58
0+420	88.25	90.66
0+423	88.25	
0+424.5		90.75
0+430		90.81
0+440	88.40	90.88
0+460	88.53	90.93
		91.07
0+480	88.69	91.23
0+485.2	88.79	91.44
0+500	88.99	91.73
0+517	89.55	92.03
0+520	89.74	92.40
0+523		92.84
0+540	90.40	93.23
0+560	91.42	93.73
0+563		94.17
0+580	92.25	94.62
0+600	93.10	95.14
		95.50
0+620	93.39	95.63
		95.75
0+640	93.47	95.83
		95.88

REGIONAL MUNICIPALITY
OF
OTTAWA–CARLETON

ENVIRONMENTAL SERVICES DEPARTMENT

R. DENHAM, P.Eng.
ENVIRONMENTAL SERVICES COMMISSIONER

Approved by:

Manager of Water Facility Project Branch

Date

LICENCED PROFESSIONAL ENGINEER
J. I. MOFFATT
NOV. 27/92
PROVINCE OF ONTARIO

Project Officer — Date

Drawn by: — Date 92/09/22

Checked by: — Date

Notes:

1. CONNECTIONS TO EXISTING AND NEW WATERMAINS SHALL BE BY GENERAL CONTRACTOR UNDER SUPERVISION OF R.M.O.C. PERSONNEL.
2. SUPPLY AND INSTALL WATERMAIN, ALL IN ACCORDANCE WITH R.M.O.C. STANDARDS AND SPECIFICATIONS.
3. CONTRACTOR IS REQUIRED TO OBTAIN LOCATES FOR ALL UTILITIES PRIOR TO EXCAVATING ALL UTILITIES SHOWN ARE APPROXIMATE.
4. BOREHOLE INFORMATION SHOWN AS PER SOILS REPORT PREPARED BY JOHN D. PATTERSON AND ASSOCIATES LTD., FILE S5791.
5. ALL FIRE HYDRANT FLANGES(BOTTOM) SHALL BE INSTALLED @ 100mm ABOVE EXISTING FINISHED GRADES.
6. SERVICES WERE INSTALLED ON PRIVATE PROPERTY AND CONNECTED TO EXISTING PLUMBING.

AUGER REFUSAL

N/R END OF BOREHOLE

No.	Revision	Date
3.	ADD AS-BUILT INFORMATION	05 OCT./93
2.	REVISED FOR CONSTRUCTION	18 NOV./92
1.	REVISED FOR TENDERING	21 SEPT./92
0.	ISSUED FOR GOVERMENTAL APPROVALS	SEPT/92

Scales
HORIZ. 1 : 500
VERT. 1 : 50

Project Title

MANOTICK WATER DISTRIBUTION SYSTEM

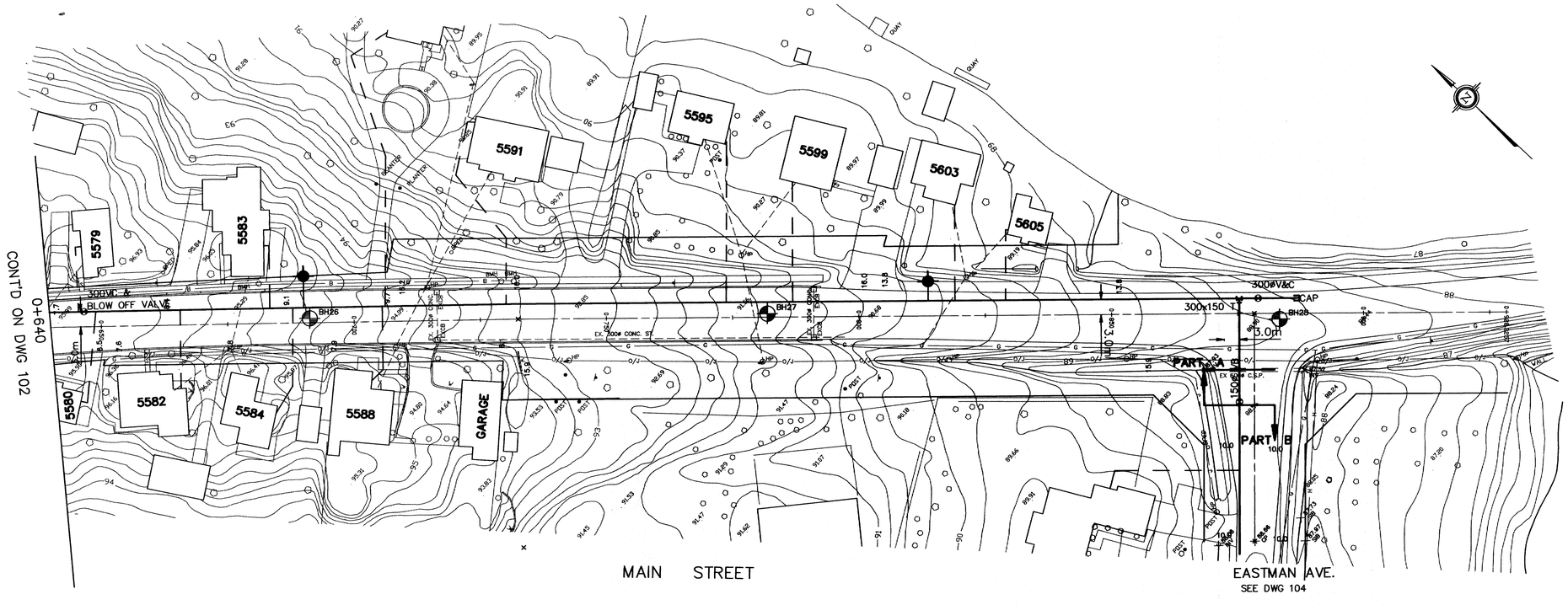
4472-2

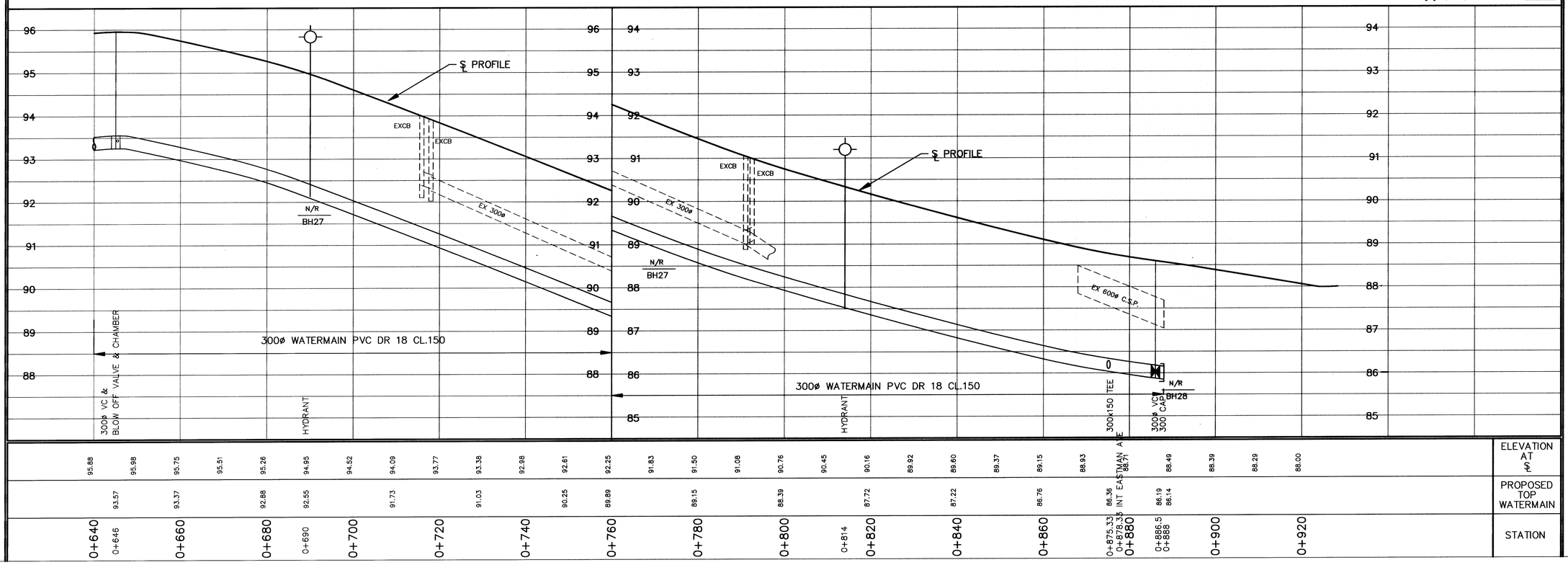
MAIN STREET

STA 0+320
TO
STA 0+640

Drawing No.: 3708–MU–102 | Rev. No.: 3

8584





STATION	PROPOSED TOP WATERMAIN	ELEVATION AT ℄
0+640	93.57	95.88
0+646		95.98
0+660	93.37	95.75
		95.51
0+680	92.88	95.26
0+690	92.55	94.95
0+700	91.73	94.52
		94.09
0+720	91.03	93.77
		93.38
0+740	90.25	92.98
		92.61
0+760	89.89	92.25
		91.83
0+780	89.15	91.50
		91.08
0+800	88.39	90.76
		90.45
0+814	87.72	90.16
		89.82
0+820	87.22	89.60
		89.37
0+840	86.76	89.15
		88.93
0+860	86.36	88.71
0+875.33 INT EASTMAN AVE		
0+878.33		
0+880	86.19	88.49
0+886.5	86.14	
0+888		
0+900		88.39
		88.29
0+920		88.00

Cumming Cockburn Limited
Consulting Engineers, Planners, and Environmental Scientists

REGIONAL MUNICIPALITY
OF
OTTAWA–CARLETON
ENVIRONMENTAL SERVICES DEPARTMENT

R. DENHAM, P.Eng.
ENVIRONMENTAL SERVICES COMMISSIONER

Approved by:

Manager of Water Facility Project Branch

Date

LICENSED PROFESSIONAL ENGINEER
C. L. MORFATT
Nov 27/92
PROVINCE OF ONTARIO

Project Officer — Date

Drawn by: — Date 92/09/22

Checked by: — Date

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Scales
HORIZ. 1 : 500
VERT. 1 : 50

Project Title

MANOTICK WATER DISTRIBUTION SYSTEM

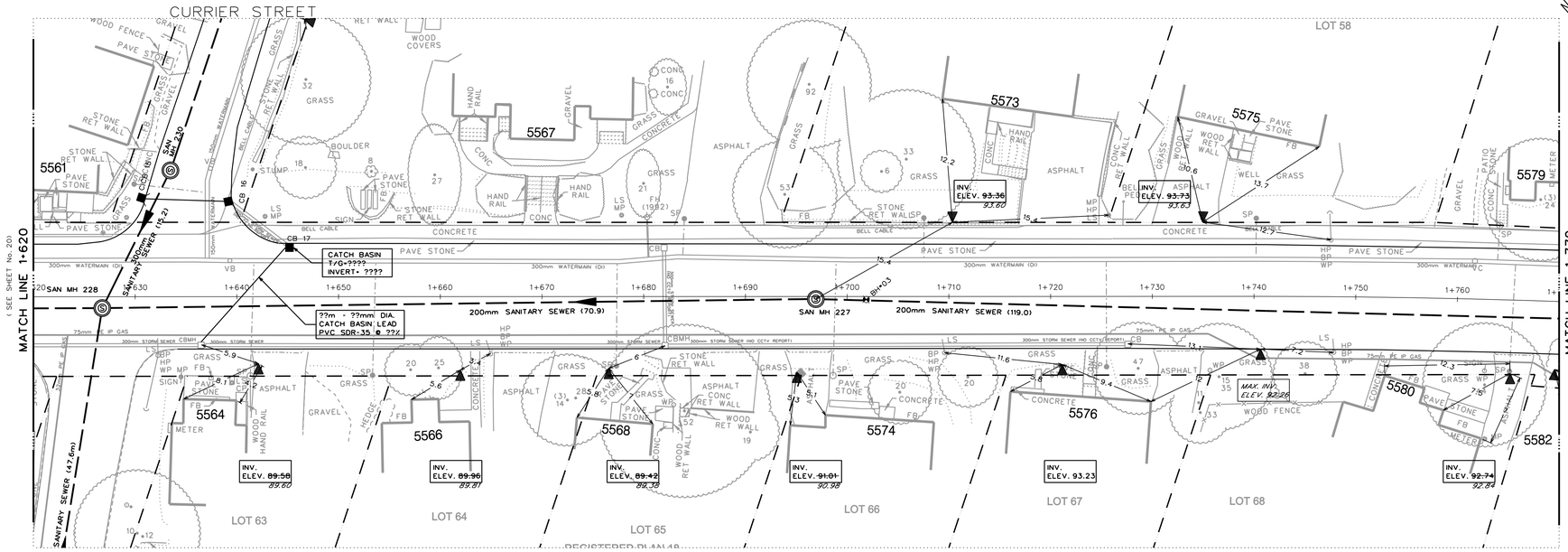
MAIN STREET

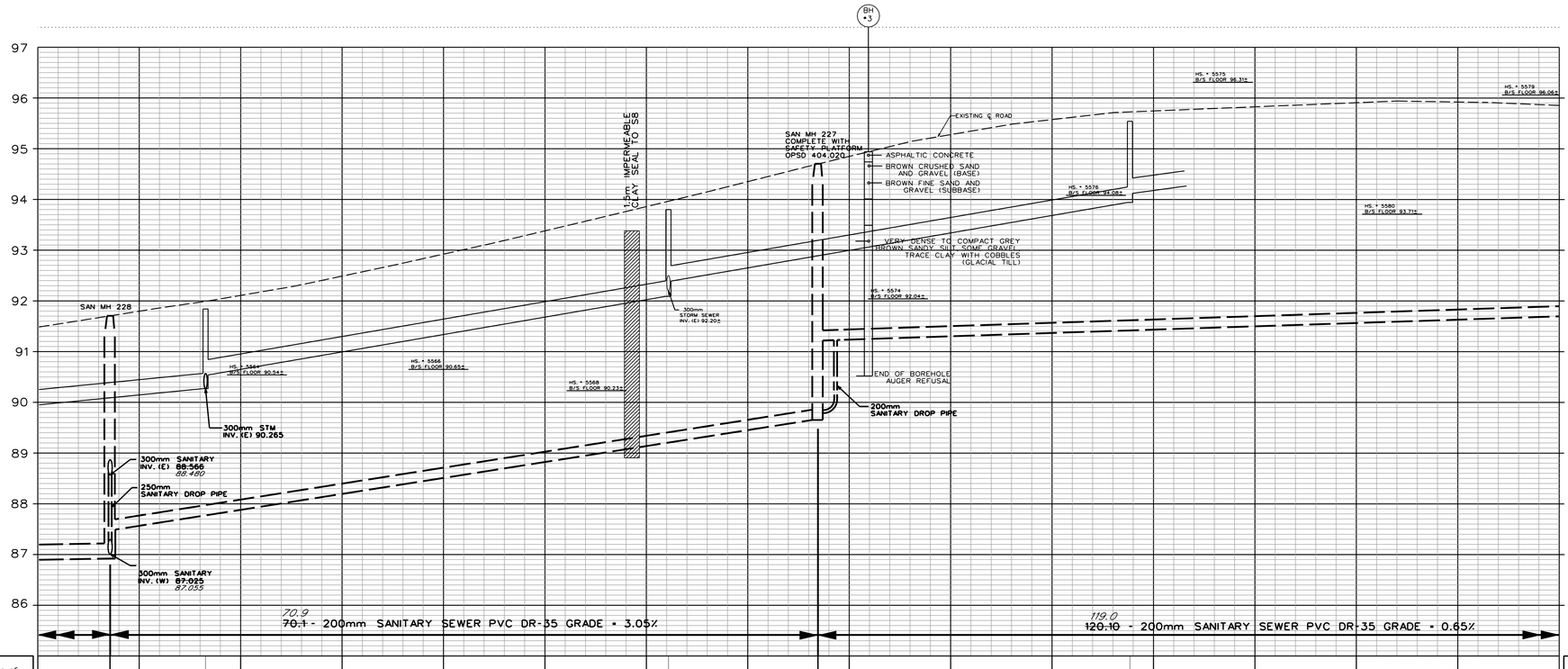
STA 0+640
TO
EASTMAN AVE

Drawing No.: 3708–MU–103

Rev. No.: 3

85 84





Revisions:

No.	Date	Description	Drawn By	Approved By
6	APRIL/2011	"AS BUILT" INFORMATION ADDED	MB	PDR
5	APRIL/2009	ISSUED FOR CONSTRUCTION	MF	PDR
4	JANUARY/2009	ISSUED FOR TENDER	MF	PDR
3	DECEMBER/2008	FOR MOE APPROVAL / FINAL CIRCULATION	MF	PDR
2	JUNE/2008	ISSUED FOR CITY REVIEW	MF	PDR
1	MARCH/2007	ISSUED FOR CIRCULATION	MF	PDR

Design:

Designed By D. LEFEBVRE	Date	Checked By P.D. REEVE, P.ENG.	Date
Survey Detail By FAIRHALL MOFFATT & WOODLAND LIMITED	Date	Field Checked By	Date
Drafting By M. FASSBENDER / M. BROWN	Date	Checked By	Date

Manager, Construction Services West
B. MASON , P.ENG.

Final Measurements:

Construction Type SANITARY SEWER INSTALLATION	Inspector R. HOLLEY / M. PAPPS (JLR)
Work Commenced APRIL 2009	Project Manager L. MARINEAU, P.ENG.
Work Completed SEPTEMBER 2010	Field Book #
Contractor COLAUTTICONSTRUCTION LIMITED	Date
Drafting Revisions Date M. BROWN, A.Sc.T.	Checked By D. LEFEBVRE, C.E.T.

DISCLAIMER:
THE LOCATION OF SERVICE LATERALS AT OR NEAR THE PROPERTY LINE REPRESENTED HEREIN IS APPROXIMATE ONLY AND SHOULD BE FIELD VERIFIED.

NOTE:
SANITARY SERVICE LATERALS ARE 135mm DIA PVC DR-28 UNLESS OTHERWISE NOTED

J.L.Richards
ENGINEERS·ARCHITECTS·PLANNERS

J.L. Richards
& Associates Limited
864 Lady Ellen Place
Ottawa, ON Canada
K1Z 5M2
Tel: 613 728 3571
Fax: 613 728 6012

JLR#-21490

Watermain Notes:

1. All watermain materials and construction methods shall be in accordance with the latest edition of the City of Ottawa Standard Specifications and Standard Drawings.

Legal Survey Notes:

Boundary information shown hereon has been compiled and calculated from Teranet data and not based on an actual survey.

Distances shown to survey monuments are for reference purposes only, survey monuments may not define property boundaries.

THIS IS NOT A PLAN OF SURVEY

This plan was compiled from plans and documents recorded in the Land Registry System and has been prepared for property indexing purposes only.

Ottawa

Infrastructure Services and
Community Sustainability
Construction Services West Division

110 LAURIER AVENUE WEST, OTTAWA, ONTARIO. K1P 1J1

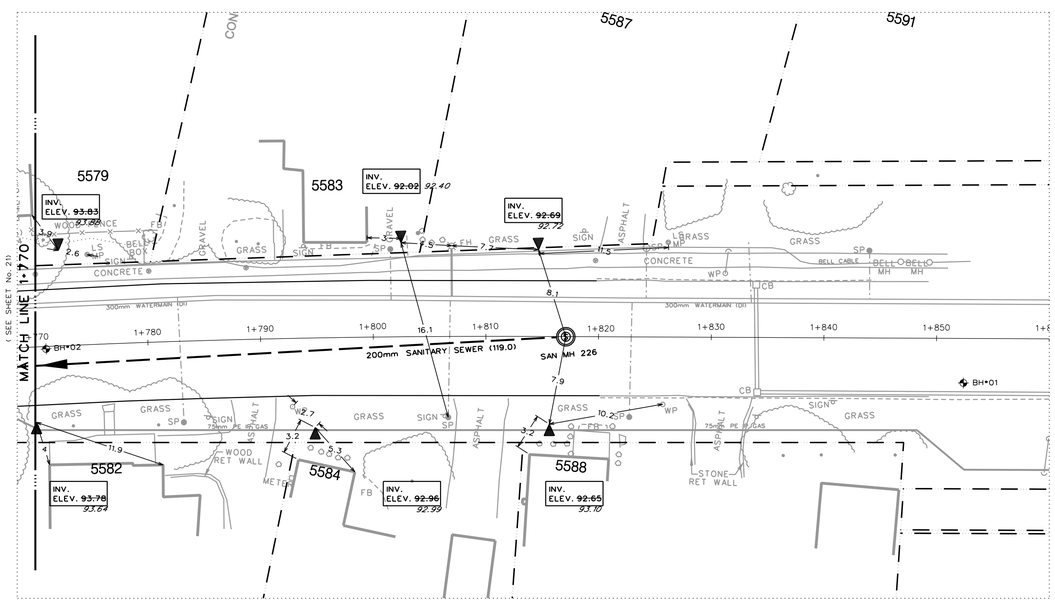
N. Schepers, P.Eng. Deputy City Manager	**W. Newell , P. Eng.** Director, Infrastructure Services

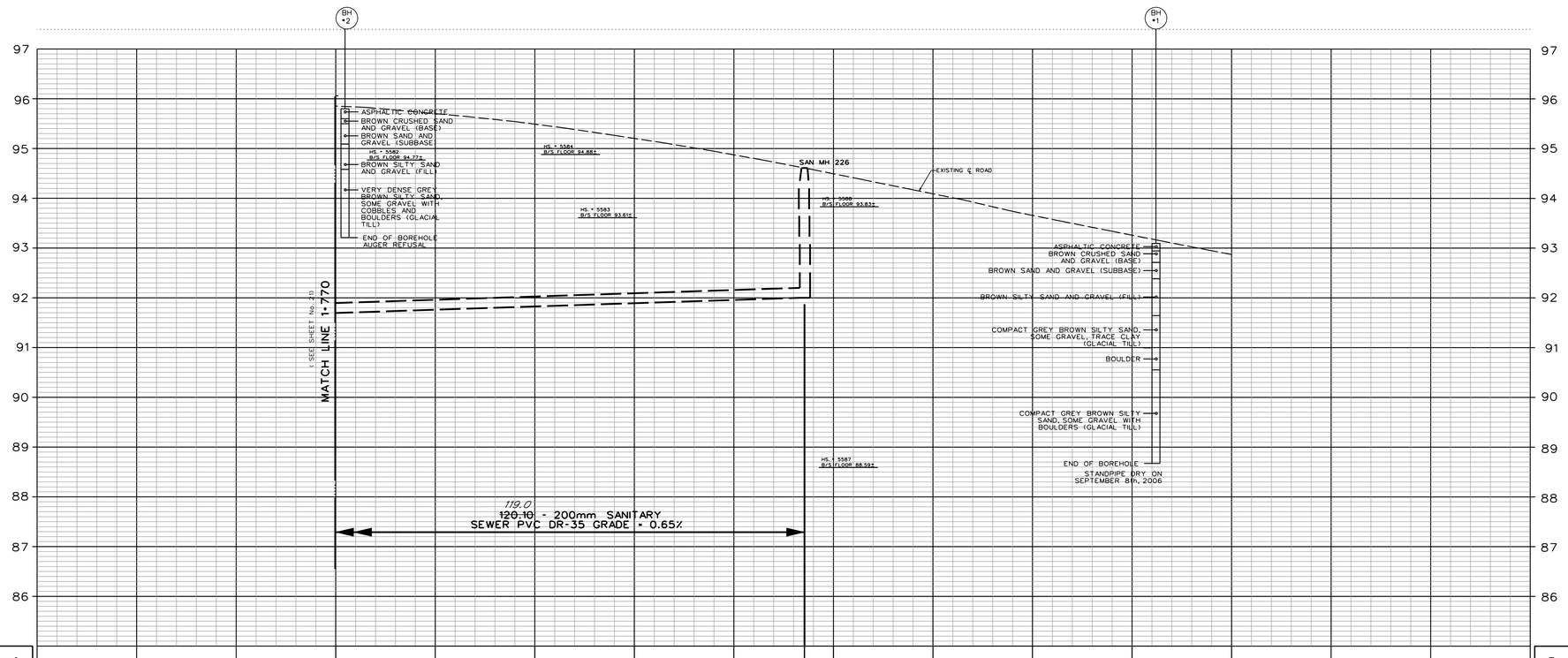
VILLAGE OF MANOTICK MUNICIPAL SERVICING
COMMERCIAL CORE
MANOTICK MAIN STREET
PLAN AND PROFILE
STA. 1+620 TO STA. 1+770

Contract No:	Survey Books:	Scale:	Plan No:
ISB06-2055		HOR. 1:250 VERT. 1:50	14121 Sheet 21 of 69

2055 COMMERCIAL CORE - MANOTICK MAIN STREET (22)

MANOTICK MAIN STREET





	1+770	1+780	1+790	1+800	1+810	1+817.09	1+820	1+830	1+840	1+850	1+860
Top of Watermain											
Existing Surface	95.85	95.70	95.49	95.20	94.87		94.49	94.09	93.66	93.26	92.87
Sewer Type & Diameter						200mm SANITARY SEWER					
Existing Sewer Inverts						92.010 92.660					
Stations	1+770	1+780	1+790	1+800	1+810	1+817.09	1+820	1+830	1+840	1+850	1+860

Elevations

Revisions:

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Designed By D. LEFEBVRE	Date	Checked By P.D. REEVE, P.ENG.	Date
Survey Detail By FAIRHALL, MOFFATT & WOODLAND LIMITED	Date	Field Checked By	Date
Drafting By M. FASSBENDER / M. BROWN	Date	Checked By	Date

Manager, Construction Services West
B. MASON , P.ENG.

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Work Commenced APRIL 2009	Project Manager L. MARINEAU, P.ENG.
Work Completed SEPTEMBER 2010	Field Book •
Contractor COLAUTI CONSTRUCTION LIMITED	Date
Drafting Revisions M. BROWN, A.Sc.T. Date	Checked By D. LEFEBVRE, C.E.T.

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N. Schepers, P.Eng. Deputy City Manager	W. Newell , P. Eng. Director, Infrastructure Services

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Contract No:	Survey Books:	Scale:	Plan No:
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