Stormwater Management Report and Servicing Brief

Proposed Granite Showroom & Warehouse Development
561 Somme Street
Ottawa, Ontario

Prepared for:

Blackstone Granite
1914 Merivale Rd,
Ottawa, ON

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1 INTRODUCTION AND SITE DESCRIPTION

LRL Associates Ltd. was retained by Blackstone Granite to complete a Stormwater Management Analysis and Site Servicing Study for the development of a proposed Granite Showroom & Warehouse, located at 561 Somme Street.

The subject property can be legally described as part of Block 2 Registered Plan 4M-1388, in the City of Ottawa. The subject lot is zoned RH (Rural Heavy Industrial Zone). The subject lot is a part of the Hawthrone Industrial Park, which was designed in 2009 and is subject to the conditions of the subdivision agreement.



Figure 1: ***Aerial View of Proposed Development***

The subject property is generally trapezoidal in shape, with approximately 62.09 m of frontage along Somme Street and 149.40 m along the rear property line. The total site area is approximately **1.62 ha**.

The proposed development will be constructed in a single phase, which includes a granite showroom and a warehouse. The parking for the showroom visitors is proposed at the front of the property, while the loading space for the warehouse is proposed at the rear of the property. The

site will be serviced by a driveway located along the Eastern property line. An additional parking lot is proposed at the rear of the property.

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 BACKGROUND DOCUMENTS

The following background documents were reviewed for the SWM design of the proposed development.

- Pre-consultation with the City of Ottawa dated June 06, 2024 (attached in ***Appendix A***)
- Topographical survey of the subject site prepared by Farley, Smith & Denis Surveying Ltd. dated April 26, 2024 (attached in ***Appendix F***)
- Site Plan prepared by RedLine Architecture. (attached in ***Appendix F***)
- Geotechnical report prepared by Paterson Group dated May 28, 2026
- 'Hawthrone Industrial Park' Stormwater Management Report prepared by J.L. Richards dated May 2009 (attached in ***Appendix B***)
- Ottawa Design Guidelines – Water Distribution (2025)
- Ottawa Sewer Design Guidelines (2025)

3 EXISTING SITE AND DRAINAGE DESCRIPTION

The subject site measures **1.62 ha*,*** and the property lot is currently vacant. Approximately 0.82 ha of the site is currently covered in gravel, and the remainder is grass area. The site is located in an industrial area and is bordered by Somme Street to the North. The subject site is generally sloping from the southwest to northeast in the pre-development conditions. Elevations of the existing site are generally flat and range between 91.60 m at the southwest to 89.80 m at the north-east end of the subject property. There is a slope at the rear of the property. The northern portion of the site generally drains towards the front of the property, while the remainder slopes and drains toward the rear. There is a wetland boundary and water course identified at the rear of the property, and the development is proposed at appropriate setbacks from them.

The stormwater in the pre-development conditions is conveyed from the subject site to the stormwater detention pond by means of the roadside ditch alongside Somme Street. The site currently has one access from Somme Street with a culvert installed, which will be replaced by a new culvert for the proposed development.

4 PROPOSED DEVELOPMENT

Once developed, the site will include one (1) two-storey building with a footprint of approximately 49 x 64 meters. The site will include an asphalt driveway and a parking area at the front of the building, entering from Somme Street which will continue around the rear of the building to be used for vehicle maneuverability as well as loading ramp. The developed site will have one (1) entrance from Somme Street which will require the installation of culverts to span across the existing roadside ditch.

Currently, the site is undeveloped without water, sanitary, or storm services. To accommodate for the development, a new drilled well to the east of the building and a septic system at the southeast of the site are proposed in the grassed area.

The stormwater from the site will be conveyed through overland flow, and through a series of stormwater structures to the underground stormwater storage chambers; ultimately reaching to the roadside ditch at the front of the property. The small portion of the subject site southwards of the existing top of slope at the rear of the property will remain untouched, and the stormwater will flow towards the rear water course, mimicking pre-development conditions.

5 REGULATORY APPROVALS

An Environmental Activity & Sector Registry (EASR) is expected to be required for the installation of the proposed storm works within the site. A permit to take water (PTTW) is required if dewatering exceeds 50,000 L/day. The South Nation Conservation Authority (SNCA) will need to be consulted to obtain municipal approval for site development. No other approval requirements from other regulatory agencies are anticipated.

6 FIELD WORK

The topographic survey work of the property was done on April 26th, 2024, by Farley, Smith & Denis Surveying Ltd. (Ontario Land Surveyors). A site benchmark was established during the survey for future construction use. This benchmark, a magnetic nail on the utility pole, is located at the North of the property; the benchmark elevation is 90.84m and is referred to Geodetic Datum CGVD-1928:1978.

7 GEOTECHNICAL CONSIDERATIONS

A geotechnical investigation was completed by Paterson Group and a report entitled ‘Geotechnical Investigation’ dated May 28, 2026. The report provides several recommendations/ considerations, as follows:

- A permissible grade raise restriction of 2.0 m is recommended for the proposed development. The grade raise restriction is imposed to reduce or limit the consolidation settlement of the existing soils.

- The groundwater levels were observed at approximately 2.58 to 4.68 m below ground surface, with the shallowest level of 2.58 m recorded on April 13, 2026. It is anticipated that groundwater infiltration into the foundation excavation to be low to moderate and is expected to be controllable through pumping from open sumps.
- Dewatering in excess of 50,000 L/day requires registration in the Environmental Activity and Sector Registry (EASR).

8 WATER SUPPLY AND FIRE PROTECTION

8.1 Industrial Flow Demand

The subject site is anticipated to house a commercial and warehouse building which can be categorized under 'Industrial- Light' property type with a unit rate of 35,000 L/ha/d. To service the proposed development, a supply well is proposed at the rear of the building. A 50mmØ water service is proposed to connect to the proposed supply well to service the proposed warehouse building.

For the proposed development:

- the average day demand = **0.66 L/s**;
- the maximum daily demand = **0.98 L/s**; and
- the maximum hour demand = **1.77 L/s**

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

8.2 Fire Flow Calculations

The fire flow rate was calculated using the Ontario Building Code (OBC) and Fire Underwriters Survey (FUS) method.

OBC Method:
As per the Fire Protection Water Supply Requirements prepared by Jain Sustainability Consultants Inc., dated November 6, 2026, and in according to Part 3 of OBC A-3.2.5.7. (Table 2), the minimum required water supply for the proposed development shall be **9000 L/min (150 L/s)**.

The following parameters were used in the overall calculations.

- Building Exposures,
  - North, East, South; 21.77m+ (S = 0.0)
  - West; 4.57m (S = 0.5)
- The Water Supply Coefficient (K) values,
  - Warehouse: F-2 (K = 27),
  - Offices: D (K = 16)
  - Showroom / Mercantile: E (K = 27)
- The proposed building group volumes,

- Warehouse: 20,381 m^3
- Offices: 2,352 m^3
- Showroom / Mercantile: 3,994m^3

Please refer to ***Appendix C*** for the calculation details, a letter provided by Jain Sustainability Consultants.

FUS Method:
The following parameters were provided by the Architect. Refer to ***Appendix C*** for collaborating correspondence:

- Type of construction: Non-Combustible
- Occupancy type: Combustible Contents
- Sprinkler reduction: Fully automatic sprinklers

The estimated fire flow demand was calculated to be **7,000 L/min (116.7 L/s).** Refer to ***Appendix C*** for details.

NFPA Method:
As per the fire protection water supply calculations prepared by Jain Sustainability Consultants Inc., dated August 12, 2025, a minimum firefighting water storage volume of approximately **170,325 litres (45,000 US gallons)** has been identified for the proposed development. The calculations consider the building's proposed sprinkler system; fire pump capacity at **500 GPM**, hose allowance at **250 GPM**, and a minimum required firefighting duration of **60 mins**.
Refer to ***Appendix C*** for the detailed calculations.

The proposed storage volume is based on the preliminary fire protection requirements established by Jain Sustainability Consultants Inc. Based on these requirements, a total on-site storage volume of **180,000 litres** has been proposed, consisting of three (3) tanks with a capacity of 60,000 litres each. The final storage volume and configuration remain subject to confirmation through the applicable municipal review and approval process, including the requirements outlined in the City's Technical Bulletin IWSTB-2024-05 (Appendix J of Ottawa Design Guidelines-Water Distribution).

The proposed firefighting water storage tanks will be located on-site, as illustrated on the civil drawings provided in ***Appendix E***. The storage tanks are intended to supply both the building sprinkler system and the proposed on-site dry hydrants through a 150 mm diameter PVC watermain. The proposed watermain diameter has been verified through hydraulic calculations.

The OBC and NFPA fire protection water supply calculations and associated storage requirements have been established by Jain Consultants and are included in this report for reference and coordination purposes. Any further clarification, revisions, or confirmation of the firefighting water supply requirements shall be provided by Jain Sustainability Consultants Inc.

9 SANITARY SERVICE

As previously discussed, there are currently no municipal services available in this area. Therefore, a new septic system with a leaching bed is proposed to be constructed at the southeast of the property. The on-site septic system will be designed by a qualified septic system designer, and the septic approval will be provided at a later stage. The Servicing Plan C401 in ***Appendix E*** outlines the location of the septic system.

10 STORMWATER MANAGEMENT

10.1 Existing Stormwater Infrastructure

The subject property forms part of the Hawthorne Industrial Park. A comprehensive Stormwater Management Report, dated May 2009, was prepared to evaluate and quantify stormwater runoff generated across the entire subdivision. The analysis accounted for individual lot-specific runoff coefficients and drainage areas, enabling an accurate estimation of total runoff contributions. Based on these calculations, a centralized stormwater detention pond was designed and implemented to manage on-site detention requirements for the overall development. Refer to ***Appendix B*** for the selected relevant pages from Hawthrone Industrial Park stormwater management report (HIPSWM).

In pre-development conditions, drainage from subject lots is depicted by existing catchments ECA-01 (1.286 ha), drains uncontrolled overland towards Somme Street right-of-way, and the remainder drains overland to the existing water course at the rear of the property. Refer to the Pre-development Watershed Plan C701 included in ***Appendix E*** for pre-development drainage characteristics. There is currently an existing roadside ditch running west to east alongside Somme Street, which will be utilized to accept the runoff controlled and collected from the proposed development.

As per the HIPSWM, the peak flow generation expected within the roadside ditch directly in front of the proposed site (between nodes 25 and 26) is **1007.7 L/s** during the 1:10 year storm event. The entrance culvert will be designed to accommodate this expected flow.

Refer to ***Appendix D*** for pre- and post-development watershed information. Table 1 below summarizes pre-development release rate.

Table 1: Summary of Pre-development Release Rate

Catchment	Area (ha)	Release Rate (L/s)		
		2-year	5-year	100-year
ECA-01	1.363	161.97	219.73	376.56

10.2 Design Criteria

The stormwater management criteria for this development are based on the pre-consultation with City of Ottawa officials, as per 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. The Hawthorne Industrial Park, Stormwater Management Report has a similar criterion, which is considered for stormwater management calculations.

10.2.1 Water Quantity

Based on pre-consultation with the City, and subsequent deliberation with the City on October 2, 2024, correspondence included in ***Appendix A***. As per the North Castor River Subwatershed Study and the Shields Creek Subwatershed Study, the water quantity control criteria require peak flow control for all design storm events, (post- to pre-, 2- to 100-year event). However, for the subject site, the quantity control criteria outlined in the Hawthorne Industrial Park Stormwater Management Report is more stringent; therefore, those criteria have been applied for this development.

- Meet an allowable release rate based on a Rational Method with a maximum allowed Coefficient of 0.70, as per the Hawthrone Industrial Park stormwater management report, with a calculated time of concentration of a minimum of 10 minutes.

- Match the 100-yr post-development peak flow rate to less than or equal to 2-yr pre-development peak flow rate as per City of Ottawa pre-consultation meeting note.

- Match the 2-yr post development peak flow rate to less than or equal to 50% of the 2-yr pre-development peak flow rate as per the Hawthrone Industrial Park stormwater management report.

10.2.2 Water Quality

Based on pre-consultation with the City, and subsequent deliberation with the City on October 2, 2024, correspondence included in ***Appendix A***, the following stormwater management requirement was fulfilled for the subject site:

- Provide enhanced level of treatment, 80% minimum Total Suspended Solid (TSS) removal.

As per the North Castor River Subwatershed Study and the Shields Creek Subwatershed Study, the water quality control criterion specified a target of 70% TSS removal. However, a more stringent criterion of 80% TSS removal as per the Hawthrone Industrial Park stormwater management report has been applied for this site.

10.3 Method of Analysis

The Modified Rational Method has been used to calculate the runoff rate from the site to quantify the storage required for quantity control of the development. Refer to ***Appendix D*** for storage calculations.

10.4 Proposed Stormwater Quality Controls

Based on pre-consultation meeting note, the enhanced protection level of 80% total suspended solids (TSS) removal criterion must be achieved for this project. An oil/grit separator **Stormceptor EF04** (or approved equivalent) is proposed and will be located downstream of the proposed ICD. Additional LID measures will also provide a treatment train approach. Refer to ***Appendix D*** for the selection, the type, and for more information on the treatment unit.

10.5 Proposed Stormwater Quantity Controls

The proposed stormwater management quantity control for this development will be accomplished by means of an outlet pipe with an Inlet Control Device (ICD), which will release flow at a specified constant release rate and controlled roof drains. The required stormwater quantity storage on-site will be achieved via underground stormwater storage chambers, rooftop ponding, overland ponding and storage within swale trench, storm pipes, and structures.

According to the *Hawthorne Industrial Park Stormwater Management Report*, the post-development 2-year peak flow to be controlled to 50% of the pre-development 2-year release rate. Based on this criterion, the allowable release rate for the site was calculated to be 80.99 L/s. This was determined using a time of concentration of 10 minutes and a runoff coefficient of 0.56, based on the characteristics of the existing catchment ECA-01 (1.363 ha).

This calculated release rate is lower than the City of Ottawa's general criterion, which requires 100-year post-development flows to be controlled to the 2-year pre-development rate. The 2-year pre-development release rate as per this criterion will be 161.97 L/s, and as the proposed release rate of 80.99 L/s is more conservative, it was considered for design.

Moreover, the calculated release rate is equal to or lower than the North Castor River Subwatershed Study and Shield Creek Subwatershed Study design criteria. It requires the post-development 2-year peak flow to be controlled to 50% of the pre-development 2-year release rate and control the 5- year and 100-year post-development release rate to be equal to or less than the pre-development release rates.

The small portion of the subject site southwards of the existing top of slope at the rear of the property will remain as-is, and the stormwater will flow towards the rear water course, mimicking pre-development conditions. As this area is not subject to site grading or infrastructure changes, it has been excluded from stormwater runoff calculations. The release rates provided will be the maximum rates to which the entire site will be controlled during the major storm events. Refer to ***Appendix D*** for calculations.

A proposed 300 mm dia. free-flowing storm sewer service is proposed at the front of the property downstream of the ICD and OGS, to outlet the captured flows from the site to the existing roadside

ditch along Somme Street. The roadside ditch conveys the stormwater from the site to the stormwater management pond located northeast of the subject lot. The proposed servicing layout and connection points are shown on the Servicing Plan C401 in ***Appendix E,*** and detailed calculations can be found in ***Appendix D***.

The site has been analyzed, and post-development catchments have been allocated. The site is divided into a total of nine (9) catchment areas. Refer to Post-development Watershed Plan C702 included in ***Appendix E***.
The post-development 100-year storm runoff from catchment areas CA-04 to CA-09 will be controlled via a Hydrovex 200VHV-2 ICD (or approved equivalent) proposed at STM MH-08 located at the front of the property. Runoff exceeding the post-development 100-year storm event will flow overland, eventually making its way to the roadside ditch through the spillover point located within the front parking lot.

Catchment CA-01 (0.148 ha) consists mainly of the landscape grass area along the property boundary. Runoff from this catchment will flow uncontrolled overland and drain to the neighboring lot, mimicking pre-development conditions. The run-off will be eventually conveyed to the roadside ditch at the front or the water course at the rear of the property.

Catchment CA-02A & 02B (0.278 ha) comprises the building envelope. The rooftop of the proposed warehouse is designed to accommodate roof storage and will be equipped with roof drains which will drain to the roadside ditch downstream of the ICD and OGS. Emergency overflow scuppers will be installed along the perimeter of the roof.

Catchment CA-03 (0.089 ha) consists of the front asphalt parking lot. The stormwater from this catchment will flow overland towards the road right-of-way.

Catchment CA-04 (0.035 ha) consists of the front asphalt parking lot. The stormwater from this catchment will be captured via respective CB/MH proposed within the parking lot and the flow will be further conveyed to the underground stormwater storage chambers. The manhole within catchment CA-04 will be equipped with an ICD to control flow to the allowable release rate and will outlet downstream to the OGS structure. A spillover point has been proposed within this catchment that will spillover run-off exceeding 100-yr storm to the roadside ditch.

Catchment CA-05,06 & 07 (0.434 ha) consists of the landscaped grass area; and asphalt driveway alongside the eastern P/L. The flow from this catchment will sheet drain to the grass swale and catch basin network and will be conveyed to the downstream stormtech chambers. The grades along the landscape area are reduced to promote infiltration.

Catchment CA-08 (0.171 ha) mainly consists of the southern-half portion of the site, landscape grass area up to the limits of construction, including asphalt driveway and section of the loading ramp at the rear of the property. The flow from the catchment will sheet drain to the grass swale and catch basin network and will be conveyed to the downstream manhole. The trench drain at the bottom of the loading ramp will outlet overland into this catchment via a sump pump.

Catchment CA-09 (0.208 ha) mainly consists of the area at the rear of the building up to the limits of construction. This includes landscaped grass area as well as the rear parking lot and a portion of the asphalt driveway leading up to the loading ramp. The stormwater from the parking lot will

flow overland to the rear catch basin proposed within the driveway and the captured flow will be directed to the downstream network.

For storm events greater than 100-year, a major overland flow route was identified; the grading was designed to direct major storm events away from the building and spill-out to roadside ditch along Somme Street.

To achieve the allowable post-development stormwater release rate, the proposed development will utilize a combination of underground stormwater storage chambers, rooftop ponding, overland ponding and storage within swale trench, storm pipes, and structures using the specified release rates determined in this analysis. Table 2 below summarizes post-development drainage areas. Refer to ***Appendix D*** for calculations detail.

Table 2: Post-development Drainage Areas and Runoff Coefficient.

Catchments	Area (ha)	Weighted Runoff Coefficient (C)	100 Year Weighted Runoff Coefficient (25% increase)
CA-01 (uncontrolled)	0.148	0.20	0.26
CA-02A (roof-controlled)	0.216	0.90	1.00
CA-02B (roof-controlled)	0.062	0.90	1.00
CA-03 (uncontrolled)	0.089	0.84	1.00
CA-04 (controlled)	0.035	0.84	1.00
CA-05 (controlled)	0.117	0.39	0.49
CA-06 (controlled)	0.110	0.33	0.42
CA-07 (controlled)	0.207	0.37	0.47
CA-08 (controlled)	0.181	0.39	0.49
CA-09 (controlled)	0.198	0.50	0.63
Total	**1.363**	**0.52**	**0.66**

With the total area of **1.363 ha**, an allowable release rate of **80.99 L/s** was determined, which corresponds to the 50% of 2-year pre-development flow. A total of fifteen (15) controlled roof drains will be installed, which will drain at a total release rate of **14.25L/s**, and the remainder of the controlled catchments will drain at a controlled release rate of **44.36 L/s**. With the implementation of flow control within the controlled watershed, it is ensured that the post-development release rate will not exceed the calculated allowable release rate.

Table 3 below summarizes the release rates and storage volumes required for 2-, 5- & 100-year storm.

Table 3: Post-development Stormwater Release Rate & Storage Volume Summary

Catchment	Area (ha)	2-year Release Rate (L/s)	2-year Required Storage (m^3)	5-year Release Rate (L/s)	5-year Required Storage (m^3)	100-year Release Rate (L/s)	100-year Required Storage (m^3)	Total Available Storage (m^3)
CA-02A & 02B (Roof Drain Controlled)	0.278	14.25	26.33	14.25	42.20	14.25	105.69	109.44
CA-04,05,06, 07, 08 & 09 (ICD Controlled)	0.848	44.36	52.35	44.36	79.63	44.36	173.01	177.55
CA-01 & CA-03 (Uncontrolled)	0.237	22.38	N/A	30.36	N/A	65.03	N/A	N/A
Total	**1.363**	**80.99**	**78.68**	**88.97**	**121.82**	**123.64**	**278.70**	**286.99**

To attenuate flows to the controlled release rate of 14.25 L/s for CA-02A and CA-02B, it is calculated that a total of 105.69 m^3 of storage will be required for a 100-year storm event and a total of 109.44m^3 of rooftop storage has been proposed. Watts Roof Drain with ¼ Exposed Weir Opening (or approved equivalent) is proposed to provide the required controlled release rate of 0.95 L/s for each roof drain. The roof catchment boundaries are set at elevations less than 0.15 m, allowing interconnection between adjacent catchments. As a result, they do not function as fully isolated drainage areas and instead remain hydraulically connected, enhancing opportunities for surface ponding across the combined roof area. For the storm events greater than 100-yr, scuppers have been provided along the building, which will convey overflow from the roof to the adjacent landscape area and eventually drain into the roadside ditch. Refer to ***Appendix D*** for additional info on Watts Roof Drain. A detailed Roof Drain plan will be provided in future submission.

For CA-04 to CA-09, a controlled release rate of 44.36L/s is determined, and it is calculated that a total of 163.82 m^3 of storage will be required for a 100-year storm event. An average, 50% of the maximum controlled, release rate (*22.18 L/s)* is considered for storage calculations. The required storage is provided on-site via surface ponding at the parking lot as well as Stormtech underground chambers Model SC-800 (or approved equivalent). The total proposed surface ponding provides approx. 63.43m^3 of storage, underground trench pipes and structures provides 54.01m^3 of storage, and the proposed underground chambers provide 60.11 m^3 to provide a total storage of **177.55 m^3** during the 100-year storm event. No surface ponding will occur in the 5-year and 2-year storm events, as all necessary storage requirements will be fully accommodated

by the proposed stormwater underground chambers. Table 4 below summarizes the surface ponding at each structure for 100-year storm event.

Table 4: Overland Storage Summary

Structure	Catchment	Proposed Ponding Area (m^2)	Maximum Ponding depth (m)	Available Storage (m^3)
CB-01	CA-09	26.90	0.08	0.72
Inlet-01	CA-04	713.50	0.30	58.50
Swale	CA-05,06,07,08	131.90	0.13	4.21

Refer to ***Appendix D*** for additional info on Stormtech chambers. The 100-year maximum ponding depths can be found on drawing "C601 – Stormwater Management Plan" of ***Appendix E***.

For additional details on the stormwater storage calculations, refer to ***Appendix D***.

10.6 Entrance Culvert

As per the HIPSWM, the peak flow generation expected within the roadside ditch directly in front of the proposed site (between nodes 25 and 26) is **1007.7 L/s** during the 1:10 year storm event. A 2.8mm thick, 1030mm x 740mm Aluminized Type II CSPA has been proposed below the entrance, installed at a slope of approximately 0.51% (mimic existing ditch conditions), providing a full capacity of **1292.82 L/s**. Refer to **Appendix D** for supporting pipe sizing calculations.

11 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.

12 Conclusion

This Stormwater Management and Servicing Report for the development proposed at 561 Somme 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 minimum required fire flow was calculated at **9,000 L/min** using the OBC method.
- The minimum required fire flow was calculated at **7,000 L/min** using the FUS method.
- The proposed fire storage tank volume as per the NFPA calculations provided by Jain Sustainability Consultants Inc. is **1,80,000 litres**.
- The anticipated water demands for the site are **0.66 L/s** (average daily), **0.98 L/s** (maximum daily), and **1.77 L/s** (maximum hourly).
- The new development will be serviced via a supply well to the East of the property and a 50mmØ water service.

Sanitary Service

- The building will be serviced with a septic system including a leaching bed.

Stormwater Management

- Stormwater quantity control objectives will be met via underground stormwater storage chambers, rooftop ponding, overland ponding, storage within swale trench, storm pipes, and structures.
- Post-development peak flows for the 100-yr and 2-yr storm events will be equal to or less than the pre-development peak flows.
- The proposed stormwater management design will provide on-site storage volume of **109.44m^3** within the roof top and **177.55 m^3** within the underground storage and surface ponding areas.
- The stormwater quantity control objectives for the rooftop storage will be met via Watts Roof Drain with ¼ Exposed Weir Opening (or approved equivalent) which will control total flow to **14.25L/s**. The remainder of the controlled catchments will be met via **Hydrovex 200VHV-02 ICD** (or approved equivalent) which will limit flow at a controlled release rate of **44.36 L/s.**
- The stormwater quality control objectives will be met via **Stormceptor EF04** (or approved equivalent) oil and grit separator, proposed downstream of the ICD.

13 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:
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APPENDIX A

Pre-consultation / Correspondence

File No.: PC2024-0203

June 6, 2024

Dayna Edwards
Q9 Planning + Design
Via email: dayna@q9planning.com

Subject: Pre-Consultation: Meeting Feedback
Proposed Site Plan Control Application – 561 Somme Street

Please find below information regarding next steps as well as consolidated comments from the above-noted pre-consultation meeting held on June 3, 2024.

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

1. Please note that Bill 185 has received Royal Assent which makes several amendments to the Planning Act in addition to various other Acts. As a result, we are awaiting direction in relation to pre-consultations and formal submissions. Please follow up at the end of next week for updated information on next steps.

Supporting Information and Material Requirements

1. 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.

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

Consultation with Technical Agencies

1. 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

Proposal: Phase 1 pre-consultation for Site Plan Control for a two-storey granite showroom and warehouse. Showroom will not be open to the public and will be by appointment only.

Comments:

1. City of Ottawa Official Plan
    a. Designated Rural Industrial and Logistics
        i. 9.3.1 (2) Development on lands designated as Rural Industrial and Logistics shall consider the following:
            1. Building design, Site layout and landscape in a way that maintains and enhances the rural identity and feel of the area in which such development takes place;
            2. Appropriate screening from public roads and adjacent properties using natural vegetation, preferably existing vegetation where possible;
            3. Outdoor amenity areas for employees and landscaping that supports the City's tree canopy targets; and
            4. Accesses are designed to minimize hazards between the road on which the development fronts and its vehicular points of access, such as freight transfer.
        ii. 9.3.2 (1) The following uses are permitted in the Rural industrial and Logistics Area
            1. (b) warehouse
            2. (d) A commercial use involving the display and sale of products manufactured or warehoused on the site are permitted provided that the retail floor space does not exceed the greater of 300 square metres or 25 per cent of the gross floor area of the building.
    b. Adjacent to Bedrock Resource Area Overlay
    c. Adjacent to mineral aggregate operations to the south and west of the parcel operated by Lafarge Canada and Tomlinson Group.
    d. Site of former Gloucester Concession 6 Dump

i. Years of operation and closure – 1920 – 1991

2. City of Ottawa Zoning By-law

    a. Rural Heavy Industrial Zone

    b. Warehouse is a permitted use.

    c. Refuse collection area must be screened from the street in accordance with Section 110(3) of the Zoning By-law.

    d. Ensure all parking spaces, loading spaces, drive aisles conform with the requirements of Section 101, 107, 113 of the Zoning By-law.

3. Parking requirements

    a. Warehouse – 0.8 per 100m2 of the first 5000 m2 GFA

    b. A retail store – 3.4 spaces per 100m2 of gross floor area

        i. Since the proposed showroom is not open to the public and is by appointment only, the use can qualify for the parking space requirements for a Warehouse.

4. Discussion

    a. Please provide details about the easement that projects into the property (located between parking spaces 12 and 13).

    b. There is a 30 cm reserve that was put in place during the establishment of the industrial subdivision agreement. It can be lifted as per requirements in lause 18 of Schedule F, Section D, of the subdivision agreement.

5. Submission requirements

    All Plans and Studies must meet the requirements of the City's Terms of Reference.

    a. Plan of Survey

    b. Site plan

    c. Landscape plan

    d. Zoning confirmation report

    e. Preliminary construction management plan

Please contact Jasdeep Brar (jasdeep.brar@ottawa.ca), Planner I, for follow up questions.

Urban Design

Comments:

6. Submission Requirements

    a. An Urban Design Brief is required. Please see attached customized Terms of Reference to guide the preparation of the submission.

    b. The Urban Design Brief should be structured by generally following the headings highlighted under Section 3 – Contents of these Terms of Reference.

7. Comments on Preliminary Design

    a. The following elements of the preliminary design are appreciated:

        i. Good investment in the design of the street facing elevation.

    b. The following element of the preliminary design are of concern:

        i. Amount of parking. We recommending reducing parking to what is needed and providing more area for landscaping between the building and the public right-of-way.

        ii. We recommend providing landscaping and new tree planting at the front of the property.

        iii. What is happening in the large areas of land left over at the rear of the site and beside the building? Please indicate on the site plan/landscape plan and provide landscaping and trees if possible/suitable.

Please contact Christopher Moise (christopher.moise@ottawa.ca), Urban Designer, for follow up questions.

Engineering

Comments:

8. Site Servicing Study

    a. A **Site Servicing Study** will be required with the Site Plan Control application. The report will serve to address how the design of the site complies with City design guidelines, Official Plan policies, among other evaluation criteria noted in the Terms of Reference. The City's Official

Plan, in its policy intent section, reiterates the need for implementing stormwater management practices and incorporating Low Impact Development measures. In order for the City to be able to support an application on private services, an adequate Hydrogeological Investigation and Terrain Analysis as well as a Servicing Options Report (Site Servicing Study) must be completed; they will include reviewing options for provision of water, stormwater, and sanitary servicing, as well as completing a Hydrogeological Investigation and Terrain Analysis. The applicant can also refer to Ministry of the Environment Procedure D-5-3 for guidance. The Servicing Options Report shall include the Hydrogeological Investigation and Terrain Analysis as well as make reference to a number of important issues and considerations such as geotechnical engineering, water quality issues (ODWQS), Best Management Practices, Stormwater Management considerations, Wellhead protection issues, impacts on or from adjacent land uses (for example: local wells, agricultural uses, etc.). Also, the applicant must refer to the Ontario Ministry of Environment (MOE) Procedures D-5-4 and D-5-5. This report should also be completed exceeding the minimum requirements laid out in the Site Servicing Study Terms of Reference.

b. Stormwater management, which is a component of the Servicing Study, is required to mitigate the effects of urbanization on the hydrologic cycle including increased runoff and decreased infiltration, of rain and snowmelt. Without proper stormwater management, a site can negatively impact the environment by reducing baseflow, degrading water quality, and increasing flooding and erosion; this leads to reduced diversity of aquatic life, fewer opportunities for human uses of water resources, and loss of property and human life. The City looks to lessen these risks by reviewing development applications to ensure; stormwater management practices are being implemented, infrastructure is resilient to future climate conditions, including extreme weather events, and low impact development is implemented to manage smaller, infrequent events. The Official Plan, which receives authority through the Planning Act, identifies in Policy 6, section 2.2.3, that flooding is the costliest type of natural disaster in Canada.

    i. In terms of the Stormwater Management for the application, the quantity criteria will be that the 100-yr post development peak flow rate must match the 2-year pre-development peak flow rate. As part of complete Site Plan Control application, whether development or re-development, the report must identify and mitigate the impacts of additional runoff resulting from increased imperviousness through measures such as site-specific stormwater management postulated in policy 6, section 4.7.1 of the Official Plan.

        1. Stormwater Management Report – Hawthorne Industrial Park (2009) also notes that to control erosion potential, per

the Shield's Creek Subwatershed Study, to current levels, the 2-yr post development peak flow rate should be controlled to 50% of the 2-yr pre-development peak flow rate. The consultant should perform this control in addition to the criteria noted above.

ii. In terms of a Stormwater Management approach, runoff volume control should proceed in the following hierarchical order, with each step exhausted before proceeding to the next:

1. Retention (infiltration, reuse, or evapotranspiration),

2. Low Impact Development (LID) filtration, and

3. Conventional Stormwater management. Conventional stormwater management, should proceed only once Maximum Extent Possible has been attained for Steps 1 and 2 for retention and filtration.

iii. The pre-development runoff coefficient or a maximum equivalent 'C' of 0.5, whichever is less as described in the Sewer Design Guidelines, 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, section 8.3.7.3.

iv. A calculated time of concentration cannot be less than 10 minutes as described in section 5.1.4 of the Sewer Design Guidelines.

v. The water quality control should be an enhanced level treatment, 80% long term suspended sediment removal, in part due to environmental issues in the area; more information is provided in the bullet addressing the Hawthorne Industrial Park below. Reporting of TSS removal shall be extensive- and if peer reviewed and published papers are relied on for conclusions, the conclusions shall be patently clear and the report shall show overwhelming agreement.

c. This site is part of the Hawthorne Industrial Park, that was accepted in 2009, and is subject to the conditions of the subdivision agreement. A stormwater management pond was constructed as part as the development of this park. The pond was designed to provide 70% TSS removal. The current requirement for water quality treatment is an enhanced level of proection which corresponds to 80% TSS removal.

i. The subdivision agreement, in schedule F, section C, covenant 7 requires an oil/grit separator to be provided on each lot. "Each site will be required to install and maintain, at the Transferee's expense,

an oil/grit separator to provide quality treatment of surface runoff before entering the roadside open ditch/culvert system."

ii. A stormwater management report appears to show a design runoff coefficient of 0.7, though the consultant should satisfy themselves of such; the quantity control design may merely need to be the difference between the proposed and 0.7. It is suggested that the consultant procure a copy of the stormwater management report for Hawthorne Industrial Park for coordination. The stormwater management report was prepared by J.L. Richards & Associates Limited (J.L.R. Project #: JLR 20983; City Index #: R-2973) Revision date May 2009.

d. Runoff will need to be conveyed to a legal and sufficient outlet. If it is proposed to discharge storm water to the existing ditches in the ROW, the ditches will need to be shown to provide continuous flow to an outlet. It appears that rationale may have been provided for the HIP open ditch sizing in the Stormwater Management Report – Hawthorne Industrial Park (2009) which may aid in this discussion. This comment is sourced from the Official Plan which notes in policy 8, section 4.7.1, that proof of legal and sufficient outlet for proposed stormwater management and drainage systems will be required as a condition of future Site Plan Control.

e. The site is within the boundaries of the Shield's Creek and North Castor River Subwatershed Studies. The following sections are provided for context, but do not reflect all the requirements of the study, which should be read in full by the consultant preparing the design of the works;

i. Shield's Creek Subwatershed Study

1. Low-capacity Issues – Section 4.7 (p. 4-26, sheet 46),

a. Table 4.7.1 identifies hydraulic capacities of structures with the study area.

2. Water Quality – Section 6.3.2 and 6.3.4.6 (p. 6-15, sheet 116),

a. *"Provide stormwater management to Provincial Policy – Level 2 (MOEE Guidelines, 1999) or Normal Level of Protection (MOE, 2003). This will provide for the control of TSS and generally provides similar control for metals and nutrients."

3. SWM pond canopy – Section 5.6.4/5.6.5 and table 6.2.3 referencing section 95 of Figure 4.10.1, and

a. Providing 70% canopy effect surrounding SWM ponds could reduce temperature impacts on downstream receivers.

4. Stormwater Management Measures – Section 6.3.4.4

    a. “At-source controls are generally the most effective means of providing water quality protection. This includes measures such as lot layout, using grassed areas for stormwater, at-source infiltration. These types are typically the most effective controls since they prevent pollutants from entering the drainage system and provide for flow retention at-source, which best replicates headwater systems in a pre-development condition. In addition, at-source and conveyance controls that include infiltration, go towards meeting other objectives such as baseflow protection and temperature reduction.”

5. Infiltration rates - Section 6.3.4.7 (p.6-16, sheet 117)

    a. Table 6.3.2 – Infiltration Targets which provides anticipated infiltration rate depending on the soil types noted.

    b. Figure 5.5.1 – Infiltration Rates provides a map of anticipated infiltration rates.

    c. Figure 5.5.1 seems the site has a range of 50 - 250 mm/hr (paleozoic bedrock) anticipated infiltration rate, based on the shading type in the Hawthorne Industrial Park.

ii. North Castor River Subwatershed Study.

1. Action 6, provides that sites must make efforts to ensure that stormwater or other sources of water contamination be safely discharged to minimize their impact on the water quality of the North Castor River. The report notes that if care is not taken in land-use planning and development, water quality deterioration will be unavoidable, and the ecosystem biota components of the North Castor River could suffer severe degradation.

iii. IMPORTANT: *Where the Shields Creek Subwatershed Study, North Castor River Subwatershed Study, and the City’s provided quantity and quality criteria do not agree, the more stringent criteria shall be applied.

f. Low Impact Development (LID) is a stormwater management strategy that seeks to mitigate the impacts of increased runoff and stormwater pollution using practices that help to preserve or to restore predevelopment hydrological and ecological functions. LID is a requirement as per the bulletin from the former MOECC (now Ministry of Environment, Conservation and Parks/ "MECP") titled Expectations RE: Stormwater Management released in February 2015. Prior to implementing infiltration style measures there are site characteristics that must be determined. Supporting data collection will involve groundwater monitoring (long term or limited date with a conservative assumption), soil classification, and measured infiltration/percolation testing which will aid the consultant in determining what measures are, or are not, suitable for the site. The infiltration target for sites can at times be determined from an applicable higher-level study, which will also require confirmation through on-site infiltration/percolation testing.

    i. The reporting should identify the treatment train of processes proposed for the development. The Official Plan defines LID as a stormwater management strategy that seeks to mitigate the impacts of increased runoff and stormwater pollution by managing runoff as close to its source as possible. LID comprises a set of site design strategies that minimize runoff through distributed, small scale structural practices that mimic natural or predevelopment hydrology through the processes of infiltration, evapotranspiration, harvesting, filtration and detention of stormwater. These practices can effectively remove nutrients, pathogens and metals from runoff, and they reduce the volume and intensity of stormwater flows.

    ii. The City has released a document titled 'Low Impact Development Technical Guidance Report – Implementation in Areas with Potential Hydrogeological Constraints' which aids the consultant for sites which may have constraints such as low permeability or high groundwater, which are common constraints for the Ottawa area.

g. The anticipated water demands (average day, maximum daily, and maximum hour) must be presented and justified for the pumping test rate. The pumping rate must be the maximum daily demand rate for the proposed use or combined uses, or be a rationalized peak demand rate as demonstrated in MECP D-5-5. The Ottawa Design Guidelines – Water Distribution in Table 4.2 provide the maximum daily demand rates based on the lot area for Zoning By-law Amendment Applications. For Site Plan Control Applications the maximum daily demand rate should be based on historical records, reliable usage records, or in the absence of the above be determined based on Table 4.2 from Ottawa Design Guidelines – Water Distribution. The MECP's Design Guidelines for Drinking Water Systems follow a similar process.

h. All minimum requirements outlined in the subdivision agreement must be considered. This may include recommendations related the wells, septic systems, stormwater management and fire protection which should be considered should they exceed City and MECP requirements

9. Fire Services & Supply

    a. The Site Servicing Study must include a section addressing the provision of a water supply for fire suppression, determination of the required fire flow, and confirm of size and location of any on-site storage required. It is the responsibility of the owner to ensure that an adequate water supply for firefighting is provided. Based on recent and ongoing changes, both the FUS (Fire Underwriters Survey) methodology and Ontario Building Code methodology for determining required fire flow and storage shall be provided in the reporting. The Engineer, Fire Protection (Ottawa Fire Services), shall review the proposal and determine the criteria that will govern.

    b. Enhanced review will be invoked should the construction coefficient chosen be less than 1.

    c. Fire Routes now require designation with By-law through the Site Plan process by contacting fireroutes@ottawa.ca once preliminary Site Plan approval has been provided.

10. Grading & Drainage Plan

    a. A **Grading and Drainage Plan** will be required with the Site Plan Control application identifying the existing and proposed drainage patterns and their relationship with the surface runoff control. The Grading and Drainage Plan should propose site, grading, building, and servicing design measures to protect new development from flooding as per policy 6, section 4.7.1 of the Official Plan. The Grading and Drainage Plan forms part of the requirements for Site Plan Control applications noted in the Studies and Plan Identification List, provided with the feedback documents and should be prepared according to the City's Terms of Reference.

    b. There is an existing Grading Plan (Site Servicing and Grading) provided for the subdivision which should be considered in the development of the proposed lot grading.

    c. The Plan should have a note that references the horizontal and vertical datums that were used and tied into to complete the project. The drawing should also make reference (on the face of the plan) to a satisfactory site benchmark that can be used by anyone with a level to carry out checks on the particular project.

11. Erosion and Sediment Control

a. An **Erosion and Sediment Control Plan** will be required with the Site Plan Control Application, typically included as an addendum to the Site Servicing Study. The plan serves to identify erosion risks and determine controls to be put in place in order to reduce the amount of erosion and sediment deposition that occurs as part of a project. Erosion and sediment control plans shall have regard to Canadian Standards Association (CSA) W202 Erosion and Sediment Control Inspection and Monitoring Standard (as amended).

12. Geotechnical Study

a. A **Geotechnical Study** will be required with the Site Plan Control application. The report should provide sufficient soils and engineering information to confirm that the site is suitable or can be made suitable for development based on the requirements of the Geotechnical Investigation and Reporting Guidelines for Development Applications in the City of Ottawa.

b. The study should contemplate/investigate at a minimum the pavement structure for light-duty and heavy-duty areas, foundation design, and groundwater elevation, in addition to the other evaluation criteria noted in the Terms of Reference for Geotechnical Studies. Based on policy, estimates of groundwater level will be dismissed and instead actual recordings are required.

c. The site, based on Ontario Geological Survey, indicates a potential for shallow overburden or thin soils over paleozoic bedrock (Sandstone & dolostone).

13. Hydrogeological and Terrain Analysis

a. A **Hydrogeological and Terrain Analysis** will be required for the Site Plan Control application to establish that there is an adequate quantity and quality of groundwater to support the proposed development(s). The requirements for the Hydrogeological and Terrain Analysis Report are outlined in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines, Section 5.0 for Site Plans. The study forms part of the requirements for Zoning Amendment and Site Plan Control applications noted in the Studies and Plan Identification List, provided with the feedback documents.

b. A **30cm reserve** was placed on the lots based on recommendations made in the Subdivision Hydrogeological Report (December 2008) and Letter to the SNCA prepared by Golder Associates (April 2009).

i. Extended Well Casing: “All wells drilled on the property should be equipped with a minimum of two lengths (approximately 12 metres) of steel well casing or with casing extending a minimum of one

metre into competent bedrock, whichever is greater." (Page 6, Golder response letter to SNCA, 2009)

ii. Site Specific Investigation:

1. "A site specific investigation should be conducted on each building lot prior to construction. The investigation should note the type of materials present in the area proposed for the sewage disposal bed, the depth to impervious material or water table and an estimate of the hydraulic conductivity of the material. Depending on the specific characteristics of the lot, shallow buried trenches or area beds may be appropriate. On others, a fully raised bed constructed on imported material may be required. It is recommended that sewage disposal systems be located in areas with a minimum of 0.3 metres of soil" (Page 6, Golder response letter to SNCA, 2009)

2. "Due to the heterogeneity of the fill material, it was not felt that testing of the material would provide useful information that could be extrapolated to the entire site. For that reason, Golder recommended that a site specific investigation be conducted prior to construction of a septic system on each lot." (Page 3, Golder response letter to SNCA, 2009)

c. The supply well must be installed and tested to confirm water quantity and quality suitability prior to site plan approval. Support must be provided for the pump test rate; which should be the maximum day rate. The rate should consider the actual use (if known), or potential uses permitted through zoning if unknown.

d. The site is located at a bedrock aquifer fault/intersection between multiple bedrock aquifers and therefore the anticipated quantity/quality of groundwater is unknown or could be variable.

e. The parameters of water quality that will be tested will be the "subdivision suite" known to local well testing companies, as well as trace metals, VOCs, and PAHs. Requirements are outlined in the City of Ottawa Hydrogeological and Terrain Analysis Guidelines. The report should also provide an assessment of adjacent land uses and concerns and determine if any other parameters need to be tested (i.e. petroleum hydrocarbons, etc.). The subdivision agreement, in schedule F, section C, covenant 10, identifies that testing of Polycyclic Aromatic Hydrocarbons (PAHs) be provided as an additional parameter(s), at a minimum.

f. Bollards, or other means of preventing vehicle access, will need to be provided between areas with vehicle access and the existing or proposed well(s).

g. A Septic System Impact Assessment must be completed as part of the Hydrogeological and Terrain Analysis Report, as per the City's Hydrogeological and Terrain Analysis Report Guidelines and MECP Guideline D-5-4, please refer to the HGTA for the predictive assessment for commercial/industrial developments (not residential developments).

h. Note that compact gravel will be considered impermeable in the septic impact assessment unless accompanied by field testing to confirm infiltration rates.

i. Since this application is a site plan (not lot creation or zoning) septic treatment (i.e. tertiary treatment with nitrate dilution) may be considered as part of the septic impact assessment calculations. A system certified though NSF or BNQ should be recommended.

j. The subdivision agreement, in schedule F, section C, covenant 15, identifies that the investigation for sewage systems should include the types of materials present, depth to impervious material or the water table and an estimate of the hydraulic conductivity of the material.

k. If system isolation is contemplated, the technical pre-consultation with the reviewer is required to ensure the assessment meets the minimum requirements identified in City Guidelines, and to confirm the minimum onsite testing requirements.

l. If the expected sewage daily design flow is 10,000 L/d or less, the septic permit from the Ottawa Septic System Office must be issued prior to Site Plan Approval being granted.

m. If the sewage design flow from sewage systems exceeds 10,000 L/d, a Reasonable Use Assessment/Study must accompany the application to the City. Sewage systems with design flows exceeding 10,000 L/d require the issuance of an Environmental Compliance Approval (ECA) from the MECP prior to Site Plan Approval being granted.

n. Bollards, or other means of preventing vehicle access, will need to be provided between areas with vehicle access and the proposed septic system(s).

14. Environmental Site Assessment

a. A **Phase One Environmental Site Assessment** (ESA), and possibly Phase Two ESA as deemed required by the Phase 1 ESA, is required for the proposed Site Plan Control application. This report serves 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.

i. The City's Historic Land Use Inventory identifies that the subdivision lies on the site of a former landfill, known as Gloucester Concession 6 dump.

ii. There is known Importation of Fill Material of Unknown Quality. Soil may be imported fill of questionable origin historically.

iii. There is a private fuel outlet at 3500 Rideau which could be a potential contaminant dependent on groundwater flow direction.

15. Environmental Compliance Approval

a. An Environmental Compliance Approval (ECA) is an approval that is required for new or modified sewage works and is required based on part II.1 of the Environmental Protection Act. "Sewage works" is defined as any works for the collection, transmission, treatment and disposal of sewage or any part of such works. There are approval exemptions described in O.Reg. 525/98 that describe works that the act does not apply to. The Site Servicing Study should identify any ECA requirements or exemptions that apply based on the proposed use. Based on the information provided during the pre-consultation submission package, it is anticipated that an ECA would be required given the industrial use located on industrial land.

b. For developments that do not meet the criteria of the CLI ECA process and require direct submission, a request can be made to the City to consider the application through the Transfer of Review process. This typically applies to ECA applications for privately owned stormwater works or facilities (ponds, OGS units, swales, LID facilities, etc.). This process would be completed alongside the planning application and would be reviewed to the same level of criteria as required by MECP. This is subject to approval by the City and MECP and must be requested, via email, to the Infrastructure Project Manager to be initiated. Direct submission remains an option for other application types that do not meet the CLI ECA process and are not reviewed through Transfer of Review. More information can be determined by contacting the Ministry of the Environment, Conservation and Parks, Ottawa District Office to arrange a pre-submission consultation. Patrick Lalonde at patrick.lalonde@ontario.ca (Site Plan Control).

16. Construction constraints

a. The current concept plan does not incorporate the engineering measures required for the lot, which may impact siting of building and parking lots.

Missing components such as well, septic system, stormwater management facilties, etc. come to mind.

b. The design should contemplate locations of heavy traffic flow and movement on the site as it relates to the site layout and pavement design requirements.

17. Background studies and/or subwatershed studies

    a. Shield's Creek Subwatershed Study, as detailed in the Site Servicing Study section above, contains but is not limited to the following sections;

        i. Stormwater Design Criteria – Section 4.6.1 (p.4-18, sheet 38),

        ii. Low-capacity Issues – Section 4.7 (p. 4-26, sheet 46),

        iii. Water Quality – Section 6.3.4.6 (p. 6-15, sheet 116),

        iv. SWM pond canopy – Section 5.6.4/5.6.5 and table 6.2.3 referencing section 95 of Figure 4.10.1, and

        v. Infiltration rate - Table 6.3.2 (depending on overburden), Section 6.3.4.7 (p.6-16, sheet 117), shown as Figure 5.5.1 (sheet 213), and required as per Table 7.5.1

    b. North Castor River Subwatershed Study.

        i. Action 6, provides that sites must make efforts to ensure that stormwater or other sources of water contamination be safely discharged to minimize their impact on the water quality of the North Castor River. The report notes that if care is not taken in land-use planning and development, water quality deterioration will be unavoidable, and the ecosystem biota components of the North Castor River could suffer severe degradation.

    c. Where the Shields Creek Subwatershed Study, North Castor River Subwatershed Study, and the City's Sewer Design Guidelines have different criteria, the more stringent criteria should be applied.

18. Frontage Charges

    a. The site is subject to an area specific development charge titled the 'Area Specific Development Charge for the Osgoode Greely Erosion Control' as noted in Development Charge By-law No. 2004-315.

19. Clarification on Using Historical Reports

    a. It is unlikely that historical reports could be used to support the current application. Some studies, such as those prepared during the plan of

subdivision application, may inform the studies prepared as part of this application, but the focus should be on what information the study provides to the current proposal. Note that many studies remain valid for a period of time or may have been superceded by new regulations, guidelines, etc.

Feel free to contact Travis Smith (travis.smith@ottawa.ca), Project Manager, for follow-up questions.

Noise

Comments:

20. No noise study required.

Feel free to contact Travis Smith (travis.smith@ottawa.ca), Project Manager, for follow-up questions.

Transportation

Comments:

21. A Transportation Impact Assessment is not required.

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

23. As the proposed site is industrial, AODA legislation applies.

    a. The site is proposing 42 parking stalls total, which requires two accessible parking stalls be provided (one Type A and one Type B). Note the two stalls can share an access aisle.

    b. Clearly define accessible parking stalls and ensure they meet AODA standards (include an access aisle next to the parking stall and a pedestrian curb ramp at the end of the access aisle, as required).

    c. Ensure all crosswalks located internally on the site provide a TWSI at the depressed curb, per requirements of the Integrated Accessibility Standards Regulation under the AODA.

    d. Please consider using the City's Accessibility Design Standards, which provide a summary of AODA requirements.

24. On site plan:

    a. Clearly show pedestrian pathway areas on the site plan.

    b. Ensure site access meets the City's Private Approach Bylaw.

c. Show all details of the roads abutting the site; include such items as pavement markings, accesses, etc.

d. Turning movement diagrams required for all accesses showing the largest vehicle to access/egress the site.

e. Turning movement diagrams required for internal movements (loading areas, garbage).

f. 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).

g. Show dimensions for site elements (i.e. lane/aisle widths, access width and throat length, parking stalls, sidewalks, pedestrian pathways, etc.)

Feel free to contact Josiane Gervais (josiane.gervais@ottawa.ca), Transportation Project Manager, for follow-up questions.

Environment

Comments:

25. There are two main environmental features to be aware of for this development. The first is the watercourse that runs roughly along the southern property line of the site. This will impose a 30m “no touch” setback from the top of bank. While this does not appear to overlap with the planned development, the watercourse and attendant setback must be represented on the site plan.

    The second feature of concern is the presence of unevaluated wetlands on the City’s mapping. As surface water features, wetlands also create a 30m setback similar to the watercourse noted above. However, in this case it is likely that the mapping is outdated and does not reflect the actual hydrological conditions as they exist today.

    The presence of these wetlands will not require a full Environmental Impact Statement to address. However, confirmation of the true extent of the wetlands (if present at all) must be provided prior to submission, as any setbacks they impose may require substantial alterations to the site plan. A Wetland Delineation Survey, conducted by an accredited professional, must be submitted.

    The applicant is encouraged to contact the South Nation Conservation Authority. They may have more recent mapping that could be accepted in lieu of the survey.

26. The City has strong guidance for tree planting to help meet the forest canopy goals, as well as to reduce the impacts of climate change and the urban heat island effect. For this site, additional tree plantings along the watercourse setback to the south would be ideal. Please note that the City prefers that plantings be of native and non-invasive species.

27. The applicant is encouraged to consider implementing mitigation measures from the City's Bird Safe Design Guidelines into the design of the building.

Feel free to contact Mark Elliott (mark.elliot@ottawa.ca), Environmental Planner, for follow-up questions.

Forestry

Comments:

28. Landscape Plan Terms of Reference Requirements for Planting on Private and City Property:

    a. Landscape Plan Terms of Reference must be adhered to: (https://documents.ottawa.ca/sites/documents/files/landscape_tor_en.pdf).

29. Additional Elements for Tree Planting in the Right of Way:

    a. Please ensure any retained trees are shown on the LP

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

    c. The city requests that consideration be given to planting native species wherever there is a high probability of survival to maturity.

    d. Efforts shall be made to provide as much future canopy cover as possible at a site level, through tree planting and tree retention. The Landscape Plan shall show/document that the proposed tree planting and retention will contribute to the City's overall canopy cover over time. Please provide a projection of the future canopy cover for the site to 40 years.

    e. 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.

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

f. 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 if possible, include watering and warranty as described in the specification.

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

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

g. Hard surface planting

   i. If there are hard surface plantings, a planting detail must be provided.

   ii. Curb style planter is highly recommended.

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

   iv. Trees are to be planted at grade.

   v. Soil Volume - Please demonstrate as per the Landscape Plan Terms of Reference that the available soil volumes for new plantings will meet or exceed the minimum soil volumes requested.

Feel free to contact Hayley Murray (hayley.murray@ottawa.ca), Planning Forester, for follow-up questions.

Parkland

Comments:

30. This application is exempt from parkland dedication under Section 11 – Exemptions of the City of Ottawa Parkland Dedication By-law No. 2022-280 as it was determined that the Parkland Dedication requirement was previously satisfied for 561 Somme Street (Subdivision Agreement 15-94-0505), and as this development is the same as anticipated, no further conveyance is required at this time.

Feel free to contact Warren Bedford (warren.bedford@ottawa.ca), Parks Planner, for follow-up questions.

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

Yours Truly,



Jasdeep Brar, Planner I

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

c.c. Sarah McCormick, Planner II
Leah Dykstra, Student Planner
Travis Smith, Infrastructure Project Manager
Josiane Gervais, Transportation Project Manager
Damien Whittaker, Engineer
Christopher Moise, Urban Designer
Mark Elliot, Environmental Planner
Hayley Murray, Forester
Warren Bedford, Parks Planner

APPENDIX B

'Hawthrone Industrial Park' Stormwater Management Report

- The HIP open ditch system was sized with sufficient capacity to convey, under free-flowing conditions, the 1:100 year peak flow rate, as calculated by the Rational Method (refer to Appendix 'A' for a copy of the 1:100 year Design Sheet).

- The Hawthorne Road open ditch system was sized with sufficient capacity to convey, under free-flowing conditions, the 1:100 year peak flow rate, as calculated by the Rational Method (refer to Appendix 'A' for a copy of the 1:100 year Design Sheet).

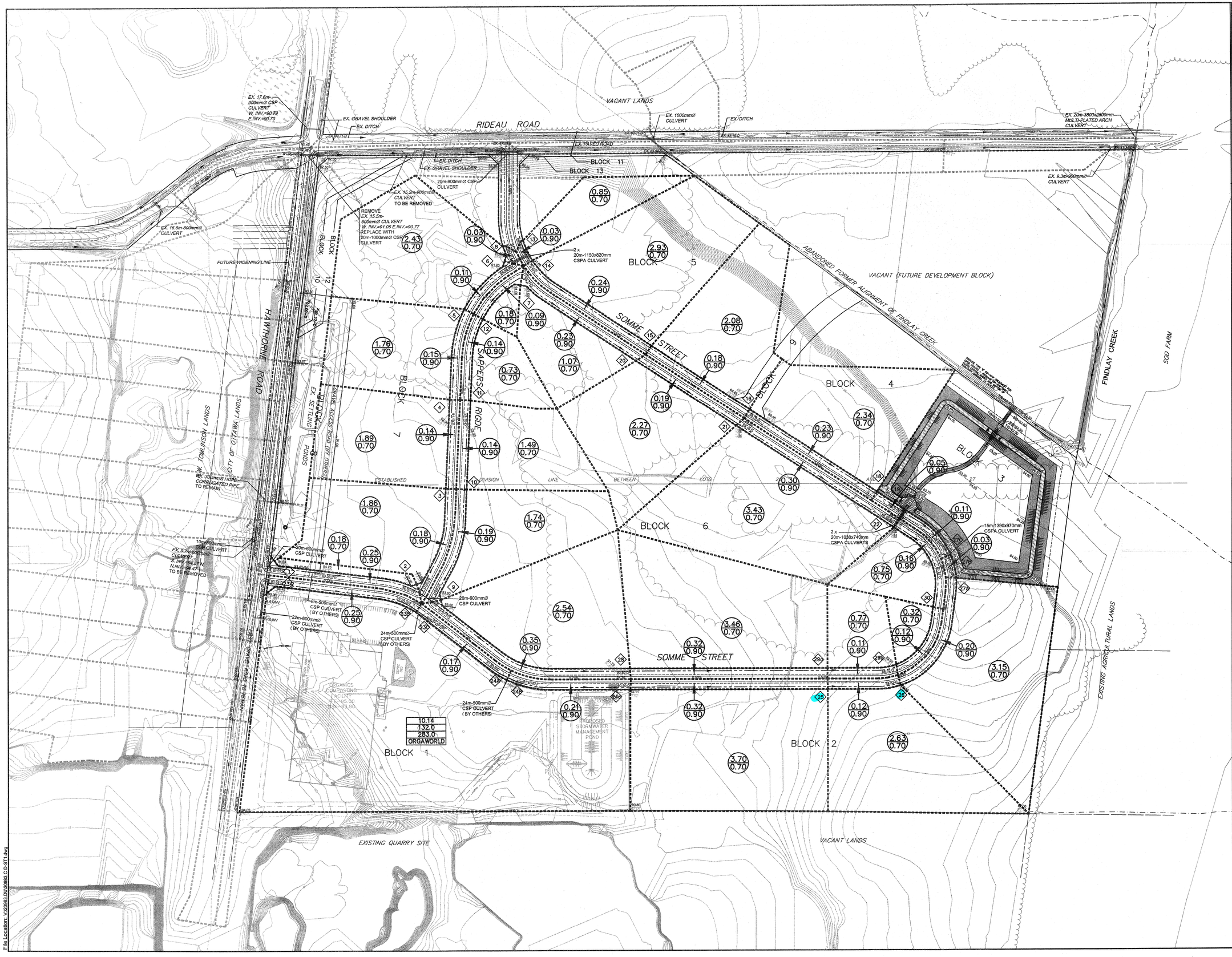
- The existing downstream ditch system along Rideau Road was evaluated to ensure sufficient capacity to convey, under free-flowing conditions, the 1:100 year peak flow rate, as calculated by the Rational Method (refer to Appendix 'A' for a copy of the 1:100 year Design Sheet).

- The culverts included in the HIP and along Hawthorne Road/Rideau Road were sized with sufficient capacity to convey the 1:10 year peak flow rate without overtopping the roadway embankment (refer to Appendix 'A' for a copy of the 1:10 year Design Sheet).

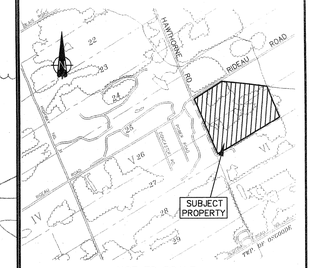
- Given that the receiving watercourse was found to shelter fisheries, the SCSS recommended that a "normal" level of protection be achieved for quality control. To fulfill this requirement, industrial sites must direct runoff to an appropriately sized oil/grit separator unit before stormwater can be conveyed off site to the open roadside ditch/culvert system. To achieve quality control for the internal roads, it is proposed to provide infiltration storage volume in the roadside open ditch system, as per the requirements presented in Table 3.2 of the SWMPDM.

- The SCSS recommended that the erosion potential be maintained to current levels for the receiving water course. To fulfill the above requirement, the two year post-development peak flow will be controlled to 50% of the pre-development peak flow rate.

- Storage volume is to be implemented for the control of the post-development peak flows to pre-development levels for storm events ranging from a 1:2 year to a 1:100 year recurrence to comply with the recommendations of the SCSS.



Key Map



NOT TO SCALE

LEGEND

- DRAINAGE BOUNDARY
- 2.91 / 0.70 — AREA IN HECTARES / * RUNOFF COEFFICIENT (C)
- 10.14 — DRAINAGE AREA (ha)
- 132.0 — 10 YEAR PEAK FLOW (l/s)
- 283.0 — 100 YEAR PEAK FLOW (l/s)
- ORGAWORLD — ORGAWORLD SITE
- 28 — NODE LOCATION NUMBER
- PROPOSED DITCH AND FLOW DIRECTION

* NOTE: RUNOFF COEFFICIENT (C) FOR DEVELOPMENT AREA IS BASED ON A WEIGHTED AVERAGE OF 0.70, WHILE ROADWAYS ARE 0.90.

NO.	ISSUE	DATE
03	ISSUED FOR M.O.E. APPROVAL	28/05/09
02	REVISED PER CITY COMMENTS	30/04/09
01	ISSUED FOR CITY APPROVAL	12/02/09

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SCALE: 1:2000

0 25 50 100 150

J.L.Richards
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PROFESSIONAL STAMP

LICENSED PROFESSIONAL ENGINEER
D. P. UPTON
PROVINCE OF ONTARIO

PROJECT NORTH

PROJECT:

HAWTHORNE INDUSTRIAL PARK

DRAWING:

STORM DRAINAGE AREA PLAN

DESIGN: M.B.	DRAWING NO.: D-ST1
DRAWN: T.S.	
CHECKED: D.U.	JLR NO: 20983
PLOTTED: May 28, 2009	

File Location: V:\20983.DIV\20983 C D-ST1.dwg

Hawthorne Industrial Park

City of Ottawa

OPEN DITCH/CULVERT DESIGN SHEET

JLR 20983

February 2009 (Revised April 2009)

Prepared by: M. Buchanan, E.I.T.

Checked by: G. Forget, P.Eng.

1:10 year Ottawa International Airport IDF Curve

Increase Runoff Coefficient by 0.0%

DETAILS	NODES		DRAINAGE AREA					PEAK FLOW GENERATION					OPEN DITCH/SWALE DATA									CULVERTS SIZED UNDER 1:10 YEAR STORM EVENT						FLOW	U/S	D/S
	FROM	TO	Area at C of 0.70 (ha)	Area at C of 0.90 (ha)	SUM(A)	SUM(A*C)	TOTAL A*C	2.78AR	2.78AR CUM	TIME min.	INTENS. mm/hr	PEAK FL. l/s	BW m	D_{10yr} m	D_{max} m	SS X:1	SLOPE %	Q_{10yr} l/s	Q_{100yr} l/s	VEL. m/s	LENGTH m	No. of Barrels	DIA (mm)	B x D (m)	INLET CONTROL	OUTLET CONTROL	HW 1:10 (m)	TIME (min)	Inv (m)	Inv (m)
NORTHERN CATCHMENT AREA																													
WEST SIDE SAPPERS RIDGE	2	3	1.86	0.18	2.04	1.46	1.46	4.07	4.07	15.00	97.85	398.2	0.00	0.42	1.20	3.00	0.50	424.2	6973.0	0.80	136.80							2.84	92.50	91.82
WEST SIDE SAPPERS RIDGE	3	4	1.89	0.14	2.03	1.45	2.92	4.04	8.11	17.84	88.22	715.4	0.00	0.51	1.20	3.00	0.80	904.2	8856.1	1.16	111.00							1.60	91.82	90.93
WEST SIDE SAPPERS RIDGE	4	5	1.76	0.15	1.91	1.36	4.28	3.79	11.90	19.44	83.68	995.9	0.00	0.58	1.20	3.00	0.51	1011.3	7029.1	1.00	112.85							1.88	90.93	90.36
WEST SIDE SAPPERS RIDGE	5	6	2.43	0.11	2.54	1.80	6.08	5.00	16.90	21.32	78.96	1334.4	0.00	0.65	1.20	3.00	0.62	1513.4	7762.6	1.19	82.79							1.16	90.36	89.85
										22.47																				
NORTH ENTRANCE TO SOMME STREET	8	6		0.03	0.03	0.03	0.03	0.08	0.08	15.00	97.85	7.3	0.00	0.20	1.20	3.00	1.30	94.9	11276.7	0.79	10.00							0.21	89.98	89.85
										15.21																				
CULVERT CROSSING	6	14		0.00	0.00	0.00	6.11	0.00	16.97	22.47	76.34	1295.8					0.50				20.00	2	-----	1.15 x 0.82	NO	YES	**0.75**	0.38	89.85	89.75
										22.85																				
NORTH PORTION SOMME STREET	13	14	0.85	0.03	0.88	0.62	0.62	1.73	1.73	15.00	97.85	169.2	0.00	0.30	1.20	3.00	2.30	372.0	14999.4	1.38	10.00							0.12	89.98	89.75
										15.12																				
NORTH PORTION SOMME STREET	14	15	2.93	0.24	3.17	2.27	8.99	6.30	25.00	22.85	75.52	1888.2	0.00	0.74	1.20	3.00	0.50	1926.6	6992.8	1.17	184.04							2.62	89.75	88.83
NORTH PORTION SOMME STREET	15	16	2.08	0.18	2.26	1.62	10.61	4.50	29.50	25.47	70.36	2075.4	0.00	0.77	1.20	3.00	0.57	2291.4	7480.8	1.29	145.08							1.88	88.83	88.00
NORTH PORTION SOMME STREET	16	18	2.34	0.23	2.57	1.85	12.46	5.13	34.63	27.35	67.11	2323.9	0.00	0.80	1.20	3.00	0.51	2399.6	7074.8	1.25	185.66							2.48	88.00	87.05
NORTH PORTION SOMME STREET	18	19	0.00	0.05	0.05	0.05	12.50	0.13	34.75	29.82	63.30	2199.9	0.00	0.76	1.20	3.00	0.72	2476.8	8372.8	1.43	41.86							0.49	87.05	86.75
										30.31																				
EAST SIDE SAPPERS RIDGE	9	10	1.74	0.19	1.93	1.39	1.39	3.86	3.86	15.00	97.85	378.0	0.00	0.41	1.20	3.00	0.50	399.2	6996.6	0.79	147.87							3.11	92.40	91.66
EAST SIDE SAPPERS RIDGE	10	11	1.49	0.14	1.63	1.17	2.56	3.25	7.11	18.11	87.42	622.0	0.00	0.49	1.20	3.00	0.66	735.9	8019.2	1.02	111.04							1.81	91.66	90.93
EAST SIDE SAPPERS RIDGE	11	12	0.73	0.14	0.87	0.64	3.20	1.77	8.88	19.92	82.40	732.0	0.00	0.52	1.20	3.00	0.55	785.5	7304.8	0.97	104.49							1.80	90.93	90.36
EAST SIDE SAPPERS RIDGE	12	7	0.18	0.09	0.27	0.21	3.40	0.58	9.46	21.72	78.02	738.2	0.00	0.49	1.20	3.00	0.81	818.5	8919.0	1.14	72.55							1.06	90.36	89.77
NORTH PORTION SOMME STREET	7	20	1.07	0.23	1.30	0.96	4.36	2.66	12.12	22.79	75.66	916.9	0.00	0.57	1.20	3.00	0.50	956.8	6966.1	0.98	177.39							3.01	89.77	88.89
NORTH PORTION SOMME STREET	20	21	2.27	0.19	2.46	1.76	6.12	4.89	17.01	25.80	69.76	1186.8	0.00	0.62	1.20	3.00	0.50	1200.1	6981.9	1.04	147.49							2.36	88.89	88.16
NORTH PORTION SOMME STREET	21	22	3.43	0.30	3.73	2.67	8.79	7.43	24.44	28.16	65.80	1608.1	0.00	0.70	1.20	3.00	0.56	1759.0	7404.4	1.20	232.84							3.24	88.16	86.85
										31.40																				
SOUTHERN CATCHMENT AREA																														
SOUTH PORTION SOMME STREET	23A	23B	0.00	0.25	0.25	0.23	0.23	0.63	0.63	15.00	97.85	61.2	0.00	0.20	1.20	3.00	0.64	66.3	7883.5	0.55	181.00							5.46	93.65	92.50
CULVERT CROSSING	23B	23C		0.00	0.00	0.00	0.23	0.00	0.63	20.46	81.05	50.7					0.42				24.00	1	500	-----	NO	YES	**0.33**	1.55	92.50	92.40
SOUTH PORTION SOMME STREET	23C	24A	0.00	0.17	0.17	0.15	0.38	0.43	1.05	22.00	77.38	81.3	0.00	0.22	1.20	3.00	0.82	97.0	8946.1	0.67	110.00							2.74	92.40	91.50
CULVERT CROSSING	24A	24B		0.00	0.00	0.00	0.38	0.00	1.05	24.75	71.70	75.3					0.42				24.00	1	500	-----	NO	YES	**0.34**	1.04	91.50	91.40
SOUTH PORTION SOMME STREET	24B	24C	0.00	0.21	0.21	0.19	0.57	0.53	1.58	25.79	69.78	110.0	0.00	0.25	1.20	3.00	0.70	126.0	8258.2	0.67	142.00							3.52	91.40	90.41
ORGAWORLD - SITE	U/S	24C	1:10 year peak flow = 132 L/s, see Table 4 of Orgaworld Stormwater Site Management Plan, Sept. 2008				132.0																							
SOUTH PORTION SOMME STREET	24C	25	3.70	0.32	4.02	2.88	3.44	8.00	9.58	29.31	64.05	745.3	0.00	0.52	1.20	3.00	0.54	783.8	7289.5	0.97	244.84							4.22	90.41	89.08
SOUTH PORTION SOMME STREET	25	26	2.63	0.12	2.75	1.95	5.39	5.42	14.99	33.53	58.41	1007.7	0.00	0.58	1.20	3.00	0.51	1013.1	7041.5	1.00	90.75							1.51	89.08	88.62
SOUTH PORTION SOMME STREET	26	27A	3.15	0.20	3.35	2.39	7.78	6.63	21.63	35.04	56.65	1357.2	0.00	0.62	1.20	3.00	0.65	1370.0	7970.4	1.19	157.06							2.20	88.62	87.60
SOUTH PORTION SOMME STREET	27A	27B	0.00	0.03	0.03	0.03	7.81	0.08	21.70	37.24	54.29	1310.1	0.00	0.61	1.20	3.00	0.65	1312.4	7973.8	1.18	20.00							0.28	87.60	87.47
CULVERT CROSSING	27B	27C		0.00	0.00	0.00	7.81	0.00	21.70	37.53	54.00	1303.8					0.73				15.00	1	----	1.39 X 0.97	YES	NO	**0.87**	0.20	87.47	87.36
CORNER OF POND	27C	19	0.00	0.11	0.11	0.10	7.88	0.28	21.98	37.73	53.79	1314.2	0.00	0.65	1.20	3.00	0.71	1622.9	8324.0	1.28	72.00							0.94	87.36	86.85
										38.67																				

APPENDIX C

Water Supply Calculations

Water Supply Calculations

LRL File No. : 240374
Project: Proposed Granite Showroom & Warehouse Development
Location: 561 Sommee Street, Ottawa, ON
Date: 2026-06-12
Designed: K. Herold
Checked: M. Basnet
Dwg Reference: C401

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

Institutional / Commercial / Industrial Demand

Property Type	Unit Rate (L/ha/d)	Area (ha)	Demand (L/d)
Light Industrial	**35000**	**1.619**	**56665**

Average Day Demand	**56,665**	**L/d**	**0.656**	**L/s**
Maximum Day Factor	1.5		(Design Guidelines-Water Distribution Table 4.2)	
Maximum Daily Demand	**84,998**	**L/d**	**0.984**	**L/s**
Peak Hour Factor	1.8		(Design Guidelines-Water Distribution Table 4.2)	
Maximum Hour Demand	**152,996**	**L/d**	**1.771**	**L/s**

TOTAL DEMAND				
Average Day Demand	**56,665**	**L/d**	**0.66**	**L/s**
Maximum Daily Demand	**84,998**	**L/d**	**0.98**	**L/s**
Maximum Hour Demand	**152,996**	**L/d**	**1.77**	**L/s**

Water Service Pipe Sizing

Q = VA

Where: V = velocity (m/s)
A = area of pipe (m^2)
Q = flow rate (L/s)

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

Minimum pipe diameter (d) =	$(4Q/\pi V)^{1/2}$	
=	0.035	m
=	35	mm
Proposed pipe diameter (d) =	**50**	mm
=	**2**	Inches

Pipe Pressure Losses Calculations

LRL File No. 240374
Project Proposed Granite Showroom & Warehouse Development
Location: 561 Somme Street, Ottawa, ON
Date June 12, 2026
Designed: K. Herold
Checked: M. Basnet

Hazen Williams Equation

$$h_f = \frac{10.67 \times Q^{1.85} \times L}{C^{1.85} \times d^{4.87}}$$

Where:

h_f = Head loss over the length of pipe (m)
Q = Volumetric flow rate (m^3/s)
L = Length of pipe (m)
C = Pipe roughness coefficient
d = Pipe diameter (m)

Remote Hydrant Network

Q (L/s)	95.00	(maximum flow capped @ 5700 L/min)
C	100	
L (m.)	150.00	
I.D. (mm)	150	
V (m/s)	5.37	
h_f (m)	42.22	
Head Loss (psi)	60.03	
Provided Pressure (psi)	100.00	(pressure through pumper truck)
Min. Pressure (psi)	39.97	
Service Obv. @ DH02 Connection (m)	91.30	
Service Obv. @ DH04 Connection (m)	91.90	
Pressure Adjustment (psi)	-0.85	(due to service elevation difference)
Adjusted Min. Pressure (psi)	39.12	(must not be less than 20psi)

November 6, 2026

Re: 561 Somme st., Edwards, ON.
Fire Protection Water Supply Requirement for Part 3 of O.B.C.

The proposed commercial building is at 561 Somme St, Edwards, ON. is a two stories Granite showroom and Warehouse facility. The entire building is of non-combustible construction, sprinklered.

Building domestic water supply is provided via on-site well, and building water for Fire protection is supplied by on-site fire water tanks. Refer to Civil dwgs.

Existing Site (attached)

The Subject Site is located on the (short description of site and surrounding areas)

To the North: Somme St (public travelled Rd)
To the East: Vacant land
To the West: Vacant land
To the South: wet Land

Calculation: Q=KVStot

K: building construction classification

V: building volume

Stot: building property line distances

Stot = 1+ Σ Stot

Building classifications by group:

Warehouse: V = 20,381 m3; F-2 (K=27)

Offices: V = 2,352 m3; D (K=16)

Showroom & Mercantile: V=3,994 m3; E (K-27)

Building multiple exposures:

21.77 m; Stot = 0

26.5 m; Stot =0

4.57 m: 1.5m, Stot=0.5

30.0 m, Stot = 0

Stot = 1+0+0+0.5+0

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Jain

Q=(16 x 2,352.0 m^3 x 1.5) + (27 x (3,994 + 20,381) x 1.5)

Q= 56,448 m^3 + 987,187.5

Q= 1,043,635.5

According to Fire protection Water Supply guideline for Part 3 of OBC A3.2.5.7, Table 2:

Minimum water supply flow rate for Q≥270,000

Required water supply shall be 9000 L/min (150 L/sec)

Conclusion

This is preliminary Fire Flow calculations and shall be coordinated with Civil dwgs showing site dry hydrants with own storage tanks. Fire protection tanks and dry hydrants are not pressurized. The pressure shall come from Fire trucks.

The calculation is intended for preliminary fire consideration only and remains subject to confirmation as the detail designs progress'.

Yours very truly,

Dinesh Jain

D. Jain, M.Eng., M.B.A., P.Eng., C.E.M., L.A.P.



Fire Flow Calculations

LRL File No. 240374
Project: Proposed Granite Showroom & Warehouse Development
Location: 561 Sommee Street, Ottawa, ON
Date: June 12, 2026
Method: Fire Underwriter's Survey (FUS)
Prepared by: K. Herold

Step	Task	Term	Options	Multiplier	Choose:	Value	Unit	Fire Flow
Structural Framing Material								
1	Choose frame used for building	Coefficient C related to the type of construction	Wood Frame	1.5	Non-combustible constructio	**0.8**		
			Ordinary Construction	1.0				
			Non-combustible construction	0.8				
			Fire resistive construction <2 hrs	0.7				
			Fire resistive construction >2 hrs	0.6				
Floor Space Area (A)								
2	Total area					**3,215**	m^2	
3	Obtain fire flow before reductions	Required fire flow (rounded to nearest 1000)	Fire Flow = 220 x C x $A^{0.5}$				L/min	**10,000**
Reductions or surcharge due to factors affecting burning								
4	Choose combustibility of contents	Occupancy hazard reduction or surcharge	Non-combustible	-25%	Combustible	**0%**	L/min	**10,000**
			Limited combustible	-15%				
			Combustible	0%				
			Free burning	15%				
			Rapid burning	25%				
5	Choose reduction for sprinklers	Sprinkler reduction	Full automatic sprinklers	-30%	True	**-30%**	L/min	**7,000**
			Water supply is standard for both the system and fire department hose lines	-10%	False	**0%**		
			Fully supervised system	-10%	False	**0%**		
6	Choose separation	Exposure distance between units	North side	30.1 to 45m	0%		L/min	**7,000**
			East side	30.1 to 45m	0%			
			South side	30.1 to 45m	0%			
			West side	30.1 to 45m	0%	**0%**		
Net required fire flow								
7	Obtain fire flow, duration, and volume	Minimum required fire flow rate (rounded to nearest 1000)					L/min	**7,000**
		Minimum required fire flow rate					L/s	**116.7**
		Required duration of fire flow					hr	**2**

561 SOMME STREET

August 12, 2025

Water Supply for Fire Fighting:

Building Use	= Warehouse, offices, showroom
Building Area:	= 29350 SF.
Building Height	= 30 feet
Fire Protection	= Fully sprinklered building
Monitoring	= Central Water Flow Monitoring System
Sprinkler Design	= Ordinary Group II, 0.15gpm / 2000 sf.
Volume Required (min)	= 300 gpm + 250 gpm hose allowance
Estimated required volume	= 610 gpm
Fire pump	= 500 gpm
Duration	= 60 minutes (Centrally Monitored Building)
Volume Required	= 45,000 gallons. - 170, 325 liters
Volume Proposed	= 180,000 liters – 3tanks of 60,000 liters each



Jain Sustainability Consultants Inc.
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APPENDIX D

Stormwater Management Calculations
Hydrovex ICD
Stormceptor OGS
ADS Stormtech Chamber
WATTS Roof Drain

LRL Associates Ltd.

Storm Watershed Summary

LRL File No. 240374
Project: Proposed Granite Showroom & Warehouse Development
Location: 561 Somme Street, Ottawa, ON
Date: June 12, 2026
Designed: K. Herold
Checked: M. Basnet
Dwg Reference: C701, C702

Pre-Development Catchments

Catchment	C = 0.20	C = 0.80	C = 0.90	Total Area (ha)	Combined C
ECA-01(uncontrolled)	0.553	0.810	0.000	1.363	0.56
Total	**0.553**	**0.810**	**0.000**	**1.363**	**0.56**

Post-Development Catchments

Catchment	C = 0.20	C = 0.8	C = 0.90	Total Area (ha)	Combined C
CA-01 (uncontrolled)	0.147	0.000	0.001	0.148	0.20
CA-02A (roof-controlled)	0.000	0.000	0.216	0.216	0.90
CA-02B (roof-controlled)	0.000	0.000	0.062	0.062	0.90
CA-03 (uncontrolled)	0.008	0.000	0.081	0.089	0.84
CA-04 (controlled)	0.003	0.000	0.032	0.035	0.84
CA-05 (controlled)	0.085	0.000	0.032	0.117	0.39
CA-06 (controlled)	0.089	0.000	0.021	0.110	0.33
CA-07 (controlled)	0.156	0.000	0.051	0.207	0.37
CA-08 (controlled)	0.131	0.000	0.040	0.171	0.36
CA-09 (controlled)	0.133	0.000	0.075	0.208	0.45
Total	**0.752**	**0.000**	**0.611**	**1.363**	**0.51**

LRL File No. 240374
Project: Proposed Granite Showroom & Warehouse Development
Location: 561 Somme Street, Ottawa, ON
Date: June 12, 2026
Designed: K. Herold
Checked: M. Basnet
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 =	0.56	(max of 0.7 as per Hawthrone Industrial Park- Stormwater Management Report)
I_2 =	178.6	mm/hr
T_d =	10	min
A =	1.363	ha
100 Year Release Rate =	376.56	L/s

Post-development Stormwater Management

				$\sum R_{2\&5}$	$\sum R_{100}$
Total Site Area =	**1.363**	**ha**	**∑R =**	**0.51**	**0.64**
CA-04 (controlled)	0.035	ha	R =	0.84	1.00
CA-05 (controlled)	0.117	ha	R =	0.39	0.49
CA-06 (controlled)	0.110	ha	R =	0.33	0.42
CA-07 (controlled)	0.207	ha	R =	0.37	0.47
CA-08 (controlled)	0.171	ha	R =	0.36	0.45
CA-09 (controlled)	0.208	ha	R =	0.45	0.57
Total (ICD controlled)	**0.848**	**ha**	**R =**	**0.41**	**0.51**
CA-02A (roof-controlled)	0.216	ha	R =	0.90	1.00
CA-02B (roof-controlled)	0.062	ha	R =	0.90	1.00
Total (roof-controlled)	**0.278**	**ha**	**R =**	**0.90**	**1.00**
CA-01 (uncontrolled)	0.148	ha	R =	0.20	0.26
CA-03 (uncontrolled)	0.089	ha	R =	0.84	1.00
Total (uncontrolled)	**0.237**	**ha**	**R =**	**0.44**	**0.55**
Total (controlled+uncontrolled)	**1.363**	**ha**	**R =**	**0.51**	**0.64**

100 Year Post-development Stormwater Management (CA-02A Roof-Controlled)

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	107.22	57.49	11.40	0.00	11.40
15	142.89	85.81	66.96	11.40	0.00	11.40
20	119.95	72.03	72.75	11.40	0.00	11.40
25	103.85	62.36	76.44	11.40	0.00	11.40
30	91.87	55.17	78.78	11.40	0.00	11.40
35	82.58	49.59	80.19	11.40	0.00	11.40
40	75.15	45.12	80.94	11.40	0.00	11.40
45	69.05	41.46	81.17	11.40	0.00	11.40
50	63.95	38.40	81.01	11.40	0.00	11.40
55	59.62	35.80	80.53	11.40	0.00	11.40
60	55.89	33.56	79.79	11.40	0.00	11.40
70	49.79	29.90	77.69	11.40	1.00	12.40
80	44.99	27.02	74.96	11.40	2.00	13.40
90	41.11	24.69	71.75	11.40	3.00	14.40
100	37.90	22.76	68.16	11.40	4.00	15.40
110	35.20	21.14	64.27	11.40	5.00	16.40
120	32.89	19.75	60.14	11.40	6.00	17.40

Summary of Roof Storage

LRL File No. 240374
Project: Proposed Granite Showroom & Warehouse Development
Location: 561 Somme Street, Ottawa, ON
Date: June 12, 2026
Designed: K. Herold
Checked: M. Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

Minimum Required Roof Storage (100 Year) =	81.17	m^3	
Proposed Head =	150	mm	*An Emergency overflow scupper is provided above this height.
Control Flow/Drain =	0.95	L/s	
Number of Roof Drains =	**12**		
Total Flow from Roof Drain =	11.40	L/s	
Available Roof Storage =	**84.00**	m^3	(20% reduction considered)
Roof Drain Model =	*WATTS Roof Drain- 1/4 Exposed Weir Opening*		

100 Year Post-development Stormwater Management (CA-02B Roof-Controlled)

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	30.78	16.76	2.85	0.00	2.85
15	142.89	24.63	19.60	2.85	0.00	2.85
20	119.95	20.67	21.39	2.85	0.00	2.85
25	103.85	17.90	22.57	2.85	0.00	2.85
30	91.87	15.83	23.37	2.85	0.00	2.85
35	82.58	14.23	23.90	2.85	0.00	2.85
40	75.15	12.95	24.24	2.85	0.00	2.85
45	69.05	11.90	24.44	2.85	0.00	2.85
50	63.95	11.02	24.52	2.85	0.00	2.85
55	59.62	10.28	24.51	2.85	0.00	2.85
60	55.89	9.63	24.42	2.85	0.00	2.85
70	49.79	8.58	24.07	2.85	1.00	3.85
80	44.99	7.75	23.54	2.85	2.00	4.85
90	41.11	7.09	22.87	2.85	3.00	5.85
100	37.90	6.53	22.10	2.85	4.00	6.85
110	35.20	6.07	21.24	2.85	5.00	7.85
120	32.89	5.67	20.30	2.85	6.00	8.85

Summary of Roof Storage

Minimum Required Roof Storage (100 Year) =	24.52	m^3	
Proposed Head =	150	mm	*An Emergency overflow scupper is provided above this height.
Control Flow/Drain =	0.95	L/s	
Number of Roof Drains =	**3**		
Total Flow from Roof Drain =	2.85	L/s	
Available Roof Storage =	**25.44**	m^3	(20% reduction considered)
Roof Drain Model =	*WATTS Roof Drain- 1/4 Exposed Weir Opening*		

LRL File No. 240374
Project: Proposed Granite Showroom & Warehouse Development
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Drawing Ref.: C601

Stormwater Management Design Sheet

100 Year Post-development Stormwater Management (CA-04,05,06,07,08,09)

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	214.26	101.94	44.36	65.03	109.39
15	142.89	171.46	114.39	44.36	52.04	96.40
20	119.95	143.93	119.48	44.36	43.68	88.04
25	103.85	124.61	120.37	44.36	37.82	82.18
30	91.87	110.23	118.57	44.36	33.46	77.82
35	82.58	99.09	114.93	44.36	30.07	74.43
40	75.15	90.17	109.94	44.36	27.37	71.73
45	69.05	82.85	103.93	44.36	25.15	69.51
50	63.95	76.74	97.14	44.36	23.29	67.65
55	59.62	71.54	89.70	44.36	21.71	66.07
60	55.89	67.07	81.75	44.36	20.36	64.72
70	49.79	59.74	64.61	44.36	18.13	62.49
80	44.99	53.99	46.20	44.36	16.38	60.75
90	41.11	49.33	26.83	44.36	14.97	59.33
100	37.90	45.48	6.72	44.36	13.80	58.16
110	35.20	42.24	0.00	44.36	12.82	57.18
120	32.89	39.47	0.00	44.36	11.98	56.34

100 Year Post-development Stormwater Management (CA-04,05,06,07,08,09)
*** 50% of the controlled release rate considered for storage calculations**

Time (min)	Intensity (mm/hr)	Controlled Runoff (L/s)	Storage Volume (m^3)	*Controlled Release Rate (L/s)	Uncontrolled Runoff (L/s)
10	178.56	214.26	115.25	22.18	65.03
15	142.89	171.46	134.35	22.18	52.04
20	119.95	143.93	146.10	22.18	43.68
25	103.85	124.61	153.64	22.18	37.82
30	91.87	110.23	158.50	22.18	33.46
35	82.58	99.09	161.50	22.18	30.07
40	75.15	90.17	163.17	22.18	27.37
45	69.05	82.85	163.82	22.18	25.15
50	63.95	76.74	163.68	22.18	23.29
55	59.62	71.54	162.90	22.18	21.71
60	55.89	67.07	161.60	22.18	20.36
70	49.79	59.74	157.77	22.18	18.13
80	44.99	53.99	152.66	22.18	16.38
90	41.11	49.33	146.61	22.18	14.97
100	37.90	45.48	139.80	22.18	13.80
110	35.20	42.24	132.39	22.18	12.82
120	32.89	39.47	124.49	22.18	11.98

LRL File No. 240374
Project: Proposed Granite Showroom & Warehouse Development
Location: 561 Somme Street, Ottawa, ON
Date: June 12, 2026
Designed: K. Herold
Checked: M. Basnet
Drawing Ref.: C601

Stormwater Management Design Sheet

On-site Stormwater Detention

Total Storage Required =	**163.82**	**m^3**	
Surface Ponding Storage =	63.43	m^3	(Refer to DWG C601)
U/G Chambers Storage=	60.11	m^3	
Subdrain Trench Drain Storage=	35.50	m^3	(40% Porosity)
Structures + Pipe Storage=	18.51	m^3	
Total Available Storage =	**177.55**	**m^3**	

Summary of release Rates and Storage Volumes

Catchment	Drainage Area (ha)	100-year Release Rate (L/s)	100-Year Required Storage (m3)	Total Available Storage (m3)
CA-03 to CA-09 (ICD Controlled)	0.848	44.36	163.82	177.55
CA-02A (Roof Controlled)	0.216	11.40	81.17	84.00
CA-02B (Roof Controlled)	0.062	2.85	24.52	25.44
Uncontrolled	0.237	65.03	N/A	N/A
Total	**1.363**	**123.64**	**269.51**	**286.99**

Pipe Storage

Length (m)	Length (m)	dia. (m)	Storage (m^3)
CB01-CB02	35.7	0.250	1.75
CB02-CB03A	33.10	0.300	2.34
CB03A-CB03B	10.30	0.300	0.73
CB03B-CB04	10.00	0.375	1.10
CB04-CB05	25.40	0.375	2.81
CB05-CB06	34.90	0.375	3.86
CB06- INLET01	32.30	0.375	3.57
		Total	**16.16**

MH/CBMH Storage

CB/CBMH	Depth (m)	dia. (m)	Storage (m^3)
CB01	0.97	0.30	0.07
CB02	0.93	0.30	0.07
CB03	1.07	0.30	0.08
CB04	1.13	0.30	0.08
CB05	1.22	0.30	0.09
CB06	1.31	0.30	0.09
Inlet 01	1.66	1.20	1.88
		Total	**2.35**

Overland Storage Summary

Structure	Storage (m3)
CB01	0.72
Inlet 01	4.21
Swale	58.50
Total	**63.43**

LRL File No. 240374
Project: Proposed Granite Showroom & Warehouse Development
Location: 561 Somme Street, Ottawa, ON
Date: June 12, 2026
Designed: K. Herold
Checked: M. Basnet
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 =	0.56	(max of 0.7 as per Hawthrone Industrial Park- Stormwater Management Report)
I_2 =	76.8	mm/hr
T_d =	10	min
A =	1.363	ha
2 Year Release Rate =	161.97	L/s
Allowable Release Rate=	**80.99**	L/s

(50% of 2-yr pre-development flow as per the Shield's Creek Subwatershed Study)

LRL Associates Ltd.

Storm Sewer Design Sheet

LRL File No. 240374
Project: Proposed Granite Showroom & Warehouse Development
Location: 561 Somme Street, Ottawa, ON
Date: June 12, 2026
Designed: K. Herold
Checked: M. Basnet
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-09	CB-01	CB-02	0.133	0.000	0.075	0.26	0.26	10.00	104.19	27.26		250	PVC	0.45%	35.7	39.89	0.81	0.73	0.68
CA-08	CB-02	CB-03	0.131	0.000	0.040	0.17	0.43	10.73	100.48	43.66		300	SUB-DRAIN	0.45%	33.1	64.87	0.92	0.60	0.67
CA-07	CB-03A	CB-03B	0.039	0.000	0.013	0.05	0.49	11.33	97.64	47.66		300	SUB-DRAIN	0.34%	10.3	56.39	0.80	0.22	0.85
CA-07	CB-03B	CB-04	0.039	0.000	0.013	0.05	0.54	11.55	96.67	52.36		375	SUB-DRAIN	0.44%	10.0	116.30	1.05	0.16	0.45
CA-07	CB-04	CB-05	0.078	0.000	0.026	0.11	0.65	11.71	95.97	62.27		375	SUB-DRAIN	0.35%	25.4	103.73	0.94	0.45	0.60
CA-06	CB-05	CB-06	0.089	0.000	0.021	0.10	0.75	12.16	94.03	70.60		375	SUB-DRAIN	0.34%	34.9	102.23	0.93	0.63	0.69
CA-05	CB-06	NP INLET 01	0.085	0.000	0.032	0.13	0.88	12.79	91.47	80.33		375	PVC	0.28%	32.3	92.78	0.84	0.64	0.87
	Outlet (ICD)	OGS									44.36	300	PVC	0.51%	11.6	69.06	0.98	0.20	0.64
	OGS	STM Outlet									44.36	300	PVC	0.49%	8.1	67.69	0.96	0.14	0.66
CA-02	Roof Drain	STM Outlet	0.000	0.000	0.216	0.54	0.54	10.00	104.19	56.31	14.50	150	PVC	4.71%	28.6	33.05	1.87	0.25	0.44

Adjustable Accutrol Weir

Tag: _____

Adjustable Flow Control for Roof Drains

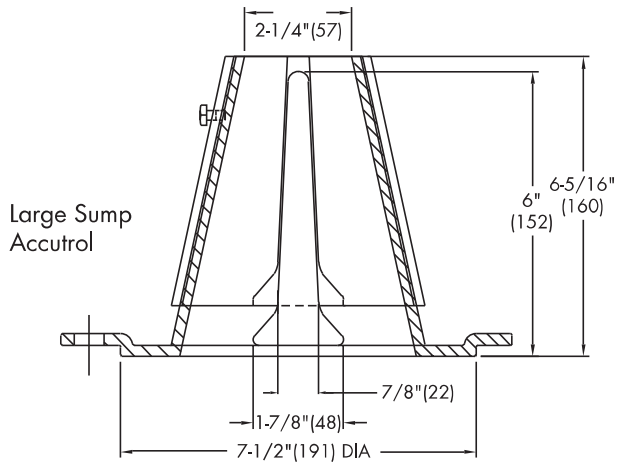
ADJUSTABLE ACCUTROL (for Large Sump Roof Drains only)

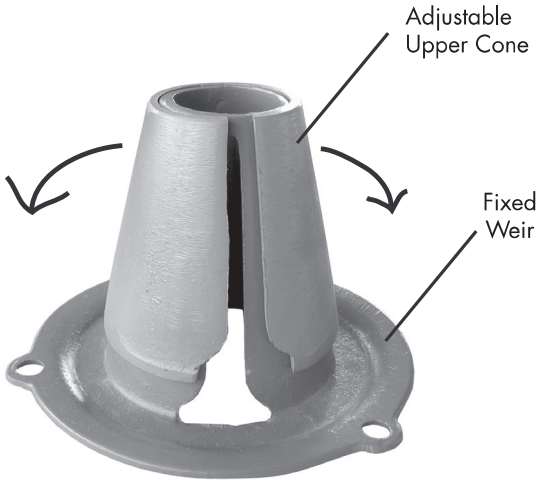
For more flexibility in controlling flow with heads deeper than 2", Watts Drainage offers the Adjustable Accutrol. The Adjustable Accutrol Weir is designed with a single parabolic opening that can be covered to restrict flow above 2" of head to less than 5 gpm per inch, up to 6" of head. To adjust the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

EXAMPLE:

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

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





1/2 Weir Opening Exposed Shown Above

TABLE 1. Adjustable Accutrol Flow Rate Settings

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

Job Name _____ Contractor _____

Job Location _____ Contractor's P.O. No. _____

Engineer _____ Representative _____

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

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HYDROVEX®

VHV Vertical Vortex Flow Regulator

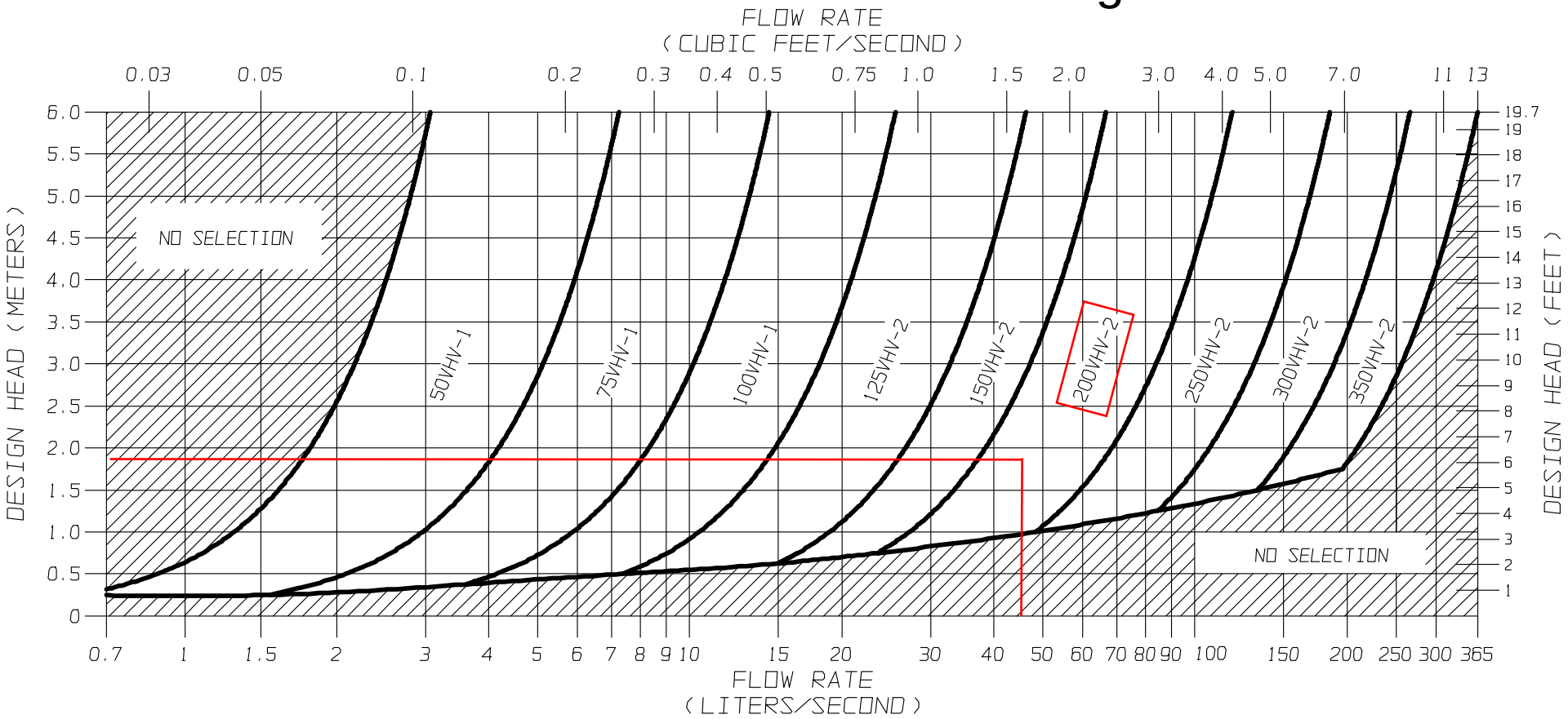


FIGURE 3 - VHV

JOHN MEUNIER

PROJECT INFORMATION	
ENGINEERED PRODUCT MANAGER:	HAIDER NASRULLAH 647-850-9417 HAIDER.NASRULLAH@ADSPIPE.COM
ADS SALES REP:	BRAD DUNLOP 613-893-7336 BRAD.DUNLOP@ADSPIPE.COM
PROJECT NO:	S464729
ONTARIO SITE COORDINATOR:	RYAN RUBENSTEIN 519-710-3687 RYAN.RUBENSTEIN@ADSPIPE.COM

Advanced Drainage Systems, Inc.

SiteAssist™
FOR STORMTECH
INSTALLATION INSTRUCTIONS
VISIT OUR WEBSITE

561 SOMME STREET

OTTAWA, ON.

SC-800 STORMTECH CHAMBER SPECIFICATIONS

1. CHAMBERS SHALL BE STORMTECH SC-800.
2. CHAMBERS SHALL BE ARCH-SHAPED AND SHALL BE MANUFACTURED FROM VIRGIN, IMPACT-MODIFIED POLYPROPYLENE COPOLYMERS.
3. CHAMBERS SHALL BE CERTIFIED TO CSA B184, "POLYMERIC SUB-SURFACE STORMWATER MANAGEMENT STRUCTURES", AND MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
4. CHAMBER ROWS SHALL PROVIDE CONTINUOUS, UNOBSTRUCTED INTERNAL SPACE WITH NO INTERNAL SUPPORTS THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION.
5. THE STRUCTURAL DESIGN OF THE CHAMBERS, THE STRUCTURAL BACKFILL, AND THE INSTALLATION REQUIREMENTS SHALL ENSURE THAT THE LOAD FACTORS SPECIFIED IN THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SECTION 12.12, ARE MET FOR: 1) LONG-DURATION DEAD LOADS AND 2) SHORT-DURATION LIVE LOADS, BASED ON THE CSA S6 CL-625 TRUCK AND THE AASHTO DESIGN TRUCK WITH CONSIDERATION FOR IMPACT AND MULTIPLE VEHICLE PRESENCES.
6. CHAMBERS SHALL BE DESIGNED AND ALLOWABLE LOAD CONFIGURATIONS DETERMINED IN ACCORDANCE WITH ASTM F2787, "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS". LOAD CONFIGURATIONS SHALL INCLUDE: 1) INSTANTANEOUS (<1 MIN) AASHTO DESIGN TRUCK LIVE LOAD ON MINIMUM COVER 2) MAXIMUM PERMANENT (75-YR) COVER LOAD AND 3) ALLOWABLE COVER WITH PARKED (1-WEEK) AASHTO DESIGN TRUCK.
7. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 50 mm (2").
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT SHALL BE GREATER THAN OR EQUAL TO 750 LBS/FT/%. THE ASC IS DEFINED IN SECTION 6.2.8 OF ASTM F2418. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 23° C / 73° F), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.
8. ONLY CHAMBERS THAT ARE APPROVED BY THE SITE DESIGN ENGINEER WILL BE ALLOWED. UPON REQUEST BY THE SITE DESIGN ENGINEER OR OWNER, THE CHAMBER MANUFACTURER SHALL SUBMIT A STRUCTURAL EVALUATION FOR APPROVAL BEFORE DELIVERING CHAMBERS TO THE PROJECT SITE AS FOLLOWS:
   - THE STRUCTURAL EVALUATION SHALL BE SEALED BY A REGISTERED PROFESSIONAL ENGINEER.
   - THE STRUCTURAL EVALUATION SHALL DEMONSTRATE THAT THE SAFETY FACTORS ARE GREATER THAN OR EQUAL TO 1.95 FOR DEAD LOAD AND 1.75 FOR LIVE LOAD, THE MINIMUM REQUIRED BY ASTM F2787 AND BY SECTIONS 3 AND 12.12 OF THE AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS FOR THERMOPLASTIC PIPE.
   - THE TEST DERIVED CREEP MODULUS AS SPECIFIED IN ASTM F2418 SHALL BE USED FOR PERMANENT DEAD LOAD DESIGN EXCEPT THAT IT SHALL BE THE 75-YEAR MODULUS USED FOR DESIGN.
9. CHAMBERS AND END CAPS SHALL BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.
10. MANIFOLD SIZE TO BE DETERMINED BY SITE DESIGN ENGINEER. SEE TECHNICAL NOTE 6.32 FOR MANIFOLD SIZING GUIDANCE. DUE TO THE ADAPTATION OF THIS CHAMBER SYSTEM TO SPECIFIC SITE AND DESIGN CONSTRAINTS, IT MAY BE NECESSARY TO CUT AND COUPLE ADDITIONAL PIPE TO STANDARD MANIFOLD COMPONENTS IN THE FIELD.
11. ADS DOES NOT DESIGN OR PROVIDE MEMBRANE LINER SYSTEMS. TO MINIMIZE THE LEAKAGE POTENTIAL OF LINER SYSTEMS, THE MEMBRANE LINER SYSTEM SHOULD BE DESIGNED BY A KNOWLEDGEABLE GEOTEXTILE PROFESSIONAL AND INSTALLED BY A QUALIFIED CONTRACTOR.

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IMPORTANT - NOTES FOR THE BIDDING AND INSTALLATION OF THE SC-800 SYSTEM

1. STORMTECH SC-800 CHAMBERS SHALL NOT BE INSTALLED UNTIL THE MANUFACTURER'S REPRESENTATIVE HAS COMPLETED A PRE-CONSTRUCTION MEETING WITH THE INSTALLERS.
2. STORMTECH SC-800 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/SC-800/DC-780 CONSTRUCTION GUIDE".
3. CHAMBERS ARE NOT TO BE BACKFILLED WITH A DOZER OR AN EXCAVATOR SITUATED OVER THE CHAMBERS. STORMTECH RECOMMENDS 3 BACKFILL METHODS:
   - STONESHOOTER LOCATED OFF THE CHAMBER BED.
   - BACKFILL AS ROWS ARE BUILT USING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
   - BACKFILL FROM OUTSIDE THE EXCAVATION USING A LONG BOOM HOE OR EXCAVATOR.
4. THE FOUNDATION STONE SHALL BE LEVELED AND COMPACTED PRIOR TO PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS SHALL BE PROPERLY SEATED PRIOR TO PLACING STONE.
6. MAINTAIN MINIMUM - 150 mm (6") SPACING BETWEEN THE CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE A CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE; AASHTO M43 #3, 357, 4, 467, 5, 56, OR 57.
8. THE CONTRACTOR MUST REPORT ANY DISCREPANCIES WITH CHAMBER FOUNDATION MATERIALS BEARING CAPACITIES TO THE SITE DESIGN ENGINEER.
9. ADS RECOMMENDS THE USE OF "FLEXSTORM CATCH IT" INSERTS DURING CONSTRUCTION FOR ALL INLETS TO PROTECT THE SUBSURFACE STORMWATER MANAGEMENT SYSTEM FROM CONSTRUCTION SITE RUNOFF.

NOTES FOR CONSTRUCTION EQUIPMENT

1. STORMTECH SC-800 CHAMBERS SHALL BE INSTALLED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/SC-800/DC-780 CONSTRUCTION GUIDE".
2. THE USE OF CONSTRUCTION EQUIPMENT OVER SC-800 CHAMBERS IS LIMITED:
   - NO EQUIPMENT IS ALLOWED ON BARE CHAMBERS.
   - NO RUBBER TIRED LOADERS, DUMP TRUCKS, OR EXCAVATORS ARE ALLOWED UNTIL PROPER FILL DEPTHS ARE REACHED IN ACCORDANCE WITH THE "STORMTECH SC-310/SC-740/SC-800/DC-780 CONSTRUCTION GUIDE".
   - WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT CAN BE FOUND IN THE "STORMTECH SC-310/SC-740/SC-800/DC-780 CONSTRUCTION GUIDE".
3. FULL 900 mm (36") OF STABILIZED COVER MATERIALS OVER THE CHAMBERS IS REQUIRED FOR DUMP TRUCK TRAVEL OR DUMPING.

USE OF A DOZER TO PUSH EMBEDMENT STONE BETWEEN THE ROWS OF CHAMBERS MAY CAUSE DAMAGE TO THE CHAMBERS AND IS NOT AN ACCEPTABLE BACKFILL METHOD. ANY CHAMBERS DAMAGED BY THE "DUMP AND PUSH" METHOD ARE NOT COVERED UNDER THE STORMTECH STANDARD WARRANTY.

CONTACT STORMTECH AT 1-800-821-6710 WITH ANY QUESTIONS ON INSTALLATION REQUIREMENTS OR WEIGHT LIMITS FOR CONSTRUCTION EQUIPMENT.

PROPOSED LAYOUT

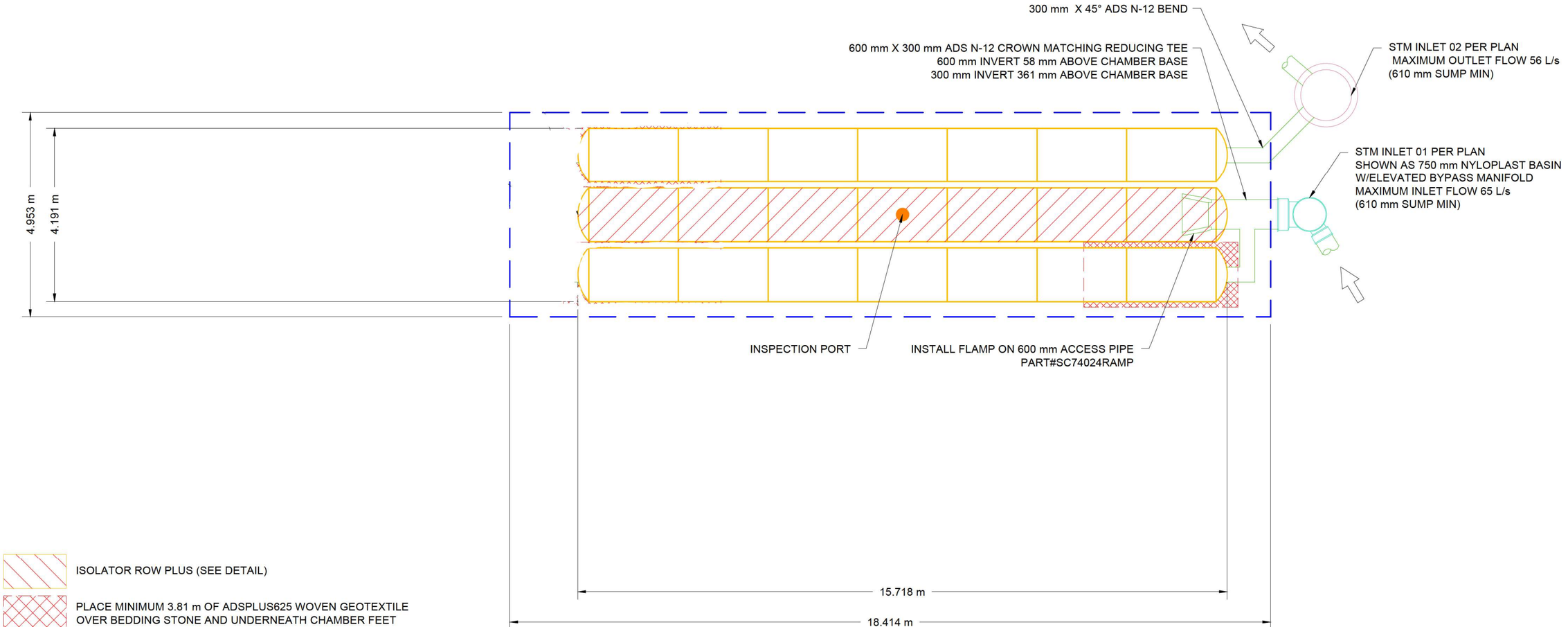
21	STORMTECH SC-800 CHAMBERS
6	STORMTECH SC-800 END CAPS
152	STONE ABOVE (mm)
152	STONE BELOW (mm)
40	% STONE VOID
60.1	**INSTALLED SYSTEM VOLUME (m³) (PERIMETER STONE INCLUDED)**
91.2	SYSTEM AREA (m²)
46.7	SYSTEM PERIMETER (m)

PROPOSED ELEVATIONS

92.608	MAXIMUM ALLOWABLE GRADE (TOP OF PAVEMENT/UNPAVED)
90.703	MINIMUM ALLOWABLE GRADE (UNPAVED WITH TRAFFIC)
90.551	MINIMUM ALLOWABLE GRADE (UNPAVED NO TRAFFIC)
90.551	MINIMUM ALLOWABLE GRADE (BASE OF FLEXIBLE PAVEMENT)
90.551	MINIMUM ALLOWABLE GRADE (TOP OF RIGID PAVEMENT)
90.322	TOP OF STONE
90.170	TOP OF SC-800 CHAMBER
89.698	300 mm TOP MANIFOLD/CONNECTION INVERT
89.390	600 mm ISOLATOR ROW PLUS CONNECTION INVERT
89.373	300 mm BOTTOM MNAIFOLD/CONNECTION INVERT
89.332	BOTTOM OF SC-800 CHAMBER
89.180	BOTTOM OF STONE

NOTES

- THE STORMTECH SYSTEM DEPICTED DOES NOT CONTAIN PROPER WATER QUALITY MEASURES. ABSENCE OF WATER QUALITY MEASURES CAN RESULT IN UNTREATED STORMWATER. ADS RECOMMENDS THE USE OF ISOLATOR ROW PLUS AND AN UPSTREAM HIGH FLOW BYPASS ON ALL STORMTECH SYSTEMS TO PROPERLY DIRECT THE FIRST FLUSH.



561 SOMME STREET
OTTAWA, ON.

DATE: 4/9/25 | DRAWN: RCT
PROJECT #: S464729 | CHECKED: RCT

DATE	DRWN	CHKD	DESCRIPTION
4/14/25	RCT	RCT	REVISED PER NEW PLANS

StormTech®
Chamber System
1-800-821-6710 | WWW.STORMTECH.COM

ADS
4640 TRUEMAN BLVD
HILLIARD, OH 43026

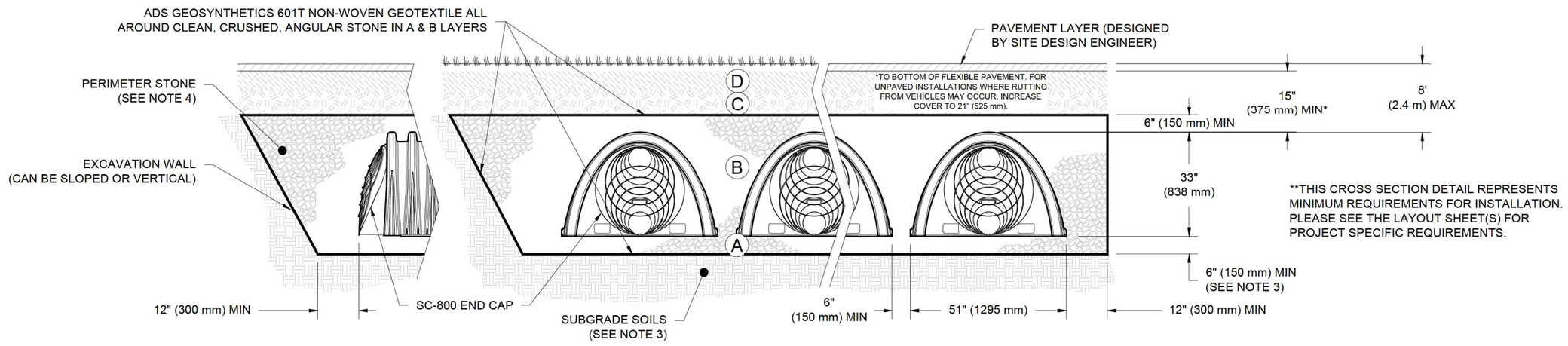
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ACCEPTABLE FILL MATERIALS: STORMTECH SC-800 CHAMBER SYSTEMS

MATERIAL LOCATION		DESCRIPTION	AASHTO MATERIAL CLASSIFICATIONS	COMPACTION / DENSITY REQUIREMENT
D	**FINAL FILL:** FILL MATERIAL FOR LAYER 'D' STARTS FROM THE TOP OF THE 'C' LAYER TO THE BOTTOM OF FLEXIBLE PAVEMENT OR UNPAVED FINISHED GRADE ABOVE. NOTE THAT PAVEMENT SUBBASE MAY BE PART OF THE 'D' LAYER.	ANY SOIL/ROCK MATERIALS, NATIVE SOILS, OR PER ENGINEER'S PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	N/A	PREPARE PER SITE DESIGN ENGINEER'S PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	**INITIAL FILL:** FILL MATERIAL FOR LAYER 'C' STARTS FROM THE TOP OF THE EMBEDMENT STONE ('B' LAYER) TO 15" (375 mm) ABOVE THE TOP OF THE CHAMBER. NOTE THAT PAVEMENT SUBBASE MAY BE A PART OF THE 'C' LAYER.	GRANULAR WELL-GRADED SOIL/AGGREGATE MIXTURES, <35% FINES OR PROCESSED AGGREGATE. MOST PAVEMENT SUBBASE MATERIALS CAN BE USED IN LIEU OF THIS LAYER.	AASHTO M145[1] A-1, A-2-4, A-3 OR AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57, 6, 67, 68, 7, 78, 8, 89, 9, 10	BEGIN COMPACTIONS AFTER 12" (300 mm) OF MATERIAL OVER THE CHAMBERS IS REACHED. COMPACT ADDITIONAL LAYERS IN 6" (150 mm) MAX LIFTS TO A MIN. 95% PROCTOR DENSITY FOR WELL GRADED MATERIAL AND 95% RELATIVE DENSITY FOR PROCESSED AGGREGATE MATERIALS. ROLLER GROSS VEHICLE WEIGHT NOT TO EXCEED 12,000 lbs (53 kN). DYNAMIC FORCE NOT TO EXCEED 20,000 lbs (89 kN).
B	**EMBEDMENT STONE:** FILL SURROUNDING THE CHAMBERS FROM THE FOUNDATION STONE ('A' LAYER) TO THE 'C' LAYER ABOVE.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	**FOUNDATION STONE:** FILL BELOW CHAMBERS FROM THE SUBGRADE UP TO THE FOOT (BOTTOM) OF THE CHAMBER.	CLEAN, CRUSHED, ANGULAR STONE OR RECYCLED CONCRETE[5]	AASHTO M43[1] 3, 357, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL TO ACHIEVE A FLAT SURFACE.[2,3]

PLEASE NOTE:
1. THE LISTED AASHTO DESIGNATIONS ARE FOR GRADATIONS ONLY. THE STONE MUST ALSO BE CLEAN, CRUSHED, ANGULAR. FOR EXAMPLE, A SPECIFICATION FOR #4 STONE WOULD STATE: "CLEAN, CRUSHED, ANGULAR NO. 4 (AASHTO M43) STONE".
2. STORMTECH COMPACTION REQUIREMENTS ARE MET FOR 'A' LOCATION MATERIALS WHEN PLACED AND COMPACTED IN 6" (150 mm) (MAX) LIFTS USING TWO FULL COVERAGES WITH A VIBRATORY COMPACTOR.
3. WHERE INFILTRATION SURFACES MAY BE COMPROMISED BY COMPACTION, FOR STANDARD DESIGN LOAD CONDITIONS, A FLAT SURFACE MAY BE ACHIEVED BY RAKING OR DRAGGING WITHOUT COMPACTION EQUIPMENT. FOR SPECIAL LOAD DESIGNS, CONTACT STORMTECH FOR COMPACTION REQUIREMENTS.
4. ONCE LAYER 'C' IS PLACED, ANY SOIL/MATERIAL CAN BE PLACED IN LAYER 'D' UP TO THE FINISHED GRADE. MOST PAVEMENT SUBBASE SOILS CAN BE USED TO REPLACE THE MATERIAL REQUIREMENTS OF LAYER 'C' OR 'D' AT THE SITE DESIGN ENGINEER'S DISCRETION.
5. WHERE RECYCLED CONCRETE AGGREGATE IS USED IN LAYERS 'A' OR 'B' THE MATERIAL SHOULD ALSO MEET THE ACCEPTABILITY CRITERIA OUTLINED IN TECHNICAL NOTE 6.20 "RECYCLED CONCRETE STRUCTURAL BACKFILL".



**THIS CROSS SECTION DETAIL REPRESENTS MINIMUM REQUIREMENTS FOR INSTALLATION. PLEASE SEE THE LAYOUT SHEET(S) FOR PROJECT SPECIFIC REQUIREMENTS.

NOTES:

1. CHAMBERS SHALL MEET THE REQUIREMENTS OF ASTM F2418, "STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
2. SC-800 CHAMBERS SHALL BE DESIGNED IN ACCORDANCE WITH ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS".
3. THE SITE DESIGN ENGINEER IS RESPONSIBLE FOR ASSESSING THE BEARING RESISTANCE (ALLOWABLE BEARING CAPACITY) OF THE SUBGRADE SOILS AND THE DEPTH OF FOUNDATION STONE WITH CONSIDERATION FOR THE RANGE OF EXPECTED SOIL MOISTURE CONDITIONS. REFERENCE STORMTECH DESIGN MANUAL FOR BEARING CAPACITY GUIDANCE.
4. PERIMETER STONE MUST BE EXTENDED HORIZONTALLY TO THE EXCAVATION WALL FOR BOTH VERTICAL AND SLOPED EXCAVATION WALLS.
5. REQUIREMENTS FOR HANDLING AND INSTALLATION:
   - TO MAINTAIN THE WIDTH OF CHAMBERS DURING SHIPPING AND HANDLING, CHAMBERS SHALL HAVE INTEGRAL, INTERLOCKING STACKING LUGS.
   - TO ENSURE A SECURE JOINT DURING INSTALLATION AND BACKFILL, THE HEIGHT OF THE CHAMBER JOINT SHALL NOT BE LESS THAN 2".
   - TO ENSURE THE INTEGRITY OF THE ARCH SHAPE DURING INSTALLATION, a) THE ARCH STIFFNESS CONSTANT AS DEFINED IN SECTION 6.2.8 OF ASTM F2418 SHALL BE GREATER THAN OR EQUAL TO 750 LBS/FT/%. AND b) TO RESIST CHAMBER DEFORMATION DURING INSTALLATION AT ELEVATED TEMPERATURES (ABOVE 73° F / 23° C), CHAMBERS SHALL BE PRODUCED FROM REFLECTIVE GOLD OR YELLOW COLORS.

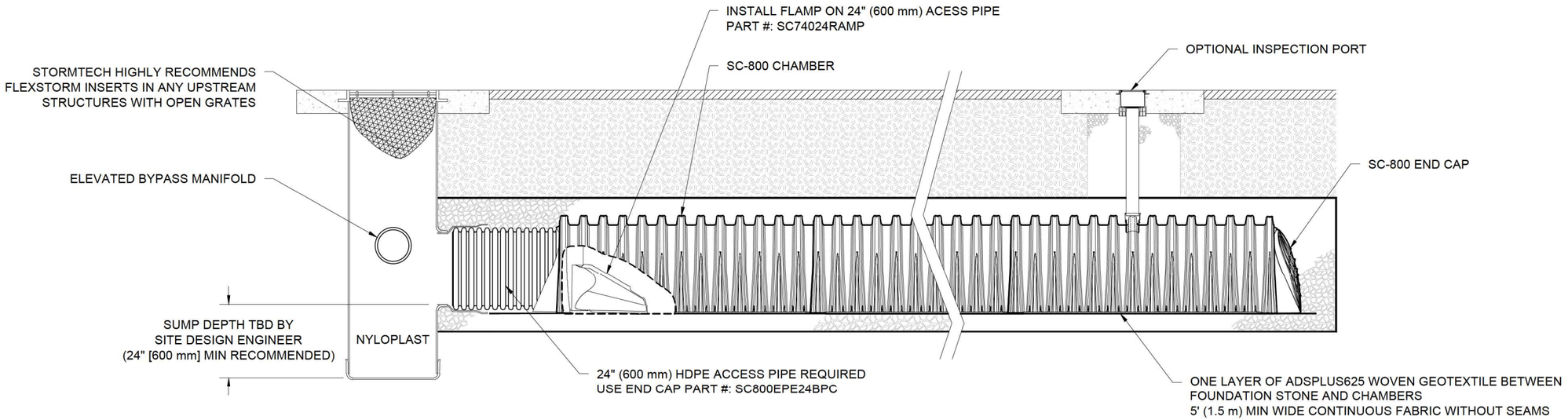
561 SOMME STREET
OTTAWA, ON.
DATE: 4/9/25 | DRAWN: RCT | CHECKED: RCT
PROJECT #: S464729

DATE	DESCRIPTION	CHKD	DRWN
4/14/25	REVISED PER NEW PLANS	RCT	RCT

StormTech® Chamber System
1-800-821-6710 | WWW.STORMTECH.COM

4640 TRUEMAN BLVD
HILLIARD, OH 43026

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SC-800 ISOLATOR ROW PLUS DETAIL
NTS

INSPECTION & MAINTENANCE

STEP 1) INSPECT ISOLATOR ROW PLUS FOR SEDIMENT
- A. INSPECTION PORTS (IF PRESENT)
  - A.1. REMOVE/OPEN LID ON NYLOPLAST INLINE DRAIN
  - A.2. REMOVE AND CLEAN FLEXSTORM FILTER IF INSTALLED
  - A.3. USING A FLASHLIGHT AND STADIA ROD, MEASURE DEPTH OF SEDIMENT AND RECORD ON MAINTENANCE LOG
  - A.4. LOWER A CAMERA INTO ISOLATOR ROW PLUS FOR VISUAL INSPECTION OF SEDIMENT LEVELS (OPTIONAL)
  - A.5. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.
- B. ALL ISOLATOR PLUS ROWS
  - B.1. REMOVE COVER FROM STRUCTURE AT UPSTREAM END OF ISOLATOR ROW PLUS
  - B.2. USING A FLASHLIGHT, INSPECT DOWN THE ISOLATOR ROW PLUS THROUGH OUTLET PIPE
    - i) MIRRORS ON POLES OR CAMERAS MAY BE USED TO AVOID A CONFINED SPACE ENTRY
    - ii) FOLLOW OSHA REGULATIONS FOR CONFINED SPACE ENTRY IF ENTERING MANHOLE
  - B.3. IF SEDIMENT IS AT, OR ABOVE, 3" (80 mm) PROCEED TO STEP 2. IF NOT, PROCEED TO STEP 3.

STEP 2) CLEAN OUT ISOLATOR ROW PLUS USING THE JETVAC PROCESS
- A. A FIXED CULVERT CLEANING NOZZLE WITH REAR FACING SPREAD OF 45" (1.1 m) OR MORE IS PREFERRED
- B. APPLY MULTIPLE PASSES OF JETVAC UNTIL BACKFLUSH WATER IS CLEAN
- C. VACUUM STRUCTURE SUMP AS REQUIRED

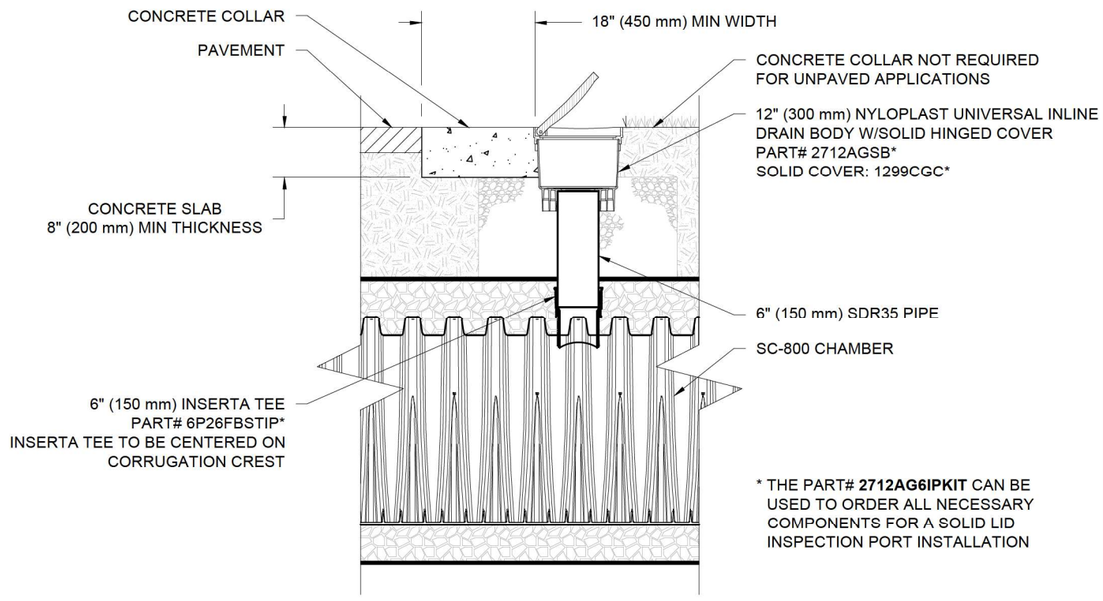
STEP 3) REPLACE ALL COVERS, GRATES, FILTERS, AND LIDS; RECORD OBSERVATIONS AND ACTIONS.

STEP 4) INSPECT AND CLEAN BASINS AND MANHOLES UPSTREAM OF THE STORMTECH SYSTEM.

NOTES

1. INSPECT EVERY 6 MONTHS DURING THE FIRST YEAR OF OPERATION. ADJUST THE INSPECTION INTERVAL BASED ON PREVIOUS OBSERVATIONS OF SEDIMENT ACCUMULATION AND HIGH WATER ELEVATIONS.

2. CONDUCT JETTING AND VACTORING ANNUALLY OR WHEN INSPECTION SHOWS THAT MAINTENANCE IS NECESSARY.



SC-800 6" (150 mm) INSPECTION PORT DETAIL
NTS

561 SOMME STREET
OTTAWA, ON.
DATE: 4/9/25 DRAWN: RCT
PROJECT #: S464729 CHECKED: RCT

DATE	DRWN	CHKD	DESCRIPTION
4/14/25	RCT	RCT	REVISED PER NEW PLANS

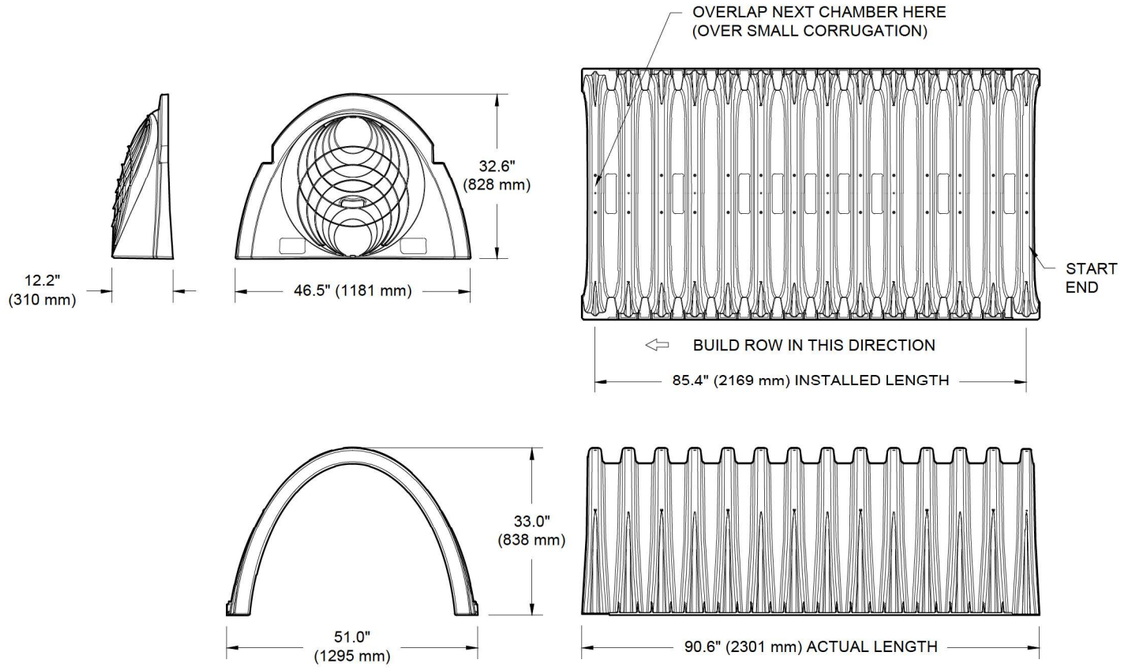
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Chamber System
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ADS
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HILLIARD, OH 43026

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SC-800 TECHNICAL SPECIFICATION

NTS



NOMINAL CHAMBER SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	51.0" X 33.0" X 85.4"	(1295 mm X 838 mm X 2169 mm)
CHAMBER STORAGE	50.6 CUBIC FEET	(1.43 m³)
MINIMUM INSTALLED STORAGE*	81.0 CUBIC FEET	(2.29 m³)
WEIGHT	81.8 lbs.	(37.1 kg)

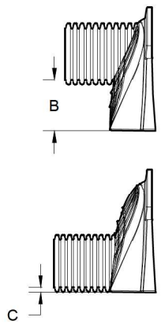
NOMINAL END CAP SPECIFICATIONS

SIZE (W X H X INSTALLED LENGTH)	46.5" X 32.6" X 10.5"	(1181 mm X 828 mm X 267 mm)
END CAP STORAGE	3.4 CUBIC FEET	(0.09 m³)
MINIMUM INSTALLED STORAGE**	15.4 CUBIC FEET	(0.43 m³)
WEIGHT	15.7 lbs.	(7.1 kg)

* ASSUMES 6" (152 mm) STONE ABOVE, BELOW, AND BETWEEN CHAMBERS
**ASSUMES 6" (152 mm) STONE ABOVE AND BELOW END CAPS, 6" (152 mm) BETWEEN ROWS, 12" (305 mm) BEYOND END CAPS

PRE-CORED HOLES AT BOTTOM OF END CAP FOR PART NUMBERS ENDING WITH "BPC"
PRE-CORED HOLES AT TOP OF END CAP FOR PART NUMBERS ENDING WITH "TPC"

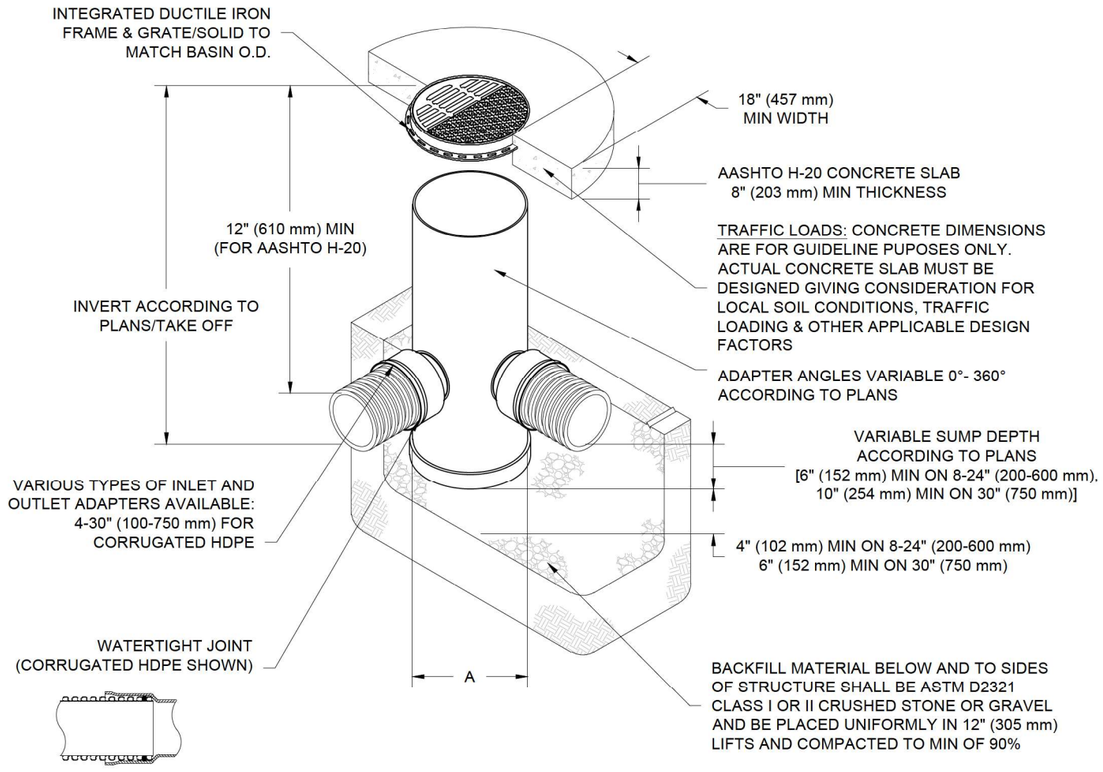
PART #	STUB	B	C
SC800EPE06TPC	6" (150 mm)	21.4" (544 mm)	---
SC800EPE06BPC		---	0.9" (23 mm)
SC800EPE08TPC	8" (200 mm)	19.2" (488 mm)	---
SC800EPE08BPC		---	1.0" (25 mm)
SC800EPE10TPC	10" (250 mm)	17.0" (432 mm)	---
SC800EPE10BPC		---	1.2" (30 mm)
SC800EPE12TPC	12" (300 mm)	14.4" (366 mm)	---
SC800EPE12BPC		---	1.6" (41 mm)
SC800EPE15TPC	15" (375 mm)	11.3" (287 mm)	---
SC800EPE15BPC		---	1.7" (43 mm)
SC800EPE18TPC	18" (450 mm)	8.0" (203 mm)	---
SC800EPE18BPC		---	2.0" (51 mm)
SC800EPE24BPC	24" (600 mm)	---	2.3" (58 mm)
SC800EPE	NONE	SOLID END CAP	



NOTE: ALL DIMENSIONS ARE NOMINAL

NYLOPLAST DRAIN BASIN

NTS



NOTES

1. 8-30" (200-750 mm) GRATES/SOLID COVERS SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
2. 12-30" (300-750 mm) FRAMES SHALL BE DUCTILE IRON PER ASTM A536 GRADE 70-50-05
3. DRAIN BASIN TO BE CUSTOM MANUFACTURED ACCORDING TO PLAN DETAILS
4. DRAINAGE CONNECTION STUB JOINT TIGHTNESS SHALL CONFORM TO ASTM D3212 FOR CORRUGATED HDPE (ADS & HANCOR DUAL WALL) & SDR 35 PVC
5. FOR COMPLETE DESIGN AND PRODUCT INFORMATION: **WWW.NYLOPLAST-US.COM**
6. TO ORDER CALL: **800-821-6710**

A	PART #	GRATE/SOLID COVER OPTIONS		
8" (200 mm)	2808AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
10" (250 mm)	2810AG	PEDESTRIAN LIGHT DUTY	STANDARD LIGHT DUTY	SOLID LIGHT DUTY
12" (300 mm)	2812AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
15" (375 mm)	2815AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
18" (450 mm)	2818AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
24" (600 mm)	2824AG	PEDESTRIAN AASHTO H-10	STANDARD AASHTO H-20	SOLID AASHTO H-20
30" (750 mm)	2830AG	PEDESTRIAN AASHTO H-20	STANDARD AASHTO H-20	SOLID AASHTO H-20

561 SOMME STREET
OTTAWA, ON.

DATE: 4/9/25 | DRAWN: RCT | CHECKED: RCT
PROJECT #: S464729

DATE	DRWN	CHKD	DESCRIPTION
4/14/25	RCT	RCT	REVISED PER NEW PLANS

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4640 TRUEMAN BLVD
HILLIARD, OH 43026

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Project: **561 Somme Street Rev1**

Chamber Model -	SC-800	
Units -	**Metric**	
Number of Chambers -	21	
Number of End Caps -	6	
Voids in the stone (porosity) -	40	%
Base of Stone Elevation -	89.18	m
Amount of Stone Above Chambers -	152	mm
Amount of Stone Below Chambers -	152	mm
Area of System-	91.2	sq.meters

Min. Area - 70.91 sq.meters

StormTech SC-800 Cumulative Storage Volumes

Height of System (mm)	Incremental Single Chamber (cubic meters)	Incremental Single End Cap (cubic meters)	Incremental Chambers (cubic meters)	Incremental End Cap (cubic meters)	Incremental Stone (cubic meters)	Incremental Ch, EC and Stone (cubic meters)	Cumulative System (cubic	Elevation (meters)
1143	0.000	0.000	0.00	0.00	0.93	0.93	60.11	90.32
1118	0.000	0.000	0.00	0.00	0.93	0.93	59.18	90.30
1092	0.000	0.000	0.00	0.00	0.93	0.93	58.25	90.27
1067	0.000	0.000	0.00	0.00	0.93	0.93	57.33	90.25
1041	0.000	0.000	0.00	0.00	0.93	0.93	56.40	90.22
1016	0.000	0.000	0.00	0.00	0.93	0.93	55.47	90.20
991	0.002	0.000	0.04	0.00	0.91	0.95	54.55	90.17
965	0.006	0.000	0.12	0.00	0.88	1.00	53.59	90.15
940	0.008	0.000	0.17	0.00	0.86	1.03	52.60	90.12
914	0.014	0.000	0.30	0.00	0.81	1.11	51.57	90.09
889	0.021	0.000	0.44	0.00	0.75	1.19	50.46	90.07
864	0.025	0.001	0.53	0.00	0.71	1.25	49.27	90.04
838	0.029	0.001	0.60	0.01	0.68	1.29	48.02	90.02
813	0.032	0.001	0.67	0.01	0.66	1.33	46.73	89.99
787	0.034	0.001	0.72	0.01	0.63	1.36	45.40	89.97
762	0.037	0.002	0.77	0.01	0.61	1.40	44.03	89.94
737	0.039	0.002	0.82	0.01	0.60	1.42	42.64	89.92
711	0.041	0.002	0.86	0.01	0.58	1.45	41.22	89.89
686	0.043	0.002	0.90	0.01	0.56	1.47	39.77	89.87
660	0.044	0.003	0.93	0.02	0.55	1.49	38.29	89.84
635	0.046	0.003	0.96	0.02	0.53	1.52	36.80	89.82
610	0.047	0.003	1.00	0.02	0.52	1.53	35.28	89.79
584	0.049	0.003	1.02	0.02	0.51	1.55	33.75	89.76
559	0.050	0.004	1.05	0.02	0.50	1.57	32.20	89.74
533	0.051	0.004	1.08	0.02	0.49	1.59	30.63	89.71
508	0.052	0.004	1.10	0.02	0.48	1.60	29.04	89.69
483	0.054	0.004	1.12	0.02	0.47	1.62	27.44	89.66
457	0.055	0.004	1.15	0.02	0.46	1.63	25.82	89.64
432	0.056	0.004	1.17	0.03	0.45	1.64	24.19	89.61
406	0.057	0.004	1.19	0.03	0.44	1.65	22.55	89.59
381	0.057	0.005	1.21	0.03	0.43	1.67	20.90	89.56
356	0.058	0.005	1.22	0.03	0.43	1.68	19.23	89.54
330	0.059	0.005	1.24	0.03	0.42	1.69	17.55	89.51
305	0.060	0.005	1.25	0.03	0.41	1.70	15.86	89.48
279	0.060	0.005	1.27	0.03	0.41	1.71	14.17	89.46
254	0.061	0.005	1.28	0.03	0.40	1.71	12.46	89.43
229	0.062	0.005	1.30	0.03	0.40	1.72	10.75	89.41
203	0.062	0.005	1.31	0.03	0.39	1.73	9.02	89.38
178	0.063	0.004	1.32	0.02	0.39	1.73	7.29	89.36
152	0.000	0.000	0.00	0.00	0.93	0.93	5.56	89.33
127	0.000	0.000	0.00	0.00	0.93	0.93	4.63	89.31
102	0.000	0.000	0.00	0.00	0.93	0.93	3.71	89.28
76	0.000	0.000	0.00	0.00	0.93	0.93	2.78	89.26
51	0.000	0.000	0.00	0.00	0.93	0.93	1.85	89.23
25	0.000	0.000	0.00	0.00	0.93	0.93	0.93	89.21

Stormceptor®

Rinker MATERIALS™

Stormceptor® EF Sizing Report

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

08/28/2025

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

Site Name:	Somme St

Drainage Area (ha):	0.85
Runoff Coefficient 'c':	0.51

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

Required Water Quality Runoff Volume Capture (%):	
Estimated Water Quality Flow Rate (L/s):	13.99
Oil / Fuel Spill Risk Site?	Yes
Upstream Flow Control?	Yes
Upstream Orifice Control Flow Rate to Stormceptor (L/s):	44.36
Peak Conveyance (maximum) Flow Rate (L/s):	
Influent TSS Concentration (mg/L):	150
Estimated Average Annual Sediment Load (kg/yr):	258
Estimated Average Annual Sediment Volume (L/yr):	210

Project Name:	Somme Str
Project Number:	240374
Designer Name:	Sarthak Vora
Designer Company:	LRL Associates
Designer Email:	svora@lrl.ca
Designer Phone:	613-915-7633
EOR Name:	
EOR Company:	
EOR Email:	
EOR Phone:	

Net Annual Sediment (TSS) Load Reduction Sizing Summary

Stormceptor Model	TSS Removal Provided (%)
EFO4	85
EFO5	90
EFO6	93
EFO8	97
EFO10	99
EFO12	100

Recommended Stormceptor EFO Model: EFO4

Estimated Net Annual Sediment (TSS) Load Reduction (%): 85

Water Quality Runoff Volume Capture (%): > 90

imbrium

THIRD-PARTY TESTING AND VERIFICATION

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

PERFORMANCE

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

PARTICLE SIZE DISTRIBUTION (PSD)

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

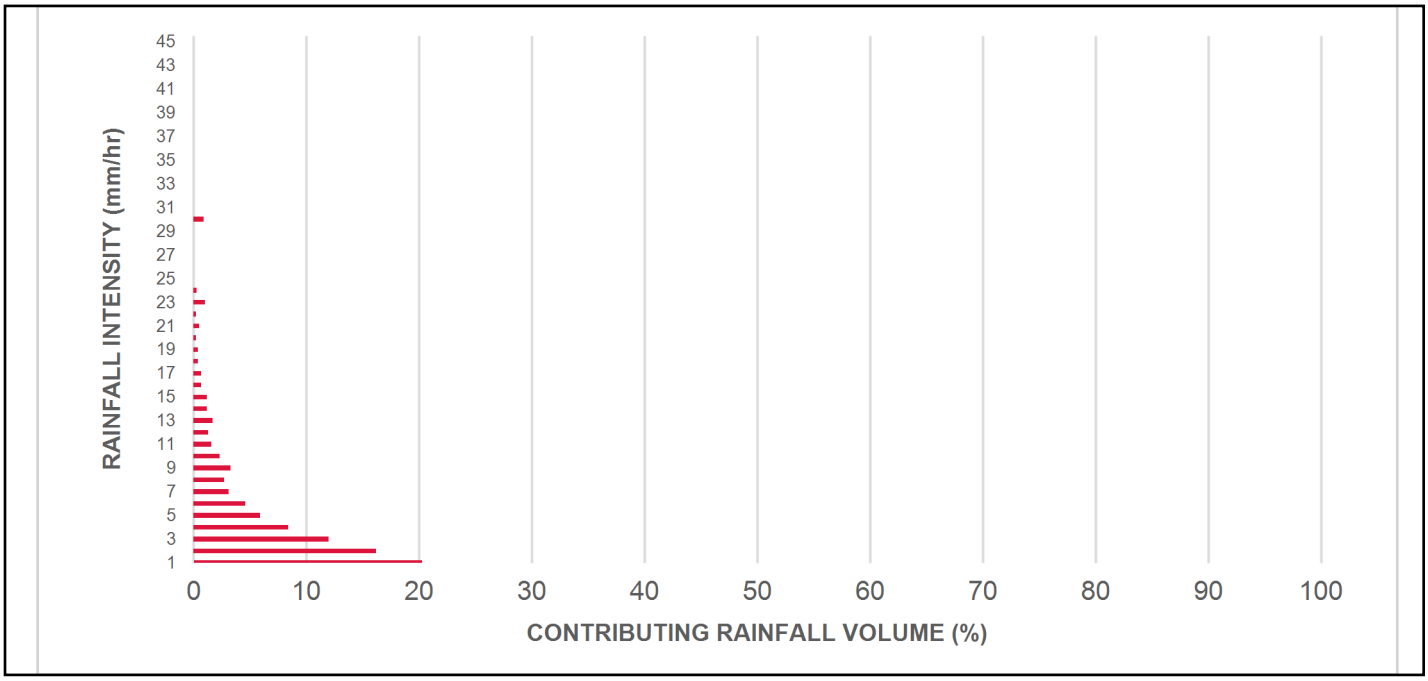
Particle Size (µm)	Percent Less Than	Particle Size Fraction (µm)	Percent
1000	100	500-1000	5
500	95	250-500	5
250	90	150-250	15
150	75	100-150	15
100	60	75-100	10
75	50	50-75	5
50	45	20-50	10
20	35	8-20	15
8	20	5-8	10
5	10	2-5	5
2	5	<2	5

Upstream Flow Controlled Results

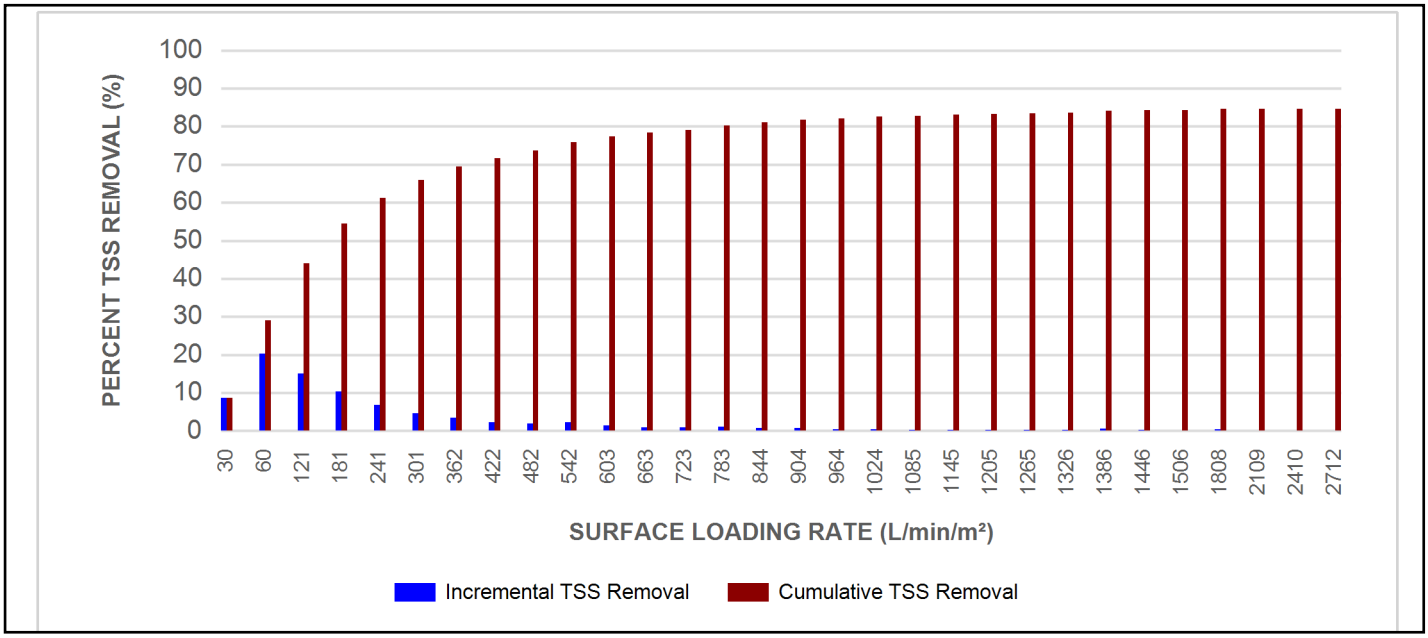
Rainfall Intensity (mm / hr)	Percent Rainfall Volume (%)	Cumulative Rainfall Volume (%)	Flow Rate (L/s)	Flow Rate (L/min)	Surface Loading Rate (L/min/m²)	Removal Efficiency (%)	Incremental Removal (%)	Cumulative Removal (%)
0.50	8.6	8.6	0.60	36.0	30.0	100	8.6	8.6
1.00	20.3	29.0	1.21	72.0	60.0	100	20.3	29.0
2.00	16.2	45.2	2.41	145.0	121.0	93	15.1	44.1
3.00	12.0	57.2	3.62	217.0	181.0	86	10.3	54.4
4.00	8.4	65.6	4.82	289.0	241.0	81	6.9	61.2
5.00	5.9	71.6	6.03	362.0	301.0	78	4.7	65.9
6.00	4.6	76.2	7.23	434.0	362.0	76	3.5	69.4
7.00	3.1	79.3	8.44	506.0	422.0	73	2.2	71.6
8.00	2.7	82.0	9.64	578.0	482.0	70	1.9	73.6
9.00	3.3	85.3	10.85	651.0	542.0	67	2.2	75.8
10.00	2.3	87.6	12.05	723.0	603.0	65	1.5	77.3
11.00	1.6	89.2	13.26	795.0	663.0	64	1.0	78.3
12.00	1.3	90.5	14.46	868.0	723.0	64	0.8	79.1
13.00	1.7	92.2	15.67	940.0	783.0	63	1.1	80.2
14.00	1.2	93.5	16.87	1012.0	844.0	63	0.8	81.0
15.00	1.2	94.6	18.08	1085.0	904.0	62	0.7	81.7
16.00	0.7	95.3	19.28	1157.0	964.0	62	0.4	82.1
17.00	0.7	96.1	20.49	1229.0	1024.0	61	0.5	82.6
18.00	0.4	96.5	21.69	1302.0	1085.0	60	0.2	82.8
19.00	0.4	96.9	22.90	1374.0	1145.0	58	0.2	83.1
20.00	0.2	97.1	24.10	1446.0	1205.0	57	0.1	83.2
21.00	0.5	97.5	25.31	1518.0	1265.0	56	0.3	83.5
22.00	0.2	97.8	26.51	1591.0	1326.0	54	0.1	83.6
23.00	1.0	98.8	27.72	1663.0	1386.0	53	0.5	84.1
24.00	0.3	99.1	28.92	1735.0	1446.0	51	0.1	84.3
25.00	0.9	100.0	30.13	1808.0	1506.0	49	0.5	84.7
30.00	0.9	100.9	36.15	2169.0	1808.0	41	0.4	85.1
35.00	-0.9	100.0	42.18	2531.0	2109.0	35	N/A	84.8
40.00	0.0	100.0	44.00	2640.0	2200.0	33	0.0	84.8
45.00	0.0	100.0	44.00	2640.0	2200.0	33	0.0	84.8
Estimated Net Annual Sediment (TSS) Load Reduction =								**85 %**

Climate Station ID: 6105978 *Years of Rainfall Data*: 20

RAINFALL DATA FROM OTTAWA CDA RCS RAINFALL STATION



INCREMENTAL AND CUMULATIVE TSS REMOVAL FOR THE RECOMMENDED STORMCEPTOR® MODEL



Maximum Pipe Diameter / Peak Conveyance

Stormceptor EF / EFO	Model Diameter		Min Angle Inlet / Outlet Pipes	Max Inlet Pipe Diameter		Max Outlet Pipe Diameter		Peak Conveyance Flow Rate	
	(m)	(ft)		(mm)	(in)	(mm)	(in)	(L/s)	(cfs)
EF4 / EFO4	1.2	4	90	609	24	609	24	425	15
EF5 / EFO5	1.5	5	90	762	30	762	30	710	25
EF6 / EFO6	1.8	6	90	914	36	914	36	990	35
EF8 / EFO8	2.4	8	90	1219	48	1219	48	1700	60
EF10 / EFO10	3.0	10	90	1828	72	1828	72	2830	100
EF12 / EFO12	3.6	12	90	1828	72	1828	72	2830	100

SCOUR PREVENTION AND ONLINE CONFIGURATION

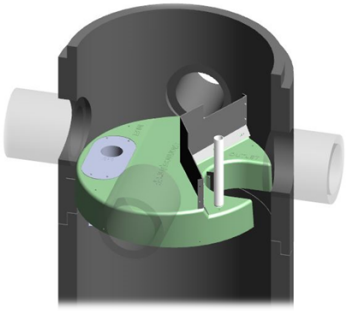
►**Stormceptor® EF and EFO** feature an internal bypass and superior scour prevention technology that have been demonstrated in third-party testing according to the scour testing provisions of the Canadian ETV **Procedure for Laboratory Testing of Oil-Grit Separators**, and the exceptional scour test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

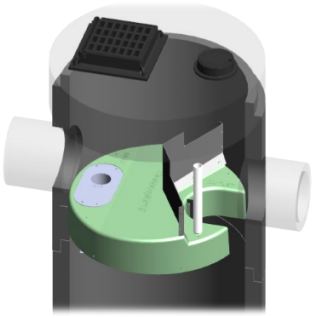
DESIGN FLEXIBILITY

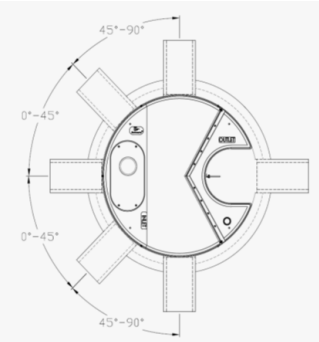
►**Stormceptor® EF** and **EFO** offers design flexibility in one simplified platform, accepting stormwater flow from a single inlet pipe or multiple inlet pipes, and/or surface runoff through an inlet grate. The device can also serve as a junction structure, accommodate a 90-degree inlet-to-outlet bend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

OIL CAPTURE AND RETENTION

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







INLET-TO-OUTLET DROP

Elevation differential between inlet and outlet pipe inverts is dictated by the angle at which the inlet pipe(s) enters the unit.
0° - 45° : The inlet pipe is 1-inch (25mm) higher than the outlet pipe.
45° - 90° : The inlet pipe is 2-inches (50mm) higher than the outlet pipe.

HEAD LOSS

The head loss through Stormceptor EF is similar to that of a 60-degree bend structure. The applicable K value for calculating minor losses through the unit is 1.1. For submerged conditions the applicable K value is 3.0.

Pollutant Capacity

Stormceptor EF / EFO	Model Diameter		Depth (Outlet Pipe Invert to Sump Floor)		Oil Volume		Recommended Sediment Maintenance Depth *		Maximum Sediment Volume *		Maximum Sediment Mass **	
	(m)	(ft)	(m)	(ft)	(L)	(Gal)	(mm)	(in)	(L)	(ft^3)	(kg)	(lb)
EF4 / EFO4	1.2	4	1.52	5.0	265	70	203	8	1190	42	1904	5250
EF5 / EFO5	1.5	5	1.62	5.3	420	111	305	10	2124	75	2612	5758
EF6 / EFO6	1.8	6	1.93	6.3	610	160	305	12	3470	123	5552	15375
EF8 / EFO8	2.4	8	2.59	8.5	1070	280	610	24	8780	310	14048	38750
EF10 / EFO10	3.0	10	3.25	10.7	1670	440	610	24	17790	628	28464	78500
EF12 / EFO12	3.6	12	3.89	12.8	2475	655	610	24	31220	1103	49952	137875

*Increased sump depth may be added to increase sediment storage capacity
** Average density of wet packed sediment in sump = 1.6 kg/L (100 lb/ft^3)

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

STANDARD STORMCEPTOR EF/EFO DRAWINGS

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

STANDARD STORMCEPTOR EF/EFO SPECIFICATION

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

STANDARD PERFORMANCE SPECIFICATION FOR "OIL GRIT SEPARATOR" (OGS) STORMWATER QUALITY TREAMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

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

1.2 REFERENCE STANDARDS & PROCEDURES

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

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

1.3 SUBMITTALS

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

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

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

PART 2 – PRODUCTS

2.1 OGS POLLUTANT STORAGE

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

2.1.1	4 ft (1219 mm) Diameter OGS Units:	1.19 m^3 sediment / 265 L oil
	5 ft (1524 mm) Diameter OGS Units:	1.95 m^3 sediment / 420 L oil
	6 ft (1829 mm) Diameter OGS Units:	3.48 m^3 sediment / 609 L oil
	8 ft (2438 mm) Diameter OGS Units:	8.78 m^3 sediment / 1,071 L oil
	10 ft (3048 mm) Diameter OGS Units:	17.78 m^3 sediment / 1,673 L oil
	12 ft (3657 mm) Diameter OGS Units:	31.23 m^3 sediment / 2,476 L oil

PART 3 – PERFORMANCE & DESIGN

3.1 GENERAL

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

3.2 SIZING METHODOLOGY

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

3.2.1 Sediment removal efficiency for a given surface loading rate and its associated flow rate shall be based on sediment removal efficiency demonstrated at the seven (7) tested surface loading rates specified in the protocol, ranging 40 L/min/m^2 to 1400 L/min/m^2, and as stated in the ISO 14034 ETV Verification Statement for the OGS device.

3.2.2 Sediment removal efficiency for surface loading rates between 40 L/min/m^2 and 1400 L/min/m^2 shall be based on linear interpolation of data between consecutive tested surface loading rates.

3.2.3 Sediment removal efficiency for surface loading rates less than the lowest tested surface loading rate of 40 L/min/m^2 shall be assumed to be identical to the sediment removal efficiency at 40 L/min/m^2. No extrapolation shall be allowed that results in a sediment removal efficiency that is greater than that demonstrated at 40 L/min/m^2.

3.2.4 Sediment removal efficiency for surface loading rates greater than the highest tested surface loading rate of 1400 L/min/m^2 shall assume zero sediment removal for the portion of flow that exceeds 1400 L/min/m^2, and shall be calculated using a simple proportioning formula, with 1400 L/min/m^2 in the numerator and the higher surface loading rate in the denominator, and multiplying the resulting fraction times the sediment removal efficiency at 1400 L/min/m^2.

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

3.3 CANADIAN ETV or ISO 14034 ETV VERIFICATION OF SCOUR TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of third-party scour testing conducted in accordance with the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.**

3.3.1 To be acceptable for on-line installation, the OGS device must demonstrate an average scour test effluent concentration less than 10 mg/L at each surface loading rate tested, up to and including 2600 L/min/m^2.

3.4 LIGHT LIQUID RE-ENTRAINMENT SIMULATION TESTING

The OGS device shall have Canadian ETV or ISO 14034 ETV Verification of completed third-party Light Liquid

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

3.4.1 For an OGS device to be an acceptable stormwater treatment device on a site where vehicular traffic occurs and the potential for an oil or fuel spill exists, the OGS device must have reported verified performance results of greater than 99% cumulative retention of LDPE plastic beads for the five specified surface loading rates (ranging 200 L/min/m^2 to 2600 L/min/m^2) in accordance with the Light Liquid Re-entrainment Simulation Testing within the Canadian ETV Program's **Procedure for Laboratory Testing of Oil-Grit Separators.** However, an OGS device shall not be allowed if the Light Liquid Re-entrainment Simulation Testing was performed with screening components within the OGS device that are effective at retaining the LDPE plastic beads, but would not be expected to retain light liquids such as oil and fuel.

APPENDIX E

Civil Engineering Drawings

PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME ST., OTTAWA, ON

REVISION 04



DRAWING INDEX	
TITLE PAGE	
GENERAL NOTES	C001
SEDIMENT AND EROSION CONTROL PLAN	C101
GRADING AND DRAINAGE PLAN	C301
SERVICING PLAN	C401
STORMWATER MANAGEMENT PLAN	C601
PRE-DEVELOPMENT WATERSHED PLAN	C701
POST-DEVELOPMENT WATERSHED PLAN	C702
CONSTRUCTION DETAIL PLAN	C901

LRL
ENGINEERING | INGÉNIERIE
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PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
521 SOMME ST., OTTAWA, ON
REV.04 : RE- ISSUED FOR APPROVAL - NOV 09, 2026
LRL PROJECT no: 240374

LICENSED PROFESSIONAL ENGINEER
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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 IN CONJUNCTION WITH ARCHITECTURAL SITE PLAN.
19. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER ONE 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 AREA 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 FOR 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 AT 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, STREAMS, 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 OF 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 OR OPSD 600.110. PROVISION SHALL BE MADE FOR 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 ON THIS DRAWING ARE TO BE 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 300MM AROUND ALL STRUCTURES WITHIN THE PAVEMENT AREA.
7. SUB-EXCAVATE SOFT AREAS AND FILL WITH GRANULAR 'B' COMPACTED IN MAXIMUM 300MM LIFTS.
8. ALL WORK ON THE MUNICIPAL RIGHT OF WAY AND EASEMENTS TO BE INSPECTED BY THE MUNICIPALITY PRIOR TO 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.
16. ALL TOPSOIL AND ORGANIC MATERIAL SHALL BE STRIPPED WITHIN THE ROAD ALLOWANCE PRIOR TO THE COMMENCEMENT OF CONSTRUCTION AND STOCKPILED 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 A MINIMUM OF 100% STANDARD PROCTOR 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 SEWERS 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 FOR 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.

STORM SUB-DRAIN

30. SUBDRAIN PIPE SHALL BE PERFORATED PLASTIC PIPE (100 MM TO 300 MM NOMINAL SIZE) IN ACCORDANCE WITH CAN/CSA-B182.8 OR B182.6, OPSS 1840, AND CITY OF OTTAWA MS-22.15.
31. SUBDRAIN PIPE TO BE FACTORY-WRAPPED WITH KNITTED SOCK GEOTEXTILE; GEOTEXTILE FILTER SHALL BE APPROVED NON-WOVEN CLASS 1 AS PER CITY OF OTTAWA MS-22.15.
32. BEDDING AND BACKFILL SHALL BE GRANULAR MATERIAL IN ACCORDANCE WITH OPSS 1010; CLEAR STONE SHALL BE 19 MM TYPE I OR TYPE II PER OPSS 1004.
33. TRENCHES SHALL BE EXCAVATED AT LEAST 50 MM BELOW PIPE INVERT AND FILLED WITH BEDDING; BACKFILL SHALL BE SAME AS BEDDING MATERIAL.
34. SUBDRAINS SHALL BE CONNECTED TO MAINTENANCE HOLES, CATCH BASINS, AND DITCH INLETS BY A MINIMUM 1 M SECTION OF NON-PERFORATED PIPE.
35. PIPE CONNECTIONS TO MUNICIPAL FACILITIES SHALL CONFORM TO OPSS 410 AND CITY OF OTTAWA SPECIAL PROVISION F-4100.
36. COMPACTION OF BACKFILL MATERIAL SHALL CONFORM TO OPSS 501.
37. CONTRACTOR SHALL REPLACE ANY CRACKED, CRUSHED, OR UV-DAMAGED PIPE AND ENSURE NO DAMAGE/DISLODGEMENT OF OUTLET PIPES DURING BACKFILL.
38. ALL INSTALLATIONS SHALL FOLLOW OPSS 405 FOR SUBDRAIN PIPING AND SECTION 31 23 33.01 FOR TRENCHING.

WATERMAIN

39. ALL WATERMAIN INSTALLATION SHALL CONFORM TO THE LATEST REVISIONS OF THE CITY OF OTTAWA AND THE ONTARIO PROVINCIAL STANDARD DRAWINGS (OPSD) AND SPECIFICATIONS (OPSS).
40. ALL PVC WATERMAINS SHALL BE AWWA C-900 CLASS 150, SDR 18 OR APPROVED EQUIVALENT.
41. ALL WATER SERVICES LESS THAN OR EQUAL TO 50MM IN DIAMETER TO BE TYPE 'K' COPPER.
42. 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.
43. 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.
44. CATHODIC PROTECTION IS REQUIRED ON ALL METALLIC FITTINGS PER CITY OF OTTAWA STD.25.5 AND W25.6.
45. VALVE BOXES SHALL BE INSTALLED PER CITY OF OTTAWA STD W24.
46. WATERMAIN IN FILL AREAS TO BE INSTALLED WITH RESTRAINED JOINTS PER CITY OF OTTAWA STD.25.5 AND W25.6.
47. THRUST BLOCKING OF WATERMAINS TO BE INSTALLED PER CITY OF OTTAWA STD. W25.3 AND W25.4.
48. THE CONTRACTOR SHALL PROVIDE ALL TEMPORARY CAPS, PLUGS, BLOW-OFFS, AND NOZZLES REQUIRED FOR TESTING AND DISINFECTION OF THE WATERMAIN.
49. WATERMAIN CROSSING OVER AND BELOW SEWERS SHALL BE IN ACCORDANCE WITH THE CITY OF OTTAWA STD. W25.2 AND W25, RESPECTIVELY.
50. WATER SERVICES ARE TO BE INSULATED PER CITY STD. W23 WHERE SEPARATION BETWEEN SERVICES AND MAINTENANCE HOLES ARE LESS THAN 2.4M.
51. 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.
52. ALL WATERMAINS SHALL HAVE A MINIMUM COVER OF 2.4M, OTHERWISE THERMAL INSULATION IS REQUIRED AS PER STD DWG W22.
53. GENERAL WATER PLANT TO UTILITY CLEARANCE AS PER STD DWG R20.
54. 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.
55. 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.
56. 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.
57. 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 THE ENVIRONMENT. IT IS RESPONSIBILITY OF THE CONTRACTOR TO ENSURE THAT ALL MUNICIPAL AND/OR PROVINCIAL REQUIREMENTS ARE FOLLOWED.
58. ALL WATERMAIN STUBS SHALL BE TERMINATED WITH A PLUG AND 50MM BLOW OFF UNLESS OTHERWISE NOTED.

- GEOTECHNICAL INFORMATION AS PER GEOTECHNICAL INVESTIBATION REPORT PG7250-1 BY PATERSON GROUP DATED OCTOBER 01,2024.
- HYDROGEOLOGICAL INFORMATION AS PER HYDROGEOLOGICAL REPORT PREAPRED BY LRL ASSOCIATES DATES FEBRUARY 07,2025.
- STORMWATER MANAGEMENT DETAILS AS PER STORMWATER MANAGEMENT REPORT PREPARED BY LRL ASSOCIATES.

USE AND INTERPRETATION OF DRAWINGS

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LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2026-11-09
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
BLACKSTONE GRANITE

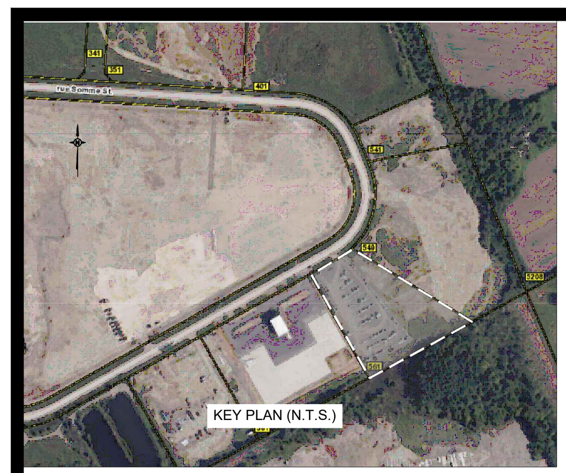
DESIGNED BY:	DRAWN BY:	APPROVED BY:
S.V.	S.V.	M.B.

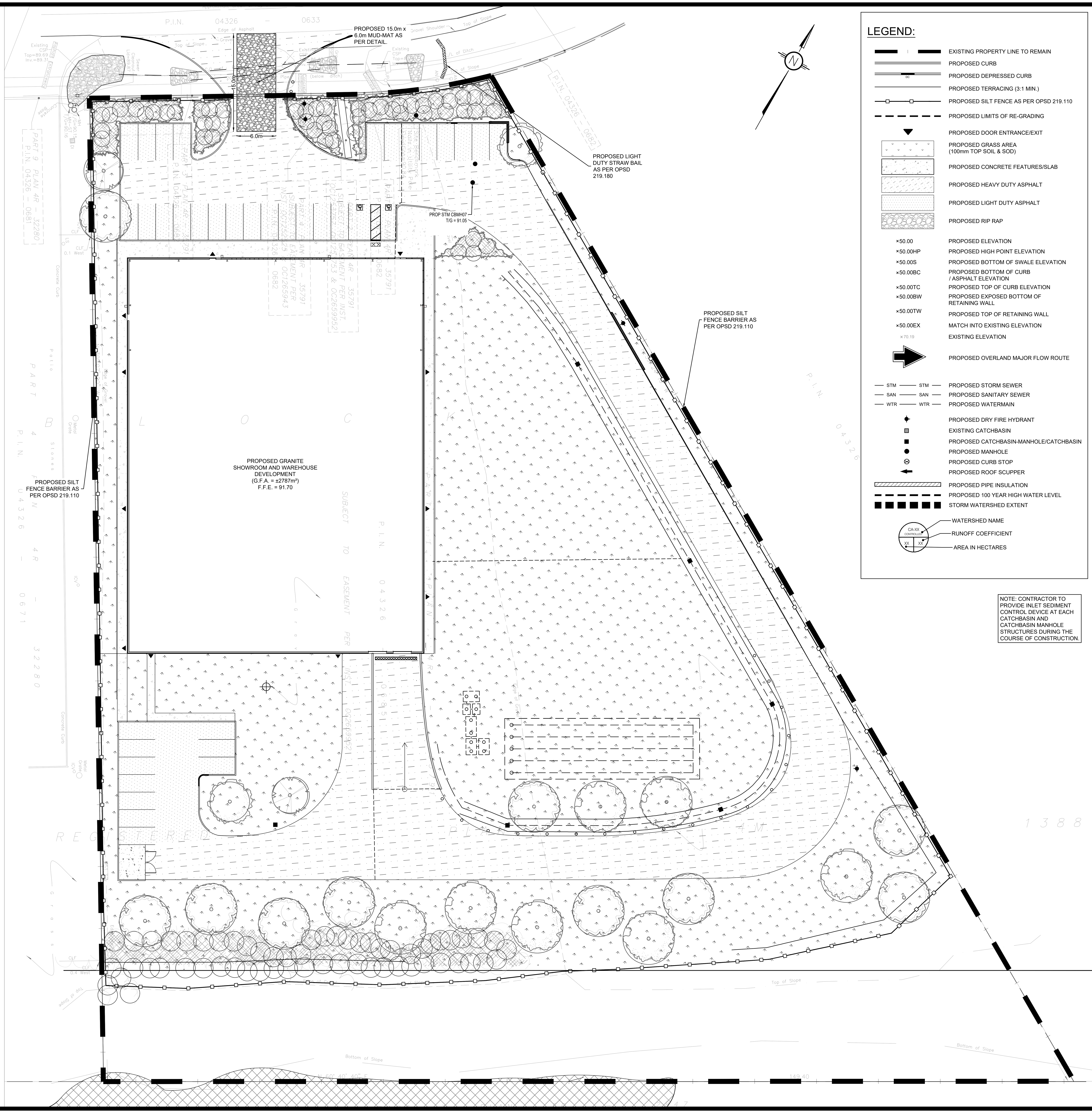
PROJECT
PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME STREET
OTTAWA, ON K0A 1V0

DRAWING TITLE
GENERAL NOTES

PROJECT NO.
240374

C001

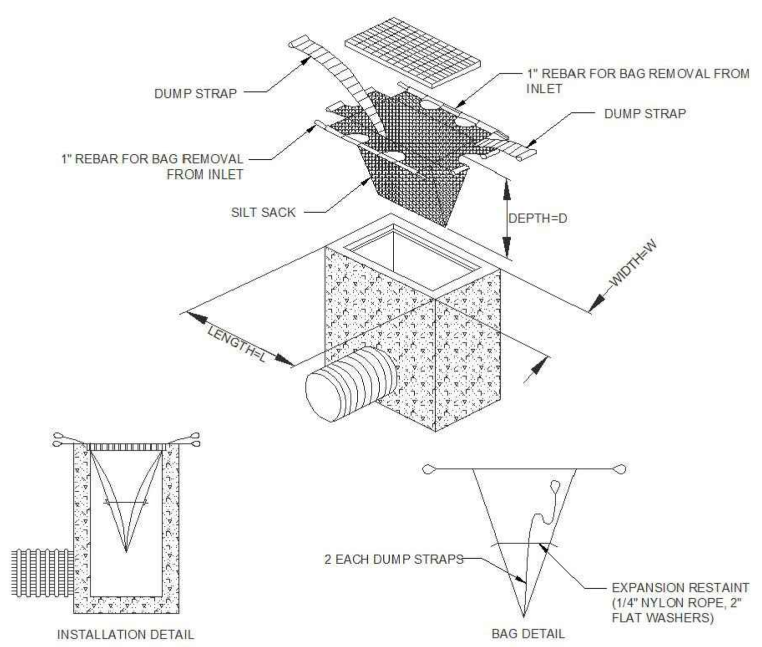




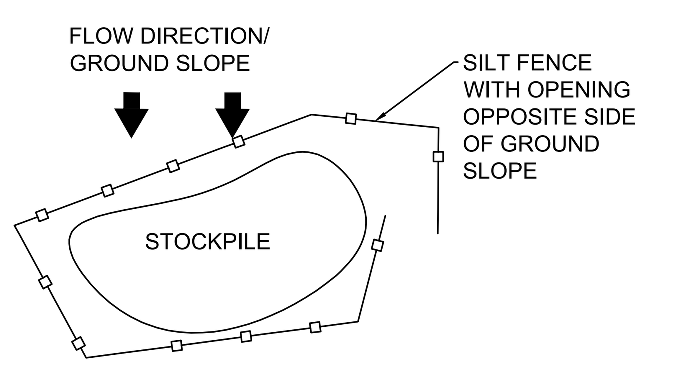
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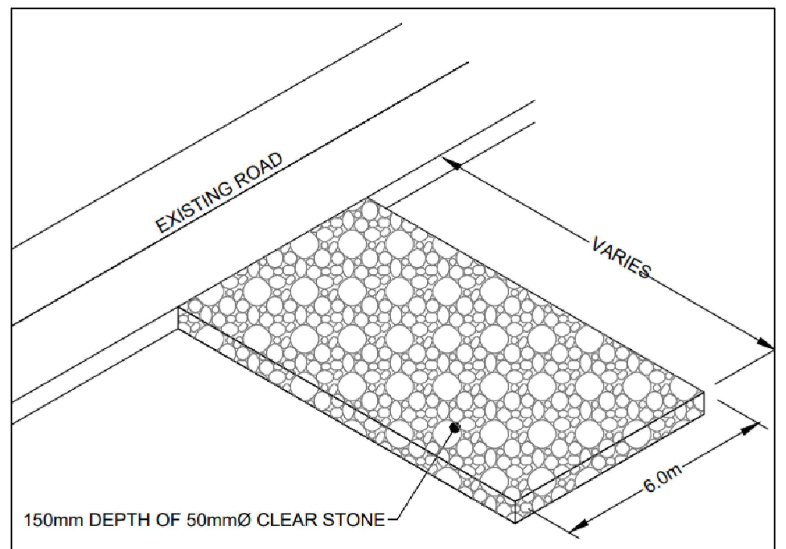
NOTE: CONTRACTOR TO PROVIDE INLET SEDIMENT CONTROL DEVICE AT EACH CATCHBASIN AND CATCHBASIN MANHOLE STRUCTURES DURING THE COURSE OF CONSTRUCTION.



INLET SEDIMENT CONTROL DEVICE
N.T.S.



STOCKPILE EROSION PROTECTION
N.T.S.



MUD MAT - CONSTRUCTION ACCESS
NTS

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5m 2 0 5 10m

SCALE: 1:300

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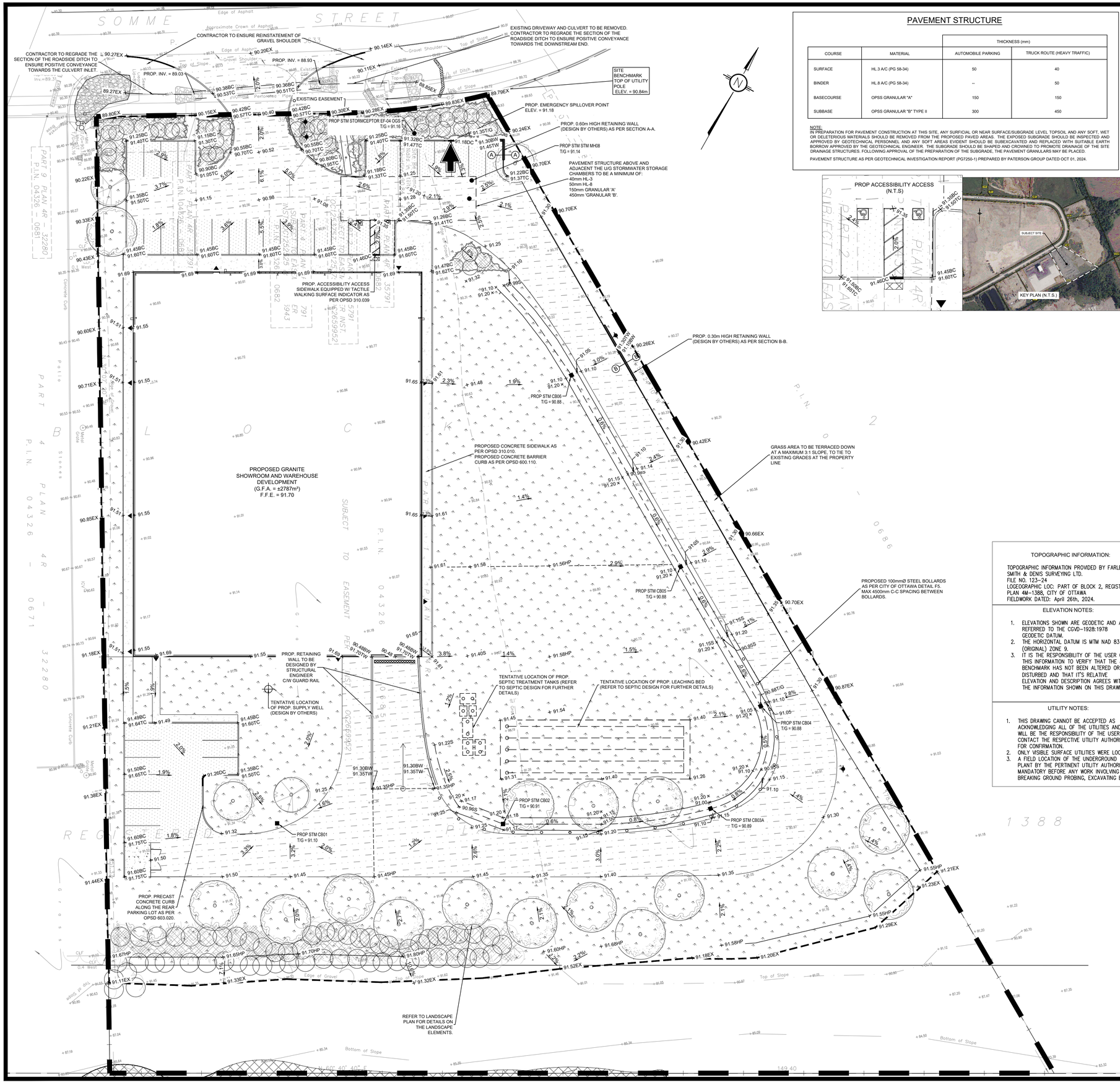
CLIENT
BLACKSTONE GRANITE

DESIGNED BY:	DRAWN BY:	APPROVED BY:
S.V.	S.V.	M.B.

PROJECT
PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME STREET
OTTAWA, ON K0A 1V0

DRAWING TITLE
EROSION AND SEDIMENT CONTROL PLAN

PROJECT NO.
240374
C101



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	450

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.

PAVEMENT STRUCTURE AS PER GEOTECHNICAL INVESTIGATION REPORT (PG7250-1) PREPARED BY PATERSON GROUP DATED OCT 01, 2024.

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- STORM WATERSHED EXTENT
- CA-XY / CONROCK / XC / X.XX — WATERSHED NAME, RUNOFF COEFFICIENT, AREA IN HECTARES

TOPOGRAPHIC INFORMATION:

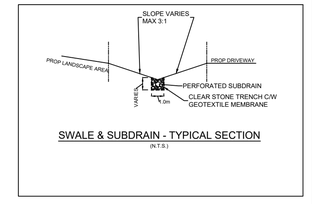
TOPOGRAPHIC INFORMATION PROVIDED BY FARLEY, SMITH & DENIS SURVEYING LTD.
FILE NO. 123-24
LOGEOGRAPHIC LOC: PART OF BLOCK 2, REGISTERES PLAN 4M-1388, CITY OF OTTAWA
FIELDWORK DATED: April 26th, 2024.

ELEVATION NOTES:

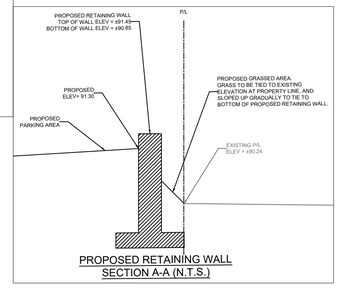
1. ELEVATIONS SHOWN ARE GEODETIC AND ARE REFERRED TO THE CGVD-1928:1978 GEODETIC DATUM.
2. THE HORIZONTAL DATUM IS MTM NAD 83 (ORIGINAL) ZONE 9.
3. IT IS THE RESPONSIBILITY OF THE USER OF THIS INFORMATION TO VERIFY THAT THE JOB BENCHMARK HAS NOT BEEN ALTERED OR DISTURBED AND THAT IT'S RELATIVE ELEVATION AND DESCRIPTION AGREES WITH THE INFORMATION SHOWN ON THIS DRAWING.

UTILITY NOTES:

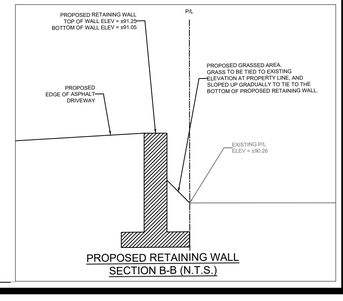
1. THIS DRAWING CANNOT BE ACCEPTED AS ACKNOWLEDGING ALL OF THE UTILITIES AND IT WILL BE THE RESPONSIBILITY OF THE USER TO CONTACT THE RESPECTIVE UTILITY AUTHORITIES FOR CONFIRMATION.
2. ONLY VISIBLE SURFACE UTILITIES WERE LOCATED.
3. A FIELD LOCATION OF THE UNDERGROUND PLANT BY THE PERTINENT UTILITY AUTHORITY IS MANDATORY BEFORE ANY WORK INVOLVING BREAKING GROUND PROBING, EXCAVATING ETC.



SWALE & SUBDRAIN - TYPICAL SECTION
(N.T.S.)



PROPOSED RETAINING WALL SECTION A-A (N.T.S.)



PROPOSED RETAINING WALL SECTION B-B (N.T.S.)

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100501996
2026-11-09
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
BLACKSTONE GRANITE

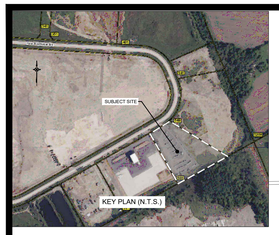
DESIGNED BY:	DRAWN BY:	APPROVED BY:
S.V.	S.V.	M.B.

PROJECT
PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME STREET
OTTAWA, ON K0A 1V0

DRAWING TITLE
GRADING AND DRAINAGE PLAN

PROJECT NO.
240374

C301



NOTE: CONTRACTOR TO CONFIRM EXISTING BOTTOM OF DITCH ELEVATIONS PRIOR TO CULVERT INSTALLATION AND REPORT ANY DISCREPANCIES TO THE ENGINEER IMMEDIATELY.

PROP. 20.0m - 1030mm x 740mmØ, 2.8mm THICK, AL2 CSPA @ 0.51% SLOPE, FROST TREATED AS PER OPSD 803.030.
RIP-RAP TO BE PLACED AT CULVERT INLET/OUTLET AS PER OPSD 801.101.

PROP. INV. = 89.03

PROP. INV. = 88.93

PROP. 150mmØ ROOF-DRAIN STM OUTLET PIPE INV. =89.20
BOTTOM OF DITCH =88.90
C/W RODENT GRATE AND BACKFLOW PREVENTOR.

PROP. 300mmØ STM OUTLET PIPE INV. =89.20
BOTTOM OF DITCH =88.85
C/W RODENT GRATE AND BACKFLOW PREVENTOR
RIP-RAP TO BE PLACED AT STM-SEWER INLET/OUTLET AS PER OPSD 801.010.
CONTRACTOR TO CONFIRM POSITIVE DRAINAGE TOWARDS THE DITCH DOWNSTREAM.

PROP STM 8.1m - 300mmØ PVC @ 0.49% W/ INSULATION

PROP STM 11.7m - 300mmØ PVC DR-35 @ 0.51%

PROP STM MH08
T/G = 91.14
W INV = 89.33
EQUIPPED W/ HYDROVEX 200VHV-2 ICD
(OR APPROVED EQUIVALENT)
MAX FLOW= 44.36L/s
DESIGN HEAD = 1.85m

PROP NYLOPLAST INLET 01 (OR APPROVED EQUIVALENT)
T/G = 91.05
SW INV = 89.39
SE INV = 89.45

PIPE CROSSING CR- 01
WTR OBV=88.75
STM INV=89.47
MIN CLEARANCE =0.72m

PROP. 20cm-150mmØ PVC DR-18 WTR SERVICE PIPE TO SERVICE DRY HYDRANT ON-SITE. PIPE TO BE BURIED 2.4m BELOW GRADE.

FIRE PROTECTION WATER SUPPLY VOLUME REQ'D = 180,000L AS PER NFPA CALCULATIONS PROVIDED BY JAIN SUSTAINABILITY CONSULTANTS DATED AUG 12, 2025.
TENT. PROP. REINFORCED CONCRETE TANKS @ 60,000L CAPACITY EACH.
C/W ANCHORING TO COUNTER BUOYANCY FORCES.
LEAD TANK TO BE FITTED WITH CHUTE AND DRAW PIPE AS PER CITY OF OTTAWA DETAILS W51 AND W52.

PROP STM 27.4m - 250mmØ PVC @ 4.93%

PROPOSED REINFORCED CONCRETE UNDERGROUND FIRE PROTECTION TANKS (DESIGN BY OTHERS)
ALL STORAGE TANKS TO BE DESIGNED WITH ADDITIONAL REINFORCING TO SUPPORT CHBDC VEHICULAR LOADING.

PROP STM CBMH07
T/G = 91.05

PROP STM 32.3m - 375mmØ PVC DR-35 @ 0.28%

PIPE CROSSING CR-02
WTR OBV=88.80
STM INV=90.24
VERTICAL SEPARATION=±1.44m

PIPE CROSSING CR-03
WTR OBV=89.00
STM INV=90.42
VERTICAL SEPARATION=±1.42m

PROP ROOF DRAIN OUTLET.
PROP INV. AT STUB= ±90.55.

PROP. ±64.7m - 150mmØ PVC DR18 WTR SERVICE PIPE (UNLESS OTHERWISE SPECIFIED) TO BE BURIED 2.4m BELOW GRADE. WTR CONNECTION TO THE BUILDING AS PER MECHANICAL DESIGN.

PROP STM CB06
T/G = 90.85
SE INV = 89.54
NW INV = 89.54

PROP. ±156m-150mmØ PVC DR-18 WTR SERVICE PIPE TO SERVICE DRY HYDRANT ON-SITE. PIPE TO BE BURIED 2.4m BELOW GRADE.

PROPOSED GRANITE SHOWROOM AND WAREHOUSE DEVELOPMENT
(G.F.A. = ±2787m²)
F.F.E. = 91.70

PROP STM 34.9m - 375mmØ PERFORATED SUBDRAIN @ 0.34%

PROP STM CB05
T/G = 90.88
SE INV = 89.66
NW INV = 89.66

PROP STM 25.4m - 375mmØ PERFORATED SUBDRAIN @ 0.35%

PROP STM CB04 (CB-T)
T/G = 90.88
SE INV = 89.75
NW INV = 89.75

SEPTIC SANITARY SERVICE OUTLET LOCATION AND INVERT TO BE COORDINATED BETWEEN MECHANICAL ENGINEER AND SEPTIC DESIGNER

PROP. ±14.5m - 150mm PVC SDR-28 SANITARY SERVICE @ MIN. 1.0% SLOPE.
SANITARY SERVICE DIAMETER & PLACEMENT TO BE CONFIRMED BY THE SEPTIC DESIGNER.

PROP. 6.1m- 50mmØ PEX WTR SERVICE PIPE TO BE BURIED 2.4m BELOW GRADE. WTR CONNECTION TO THE BUILDING AS PER MECHANICAL DESIGN.

TOP OF TRENCH DRAIN = 90.45
PROP. TRENCH DRAIN TO OUTLET ON THE GRASS-SURFACE V/A INTERNAL PUMP. REFER TO MECH DRAWINGS FOR INTERNAL PUMP AND PLUMBING DETAILS.

PROPOSED SEPTIC TREATMENT SYSTEM (DESIGN BY OTHERS)

PROPOSED LEACHING BED (DESIGN BY OTHERS)

TENTATIVE LOCATION OF PROP. SUPPLY WELL (DESIGN BY OTHERS)

PROP. GRASS SWALE @2.7%

PROP STM 10.0m -375mmØ SUBDRAIN @ 0.44%

PROP STM 10.3m - 300mmØ SUBDRAIN @ 0.34%

PROP STM CB03A (CB-T)
T/G = 90.89
SW INV = 89.82
NE INV = 89.82

PROP STM CB01 (CB-L)
T/G = 91.10
NE INV = 90.13

PROP STM 35.7m - 250mmØ PVC DR-35 @ 0.45%

PROP STM CB02 (CB-T)
T/G = 90.91
SW INV = 89.97
NE INV = 89.97

PROP STM 33.1m - 300mmØ PERFORATED SUBDRAIN @ 0.45%

LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED LIMITS OF RE-GRADING
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00S PROPOSED BOTTOM OF SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00BW PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- ×50.00TW PROPOSED TOP OF RETAINING WALL
- ×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
- PROPOSED DRY FIRE HYDRANT
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED ROOF SCUPPER
- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- WATERSHED NAME
- RUNOFF COEFFICIENT
- AREA IN HECTARES

SCALE: 1:300

NOT FOR CONSTRUCTION TENDER OR PERMIT

USE AND INTERPRETATION OF DRAWINGS

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LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2026-11-09
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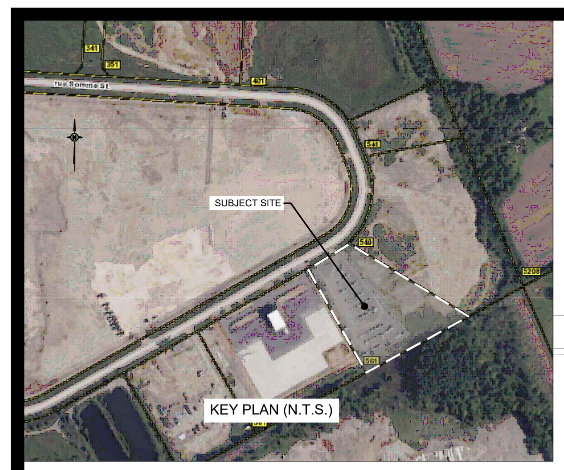
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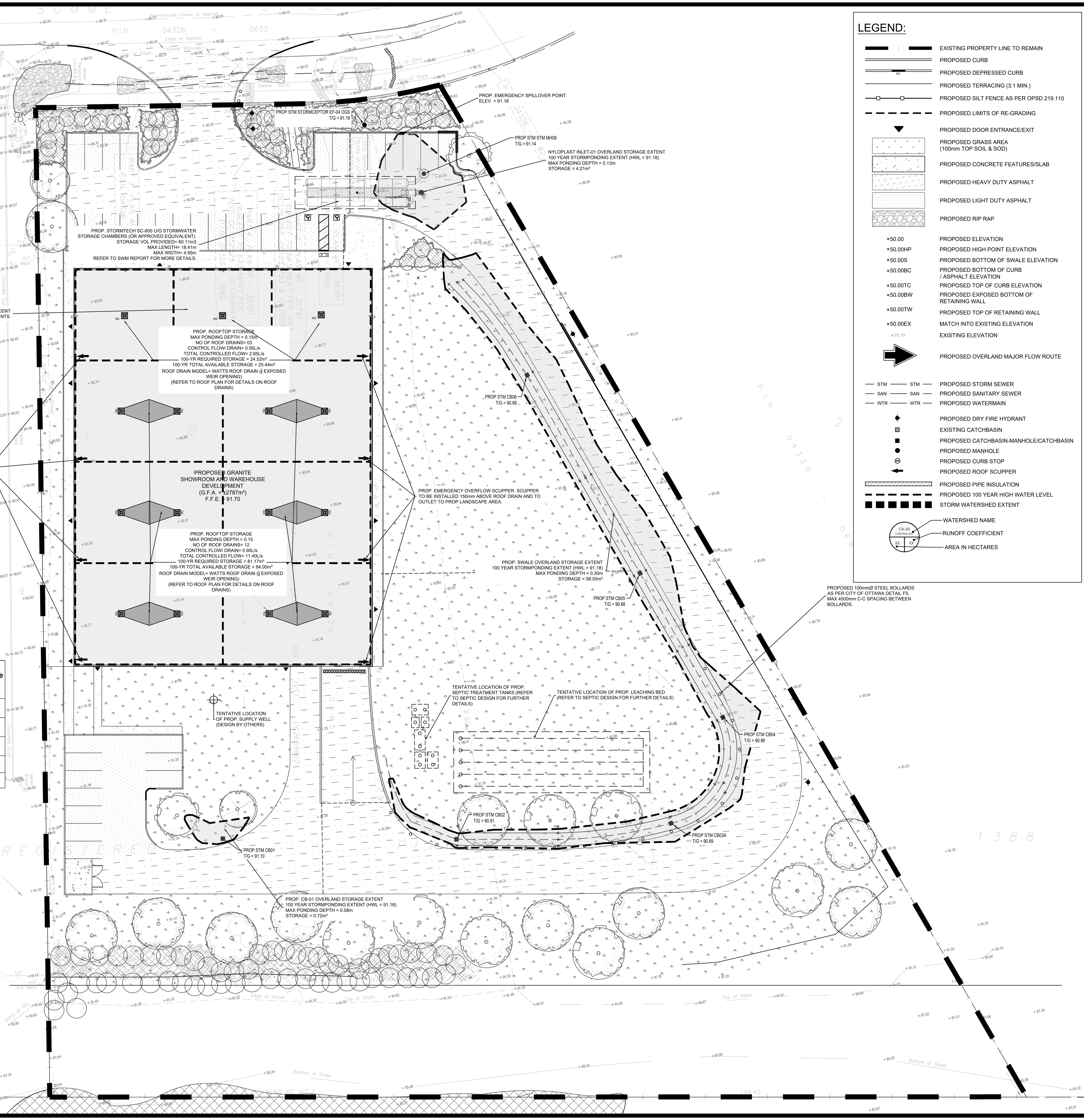
PROJECT
PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME STREET
OTTAWA, ON K0A 1V0

DRAWING TITLE
SERVICING PLAN

PROJECT NO.
240374

C401





Summary of Release Rates and Storage Volumes

Catchment	Drainage Area (ha)	100-year Release Rate (L/s)	100-Year Required Storage (m3)	Total Available Storage (m3)
CA-03 to CA-09 (ICD Controlled)	0.848	44.36	173.01	177.55
CA-02A (Roof Controlled)	0.216	11.40	81.17	84.00
CA-02B (Roof Controlled)	0.062	2.85	24.52	25.44
Uncontrolled	0.237	65.03	N/A	N/A
Total	**1.363**	**123.64**	**278.70**	**286.99**

Pipe Storage

Pipe	Length (m)	dia. (m)	Storage (m^3)
CB01-CB02	35.7	0.250	1.75
CB02-CB03A	33.10	0.300	2.34
CB03A-CB03B	10.30	0.300	0.73
CB03B-CB04	10.00	0.375	1.10
CB04-CB05	25.40	0.375	2.81
CB05-CB06	34.90	0.375	3.86
CB06-Inlet 01	32.30	0.375	3.57
		Total	**16.16**

MH/CBMH Storage

CB/CBMH	Depth (m)	dia. (m)	Storage (m^3)
CB01	0.97	0.30	0.07
CB02	0.93	0.30	0.07
CB03	1.07	0.30	0.08
CB04	1.13	0.30	0.08
CB05	1.22	0.30	0.09
CB06	1.31	0.30	0.09
Inlet 01	1.66	1.20	1.88
		Total	**2.35**

Overland Storage Summary

Structure	Storage (m3)
CB01	0.72
Inlet 01	4.21
Swale	58.50
Total	**63.43**

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5m 2 0 5 10m

SCALE: 1:300

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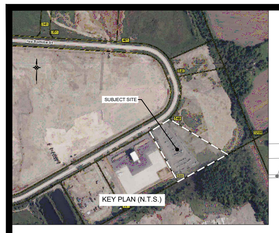
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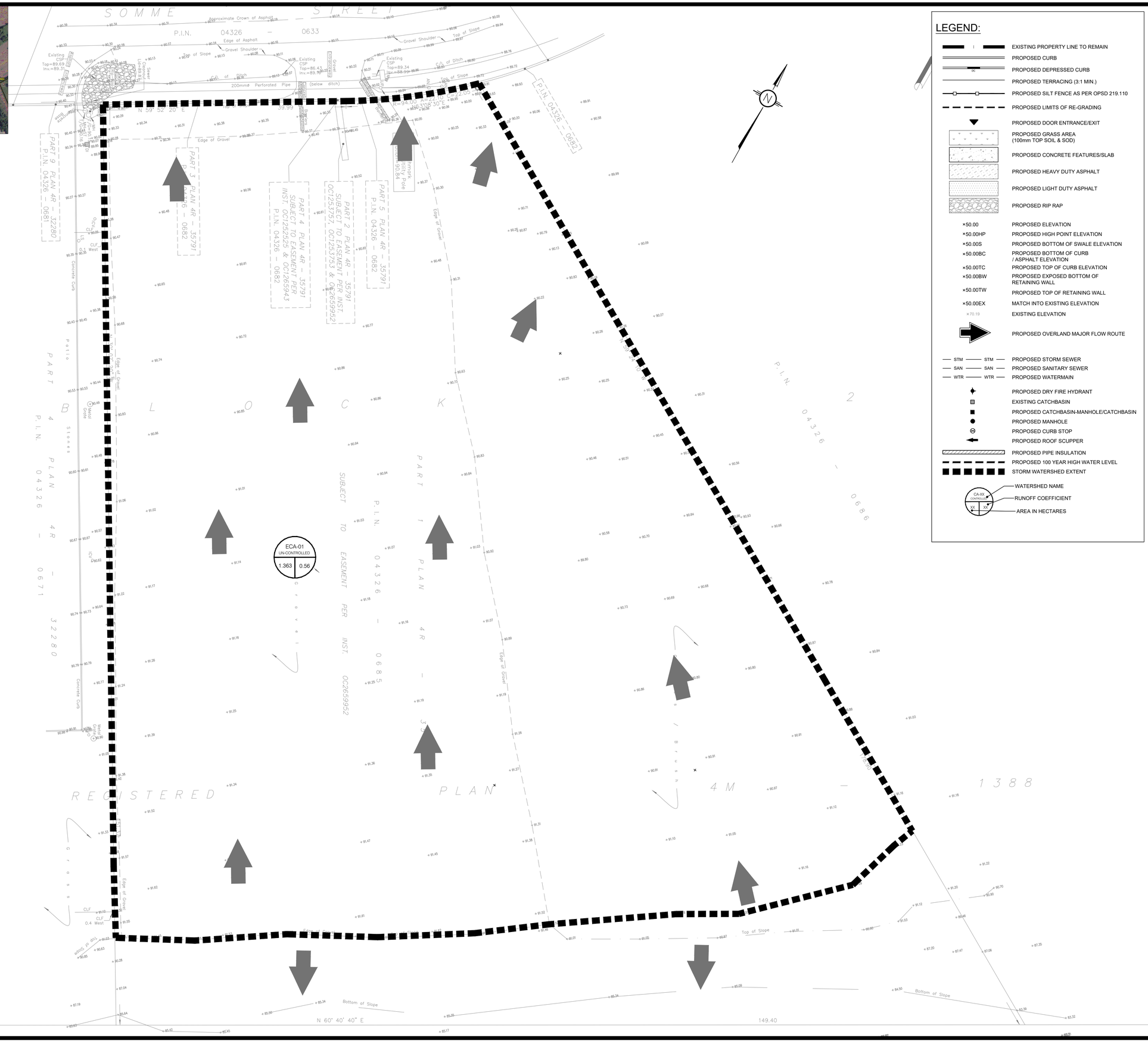
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PROJECT
PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME STREET
OTTAWA, ON K0A 1V0

DRAWING TITLE
STORMWATER MANAGEMENT PLAN

PROJECT NO.
240374
C601





LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
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IN ADDITION, THE CLIENT AGREES, TO THE FULLEST EXTENT PERMITTED BY LAW, TO INDEMNIFY AND HOLD HARMLESS LRL FROM ANY DAMAGES, LIABILITIES OR COST, INCLUDING REASONABLE ATTORNEY'S FEES AND COST OF DEFENSE, ARISING FROM SUCH CHANGES.

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

GENERAL NOTES:

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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.

5m 2 0 5 10m
SCALE: 1:300

NOT FOR CONSTRUCTION TENDER OR PERMIT

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02	RE- ISSUED FOR APPROVAL	S.V.	10 OCT 2025
01	ISSUED FOR APPROVAL	S.V.	17 APRIL 2025

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2026-11-09
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
BLACKSTONE GRANITE

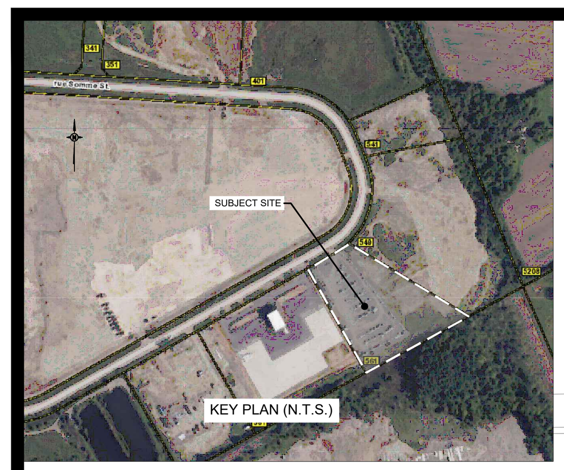
DESIGNED BY:	DRAWN BY:	APPROVED BY:
S.V.	S.V.	M.B.

PROJECT
PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME STREET
OTTAWA, ON K0A 1V0

DRAWING TITLE
PRE-DEVELOPMENT WATERSHED PLAN

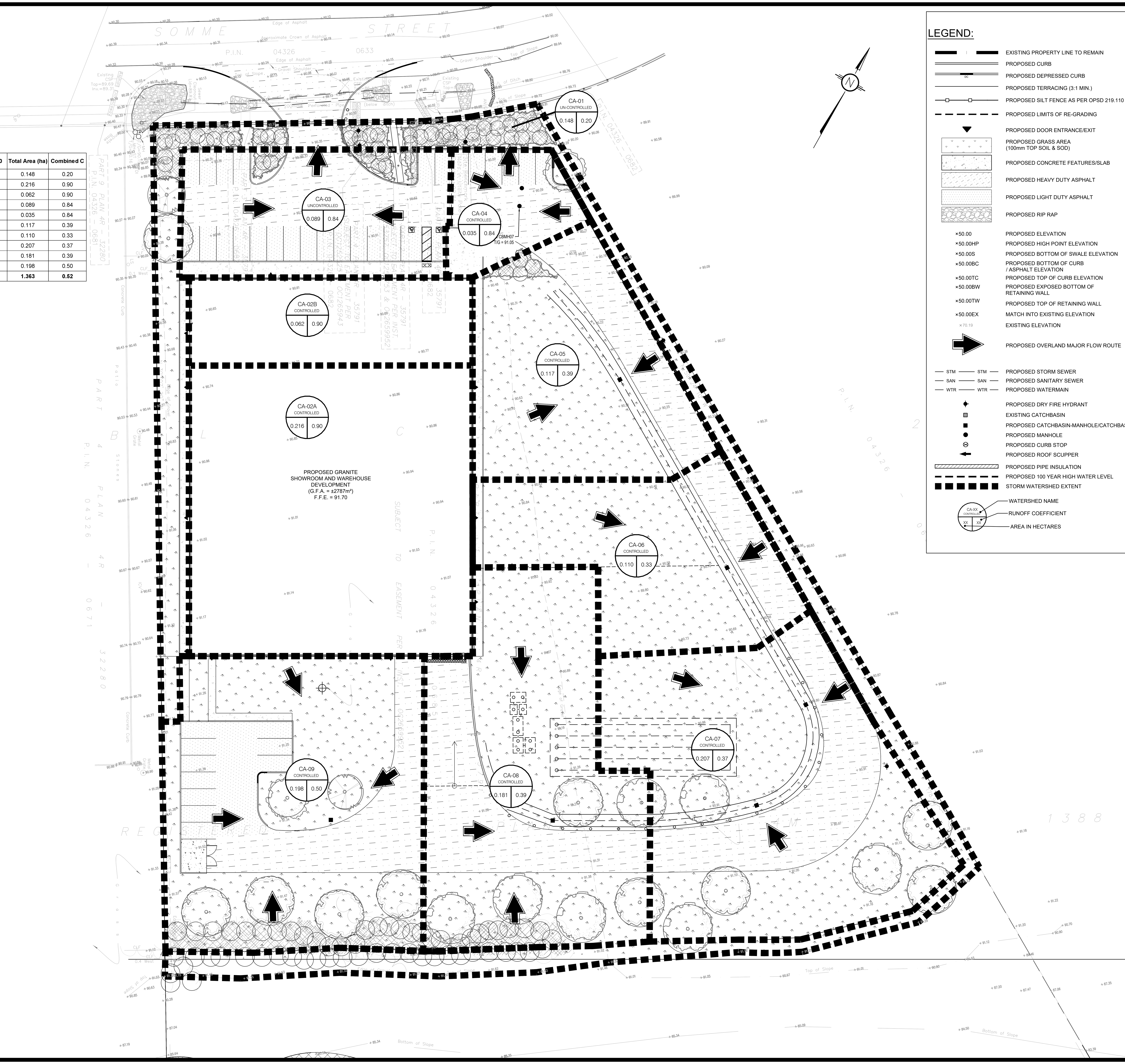
PROJECT NO.
240374

C701



Post-Development Catchments

Catchment	C = 0.20	C = 0.8	C = 0.90	Total Area (ha)	Combined C
CA-01 (uncontrolled)	0.147	0.000	0.001	0.148	0.20
CA-02A (roof-controlled)	0.000	0.000	0.216	0.216	0.90
CA-02B (roof-controlled)	0.000	0.000	0.062	0.062	0.90
CA-03 (uncontrolled)	0.008	0.000	0.081	0.089	0.84
CA-04 (controlled)	0.003	0.000	0.032	0.035	0.84
CA-05 (controlled)	0.085	0.000	0.032	0.117	0.39
CA-06 (controlled)	0.089	0.000	0.021	0.110	0.33
CA-07 (controlled)	0.156	0.000	0.051	0.207	0.37
CA-08 (controlled)	0.131	0.000	0.050	0.181	0.39
CA-09 (controlled)	0.113	0.000	0.085	0.198	0.50
Total	**0.732**	**0.000**	**0.631**	**1.363**	**0.52**



LEGEND:

- EXISTING PROPERTY LINE TO REMAIN
- PROPOSED CURB
- PROPOSED DEPRESSED CURB
- PROPOSED TERRACING (3:1 MIN.)
- PROPOSED SILT FENCE AS PER OPSD 219.110
- PROPOSED LIMITS OF RE-GRADING
- PROPOSED DOOR ENTRANCE/EXIT
- PROPOSED GRASS AREA (100mm TOP SOIL & SOD)
- PROPOSED CONCRETE FEATURES/SLAB
- PROPOSED HEAVY DUTY ASPHALT
- PROPOSED LIGHT DUTY ASPHALT
- PROPOSED RIP RAP
- ×50.00 PROPOSED ELEVATION
- ×50.00HP PROPOSED HIGH POINT ELEVATION
- ×50.00S PROPOSED BOTTOM OF SWALE ELEVATION
- ×50.00BC PROPOSED BOTTOM OF CURB / ASPHALT ELEVATION
- ×50.00TC PROPOSED TOP OF CURB ELEVATION
- ×50.00BW PROPOSED EXPOSED BOTTOM OF RETAINING WALL
- ×50.00TW PROPOSED TOP OF RETAINING WALL
- ×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
- PROPOSED DRY FIRE HYDRANT
- EXISTING CATCHBASIN
- PROPOSED CATCHBASIN-MANHOLE/CATCHBASIN
- PROPOSED MANHOLE
- PROPOSED CURB STOP
- PROPOSED ROOF SCUPPER
- PROPOSED PIPE INSULATION
- PROPOSED 100 YEAR HIGH WATER LEVEL
- STORM WATERSHED EXTENT
- CA-XX CONTROLLED: WATERSHED NAME; RUNOFF COEFFICIENT (XX); AREA IN HECTARES (XX)

USE AND INTERPRETATION OF DRAWINGS

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SCALE: 1:300

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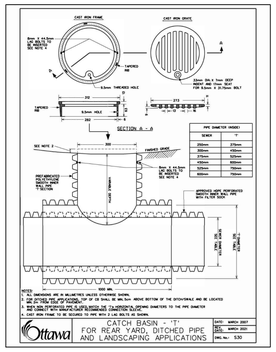
CLIENT
BLACKSTONE GRANITE

DESIGNED BY:	DRAWN BY:	APPROVED BY:
S.V.	S.V.	M.B.

PROJECT
PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME STREET
OTTAWA, ON K0A 1V0

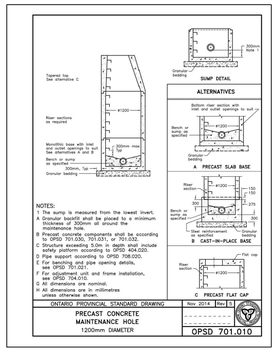
DRAWING TITLE
POST-DEVELOPMENT WATERSHED PLAN

PROJECT NO.
240374 C702



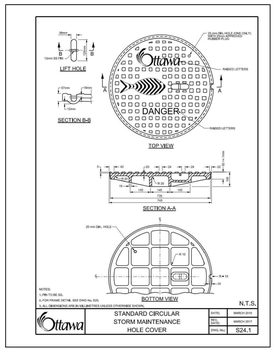
CATCH BASIN – "1"
FOR REAR YARD, DITCHED PIPE AND LANDSCAPING APPLICATIONS

DATE:	MARCH 2007
DWG. No.	SC1
SPEC. No.	OPSD 701.010



PRECAST CONCRETE MAINTENANCE HOLE 1200mm DIAMETER

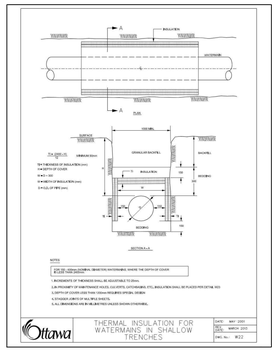
ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2014	Rev 1
OPSD 701.010	



STORM MAINTENANCE HOLE COVER

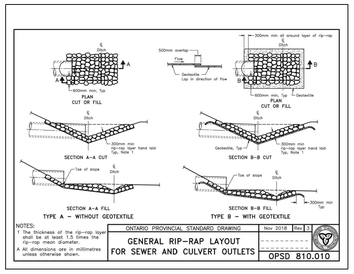
DATE:	MARCH 2007
DWG. No.	SC2
SPEC. No.	OPSD 401.010
DWG No.	S24.1

N.T.S.



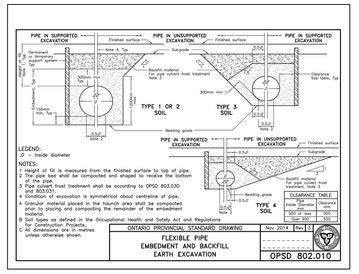
THERMAL INSULATION FOR WATERMAINS IN SHALLOW TRENCHES

DATE:	MAY 2001
DWG. No.	W22



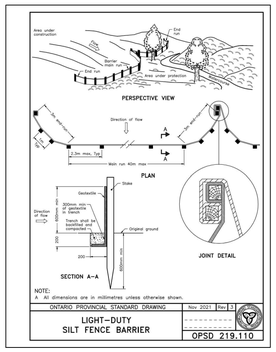
GENERAL RIP-RAP LAYOUT FOR SEWER AND CULVERT OUTLETS

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2018	Rev 1
OPSD 810.010	



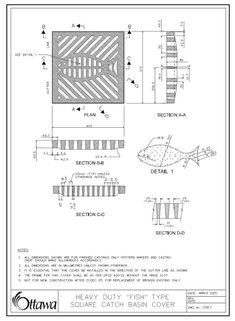
FLEXIBLE PIPE EMBEDMENT AND BACKFILL EARTH EXCAVATION

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2014	Rev 1
OPSD 802.010	



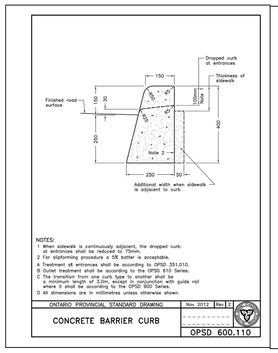
LIGHT–DUTY SILT FENCE BARRIER

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2021	Rev 2
OPSD 219.110	



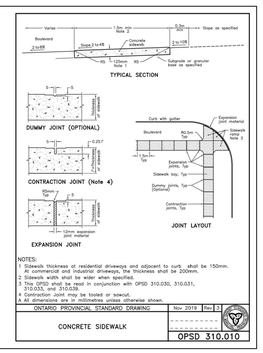
HEAVY DUTY "FISH" TYPE SQUARE CATCH BASIN COVER

DATE:	MARCH 2005
DWG. No.	S18.1



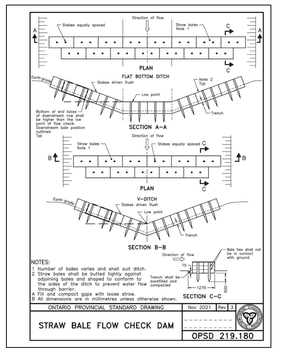
CONCRETE BARRIER CURB

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2012	Rev 2
OPSD 600.110	



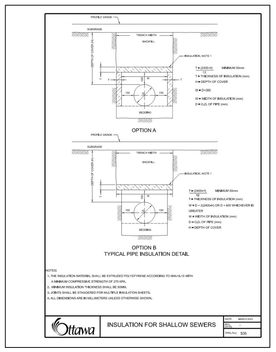
CONCRETE SIDEWALK

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2019	Rev 1
OPSD 310.010	



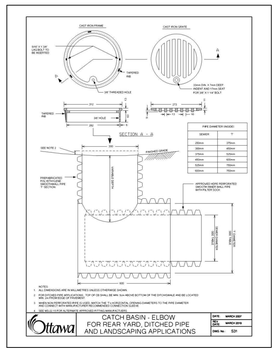
STRAW BALE FLOW CHECK DAM

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2021	Rev 2
OPSD 219.180	



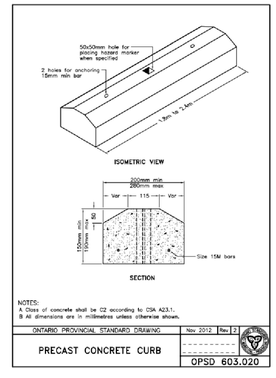
INSULATION FOR SHALLOW SEWERS

DATE:	MARCH 2007
DWG. No.	S26



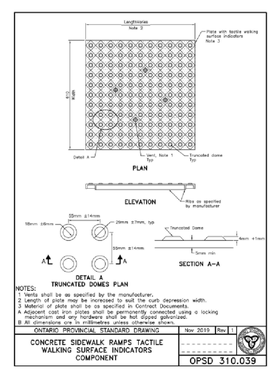
CATCH BASIN – ELBOW FOR REAR YARD, DITCHED PIPE AND LANDSCAPING APPLICATIONS

DATE:	MARCH 2007
DWG. No.	S29



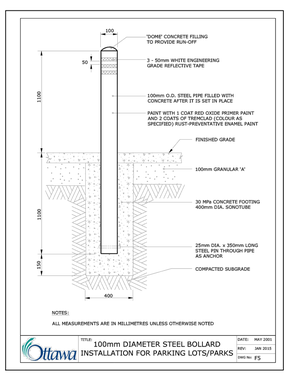
PRECAST CONCRETE CURB

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2012	Rev 2
OPSD 603.020	



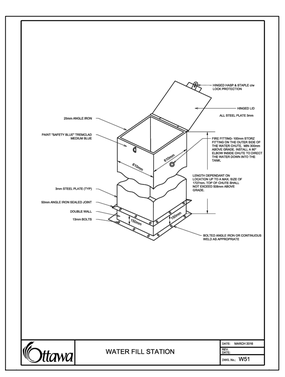
CONCRETE SIDEWALK RAMPS TACTILE WALKING SURFACE INDICATORS COMPONENT

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2019	Rev 1
OPSD 310.039	



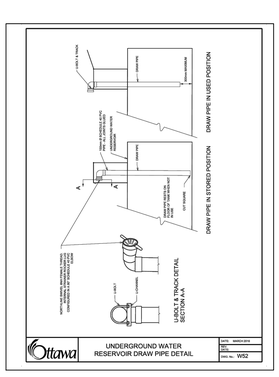
100mm DIAMETER STEEL BOLLARD INSTALLATION FOR PARKING LOTS/PARKS

DATE:	MAY 2001
REV:	JAN 2015
DWG No.	F5



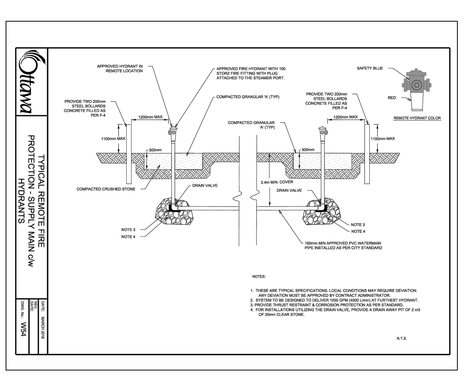
WATER FILL STATION

DATE:	MARCH 2018
DWG. No.	W51

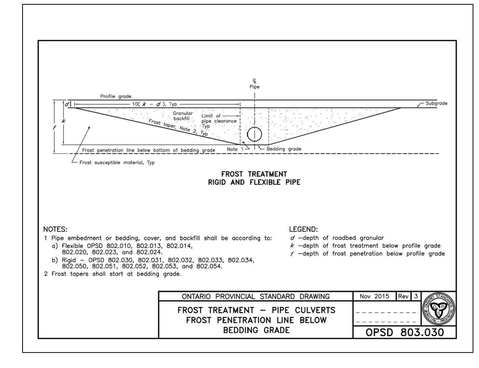


UNDERGROUND WATER RESERVOIR DRAW PIPE DETAIL

DATE:	MARCH 2014
DWG. No.	W52



DRAWN:	KH
DES'D:	SV
DATE:	MARCH 2025
DWG. No.	W54



FROST TREATMENT – PIPE CULVERTS FROST PENETRATION LINE BELOW BEDDING GRADE

ONTARIO PROVINCIAL STANDARD DRAWING	
Nov 2015	Rev 3
OPSD 803.030	

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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.

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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 BID PRICE. NO CLAIMS FOR EXTRA CHANGES 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.

NOT FOR CONSTRUCTION TENDER OR PERMIT

No.	REVISIONS	BY	DATE
04	RE- ISSUED FOR APPROVAL	K.H.	09 NOV 2026
03	RE- ISSUED FOR APPROVAL	K.H.	12 JUNE 2026
02	RE- ISSUED FOR APPROVAL	S.V.	10 OCT 2025
01	ISSUED FOR APPROVAL	S.V.	17 APRIL 2025

LICENSED PROFESSIONAL ENGINEER
M. BASNET
100501996
2026-11-09
PROVINCE OF ONTARIO

NOT AUTHENTIC UNLESS SIGNED AND DATED

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

CLIENT
BLACKSTONE GRANITE

DESIGNED BY:	DRAWN BY:	APPROVED BY:
S.V.	S.V.	M.B.

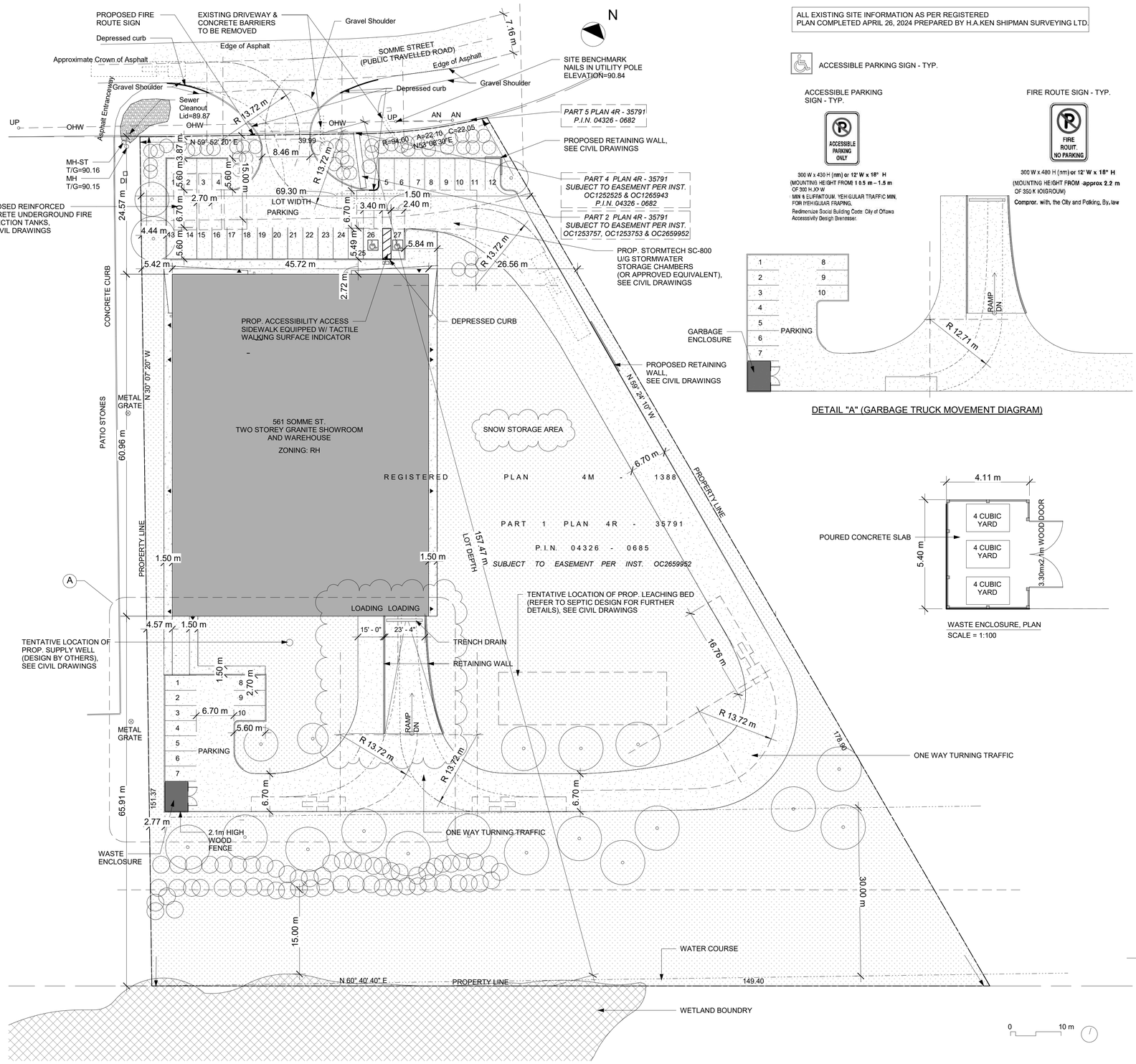
PROJECT
PROPOSED GRANITE SHOWROOM & WAREHOUSE DEVELOPMENT
561 SOMME STREET
OTTAWA, ON K0A 1V0

DRAWING TITLE
CONSTRUCTION DETAIL PLAN

PROJECT NO.
240374 C901

APPENDIX F

Legal Survey
Site Plan
Roof Plan



1 SITE PLAN
1:400

ALL EXISTING SITE INFORMATION AS PER REGISTERED PLAN COMPLETED APRIL 26, 2024 PREPARED BY H.A.KEN SHIPMAN SURVEYING LTD.

ACCESSIBLE PARKING SIGN - TYP.

ACCESSIBLE PARKING SIGN - TYP.

ACCESSIBLE PARKING ONLY

300 W x 430 H (mm) or 12' W x 18" H
(MOUNTING HEIGHT FROM 1 0.5 m – 1.5 m OF 300 H JO W
MIN 6 ELIFINTJOUM. YEH/GULAR TRAFFIC MIN. FOR HYEH/GULAR FRAPING.
Redimonize Social Building Code: City of Ottawa Accessivity Desigh Brenesser.

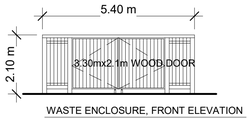
FIRE ROUTE SIGN - TYP.

FIRE ROUTE NO PARKING

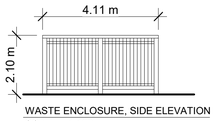
300 W x 480 H (mm) or 12' W x 18" H
(MOUNTING HEIGHT FROM -approx 2.2 m OF 350 K IOIGROUM)
Compror. with, the City and Polking, By, law

DETAIL "A" (GARBAGE TRUCK MOVEMENT DIAGRAM)

WASTE ENCLOSURE, PLAN
SCALE = 1:100

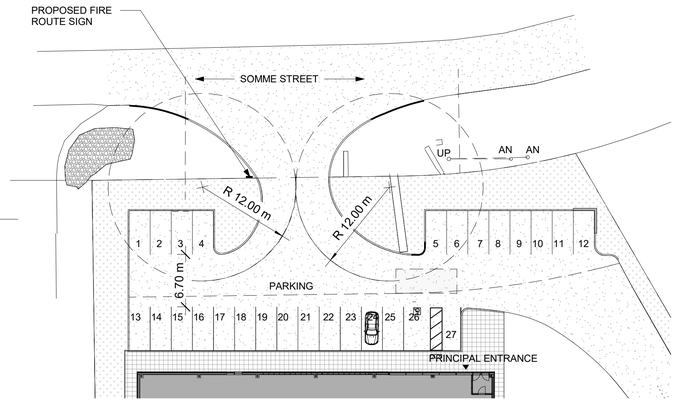


WASTE ENCLOSURE, FRONT ELEVATION
SCALE = 1:100



WASTE ENCLOSURE, SIDE ELEVATION
SCALE = 1:100

561 SOMME STREET			
SITE PLAN OF SURVEY PART OF BLOCK 2 AND PART OF RESERVE BLOCK 17, REGISTERED PLAN 4M-1388, CITY OF OTTAWA PREPARED BY H.A.KEN SHIPMAN SURVEYING LTD. COMPLETED APRIL 26, 2024			
RH - RURAL HEAVY INDUSTRIAL ZONE (SECTIONS 221-222), CITY OF OTTAWA; DWELLING TYPE: LIGHT INDUSTRIAL USE			
ZONING MECHANISMS	**REQUIREMENT**	**PROVIDED**	**NOTES**
A) MINIMUM LOT AREA	8000 m²	16205.4 m²	
B) MINIMUM LOT WIDTH	50 m	69.3 m	
C) MINIMUM LOT DEPTH	N/A	157.47 m	
D) MINIMUM FRONT YARD SET BACK	15 m	24.56 m	
E) MINIMUM INTERIOR SIDE YARD SET BACK	3 m	4.57 m & 26.56 m	
F) MINIMUM REAR YARD SETBACK	15 m	65.91 m	
G) MAXIMUM PRINCIPAL BUILDING HEIGHT	15 m	10.80 m	
H) MAXIMUM LOT COVERAGE	50%	17.2%	
I) PARKING	Warehouse: 0.8 per 100 m2 for the first 5000 m2 of gross floor area Ground floor: (2726 m2/100)x0.8 = 21.8 spaces Second floor: (414.6 m2/100)x0.8 = 3.32 spaces Total required: 26 spaces	27 front including 2 barrier free & 10 rear Total: 37	
J) LOADING	1- 7 m x 3.5 m loading space & 9 m driveway accessing the space	2- 7 m x 3.5 m loading spaces & 9 m driveway accessing the space	
K) OUTDOOR STORAGE	Not permitted in front yard and must be screened (1.8 m opaque) from public street and residential uses	None shown on plan	
AVERAGE GRADE: CALCULATED FROM EXISTING ELEVATION POINTS AT A DISTANCE EQUAL TO THE MINIMUM FRONT YARD & REAR YARD SETBACKS, AT THE INTERIOR SIDE PROPERTY LINES AVERAGE GRADE : 90.675m (90.19m + 90.46m + 91.18m + 90.87m) /4			



FIREFIGHTING ACCESS ROUTE

LEGEND

- NEW TREE/ SHRUB
- PROPOSED BUILDING
- PROPOSED / EXISTING ENTRY / EXIT
- PROPERTY LINE
- DENOTES HARD LANDSCAPING (CONCRETE)
- DENOTES SOFT LANDSCAPING
- DENOTES ASPHALT

RA REDLINE ARCHITECTURE

REDLINE ARCHITECTURE INC.

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info@redlinearchitecture.ca
www.redlinearchitecture.ca

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LEVENT TATAR
LICENCE
9542

561 SOMME STREET
TWO STOREY GRANITE SHOWROOM AND WAREHOUSE

OWNER/DEVELOPER:
BLACKSTONE HOMES DESIGN AND BUILD LTD.

ARCHITECT:
REDLINE ARCHITECTURE INC.

APPLICANT:
Q9 PLANNING + DESIGN,
DAYNA EDWARDS
24 KIRKSTALL AVENUE, OTTAWA, ON K2G 3M5

CIVIL ENGINEER:
LRL ENGINEERING
5430 CANOTEK ROAD
OTTAWA, ON K1J 9G2

LANDSCAPING:
RUHLAND ASSOCIATES LTD.
1750 COURWOOD CRESCENT #200
OTTAWA, ON K2C 2B5

SURVEYOR:
FARLEY, SMITH & DENIS SURVEYING LTD.
Unit 275, 30 COLONNADE ROAD
OTTAWA, ON K2E 7J6

CONSULTANTS:

STRUCTURAL - TBD
MECHANICAL - TBD
ELECTRICAL - TBD

M/D/Y

NO.	REVISION/ISSUE	DATE
9		
8		
7		
6		
5		
4		
3	ISSUED FOR SPA REV	10/5/26
2	ISSUED FOR SPA REV	11/24/25
1	ISSUED FOR SPA REV	6/23/25

PROJECT:
561 SOMME STREET
EDWARDS, ON K0A 1V0

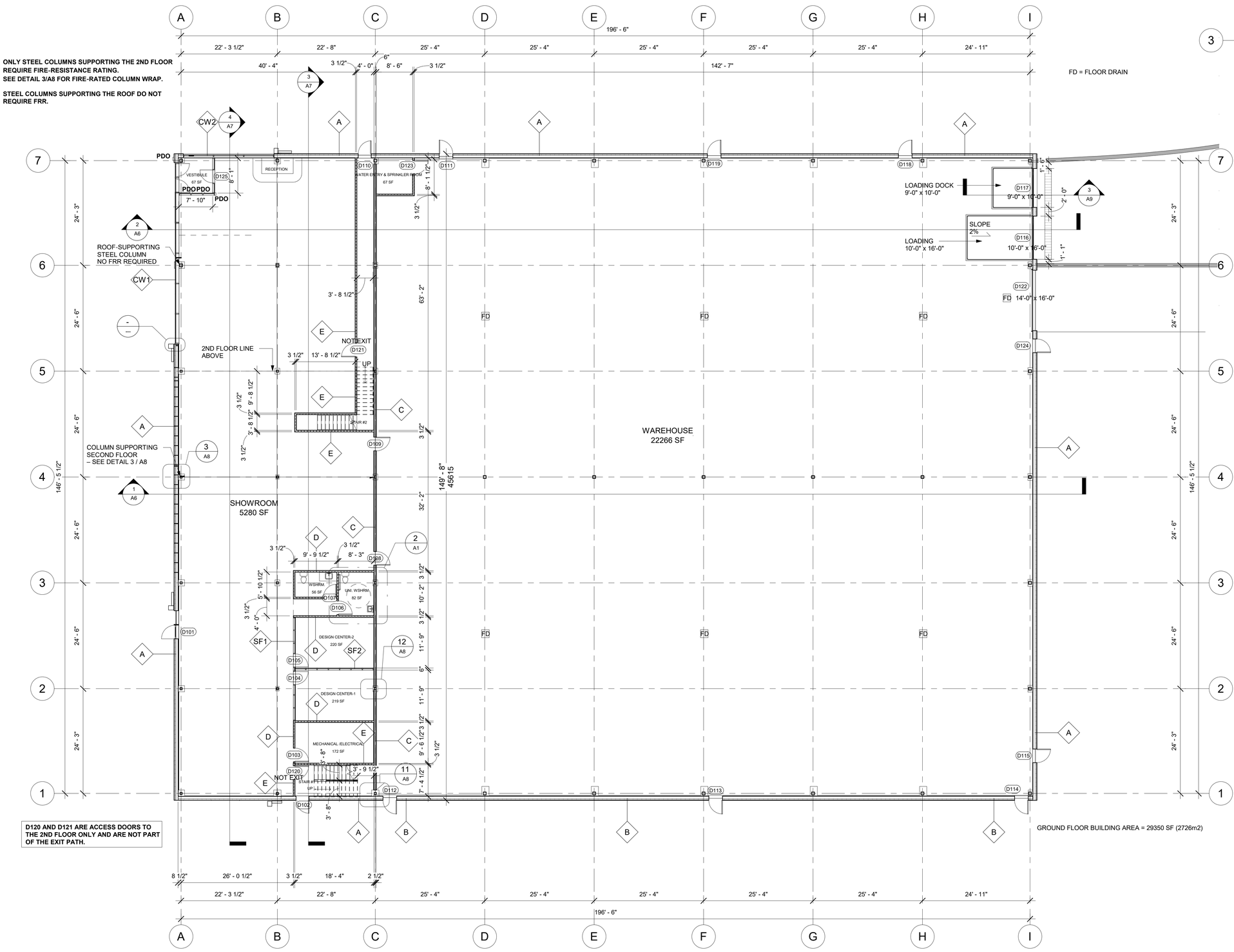
SITE PLAN

DRAWN BY:
DATE: MARCH. 22, 2024
SCALE: AS NOTED
SHEET: A0

ONLY STEEL COLUMNS SUPPORTING THE 2ND FLOOR REQUIRE FIRE-RESISTANCE RATING.
SEE DETAIL 3/A8 FOR FIRE-RATED COLUMN WRAP.

STEEL COLUMNS SUPPORTING THE ROOF DO NOT REQUIRE FRR.

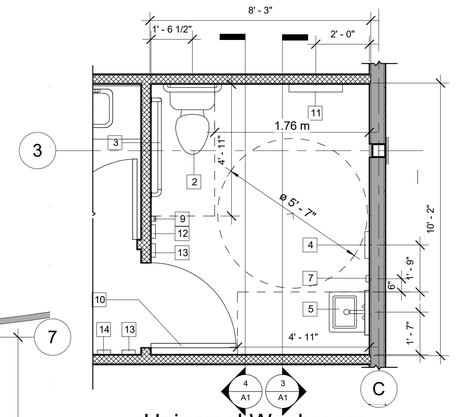
FD = FLOOR DRAIN



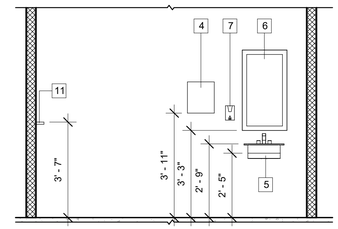
D120 AND D121 ARE ACCESS DOORS TO THE 2ND FLOOR ONLY AND ARE NOT PART OF THE EXIT PATH.

GROUND FLOOR BUILDING AREA = 29350 SF (2726m2)

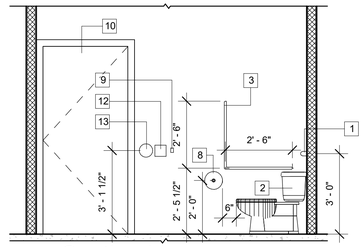
1 PROPOSED GROUND FLOOR.
3/32" = 1'-0"



2 Universal Washroom
3/8" = 1'-0"



3 Section a
3/8" = 1'-0"



4 Section b
3/8" = 1'-0"

NOTES (UNIVERSAL WASHROOM)

1. 24" GRAB BAR MOUNTED AS PER ELEVATION. TO BE INSTALLED TO RESIST A LOAD OF AT LEAST 1.3 kN APPLIES VERTICALLY OR HORIZONTALLY
2. TOILET - ACRI - TEC T-31120 DUAL FLUSH ONE PIECE TOILET OR APPROVED EQUIVALENT
3. 30"x30" L SHAPED GRAB BAR MOUNTED AS PER ELEVATION. TO BE INSTALLED TO RESIST A LOAD OF AT LEAST 1.3 kN APPLIES VERTICALLY OR HORIZONTALLY
4. SURFACE-MOUNTED PAPER TOWEL DISPENSER/WASTE RECEPTACLE FROM BOBRICK OR APPROVED EQUIVALENT
5. MURRO UNIVERSAL DESIGN WALL-MOUNT SINK FROM AMERICAN STANDARD WHITE COLOUR, INCLUDE KNEE CONTACT GUARD, OR APPROVED EQUIVALENT. USE MONTERREY CENTERSET GOOSENECK LAVATORY FAUCET FROM AMERICAN STANDARD OR APPROVED EQUIVALENT
6. B-165 1824 CHANNEL-FRAME 20"x 42" MIRROR FROM BOBRICK OR APPROVED EQUIVALENT
7. B-211 SURFACE - MOUNTED SOAP DISPENSER FROM BOBRICK OR APPROVED EQUIVALENT
8. B-2890 SINGLE JUMBO-ROLL SURFACE-MOUNTED TOILET PAPER DISPENSER FROM BOBRICK OR APPROVED EQUIVALENT
9. B-233 CLOTHES HOOK FROM BOBRICK OR APPROVED EQUIVALENT
10. DOOR WITH A CLEAR OPENING WIDTH OF MIN. 860mm AND BE PROVIDED WITH A POWER DOOR OPERATOR
11. 2'-0" SHELF
12. EMERGENCY CALL BUTTON WITH AUDIBLE, VISUAL SIGNAL AND SIGNAGE AS PER OBC 3.8.3.12.(2) (b)
13. POWER DOOR OPENER
14. AUDIBLE AND VISUAL SIGNAL AS PER 3.8.3.12.(2) (b)
15. REINFORCEMENT SHALL BE INSTALLED FOR GRAB BARS ON WALL AS PER OBC 3.3.4.9

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www.redlinearchitecture.ca

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LEVENT TATAR
LICENCE
9542

561 SOMME STREET
TWO STOREY GRANITE SHOWROOM AND WAREHOUSE

OWNER/DEVELOPER:
BLACKSTONE HOMES DESIGN AND BUILD LTD.

ARCHITECT:
REDLINE ARCHITECTURE INC.

APPLICANT:
Q9 PLANNING + DESIGN,
DAYNA EDWARDS
24 KIRKSTALL AVENUE, OTTAWA, ON K2G 3M5

CIVIL ENGINEER:
LRL ENGINEERING
5430 CANOTEK ROAD
OTTAWA, ON K1J 9G2

LANDSCAPING:
ROLAND ASSOCIATES LTD.
1750 COURWOOD CRESCENT #200
OTTAWA, ON K2C 2B5

SURVEYOR:
FARLEY, SMITH & DENIS SURVEYING LTD.
Unit 275, 30 COLONNADE ROAD
OTTAWA, ON K2E 7J6

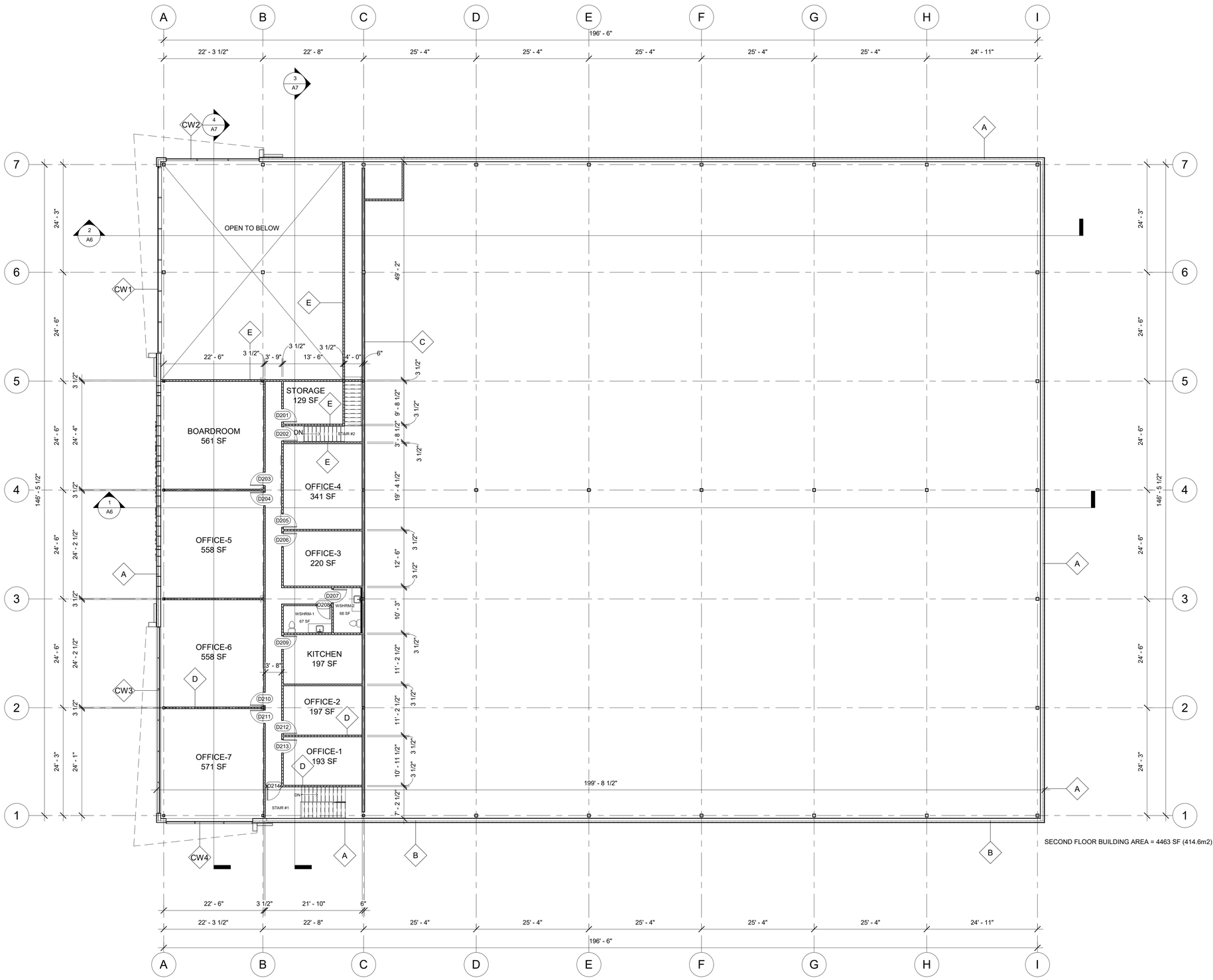
CONSULTANTS:
STRUCTURAL - TBD
MECHANICAL - TBD
ELECTRICAL - TBD

NO.	REVISION/ISSUE	DATE
9		M/D/Y
8		
7		
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2	ISSUED FOR SPA REV	10/5/26
1	ISSUED FOR SPA REV	6/23/25

PROJECT:
561 SOMME STREET
EDWARDS, ON K0A 1V0

PROPOSED FLOOR PLAN

DRAWN BY:
DATE:MARCH. 22, 2024
SCALE: AS NOTED
SHEET: A1



SECOND FLOOR BUILDING AREA = 4463 SF (414.6m2)

1 SECOND FLOOR PLAN
3/32" = 1'-0"

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561 SOMME STREET

TWO STOREY GRANITE SHOWROOM AND WAREHOUSE

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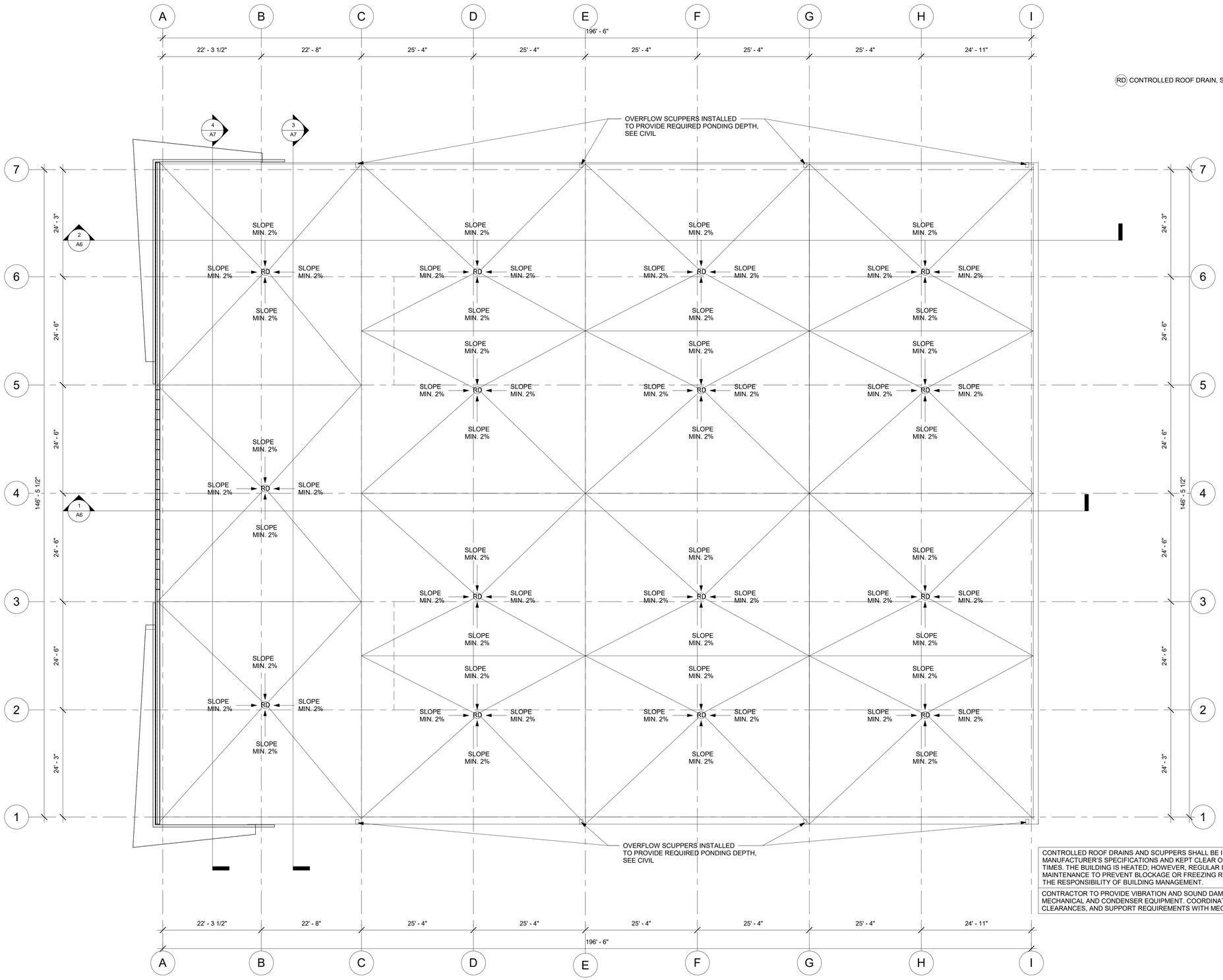
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PROJECT:
561 SOMME STREET
EDWARDS, ON K0A 1V0

PROPOSED FLOOR PLAN

DRAWN BY:
DATE: MARCH. 22, 2024
SCALE: AS NOTED

SHEET:
A2



RD CONTROLLED ROOF DRAIN, SEE CIVIL DRAWINGS

CONTROLLED ROOF DRAINS AND SCUPPERS SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S SPECIFICATIONS AND KEPT CLEAR OF DEBRIS, ICE AND SNOW AT ALL TIMES. THE BUILDING IS HEATED; HOWEVER, REGULAR INSPECTION AND WINTER MAINTENANCE TO PREVENT BLOCKAGE OR FREEZING REMAIN THE RESPONSIBILITY OF BUILDING MANAGEMENT.

CONTRACTOR TO PROVIDE VIBRATION AND SOUND DAMPENING ISOLATION UNDER ALL MECHANICAL AND CONDENSER EQUIPMENT. COORDINATE ALL EQUIPMENT LOCATIONS, CLEARANCES, AND SUPPORT REQUIREMENTS WITH MECHANICAL AND STRUCTURAL.

1 ROOF.
3/32" = 1'-0"

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561 SOMME STREET
TWO STOREY GRANITE SHOWROOM AND WAREHOUSE

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CONSULTANTS:

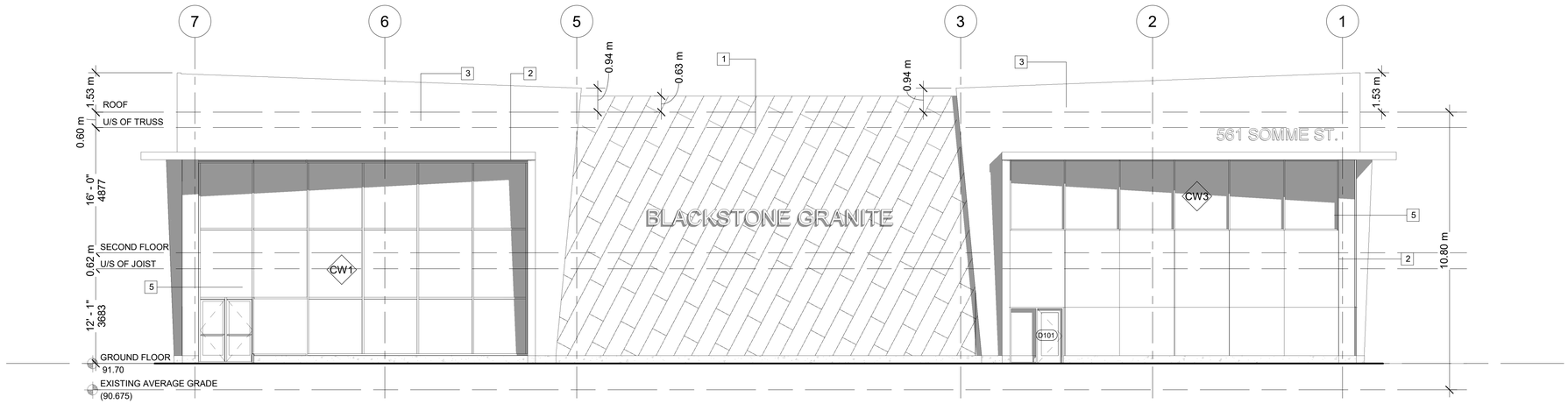
STRUCTURAL - TBD
MECHANICAL - TBD
ELECTRICAL - TBD

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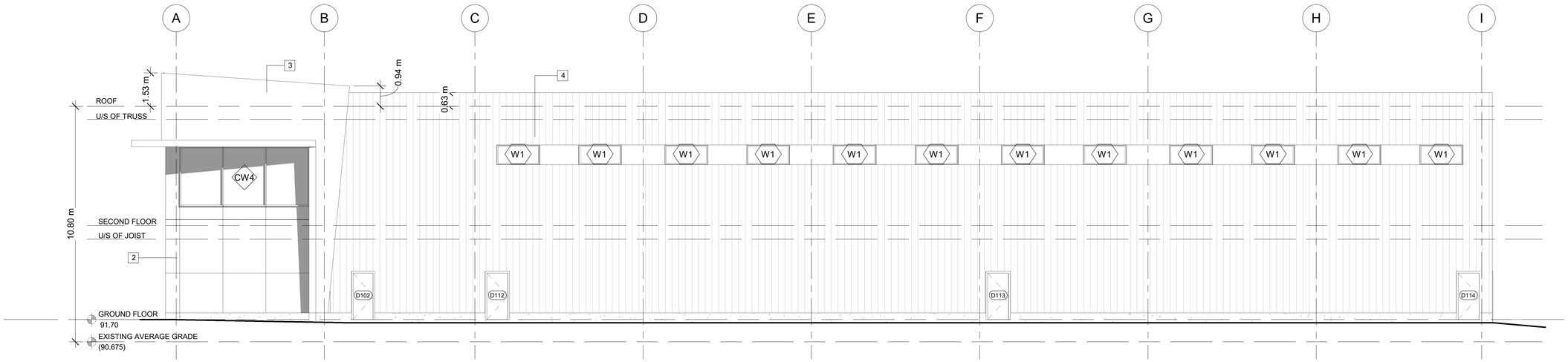
PROJECT:
561 SOMME STREET
EDWARDS, ON K0A 1V0

PROPOSED ROOF PLAN

DRAWN BY:
DATE: MARCH. 22, 2024
SCALE: AS NOTED
SHEET: A3



1 Front (North) Elevation.
1/8" = 1'-0"



2 Side (West) Elevation.
1/8" = 1'-0"

MATERIAL LEGEND & NOTES

1. METAL PANEL, SILVER GREY
2. METAL PANEL, WHITE
3. METAL PANEL, BLACK
4. VERTICAL CORRUGARED METAL SIDING, LIGHT GREY
5. BIRD-SAFE GLASS

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ONTARIO ASSOCIATION OF ARCHITECTS
LEVENT TATAR
LICENCE
9542

561 SOMME STREET
TWO STOREY GRANITE SHOWROOM AND WAREHOUSE

OWNER/DEVELOPER:
BLACKSTONE HOMES DESIGN AND BUILD LTD.

ARCHITECT:
REDLINE ARCHITECTURE INC.

APPLICANT:
Q9 PLANNING + DESIGN,
DAVNA EDWARDS
24 KIRKSTALL AVENUE, OTTAWA, ON K2G 3M5

CIVIL ENGINEER:
LRL ENGINEERING
5430 CANOTEK ROAD
OTTAWA, ON K1J 9G2

LANDSCAPING:
RUHLAND ASSOCIATES LTD.
1750 COURWOOD CRESCENT #200
OTTAWA, ON K2C 2B5

SURVEYOR:
FARLEY, SMITH & DENIS SURVEYING LTD.
Unit 275, 30 COLONNADE ROAD
OTTAWA, ON K2E 7J6

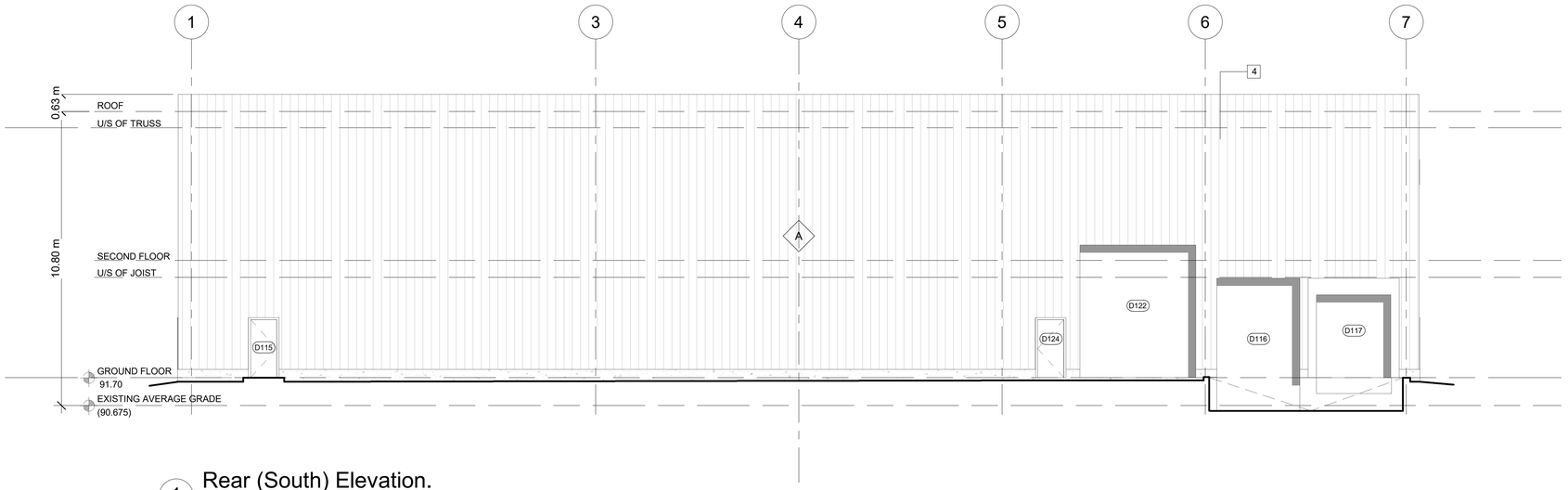
CONSULTANTS:
STRUCTURAL - TBD
MECHANICAL - TBD
ELECTRICAL - TBD

NO.	REVISION/ISSUE	DATE M/D/Y
9		
8		
7		
6		
5		
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3		
2	ISSUED FOR SPA REV	10/5/26
1	ISSUED FOR SPA REV	6/23/25

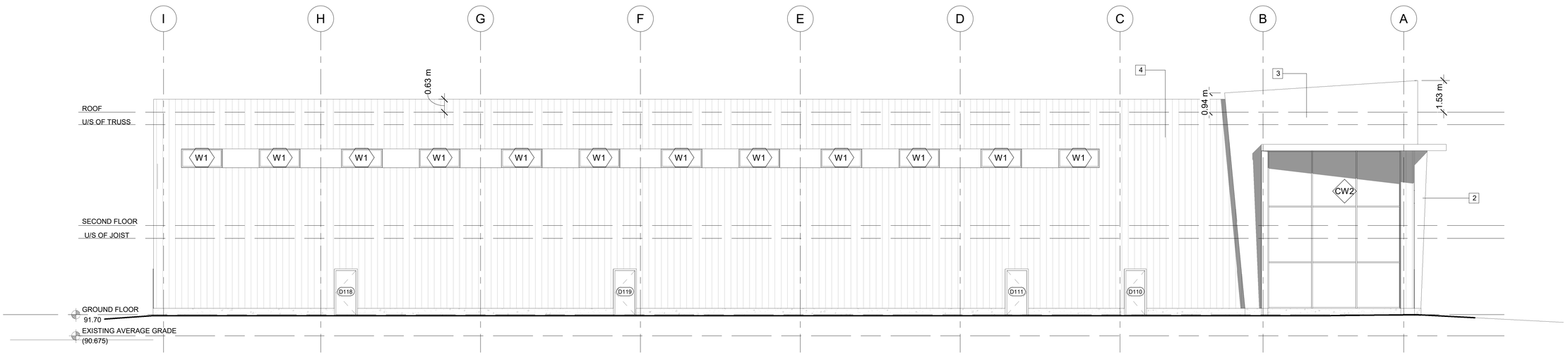
PROJECT:
561 SOMME STREET
EDWARDS, ON K0A 1V0

PROPOSED ELEVATIONS

DRAWN BY:
DATE:MARCH. 22, 2024
SCALE: AS NOTED
SHEET: A4



1 Rear (South) Elevation.
1/8" = 1'-0"



2 Side (East) Elevation.
1/8" = 1'-0"

MATERIAL LEGEND & NOTES

1 METAL PANEL, SILVER GREY
2 METAL PANEL, WHITE
3 METAL PANEL, BLACK
4 VERTICAL CORRUGARED METAL SIDING, LIGHT GREY
5 BIRD-SAFE GLASS

REDLINE ARCHITECTURE INC.

Tel: 613-612-2232
info@redlinearchitecture.ca
www.redlinearchitecture.ca

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PROJECT:
561 SOMME STREET
EDWARDS, ON K0A 1V0

PROPOSED ELEVATIONS

DRAWN BY:
DATE: MARCH. 22, 2024
SCALE: AS NOTED
SHEET: A5

TOPOGRAPHIC SKETCH OF

No. 561 SOMME STREET
CITY OF OTTAWA

FARLEY, SMITH & DENIS SURVEYING LTD. 2024

Scale 1: 300

0 5 10 15 20 25 30 metres

Metric Note
Distances and/or coordinates on this plan are in metres and can be converted to feet by dividing by 0.3048.

Boundary Note
Boundary compiled from Plan 4R-35791.

Elevation Notes
1. Elevations shown are geodetic and are referred to Geodetic Datum CGVD-1928 :1978.
2. It is the responsibility of the user of this information to verify that the job benchmark has not been altered or disturbed and that it's relative elevation and description agrees with the information shown on this drawing.
3. Not all overhead wires/transformers adjacent to the property have been located along the North property line. Further investigation is needed if a proposed property development would be within 5.0 meters from the nearest overhead wire and/or transformer.

Utility Notes
1. This drawing cannot be accepted as acknowledging all of the utilities and it will be the responsibility of the user to contact the respective utility authorities for confirmation.
2. Only visible surface utilities were located.
3. Underground utility data derived from City of Ottawa utility sheet reference: 15281p&p01.
4. Sanitary and storm sewer grades and inverts were derived from: Field measurement.
5. A field location of underground plant by the pertinent utility authority is mandatory before any work involving breaking ground, probing, excavating etc.

Geographic Location:
PART OF BLOCK 2
REGISTERED PLAN 4M-1388
CITY OF OTTAWA

Notes & Legend

MH-ST	Denotes	Maintenance Hole (Storm)
MH	"	Maintenance Hole (Unidentified)
LS	"	Light Standard
UP	"	Utility Pole
AN	"	Anchor
DI	"	Ditch Inlet
CLF	"	Chain Link Fence
T/G	"	Top of Grade
ICV	"	Irrigation Control Valve
Invert	"	Invert
CSP	"	Corrugated Steel Pipe
+89.75	"	Location of Elevations
+89.75	"	Top of Concrete Curb Elevation
	"	Property Line
OHW	"	Overhead Wires
ST	"	Underground Storm Pipe

Fieldwork completed on the 26th day of April, 2024.

Caution
1. This is not a plan of survey and shall not be used except for the purpose indicated in the title block.
2. This sketch is protected by copyright.

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TEL. (613) 727-8226 E-mail: fsdsurveys@bellnet.ca

FILE No.: 123-24

TOPO 24X36

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