FUNCTIONAL SERVICING AND STORMWATER MANAGEMENT REPORT

2233 Hurontario Street

City of Mississauga

Prepared for

2233 & 2235 Hurontario LTD.

Project #: 24-326

November 2026

Urbantech® Consulting, A Division of Leighton-Zec West Ltd. | 2030 Bristol Circle, Suite 105 • Oakville • ON • L6H 0H2 905.829.8818

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1. INTRODUCTION

Urbantech has been retained as consulting engineers by 2233 & 2235 Hurontario LTD. to complete a Functional Servicing Report in support of an Official Plan Amendment and Zoning Bylaw Approval for the proposed development located at 2233 Hurontario Street in the City of Mississauga. Please note that the site will have a future severance.

The site is bounded:

- To the north and east by existing condo
- To the west by Hurontario Street
- To the south by existing development

The legal description of the site is plan of survey of part of lot 15, concession 1 south of Dundas Street and part of lot 1 registered plan B-27, City of Mississauga, Regional Municipality of Peel, dated July 29, 2024.

The subject development (future severed lands) is located within the Cooksville Creek Watershed, within Credit Valley Conservation (CVC) jurisdiction and is located outside the regulation area associated with the Cooksville Creek.

1.1 Study Purpose

The objective of this study is to outline the servicing requirements of the subject lands at a functional design level. This study will:

1. Recommend site grading, water supply and wastewater servicing strategies for the site.
2. Demonstrate compliance with City, Conservation and MECP design criteria for municipal services and stormwater management (SWM) measures.

The functional servicing design has been prepared in accordance with design criteria and requirements of the City of Mississauga, the Region of Peel and the Credit Valley Conservation. The information in this report is intended to assist the regulatory agencies in their review of the planning applications for the proposed development.

1.2 Development Concept

Refer to the development concept plan prepared by BDP Architects. The development plan consists of:

1. Two 35-storey buildings with a total of 710 units.
2. 2,130 m^2 of amenity space.
3. 347 parking spaces.

The proposed development will connect to Hurontario Street on the west and Queensway East via an existing private driveway to the north of the site.

2. GRADING DESIGN

2.1 Design Standards

The proposed grading design for the site takes into consideration the following requirements and constraints:

1. Conforms to the City of Mississauga design criteria.
2. Match existing boundary lot and road grading conditions to be compatible with abutting properties.
3. Provides overland flow conveyance for major storm conditions.
4. Provides appropriate cover on proposed servicing.
5. Ensures compatibility with driveway access to surrounding public streets.

A grading plan for the subject property has been prepared in conjunction with the storm, sanitary, and water servicing system design for the subject development.

Drawings C201 & C202 illustrate the proposed grading plan for the site.

3. STORM DRAINAGE AND STORMWATER MANAGEMENT

3.1 Drainage Criteria

The City of Mississauga and the CVC outline the following design criteria for the site as follows:

1. The site is located within the Cooksville Creek subwatershed which requires us to provide 100 year post to 2 year pre-development control.
2. Pre-development runoff coefficients are to not exceed 0.5 for a site that is already developed.
3. Ensure minimum 80% TSS removal on site for quality control.
4. First 27 mm of runoff to be retained on-site.
5. Provide safe overland flow conveyance of the 100-year event.

3.2 Storm Sewer Design

Storm sewers within the site will be sized to accommodate a 10-year storm in accordance with the City of Mississauga standards. All surface drainage including the driveway connections will be collected by area drains and catch basins that are connected to the storage tank. Routing of the storm sewers within the building will be determined at a later date as the building design is advanced.

All stormwater is conveyed to a storage tank located adjacent to the southwest extent of the parking garage. Flow from the tank will be conveyed to the existing 825 mm storm sewer on Hurontario Street with a 300mm connection to MH1 from the development.

3.3 Quality Control

As identified in **Section 3.1** above, the site is required to meet a minimum of 80% TSS removal on site for quality control. To achieve the required TSS removal a jellyfish filter will be used downstream of the proposed storage tank within the parking garage. The jellyfish filter is ETV certified for 86% TSS removal, refer to **Appendix B** for ETV certification. **Table 1** below outlines preliminary sizing for the device. Sizing specifications are to be verified by the manufacturer during detailed design.

Table 1: Jellyfish Parameters

JF #	Size	Area (ha)	Efficiency (%)
1	JF6-4-1	0.57	80

Refer to **Appendix B** for the Jellyfish Sizing Report.

3.4 Quantity Control

A Visual Otthymo model was created to model the drainage from the site to determine the pre-development flows from the 2-year up to the 100-year storm event. Refer to **Appendix B** for model calculations. A 24-hour Chicago rainfall Distribution was used to simulate the rainfall on the site using the Pearson International Airport IDF parameters. As the site is fully developed under existing conditions, a runoff coefficient of 0.5 was used as prescribed by the City of Mississauga standards. **Table 2** below outlines the pre-development flows.

Table 2: Existing Flows

Flow Rates (m^3/s)					
2-year	5-year	10-year	25-year	50-year	100-year
0.073	0.103	0.140	0.166	0.189	0.212

Refer to **Drawing C301** for the storm drainage plan.

Storm water quantity control will be achieved by using a proposed storage tank under post-development conditions in order to control the 100-year post-development flow to the 2-year pre-development flow rate. The tank will discharge flows to the storm sewer system via a combination of a mechanical pump and an orifice tube due to the elevation of the existing storm sewer system. The mechanical pump is proposed to control flows to a set flow rate of 53 L/s, for the bottom 1.4 m depth of the storage tank. For the top storage tank depth of 1.6 m, the flow rate will be controlled by a combination of the mechanical pump (53 L/s) and a maximum flow rate of 20 L/s from the proposed 75 mm ø orifice tube. The storage tank will have a capacity of 180 m^3 and be located within the southwest extent of the parking garage. **Table 3** summarizes the flow and storage values required based on the VO6 calculations.

Table 3: Pre-Development & Post Development Flow Comparison

Storm	Existing Flow Rate	Post-Development Flow	VO6 Required Tank Storage
	(m^3/s)		(m^3)
2-year	0.073	0.053	46
5-year	0.103	0.053	74
10-year	0.140	0.060	98
25-year	0.166	0.065	119
50-year	0.189	0.068	139
100-year	0.212	0.071	161

Refer to SWM Calculations in **Appendix B** for supporting calculations and **Drawing C301** for storm drainage plan.

In addition to the storm water runoff, it was identified by Grounded Engineering in their August 2024 report that 23,000 L/day is required for long-term dewatering. This is equivalent to 0.00027 m^3/s, which will have a negligible impact on the site's target flow rates and storage requirements.

Quantity control has been conservatively sized based on restricting the 100-year post-development flows to the pre-development 5-year flows, assuming a runoff coefficient of 0.5. The Mobilinx drawings showing the drainage area considered in the sizing of the new storm sewer along Hurontario Street have been requested. Upon receipt, the proposed release rates and required storage volumes will be revised accordingly.

3.5 Water Balance/Water Re-use

To promote water balance and mitigate downstream erosion, the City of Mississauga requires the retention of the first 27 mm of runoff from impervious surfaces on-site. For the subject lands, which has a development area of approximately 0.57 ha (as shown on **Drawing C301**), this requirement translates to a minimum on-site retention volume of approximately 154 m^3. To satisfy this requirement, the proposed design will incorporate green roofs and a sump to capture and retain the required volume. Each green

roof will be designed with an area of 601 m^2 and a depth of 25 mm to provide a combined retention volume of 120 m^3. The remaining 34 m^3 will be managed with a sump in the stormwater tank for reuse purposes. Specific reuse applications will be confirmed during detailed design but proposed reuses include irrigation and mechanical uses. Opportunities to utilize stormwater planters on top of the parking garage will also be investigated as the design advances.

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4. WASTEWATER SERVICING

4.1 Design Criteria

Wastewater sewers will be designed in accordance with Region of Peel standards and specifications. The following criteria were used:

- 3.1 people/unit for large apartments (larger than 750 square feet)
- 1.7 people/unit for small apartments (less than 750 square feet)
- 0.26 L/s/ha for infiltration
- 290 L/person/day for residential domestic sewage flow

4.2 Existing Conditions

The existing sanitary sewer in proximity to the site is as follows:

1. 250 mm diameter pipe located on Hurontario Street (west side).
2. 1350 mm diameter pipe located on Hurontario Street (west side).

4.3 Local Wastewater Design

The estimated sanitary flow from the subject lands is 19.8 L/s. Refer to Wastewater Demand Calculations in **Appendix C** for calculations and Region of Peel Demand Table.

Sanitary servicing within the site will be designed by the project mechanical engineer as the building design advances. Sanitary flows from the site will be conveyed via a new 200 mm service connection to Hurontario Street from MH1A. Refer to **Drawings C101** for the anticipated connection location and drainage areas.

5. WATER SERVICING

5.1 Design Criteria

The proposed watermain design will comply with the Region of Peel design criteria as follows:

- Residential Consumption = 280 l/c/day, max day = 2
- Residential and Commercial Peak Hour = 3
- Minimum operating pressure = 40 psi
- Maximum operating pressure = 100 psi

5.2 Existing Conditions

The existing water network, which falls under the jurisdiction of the Region of Peel, in the vicinity of the site includes:

2. A 300 mm local watermain on Hurontario Street
3. A 450 mm local watermain on Hurontario Street

5.3 Local Watermains

The development will have one domestic water connection and two fire service connections as shown on **Drawing C101**. The proposed 200 mm water service will connect to the existing 300 mm watermain on Hurontario Street. The onsite water supply system will be designed by the project mechanical engineer as the building design advances. **Table 4** below outlines the water demand calculations for the development.

Table 4: Water Demand

Fire Flow (L/s)	Domestic (L/s)	
	Max Daily Demand	Max Peak Hour
83.3	10.38	3

A hydrant flow test was completed by Aquazition (refer to **Appendix D**) in October 2026 for the hydrant southeast of Queensway on Hurontario Street and the hydrant northeast of Sherobee Road on Hurontario Street. The results of the test are shown in **Table 5**.

Table 5: Flow Test Results

Pressure (psi)	Flow (USGPM)
Hurontario Street	
58	0
54	1085
52	1894

Water demand, internal servicing and proposed connection points are to be provided to the Region of Peel to identify if there are any water capacity constraints.

Refer to **Appendix D** for water demand calculation results.

6. EROSION AND SEDIMENT CONTROL AND CONSTRUCTION DEWATERING

Erosion and sediment controls measures as follows:

1. Installing heavy duty silt control fencing along the perimeter of the site at strategic locations.
2. Installing a temporary mud mat at the construction site entrance.
3. Wrapping the tops of all inlet structures with filter fabric and installing silt sacks.
4. Inspecting all sediment and erosion controls to maintain them in good repair until such time as the Engineer or the City approves their removal.
5. Safe discharge of construction water in accordance with City and provincial guidelines.

Refer to **Drawings C501** and **C502** for site-specific erosion and sediment control measures for the property.

7. CONCLUSIONS

This report has demonstrated that:

- The proposed site will be graded to match to existing elevations at all property lines.
- Building Storm drains will be designed by the project mechanical engineer at the building permit stage.
- Water quality will be provided by a Jellyfish filter downstream of the stormwater tank.
- Storm water quantity control storage requirement is estimated to be 161 m^3 and will be required to control flows from in accordance with Mississauga and CVC standards.
- Storage will be provided with one tank located adjacent to the southwest extent of the parking garage.
- The site will utilize a new 300mm storm sewer connection from MH1 on 2233 Hurontario to the existing 825mm storm sewer on Hurontario Street
- Water balance objectives will be met by infiltrating the first 27 mm of rain events using green roofs and a sump in the storage tank.
- Wastewater servicing to the site will be provided by a new 200 mm diameter connection to the 250mm sewer on Hurontario Street.
- Water servicing for both fire and domestic connections to the site will be provided by the existing 250 mm watermains on Hurontario Street.
- Erosion and sediment control measures will be implemented during construction in accordance with City and Provincial requirements.

Report Prepared by:



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APPENDIX A
Drawings and Figures

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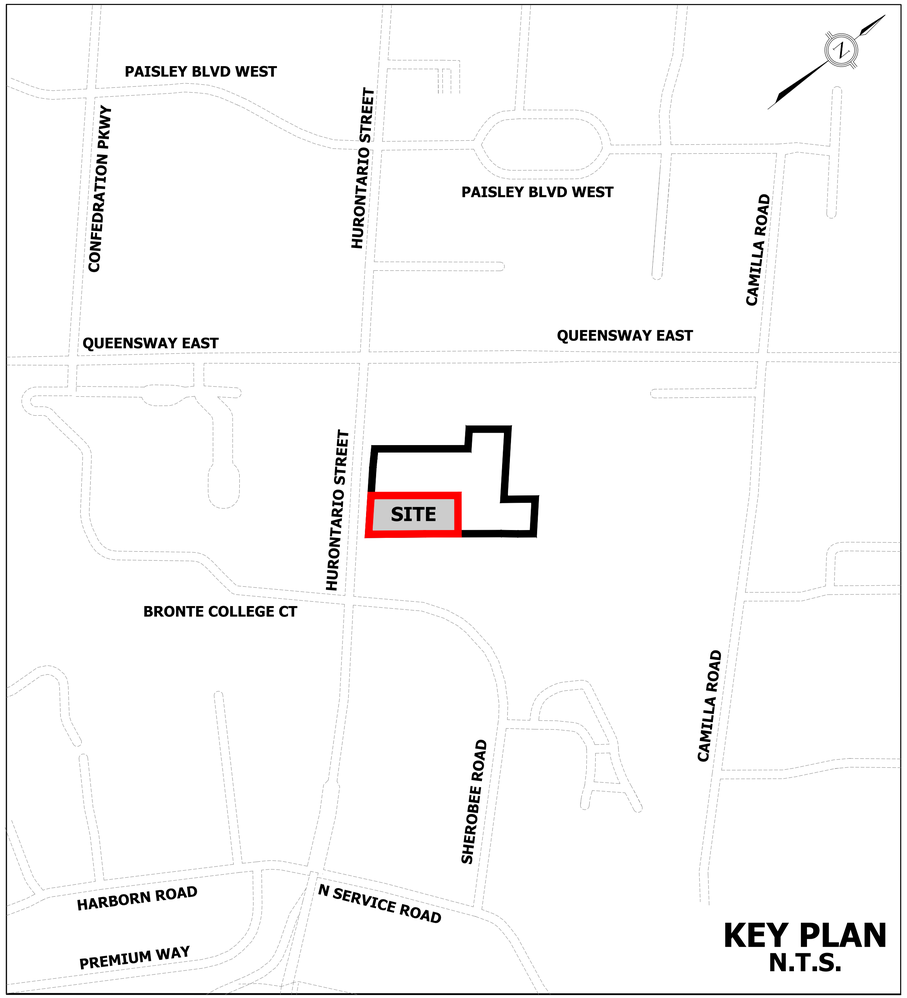
CITY OF MISSISSAUGA

2233 & 2235 HURONTARIO LTD.

PART OF BLOCKS - REGISTERED PLAN -

CITY FILE No. OZ 26-8 W7 REGION FILE No.: C-XXXX

ISSUED FOR ZONING - NOV. 13, 2026



KEY PLAN
N.T.S.

LIST OF DRAWINGS

NOTES
- 000 - COVER SHEET
- C100 - GENERAL NOTES

GENERAL PLANS
- C101 - SERVICING PLAN
- C102 - REMOVAL PLAN

GRADING PLANS
- C201 - GRADING PLAN
- C202 - SECTIONS

DRAINAGE PLANS
- C301 - STORM DRAINAGE PLAN
- C302 - SANITARY DRAINAGE PLAN

STANDARD DETAILS
- C401 - DETAILS

EROSION AND SEDIMENT CONTROL PLANS
- C501 - EROSION & SEDIMENT CONTROL PLAN
- C502 - EROSION & SEDIMENT CONTROL DETAILS

LEGEND:

LIMIT OF PROPERTY

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Region of Peel
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MISSISSAUGA, ONTARIO
L5A 2E9

GENERAL NOTES

STORM SEWERS:

1. ALL CONCRETE PIPE SMALLER THAN 450mm DIAMETER SHALL BE C-14, CLASS 2, CONCRETE PIPE 450mm DIAMETER AND LARGER SHALL BE C-76, CLASS 65-D, UNLESS OTHERWISE NOTED.
2. ALL POLYVINYL CHLORIDE (PVC.) PIPE SHALL MEET THE C.S.A. REQUIREMENTS AS NOTED WITHIN OPSS. 1841. THE PIPE MATERIAL SHALL HAVE A CELL CLASSIFICATION OF 12454-B OR 12454-C OR ASTM. STD. D-3034 & OPSS. 1841.
3. ALL CONCRETE SEWER PIPES SHALL HAVE RUBBER GASKET JOINTS.
4. CLASS "B" BEDDING IS TO BE USED AS PER CITY STANDARD 2112.08 SEWER BEDDING AND COVER MATERIAL SHALL CONFIRM WITH CITY STANDARDS 2112.09 AND 2112.10. IF WATER IS PRESENT IN THE TRENCH EXCAVATION THEN 19mm. CLEAR STONE IS TO BE USED FOR BEDDING IN ACCORDANCE WITH CITY STANDARD 2112.11 AND 2112.14 RESPECTIVELY. WHERE WET OR SOFT TRENCH SUBGRADE CONDITIONS ARE ENCOUNTERED, FURTHER ON-SITE GEOTECHNICAL ASSESSMENT MAY BE REQUIRED TO DETERMINE THE APPROPRIATE BEDDING IN ORDER TO STABILIZE THE SUBGRADE FOR SEWER CONSTRUCTION.
5. MANHOLE STEPS SHALL BE AS PER OPSD. 405.010.
6. MANHOLE COVERS AND FRAMES SHALL BE AS PER OPSD. 401.010.
7. SINGLE CATCHBASINS WITHIN ROAD ALLOWANCES SHALL BE AS PER OPSD. 705.010, WITH A 250mm DIAMETER LEAD, DOUBLE CATCHBASINS WITHIN ROAD ALLOWANCES SHALL BE AS PER OPSD. 705.020, WITH A 300mm DIAMETER LEAD.
8. ALL CATCHBASIN FRAME AND GRATES SHALL BE AS PER OPSD. 400.020.
9. THE TRENCH WIDTH AT THE TOP OF PIPE SHALL BE AS PER STD. 2112.08. IF THE MAXIMUM TRENCH WIDTH IS EXCEEDED, THE CONTRACTOR SHALL BE RESPONSIBLE FOR SUPPLYING EXTRA BEDDING AND/OR STRONGER PIPE AS REQUIRED.
10. ALL STORM SEWER AND APPURTENANCES SHALL BE CONSTRUCTED IN ACCORDANCE WITH CURRENT CITY OF MISSISSAUGA STANDARDS AND SPECIFICATIONS.
11. STORM SERVICE CONNECTION IS TO BE ON THE LEFT OF SANITARY SERVICE FACING THE HOUSE. (EXCEPT AS NOTED)
12. SERVICE CONNECTION AT THE STREET LINE IS TO BE HIGHER THAN THE SANITARY CONNECTION AT THAT POINT.
13. ALL CATCHBASINS ARE TO BE PLACED ON GRANULAR BEDDING (MINIMUM DEPTH 150mm).
14. TRENCH BACKFILLING ON PROPOSED ROADS SHALL WITH CITY'S ENGINEERING POLICY STATEMENT AS PROVIDED IN THE "DEVELOPMENT REQUIREMENTS MANUAL" (SECTION 4.02.06-TRENCH BACKFILLING ON ROADS). TRENCH BACKFILL SHALL BE COMPACTED TO A MINIMUM OF 95% S.P.D. WITHIN 2.0% OF THE OPTIMUM CONTENT.
15. SAND BACKFILLING IS REQUIRED ADJACENT TO MANHOLES, CATCHBASINS AND SERVICE CROSSING.

GENERAL:

1. ANY RELOCATION OF EXISTING UTILITIES REQUIRED BY THE DEVELOPMENT OF THE SUBJECT LANDS, IS TO BE UNDERTAKEN AT DEVELOPER'S EXPENSE.
2. ALL UNDERGROUND SERVICE CONNECTIONS WITHIN PAVED PORTION OF ANY EXISTING ROAD TO BE BACKFILLED WITH UNSHRINKABLE FILL TO THE LATEST CITY OF MISSISSAUGA OR REGION OF PEEL SPECIFICATIONS.
3. SNOW FENCE AND SEDIMENT TRAP CONTROL FENCE ARE TO BE INSTALLED PRIOR TO THE COMMENCEMENT OF ANY SITE CONSTRUCTION AND SHALL REMAIN IN PLACE AND IN GOOD REPAIR THROUGHOUT THE CONSTRUCTION AND GRADING PHASES.
4. PRIOR TO THE START OF CONSTRUCTION, SNOW FENCING IS TO BE ERECTED ALONG THE PROPERTY BOUNDARIES ADJACENT TO ALL EXISTING RESIDENTIAL LOTS, PARKS AND ALL EXISTING SCHOOL BLOCKS.
5. THE LOCATION AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES ARE TO BE VERIFIED IN THE FIELD BY THE CONTRACTOR. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE RESTORATION TO THE REPAIR OF EXISTING UTILITIES DISTURBED DURING CONSTRUCTION.
6. ALL AREAS WITHIN THE RIGHT-OF-WAY WHICH ARE DISTURBED DURING CONSTRUCTION SHALL BE RESTORED TO THE SATISFACTION OF THE AUTHORITY HAVING JURISDICTION AT THE CONTRACTOR'S EXPENSE.
7. ALL CONSTRUCTION SIGNING MUST CONFORM TO THE M.T.O. MANUAL OF "UNIFORM TRAFFIC CONTROL DEVICES".
8. ALL WORK SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.

BOREHOLES:

1. BOREHOLE LOGS SHOWN ARE FOR GENERAL INFORMATION ONLY AND LOCATIONS ARE APPROXIMATE. CONTRACTOR IS TO VERIFY AND SATISFY HIMSELF AS TO THE NATURE OF THE SUBSURFACE CONDITIONS.

ROADWORKS:

1. ALL FILL WITHIN ROAD ALLOWANCE TO BE COMPACTED TO A MINIMUM OF 95% STANDARD PROCTOR DENSITY. THE SUITABILITY AND COMPACTION OF ALL FILL MATERIALS ARE TO BE CONFIRMED BY A RECOGNIZED SOIL CONSULTANT TO THE CITY ENGINEER PRIOR TO THE INSTALLATION OF ANY ROAD BASE MATERIALS.
2. ALL CONNECTIONS WITHIN PAVED PORTION OF ANY EXISTING ROAD TO BE BACKFILLED WITH GRANULAR MATERIAL AND/OR UNSHRINKABLE FILL AS PER THE LATEST OF CITY OF MISSISSAUGA STANDARDS AND SPECIFICATIONS.
3.
   a. TRENCH BACKFILLING ON PROPOSED ROADS SHALL COMPLY WITH THE CITY'S ENGINEERING POLICY STATEMENTS PROVIDED IN THE "DEVELOPMENT REQUIREMENTS MANUAL" (SECTION 4.02.06 - TRENCH BACKFILLING ON ROADS).
   b. ALL BACKFILL FOR SEWERS, WATERMAINS AND UTILITIES WITHIN ROAD ALLOWANCE SHALL BE COMPACTED TO 95% STANDARD PROCTOR DENSITY WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT.
   c. THE TOP 1000mm OF THE SUB-GRADE IS TO BE COMPACTED TO A MINIMUM 98% STANDARD PROCTOR DENSITY WITHIN 2% OF THE OPTIMUM MOISTURE CONTENT.
4. ALL ROADWORKS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF MISSISSAUGA STANDARDS AND SPECIFICATIONS.
5. ALL INTERSECTING ROADS SHALL BE PROVIDED WITH AN ADDITIONAL 150mm THICKNESS OF OPSS. GRANULAR "B". THIS EXTRA DEPTH SHALL EXTEND FOR A MINIMUM OF 15m BEYOND PROPERTY LINE OF INTERSECTING STREET , AS NOTED.
6. SUB-DRAINS ARE TO BE INSTALLED AS PER CITY STANDARD 2220.04 ALONG THE ENTIRE LENGTH OF THE ROAD.
7. PAVEMENT THICKNESS AND COMPOSITION TO BE AS SHOWN ON INDIVIDUAL PLAN AND PROFILE DRAWINGS.
8. CONCRETE CURB & GUTTER OPSD. 600.070.
9. SAND BACKFILL IS TO BE USED ADJACENT TO MANHOLES, CATCHBASINS AND SERVICE CROSSINGS.

EXISTING WATERCOURSE/GREENBELT:

1. PRIOR TO COMMENCEMENT OF ANY GRADING OR CONSTRUCTION, TEMPORARY SNOW FENCE AND SILT FENCE TO BE ERECTED ALONG ALL LOTS AND BLOCKS ADJACENT TO THE EXISTING WATERCOURSE/GREENBELT, PARKS AND MAINTAINED UNTIL COMPLETION OF CONSTRUCTION.
2. NO STOCKPILES OF FILL MATERIAL ARE TO BE PLACED WITHIN 10.0m OF THE EXISTING WATERCOURSE BLOCK.

TOPSOIL STOCKPILE PROTECTION:

ALL TOPSOIL STOCKPILE CONTAINING MORE THAN 100m³ OF MATERIAL SHALL BE LOCATED A MINIMUM OF 10m AWAY FROM A ROADWAY, DRAINAGE CHANNEL OR AN OCCUPIED RESIDENTIAL LOT. THE MAXIMUM SIDE SLOPES FOR TOPSOIL STOCKPILES SHALL BE 1.5 HORIZONTAL TO 1.0 VERTICAL.

RUNOFF FROM ALL TOPSOIL STOCKPILES SHALL BE CONTROLLED BY A SEDIMENT CONTROL FENCE OR OTHER APPROVED DEVICES. IF REMAINING FOR MORE THAN 30 DAYS, TOPSOIL STOCKPILES SHALL BE STABILIZED BY VEGETATIVE COVER, OR OTHER MEANS.

REGION OF PEEL

GENERAL NOTES:

1. THE APPLICANT, APPLICANT'S REPRESENTATIVE, CONSULTANT, CONTRACTOR AND SUB CONTRACTORS ARE RESPONSIBLE TO ENSURE THAT THEIR DESIGN MATERIALS AND CONSTRUCTION PRACTICES CONFORM TO THE LATEST REGION OF PEEL'S WEBSITE (www.peelregion.ca/pw/standards). IN THE ABSENCE OF REGION SPECIFICATIONS, THE ONTARIO PROVINCIAL STANDARDS SPECIFICATIONS (OPSS) SHALL APPLY.
2. ALL WORKS SHALL BE COMPLETED IN ACCORDANCE WITH THE "OCCUPATIONAL HEALTH AND SAFETY ACT". THE GENERAL CONTRACTOR SHALL BE DEEMED TO BE THE CONSTRUCTOR AS DEFINED IN THE ACT.
3. THE CONTRACTOR AT THEIR EXPENSE SHALL VERIFY THE LOCATION, DIMENSION AND ELEVATION OF ALL EXISTING SERVICES AND UTILITIES IN THE FIELD.
4. PRIOR TO EXCAVATION OR BORING CONTRACTOR AT THEIR EXPENSE SHALL EXPOSE AND VERIFY THE LOCATION AND ELEVATION OF ALL EXISTING UTILITIES AND SERVICES TO BE CROSSED AND MUST NOTIFY THE DESIGN ENGINEER AND THE AGENCY FIELD INSPECTOR AND/OR PROJECT MANAGER IMMEDIATELY, IN WRITING, OF ANY CONFLICTS OR DISCREPANCIES. CONTRACTOR SHALL BE RESPONSIBLE FOR EXPOSING THE EXISTING UTILITIES FAR ENOUGH IN ADVANCE OF CONSTRUCTION TO MAKE NECESSARY DESIGN MODIFICATIONS FOR REVIEW AND APPROVAL, IF REQUIRED, WITHOUT DELAYING THE WORK.
5. THE CONTRACTOR, AT THEIR EXPENSE AND TO THE SATISFACTION OF THE REGION OF PEEL, SHALL BE RESPONSIBLE FOR THE RESTORATION AND THE REPAIR OF THE EXISTING UTILITIES AND ALL AREAS BEYOND THE PLAN OF SUBDIVISION DISTURBED DURING CONSTRUCTION.
6. THE SUPPORT OF ALL UTILITIES SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AUTHORITY HAVING JURISDICTION.
7. ALL BACKFILL FOR SEWERS, WATERMAINS AND UTILITIES ON THE ROAD ALLOWANCE MUST BE MECHANICALLY COMPACTED.
8. ALL BOREHOLES SHOWN ON DRAWING ARE FOR INFORMATION ONLY. REFER TO GEOTECHNICAL REPORT.
9. ALL DIMENSIONS ARE IN METRES UNLESS OTHERWISE SPECIFIED.

WATERMAIN NOTES:

1. THE REGION OF PEEL SHALL CONDUCT THE OPERATION OF EXISTING VALVES AND HYDRANTS IF REQUIRED.
2. CONTRACTOR MUST USE BATTER BOARD OR ROD-AND-LEVEL METHOD FOR WATERMAIN INSTALLATION.
3. ALL WATERMAINS SHALL HAVE 1.70m MINIMUM COVER FOR URBAN ROAD DESIGN AND 2.1m MINIMUM COVER FOR RURAL ROAD DESIGN.
4. ALL WATERMAINS SHALL MAINTAIN A MINIMUM 1.5m CLEARANCE FROM ALL MANHOLES AND CATCH BASINS, WHERE APPLICABLE.
5. FOR WATERMAIN CROSSING OVER OR UNDER SEWERS A MINIMUM 0.5m VERTICAL CLEARANCE SHALL BE PROVIDED.
6. FOR WATERMAIN CROSSING A SANITARY SEWER, WATERMAIN JOINTS ARE TO BE OFFSET A MINIMUM OF 2.5m HORIZONTALLY FROM THE CENTERLINE OF THE SANITARY SEWER.
7. WATERMAIN BEDDING SHOULD BE AS PER TRENCH DETAIL ON THE PLAN AND PROFILE DRAWING AND COMPACTED TO 100% SPD.
8. WATERMAINS TO BE INSTALLED TO GRADES AS SHOWN ON APPROVED PLANS, COPY OF GRADE SHEET MUST BE SUPPLIED TO THE REGION OF PEEL INSPECTOR PRIOR TO COMMENCEMENT OF WORK.
9. ANY JOINT DEFLECTION SHALL BE 50% OF MANUFACTURER'S SPECIFICATIONS. PIPE BARREL DEFLECTION IS PROHIBITED.
10. FIRE HYDRANTS TO BE INSTALLED AS PER REGION STD. DWG. 1-6-1 AND 1-6-2 WITH FLANGE SET BETWEEN 50mm AND 150mm ABOVE FINISHED GRADE.
11. ALL HYDRANTS SHALL HAVE 1.2m MINIMUM HORIZONTAL CLEARANCE FROM ALL OTHER UTILITIES AND STRUCTURES MEASURED FROM THE NEAREST POINT OF THE STRUCTURE.
12. MECHANICAL RESTRAINERS ARE REQUIRED FOR ALL FITTINGS, VALVES, DEAD ENDS, CAPS AND HYDRANTS ON ALL PVC WATERMAINS; MINIMUM RESTRAINED PIPE LENGTH AS PER REGION'S STANDARD DRAWING 1-5-9.
13. STAINLESS STEEL NUTS AND BOLTS ARE TO BE USED ON ALL METALLIC FITTINGS AND JOINT RESTRAINTS.
14. ALL METALLIC VALVES, FITTINGS, THROUGH WALL METAL PIPING AND JOINT RESTRAINTS TO BE C/W. DENSO PASTE, DENSO MASTIC & DENSO TAPE OR APPROVED EQUAL APPLIED TO MANUFACTURER'S RECOMMENDATIONS.
15. WHERE PLASTIC PIPE IS USED, INSTALL A 12 GAUGE TWU STRANDED COPPER, LIGHT COLOURED, PLASTIC COATED TRACER WIRE ATTACHED TO THE PIPE WITH APPROVED WIRE SPLICE. THE WIRE SHOULD BE BROUGHT TO THE SURFACE AT EACH SERVICE & VALVE BOX AND HYDRANT VALVES.
16. 50mm DIAMETER WATERMAIN SHALL BE TYPE K SOFT COPPER. WATERMAIN INSTALLATION IN CUL-DE-SACS TO BE INSTALLED AS PER REGION STD. DWG. 1-7-4.
17. A PHYSICAL SEPARATION MUST BE MAINTAINED AT ALL CONNECTION POINTS OF NEW WATERMAIN TO THE EXISTING SYSTEM UNTIL BACTERIOLOGICAL TESTS HAVE PASSED, AS PER STD. DWG. 1-7-7 AND 1-7-8.
18. PROVISION FOR FLUSHING OF NEW WATERMAINS PRIOR TO TESTING MUST BE PROVIDED WITH AT LEAST A 50mm OUTLET ON WATERMAINS SMALLER THAN 300mm IN DIAMETER,AND MINIMUM 100mm OUTLET ON WATERMAINS 300mm AND LARGER. COPPER WATERMAINS ARE TO HAVE FLUSHING POINTS AT THE END, THE SAME SIZE AS THE WATERMAIN, AS PER STD. DWG. 1-7-7 AND 1-7-8.
19. ALL SERVICE CONNECTIONS TO PVC PIPES ARE TO BE MADE USING APPROVED WIDE BAND SERVICE SADDLE. DIRECT TAPPING IS NOT ALLOWED.
20. ALL WATER SERVICES SHALL BE MINIMUM 25mm DIA.NOMINAL COPPER PIPE SIZE OR 32mm DIA. POLYETHYLENE PIPE. IN GENERAL, NON METALLIC SERVICES SHALL BE ONE SIZE LARGER THAN THE NOMINAL COPPER PIPE SIZE AS PER LATEST APPROVED REGIONAL PRODUCT LIST AND SIZES C/W. TRACER WIRE.
21. THE MINIMUM LATERAL DISTANCE BETWEEN WATER SERVICES AND OTHER UTILITIES SHALL BE 1.2m.
22. ALL RESIDENTIAL WATER SERVICE BOXES/CURB STOPS SHALL BE INSTALLED WITHIN SODDED AREAS WITH MINIMUM DISTANCE OF 1.0 METRES FROM THE EDGE OF THE DRIVEWAY, BE FLUSH WITH GRADE AND ACCESSIBLE AT ALL TIME.
23. VALVE AND BOXES SHALL BE CAST IRON SLIDING TYPE, COMPLETED WITH VALVE GUIDE PLATES INSTALLED AS PER REGION STD. 1-3-8.AND BOXES SHALL BE INSTALLED AS PER REGION STD. 1-3-8. MAINLINE VALVES TO BE RESTRAINED AS PER REGION STD. 1-3-3A. VALVES SHALL OPEN TO THE LEFT (COUNTER-CLOCKWISE).
24. ALL WATER SERVICES BOXES SHOULD BE "LEAD FREE" AS PER REGION'S MATERIAL SPECIFICATIONS.
25. THE REGION WILL COMPLETE THE NECESSARY WATER TESTING (PRESSURE TEST, FLUSHING, CHLORINATION AND SAMPLING). CONTRACTOR MAY PROCEED WITH HIS OWN PRESSURE TEST AND FLUSHING PRIOR TO REGION'S TESTING.
26. ALL METALLIC WATER PIPES INCLUDING 'K' COPPER WATER SERVICES, INSTALLED OR REPAIRED, SHALL HAVE ZINC ANODE AS PER REGION OF PEEL STANDARD 1-7-1, OPSS422 AND OPSD 1109.011 AND TO CONFORM TO ASTM B-418 TYPE.
27. WATERMAIN PIPES SHALL BE BROUGHT ON SITE WITH MANUFACTURER'S PLUGS AND STORED SO NO DEBRIS ENTER THE PIPE. THE CONTRACTOR IS NOT ALLOWED TO INSTALL ANY WATERMAIN UNTIL HE HAS A NIGHT PLUG ON SITE. THE NIGHT PLUG IS TO BE USED EVERY TIME WHEN WORK IS STOPPED.

WATERMAIN IN FILL AREA NOTES:

1. NO WATERMAIN TO BE LAID ON FILL UNTIL THE FIELD DENSITY TEST REPORTS HAVE BEEN SUBMITTED TO AND APPROVED BY THE REGION OF PEEL OR THE CONSULTING ENGINEER.
2. PIPE JOINTS DEFLECTIONS ARE NOT ALLOWED IN FILL AREA.
3. JOINTS SHALL BE MECHANICALLY RESTRAINED THE WHOLE LENGTH.
4. ALL HYDRANTS, TEE BRANCH VALVES AND HORIZONTAL BENDS ARE TO BE MECHANICALLY RESTRAINED WITH TIE RODS.
5. IN EXISTING MUNICIPAL RIGHT-OF-WAY OR EASEMENT, FILL TO BE PLACED TO 600mm MINIMUM ABOVE THE OBVERT OF THE WATERMAIN AND TO 300mm LIFTS; AND THEREAFTER, FOR EVERY 300mm LIFT ALONG THE CENTERLINE, AND 1.5m TO EITHER SIDE, OF WATERMAIN AT MAXIMUM INTERVAL OF 30.0m. TEST RESULTS MUST BE SUBMITTED TO AND APPROVED BY THE CONSULTANT OR AGENCY.

SANITARY SEWER NOTES:

1. ALL SANITARY MANHOLE/SEWER BEDDING AS PER MODIFIED STD. 2-3-1 DWG. (401).
2. MAINLINE SANITARY SEWER PIPE SIZE SHALL BE MINIMUM 250mm DIAMETER INSTALLED AT THE APPROVED DESIGN GRADE. PIPE CLASS AND APPURTENANCES AS PER REGION'S SPECIFICATIONS.
3. ALL SEWERS CONSTRUCTED WITH GRADES 0.5% OR LESS SHALL BE APPROVED BY THE ENGINEER AND THE AGENCY PROJECT MANAGER OR DESIGNATED AND BE INSTALLED WITH LASER AND CHECKED PRIOR TO BACKFILL.
4. MINIMUM SANITARY SEWER PIPE SLOPE FOR LAST LEG SHALL BE 1% AND DESIRABLE SLOPE 2%.
5. ALL MANHOLES SHALL BE AS PER REGION STD. DWG. 2-5-2, 2-5-3, 2-5-4, 2-5-5 AND 2-5-6 AND BENCHING AS PER STD. DWG. 2-5-20.
6. FRAME AND COVERS SHALL BE WATERTIGHT AS PER REGION STD. DWG. 2-5-13, 2-5-14, 2-6-1, 2-6-2, 2-6-4, 2-6-5, 2-6-6 AND 2-6-7.
7. MANHOLE STEPS OR LADDERS TO BE AS PER REGION STD. DWG. 2-6-9 TO 2-6-17.
8. MANHOLES DEEPER THAN 5.0m MUST BE EQUIPPED WITH SAFETY PLATFORMS, AS PER STD. 2-6-13, 2-6-14 AND 2-6-15.
9. MANHOLE DROP STRUCTURES SHALL BE AS PER REGION STD. DWG. 2-5-26 AND 2-5-27.
10. SANITARY SERVICE LATERALS SHALL BE MINIMUM 125mm DIAMETER.
    a. SANITARY SERVICE SHALL BE LOWER THAN AND TO THE RIGHT OF THE STORM SERVICE AT THE PROPERTY LINE WHEN FACING THE LOT FROM THE STREET.
    b. CONNECTIONS TO SEWERS SHALL BE MADE WITH MANUFACTURED TEES OR WYES WHERE APPLICABLE AND SHALL BE COLOUR CODED AS NON-WHITE, AS PER STD. DWG. 2-4-0, 2-4-2, 2-4-3, 2-4-4, 2-4-7A, 2-4-7B AND 2-4-8.

REGIONAL ROADS NOTES:

1. CONSTRUCTION AND DETOUR SIGNAGE MUST CONFORM TO "MANUAL OF UNIFORM TRAFFIC CONTROL DEVICES" AND LATEST REVISION OF THE ONTARIO MINISTRY OF TRANSPORTATION "TRAFFIC CONTROL MANUAL FOR ROADWAY WORK OPERATIONS".
2. ALL TEMPORARY SIGNAGE AND TRAFFIC CONTROL MEASURES SHALL BE IN ACCORDANCE WITH REQUIREMENTS OF ONTARIO TRAFFIC MANUAL, BOOK 7 "TEMPORARY CONDITIONS" AND OPS SPECIFICATIONS AND STANDARD DRAWINGS.
3. PAVEMENT MARKINGS MUST BE IN ACCORDANCE WITH THE ONTARIO TRAFFIC MANUAL, BOOK II "PAVEMENT HAZARD AND DELINEATION MARKINGS".
4. THE CONTRACTOR SHALL NOTIFY IN ADVANCE, AS REQUIRED, THE APPROPRIATE AUTHORITY HAVING JURISDICTION FOR THE ROAD PRIOR TO COMMENCING ANY WORK AND SHALL ACQUIRE AND SATISFY THE REQUIREMENTS OF APPROPRIATE PERMITS (FEES, INSPECTIONS, SIGNAGE, TRAFFIC, MAINTENANCE, DIVERSION, ETC...).
5. REGIONAL ROAD CLOSURE IS NOT PERMITTED AT ANY TIME UNLESS APPROVAL FROM REGIONAL COUNCIL WAS OBTAINED FOR THE WORKS, WHERE A MINIMUM TWO MONTH LEAD TIME IS REQUIRED, AS PER REGIONAL POLICY W30-12.
6. WORK OPERATIONS THAT REQUIRE DIVERTING TRAFFIC TO ONE LANE ARE SUBJECT TO TIME RESTRICTIONS AND /OR NIGHT TIME OPERATIONS AS SPECIFIED IN ROAD OCCUPANCY PERMIT. THROUGH LANES MUST BE MINIMUM 3.5m, UNLESS OTHERWISE APPROVED.
7. FOR TEMPORARY DELINEATION OF TRAFFIC IN OPPOSITE DIRECTIONS A YELLOW CENTRE LINE ON PAVEMENT MUST BE PAINTED. TRAFFIC CONTROL BARRELS (CONES) ARE NOT PERMITTED FOR THIS USE ON REGIONAL ROADS.
8. NEW JERSEY BARRIERS (NJB) WITH CRASH ATTENUATION DEVICES MUST BE USED ON LONG TERM PROJECTS AS OPPOSED TO TRAFFIC CONTROL DELINEATORS (BARRELS).
9. ACCESS TO EXISTING ENTRANCES AND SIDE STREETS, INCLUDING PEDESTRIAN ACCESS, SHALL BE MAINTAINED. ACCESS REQUIREMENTS MUST COMPLY WITH REGION OF PEEL CONTROLLED ACCESS BY-LAW.
10. LOCATION OF EXISTING UTILITIES TO BE ESTABLISHED BY THE CONTRACTOR. ALL EXISTING UTILITY ELEVATIONS (SANITARY AND WATERMAIN) INCLUDING CENTRE LINE OF THE ROAD ELEVATIONS HAVE TO BE VERIFIED BY CONTRACTOR PRIOR TO COMMENCING ANY WORK ON SITE. ANY DISCREPANCIES SHALL BE REPORTED TO THE REGION IMMEDIATELY.
11. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATING, SUPPORTING AND PROTECTING ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF HIS WORK, WHETHER SHOWN ON THE PLANS OR NOT, AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
12. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITTEN NOTICE TO UTILITY AUTHORITY PRIOR TO CROSSING SUCH UTILITIES FOR THE PURPOSE OF INSPECTION. THIS INSPECTION WILL BE FOR THE DURATION OF CONSTRUCTION WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTIONS.
13. ALL ROAD BASE SHALL BE AS PER REGION OF PEEL STD. DWG. 5-1-1 AND 5-1-2.
14. ASPHALT PRESERVATIVE SEALER SUCH AS RE-CLIMATE OR APPROVED EQUIVALENT SHALL BE APPLIED AFTER THE ONE-YEAR MAINTENANCE PERIOD FOR THE TOP COURSE ASPHALT.
15. ALL EXISTING PAVEMENTS, CURBS, SIDEWALKS AND BOULEVARDS, AND OTHER AREAS DISTURBED BY THE WORK, TO BE REINSTATED EQUAL TO EXISTING AND TO THE SATISFACTION OF APPLICABLE AUTHORITY HAVING JURISDICTION OVER THE ROAD ALLOWANCE. EXISTING PAVEMENT AND CURBS TO BE SAW- CUT TO PROVIDE A SMOOTH JOINT.
16. EROSION CONTROL MEASURES TO BE IMPLEMENTED AS REQUIRED.
17. FOR ROAD PROJECTS THAT WILL NOT BE COMPLETED PRIOR TO THE END OF THE CONSTRUCTION SEASON, THE FOLLOWING WILL NEED TO BE CONSIDERED IN ORDER TO WINTERIZE THE CONSTRUCTION PROJECT TO ENSURE SAFE CONDITIONS DURING WINTER:
    a. WHERE APPLICABLE, CURB AND GUTTER SECTIONS ARE TO BE COMPLETED, THE BASE COURSE ASPHALT SHALL BE IN PLACE.
    b. CATCH BASINS AND MAINTENANCE HOLES SET TO EXISTING BASE GRADE.
    c. STEEL PLATING NOT PERMITTED.
    d. HOT MIX ASPHALT (HMA) ONLY.
    e. LANE DELINEATION AND PAVEMENT MARKING COMPLETED.
    f. WHERE NEW JERSEY BARRIERS USED, OFFSET NO LESS THAN 4.25m FROM EDGE OF TRAVELED LANE.
    g. ROAD AND BOULEVARD MUST BE FREE OF OBSTRUCTIONS AND ACCOMMODATE SAFE SNOW PLOW OPERATION CONSIDERING THAT A WING AND PLOW IS 6m WIDE AND 1.52m SNOW STORAGE MINIMUM REQUIRED.
    h. ALL CATCH BASIN GRATES SHALL BE SIDE INLET, OPSD 400.081 (LATEST VERSION) UNLESS OTHERWISE NOTED.
    i. WINTER SHUT-DOWN MEETINGS WITH THE REGION OF PEEL ROAD MAINTENANCE STAFF ARE REQUIRED PRIOR TO SEASONAL SHUT-DOWN AND SHALL BE ORGANIZED BY THE CONSULTANT OR PROJECT MANAGER OR DESIGNATE.

TRAFFIC SIGNS AND SIGNALS ON REGIONAL ROADS:

1. ALL REQUIRED TRAFFIC SIGNS, WHETHER REGULATORY, WARNING, TEMPORARY OR GUIDE/DIRECTIONAL IN NATURE SHALL BE INSTALLED IN ACCORDANCE WITH THE STANDARDS SPECIFICATIONS AND LEGISLATION CONTAINED IN THE OTM MANUALS, THE HTA AND REGION OF PEEL TRAFFIC BY-LAW.
2. ELECTRICAL WORKS SHALL CONFORM TO THE ONTARIO PROVINCIAL STANDARD DRAWINGS AND REGION OF PEEL STANDARD DRAWINGS AND SPECIFICATIONS.
3. TRAFFIC CONTROLLERS MUST BE INSTALLED AS PER APPROVED LOCATIONS. EQUIPMENT MUST NOT ENCROACH ON PRIVATE PROPERTY WITHOUT PERMISSION TO ENTER, EASEMENT, PERMANENT OR TEMPORARY UNDERTAKINGS.

GENERAL REFERENCES FOR DRAWINGS:
REGION OF PEEL STANDARD DRAWINGS DELETED - NOVEMBER 2011 REVISION AND APRIL 2014 REVISION:

DRAWING NUMBER	DRAWING TITLE	ORIGINAL DATE	REPLACED WITH REGION OF PEEL STANDARD DRAWING	REPLACED WITH OPSD
1-1-1	CIRCULAR PRECAST CHAMBER	MAY 2009	1-1-5, 1-1-7	
1-1-2	SMALL CAST-in-PLACE CHAMBER	MAY 2009	1-1-6	
1-1-3	RIBBED/EIA, WM. VALVE AND CHAMBER (CAST-IN-PLACE)	MAY 2009	1-1-6, 1-3-2/ TO 1-3-4B	
1-1-4	RECTANGULAR PRECAST CHAMBER	MAY 2009	1-1-6	
1-2-1	STANDARD HEAVY DUTY FRAME AND COVER	MAY 2009		401.030
1-2-3	STANDARD CHAMBER STEPS ALUMINUM	MAY 2009		405.022
1-3-1A	RESTRAINING OF 300mm DIAMETER AND SMALLER P.V.C. WATERMAIN AT IN-LINE VALVE	NOV. 2011	1-6-9	
1-3-2	AIR VALVE AND CHAMBER	APRIL 2009	1-1-6, 1-3-1D, 1-3-1G, 1-3-1H	
1-3-5	DRAIN VALVE AND CHAMBER	MAY 2009	1-1-6, 1-3-1E, 1-3-2F, 1-3-2B, 1-3-2F	
1-3-7	VALVE SETTING FOR 450mm TO 600mm PIPE	MAY 2009	1-1-6, 1-3-1D TO 1-3-2B	
1-3-10	PRESSURE ZONE BOUNDARY VALVE	MAY 2009	1-1-6, 1-3-1E	
1-5-2	WATERMAIN SUPPORT WHOSE DISTURBED GROUND	MAY 2009	N/A - As Per Contract Design	
1-5-3	CONCRETE THRUST COLLAR	MAY 2009	N/A - As Per Contract Design	
1-7-3	STANDING OUTLET 100mm AND LARGER	MAY 2009	1-7-9	
1-7-23	TYPICAL LSE VALVE CHAMBER FOR BEHIND OPPOSITE ISOLATOR VALVE DOUBLE SPARK VALVE AND COMBINATION AIR RELEASE OR VACUUM VALVE	NOV. 2011	1-3-2/1, 1-3-2/2	

NOTE: THE REGION OF PEEL STANDARD DRAWINGS REFERENCED TO FOR NEW AND REVISED WORKS OF PIPE, STANDARD DRAWINGS, BUT IT DOES NOT PRECLUDE THE APPROVED USE OF ANY APPLICABLE OPSD REFERENCES NOT LISTED ABOVE.

ONTARIO PROVINCIAL STANDARD DRAWING REFERENCES TO BE READ IN CONJUNCTION WITH REGION OF PEEL STANDARD DRAWINGS - NOVEMBER 2011 REVISION AND APRIL 2014 REVISION

DRAWING NUMBER	DRAWING TITLE
401.030	CAST IRON, SQUARE FRAME, WITH CIRCULAR WATERTIGHT COVER FOR MAINTENANCE HOLES
402.030	CAST IRON, RECTANGULAR FRAME WITH TWO PIECE CO-DE FOR METER AIR VALVE CHAMBERS
404.020	ALUMINUM SAFETY PLATFORM FOR CIRCULAR MAINTENANCE HOLES
404.030	ALUMINUM SAFETY PLATFORM FOR 1800mm CIRCULAR MAINTENANCE HOLES WITH DROP PIPE
405.020	MAINTENANCE HOLE STEPS SOLID
405.010	ALUMINUM LADDER FOR MAINTENANCE HOLES
706.010	PRECAST CONCRETE ADJUSTMENT UNITS FOR MAINTENANCE HOLES, CATCH BASINS AND VALVE CHAMBERS
1101.010	PRECAST CONCRETE VALVE CHAMBER WITH POURED-IN-PLACE THRUST BLOCKS 2400 x 3000mm CHIMNEY AND CAP
1101.020	VALVE CHAMBERS
1109.010	CATHODIC PROTECTION FOR METALLIC WATERMAIN SYSTEMS

NOTE: THE REGION OF PEEL STANDARD DRAWINGS REFERENCED TO FOR NEW AND REVISED WORKS OF PIPE, STANDARD DRAWINGS, BUT IT DOES NOT PRECLUDE THE APPROVED USE OF ANY APPLICABLE OPSD REFERENCES NOT LISTED ABOVE.

GENERAL NOTES FOR PRECAST CONCRETE CHAMBERS:
1. ALL PRECAST CHAMBERS TO BE SUPPLIED BY A MANUFACTURER CERTIFIED UNDER THE OCPA PLANT PREQUALIFICATION PROGRAM.
2. SUBMIT SHOP DRAWINGS TO THE CONTRACT ADMINISTRATOR FOR INFORMATION. ALL DRAWINGS SHALL BEAR THE SIGNATURE AND SEAL OF A PROFESSIONAL ENGINEER LICENSED TO PRACTISE IN ONTARIO.
3. THE MANUFACTURER SHALL PROVIDE LETTERS SIGNED BY A PROFESSIONAL ENGINEER CERTIFYING THE FOLLOWING:
   i) THAT THE DESIGN OF THIS PRODUCT LISTS MEETS THE REQUIREMENTS OF THE SPECIFICATIONS
   ii) THAT THE PRODUCT LISTED HAVE BEEN MANUFAC

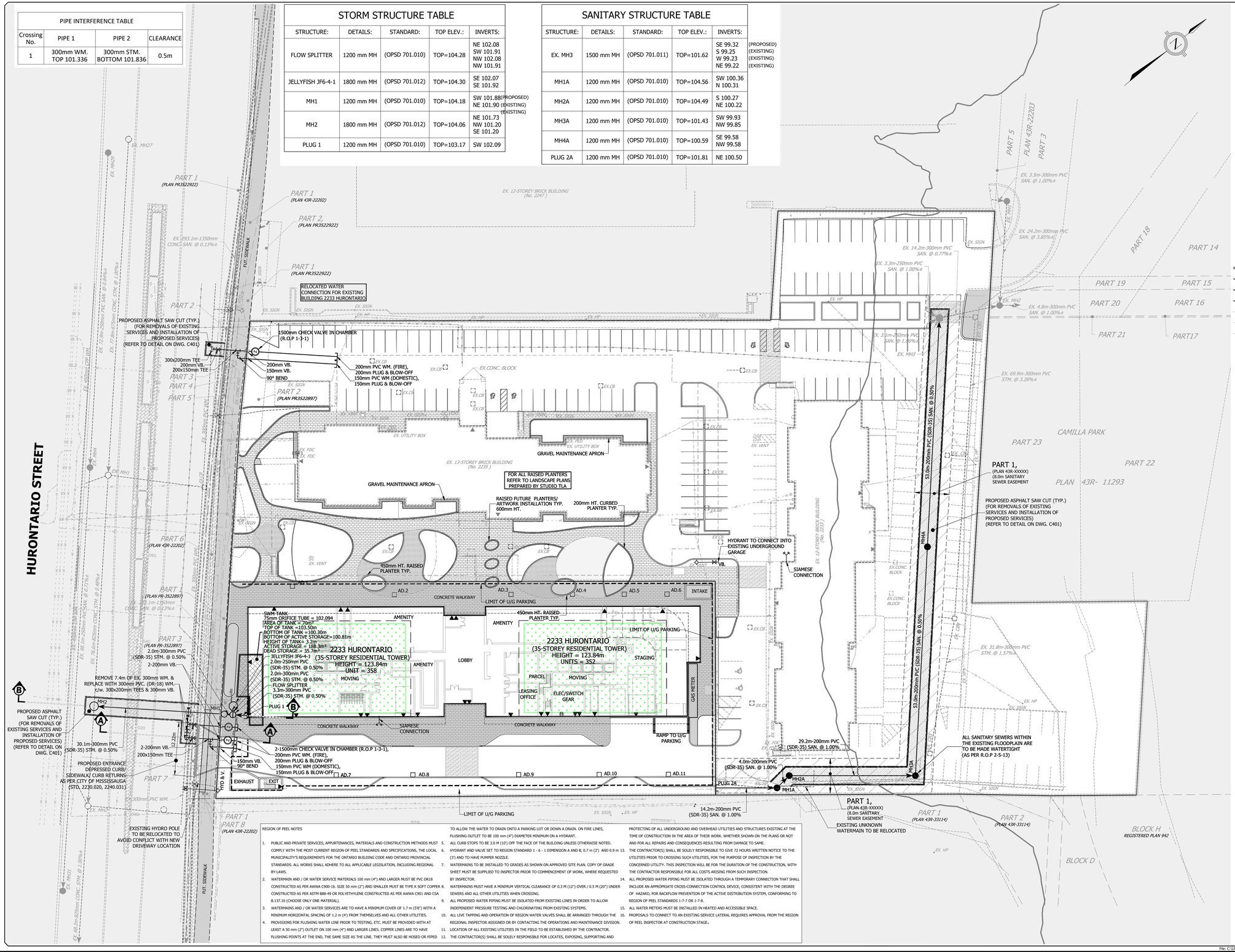
PIPE INTERFERENCE TABLE			
Crossing No.	PIPE 1	PIPE 2	CLEARANCE
1	300mm WM. TOP 101.336	300mm STM. BOTTOM 101.836	0.5m

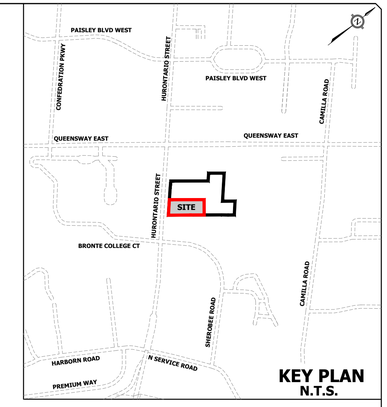
STORM STRUCTURE TABLE

STRUCTURE:	DETAILS:	STANDARD:	TOP ELEV.:	INVERTS:
FLOW SPLITTER	1200 mm MH	(OPSD 701.010)	TOP=104.28	NE 102.08 SW 101.91 NW 102.08 NW 101.91
JELLYFISH JF6-4-1	1800 mm MH	(OPSD 701.012)	TOP=104.30	SE 102.07 SE 101.92
MH1	1200 mm MH	(OPSD 701.010)	TOP=104.18	SW 101.88 (PROPOSED) NE 101.90 (EXISTING) (EXISTING)
MH2	1800 mm MH	(OPSD 701.012)	TOP=104.06	NE 101.73 NW 101.20 SE 101.20
PLUG 1	1200 mm MH	(OPSD 701.010)	TOP=103.17	SW 102.09

SANITARY STRUCTURE TABLE

STRUCTURE:	DETAILS:	STANDARD:	TOP ELEV.:	INVERTS:
EX. MH3	1500 mm MH	(OPSD 701.011)	TOP=101.62	SE 99.32 (PROPOSED) S 99.25 (EXISTING) W 99.23 (EXISTING) NE 99.22 (EXISTING)
MH1A	1200 mm MH	(OPSD 701.010)	TOP=104.56	SW 100.36 N 100.31
MH2A	1200 mm MH	(OPSD 701.010)	TOP=104.49	S 100.27 NE 100.22
MH3A	1200 mm MH	(OPSD 701.010)	TOP=101.43	SW 99.93 NW 99.85
MH4A	1200 mm MH	(OPSD 701.010)	TOP=100.59	SE 99.58 NW 99.58
PLUG 2A	1200 mm MH	(OPSD 701.010)	TOP=101.81	NE 100.50





LEGEND

- LIMIT OF PROPERTY
- STORM SEWER AND MANHOLE
- SANITARY SEWER AND MANHOLE
- PROPOSED WATERMAIN
- EXISTING STORM SEWER AND MANHOLE
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING WATERMAIN
- SINGLE CATCHBASIN / AREA DRAIN
- EXISTING CATCHBASIN /AREA DRAIN
- HYDRANT & VALVE
- VALVE & BOX
- EXISTING HYDRANT & VALVE
- EXISTING VALVE & BOX
- CHECK VALVE IN CHAMBER (AS PER R.S.D. 1-3-1)
- PROPOSED ASPHALT SAW CUT (TYP.) (REFER TO DETAIL ON DWG. C401)
- SECTION MARKER (REFER TO SECTIONS ON DWG. C202)
- EXISTING GASMAIN
- EXISTING U/G. HYDRO LINE
- EXISTING CABLE LINE
- EXISTING FIBER OPTIC LINE
- EXISTING BUILDING ENTRANCE
- PROPOSED BUILDING ENTRANCE
- WATER METER (AS PER R.S.D. 1-4-1)
- PROPOSED GREEN ROOF
- PROPOSED SANITARY SEWER EASEMENT
- EXISTING FLOODPLAIN

ELEVATION NOTE

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE CITY OF MISSISSAUGA (CGVD28 WITHOUT 1978 ADJUSTMENT)
BENCHMARKS:
NO. 075033035
ELEVATION=105.608M
NO. 075185042
ELEVATION=102.217M

BENCHMARK NOTE

CUT CROSS ON THE EDGE OF CONCRETE VENT LOCATED NEAR THE NORTHERLY EDGE OF THE PROPERTY OF 2247 HURONTARIO STREET.
ELEVATION = 105.24m
TOPOGRAPHIC SURVEY PREPARED BY J.D. BARNES LIMITED, JULY 29, 2024.

No.	REVISIONS	DATE	BY
2	ISSUED FOR ZONING	NOV. 13, 2026	R.B.T.M.
1	ISSUED FOR ZONING	APR. 10, 2026	R.B.T.M.

REGISTERED PROFESSIONAL ENGINEER
R.B.T. MERWIN
100009772
NOV. 13, 2026
PROVINCE OF ONTARIO

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Urbantech® Consulting
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2233 & 2235 HURONTARIO LTD.

Region of Peel working with you

MISSISSAUGA

SERVICING PLAN

REGION FILE No. C-XXXXXX | CITY FILE No. OZ 26-8 W7

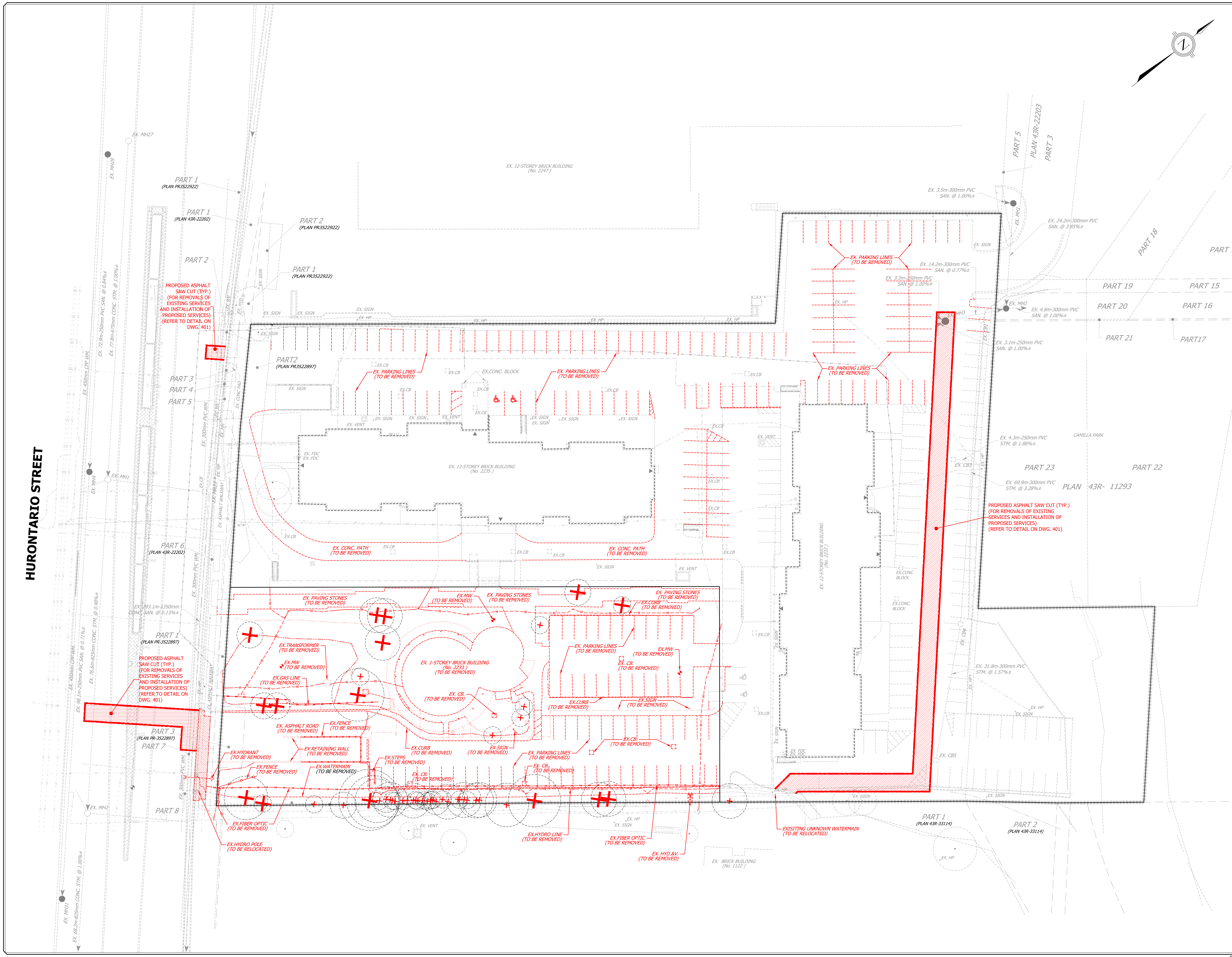
SCALE:	1:400	PROJECT No.	24-326
DRAWN BY:	R.B.	CHECKED BY: R.M./R.B.T.M.	PLAN No. C101
DATE:	MARCH, 2026	SHEET	OF C-XXXXXX

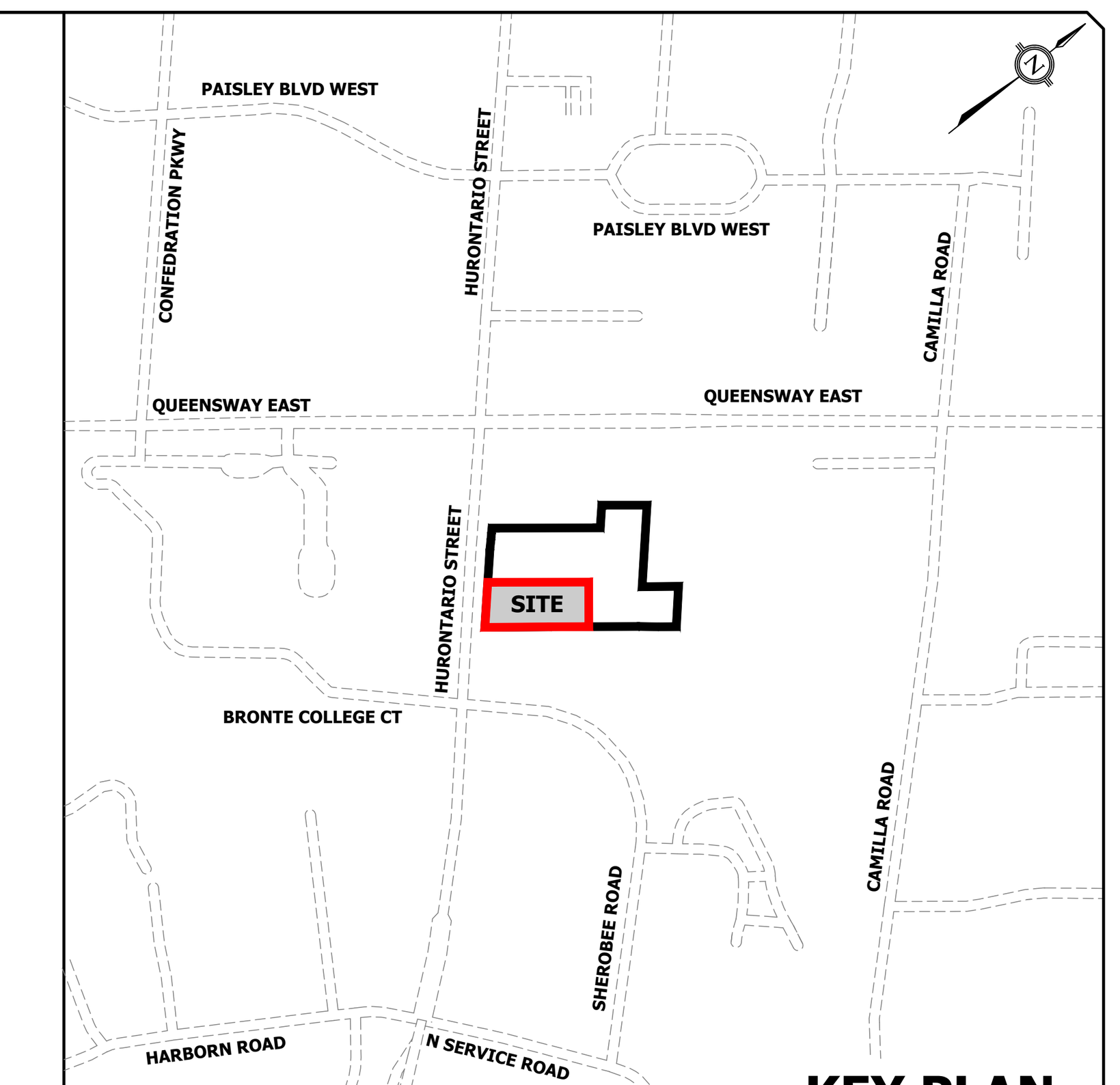
REGION OF PEEL NOTES

1. PUBLIC AND PRIVATE SERVICES, APPURTENANCES, MATERIALS AND CONSTRUCTION METHODS MUST COMPLY WITH THE MOST CURRENT REGION OF PEEL STANDARDS AND SPECIFICATIONS, THE LOCAL MUNICIPALITY'S REQUIREMENTS FOR THE ONTARIO BUILDING CODE AND ONTARIO PROVINCIAL STANDARDS. ALL WORKS SHALL ADHERE TO ALL APPLICABLE LEGISLATION, INCLUDING REGIONAL BY-LAWS.
2. WATERMAIN AND / OR WATER SERVICE MATERIALS 100 mm (4") AND LARGER MUST BE PVC DR18 CONSTRUCTED AS PER AWWA C900-16. SIZE 50 mm (2") AND SMALLER MUST BE TYPE K SOFT COPPER B. CONSTRUCTED AS PER ASTM B88-49 OR POLYETHYLENE CONSTRUCTED AS PER AWWA C901 AND CSA B.137.10 (CHOOSE ONLY ONE MATERIAL).
3. WATERMAINS AND / OR WATER SERVICES ARE TO HAVE A MINIMUM COVER OF 1.7 m (5'6") WITH A MINIMUM HORIZONTAL SPACING OF 1.2 m (4') FROM THEMSELVES AND ALL OTHER UTILITIES.
4. PROVISIONS FOR FLUSHING WATER LINE PRIOR TO TESTING, ETC. MUST BE PROVIDED WITH AT LEAST A 50 mm (2") OUTLET ON 100 mm (4") AND LARGER LINES. COPPER LINES ARE TO HAVE FLUSHING POINTS AT THE END, THE SAME SIZE AS THE LINE. THEY MUST ALSO BE HOSED OR PIPED TO ALLOW THE WATER TO DRAIN ONTO A PARKING LOT OR DOWN A DRAIN. ON FIRE LINES, FLUSHING OUTLET TO BE 100 mm (4") DIAMETER MINIMUM ON A HYDRANT.
5. ALL CURB STOPS TO BE 3.0 M (10') OFF THE FACE OF THE BUILDING UNLESS OTHERWISE NOTED.
6. HYDRANT AND VALVE SET TO REGION STANDARD 1 - 6 - 1 DIMENSION A AND B, 0.7 m (2') AND 0.9 m (3') AND TO HAVE PUMPER NOZZLE.
7. WATERMAINS TO BE INSTALLED TO GRADES AS SHOWN ON APPROVED SITE PLAN. COPY OF GRADE SHEET MUST BE SUPPLIED TO INSPECTOR PRIOR TO COMMENCEMENT OF WORK, WHERE REQUESTED BY INSPECTOR.
8. WATERMAINS MUST HAVE A MINIMUM VERTICAL CLEARANCE OF 0.3 M (12") OVER / 0.5 M (20") UNDER SEWERS AND ALL OTHER UTILITIES WHEN CROSSING.
9. ALL PROPOSED WATER PIPING MUST BE ISOLATED FROM EXISTING LINES IN ORDER TO ALLOW INDEPENDENT PRESSURE TESTING AND CHLORINATING FROM EXISTING SYSTEMS.
10. ALL LIVE TAPPING AND OPERATION OF REGION WATER VALVES SHALL BE ARRANGED THROUGH THE REGIONAL INSPECTOR ASSIGNED OR BY CONTACTING THE OPERATIONS AND MAINTENANCE DIVISION.
11. LOCATION OF ALL EXISTING UTILITIES IN THE FIELD TO BE ESTABLISHED BY THE CONTRACTOR.
12. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE FOR LOCATES, EXPOSING, SUPPORTING AND PROTECTING OF ALL UNDERGROUND AND OVERHEAD UTILITIES AND STRUCTURES EXISTING AT THE TIME OF CONSTRUCTION IN THE AREA OF THEIR WORK, WHETHER SHOWN ON THE PLANS OR NOT AND FOR ALL REPAIRS AND CONSEQUENCES RESULTING FROM DAMAGE TO SAME.
13. THE CONTRACTOR(S) SHALL BE SOLELY RESPONSIBLE TO GIVE 72 HOURS WRITTEN NOTICE TO THE UTILITIES PRIOR TO CROSSING SUCH UTILITIES, FOR THE PURPOSE OF INSPECTION BY THE CONCERNED UTILITY. THIS INSPECTION WILL BE FOR THE DURATION OF THE CONSTRUCTION, WITH THE CONTRACTOR RESPONSIBLE FOR ALL COSTS ARISING FROM SUCH INSPECTION.
14. ALL PROPOSED WATER PIPING MUST BE ISOLATED THROUGH A TEMPORARY CONNECTION THAT SHALL INCLUDE AN APPROPRIATE CROSS-CONNECTION CONTROL DEVICE, CONSISTENT WITH THE DEGREE OF HAZARD, FOR BACKFLOW PREVENTION OF THE ACTIVE DISTRIBUTION SYSTEM, CONFORMING TO REGION OF PEEL STANDARDS 1-7-7 OR 1-7-8.
15. ALL WATER METERS MUST BE INSTALLED IN HEATED AND ACCESSIBLE SPACE.
16. PROPOSALS TO CONNECT TO AN EXISTING SERVICE LATERAL REQUIRES APPROVAL FROM THE REGION OF PEEL INSPECTOR AT CONSTRUCTION STAGE.

PLOT DATE:November 13, 2026 11:33:15 AM

File: C:\USERS\KBABAR\DCACCDOCS\URBANTECH\24-326 2235 HURONTARIO ST\PROJECT FILES\100 - COVER & GENERAL\101-SERVICING PLAN.DWG





KEY PLAN
N.T.S.

LEGEND

- LIMIT OF PROPERTY
- EXISTING STORM SEWER AND MANHOLE
- EXISTING SANITARY SEWER AND MANHOLE
- EXISTING WATERMAIN
- EXISTING BUILDING ENTRANCE
- EXISTING CATCHBASIN /AREA DRAIN
- EXISTING HYDRANT & VALVE
- EXISTING VALVE & BOX
- EXISTING TREE
- EXISTING TREE TO BE REMOVED
- EXISTING GAS LINE
- EXISTING HYDRO LINE
- EXISTING CABLE LINE
- EXISTING FIBER OPTIC LINE
- PROPOSED ASPHALT SAW CUT (TYP.)

ELEVATION NOTE

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE CITY OF MISSISSAUGA (CGVD28 WITHOUT 1978 ADJUSTMENT)
BENCHMARKS:
NO. 075033035
ELEVATION=105.608M
NO. 075185042
ELEVATION=102.217M

BENCHMARK NOTE

CUT CROSS ON THE EDGE OF CONCRETE VENT LOCATED NEAR THE NORTHERLY EDGE OF THE PROPERTY OF 2247 HURONTARIO STREET.
ELEVATION = 105.24m
TOPOGRAPHIC SURVEY PREPARED BY J.D. BARNES LIMITED, JULY 29, 2024.

No.	REVISIONS	DATE	BY
2	ISSUED FOR ZONING	NOV. 13, 2026	R.B.T.M.
1	ISSUED FOR ZONING	APR. 10, 2026	R.B.T.M.

REGISTERED PROFESSIONAL ENGINEER
R.B.T. MERWIN
100009772
NOV. 13, 2026
PROVINCE OF ONTARIO

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2030 Bristol Circle, Suite 105
Oakville, ON. L6H 0H2
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MISSISSAUGA

REMOVAL PLAN

REGION FILE No. C-XXXXXX
CITY FILE No. OZ 26-8 W7

SCALE: 1:400		PROJECT No.	24-326
DRAWN BY: R.B.	CHECKED BY: R.M./R.B.T.M	PLAN No.	C102
DATE: MARCH, 2026	SHEET OF	C-XXXXXX	

File: C:\USERS\RBABAR\DC\ACCDOCS\URBANTECH\24-326 2233 HURONTARIO ST\PROJECT FILES\100 - COVER & GENERAL\102-REMOVAL PLAN.DWG

PLOT DATE:November 13, 2026 11:33:12 AM

I HAVE REVIEWED THE PLANS FOR THE CONSTRUCTION OF THE TWO 35 STOREY HIGH-RISE TOWERS LOCATED AT 2233 HURONTARIO AND HAVE PREPARED THIS PLAN TO INDICATE THE COMPATIBILITY OF THE PROPOSAL TO EXISTING ADJACENT PROPERTIES AND MUNICIPAL SERVICES. IT IS MY BELIEF THAT ADHERENCE TO THE PROPOSED GRADES AS SHOWN WILL PRODUCE ADEQUATE SURFACE DRAINAGE AND PROPER FACILITY OF THE MUNICIPAL SERVICES WITHOUT ANY DETRIMENTAL EFFECT TO THE EXISTING DRAINAGE PATTERNS OR ADJACENT PROPERTIES.

REGISTERED PROFESSIONAL ENGINEER
R.B.T. MERWIN
100009772
NOV. 13, 2026
PROVINCE OF ONTARIO

SIGNATURE

NOV. 13, 2026
DATE

STAMP

GRADING PLAN STANDARD NOTES

(a) ALL SURFACE DRAINAGE WILL BE SELF-CONTAINED, COLLECTED AND DISCHARGED AT A LOCATION TO BE APPROVED PRIOR TO THE ISSUANCE OF A BUILDING PERMIT.

(b) THE PORTIONS OF THE DRIVEWAY WITHIN THE MUNICIPAL BOULEVARD WILL BE PAVED BY THE APPLICANT.

(c) AT THE ENTRANCES TO THE SITE, THE MUNICIPAL CURB AND SIDEWALK WILL BE CONTINUOUS THROUGH THE DRIVEWAY AND A CURB DEPRESSION WILL BE PROVIDED FOR EACH ENTRANCE.

(d) ALL PROPOSED CURBING WITHIN THE MUNICIPAL BOULEVARD AREA FOR THE SITE IS TO SUIT AS FOLLOWS:
i) FOR ALL SINGLE FAMILY RESIDENTIAL PROPERTIES INCLUDING ON STREET TOWNHOUSES, ALL CURBING IS TO STOP AT THE PROPERTY LIMIT OR THE BACK OF THE MUNICIPAL SIDEWALK, WHICHEVER IS APPLICABLE; OR
ii) FOR ALL OTHER PROPOSALS INCLUDING INDUSTRIAL, COMMERCIAL AND MULTI-UNIT RESIDENTIAL DEVELOPMENTS, ALL ENTRANCES TO THE SITE ARE TO BE IN ACCORDANCE WITH CITY OF MISSISSAUGA STANDARDS 2240.030/2240.031 (AS APPLICABLE) AND 2230.20. DRIVEWAY AND ENTRANCE CURB RADII DIMENSIONS SHALL BE IN ACCORDANCE WITH OSPD 350.010.

(e) ALL EXCESS EXCAVATED MATERIAL WILL BE REMOVED FROM THE SITE.

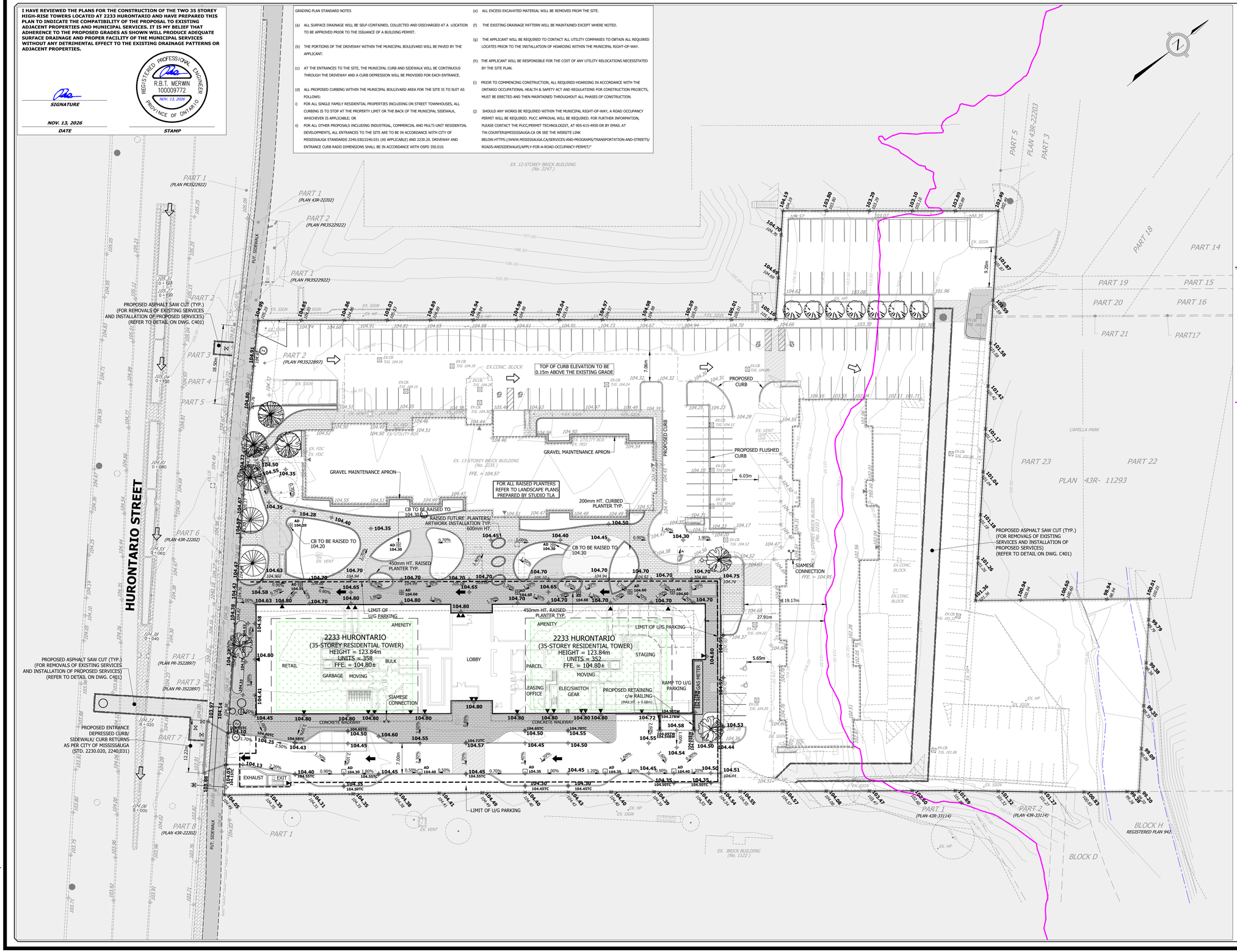
(f) THE EXISTING DRAINAGE PATTERN WILL BE MAINTAINED EXCEPT WHERE NOTED.

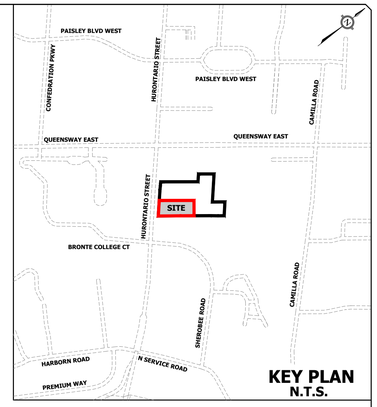
(g) THE APPLICANT WILL BE REQUIRED TO CONTACT ALL UTILITY COMPANIES TO OBTAIN ALL REQUIRED LOCATES PRIOR TO THE INSTALLATION OF HOARDING WITHIN THE MUNICIPAL RIGHT-OF-WAY.

(h) THE APPLICANT WILL BE RESPONSIBLE FOR THE COST OF ANY UTILITY RELOCATIONS NECESSITATED BY THE SITE PLAN.

(i) PRIOR TO COMMENCING CONSTRUCTION, ALL REQUIRED HOARDING IN ACCORDANCE WITH THE ONTARIO OCCUPATIONAL HEALTH & SAFETY ACT AND REGULATIONS FOR CONSTRUCTION PROJECTS, MUST BE ERECTED AND THEN MAINTAINED THROUGHOUT ALL PHASES OF CONSTRUCTION.

(j) SHOULD ANY WORKS BE REQUIRED WITHIN THE MUNICIPAL RIGHT-OF-WAY, A ROAD OCCUPANCY PERMIT WILL BE REQUIRED. PUCC APPROVAL WILL BE REQUIRED. FOR FURTHER INFORMATION, PLEASE CONTACT THE PUCC/PERMIT TECHNOLOGIST, AT 905-615-4950 OR BY EMAIL AT TW.COUNTER@MISSISSAUGA.CA OR SEE THE WEBSITE LINK BELOW: HTTPS://WWW.MISSISSAUGA.CA/SERVICES-AND-PROGRAMS/TRANSPORTATION-AND-STREETS/ROADS-ANDSIDEWALKS/APPLY-FOR-A-ROAD-OCCUPANCY-PERMIT/"





LEGEND

- LIMIT OF PROPERTY
- 105.00 EXISTING CONTOUR AND ELEVATION
- 105.00 EXISTING ELEVATION
- 105.00 PROPOSED ELEVATION
- 105.00 TC PROPOSED TOP OF CURB ELEVATION
- 105.00 AD PROPOSED AREA DRAIN ELEVATION
- 105.00 TW PROPOSED TOP OF WALL ELEVATION
- 105.00 BW PROPOSED BOTTOM OF WALL ELEVATION
- 105.00 / 105.00 PROPOSED/EXISTING ELEVATION
- MAXIMUM 3:1 SLOPE (UNLESS OTHERWISE NOTED)
- PROPOSED OVERLAND FLOW DIRECTION
- EXISTING OVERLAND FLOW DIRECTION
- EXISTING FLOODPLAIN
- PROPOSED ASPHALT SAW CUT (TYP.)
- PROPOSED GREEN ROOF
- STORM SEWER
- SANITARY SEWER
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- SINGLE CATCHBASIN / AREA DRAIN
- EXISTING CATCHBASIN / AREA DRAIN
- HYDRANT & VALVE
- VALVE & BOX
- EXISTING HYDRANT & VALVE
- EXISTING VALVE & BOX
- CHECK VALVE IN CHAMBER (AS PER R.S.D. 1-3-1)
- WATER METER (AS PER R.S.D. 1-4-1)
- PROPOSED BUILDING ENTRANCE
- EXISTING BUILDING ENTRANCE

ELEVATION NOTE

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE CITY OF MISSISSAUGA (CGVD28 WITHOUT 1978 ADJUSTMENT)
BENCHMARKS:
NO. 075033035
ELEVATION=105.608M
NO. 075185042
ELEVATION=102.217M

BENCHMARK NOTE

CUT CROSS ON THE EDGE OF CONCRETE VENT LOCATED NEAR THE NORTHERLY EDGE OF THE PROPERTY OF 2247 HURONTARIO STREET.
ELEVATION = 105.24m
TOPOGRAPHIC SURVEY PREPARED BY J.D. BARNES LIMITED, JULY 29, 2024.

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2	ISSUED FOR ZONING	NOV. 13, 2026	R.B.T.M.
1	ISSUED FOR ZONING	APR. 10, 2026	R.B.T.M.

REGISTERED PROFESSIONAL ENGINEER
R.B.T. MERWIN
100009772
NOV. 13, 2026
PROVINCE OF ONTARIO

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MISSISSAUGA

GRADING PLAN

REGION FILE No. C-XXXXXX
CITY FILE No. OZ 26-8 W7

SCALE:	1:400			PROJECT No.	24-326
DRAWN BY:	R.B.	CHECKED BY:	R.M./R.B.T.M	PLAN No.	C201
DATE:	MARCH, 2026	SHEET	OF	C-XXXXXX	

PLOT DATE:November 13, 2026 11:33:23 AM

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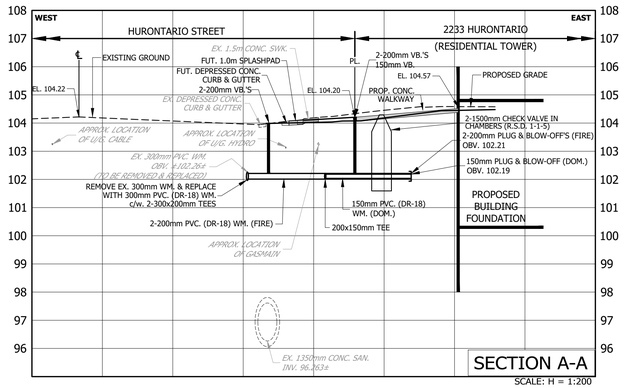

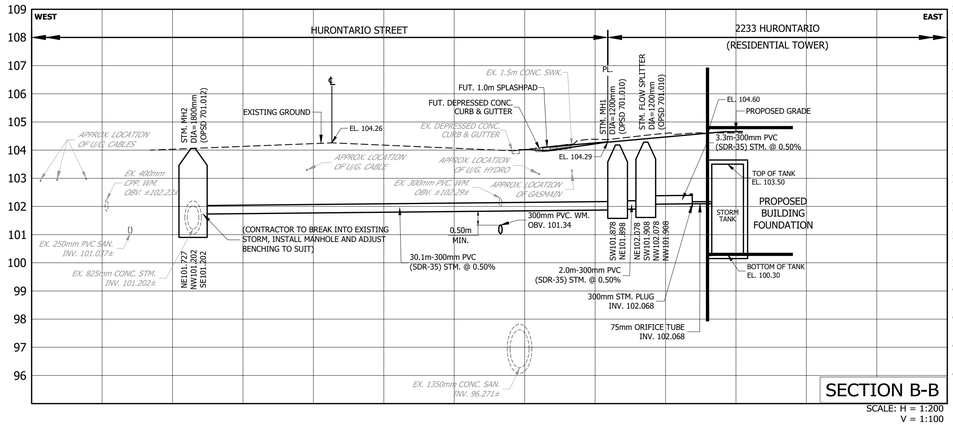

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1	ISSUED FOR ZONING	APR. 10, 2026	R.B.T.M.

REGISTERED PROFESSIONAL ENGINEER
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100009772
NOV. 13, 2026
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MISSISSAUGA

SECTIONS

REGION FILE No. C-XXXXXX			CITY FILE No. OZ 26-8 W7
SCALE: AS SHOWN		PROJECT No.	24-326
DRAWN BY: R.B.	CHECKED BY: R.M./R.B.T.M	PLAN No.	**C202**
DATE: MARCH, 2026	SHEET OF	C-XXXXXX	

File: C:\USERS\RBABAR\DC\ACCDOCS\URBANTECH\24-326 2233 HURONTARIO ST\PROJECT FILES\200 - GRADING\202-SECTIONS.DWG

PLOT DATE:November 13, 2026 11:33:23 AM

HURONTARIO STREET

EX. MH27
EX. 71.8m-675mm CONC. STM. @ 1.09%±
EX. MH1
EX. 66.2m-825mm CONC. STM. @ 0.49%±
EX. 66.2m-825mm CONC. STM. @ 1.09%±
EX. MH2

PART 1 ((PLAN PR3522922)
PART 1 (PLAN 43R-22202)
PART 2 (PLAN PR3522922)
PART 1 (PLAN PR3522922)
PART 2
PART 3
PART 4
PART 5
PART 6 (PLAN 43R-22202)
PART 1 (PLAN PR-3522897)
PART 3 (PLAN PR-3522897)
PART 7
PART 2 (PLAN PR3522897)
PART 1 PART 8 (PLAN 43R-22202)

FUT. CURB & GUTTER
FUT. SIDEWALK

EX. 12-STOREY BRICK BUILDING (No. 2247)
EX. 13-STOREY BRICK BUILDING (No. 2235)
EX. BRICK BUILDING (No. 1122)
EX. 12-STOREY BRICK BUILDING (No. 2233)

EX. SIGN
EX. HP
EX. VENT
EX. UTILITY BOX
EX. PED
EX.CB
EX.CONC. BLOCK
EX. CB3
EX. 4.3m-250mm PVC STM. @ 1.68%±
EX. 69.9m-300mm PVC STM. @ 3.28%±
EX. 31.8m-300mm PVC STM. @ 1.57%±

PART 5 PLAN 43R-22203
PART 3
PART 18
PART 14
PART 19
PART 15
PART 20
PART 16
PART 21
PART17
CAMILLA PARK
PART 23
PART 22
PLAN 43R- 11293
PART 2 (PLAN 43R-33114)
PART 1 (PLAN 43R-33114)
BLOCK H REGISTERED PLAN 942
BLOCK D

AD.1 TOP 104.60
AD.2 TOP 104.60
AD.3 TOP 104.60
AD.4 TOP 104.60
AD.5 TOP 104.60
AD.6 TOP 104.60
AD.7 TOP 104.31
AD.8 TOP 104.41
AD.9 TOP 104.36
AD.10 TOP 104.37
AD.11 TOP 104.41

INTAKE
LIMIT OF U/G PARKING
CONCRETE WALKWAY
RETAIL
AMENITY
LOBBY
STAGING
PARCEL
MOVING
LEASING OFFICE
ELEC/SWITCH GEAR
GAS METER
RAMP TO U/G PARKING
EXHAUST
EXIT

SWM TANK
75mm ORIFICE TUBE = 107.094
AREA OF TANK = 20m²
TOP OF TANK =103.50m
BOTTOM OF TANK =100.30m
BOTTOM OF ACTIVE STORAGE=100.81m
HEIGHT OF TANK= 3.2m
ACTIVE STORAGE = 188.30m³
DEAD STORAGE = 35.7m³

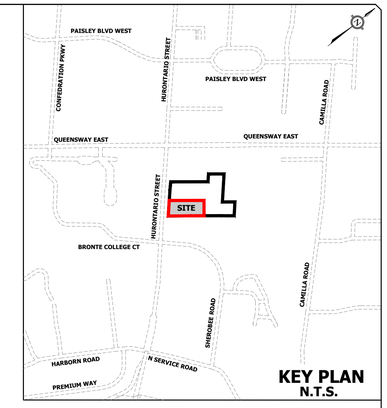
2233 HURONTARIO (35-STOREY RESIDENTIAL TOWER) HEIGHT = 123.84m UNITS = 358

2233 HURONTARIO (35-STOREY RESIDENTIAL TOWER) HEIGHT = 123.84m UNITS = 352

0.57ha
0.90

JELLYFISH JF6-4-1
PLUG 1
MH1
MH2

2.0m-300mm PVC (SDR-35) STM. @ 0.50%
30.1m-300mm PVC (SDR-35) STM. @ 0.50%
2.0m-250mm PVC (SDR-35) STM. @ 0.50%
2.0m-300mm PVC (SDR-35) STM. @ 0.50%
FLOW SPLITTER
3.3m-300mm PVC (SDR-35) STM. @ 0.50%



KEY PLAN
N.T.S.

LEGEND

- LIMIT OF PROPERTY
- STORM SEWER AND MANHOLE
- EXISTING STORM SEWER AND MANHOLE
- EXISTING FLOODPLAIN
- SINGLE CATCHBASIN / AREA DRAIN
- EXISTING CATCHBASIN /AREA DRAIN
- EXISTING CONTOUR AND ELEVATION
- 0.57 / 0.90 — PROPOSED DRAINAGE AREA (ha) FOR MINOR SYSTEM (5 YEAR) FLOW / PROPOSED % IMPERVIOUS
- PROPOSED STORM DRAINAGE AREA BOUNDARY
- MAXIMUM 3:1 SLOPE (UNLESS OTHERWISE NOTED)
- PROPOSED OVERLAND FLOW DIRECTION
- EXISTING OVERLAND FLOW DIRECTION
- EXISTING BUILDING ENTRANCE
- PROPOSED BUILDING ENTRANCE
- PROPOSED GREEN ROOF

ELEVATION NOTE

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE CITY OF MISSISSAUGA (CGVD28 WITHOUT 1978 ADJUSTMENT)
BENCHMARKS:
NO. 075033035
ELEVATION=105.608M
NO. 075185042
ELEVATION=102.217M

BENCHMARK NOTE

CUT CROSS ON THE EDGE OF CONCRETE VENT LOCATED NEAR THE NORTHERLY EDGE OF THE PROPERTY OF 2247 HURONTARIO STREET.
ELEVATION = 105.24m
TOPOGRAPHIC SURVEY PREPARED BY J.D. BARNES LIMITED, JULY 29, 2024.

No.	REVISIONS	DATE	BY
2	ISSUED FOR ZONING	NOV. 13, 2026	R.B.T.M.
1	ISSUED FOR ZONING	APR. 10, 2026	R.B.T.M.

REGISTERED PROFESSIONAL ENGINEER — R.B.T. MERWIN — 100009772 — NOV. 13, 2026 — PROVINCE OF ONTARIO

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2233 & 2235 HURONTARIO LTD.

Region of Peel working with you

MISSISSAUGA

STORM DRAINAGE PLAN

REGION FILE No. C-XXXXXX — CITY FILE No. OZ 26-8 W7

SCALE:	1:400		PROJECT No. 24-326
DRAWN BY:	R.B.	CHECKED BY: R.M./R.B.T.M	PLAN No. **C301**
DATE:	MARCH, 2026	SHEET	OF C-XXXXXX

PLOT DATE:November 13, 2026 11:33:16 AM

File: C:\USERS\BABAR\DC\ACCDOCS\URBANTECH\24-326 2233 HURONTARIO ST\PROJECT FILES\300 - DRAINAGE\301-STORM DRAINAGE PLAN.DWG

HURONTARIO STREET

PLOT DATE:November 13, 2026 11:33:20 AM

DROP PIPE.

EX. 12-STOREY BRICK BUILDING (No. 2247)

EX. 13-STOREY BRICK BUILDING (No. 2235)

EX. 12-STOREY BRICK BUILDING (No. 2251)

EX. BRICK BUILDING (No. 1122)

EX. 293.1m-1350mm CONC. SAN. @ 0.13%±

EX. 72.9m-250mm PVC SAN. @ 0.69%±

EX. 56.1m-250mm PVC SAN. @ 0.71%±

EX. 293.1m-1350mm CONC. SAN. @0.13%±

EX. MH29

EX. MH30

EX. MH31

EX. MH4

EX. MH2

EX. MH1A

EX. MH3A

EX. CATCH BASIN

EX. ASPHALT WALKWAY

FLAT -GRID & GLITTER

FLIT. SIDEWALK

EX. CURB

EX. SIGN

EX. HP

EX. VENT

EX. UTILITY BOX

EX. PED

EX. INTNT

EX. 3.5m-300mm PVC SAN. @ 1.00%±

EX. 24.2m-300mm PVC SAN. @ 3.85%±

EX. 14.2m-300mm PVC SAN. @ 0.77%±

EX. 3.3m-250mm PVC SAN. @ 1.00%±

EX. 4.8m-300mm PVC SAN. @ 1.00%±

EX. 3.1m-250mm PVC SAN. @ 1.00%±

EX.CONC. BLOCK

PART 1 (PLAN PR3522922)

PART 1 (PLAN 43R-22202)

PART 2 (PLAN PR3522922)

PART 1 (PLAN PR3522922)

PART 2

PART 2 (PLAN PR3522897)

PART 3

PART 4

PART 5

PART 6 (PLAN 43R-22202)

PART 1 (PLAN PR-3522897)

PART 3 (PLAN PR-3522897)

PART 7

PART 8 (PLAN 43R-22202)

PART 1

PART 5 PLAN 43R-22203 PART 3

PART 18

PART 14

PART 19

PART 15

PART 20

PART 16

PART 21

PART17

PART 23

CAMILLA PARK

PART 22

PLAN 43R- 11293

PART 1 (PLAN 43R-33114)

PART 2 (PLAN 43R-33114)

BLOCK H REGISTERED PLAN 942

BLOCK D

CONCRETE WALKWAY

LIMIT OF U/G PARKING

INTAKE

AMENITY

2233 HURONTARIO
(35-STOREY RESIDENTIAL TOWER)
HEIGHT = 123.84m
UNITS = 358

RETAIL

BULK

MOVING

LOBBY

0.57ha
710 1601

2233 HURONTARIO
(35-STOREY RESIDENTIAL TOWER)
HEIGHT = 123.84m
UNITS = 352

STAGING

PARCEL

LEASING OFFICE

ELEC/SWITCH GEAR

GAS METER

RAMP TO U/G PARKING

EXHAUST

EXIT

PART 1, (PLAN 43R-XXXXX) (8.0m SANITARY SEWER EASEMENT

53.0m-200mm PVC (SDR-35) SAN. @ 0.50%

29.2m-200mm PVC (SDR-35) SAN. @ 1.00%

14.2m-200mm PVC (SDR-35) SAN. @ 1.00%

4.0m-200mm PVC (SDR-35) SAN. @ 1.00%

PART 1, (PLAN 43R-XXXXX) (8.0m SANITARY SEWER EASEMENT

PLUG 2A

MH1A

MH2A

MH3A

MH4A

KEY PLAN
N.T.S.

PAISLEY BLVD WEST

CONFEDERATION PKWY

HURONTARIO STREET

QUEENSWAY EAST

SITE

BRONTE COLLEGE CT

CAMILLA ROAD

HARBORN ROAD

N SERVICE ROAD

PREMIUM WAY

SHERIDAN ROAD

LEGEND

- LIMIT OF PROPERTY
- SANITARY SEWER AND MANHOLE
- EXISTING SANITARY SEWER AND MANHOLE
- PROPOSED BUILDING ENTRANCE
- EXISTING BUILDING ENTRANCE
- 0.57ha / 698 1569 — DRAINAGE AREA (Ha.) / POPULATION
- # OF UNITS / OR POPULATION PER HECTARE (p/Ha.)
- SANITARY DRAINAGE AREA BOUNDARY
- PROPOSED SANITARY SEWER EASEMENT

ELEVATION NOTE

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BENCHMARKS:
NO. 075033035
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BENCHMARK NOTE

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ELEVATION = 105.24m
TOPOGRAPHIC SURVEY PREPARED BY J.D. BARNES LIMITED, JULY 29, 2024.

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REGISTERED PROFESSIONAL ENGINEER
R.B.T. MERWIN
1000097772
NOV. 13, 2026
PROVINCE OF ONTARIO

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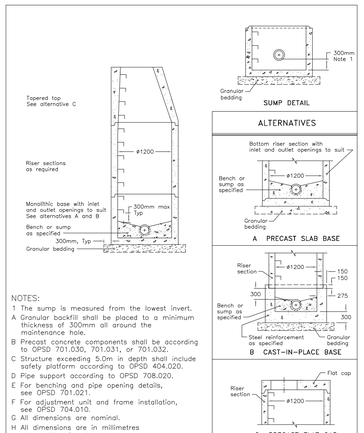
Region of Peel working with you

MISSISSAUGA

SANITARY DRAINAGE PLAN

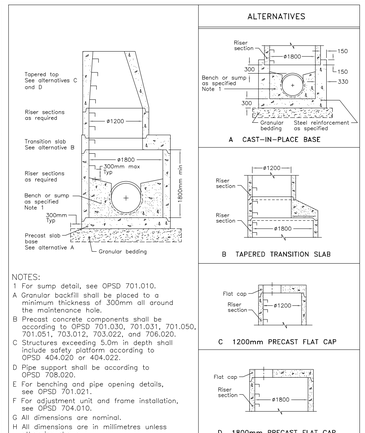
REGION FILE No. C-XXXXXX		CITY FILE No. OZ 26-8 W7	
SCALE:		PROJECT No.	24-326
DRAWN BY: R.B.	CHECKED BY: R.M./R.B.T.M	PLAN No.	C302
DATE: MARCH, 2026	SHEET OF	C-XXXXXX	

File: C:\USERS\BBABAR\DC\ACCDOCS\URBANTECH\24-326 2233 HURONTARIO ST\PROJECT FILES\300 - DRAINAGE\302-SANITARY DRAINAGE PLAN.DWG



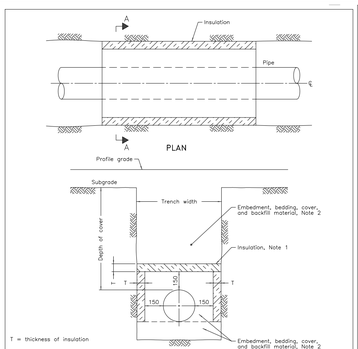
NOTES:
1 The sump is measured from the lowest invert.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, or 701.032.
C Structure exceeding 5.0m in depth shall include safety platform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

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



NOTES:
1 For sump detail, see OPSD 701.010.
A Granular backfill shall be placed to a minimum thickness of 300mm all around the maintenance hole.
B Precast concrete components shall be according to OPSD 701.030, 701.031, 701.050, 701.051, 703.012, 703.022, and 706.020.
C Structures exceeding 5.0m in depth shall include safety platform according to OPSD 404.020 or 404.022.
D Pipe support shall be according to OPSD 708.020.
E For benching and pipe opening details, see OPSD 701.021.
F For adjustment unit and frame installation, see OPSD 704.010.
G All dimensions are nominal.
H All dimensions are in millimetres unless otherwise shown.

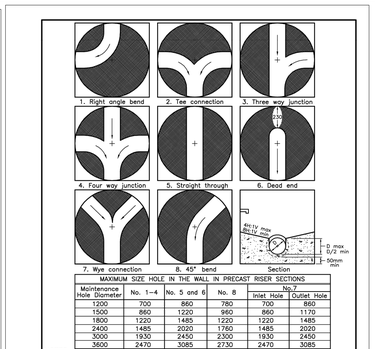
ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 5
PRECAST CONCRETE MAINTENANCE HOLE 1800mm DIAMETER		OPSD 701.012



TYPICAL PIPE INSULATION DETAIL

NOTES:
1 The insulation material shall be extruded polystyrene according to OPSS 1605 with a minimum compressive strength of 275 kPa.
2 Pipe embedment or bedding, cover, and backfill shall be according to:
a) Flexible OPSD 802.010, 802.013, 802.020, and 802.023.
b) Rigid – OPSD 802.030, 802.031, 802.032, 802.033, 802.050, 802.051, 802.052, and 802.053.
A Minimum insulation thickness shall be 50mm.
B Joints shall be staggered for multiple insulation sheets.
C This OPSD is to be read in conjunction with OPSD 3090.100 and 3090.101.
D All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2020	Rev 1
INSULATION FOR SEWERS AND WATERMAINS IN SHALLOW TRENCHES		OPSD 1109.030

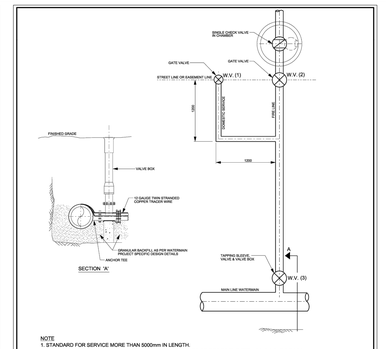


MAXIMUM SIZE HOLE IN THE WALL IN PRECAST RISER SECTIONS

Maintenance Hole Diameter	No. 1–4	No. 5 and 6	No. 8	No.7 Inlet Hole	No.7 Outlet Hole
1200	700	860	780	700	860
1500	860	1220	960	860	1170
1800	1220	1485	1220	1220	1485
2400	1485	2020	1760	1485	2020
3000	1930	2450	2300	1930	2450
3600	2470	3085	2730	2470	3085

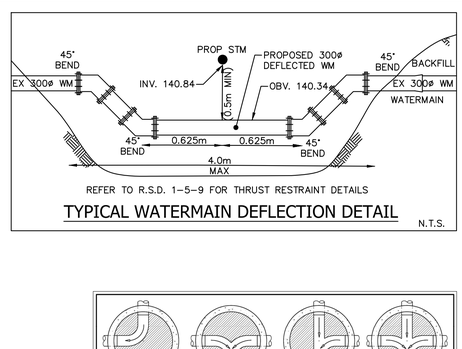
NOTES:
1. Slopes shall be maintained from the outlet hole opening for top of benching.
A Concrete for benching shall be 30MPa.
B When benching is hand-finished, it shall be given wood float finish, channel shall be given steel trowel finish.
C Benching slope and height shall be as specified.
D When specified, maintenance holes that are 1200mm in diameter with a uniform channel for 200 or 250mm pipe may be prebenched at the manufacturer or building, and standardized benching slope and channel orientation.
E All dimensions are nominal.
F All dimensions are in millimetres unless otherwise shown.

ONTARIO PROVINCIAL STANDARD DRAWING	Nov 2014	Rev 4
MAINTENANCE HOLE BENCHING AND PIPE OPENING ALTERNATIVES		OPSD 701.021



NOTE
1. STANDARD FOR SERVICE MORE THAN 5000mm IN LENGTH.
2. SERVICES LESS THAN 13000mm IN LENGTH MAIN VALVE (3) TO BE TIES TO THE TEE USING S.S. TIE RODS.
3. WHERE NO METALLIC PIPE IS USED A 12 GAUGE TRACER WIRE TO BE INSTALLED WITH THE PIPE AND BE BROUGHT TO THE SURFACE AT ALL VALVE BOX BOXES.
4. BACKFILL TRENCH WITH GRANULAR 'B' COMPACTED TO 100% STD. PROCTOR DENSITY.
5. REFER TO D. REG. 3860E - PART - PLUMBING SECTION 7.6.2.4 FOR TYPE OF BLACKFLOW PREVENTER REQUIRED.
6. ALL PIPING, FITTINGS, VALVES, APPURTENANCES AND MECHANICAL RESTRAINTS TO BE c/w DENSO PASTE, DENSO MASTIC AND DENSO TAPE OR APPROVED EQUAL, APPLIED TO MANUFACTURER'S RECOMMENDATIONS.

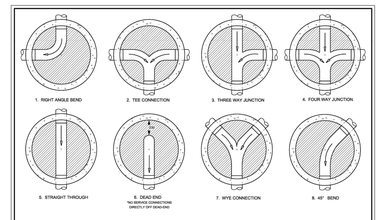
Region of Peel Working for you	PUBLIC WORKS STANDARD DRAWING	REV. DATE: APRIL 2014
FIRE LINE AND DOMESTIC CONNECTION		APPROVED BY: D.L.
		DRAWN BY: ASHLEY GROUP
		STD. DWG. NUMBER: 1-6-4
		SCALE: N.T.S.



REFER TO R.S.D. 1–5–9 FOR THRUST RESTRAINT DETAILS

TYPICAL WATERMAIN DEFLECTION DETAIL

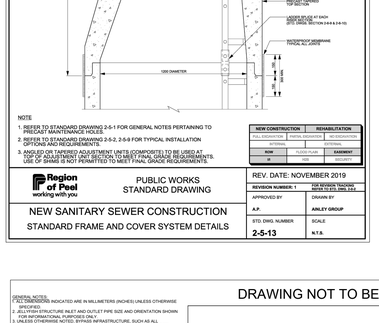
N.T.S.



NOTE
1. CONCRETE TO BE 15 MPa COMPRESSIVE STRENGTH.
2. BENCHING TO BE GIVEN WOOD FLOAT FINISH, CHANNEL TO BE GIVEN STEEL TROWEL FINISH.
3. ALL PIPE PENETRATIONS MUST EXTEND INTERNALLY 125mm STRAIGHT INTO MAINTENANCE HOLE BEFORE CHANNEL CURVATURE BEGINS.
4. BENCHING TO BE CONSTRUCTED TO THE OBVERT OF THE PIPE.
5. FACTORY CAST PRE-BENCHING MAY BE USED WITHIN MONOLITHIC BASE SECTIONS.
6. FOR PIPE TO MAINTENANCE HOLE SIZING REFERENCE STD. DWG. 2-5-21.
7. REFER TO STANDARD DRAWING 2-5-1 FOR GENERAL NOTES PERTAINING TO PRECAST MAINTENANCE HOLES.
8. REFER TO STANDARD DRAWING 2-5-2 FOR TYPICAL INSTALLATION OPTIONS AND REQUIREMENTS.

Region of Peel working with you	PUBLIC WORKS STANDARD DRAWING	REV. DATE: AUGUST 2020
NEW SANITARY SEWER CONSTRUCTION MAINTENANCE HOLE BENCHING DETAILS		REVISION NUMBER: 3
		APPROVED BY: A.P.
		DRAWN BY: ASHLEY GROUP
		STD. DWG. NUMBER: 2-5-20
		SCALE: N.T.S.

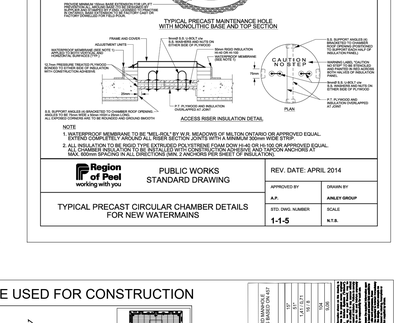
USE OF MECHANICAL ANCHORS ONLY PERMITTED WHEN PRECAST ADJUSTMENT UNITS ARE INSTALLED ON CAST-IN-PLACE BASE. CONTRACTOR TO SUBMIT SHOP DRAWINGS, COMPONENTS, ADJUSTMENT UNITS MUST BE ADDED OR REMOVED MECHANICALLY. ANCHORING METHODOLOGY UTILIZED AS APPROVED BY PROJECT DESIGN AND SITE CONDITIONS.



NOTE
1. REFER TO STANDARD DRAWING 2-5-1 FOR GENERAL NOTES PERTAINING TO PRECAST MAINTENANCE HOLES.
2. REFER TO STANDARD DRAWING 2-5-2, 2-5-9 FOR TYPICAL INSTALLATION OPTIONS AND REQUIREMENTS.
3. ANGLE OR TAPERED ADJUSTMENT UNITS (COMPOSITES) TO BE USED AT CONTRACTOR'S DISCRETION TO MEET FINAL GRADE REQUIREMENTS. USE OF SHIMS IS NOT PERMITTED TO MEET FINAL GRADE REQUIREMENTS.

NEW CONSTRUCTION		REHABILITATION	
FINAL ADJUSTMENT	PARTIAL ADJUSTMENT	RE-CONSTRUCTION	
INTERNAL		EXTERNAL	
NONE	FLEX	GASKET	
M	MMA	MASTIC	

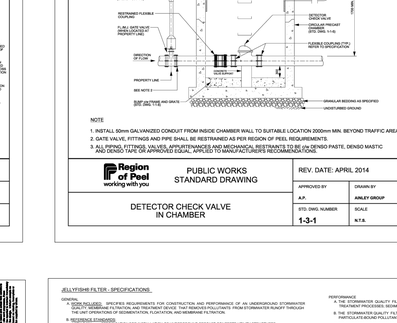
Region of Peel working with you	PUBLIC WORKS STANDARD DRAWING	REV. DATE: NOVEMBER 2019
NEW SANITARY SEWER CONSTRUCTION STANDARD FRAME AND COVER SYSTEM DETAILS		REVISION NUMBER: 1
		APPROVED BY: A.P.
		DRAWN BY: ASHLEY GROUP
		STD. DWG. NUMBER: 2-5-13
		SCALE: N.T.S.



NOTE
1. REFER TO STANDARD DRAWING 2-5-1 FOR GENERAL NOTES PERTAINING TO PRECAST MAINTENANCE HOLES.
2. REFER TO STANDARD DRAWING 2-5-2, 2-5-9 FOR TYPICAL INSTALLATION OPTIONS AND REQUIREMENTS.
3. ANGLE OR TAPERED ADJUSTMENT UNITS (COMPOSITES) TO BE USED AT CONTRACTOR'S DISCRETION TO MEET FINAL GRADE REQUIREMENTS. USE OF SHIMS IS NOT PERMITTED TO MEET FINAL GRADE REQUIREMENTS.

NEW CONSTRUCTION		REHABILITATION	
FINAL ADJUSTMENT	PARTIAL ADJUSTMENT	RE-CONSTRUCTION	
INTERNAL		EXTERNAL	
NONE	FLEX	GASKET	
M	MMA	MASTIC	

Region of Peel working with you	PUBLIC WORKS STANDARD DRAWING	REV. DATE: NOVEMBER 2019
NEW SANITARY SEWER CONSTRUCTION STANDARD FRAME AND COVER SYSTEM DETAILS		REVISION NUMBER: 1
		APPROVED BY: A.P.
		DRAWN BY: ASHLEY GROUP
		STD. DWG. NUMBER: 2-5-13
		SCALE: N.T.S.



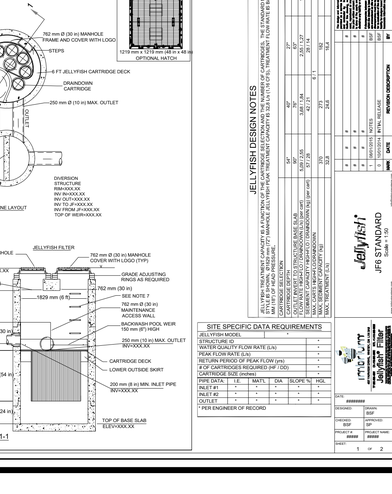
NOTE
1. REFER TO STANDARD DRAWING 2-5-1 FOR GENERAL NOTES PERTAINING TO PRECAST MAINTENANCE HOLES.
2. REFER TO STANDARD DRAWING 2-5-2, 2-5-9 FOR TYPICAL INSTALLATION OPTIONS AND REQUIREMENTS.
3. ANGLE OR TAPERED ADJUSTMENT UNITS (COMPOSITES) TO BE USED AT CONTRACTOR'S DISCRETION TO MEET FINAL GRADE REQUIREMENTS. USE OF SHIMS IS NOT PERMITTED TO MEET FINAL GRADE REQUIREMENTS.

NEW CONSTRUCTION		REHABILITATION	
FINAL ADJUSTMENT	PARTIAL ADJUSTMENT	RE-CONSTRUCTION	
INTERNAL		EXTERNAL	
NONE	FLEX	GASKET	
M	MMA	MASTIC	

Region of Peel working with you	PUBLIC WORKS STANDARD DRAWING	REV. DATE: NOVEMBER 2019
NEW SANITARY SEWER CONSTRUCTION STANDARD FRAME AND COVER SYSTEM DETAILS		REVISION NUMBER: 1
		APPROVED BY: A.P.
		DRAWN BY: ASHLEY GROUP
		STD. DWG. NUMBER: 2-5-13
		SCALE: N.T.S.

STANDARD OFFLINE JELLYFISH RECOMMENDED PIPE DIAMETERS			
MODEL DIAMETER (mm)	MINIMUM INLET PIPE DIAMETER (mm)	MAXIMUM INLET PIPE DIAMETER (mm)	MAXIMUM OUTLET PIPE DIAMETER (mm)
1	150	300	300
2	150	375	375
3	150	450	450
4	150	600	600
5	150	750	750
6	150	900	900
Custom	Please Contact Us For a Solution		

FOR SITE SPECIFIC DRAWINGS PLEASE CONTACT YOUR LOCAL JELLYFISH SUPPLIER/DISTRIBUTOR. NOTE THESE DRAWINGS ARE BASED ON THE BEST AVAILABLE INFORMATION AT THE TIME. SOME FIELD RESIZING TO THE SYSTEM LOCATION OR CONNECTION PIPING MAY BE NECESSARY BASED ON AVAILABLE SPACE OR SITE CONFIGURATION REVISIONS. ELEVATIONS SHOULD BE MAINTAINED, EXCEPT WHERE NOTED ON BYPASS STRUCTURE.

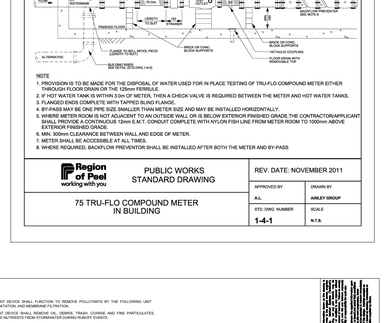


NOTE
1. INSTALL 50mm GALVANIZED CONDUIT FROM INSIDE CHAMBER WALL TO SUITABLE LOCATION 2000mm MIN. BEYOND TRAFFIC AREA.
2. GATE VALVE, FITTINGS AND PIPE SHALL BE RESTRAINED AS PER REGION OF PEEL REQUIREMENTS.
3. ALL PIPING, FITTINGS, VALVES, APPURTENANCES AND MECHANICALS, RESTRAINTS TO BE c/w DENSO PASTE, DENSO MASTIC AND DENSO TAPE OR APPROVED EQUAL, APPLIED TO MANUFACTURER'S RECOMMENDATIONS.

Region of Peel working with you	PUBLIC WORKS STANDARD DRAWING	REV. DATE: APRIL 2014
TYPICAL PRECAST CIRCULAR CHAMBER DETAILS FOR NEW WATERMAINS		APPROVED BY: A.P.
		DRAWN BY: ASHLEY GROUP
		STD. DWG. NUMBER: 1-1-5
		SCALE: N.T.S.

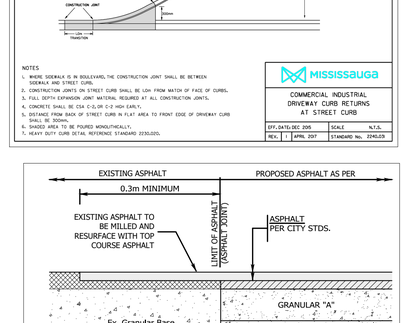
NOTE
1. INSTALL 50mm GALVANIZED CONDUIT FROM INSIDE CHAMBER WALL TO SUITABLE LOCATION 2000mm MIN. BEYOND TRAFFIC AREA.
2. GATE VALVE, FITTINGS AND PIPE SHALL BE RESTRAINED AS PER REGION OF PEEL REQUIREMENTS.
3. ALL PIPING, FITTINGS, VALVES, APPURTENANCES AND MECHANICALS, RESTRAINTS TO BE c/w DENSO PASTE, DENSO MASTIC AND DENSO TAPE OR APPROVED EQUAL, APPLIED TO MANUFACTURER'S RECOMMENDATIONS.

Region of Peel working with you	PUBLIC WORKS STANDARD DRAWING	REV. DATE: APRIL 2014
DETECTOR CHECK VALVE IN CHAMBER		APPROVED BY: A.P.
		DRAWN BY: ASHLEY GROUP
		STD. DWG. NUMBER: 1-3-1
		SCALE: N.T.S.



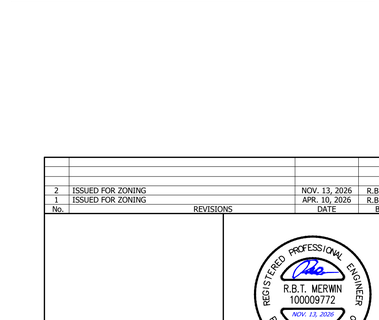
NOTE
1. PROVISION IS TO BE MADE FOR THE DISPOSAL OF WATER USED FOR IN PLACE TESTING OF TRU-FLO COMPOUND METER EITHER THROUGH FLOOR DRAIN OR THE 125mm FERRULE.
2. IF HOT WATER TANK IS WITHIN 2.0m OF METER, THEN A CHECK VALVE IS REQUIRED BETWEEN THE METER AND HOT WATER TANKS.
3. FLANGED ENDS COMPLETE WITH TAPPED BLIND FLANGE.
4. BY-PASS MAY BE ONE PIPE SIZE SMALLER THAN METER SIZE AND MAY BE INSTALLED HORIZONTALLY.
5. WHERE METER ROOM IS NOT ADJACENT TO AN OUTSIDE WALL OR IS BELOW EXTERIOR FINISHED GRADE,THE CONTRACTOR/APPLICANT SHALL PROVIDE A CONCRETE ENCASED CONDUIT 125mm DIA.T. CONDUIT COMPLETE WITH NYLON PISH LINE FROM METER ROOM TO 1000mm ABOVE EXTERIOR FINISHED GRADE.
6. MIN. 300mm CLEARANCE BETWEEN WALL AND EDGE OF METER.
7. METER SHALL BE ACCESSIBLE AT ALL TIMES.
8. WHERE REQUIRED, BACKFLOW PREVENTOR SHALL BE INSTALLED AFTER BOTH THE METER AND BY-PASS.

Region of Peel working with you	PUBLIC WORKS STANDARD DRAWING	REV. DATE: NOVEMBER 2011
75 TRU-FLO COMPOUND METER IN BUILDING		APPROVED BY: A.L.
		DRAWN BY: ASHLEY GROUP
		STD. DWG. NUMBER: 1-4-1
		SCALE: N.T.S.



NOTES
1. WHERE SIDEWALK IS IN BOULEVARD, THE CONSTRUCTION JOINT SHALL BE BETWEEN SIDEWALK AND STREET LINE.
2. CONSTRUCTION JOINTS ON STREET CURB SHALL BE 10m FROM MATCH OF FACE OF CURBS.
3. FULL DEPTH EXPANSION JOINT MATERIAL REQUIRED AT ALL CONSTRUCTION JOINTS.
4. CONCRETE SHALL BE CSA C-2L OR C-2 HIGH EARLY.
5. DISTANCE FROM BACK OF STREET CURB IN FLAT AREA TO FRONT EDGE OF DRIVEWAY CURB SHALL BE 500mm.
6. SHADED AREA TO BE POURED MONOLITHICALLY.
7. HEAVY DUTY CURB DETAIL REFERENCE STANDARD 2230.020.

MISSISSAUGA		
COMMERCIAL / INDUSTRIAL DRIVEWAY CURB RETURNS AT STREET CURB		
EFF. DATE: DEC 2005	SCALE:	N.T.S.
REV.: 1	APRIL 2017	STANDARD No.: 2240.03



ASPHALT LAP JOINT DETAIL

N.T.S.

2	ISSUED FOR ZONING	NOV. 13, 2026	R.B.T.M.
1	ISSUED FOR ZONING	APR. 10, 2026	R.B.T.M.
No.	REVISIONS	DATE	BY

REGISTERED PROFESSIONAL ENGINEER
R.B.T. MERWIN
100009772
NOV. 13, 2026
PROVINCE OF ONTARIO

Urbanetic® Consulting
A Division of Leighton-Zec Ltd.
2030 Bristol Circle, Suite 105
Oakville, ON. L6H 0H2
TEL 905.829.8818 • urbantech.com

2233 & 2235 HURONTARIO LTD.

Region of Peel working with you

MISSISSAUGA

DETAILS

REGION FILE No. C-XXXXXX			CITY FILE No. OZ 26-8 W7
SCALE:	N.T.S	PROJECT No.	24-326
DRAWN BY:	R.B.	CHECKED BY: R.M./R.B.T.M	PLAN No. C401
DATE:	MARCH, 2026	SHEET OF	C-XXXXXX

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PLOT DATE:November 13, 2026 11:33:14 AM

DRAWING NOT TO BE USED FOR CONSTRUCTION

JELLYFISH DESIGN NOTES

JELLYFISH TREATMENT CAPACITY IS A FUNCTION OF THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES. THE STANDARD MARKING AT MH TOP INDICATES THE CARTRIDGE SELECTION AND THE NUMBER OF CARTRIDGES INSTALLED IN THE DEVICE. (EXAMPLE: 3-27 = 3 CARTRIDGES, 27 GPM EACH)

CARTRIDGE HEIGHT	27"	18"	9"	PERFORMANCE
CARTRIDGE FLOW RATE	27 gpm (6.1 l/s)	18 gpm (4.1 l/s)	9 gpm (2.0 l/s)	
TREATMENT FLOW RATE	27 gpm (6.1 l/s)	18 gpm (4.1 l/s)	9 gpm (2.0 l/s)	
MAX. CARTRIDGES PER STANDARD CONFIGURATION	8	12	24	
MAX. CARTRIDGES PER CUSTOM CONFIGURATION	10	16	30	
MAX. TREATMENT FLOW	216 gpm (49.0 l/s)	288 gpm (65.3 l/s)	216 gpm (49.0 l/s)	

SITE SPECIFIC DATA REQUIREMENTS	
JELLYFISH MODEL	*
STRUCTURE ID	*
WATER QUALITY FLOW RATE (L/s)	*
PEAK FLOW RATE (L/s)	*
RETURN PERIOD OF PEAK FLOW (yrs)	*
# OF CARTRIDGES REQUIRED (#F / DD)	*
CARTRIDGE SIZE (inches)	*

PIPE DATA	I.E.	MAT'L	DIA	SLOPE %	HGL
INLET #1	*	*	*	*	*
INLET #2	*	*	*	*	*
OUTLET	*	*	*	*	*

* PER ENGINEER OF RECORD

DATE: ########
DESIGNED: BSP
DRAWN: BSP
CHECKED: BSP
APPROVED: DP
PROJECT #: ######
PROJECT NAME: ######
SHEET: 1 OF 2

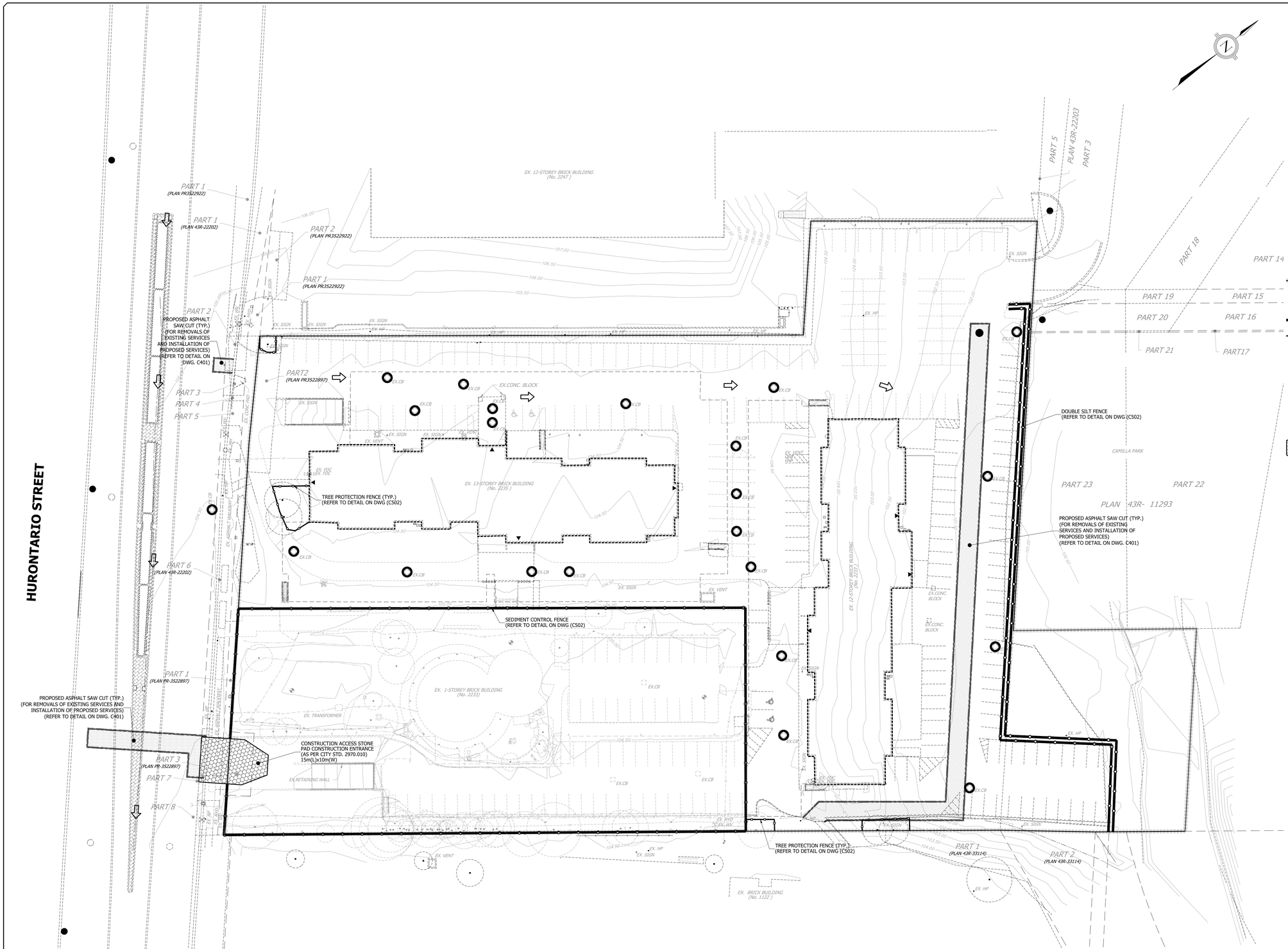
JELLYFISH FILTER - SPECIFICATIONS

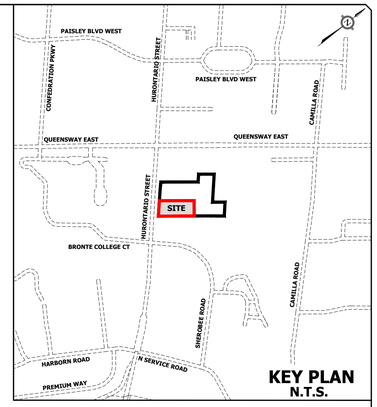
GENERAL

1. ALL DIMENSIONS INDICATED ARE IN MILLIMETERS (INCHES) UNLESS OTHERWISE SPECIFIED.
2. JELLYFISH STRUCTURE INLET AND OUTLET PIPE SIZE AND ORIENTATION SHOWN ARE FOR REFERENCE ONLY. SEE SITE PLANS.
3. UNLESS OTHERWISE NOTED, BYPASS INFRASTRUCTURE, SUCH AS ALL UPSTREAM DIVERSION STRUCTURES, CONNECTING STRUCTURES, OR PIPE CONNECTIONS BETWEEN THE BYPASS AND THE JELLYFISH SYSTEM SHALL BE PROVIDED AND ADDRESSED SEPARATELY.
4. DRAWING FOR INFORMATION PURPOSES ONLY. REFER TO ENGINEER'S CONSTRUCTION DRAWINGS FOR FINAL DESIGN.
5. NO PRODUCT SUBSTITUTIONS SHALL BE ACCEPTED UNLESS SUBMITTED 10 DAYS PRIOR TO PROJECTS BID DATE, OR AS DIRECTED BY THE ENGINEER OF RECORD.

JELLYFISH STRUCTURE & DESIGN NOTES

1. ACCESS TO THE JELLYFISH SHALL TO BE USED FOR CLEANOUT AND ACCESS BELOW CARTRIDGE DECK.
2. CARTRIDGE DECK DOORS OF THE JELLYFISH MANHOLE STRUCTURE TO EXTEND TO THE PERIMETER WALL OF THE STRUCTURE TO ALLOW FOR THE SAFE DESIGN AND INSTALLATION OF INTERMEDIATE SAFETY GRATING OR OTHER STRUCTURAL ELEMENTS.
3. ALL JELLYFISH STRUCTURE, TOP DOORS AND DOOR FRAMES, OR BOTH, SHALL BE GROUTED FOR WATERTIGHTNESS.
4. STRUCTURE SHALL MEET AASHTO HS-20, ASSUMING EARTH COVER OF 0' - 3', AND GROUNDWATER ELEVATION AT, OR BELOW, THE INLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. STRUCTURE SHALL ALSO MEET ANY LOCAL LOADING CRITERIA AND BE CAST WITH THE MANHOLE LOGO.
5. ALL STRUCTURAL SECTIONS AND PARTS TO MEET OR EXCEED ASTM C-478.
6. ALL PIPE SEALS TO BE FLEXIBLE WATERTIGHT GASKETS COMPLYING WITH ASTM REQUIREMENTS, AND ANY OTHER SITE OR LOCAL STANDARDS.
7. CONCRETE RISER SECTIONS FROM BOTTOM TO TOP WILL BE ADDED AS REQUIRED TO MEET GRADE. RISERS ARE TO BE SEALED WITH BU





LEGEND

- LIMIT OF PROPERTY
- EXISTING CONTOUR AND ELEVATION
- EXISTING OVERLAND FLOW DIRECTION
- PROPOSED SEDIMENT CONTROL FENCE (REFER TO DETAIL ON DWG. C-502)
- PROPOSED TREE PROTECTION FENCE (REFER TO DETAIL ON DWG. C-502)
- PROPOSED ASPHALT SAW CUT (TYP.)
- EXISTING STORM SEWER
- EXISTING SANITARY SEWER
- EXISTING CATCHBASIN SILT PROTECTION (REFER TO DETAIL ON DWG. C502)
- EXISTING HYDRANT & VALVE
- EXISTING VALVE & BOX
- PROPOSED CONSTRUCTION ACCESS STONE PAD (REFER TO DETAIL ON DWG. C502)
- EXISTING TREES

ELEVATION NOTE

ELEVATIONS SHOWN ON THIS PLAN ARE RELATED TO GEODETIC DATUM AND ARE DERIVED FROM THE CITY OF MISSISSAUGA (CGVD28 WITHOUT 1978 ADJUSTMENT)
BENCHMARKS:
NO. 075033035
ELEVATION=105.608M
NO. 075185042
ELEVATION=102.217M

BENCHMARK NOTE

CUT CROSS ON THE EDGE OF CONCRETE VENT LOCATED NEAR THE NORTHERLY EDGE OF THE PROPERTY OF 2247 HURONTARIO STREET.
ELEVATION = 105.24m
TOPOGRAPHIC SURVEY PREPARED BY J.D. BARNES LIMITED, JULY 29, 2024.

No.	REVISIONS	DATE	BY
2	ISSUED FOR ZONING	NOV. 13, 2026	R.B.T.M.
1	ISSUED FOR ZONING	APR. 10, 2026	R.B.T.M.

REGISTERED PROFESSIONAL ENGINEER
R.B.T. MERWIN
100009772
NOV. 13, 2026
PROVINCE OF ONTARIO

Urbantech® Consulting
A Division of Leighton-Zec Ltd.
2030 Bristol Circle, Suite 105
Oakville, ON. L6H 0H2
TEL 905.829.8818 • urbantech.com

2233 & 2235 HURONTARIO LTD.

Region of Peel working with you

MISSISSAUGA

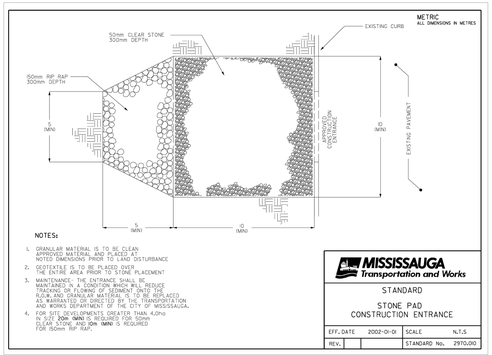
EROSION & SEDIMENT CONTROL PLAN

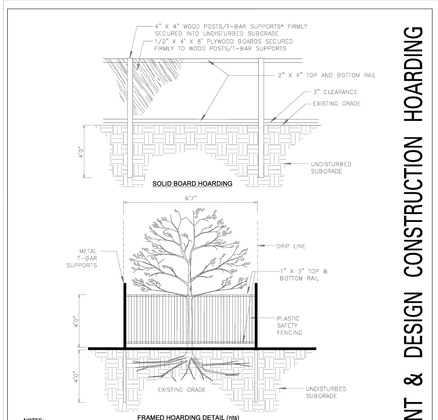
REGION FILE No. C-XXXXXX — CITY FILE No. OZ 26-8 W7

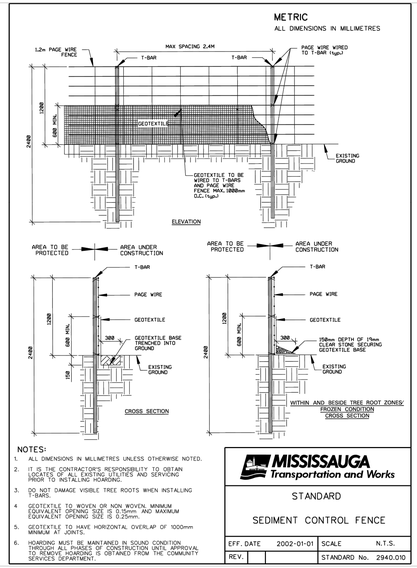
SCALE:	1:400			PROJECT No.	24-326
DRAWN BY:	R.B.	CHECKED BY:	R.M./R.B.T.M	PLAN No.	**C501**
DATE:	MARCH, 2026	SHEET	OF	C-XXXXXX	

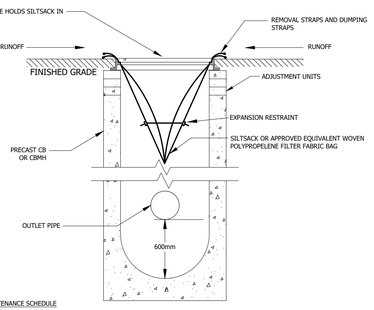
File: C:\USERS\RBABAR\DCVACCDOCS\URBANTECH\24-326 2233 HURONTARIO ST\PROJECT FILES\1000 - EROSION\501-ESC PLAN.DWG

PLOT DATE:November 13, 2026 11:33:20 AM









MAINTENANCE SCHEDULE

-INSPECT AFTER EVERY MAJOR RAIN EVENT.
-INSPECT EVERY 3 WEEKS MINIMUM.
-SILTSACK SHOULD NEVER BE OVER HALF FULL.
-FULL BAG CAN BE REMOVED, DUMPED, CLEANED AND REUSED (TO REMOVE INSERT 25mm REBAR INTO REMOVAL FLAP POCKETS) (TO DUMP INSERT 25mm REBAR INTO BOTH DUMPING STRAPS)

SILTSACK DETAIL

N.T.S.

No.	REVISIONS	DATE	BY
2	ISSUED FOR ZONING	NOV. 13, 2026	R.B.T.M.
1	ISSUED FOR ZONING	APR. 10, 2026	R.B.T.M.

REGISTERED PROFESSIONAL ENGINEER
R.B.T. MERWIN
100009772
NOV. 13, 2026
PROVINCE OF ONTARIO

URBANTECH
Urbantech® Consulting
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2030 Bristol Circle, Suite 105
Oakville, ON. L6H 0H2
TEL 905.829.8818 • urbantech.com

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Region of Peel
working with you

MISSISSAUGA

EROSION & SEDIMENT CONTROL DETAILS

REGION FILE No. C-XXXXXX			CITY FILE No. OZ 26-8 W7
SCALE: N.T.S		PROJECT No.	24-326
DRAWN BY: R.B.	CHECKED BY: R.M./R.B.T.M	PLAN No.	**C502**
DATE: MARCH, 2026	SHEET OF	C-XXXXXX	

File: C:\USERS\RBABAR\DC\ACCDOCS\URBANTECH\24-326 2233 HURONTARIO ST\PROJECT FILES\1000 - EROSION\502-ESC DETAILS.DWG

PLOT DATE:November 13, 2026 11:33:19 AM

APPENDIX B
SWM Calculations

```
================================================================================
=======================

       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


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4694-4478-4caf-a490-cb975af6c399\scen


DATE: 04-10-2026                          TIME: 01:20:43

USER:



COMMENTS: _____________________________________________________________


--------------------------------------------------------------------------------
------------------------
  ************************************************
  ** SIMULATION : 1 - 2 year - 24 hour chicago  **
  ************************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A= 610.000
| Ptotal= 50.23 mm |                          B=   4.600
--------------------                          C=   0.780
```

used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	0.47	6.00	1.47	12.00	1.38	18.00	0.67
0.08	0.47	6.08	1.52	12.08	1.36	18.08	0.67
0.17	0.48	6.17	1.58	12.17	1.34	18.17	0.66
0.25	0.48	6.25	1.64	12.25	1.32	18.25	0.66
0.33	0.49	6.33	1.71	12.33	1.30	18.33	0.65
0.42	0.49	6.42	1.79	12.42	1.28	18.42	0.65
0.50	0.49	6.50	1.88	12.50	1.26	18.50	0.65
0.58	0.50	6.58	1.98	12.58	1.24	18.58	0.64
0.67	0.50	6.67	2.09	12.67	1.22	18.67	0.64
0.75	0.51	6.75	2.21	12.75	1.21	18.75	0.63
0.83	0.51	6.83	2.36	12.83	1.19	18.83	0.63
0.92	0.52	6.92	2.52	12.92	1.17	18.92	0.63
1.00	0.52	7.00	2.72	13.00	1.16	19.00	0.62
1.08	0.53	7.08	2.95	13.08	1.14	19.08	0.62
1.17	0.53	7.17	3.23	13.17	1.13	19.17	0.61
1.25	0.54	7.25	3.59	13.25	1.11	19.25	0.61
1.33	0.54	7.33	4.04	13.33	1.10	19.33	0.61
1.42	0.55	7.42	4.65	13.42	1.09	19.42	0.60
1.50	0.55	7.50	5.50	13.50	1.07	19.50	0.60
1.58	0.56	7.58	6.80	13.58	1.06	19.58	0.60
1.67	0.57	7.67	9.03	13.67	1.05	19.67	0.59
1.75	0.57	7.75	13.85	13.75	1.04	19.75	0.59
1.83	0.58	7.83	32.04	13.83	1.02	19.83	0.59
1.92	0.59	7.92	104.51	13.92	1.01	19.92	0.58
2.00	0.59	8.00	41.36	14.00	1.00	20.00	0.58
2.08	0.60	8.08	22.75	14.08	0.99	20.08	0.58
2.17	0.61	8.17	15.69	14.17	0.98	20.17	0.57
2.25	0.61	8.25	12.03	14.25	0.97	20.25	0.57
2.33	0.62	8.33	9.80	14.33	0.96	20.33	0.57
2.42	0.63	8.42	8.29	14.42	0.95	20.42	0.57
2.50	0.63	8.50	7.21	14.50	0.94	20.50	0.56
2.58	0.64	8.58	6.40	14.58	0.93	20.58	0.56
2.67	0.65	8.67	5.76	14.67	0.92	20.67	0.56
2.75	0.66	8.75	5.25	14.75	0.91	20.75	0.55
2.83	0.67	8.83	4.83	14.83	0.90	20.83	0.55
2.92	0.68	8.92	4.47	14.92	0.90	20.92	0.55
3.00	0.69	9.00	4.17	15.00	0.89	21.00	0.55
3.08	0.69	9.08	3.92	15.08	0.88	21.08	0.54
3.17	0.70	9.17	3.69	15.17	0.87	21.17	0.54
3.25	0.71	9.25	3.49	15.25	0.86	21.25	0.54
3.33	0.72	9.33	3.32	15.33	0.86	21.33	0.53
3.42	0.74	9.42	3.16	15.42	0.85	21.42	0.53
3.50	0.75	9.50	3.02	15.50	0.84	21.50	0.53
3.58	0.76	9.58	2.89	15.58	0.83	21.58	0.53
3.67	0.77	9.67	2.77	15.67	0.83	21.67	0.52
3.75	0.78	9.75	2.67	15.75	0.82	21.75	0.52
3.83	0.79	9.83	2.57	15.83	0.81	21.83	0.52
3.92	0.81	9.92	2.48	15.92	0.81	21.92	0.52
4.00	0.82	10.00	2.40	16.00	0.80	22.00	0.51
4.08	0.84	10.08	2.32	16.08	0.79	22.08	0.51
4.17	0.85	10.17	2.25	16.17	0.79	22.17	0.51
4.25	0.87	10.25	2.18	16.25	0.78	22.25	0.51
4.33	0.88	10.33	2.12	16.33	0.77	22.33	0.51
4.42	0.90	10.42	2.06	16.42	0.77	22.42	0.50
4.50	0.92	10.50	2.01	16.50	0.76	22.50	0.50
4.58	0.94	10.58	1.95	16.58	0.76	22.58	0.50
4.67	0.95	10.67	1.91	16.67	0.75	22.67	0.50
4.75	0.97	10.75	1.86	16.75	0.74	22.75	0.49
4.83	1.00	10.83	1.82	16.83	0.74	22.83	0.49
4.92	1.02	10.92	1.77	16.92	0.73	22.92	0.49
5.00	1.04	11.00	1.74	17.00	0.73	23.00	0.49
5.08	1.07	11.08	1.70	17.08	0.72	23.08	0.49
5.17	1.09	11.17	1.66	17.17	0.72	23.17	0.48
5.25	1.12	11.25	1.63	17.25	0.71	23.25	0.48
5.33	1.15	11.33	1.60	17.33	0.71	23.33	0.48
5.42	1.18	11.42	1.57	17.42	0.70	23.42	0.48
5.50	1.21	11.50	1.54	17.50	0.70	23.50	0.48
5.58	1.25	11.58	1.51	17.58	0.69	23.58	0.47
5.67	1.29	11.67	1.48	17.67	0.69	23.67	0.47
5.75	1.33	11.75	1.45	17.75	0.68	23.75	0.47
5.83	1.37	11.83	1.43	17.83	0.68	23.83	0.47
5.92	1.41	11.92	1.40	17.92	0.67	23.92	0.47

```
--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.57
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  43.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.25         0.32
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      61.64        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     104.51        25.09
               over (min)        5.00        15.00
     Storage Coeff.  (min)=       1.88 (ii)   14.15 (ii)
     Unit Hyd. Tpeak (min)=       5.00        15.00
     Unit Hyd. peak  (cms)=       0.32         0.08
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.07         0.01          0.073 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.17          8.00
     RUNOFF VOLUME    (mm)=      49.23        22.71         34.10
     TOTAL RAINFALL   (mm)=      50.23        50.23         50.23
     RUNOFF COEFFICIENT   =       0.98         0.45          0.68

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   0.57
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                          IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.56         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      61.64        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     104.51        31.40
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.88 (ii)    2.98 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.28
                                                          *TOTALS*
     PEAK FLOW       (cms)=       0.16         0.00          0.156 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00          8.00
     RUNOFF VOLUME    (mm)=      49.23        22.71         48.96
     TOTAL RAINFALL   (mm)=      50.23        50.23         50.23
     RUNOFF COEFFICIENT   =       0.98         0.45          0.97

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
```

| RESERVOIR(0003)| OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT= 5.0 min | OUTFLOW   STORAGE | OUTFLOW   STORAGE
--------------------   (cms)   (ha.m.) | (cms)   (ha.m.)
                          0.0000   0.0000 | 0.0590   0.0096
                          0.0530   0.0012 | 0.0630   0.0108
                          0.0530   0.0024 | 0.0650   0.0120
                          0.0530   0.0036 | 0.0670   0.0132
                          0.0530   0.0048 | 0.0690   0.0144
                          0.0530   0.0060 | 0.0700   0.0156
                          0.0530   0.0072 | 0.0720   0.0168
                          0.0530   0.0085 | 0.0730   0.0180

                               AREA   QPEAK   TPEAK   R.V.
                               (ha)   (cms)   (hrs)   (mm)
   INFLOW : ID= 2 (0002)   0.570   0.156   8.00   48.96
   OUTFLOW: ID= 1 (0003)   0.570   0.053   8.00   48.96

                    PEAK   FLOW   REDUCTION [Qout/Qin](%)= 33.91
                    TIME SHIFT OF PEAK FLOW   (min)= 0.00
                    MAXIMUM STORAGE   USED   (ha.m.)= 0.0046

==
========================

       V   V   I   SSSSS U   U   A   L   (v 6.2.2019)
       V   V   I   SS   U   U   A A   L
        V V   I   SS   U   U AAAAA L
        V V   I   SS   U   U A   A L
         VV   I   SSSSS UUUUU A   A LLLLL

        OOO   TTTTT TTTTT H   H Y   Y M   M   OOO   TM
       O   O   T   T   H   H   Y Y   MM MM O   O
       O   O   T   T   H   H   Y   M   M O   O
        OOO   T   T   H   H   Y   M   M   OOO
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                    ***** D E T A I L E D   O U T P U T *****

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546f-70d0-4911-8a2a-3690b8f74bfc\scen

DATE: 04-10-2026   TIME: 01:20:44

USER:

COMMENTS: _____

  ****
  ** SIMULATION : 2- 5 year chicago 24 hour mis **
  ****

| CHICAGO STORM | IDF curve parameters: A= 820.000
| Ptotal= 67.52 mm | B=   4.600
--------------------   C=   0.780
                         used in: INTENSITY = A / (t + B)^C

                         Duration of storm = 24.00 hrs
                         Storm time step   = 5.00 min
                         Time to peak ratio = 0.33

| TIME | RAIN | TIME | RAIN | TIME | RAIN | TIME | RAIN |
hrs	mm/hr	hrs	mm/hr	hrs	mm/hr	hrs	mm/hr
0.00	0.63	6.00	1.97	12.00	1.86	18.00	0.90
0.08	0.64	6.08	2.04	12.08	1.83	18.08	0.90
0.17	0.64	6.17	2.12	12.17	1.80	18.17	0.89
0.25	0.65	6.25	2.21	12.25	1.77	18.25	0.88
0.33	0.65	6.33	2.31	12.33	1.74	18.33	0.88
0.42	0.66	6.42	2.41	12.42	1.72	18.42	0.87
0.50	0.66	6.50	2.53	12.50	1.69	18.50	0.87
0.58	0.67	6.58	2.66	12.58	1.67	18.58	0.86
0.67	0.68	6.67	2.81	12.67	1.64	18.67	0.86
0.75	0.68	6.75	2.98	12.75	1.62	18.75	0.85
0.83	0.69	6.83	3.17	12.83	1.60	18.83	0.85
0.92	0.70	6.92	3.39	12.92	1.58	18.92	0.84
1.00	0.70	7.00	3.65	13.00	1.56	19.00	0.84
1.08	0.71	7.08	3.97	13.08	1.54	19.08	0.83
1.17	0.72	7.17	4.35	13.17	1.52	19.17	0.83
1.25	0.72	7.25	4.82	13.25	1.50	19.25	0.82
1.33	0.73	7.33	5.43	13.33	1.48	19.33	0.82
1.42	0.74	7.42	6.24	13.42	1.46	19.42	0.81
1.50	0.75	7.50	7.39	13.50	1.44	19.50	0.81
1.58	0.75	7.58	9.14	13.58	1.43	19.58	0.80
1.67	0.76	7.67	12.14	13.67	1.41	19.67	0.80
1.75	0.77	7.75	18.61	13.75	1.39	19.75	0.79
1.83	0.78	7.83	43.07	13.83	1.38	19.83	0.79
1.92	0.79	7.92	140.49	13.92	1.36	19.92	0.79
2.00	0.80	8.00	55.60	14.00	1.35	20.00	0.78
2.08	0.80	8.08	30.58	14.08	1.33	20.08	0.78
2.17	0.81	8.17	21.10	14.17	1.32	20.17	0.77
2.25	0.82	8.25	16.17	14.25	1.30	20.25	0.77
2.33	0.83	8.33	13.17	14.33	1.29	20.33	0.76
2.42	0.84	8.42	11.15	14.42	1.28	20.42	0.76
2.50	0.85	8.50	9.70	14.50	1.26	20.50	0.76
2.58	0.86	8.58	8.60	14.58	1.25	20.58	0.75
2.67	0.87	8.67	7.74	14.67	1.24	20.67	0.75
2.75	0.89	8.75	7.06	14.75	1.23	20.75	0.74
2.83	0.90	8.83	6.49	14.83	1.22	20.83	0.74
2.92	0.91	8.92	6.01	14.92	1.20	20.92	0.74
3.00	0.92	9.00	5.61	15.00	1.19	21.00	0.73
3.08	0.93	9.08	5.26	15.08	1.18	21.08	0.73
3.17	0.95	9.17	4.96	15.17	1.17	21.17	0.73
3.25	0.96	9.25	4.69	15.25	1.16	21.25	0.72
3.33	0.97	9.33	4.46	15.33	1.15	21.33	0.72
3.42	0.99	9.42	4.25	15.42	1.14	21.42	0.72
3.50	1.00	9.50	4.06	15.50	1.13	21.50	0.71
3.58	1.02	9.58	3.89	15.58	1.12	21.58	0.71
3.67	1.03	9.67	3.73	15.67	1.11	21.67	0.71
3.75	1.05	9.75	3.59	15.75	1.10	21.75	0.70
3.83	1.07	9.83	3.46	15.83	1.09	21.83	0.70
3.92	1.09	9.92	3.33	15.92	1.08	21.92	0.70
4.00	1.10	10.00	3.22	16.00	1.07	22.00	0.69
4.08	1.12	10.08	3.12	16.08	1.07	22.08	0.69
4.17	1.14	10.17	3.02	16.17	1.06	22.17	0.69
4.25	1.16	10.25	2.93	16.25	1.05	22.25	0.68
4.33	1.19	10.33	2.85	16.33	1.04	22.33	0.68
4.42	1.21	10.42	2.77	16.42	1.03	22.42	0.68
4.50	1.23	10.50	2.70	16.50	1.02	22.50	0.67
4.58	1.26	10.58	2.63	16.58	1.02	22.58	0.67
4.67	1.28	10.67	2.56	16.67	1.01	22.67	0.67
4.75	1.31	10.75	2.50	16.75	1.00	22.75	0.66
4.83	1.34	10.83	2.44	16.83	0.99	22.83	0.66
4.92	1.37	10.92	2.39	16.92	0.99	22.92	0.66
5.00	1.40	11.00	2.33	17.00	0.98	23.00	0.66
5.08	1.43	11.08	2.28	17.08	0.97	23.08	0.65
5.17	1.47	11.17	2.23	17.17	0.96	23.17	0.65
5.25	1.50	11.25	2.19	17.25	0.96	23.25	0.65
5.33	1.54	11.33	2.15	17.33	0.95	23.33	0.64
5.42	1.59	11.42	2.10	17.42	0.94	23.42	0.64
5.50	1.63	11.50	2.06	17.50	0.94	23.50	0.64
5.58	1.68	11.58	2.03	17.58	0.93	23.58	0.64
5.67	1.73	11.67	1.99	17.67	0.93	23.67	0.63
5.75	1.78	11.75	1.95	17.75	0.92	23.75	0.63
5.83	1.84	11.83	1.92	17.83	0.91	23.83	0.63
5.92	1.90	11.92	1.89	17.92	0.91	23.92	0.63

| CALIB |
| STANDHYD (0001)| Area   (ha)=   0.57
|ID= 1 DT= 5.0 min | Total Imp(%)= 43.00   Dir. Conn.(%)= 43.00

                              IMPERVIOUS   PERVIOUS (i)
     Surface Area   (ha)=   0.25   0.32
     Dep. Storage   (mm)=   1.00   5.00
     Average Slope   (%)=   1.00   2.00
     Length   (m)=   61.64   40.00
     Mannings n   =   0.013   0.250

     Max.Eff.Inten.(mm/hr)=   140.49   52.89
               over (min)   5.00   15.00
     Storage Coeff. (min)=   1.67 (ii)   10.77 (ii)
     Unit Hyd. Tpeak (min)=   5.00   15.00
     Unit Hyd. peak (cms)=   0.32   0.09

                                                    TOTALS
     PEAK FLOW   (cms)=   0.09   0.03   0.103 (iii)
     TIME TO PEAK   (hrs)=   8.00   8.17   8.00
     RUNOFF VOLUME   (mm)=   66.52   36.41   49.35
     TOTAL RAINFALL   (mm)=   67.52   67.52   67.52
     RUNOFF COEFFICIENT   =   0.99   0.54   0.73

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN* = 85.0   Ia = Dep. Storage (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

| CALIB |
| STANDHYD (0002)| Area   (ha)=   0.57
|ID= 1 DT= 5.0 min | Total Imp(%)= 99.00   Dir. Conn.(%)= 99.00

                              IMPERVIOUS   PERVIOUS (i)
     Surface Area   (ha)=   0.56   0.01
     Dep. Storage   (mm)=   1.00   5.00
     Average Slope   (%)=   1.00   2.00
     Length   (m)=   61.64   40.00
     Mannings n   =   0.013   0.250

```
     Max.Eff.Inten.(mm/hr)=     140.49        52.89
                 over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.67 (ii)    2.65 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.32         0.29
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.21         0.00          0.213 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=      66.52        36.41          66.21
     TOTAL RAINFALL   (mm)=      67.52        67.52          67.52
     RUNOFF COEFFICIENT   =       0.99         0.54           0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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-------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
-------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |    0.0590      0.0096
                          0.0530     0.0012   |    0.0630      0.0108
                          0.0530     0.0024   |    0.0650      0.0120
                          0.0530     0.0036   |    0.0670      0.0132
                          0.0530     0.0048   |    0.0690      0.0144
                          0.0530     0.0060   |    0.0700      0.0156
                          0.0530     0.0072   |    0.0720      0.0168
                          0.0530     0.0085   |    0.0730      0.0180

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     0.570     0.213      8.00      66.21
   OUTFLOW: ID= 1 (  0003)     0.570     0.053      8.00      66.21

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 24.82
                  TIME SHIFT OF PEAK FLOW         (min)=  0.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0074

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      V    V   I    SSSSS  U   U    A    L             (v 6.2.2019)
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```
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
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cf71-6b10-412d-a75b-d19ce0b1ac03\scen
  Summary filename:
C:\Users\zafroze\AppData\Local\Civica\VH5\9929ac5f-ba15-45f1-bf52-2a03313dafac\9162
cf71-6b10-412d-a75b-d19ce0b1ac03\scen


DATE: 04-10-2026                          TIME: 01:20:44

USER:


COMMENTS: _____________________________________________________


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  ***********************************************
  ** SIMULATION : 3 - 10-year - 24-hour chicago **
  ***********************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1010.000
| Ptotal= 83.16 mm |                          B=   4.600
--------------------                          C=   0.780
                          used in:   INTENSITY =  A / (t + B)^C

                          Duration of storm  = 24.00 hrs
                          Storm time step    =  5.00 min
```

```
          Time to peak ratio =  0.33

   TIME     RAIN |  TIME     RAIN |'  TIME     RAIN |  TIME     RAIN
    hrs    mm/hr |   hrs    mm/hr |'   hrs    mm/hr |   hrs    mm/hr
   0.00     0.78 |  6.00     2.43 | 12.00     2.29 | 18.00     1.11
   0.08     0.78 |  6.08     2.52 | 12.08     2.25 | 18.08     1.10
   0.17     0.79 |  6.17     2.61 | 12.17     2.21 | 18.17     1.10
   0.25     0.80 |  6.25     2.72 | 12.25     2.18 | 18.25     1.09
   0.33     0.80 |  6.33     2.84 | 12.33     2.15 | 18.33     1.08
   0.42     0.81 |  6.42     2.97 | 12.42     2.11 | 18.42     1.07
   0.50     0.82 |  6.50     3.11 | 12.50     2.08 | 18.50     1.07
   0.58     0.83 |  6.58     3.28 | 12.58     2.05 | 18.58     1.06
   0.67     0.83 |  6.67     3.46 | 12.67     2.02 | 18.67     1.06
   0.75     0.84 |  6.75     3.66 | 12.75     2.00 | 18.75     1.05
   0.83     0.85 |  6.83     3.90 | 12.83     1.97 | 18.83     1.04
   0.92     0.86 |  6.92     4.18 | 12.92     1.94 | 18.92     1.04
   1.00     0.87 |  7.00     4.50 | 13.00     1.92 | 19.00     1.03
   1.08     0.87 |  7.08     4.89 | 13.08     1.89 | 19.08     1.02
   1.17     0.88 |  7.17     5.35 | 13.17     1.87 | 19.17     1.02
   1.25     0.89 |  7.25     5.94 | 13.25     1.84 | 19.25     1.01
   1.33     0.90 |  7.33     6.69 | 13.33     1.82 | 19.33     1.01
   1.42     0.91 |  7.42     7.69 | 13.42     1.80 | 19.42     1.00
   1.50     0.92 |  7.50     9.10 | 13.50     1.78 | 19.50     0.99
   1.58     0.93 |  7.58    11.25 | 13.58     1.76 | 19.58     0.99
   1.67     0.94 |  7.67    14.96 | 13.67     1.74 | 19.67     0.98
   1.75     0.95 |  7.75    22.92 | 13.75     1.72 | 19.75     0.98
   1.83     0.96 |  7.83    53.04 | 13.83     1.70 | 19.83     0.97
   1.92     0.97 |  7.92   173.04 | 13.92     1.68 | 19.92     0.97
   2.00     0.98 |  8.00    68.49 | 14.00     1.66 | 20.00     0.96
   2.08     0.99 |  8.08    37.67 | 14.08     1.64 | 20.08     0.96
   2.17     1.00 |  8.17    25.98 | 14.17     1.62 | 20.17     0.95
   2.25     1.01 |  8.25    19.92 | 14.25     1.61 | 20.25     0.95
   2.33     1.03 |  8.33    16.22 | 14.33     1.59 | 20.33     0.94
   2.42     1.04 |  8.42    13.73 | 14.42     1.57 | 20.42     0.94
   2.50     1.05 |  8.50    11.94 | 14.50     1.56 | 20.50     0.93
   2.58     1.06 |  8.58    10.59 | 14.58     1.54 | 20.58     0.93
   2.67     1.08 |  8.67     9.54 | 14.67     1.53 | 20.67     0.92
   2.75     1.09 |  8.75     8.69 | 14.75     1.51 | 20.75     0.92
   2.83     1.11 |  8.83     7.99 | 14.83     1.50 | 20.83     0.91
   2.92     1.12 |  8.92     7.41 | 14.92     1.48 | 20.92     0.91
   3.00     1.13 |  9.00     6.91 | 15.00     1.47 | 21.00     0.90
   3.08     1.15 |  9.08     6.48 | 15.08     1.46 | 21.08     0.90
   3.17     1.17 |  9.17     6.11 | 15.17     1.44 | 21.17     0.89
   3.25     1.18 |  9.25     5.78 | 15.25     1.43 | 21.25     0.89
   3.33     1.20 |  9.33     5.49 | 15.33     1.42 | 21.33     0.89
   3.42     1.22 |  9.42     5.23 | 15.42     1.40 | 21.42     0.88
   3.50     1.24 |  9.50     5.00 | 15.50     1.39 | 21.50     0.88
   3.58     1.25 |  9.58     4.79 | 15.58     1.38 | 21.58     0.87
   3.67     1.27 |  9.67     4.59 | 15.67     1.37 | 21.67     0.87
   3.75     1.29 |  9.75     4.42 | 15.75     1.36 | 21.75     0.86
   3.83     1.32 |  9.83     4.26 | 15.83     1.34 | 21.83     0.86
   3.92     1.34 |  9.92     4.11 | 15.92     1.33 | 21.92     0.86
   4.00     1.36 | 10.00     3.97 | 16.00     1.32 | 22.00     0.85
   4.08     1.38 | 10.08     3.84 | 16.08     1.31 | 22.08     0.85
   4.17     1.41 | 10.17     3.72 | 16.17     1.30 | 22.17     0.84
   4.25     1.43 | 10.25     3.61 | 16.25     1.29 | 22.25     0.84
   4.33     1.46 | 10.33     3.51 | 16.33     1.28 | 22.33     0.84
   4.42     1.49 | 10.42     3.41 | 16.42     1.27 | 22.42     0.83
   4.50     1.52 | 10.50     3.32 | 16.50     1.26 | 22.50     0.83
   4.58     1.55 | 10.58     3.24 | 16.58     1.25 | 22.58     0.83
   4.67     1.58 | 10.67     3.16 | 16.67     1.24 | 22.67     0.82
   4.75     1.61 | 10.75     3.08 | 16.75     1.23 | 22.75     0.82
   4.83     1.65 | 10.83     3.01 | 16.83     1.22 | 22.83     0.81
   4.92     1.69 | 10.92     2.94 | 16.92     1.21 | 22.92     0.81
   5.00     1.72 | 11.00     2.87 | 17.00     1.21 | 23.00     0.81
   5.08     1.76 | 11.08     2.81 | 17.08     1.20 | 23.08     0.80
   5.17     1.81 | 11.17     2.75 | 17.17     1.19 | 23.17     0.80
   5.25     1.85 | 11.25     2.70 | 17.25     1.18 | 23.25     0.80
   5.33     1.90 | 11.33     2.64 | 17.33     1.17 | 23.33     0.79
   5.42     1.95 | 11.42     2.59 | 17.42     1.16 | 23.42     0.79
   5.50     2.01 | 11.50     2.54 | 17.50     1.16 | 23.50     0.79
   5.58     2.07 | 11.58     2.50 | 17.58     1.15 | 23.58     0.78
   5.67     2.13 | 11.67     2.45 | 17.67     1.14 | 23.67     0.78
   5.75     2.19 | 11.75     2.41 | 17.75     1.13 | 23.75     0.78
   5.83     2.27 | 11.83     2.37 | 17.83     1.12 | 23.83     0.77
   5.92     2.34 | 11.92     2.33 | 17.92     1.12 | 23.92     0.77


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-------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.57
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  43.00
-------------------

                                IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=        0.25          0.32
     Dep. Storage     (mm)=        1.00          5.00
     Average Slope     (%)=        1.00          2.00
     Length            (m)=       61.64         40.00
     Mannings n           =       0.013         0.250

     Max.Eff.Inten.(mm/hr)=     173.04        74.01
                 over (min)        5.00         10.00
     Storage Coeff.  (min)=       1.53 (ii)     9.50 (ii)
     Unit Hyd. Tpeak (min)=       5.00         10.00
     Unit Hyd. peak  (cms)=       0.33          0.12
                                                      *TOTALS*
     PEAK FLOW       (cms)=       0.11          0.04          0.140 (iii)
     TIME TO PEAK    (hrs)=       8.00          8.08           8.00
     RUNOFF VOLUME    (mm)=      82.16         49.68          63.64
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     TOTAL RAINFALL   (mm)=      83.16        83.16          83.16
     RUNOFF COEFFICIENT   =       0.99         0.60           0.77

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB              |
| STANDHYD (  0002)|   Area    (ha)=   0.57
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                             IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.56         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      61.64        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     173.04        74.01
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.53 (ii)    2.44 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.30
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.26         0.00          0.265 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=      82.16        49.68          81.84
     TOTAL RAINFALL   (mm)=      83.16        83.16          83.16
     RUNOFF COEFFICIENT   =       0.99         0.60           0.98

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
           CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000      0.0000   |    0.0590      0.0096
                          0.0530      0.0012   |    0.0630      0.0108
                          0.0530      0.0024   |    0.0650      0.0120
                          0.0530      0.0036   |    0.0670      0.0132
                          0.0530      0.0048   |    0.0690      0.0144
                          0.0530      0.0060   |    0.0700      0.0156
                          0.0530      0.0072   |    0.0720      0.0168
                          0.0530      0.0085   |    0.0730      0.0180

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     0.570     0.265      8.00      81.84
   OUTFLOW: ID= 1 (  0003)     0.570     0.060      8.17      81.83

                  PEAK   FLOW   REDUCTION [Qout/Qin](%)= 22.48
                  TIME SHIFT OF PEAK FLOW         (min)= 10.00
                  MAXIMUM  STORAGE   USED       (ha.m.)=  0.0098

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 FINISH
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      V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
      V    V   I    SS     U   U   A A   L
       V  V    I     SS    U   U  AAAAA  L
       V  V    I      SS   U   U  A   A  L
        VV     I    SSSSS  UUUUU  A   A  LLLLL

       OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
      O   O    T      T    H   H   Y Y   MM MM  O   O
      O   O    T      T    H   H    Y    M   M  O   O
       OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\zafroze\AppData\Local\Civica\VH5\9929ac5f-ba15-45f1-bf52-2a03313dafac\1c97
8678-47cd-4ead-8f7d-200f5d2144ec\scen

  Summary filename:
C:\Users\zafroze\AppData\Local\Civica\VH5\9929ac5f-ba15-45f1-bf52-2a03313dafac\1c97
8678-47cd-4ead-8f7d-200f5d2144ec\scen


DATE: 04-10-2026                          TIME: 01:20:44

USER:



COMMENTS: _____


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  ************************************************
  ** SIMULATION : 4 - 25 year chicago 24 hour m **
  ************************************************

--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1160.000
| Ptotal= 95.51 mm |                          B=   4.600
--------------------                          C=   0.780
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  = 24.00 hrs
                       Storm time step    =  5.00 min
                       Time to peak ratio =  0.33

                TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
                 hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
                0.00    0.89 |  6.00    2.79 | 12.00    2.63 | 18.00    1.27
                0.08    0.90 |  6.08    2.89 | 12.08    2.58 | 18.08    1.27
                0.17    0.91 |  6.17    3.00 | 12.17    2.54 | 18.17    1.26
                0.25    0.92 |  6.25    3.13 | 12.25    2.50 | 18.25    1.25
                0.33    0.92 |  6.33    3.26 | 12.33    2.47 | 18.33    1.24
                0.42    0.93 |  6.42    3.41 | 12.42    2.43 | 18.42    1.23
                0.50    0.94 |  6.50    3.58 | 12.50    2.39 | 18.50    1.23
                0.58    0.95 |  6.58    3.76 | 12.58    2.36 | 18.58    1.22
                0.67    0.96 |  6.67    3.97 | 12.67    2.32 | 18.67    1.21
                0.75    0.97 |  6.75    4.21 | 12.75    2.29 | 18.75    1.20
                0.83    0.98 |  6.83    4.48 | 12.83    2.26 | 18.83    1.20
                0.92    0.98 |  6.92    4.80 | 12.92    2.23 | 18.92    1.19
                1.00    0.99 |  7.00    5.17 | 13.00    2.20 | 19.00    1.18
                1.08    1.00 |  7.08    5.61 | 13.08    2.17 | 19.08    1.18
                1.17    1.01 |  7.17    6.15 | 13.17    2.14 | 19.17    1.17
                1.25    1.02 |  7.25    6.82 | 13.25    2.12 | 19.25    1.16
                1.33    1.03 |  7.33    7.68 | 13.33    2.09 | 19.33    1.16
                1.42    1.04 |  7.42    8.83 | 13.42    2.07 | 19.42    1.15
                1.50    1.05 |  7.50   10.46 | 13.50    2.04 | 19.50    1.14
                1.58    1.07 |  7.58   12.93 | 13.58    2.02 | 19.58    1.14
                1.67    1.08 |  7.67   17.18 | 13.67    1.99 | 19.67    1.13
                1.75    1.09 |  7.75   26.33 | 13.75    1.97 | 19.75    1.12
                1.83    1.10 |  7.83   60.92 | 13.83    1.95 | 19.83    1.12
                1.92    1.11 |  7.92  198.74 | 13.92    1.93 | 19.92    1.11
                2.00    1.12 |  8.00   78.66 | 14.00    1.91 | 20.00    1.10
                2.08    1.14 |  8.08   43.26 | 14.08    1.89 | 20.08    1.10
                2.17    1.15 |  8.17   29.84 | 14.17    1.87 | 20.17    1.09
                2.25    1.16 |  8.25   22.88 | 14.25    1.85 | 20.25    1.09
                2.33    1.18 |  8.33   18.63 | 14.33    1.83 | 20.33    1.08
                2.42    1.19 |  8.42   15.77 | 14.42    1.81 | 20.42    1.08
                2.50    1.21 |  8.50   13.72 | 14.50    1.79 | 20.50    1.07
                2.58    1.22 |  8.58   12.17 | 14.58    1.77 | 20.58    1.06
                2.67    1.24 |  8.67   10.96 | 14.67    1.75 | 20.67    1.06
                2.75    1.25 |  8.75    9.98 | 14.75    1.74 | 20.75    1.05
                2.83    1.27 |  8.83    9.18 | 14.83    1.72 | 20.83    1.05
                2.92    1.29 |  8.92    8.51 | 14.92    1.70 | 20.92    1.04
                3.00    1.30 |  9.00    7.94 | 15.00    1.69 | 21.00    1.04
                3.08    1.32 |  9.08    7.45 | 15.08    1.67 | 21.08    1.03
                3.17    1.34 |  9.17    7.02 | 15.17    1.66 | 21.17    1.03
                3.25    1.36 |  9.25    6.64 | 15.25    1.64 | 21.25    1.02
                3.33    1.38 |  9.33    6.31 | 15.33    1.63 | 21.33    1.02
                3.42    1.40 |  9.42    6.01 | 15.42    1.61 | 21.42    1.01
                3.50    1.42 |  9.50    5.74 | 15.50    1.60 | 21.50    1.01
                3.58    1.44 |  9.58    5.50 | 15.58    1.58 | 21.58    1.00
                3.67    1.46 |  9.67    5.27 | 15.67    1.57 | 21.67    1.00
                3.75    1.49 |  9.75    5.07 | 15.75    1.56 | 21.75    0.99
                3.83    1.51 |  9.83    4.89 | 15.83    1.54 | 21.83    0.99
                3.92    1.54 |  9.92    4.72 | 15.92    1.53 | 21.92    0.98
                4.00    1.56 | 10.00    4.56 | 16.00    1.52 | 22.00    0.98
                4.08    1.59 | 10.08    4.41 | 16.08    1.51 | 22.08    0.97
                4.17    1.62 | 10.17    4.28 | 16.17    1.49 | 22.17    0.97
                4.25    1.65 | 10.25    4.15 | 16.25    1.48 | 22.25    0.97
                4.33    1.68 | 10.33    4.03 | 16.33    1.47 | 22.33    0.96
                4.42    1.71 | 10.42    3.92 | 16.42    1.46 | 22.42    0.96
                4.50    1.74 | 10.50    3.82 | 16.50    1.45 | 22.50    0.95
                4.58    1.78 | 10.58    3.72 | 16.58    1.44 | 22.58    0.95
                4.67    1.81 | 10.67    3.62 | 16.67    1.43 | 22.67    0.94
                4.75    1.85 | 10.75    3.54 | 16.75    1.42 | 22.75    0.94
                4.83    1.89 | 10.83    3.45 | 16.83    1.41 | 22.83    0.94
                4.92    1.94 | 10.92    3.38 | 16.92    1.40 | 22.92    0.93
                5.00    1.98 | 11.00    3.30 | 17.00    1.38 | 23.00    0.93
                5.08    2.03 | 11.08    3.23 | 17.08    1.37 | 23.08    0.92
                5.17    2.08 | 11.17    3.16 | 17.17    1.37 | 23.17    0.92
                5.25    2.13 | 11.25    3.10 | 17.25    1.36 | 23.25    0.92
                5.33    2.18 | 11.33    3.04 | 17.33    1.35 | 23.33    0.91
                5.42    2.24 | 11.42    2.98 | 17.42    1.34 | 23.42    0.91
                5.50    2.31 | 11.50    2.92 | 17.50    1.33 | 23.50    0.90
                5.58    2.37 | 11.58    2.87 | 17.58    1.32 | 23.58    0.90
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               5.67    2.44 | 11.67    2.81 | 17.67    1.31 | 23.67    0.90
               5.75    2.52 | 11.75    2.76 | 17.75    1.30 | 23.75    0.89
               5.83    2.60 | 11.83    2.72 | 17.83    1.29 | 23.83    0.89
               5.92    2.69 | 11.92    2.67 | 17.92    1.28 | 23.92    0.89


--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0001)|   Area    (ha)=   0.57
|ID= 1 DT= 5.0 min |   Total Imp(%)=  43.00   Dir. Conn.(%)=  43.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.25         0.32
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      61.64        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     198.74        91.41
               over (min)        5.00        10.00
     Storage Coeff.  (min)=       1.45 (ii)    8.77 (ii)
     Unit Hyd. Tpeak (min)=       5.00        10.00
     Unit Hyd. peak  (cms)=       0.33         0.12
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.13         0.06          0.166 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.08           8.00
     RUNOFF VOLUME    (mm)=      94.51        60.54          75.14
     TOTAL RAINFALL   (mm)=      95.51        95.51          95.51
     RUNOFF COEFFICIENT   =       0.99         0.63           0.79

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

--------------------------------------------------------------------------------
--------------------
| CALIB            |
| STANDHYD (  0002)|   Area    (ha)=   0.57
|ID= 1 DT= 5.0 min |   Total Imp(%)=  99.00   Dir. Conn.(%)=  99.00
--------------------
                           IMPERVIOUS    PERVIOUS (i)
     Surface Area     (ha)=       0.56         0.01
     Dep. Storage     (mm)=       1.00         5.00
     Average Slope     (%)=       1.00         2.00
     Length            (m)=      61.64        40.00
     Mannings n           =      0.013        0.250

     Max.Eff.Inten.(mm/hr)=     198.74        91.41
               over (min)        5.00         5.00
     Storage Coeff.  (min)=       1.45 (ii)    2.31 (ii)
     Unit Hyd. Tpeak (min)=       5.00         5.00
     Unit Hyd. peak  (cms)=       0.33         0.30
                                                    *TOTALS*
     PEAK FLOW       (cms)=       0.30         0.00          0.306 (iii)
     TIME TO PEAK    (hrs)=       8.00         8.00           8.00
     RUNOFF VOLUME    (mm)=      94.51        60.54          94.17
     TOTAL RAINFALL   (mm)=      95.51        95.51          95.51
     RUNOFF COEFFICIENT   =       0.99         0.63           0.99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

       (i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
            CN*  =  85.0    Ia = Dep. Storage  (Above)
      (ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
           THAN THE STORAGE COEFFICIENT.
     (iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

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--------------------
| RESERVOIR(  0003)|     OVERFLOW IS OFF
| IN= 2---> OUT= 1 |
| DT=  5.0 min     |     OUTFLOW    STORAGE   |  OUTFLOW    STORAGE
--------------------      (cms)     (ha.m.)   |   (cms)     (ha.m.)
                          0.0000     0.0000   |    0.0590     0.0096
                          0.0530     0.0012   |    0.0630     0.0108
                          0.0530     0.0024   |    0.0650     0.0120
                          0.0530     0.0036   |    0.0670     0.0132
                          0.0530     0.0048   |    0.0690     0.0144
                          0.0530     0.0060   |    0.0700     0.0156
                          0.0530     0.0072   |    0.0720     0.0168
                          0.0530     0.0085   |    0.0730     0.0180

                               AREA     QPEAK     TPEAK       R.V.
                               (ha)     (cms)     (hrs)       (mm)
   INFLOW : ID= 2 (  0002)     0.570     0.306      8.00      94.17
   OUTFLOW: ID= 1 (  0003)     0.570     0.065      8.17      94.17

                 PEAK   FLOW   REDUCTION [Qout/Qin](%)= 21.11
                 TIME SHIFT OF PEAK FLOW         (min)= 10.00
                 MAXIMUM  STORAGE   USED       (ha.m.)=  0.0119

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```
       V    V   I    SSSSS  U   U    A    L              (v 6.2.2019)
       V    V   I    SS     U   U   A A   L
        V  V    I     SS    U   U  AAAAA  L
        V  V    I      SS   U   U  A   A  L
         VV     I    SSSSS  UUUUU  A   A  LLLLL

        OOO   TTTTT  TTTTT  H   H  Y   Y  M   M   OOO    TM
       O   O    T      T    H   H   Y Y   MM MM  O   O
       O   O    T      T    H   H    Y    M   M  O   O
        OOO     T      T    H   H    Y    M   M   OOO
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                  *****  D E T A I L E D   O U T P U T *****


  Input   filename: C:\Program Files (x86)\Visual OTTHYMO 6.2\VO2\voin.dat

  Output  filename:
C:\Users\zafroze\AppData\Local\Civica\VH5\9929ac5f-ba15-45f1-bf52-2a03313dafac\25fe
f977-3974-4c50-a284-8ee8a93be41c\scen
  Summary filename:
C:\Users\zafroze\AppData\Local\Civica\VH5\9929ac5f-ba15-45f1-bf52-2a03313dafac\25fe
f977-3974-4c50-a284-8ee8a93be41c\scen


DATE: 04-10-2026                          TIME: 01:20:43

USER:


COMMENTS: _____


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  ************************************************
  ** SIMULATION : 5 - 50 year chicago 24 hour m **
  ************************************************


--------------------
| CHICAGO STORM    |    IDF curve parameters: A=1300.000
| Ptotal=107.04 mm |                          B=   4.700
--------------------                          C=   0.780
                       used in:   INTENSITY =  A / (t + B)^C

                       Duration of storm  = 24.00 hrs
```

```
                  Storm time step    =  5.00 min
                  Time to peak ratio =  0.33

 TIME    RAIN |  TIME    RAIN |'  TIME    RAIN |  TIME    RAIN
  hrs   mm/hr |   hrs   mm/hr |'   hrs   mm/hr |   hrs   mm/hr
 0.00    1.00 |  6.00    3.12 | 12.00    2.95 | 18.00    1.43
 0.08    1.01 |  6.08    3.24 | 12.08    2.90 | 18.08    1.42
 0.17    1.02 |  6.17    3.37 | 12.17    2.85 | 18.17    1.41
 0.25    1.03 |  6.25    3.51 | 12.25    2.81 | 18.25    1.40
 0.33    1.04 |  6.33    3.66 | 12.33    2.76 | 18.33    1.39
 0.42    1.05 |  6.42    3.83 | 12.42    2.72 | 18.42    1.38
 0.50    1.05 |  6.50    4.01 | 12.50    2.68 | 18.50    1.38
 0.58    1.06 |  6.58    4.22 | 12.58    2.64 | 18.58    1.37
 0.67    1.07 |  6.67    4.46 | 12.67    2.61 | 18.67    1.36
 0.75    1.08 |  6.75    4.72 | 12.75    2.57 | 18.75    1.35
 0.83    1.09 |  6.83    5.03 | 12.83    2.54 | 18.83    1.34
 0.92    1.10 |  6.92    5.38 | 12.92    2.50 | 18.92    1.33
 1.00    1.11 |  7.00    5.80 | 13.00    2.47 | 19.00    1.33
 1.08    1.12 |  7.08    6.30 | 13.08    2.44 | 19.08    1.32
 1.17    1.14 |  7.17    6.90 | 13.17    2.41 | 19.17    1.31
 1.25    1.15 |  7.25    7.66 | 13.25    2.37 | 19.25    1.30
 1.33    1.16 |  7.33    8.63 | 13.33    2.35 | 19.33    1.30
 1.42    1.17 |  7.42    9.92 | 13.42    2.32 | 19.42    1.29
 1.50    1.18 |  7.50   11.75 | 13.50    2.29 | 19.50    1.28
 1.58    1.19 |  7.58   14.53 | 13.58    2.26 | 19.58    1.27
 1.67    1.21 |  7.67   19.32 | 13.67    2.24 | 19.67    1.27
 1.75    1.22 |  7.75   29.62 | 13.75    2.21 | 19.75    1.26
 1.83    1.23 |  7.83   68.42 | 13.83    2.19 | 19.83    1.25
 1.92    1.25 |  7.92  220.93 | 13.92    2.16 | 19.92    1.25
 2.00    1.26 |  8.00   88.27 | 14.00    2.14 | 20.00    1.24
 2.08    1.28 |  8.08   48.66 | 14.08    2.11 | 20.08    1.23
 2.17    1.29 |  8.17   33.57 | 14.17    2.09 | 20.17    1.23
 2.25    1.31 |  8.25   25.73 | 14.25    2.07 | 20.25    1.22
 2.33    1.32 |  8.33   20.95 | 14.33    2.05 | 20.33    1.21
 2.42    1.34 |  8.42   17.73 | 14.42    2.03 | 20.42    1.21
 2.50    1.35 |  8.50   15.42 | 14.50    2.01 | 20.50    1.20
 2.58    1.37 |  8.58   13.67 | 14.58    1.99 | 20.58    1.19
 2.67    1.39 |  8.67   12.31 | 14.67    1.97 | 20.67    1.19
 2.75    1.40 |  8.75   11.21 | 14.75    1.95 | 20.75    1.18
 2.83    1.42 |  8.83   10.31 | 14.83    1.93 | 20.83    1.17
 2.92    1.44 |  8.92    9.56 | 14.92    1.91 | 20.92    1.17
 3.00    1.46 |  9.00    8.91 | 15.00    1.89 | 21.00    1.16
 3.08    1.48 |  9.08    8.36 | 15.08    1.87 | 21.08    1.16
 3.17    1.50 |  9.17    7.88 | 15.17    1.86 | 21.17    1.15
 3.25    1.52 |  9.25    7.46 | 15.25    1.84 | 21.25    1.15
 3.33    1.55 |  9.33    7.08 | 15.33    1.82 | 21.33    1.14
 3.42    1.57 |  9.42    6.74 | 15.42    1.81 | 21.42    1.13
 3.50    1.59 |  9.50    6.44 | 15.50    1.79 | 21.50    1.13
 3.58    1.62 |  9.58    6.17 | 15.58    1.78 | 21.58    1.12
 3.67    1.64 |  9.67    5.92 | 15.67    1.76 | 21.67    1.12
```

3.75	1.67	9.75	5.69	15.75	1.75	21.75	1.11
3.83	1.69	9.83	5.49	15.83	1.73	21.83	1.11
3.92	1.72	9.92	5.29	15.92	1.72	21.92	1.10
4.00	1.75	10.00	5.12	16.00	1.70	22.00	1.10
4.08	1.78	10.08	4.95	16.08	1.69	22.08	1.09
4.17	1.81	10.17	4.80	16.17	1.68	22.17	1.09
4.25	1.85	10.25	4.66	16.25	1.66	22.25	1.08
4.33	1.88	10.33	4.52	16.33	1.65	22.33	1.08
4.42	1.92	10.42	4.40	16.42	1.64	22.42	1.07
4.50	1.95	10.50	4.28	16.50	1.62	22.50	1.07
4.58	1.99	10.58	4.17	16.58	1.61	22.58	1.06
4.67	2.03	10.67	4.07	16.67	1.60	22.67	1.06
4.75	2.08	10.75	3.97	16.75	1.59	22.75	1.05
4.83	2.12	10.83	3.87	16.83	1.58	22.83	1.05
4.92	2.17	10.92	3.79	16.92	1.56	22.92	1.04
5.00	2.22	11.00	3.70	17.00	1.55	23.00	1.04
5.08	2.27	11.08	3.62	17.08	1.54	23.08	1.03
5.17	2.33	11.17	3.55	17.17	1.53	23.17	1.03
5.25	2.39	11.25	3.47	17.25	1.52	23.25	1.03
5.33	2.45	11.33	3.40	17.33	1.51	23.33	1.02
5.42	2.52	11.42	3.34	17.42	1.50	23.42	1.02
5.50	2.59	11.50	3.27	17.50	1.49	23.50	1.01
5.58	2.66	11.58	3.21	17.58	1.48	23.58	1.01
5.67	2.74	11.67	3.16	17.67	1.47	23.67	1.00
5.75	2.83	11.75	3.10	17.75	1.46	23.75	1.00
5.83	2.92	11.83	3.05	17.83	1.45	23.83	1.00
5.92	3.02	11.92	3.00	17.92	1.44	23.92	0.99

CALIB	
STANDHYD (0001)	Area (ha)= 0.57
ID= 1 DT= 5.0 min	Total Imp(%)= 43.00 Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.25	0.32
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	61.64	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		220.93	107.44
over (min)		5.00	10.00
Storage Coeff. (min)=		1.39 (ii)	8.25 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		0.33	0.13

				TOTALS
PEAK FLOW	(cms)=	0.15	0.07	0.189 (iii)
TIME TO PEAK	(hrs)=	8.00	8.08	8.00
RUNOFF VOLUME	(mm)=	106.04	70.89	86.00
TOTAL RAINFALL	(mm)=	107.04	107.04	107.04
RUNOFF COEFFICIENT	=	0.99	0.66	0.80

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB	
STANDHYD (0002)	Area (ha)= 0.57
ID= 1 DT= 5.0 min	Total Imp(%)= 99.00 Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.56	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	61.64	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		220.93	107.44
over (min)		5.00	5.00
Storage Coeff. (min)=		1.39 (ii)	2.21 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		0.33	0.30

				TOTALS
PEAK FLOW	(cms)=	0.34	0.00	0.342 (iii)
TIME TO PEAK	(hrs)=	8.00	8.00	8.00
RUNOFF VOLUME	(mm)=	106.04	70.89	105.68
TOTAL RAINFALL	(mm)=	107.04	107.04	107.04
RUNOFF COEFFICIENT	=	0.99	0.66	0.99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0003)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW	STORAGE	OUTFLOW	STORAGE
	(cms)	(ha.m.)	(cms)	(ha.m.)
	0.0000	0.0000	0.0590	0.0096
	0.0530	0.0012	0.0630	0.0108
	0.0530	0.0024	0.0650	0.0120
	0.0530	0.0036	0.0670	0.0132
	0.0530	0.0048	0.0690	0.0144
	0.0530	0.0060	0.0700	0.0156
	0.0530	0.0072	0.0720	0.0168
	0.0530	0.0085	0.0730	0.0180

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	0.570	0.342	8.00	105.68
OUTFLOW: ID= 1 (0003)	0.570	0.068	8.17	105.68

PEAK FLOW REDUCTION [Qout/Qin](%)= 19.88
TIME SHIFT OF PEAK FLOW (min)= 10.00
MAXIMUM STORAGE USED (ha.m.)= 0.0139

==========

V V I SSSSS U U A L (v 6.2.2019)
V V I SS U U A A L
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V V I SS U U A A L
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OOO TTTTT TTTTT H H Y Y M M OOO TM
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***** D E T A I L E D O U T P U T *****

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DATE: 04-10-2026 TIME: 01:20:43

USER:

COMMENTS: _____

****
** SIMULATION : 6 - 100-year chicago - 24 hou **
****

CHICAGO STORM	Ptotal=119.37 mm

IDF curve parameters: A=1450.000
B= 4.900
C= 0.780
used in: INTENSITY = A / (t + B)^C

Duration of storm = 24.00 hrs
Storm time step = 5.00 min
Time to peak ratio = 0.33

TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr	TIME hrs	RAIN mm/hr
0.00	1.12	6.00	3.49	12.00	3.29	18.00	1.59
0.08	1.13	6.08	3.62	12.08	3.24	18.08	1.58
0.17	1.14	6.17	3.76	12.17	3.18	18.17	1.57
0.25	1.15	6.25	3.92	12.25	3.14	18.25	1.56
0.33	1.16	6.33	4.09	12.33	3.09	18.33	1.55
0.42	1.17	6.42	4.27	12.42	3.04	18.42	1.54
0.50	1.18	6.50	4.48	12.50	3.00	18.50	1.53
0.58	1.19	6.58	4.72	12.58	2.95	18.58	1.53
0.67	1.20	6.67	4.98	12.67	2.91	18.67	1.52
0.75	1.21	6.75	5.28	12.75	2.87	18.75	1.51
0.83	1.22	6.83	5.62	12.83	2.83	18.83	1.50
0.92	1.23	6.92	6.02	12.92	2.79	18.92	1.49
1.00	1.24	7.00	6.49	13.00	2.76	19.00	1.48
1.08	1.26	7.08	7.05	13.08	2.72	19.08	1.47
1.17	1.27	7.17	7.72	13.17	2.69	19.17	1.46
1.25	1.28	7.25	8.57	13.25	2.65	19.25	1.45
1.33	1.29	7.33	9.66	13.33	2.62	19.33	1.45
1.42	1.31	7.42	11.12	13.42	2.59	19.42	1.44
1.50	1.32	7.50	13.17	13.50	2.56	19.50	1.43
1.58	1.33	7.58	16.30	13.58	2.53	19.58	1.42
1.67	1.35	7.67	21.69	13.67	2.50	19.67	1.41
1.75	1.36	7.75	33.28	13.75	2.47	19.75	1.40

1.83	1.38	7.83	76.62	13.83	2.44	19.83	1.40
1.92	1.39	7.92	242.53	13.92	2.41	19.92	1.39
2.00	1.41	8.00	98.69	14.00	2.39	20.00	1.38
2.08	1.42	8.08	54.64	14.08	2.36	20.08	1.37
2.17	1.44	8.17	37.73	14.17	2.33	20.17	1.37
2.25	1.46	8.25	28.91	14.25	2.31	20.25	1.36
2.33	1.47	8.33	23.53	14.33	2.29	20.33	1.35
2.42	1.49	8.42	19.90	14.42	2.26	20.42	1.35
2.50	1.51	8.50	17.30	14.50	2.24	20.50	1.34
2.58	1.53	8.58	15.34	14.58	2.22	20.58	1.33
2.67	1.55	8.67	13.80	14.67	2.20	20.67	1.32
2.75	1.57	8.75	12.57	14.75	2.17	20.75	1.32
2.83	1.59	8.83	11.55	14.83	2.15	20.83	1.31
2.92	1.61	8.92	10.71	14.92	2.13	20.92	1.30
3.00	1.63	9.00	9.98	15.00	2.11	21.00	1.30
3.08	1.65	9.08	9.36	15.08	2.09	21.08	1.29
3.17	1.68	9.17	8.82	15.17	2.07	21.17	1.28
3.25	1.70	9.25	8.35	15.25	2.05	21.25	1.28
3.33	1.72	9.33	7.92	15.33	2.04	21.33	1.27
3.42	1.75	9.42	7.55	15.42	2.02	21.42	1.27
3.50	1.78	9.50	7.21	15.50	2.00	21.50	1.26
3.58	1.80	9.58	6.90	15.58	1.98	21.58	1.25
3.67	1.83	9.67	6.62	15.67	1.97	21.67	1.25
3.75	1.86	9.75	6.37	15.75	1.95	21.75	1.24
3.83	1.89	9.83	6.13	15.83	1.93	21.83	1.24
3.92	1.92	9.92	5.92	15.92	1.92	21.92	1.23
4.00	1.96	10.00	5.72	16.00	1.90	22.00	1.22
4.08	1.99	10.08	5.54	16.08	1.89	22.08	1.22
4.17	2.02	10.17	5.37	16.17	1.87	22.17	1.21
4.25	2.06	10.25	5.21	16.25	1.86	22.25	1.21
4.33	2.10	10.33	5.06	16.33	1.84	22.33	1.20
4.42	2.14	10.42	4.92	16.42	1.83	22.42	1.20
4.50	2.18	10.50	4.78	16.50	1.81	22.50	1.19
4.58	2.23	10.58	4.66	16.58	1.80	22.58	1.19
4.67	2.27	10.67	4.54	16.67	1.79	22.67	1.18
4.75	2.32	10.75	4.43	16.75	1.77	22.75	1.18
4.83	2.37	10.83	4.33	16.83	1.76	22.83	1.17
4.92	2.42	10.92	4.23	16.92	1.75	22.92	1.16
5.00	2.48	11.00	4.14	17.00	1.73	23.00	1.16
5.08	2.54	11.08	4.05	17.08	1.72	23.08	1.15
5.17	2.60	11.17	3.96	17.17	1.71	23.17	1.15
5.25	2.67	11.25	3.88	17.25	1.70	23.25	1.14
5.33	2.74	11.33	3.80	17.33	1.68	23.33	1.14
5.42	2.81	11.42	3.73	17.42	1.67	23.42	1.14
5.50	2.89	11.50	3.66	17.50	1.66	23.50	1.13
5.58	2.97	11.58	3.59	17.58	1.65	23.58	1.13
5.67	3.06	11.67	3.53	17.67	1.64	23.67	1.12
5.75	3.16	11.75	3.46	17.75	1.63	23.75	1.12
5.83	3.26	11.83	3.40	17.83	1.62	23.83	1.11
5.92	3.37	11.92	3.35	17.92	1.61	23.92	1.11

CALIB			
STANDHYD (0001)	Area	(ha)=	0.57
ID= 1 DT= 5.0 min	Total Imp(%)=	43.00	Dir. Conn.(%)= 43.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.25	0.32
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	61.64	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		242.53	124.09
over (min)		5.00	10.00
Storage Coeff. (min)=		1.34 (ii)	7.81 (ii)
Unit Hyd. Tpeak (min)=		5.00	10.00
Unit Hyd. peak (cms)=		0.33	0.13

				TOTALS
PEAK FLOW	(cms)=	0.16	0.08	0.212 (iii)
TIME TO PEAK	(hrs)=	8.00	8.08	8.00
RUNOFF VOLUME	(mm)=	118.37	82.17	97.73
TOTAL RAINFALL	(mm)=	119.37	119.37	119.37
RUNOFF COEFFICIENT	=	0.99	0.69	0.82

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

CALIB			
STANDHYD (0002)	Area	(ha)=	0.57
ID= 1 DT= 5.0 min	Total Imp(%)=	99.00	Dir. Conn.(%)= 99.00

		IMPERVIOUS	PERVIOUS (i)
Surface Area	(ha)=	0.56	0.01
Dep. Storage	(mm)=	1.00	5.00
Average Slope	(%)=	1.00	2.00
Length	(m)=	61.64	40.00
Mannings n	=	0.013	0.250
Max.Eff.Inten.(mm/hr)=		242.53	124.09
over (min)		5.00	5.00
Storage Coeff. (min)=		1.34 (ii)	2.13 (ii)
Unit Hyd. Tpeak (min)=		5.00	5.00
Unit Hyd. peak (cms)=		0.33	0.31

				TOTALS
PEAK FLOW	(cms)=	0.37	0.00	0.376 (iii)
TIME TO PEAK	(hrs)=	8.00	8.00	8.00
RUNOFF VOLUME	(mm)=	118.37	82.17	118.01
TOTAL RAINFALL	(mm)=	119.37	119.37	119.37
RUNOFF COEFFICIENT	=	0.99	0.69	0.99

***** WARNING: STORAGE COEFF. IS SMALLER THAN TIME STEP!

(i) CN PROCEDURE SELECTED FOR PERVIOUS LOSSES:
CN* = 85.0 Ia = Dep. Storage (Above)
(ii) TIME STEP (DT) SHOULD BE SMALLER OR EQUAL
THAN THE STORAGE COEFFICIENT.
(iii) PEAK FLOW DOES NOT INCLUDE BASEFLOW IF ANY.

RESERVOIR(0003)	OVERFLOW IS OFF			
IN= 2---> OUT= 1				
DT= 5.0 min	OUTFLOW (cms)	STORAGE (ha.m.)	OUTFLOW (cms)	STORAGE (ha.m.)
	0.0000	0.0000	0.0590	0.0096
	0.0530	0.0012	0.0630	0.0108
	0.0530	0.0024	0.0650	0.0120
	0.0530	0.0036	0.0670	0.0132
	0.0530	0.0048	0.0690	0.0144
	0.0530	0.0060	0.0700	0.0156
	0.0530	0.0072	0.0720	0.0168
	0.0530	0.0085	0.0730	0.0180

	AREA (ha)	QPEAK (cms)	TPEAK (hrs)	R.V. (mm)
INFLOW : ID= 2 (0002)	0.570	0.376	8.00	118.01
OUTFLOW: ID= 1 (0003)	0.570	0.071	8.25	118.01

PEAK FLOW REDUCTION [Qout/Qin](%)= 18.75
TIME SHIFT OF PEAK FLOW (min)= 15.00
MAXIMUM STORAGE USED (ha.m.)= 0.0161

STANDARD OFFLINE
Jellyfish Filter Sizing Report

Project Information

Date	Thursday, March 12, 2026
Project Name	2233 Hurontario St.
Project Number	
Location	Mississauga

Jellyfish Filter Design Overview

This report provides information for the sizing and specification of the Jellyfish Filter. When designed properly in accordance to the guidelines detailed in the Jellyfish Filter Technical Manual, the Jellyfish Filter will exceed the performance and longevity of conventional horizontal bed and granular media filters.

Please see ***www.ImbriumSystems.com*** *for more information.*

Jellyfish Filter System Recommendation

The Jellyfish Filter model JF6-4-1 is recommended to meet the water quality objective by treating a flow of 22.7 L/s, which meets or exceeds 90% of the average annual rainfall runoff volume based on 18 years of TORONTO CENTRAL rainfall data for this site. This model has a sediment capacity of 256 kg, which meets or exceeds the estimated average annual sediment load.

Jellyfish Model	Number of High-Flo Cartridges	Number of Draindown Cartridges	Manhole Diameter (m)	Treatment Flow Rate (L/s)	Sediment Capacity (kg)
JF6-4-1	4	1	1.8	22.7	256

The Jellyfish Filter System

The patented Jellyfish Filter is an engineered stormwater quality treatment technology featuring unique membrane filtration in a compact stand-alone treatment system that removes a high level and wide variety of stormwater pollutants. Exceptional pollutant removal is achieved at high treatment flow rates with minimal head loss and low maintenance costs. Each lightweight Jellyfish Filter cartridge contains an extraordinarily large amount of membrane surface area, resulting in superior flow capacity and pollutant removal capacity.

Maintenance

Regular scheduled inspections and maintenance is necessary to assure proper functioning of the Jellyfish Filter. The maintenance interval is designed to be a minimum of 12 months, but this will vary depending on site loading conditions and upstream pretreatment measures. Quarterly inspections and inspections after all storms beyond the 5-year event are recommended until enough historical performance data has been logged to comfortably initiate an alternative inspection interval.

Please see ***www.ImbriumSystems.com*** *for more information.*

Thank you for the opportunity to present this information to you and your client.

Performance

Jellyfish efficiently captures a high level of Stormwater pollutants, including:

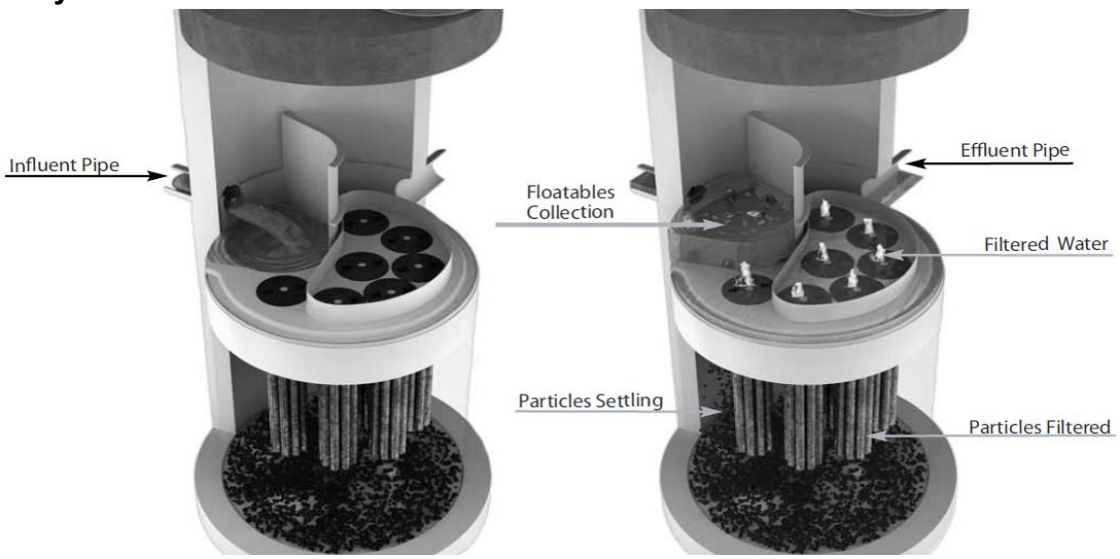
- ☑ 89% of the total suspended solids (TSS) load, including particles less than 5 microns
- ☑ 77% TP removal & 51% TN removal
- ☑ 90% Total Copper, 81% Total Lead, 70% Total Zinc
- ☑ Particulate-bound pollutants such as nutrients, toxic metals, hydrocarbons and bacteria
- ☑ Free oil, Floatable trash and debris

Field Proven Peformance

The Jellyfish filter has been field-tested on an urban site with 25 TAPE qualifying rain events and field monitored according to the TAPE field test protocol, demonstrating:

- A median TSS removal efficiency of 90%, and a median SSC removal of 99%;
- The ability to capture fine particles as indicated by an effluent d50 median of 3 microns for all monitotred storm events, and a median effluent turbidity of 5 NTUs;
- A median Total Phosphorus removal of 77%, and a median Total Nitrogen removal of 51%.

Jellyfish Filter Treatment Functions



Pre-treatment and Membrane Filtration

Project Information

Date:	Thursday, March 12, 2026
Project Name:	2233 Hurontario St.
Project Number:	
Location:	Mississauga

Designer Information

Company:	Urbantech Consulting
Contact:	Zarin Afroze
Phone #:	

Notes

Rainfall

Name:	TORONTO CENTRAL
State:	ON
ID:	100
Record:	1982 to 1999
Co-ords:	45°30'N, 90°30'W

Drainage Area

Total Area:	0.57 ha
Imperviousness:	100%

Upstream Detention

Peak Release Rate:	n/a
Pretreatment Credit:	n/a

Design System Requirements

Flow Loading	90% of the Average Annual Runoff based on 18 years of TORONTO CENTRAL rainfall data:	**15.4 L/s**
Sediment Loading	Treating 90% of the average annual runoff volume, 3402 m³, with a suspended sediment concentration of 60 mg/L.	**204 kg***

** Indicates that sediment loading is the limiting parameter in the sizing of this Jellyfish system*

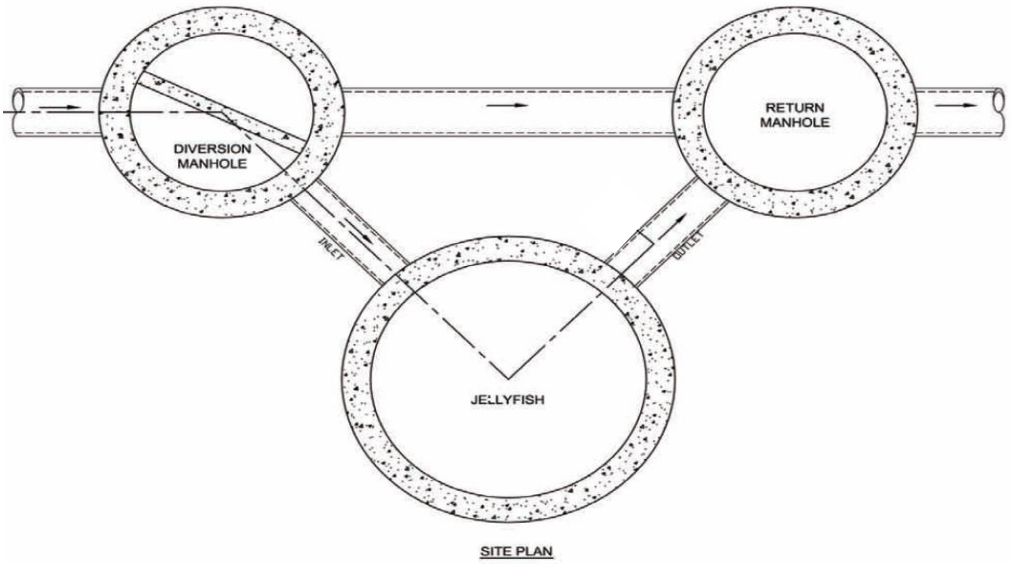
Recommendation

The Jellyfish Filter model JF6-4-1 is recommended to meet the water quality objective by treating a flow of 22.7 L/s, which meets or exceeds 90% of the average annual rainfall runoff volume based on 18 years of TORONTO CENTRAL rainfall data for this site. This model has a sediment capacity of 256 kg, which meets or exceeds the estimated average annual sediment load.

Jellyfish Model	Number of High-Flo Cartridges	Number of Draindown Cartridges	Manhole Diameter (m)	Wet Vol Below Deck (L)	Sump Storage (m³)	Oil Capacity (L)	Treatment Flow Rate (L/s)	Sediment Capacity (kg)
JF4-1-1	1	1	1.2	2313	0.34	379	7.6	85
JF4-2-1	2	1	1.2	2313	0.34	379	12.6	142
JF6-3-1	3	1	1.8	5205	0.79	848	17.7	199
JF6-4-1	**4**	**1**	**1.8**	**5205**	**0.79**	**848**	**22.7**	**256**
JF6-5-1	5	1	1.8	5205	0.79	848	27.8	313
JF6-6-1	6	1	1.8	5205	0.79	848	28.6	370
JF8-6-2	6	2	2.4	9252	1.42	1469	35.3	398
JF8-7-2	7	2	2.4	9252	1.42	1469	40.4	455
JF8-8-2	8	2	2.4	9252	1.42	1469	45.4	512
JF8-9-2	9	2	2.4	9252	1.42	1469	50.5	569
JF8-10-2	10	2	2.4	9252	1.42	1469	50.5	626
JF10-11-3	11	3	3.0	14456	2.21	2302	63.1	711
JF10-12-3	12	3	3.0	14456	2.21	2302	68.2	768
JF10-12-4	12	4	3.0	14456	2.21	2302	70.7	796
JF10-13-4	13	4	3.0	14456	2.21	2302	75.7	853
JF10-14-4	14	4	3.0	14456	2.21	2302	78.9	910
JF10-15-4	15	4	3.0	14456	2.21	2302	78.9	967
JF10-16-4	16	4	3.0	14456	2.21	2302	78.9	1024
JF10-17-4	17	4	3.0	14456	2.21	2302	78.9	1081
JF10-18-4	18	4	3.0	14456	2.21	2302	78.9	1138
JF10-19-4	19	4	3.0	14456	2.21	2302	78.9	1195
JF12-20-5	20	5	3.6	20820	3.2	2771	113.6	1280
JF12-21-5	21	5	3.6	20820	3.2	2771	113.7	1337
JF12-22-5	22	5	3.6	20820	3.2	2771	113.7	1394
JF12-23-5	23	5	3.6	20820	3.2	2771	113.7	1451
JF12-24-5	24	5	3.6	20820	3.2	2771	113.7	1508
JF12-25-5	25	5	3.6	20820	3.2	2771	113.7	1565
JF12-26-5	26	5	3.6	20820	3.2	2771	113.7	1622
JF12-27-5	27	5	3.6	20820	3.2	2771	113.7	1679

Jellyfish Filter Design Notes

- Typically the Jellyfish Filter is designed in an offline configuration, as all stormwater filter systems will perform for a longer duration between required maintenance services when designed and applied in off-line configurations. Depending on the design parameters, an optional internal bypass may be incorporated into the Jellyfish Filter, however note the inspection and maintenance frequency should be expected to increase above that of an off-line system. Speak to your local representative for more information.



Jellyfish Filter Typical Layout

- Typically, 18 inches (457 mm) of driving head is designed into the system, calculated as the difference in elevation between the top of the diversion structure weir and the invert of the Jellyfish Filter outlet pipe. Alternative driving head values can be designed as 12 to 24 inches (305 to 610mm) depending on specific site requirements, requiring additional sizing and design assistance.
- Typically, the Jellyfish Filter is designed with the inlet pipe configured 6 inches (150 mm) above the outlet invert elevation. However, depending on site parameters this can vary to an optional configuration of the inlet pipe entering the unit below the outlet invert elevation.
- The Jellyfish Filter can accommodate multiple inlet pipes within certain restrictions.
- While the optional inlet below deck configuration offers 0 to 360 degree flexibility between the inlet and outlet pipe, typical systems conform to the following:

Model Diameter (m)	Minimum Angle Inlet / Outlet Pipes	Minimum Inlet Pipe Diameter (mm)	Minimum Outlet Pipe Diameter (mm)
1.2	62º	150	200
1.8	**59º**	**200**	**250**
2.4	52º	250	300
3.0	48º	300	450
3.6	40º	300	450

- The Jellyfish Filter can be built at all depths of cover generally associated with conventional stormwater conveyance systems. For sites that require minimal depth of cover for the stormwater infrastructure, the Jellyfish Filter can be applied in a shallow application using a hatch cover. The general minimum depth of cover is 36 inches (915 mm) from top of the underslab to outlet invert.
- If driving head caclulations account for water elevation during submerged conditions the Jellyfish Filter will function effectively under submerged condtions.
- Jellyfish Filter systems may incorporate grated inlets depending on system configuration.
- For sites with water quality treatment flow rates or mass loadings that exceed the design flow rate of the largest standard Jellyfish Filter manhole models, systems can be designed that hydraulically connect multiple Jellyfish Filters in series or alternatively Jellyfish Vault units can be designed.

STANDARD SPECIFICATION
STORMWATER QUALITY – MEMBRANE FILTRATION TREATMENT DEVICE

PART 1 – GENERAL

1.1 WORK INCLUDED

Specifies requirements for construction and performance of an underground stormwater quality membrane filtration treatment device that removes pollutants from stormwater runoff through the unit operations of sedimentation, floatation, and membrane filtration.

1.2 REFERENCE STANDARDS

ASTM C 891: Specification for Installation of Underground Precast Concrete Utility Structures
ASTM C 478: Specification for Precast Reinforced Concrete Manhole Sections
ASTM C 443: Specification for Joints for Concrete Pipe and Manholes, Using Rubber Gaskets
ASTM D 4101: Specification for Copolymer steps construction

CAN/CSA-A257.4-M92
Joints for Circular Concrete Sewer and Culvert Pipe, Manhole Sections and Fittings Using Rubber Gaskets

CAN/CSA-A257.4-M92
Precast Reinforced Circular Concrete Manhole Sections, Catch Basins and Fittings

Canadian Highway Bridge Design Code

1.3 SHOP DRAWINGS

Shop drawings for the structure and performance are to be submitted with each order to the contractor. Contractor shall forward shop drawing submittal to the consulting engineer for approval. Shop drawings are to detail the structure's precast concrete and call out or note the fiberglass (FRP) internals/components.

1.4 PRODUCT SUBSTITUTIONS

No product substitutions shall be accepted unless submitted 10 days prior to project bid date, or as directed by the engineer of record. Submissions for substitutions require review and approval by the Engineer of Record, for hydraulic performance, impact to project designs, equivalent treatment performance, and any required project plan and report (hydrology/hydraulic, water quality, stormwater pollution) modifications that would be required by the approving jurisdictions/agencies. Contractor to coordinate with the Engineer of Record any applicable modifications to the project estimates of cost, bonding amount determinations, plan check fees for changes to approved documents, and/or any other regulatory requirements resulting from the product substitution.

1.5 HANDLING AND STORAGE

Prevent damage to materials during storage and handling.

PART 2 – PRODUCTS

2.1 GENERAL

2.1.1 The device shall be a cylindrical or rectangular, all concrete structure (including risers), constructed from precast concrete riser and slab components or monolithic precast structure(s), installed to conform to ASTM C 891 and to any required state highway, municipal or local specifications; whichever is more stringent. The device shall be watertight.

2.1.2 Cartridge Deck The cylindrical concrete device shall include a fiberglass deck. The rectangular concrete device shall include a coated aluminum deck. In either instance, the insert shall be bolted and sealed watertight inside the precast concrete chamber. The deck shall serve as: (a) a horizontal divider between the lower treatment zone and the upper treated effluent zone; (b) a deck for attachment of filter cartridges such that the membrane filter elements of each cartridge extend into the lower treatment zone; (c) a platform for maintenance workers to service the filter cartridges (maximum manned weight = 450 pounds (204 kg)); (d) a conduit for conveyance of treated water to the effluent pipe.

2.1.3 Membrane Filter Cartridges Filter cartridges shall be comprised of reusable cylindrical membrane filter elements connected to a perforated head plate. The number of membrane filter elements per cartridge shall be a minimum of eleven 2.75-inch (70-mm) diameter elements. The length of each filter element shall be a minimum 15 inches (381 mm). Each cartridge shall be fitted into the cartridge deck by insertion into a cartridge receptacle that is permanently mounted into the cartridge deck. Each cartridge shall be secured by a cartridge lid that is threaded onto the receptacle, or similar mechanism to secure the cartridge into the deck. The maximum treatment flow rate of a filter cartridge shall be controlled by an orifice in the cartridge lid, or on the individual cartridge itself, and based on a design flux rate (surface loading rate) determined by the maximum treatment flow rate per unit of filtration membrane surface area. The maximum design flux rate shall be 0.21 gpm/ft² (0.142 lps/m²).

Each membrane filter cartridge shall allow for manual installation and removal. Each filter cartridge shall have filtration membrane surface area and dry installation weight as follows (if length of filter cartridge is between those listed below, the surface area and weight shall be proportionate to the next length shorter and next length longer as shown below):

Filter Cartridge Length (in / mm)	Minimum Filtration Membrane Surface Area (ft2 / m2)	Maximum Filter Cartridge Dry Weight (lbs / kg)
15	106 / 9.8	10.5 / 4.8
27	190 / 17.7	15.0 / 6.8
40	282 / 26.2	20.5 / 9.3
54	381 / 35.4	25.5 / 11.6

2.1.4 Backwashing Cartridges The filter device shall have a weir extending above the cartridge deck, or other mechanism, that encloses the high flow rate filter cartridges when placed in their respective cartridge receptacles within the cartridge deck. The weir, or other mechanism, shall collect a pool of filtered water during inflow events that backwashes the high flow rate cartridges when the inflow

event subsides. All filter cartridges and membranes shall be reusable and allow for the use of filtration membrane rinsing procedures to restore flow capacity and sediment capacity; extending cartridge service life.

2.1.5 Maintenance Access to Captured Pollutants The filter device shall contain an opening(s) that provides maintenance access for removal of accumulated floatable pollutants and sediment, removal of and replacement of filter cartridges, cleaning of the sump, and rinsing of the deck. Access shall have a minimum clear vertical clear space over all of the filter cartridges. Filter cartridges shall be able to be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

2.1.6 Bend Structure The device shall be able to be used as a bend structure with minimum angles between inlet and outlet pipes of 90-degrees or less in the stormwater conveyance system.

2.1.7 Double-Wall Containment of Hydrocarbons The cylindrical precast concrete device shall provide double-wall containment for hydrocarbon spill capture by a combined means of an inner wall of fiberglass, to a minimum depth of 12 inches (305 mm) below the cartridge deck, and the precast vessel wall.

2.1.8 Baffle The filter device shall provide a baffle that extends from the underside of the cartridge deck to a minimum length equal to the length of the membrane filter elements. The baffle shall serve to protect the membrane filter elements from contamination by floatables and coarse sediment. The baffle shall be flexible and continuous in cylindrical configurations, and shall be a straight concrete or aluminum wall in rectangular configurations.

2.1.9 Sump The device shall include a minimum 24 inches (610 mm) of sump below the bottom of the cartridges for sediment accumulation, unless otherwise specified by the design engineer. Depths less than 24 inches may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

2.2 PRECAST CONCRETE SECTIONS

All precast concrete components shall be manufactured to a minimum live load of HS-20 truck loading or greater based on local regulatory specifications, unless otherwise modified or specified by the design engineer, and shall be watertight.

2.3 JOINTS All precast concrete manhole configuration joints shall use nitrile rubber gaskets and shall meet the requirements of ASTM C443, Specification C1619, Class D or engineer approved equal to ensure oil resistance. Mastic sealants or butyl tape are not an acceptable alternative.

2.4 GASKETS Only profile neoprene or nitrile rubber gaskets in accordance to CSA A257.3-M92 will be accepted. Mastic sealants, butyl tape or Conseal CS-101 are not acceptable gasket materials.

2.5 FRAME AND COVER Frame and covers must be manufactured from cast-iron or other composite material tested to withstand H-20 or greater design loads, and as approved by the

local regulatory body. Frames and covers must be embossed with the name of the device manufacturer or the device brand name.

2.6 DOORS AND HATCHES If provided shall meet designated loading requirements or at a minimum for incidental vehicular traffic.

2.7 CONCRETE All concrete components shall be manufactured according to local specifications and shall meet the requirements of ASTM C 478.

2.8 FIBERGLASS The fiberglass portion of the filter device shall be constructed in accordance with the following standard: ASTM D-4097: Contact Molded Glass Fiber Reinforced Chemical Resistant Tanks.

2.9 STEPS Steps shall be constructed according to ASTM D4101 of copolymer polypropylene, and be driven into preformed or pre-drilled holes after the concrete has cured, installed to conform to applicable sections of state, provincial and municipal building codes, highway, municipal or local specifications for the construction of such devices.

2.10 INSPECTION All precast concrete sections shall be inspected to ensure that dimensions, appearance and quality of the product meet local municipal specifications and ASTM C 478.

PART 3 – PERFORMANCE

3.1 GENERAL

3.1.1 Verification – The stormwater quality filter must be verified in accordance with ISO 14034:2016 Environmental management – Environmental technology verification (ETV).

3.1.2 Function - The stormwater quality filter treatment device shall function to remove pollutants by the following unit treatment processes; sedimentation, floatation, and membrane filtration.

3.1.3 Pollutants - The stormwater quality filter treatment device shall remove oil, debris, trash, coarse and fine particulates, particulate-bound pollutants, metals and nutrients from stormwater during runoff events.

3.1.4 Bypass - The stormwater quality filter treatment device shall typically utilize an external bypass to divert excessive flows. Internal bypass systems shall be equipped with a floatables baffle, and must avoid passage through the sump and/or cartridge filtration zone.

3.1.5 Treatment Flux Rate (Surface Loading Rate) – The stormwater quality filter treatment device shall treat 100% of the required water quality treatment flow based on a maximum design treatment flux rate (surface loading rate) across the membrane filter cartridges of 0.21 gpm/ft² (0.142 lps/m²).

3.2 FIELD TEST PERFORMANCE

At a minimum, the stormwater quality filter device shall have been field tested and verified with a minimum 25 TARP qualifying storm events and field monitoring shall have been conducted according to the TARP 2009 NJDEP TARP field test protocol, and have received NJCAT verification.

3.2.1 Suspended Solids Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median TSS removal efficiency of 85% and a minimum median SSC removal efficiency of 95%.

3.2.2 Runoff Volume – The stormwater quality filter treatment device shall be engineered, designed, and sized to treat a minimum of 90 percent of the annual runoff volume determined from use of a minimum 15-year rainfall data set.

3.2.3 Fine Particle Removal - The stormwater quality filter treatment device shall have demonstrated the ability to capture fine particles as indicated by a minimum median removal efficiency of 75% for the particle fraction less than 25 microns, an effluent d_{50} of 15 microns or lower for all monitored storm events.

3.2.4 Turbidity Reduction - The stormwater quality filter treatment device shall have demonstrated the ability to reduce the turbidity from influent from a range of 5 to 171 NTU to an effluent turbidity of 15 NTU or lower.

3.2.5 Nutrient (Total Phosphorus & Total Nitrogen) Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median Total Phosphorus removal of 55%, and a minimum median Total Nitrogen removal of 50%.

3.2.6 Metals (Total Zinc & Total Copper) Removal - The stormwater quality filter treatment device shall have demonstrated a minimum median Total Zinc removal of 55%, and a minimum median Total Copper removal of 85%.

3.3 INSPECTION and MAINTENANCE

The stormwater quality filter device shall have the following features:

3.3.1 Durability of membranes are subject to good handling practices during inspection and maintenance (removal, rinsing, and reinsertion) events, and site specific conditions that may have heavier or lighter loading onto the cartridges, and pollutant variability that may impact the membrane structural integrity. Membrane maintenance and replacement shall be in accordance with manufacturer's recommendations.

3.3.2 Inspection which includes trash and floatables collection, sediment depth determination, and visible determination of backwash pool depth shall be easily conducted from grade (outside the structure).

3.3.3 Manual rinsing of the reusable filter cartridges shall promote restoration of the flow capacity and sediment capacity of the filter cartridges, extending cartridge service life.

3.3.4 The filter device shall have a minimum 12 inches (305 mm) of sediment storage depth, and a minimum of 12 inches between the top of the sediment storage and bottom of the filter cartridge tentacles, unless otherwise specified by the design engineer. Variances may have an impact on the total performance and/or longevity between cartridge maintenance/replacement of the device.

3.3.5 Sediment removal from the filter treatment device shall be able to be conducted using a standard maintenance truck and vacuum apparatus, and a minimum one point of entry to the sump that is unobstructed by filter cartridges.

3.3.6 Maintenance access shall have a minimum clear height that provides suitable vertical clear space over all of the filter cartridges. Filter cartridges shall be able to be lifted straight vertically out of the receptacles and deck for the entire length of the cartridge.

3.3.7 Filter cartridges shall be able to be maintained without the requirement of additional lifting equipment.

PART 4 – EXECUTION

4.1 INSTALLATION

4.1.1 PRECAST DEVICE CONSTRUCTION SEQUENCE

The installation of a watertight precast concrete device should conform to ASTM C 891 and to any state highway, municipal or local specifications for the construction of manholes, whichever is more stringent. Selected sections of a general specification that are applicable are summarized below.

4.1.1.1 The watertight precast concrete device is installed in sections in the following sequence:

- aggregate base
- base slab
- treatment chamber and cartridge deck riser section(s)
- bypass section
- connect inlet and outlet pipes
- concrete riser section(s) and/or transition slab (if required)
- maintenance riser section(s) (if required)
- frame and access cover

4.1.2 The precast base should be placed level at the specified grade. The entire base should be in contact with the underlying compacted granular material. Subsequent sections, complete with joint seals, should be installed in accordance with the precast concrete manufacturer's recommendations.

4.1.3 Adjustment of the stormwater quality treatment device can be performed by lifting the upper sections free of the excavated area, re-leveling the base, and re-installing the sections. Damaged sections and gaskets should be repaired or replaced as necessary to restore original condition and watertight seals. Once the stormwater quality treatment device has been constructed, any/all lift holes must be plugged watertight with mortar or non-shrink grout.

4.1.4 Inlet and Outlet Pipes Inlet and outlet pipes should be securely set into the device using approved pipe seals (flexible boot connections, where applicable) so that the structure is watertight, and such that any pipe intrusion into the device does not impact the device functionality.

4.1.5 Frame and Cover Installation Adjustment units (e.g. grade rings) should be installed to set the frame and cover at the required elevation. The adjustment units should be laid in a full bed of mortar with successive units being joined using sealant recommended by the manufacturer. Frames for the cover should be set in a full bed of mortar at the elevation specified.

4.2 MAINTENANCE ACCESS WALL
In some instances the Maintenance Access Wall, if provided, shall require an extension attachment and sealing to the precast wall and cartridge deck at the job site, rather than at the precast facility. In this instance, installation of these components shall be performed according to instructions provided by the manufacturer.

4.3 FILTER CARTRIDGE INSTALLATION Filter cartridges shall be installed in the cartridge deck only after the construction site is fully stabilized and in accordance with the manufacturer's guidelines and recommendations. Contractor to contact the manufacturer to schedule cartridge delivery and review procedures/requirements to be completed to the device prior to installation of the cartridges and activation of the system.

PART 5 – QUALITY ASSURANCE

5.1 FILTER CARTRIDGE INSTALLATION Manufacturer shall coordinate delivery of filter cartridges and other internal components with contractor. Filter cartridges shall be delivered and installed complete after site is stabilized and unit is ready to accept cartridges. Unit is ready to accept cartridges after is has been cleaned out and any standing water, debris, and other materials have been removed. Contractor shall take appropriate action to protect the filter cartridge receptacles and filter cartridges from damage during construction, and in accordance with the manufacturer's recommendations and guidance. For systems with cartridges installed prior to full site stabilization and prior to system activation, the contractor can plug inlet and outlet pipes to prevent stormwater and other influent from entering the device. Plugs must be removed during the activation process.

5.2 INSPECTION AND MAINTENANCE

5.2.1 The manufacturer shall provide an Owner's Manual upon request.

5.2.2 After construction and installation, and during operation, the device shall be inspected and cleaned as necessary based on the manufacturer's recommended inspection and maintenance guidelines and the local regulatory agency/body.

5.3 REPLACEMENT FILTER CARTRIDGES When replacement membrane filter elements and/or other parts are required, only membrane filter elements and parts approved by the manufacturer for use with the stormwater quality filter device shall be installed.

END OF SECTION

◆ Verification Statement ◆ Verification Statement ◆ Verification Statement ◆

VERIFICATION STATEMENT

GLOBE Performance Solutions

Verifies the performance of

Jellyfish® Filter

Developed by Imbrium Systems, Inc.,
Whitby, Ontario, Canada

Registration: GPS-ETV_VR2025-03-15

In accordance with

ISO 14034:2016

Environmental Management —
Environmental Technology Verification (ETV)

John D. Wiebe, PhD
Executive Chairman
GLOBE Performance Solutions

March 15, 2025
Vancouver, BC, Canada

Verification Body
GLOBE Performance Solutions
404 – 999 Canada Place | Vancouver, B.C | Canada |V6C 3E2

Technology description and application

The Jellyfish® Filter is an engineered stormwater quality treatment technology designed to remove a variety of stormwater pollutants including floatable trash and debris, oil, coarse and fine suspended sediments, and particulate-bound pollutants such as nutrients, heavy metals, and hydrocarbons. The Jellyfish Filter combines gravitational pre-treatment (sedimentation and floatation) and membrane filtration in a single compact structure. The system utilizes membrane filtration cartridges comprised of multiple detachable pleated filter elements ('filtration tentacles") that provide high filtration surface area with the associated advantages of high flow rate, high sediment capacity, and low filtration flux rate.

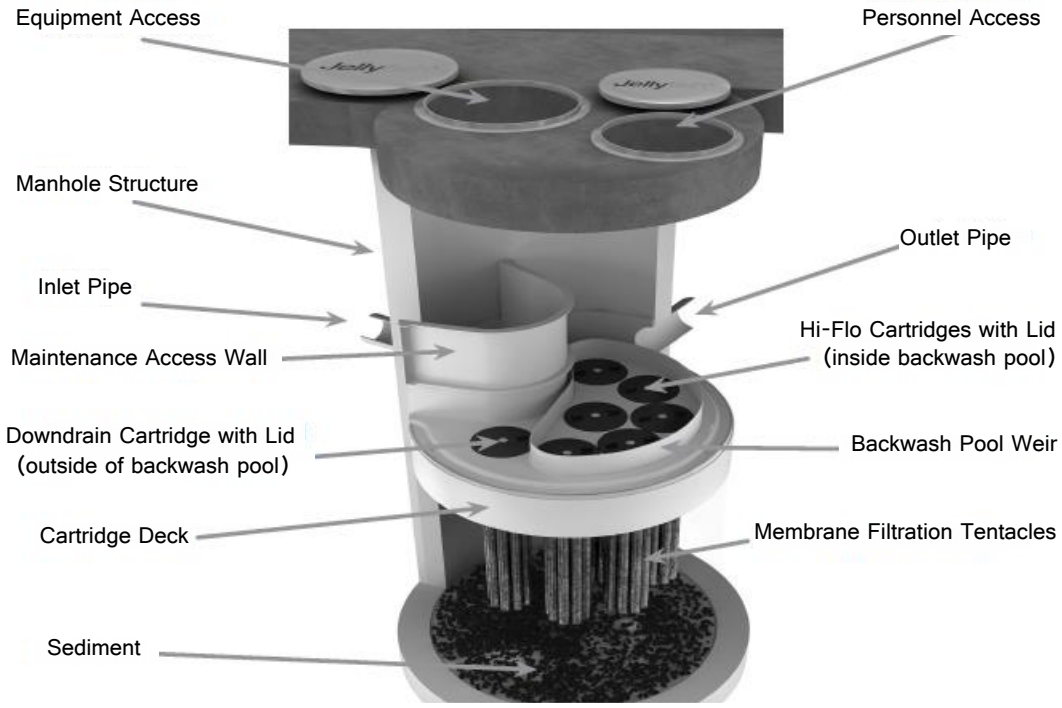


Figure 1. Cut-away graphic of a Jellyfish® Filter manhole with 6 hi-flo cartridges and 1 draindown cartridge

Figure 1 depicts a cut-away graphic of a typical 6-ft diameter Jellyfish® Filter manhole with 6 hi-flo cartridges and 1 draindown cartridge (JF6-6-1). Stormwater influent enters the system through the inlet pipe and builds a pond behind the maintenance access wall, with the pond elevation providing driving head. Flow is channeled downward into the lower chamber beneath the cartridge deck. A flexible separator skirt surrounds the filtration zone where the filtration tentacles of each cartridge are suspended, and the volume between the vessel wall and the outside surface of the separator skirt comprises a pre-treatment channel. As flow spreads throughout the pre-treatment channel, floatable pollutants accumulate at the surface of the pond behind the maintenance access wall and also beneath the cartridge deck in the pre-treatment channel, while coarse sediments settle to the sump. Flow proceeds under the separator skirt and upward into the filtration zone, entering each filtration tentacle and depositing fine suspended sediment and associated particulate-bound pollutants on the outside surface of the membranes. Filtered water proceeds up the center tube of each tentacle, with the flow from each tentacle combining under the cartridge lid, and discharging to the top of the cartridge deck through the cartridge lid orifice. Filtered effluent from the hi-flo cartridges enters a pool enclosed by a 15-cm high weir, and if storm intensity and resultant driving head is sufficient, filtered water overflows the weir and proceeds across the cartridge deck to the outlet pipe. Filtered effluent discharging from the draindown cartridge(s) passes directly to the outlet pipe, and requires only a minimal amount of driving head (2.5 cm) to provide forward flow. As

storm intensity subsides and driving head drops below 15 cm, filtered water within the backwash pool reverses direction and passes backward through the hi-flo cartridges, and thereby dislodges sediment from the membrane which subsequently settles to the sump below the filtration zone. During this passive backwashing process, water in the lower chamber is displaced only through the draindown cartridge(s). Additional self-cleaning processes include gravity, as well as vibrational pulses emitted when flow exits the orifice of each cartridge lid, and these combined processes significantly extend the cartridge service life and maintenance cleaning interval. Sediment removal from the sump by vacuum is required when sediment depths reach 30 cm, and cartridges are typically removed, externally rinsed, and recommissioned on an annual basis, or as site-specific maintenance conditions require. Filtration tentacle replacement is typically required every 3 – 5 years.

Performance conditions

The data and results published in this Verification Statement were obtained from the field testing conducted on a Jellyfish Filter JF6-6-1 (6-ft diameter manhole with 6 hi-flo cartridges and 1 draindown cartridge), in accordance with the requirements outlined by the Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies Technology Assessment Protocol – Ecology (TAPE) as written by the Washington State Department of Ecology, (WADOE, 2011). The drainage area providing stormwater runoff to the test unit was 86 acres and was 32% impervious. Throughout the monitoring period (March 2017 – April 2020), a total of 25 individual storm events were sampled. The Basic Treatment standard outlined in the TAPE requires ≥ 80% total suspended solids (TSS) removal at influent TSS concentrations ranging from 100 to 200 mg/L. In addition, the Phosphorus Treatment standard outlined in the TAPE requires ≥ 50% removal of total phosphorus (TP) at influent concentrations ranging from 0.10 to 0.5 mg/L. For this verification, the performance claim for TSS removal is for influent TSS concentration ≥ 100 mg/L, and the performance claim for TP removal is for influent TP concentration ≥ 0.1 mg/L. Based on these requirements, 15 and 18 sample pairs deemed qualified for evaluating the removal performance of TSS and TP, respectively. Prior to starting the performance testing program, a quality assurance project plan (QAPP) was submitted to and approved by the State of Washington Department of Ecology.

Table 1 shows the specified and achieved TAPE criteria for storm selection and sampling.

Table 1. Specified and achieved TAPE criteria for storm selection and sampling

Description	TAPE criteria value	Achieved value
Total rainfall	> 3.8 mm (0.15 in)	> 3.8 mm (0.15 in)[1]
Minimum inter-event period	6 hours	6 hours
Minimum flow-weighted composite sample storm coverage	Minimum 70% including as much of the first 20% of the storm	> 70%
Minimum influent/effluent samples	10, but a minimum of 5 subsamples for composite samples	10, except for two events that had 9 aliquots
Total sampled rainfall	N/A	8.29 in
Number of storms	Minimum 15 (preferably 20)	25

[1]N.B. Storm event depth was greater than the TAPE rainfall depth guideline of 0.15 inches for all events sampled, except for the 3/21/2017, 3/22/2019, 3/26/2019, and 04/13/2019 events. Given the size of the drainage basin, storm events below this threshold produced adequate runoff volume for sampling. Only two of these events were used to evaluate performance, and all had rainfall depths of 0.11 inches or greater. These events were included as their runoff volumes, precipitation durations, and influent TSS concentrations were all within range of the total data set.

The 6-ft diameter test unit has sedimentation surface area of 2.62 m2 (28.26 ft2). Each of the seven filter cartridges employed in the test unit uses filtration tentacles of 137 cm (54 in) length, with filter surface area of 35.4 m2 (381 ft2) per cartridge, and total filter surface area of 247.8 m2 (2667 ft2) for the seven cartridges combined. The design treatment flow rate is 5 L/s (80 gal/min) for each of the six hi-flo

cartridges and 2.5 L/s (40 gal/min) for the single draindown cartridge, for a total design treatment flow rate of 32.5 L/s (520 gal/min) at design driving head of 457 mm (18 in). This translates to a filtration flux rate (flow rate per unit filter surface area) of 0.14 L/s/m² (0.21 gal/min/ft²) for each hi-flo cartridge and 0.07 L/s/m² (0.11 gal/min/ft²) for the draindown cartridge. The design flow rate for each cartridge is controlled by the sizing of the orifice in the cartridge lid. The distance from the bottom of the filtration tentacles to the sump is 61 cm (24 in).

Performance claim(s)

The Jellyfish® Filter demonstrated the removal efficiencies indicated in **Table 2** for TSS and TP during field monitoring conducted in accordance with the Washington State Department of Ecology's Technology Assessment Protocol – Ecology (TAPE), and using the following design parameters:

- System hydraulic loading rate (system treatment flow rate per unit of sedimentation surface area) of 12.5 L/s/m² (18.4 gal/min/ft²) or lower
- Filtration flux rate (flow rate per unit filter surface area) of 0.14 L/s/m² (0.21 gal/min/ft²) or lower for each hi-flo cartridge and 0.07 L/s/m² (0.11 gal/min/ft²) or lower for each draindown cartridge
- Distance from the bottom of the filtration tentacles to the sump of 61 cm (24 in) or greater
- Driving head of 457 mm (18 in) or greater

Table 2. Bootstrapped mean, median, and 95% confidence interval (median) for removal efficiencies of Total Suspended Solids (TSS) and Total Phosphorus (TP)

Parameter	Mean (%)	Median (%)	Median – 95% Lower Limit	Median – 95% Upper Limit
TSS [1]	87.6	90.1	85.1	91.6
TP [2]	77.3	77.5	70.8	85.6

[1] TSS influent concentration ≥ 100 mg/L
[2] TP influent concentration ≥ 0.1 mg/L

N.B. As with any field test of stormwater treatment devices, removal efficiencies will vary based on pollutant influent concentrations and other site-specific conditions.
The performance claims can be applied to other Jellyfish® Filter models smaller or larger than the tested model as long as the untested models are designed in accordance with the design parameters specified in the performance claims.

Performance results

Performance Claims – Removal Efficiency for Total Suspended Solids

Raw data summarizing the percent removal of total suspended solids (TSS) by the Jellyfish® Filter at the design system hydraulic loading rate of 12.5 L/s/m² (18.4 gal/min/ft²) for 15 sample pairs deemed qualified are presented in **Table 3**. Data were analyzed and evaluated using a bootstrap approach of random sampling by replacement to estimate population distribution and thereby the upper and lower limit of the confidence interval.

Table 3. Raw data summarizing the percent removal of total suspended solids (TSS)

Event ID	TSS Influent (mg/L)	TSS Effluent (mg/L)	TSS Removal (%) (Inf ≥ 100 mg/L)
3/21/2017	102.0	22.0	78.4
4/7/2017	201.0	30.8	84.7
4/12/2017	108.0	24.4	77.4
4/19/2017	452.0	44.6	90.1
4/26/2017	257.0	10.0	96.1

6/15/2017	134.0	10.4	92.2
3/8/2018	755.0	47.2	93.8
3/14/2018	181.0	27.0	85.1
3/22/2018	224.0	20.0	91.1
4/5/2019	171.0	23.0	86.6
4/13/2019	117.0	25.0	78.6
5/18/2019	254.0	20.0	92.1
12/7/2019	200.0	17.0	91.5
3/30/2020	605.0	51.0	91.6
4/20/2020	210.0	29.0	86.2
n	15	15	15
Min	102.0	10.0	77.4
Max	755.0	51.0	96.1
Median	201.0	24.4	90.1
Mean	264.7	26.8	87.7
SD	190.9	12.3	5.9

Performance Claims – Removal Efficiency for Total Phosphorus

Raw data summarizing the percent removal of total phosphorus (TP) by the Jellyfish® Filter at the design system hydraulic loading rate of 12.5 L/s/m^2 (18.4 gal/min/ft^2) for 18 sample pairs deemed qualified are presented in **Table 4**. Data were analyzed and evaluated using a bootstrap approach of random sampling by replacement to estimate population distribution and thereby the upper and lower limit of the confidence interval.

Table 4. Raw data summarizing the percent removal of total phosphorus (TP)

Event ID	TP Influent (mg/L)	TP Effluent (mg/L)	TP Removal (%) (Inf ≥ 0.1 mg/L)
4/7/2017	0.706	0.092	87.0
4/12/2017	0.338	0.076	77.5
4/19/2017	0.500	0.036	92.8
4/26/2017	0.504	0.042	91.7
5/13/2017	0.256	0.110	57.0
6/8/2017	0.256	0.104	59.4
6/15/2017	0.362	0.052	85.6
3/8/2018	1.75	0.130	92.6
3/14/2018	0.652	0.094	85.6
3/22/2018	0.364	0.072	80.2
3/27/2019	0.226	0.070	69.1
4/5/2019	0.337	0.092	72.9
4/13/2019	0.249	0.087	65.1
5/18/2019	1.09	0.173	84.1
12/7/2019	0.335	0.105	68.7
12/19/2019	0.211	0.093	56.2
3/30/2020	1.05	0.092	91.2
4/20/2020	0.451	0.112	75.2
n	18	18	18
Min	0.211	0.036	56.2
Max	1.75	0.173	92.8
Median	0.363	0.092	78.9
Mean	0.535	0.091	77.3
SD	0.400	0.032	12.5

Verification

The verification was completed by the Verification Expert, the Centre for Advancement of Water and Wastewater Technologies ("CAWT"), contracted by GLOBE Performance Solutions, using the International Standard ***ISO 14034:2016 Environmental management -- Environmental technology verification (ETV)***. Data and information provided by Imbrium Systems to support the performance claim included the performance monitoring report "General Use Level Designation Technical Evaluation Report" prepared by CONTECH Engineered Solutions, Portland, OR, USA, and dated December 28, 2020. This report is based on a field testing completed by CONTECH personnel at a site in Dundee, Oregon between March 2017 and April 2020 in accordance with the Technical Guidance Manual for Evaluating Emerging Stormwater Treatment Technologies Technology Assessment Protocol – Ecology (TAPE) as written by the Washington State Department of Ecology (WADOE, 2011).

What is ISO14034:2016 Environmental management – Environmental technology verification (ETV)?

ISO 14034:2016 specifies principles, procedures and requirements for environmental technology verification (ETV) and was developed and published by the *International Organization for Standardization (ISO)*. The objective of ETV is to provide credible, reliable and independent verification of the performance of environmental technologies. An environmental technology is a technology that either results in an environmental added value or measures parameters that indicate an environmental impact. Such technologies have an increasingly important role in addressing environmental challenges and achieving sustainable development.

For more information on the Jellyfish® Filter please contact:

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For more information on ISO 14034:2016 / ETV please contact:

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Limitation of verification - Registration: GPS-ETV_VR2025-03-15
GLOBE Performance Solutions and the Verification Expert provide the verification services solely on the basis of the information supplied by the applicant or vendor and assume no liability thereafter. The responsibility for the information supplied remains solely with the applicant or vendor and the liability for the purchase, installation, and operation (whether consequential or otherwise) is not transferred to any other party as a result of the verification.

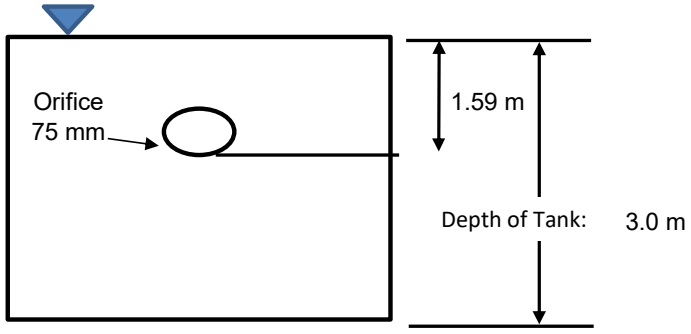
CALCULATION OF STORAGE SIZE AND RATING CURVE BASED ON ORIFICE SIZE AND PUMP

URBANTECH

Project Name: 2233 Hurontario Street
Municipality: City of Missisauga
Project No.: 24-326
Date: 10-Apr-26

Prepared by: ZA
Checked by: JPO

Elevation (m)	Height (m)	Volume (m^3)	Flow rate (m^3/s)
100.50	0.00	0.00	0.000
100.70	0.20	12.00	0.053
100.90	0.40	24.00	0.053
101.10	0.60	36.00	0.053
101.30	0.80	48.00	0.053
101.50	1.00	60.00	0.053
101.70	1.20	72.00	0.053
101.91	1.41	84.60	0.053
102.10	1.60	96.00	0.059
102.30	1.80	108.00	0.063
102.50	2.00	120.00	0.065
102.70	2.20	132.00	0.067
102.90	2.40	144.00	0.069
103.10	2.60	156.00	0.070
103.30	2.80	168.00	0.072
103.50	3.00	180.00	0.073



Calculation of Orifice

Orifice size:	**75** mm
$A = \pi D^2 \div 4$	0.004 m²
$h = Depth\ of\ Tank\ - (\frac{D}{2})$	1.553 m
C	0.82
$2g = 2 \times 9.81$	19.62 m/s²
$Q1 = CA\sqrt{2gh}$	0.020 m³/s
Q2 = Mech. Pumping rate:	0.053 m³/s
Q - Controlled VO	**0.071** m³/s
Q target (from VO model)	**0.071** m³/s

Q actual and Q target are matched
Therefore, orifice size is 75 mm
and constant pumping rate of 30 LPS

Description	Result
Quantity control only	
Storage tank footprint	**60** m²
Depth of Storage Tank	**3.00** m
Provided Volume in Tank	180 m³
Required Volume from VO model	161 m³

APPENDIX C
Wastewater Servicing

URBANTECH

WASTEWATER DEMAND CALCULATIONS

Project Name: 2233 HURONTARIO STREET
Municipality: City of Mississauga
Project No.: 24-326

Prepared by: Z.A
Checked by: J.P.O
Last Revised: 13-Nov-26

Proposed Conditions

Residential

	# of Units	PPU
Small Apartments =	429	1.7
Large Apartment =	281	3.1
Total Units =	710	
Population =	1601	persons
Harmon Peak Factor for Site, Me =	$(1+14/(4+P^{0.5})$	
	3.66	
Unit Sewage Flow =	290.0	L/person/day
Domestic Sewage Flow =	19.66	L/s
Site Area =	0.57	ha
Infiltration Allowance =	0.26	L/s/ha
Total Infiltration =	0.15	L/s
Total wastewater flow =	19.81	L/s

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2030 Bristol Circle, Suite 201 Oakville, Ontario L6H OH2
TEL: 905.946.2472 FAX: 905.829.4804
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Region of Peel
working with you

Water and Wastewater Modelling Demand Table

Site Plan Applications

Version	Date	Description of Revision
1.0	January 10 2023	Posted to Peel Website
2.0	August 30 2024	Reflects 2023 Linear Wastewater Standards and ICI population estimates as per Peel 2020 DC background study

Introduction

Water and wastewater modelling may be required as a condition of the development approval process or prior to regional site servicing connection approval where intensification is proposed, where a possible increase in water demand or wastewater discharge is identified or where deemed necessary by Regional staff.

A completed table includes the Professional Engineer's signature and stamp as well as a site servicing concept. The table will be deemed complete once all the information below is submitted and/or included. Modelling will commence once the information is deemed complete. All required calculations must be submitted with the completed demand table. The calculations shall be based on the specific development proposal.

Application Information

Application Number:	
Address:	2233 Hurontario Street
Consulting Engineer:	
Date Prepared:	November 13, 2026

Population

Existing

		Units	Persons
1	Residential [8)]		
2	Institutional/Employment [8)]		
3	Total		

WATER AND WASTEWATER MODELLING DEMAND TABLE

Proposed

			Units	Persons
4	Residential [1)]	singles/semis (4.2 ppu)		
5		Townhomes (3.4 ppu)		
6		Large apartments (>1 bedroom – 3.1 ppu)	281	871
7		Small apartments (<=1 bedroom – 1.7 ppu)	429	729
8		Total proposed residential		
9	Proposed Institutional[2)]			
10	Proposed employment [3)]			
11	Total Proposed			1601

Other

12	Existing gross floor area for commercial and/or retail (sqm)	
13	Proposed gross floor area for commercial and/or retail (sqm)	0.043
14	Land area (ha)	0.57

Water Connection

Hydrant flow test [4)]

15	Location 1	First Hydrant SE of Queensway on Hurontario St
16	Location 2	First Hydrant NE of Sherobee Rd on Hurontario St

WATER AND WASTEWATER MODELLING DEMAND TABLE

		Pressure (kPa)	Flow (L/s)	Time
17	Minimum water pressure	359	119.3	11:45
18	Maximum water pressure	372	68.4	11:45

Water Demands (L/s)

		Use 1 [6)]	Use 2 [6)]	Use 3 [6)]	Total
19	Existing fire flow [5) 8)]				
20	Proposed average day flow				5.2
21	Proposed maximum day flow				10.4
22	Proposed peak hour flow				15.6
23	Proposed fire flow [5)]				83.3

Water calculations

Please use the following updated typical water demand criteria as per Peel's 2020 Development Charges background study.

Population Type	Unit	Average Consumption Rate	Max Day Factor	Peak Hour Factor
Residential	L/cap/d	270	1.8	3.0
Institutional/Commercial/ Industrial	L/emp/d	250	1.4	3.0

Wastewater Connection

Wastewater Effluent (L/s)

		Discharge location [7)]	Flow
24	Existing effluent [8)]		
25	Proposed effluent	Hurontario	19.8
26	Proposed effluent		
27	Proposed effluent		
28	Proposed additional effluent [8)]		
29	Other proposed effluent*		
30	Total proposed effluent		19.8

*Please specify other proposed effluent (ex. occasional tank purges, off peak discharge, pool drainage)

Wastewater calculations

Please use the following updated daily per capita as per 2023 Peel Linear Wastewater Standards

Population Type	Unit	Average Day Demand	Min Peaking Factor	Max Peaking Factor	Inflow and Infiltration**
Residential	L/cap/d	290	2	4	0.26L/s/Ha
Non-residential	L/emp/d	270	2	4	0.26L/s/Ha

**For maintenance holes that are flood prone or located in low lying areas, an extra 0.28 L/s per maintenance hole may be added to the I&I calculation.

Notes

1) In accordance with Peel Linear Wastewater Standards and Region of Peel 2020 DC background Study
2) refer to Peel Linear Wastewater Standards
3) For the commercial and industrial design flow calculations, please refer to Schedule 8b on page A-9 of the Region of Peel 2020 DC background Study to determine population.
4) Please include the graphs associated with the hydrant flow test data. Hydrant flow tests should be performed within 2 years of submission to the Region. The Region will not permit hydrant flow tests during the winter, please contact Region Water Operations for scheduling. The Region reserves the right to request an updated hydrant flow test as required at any time.
5) Please reference the Fire Underwriters Survey Document
6) Please identify the flows for each use type, **if applicable**
7) Please include drainage plan for multiple discharge locations
8) For Intensification, sites with additions to buildings or additional buildings please provide existing flow for existing buildings and the added flows for the new proposal, **if applicable**

APPENDIX D
Water Servicing

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urbantech.com

WATER DEMAND CALCULATIONS

Project Name: 2233 Hurontario Street
Municipality: City of Mississauga
Project No.: 24-326

Prepared by: Z.A
Last Revised: 13-Nov-26

Fire Flow Calculations

Based on the *Water Supply for Public Fire Protection, 2020* by Fire Underwriters Survey

1 Estimate of Fire Flow

$$F = 220\ C\ (A)1/2$$

F = Fire Flow (L/min)
C = Construction Type Coefficient
= 0.6 ,for fire-resistive construction (fully protected frame, floors, roof)
A = Total floor area (m^2)
= If vertical openings and exterior vertical communications are properly protected (one hour rating),
Largest Floor + 25% of two immediately adjoining floors

Floor	Area (m^2)	%
Floor 2	1,330	25%
Floor 3	1,330	100%
Floor 4	1,330	25%

= 1994 m^2

F = 5895 L/min
= 6000 L/min, rounded to the nearest 1000 L/min

URBANTECH®

WATER DEMAND CALCULATIONS

Project Name: 2233 Hurontario Street
Municipality: City of Mississauga
Project No.: 24-326

Prepared by: Z.A
Last Revised: 13-Nov-26

2 Occupancy Reduction

15% for low hazard occupancies (apartments)

F = 5100 L/min

3 Sprinkler Reduction

30% for adequately designed sprinkler protection conforming to NFPA 13 and other NFPA sprinkler standards

F = 3570 L/min

4 Separation Charge

Direction	Separation (m)	Charge
North	20.5	10%
West	NA	
South	NA	
East	20.0	15%

Total Charge = 25%

F = 1275 L/min

Required Fire Flow

F = 4845 L/min

= 5000 L/min, rounded to the nearest 1000 L/min

Fire Flow Demand =	83.3	L/s
=	1321	USGPM

WATER DEMAND CALCULATIONS

Project Name: 2233 Hurontario Street
Municipality: City of Mississauga
Project No.: 24-326

Prepared by: Z.A
Last Revised: 13-Nov-26

Domestic Flow Calculations

Residential Population =	1601	persons, from Sanitary Calculations
Residential Average Day Demand =	280	L/person/day, from Region of Peel design criteria
=	5.19	L/s

Use Peaking Factor the Greater of

Residential Max Daily Demand PF =	2	, from Region of Peel design criteria
Max Daily Demand =	10.38	L/s

or

Max Peak Hour PF =	3	from Region of Peel design criteria
Max Peak Hour Demand =	15.57	L/s

Domestic Flow Demand =	15.57	L/s
=	247	USGPM

5-200 Connie Cres. Concord ON L4K 1M1 Phone 416-883-9777 Fax 905-303-6977

FLOW TEST REPORT

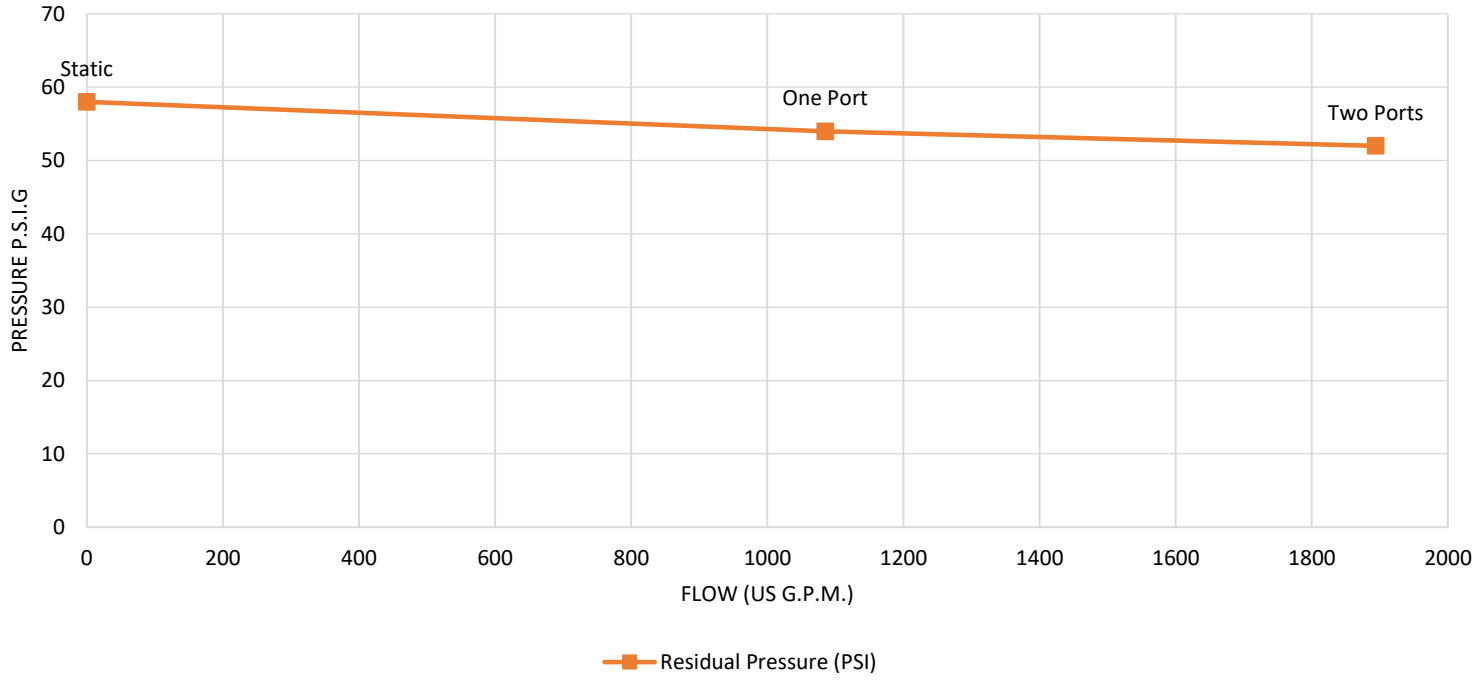
Location of Residual Hydrant : First Hydrant SE of Queensway on Hurontario St

Location of Flow Hydrant : First Hydrant NE of Shero Rd on Hurontario St

Time of Test : 11:45 AM Watermain Size : 300 mm Static Pressure : 58 PSI

Number of Outlets	Pitot Pressure (PSI)	Flow (US G.P.M.)	Residual Pressure (PSI)
Static Pressure (Zero Port)	0	0	58
One 2½" Hydrant Port	42	1085	54
Two 2½" Hydrant Port	32	1894	52

FLOW TEST CHART



Project Location: 2233 Hurontario St, Mississauga Date: 19-Oct-26

Company Name: Urbantech Consulting Aquazition Employee: Derek Switzer & Jairo Andre Munoj

APPENDIX E

Geotechnical, Hydrogeological, and Environmental Engineering Feasibility Report

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urbantech.com

Starlight Investments CDN AM Group GP LP
1400-3280 Bloor St W, Centre Tower
Toronto, ON M8X 2X3

File No. 24-099
August 16, 2024

Attention: Michael Shmulevitch

Subject: Geotechnical, Hydrogeological, and Environmental Engineering Feasibility
2233 & 2235 Hurontario St, Mississauga, Ontario

Dear Mr. Shmulevitch,

Starlight Investments CDN AM Group GP LP has retained Grounded Engineering Inc. ("Grounded") to provide an engineering feasibility letter for the proposed development at 2233 & 2235 Hurontario St, in Mississauga, Ontario (the "site").

As part of the due diligence work, Grounded has been retained to conduct a preliminary subsurface investigation in support of feasibility opinion with respect to the geotechnical, hydrogeological, and environmental engineering aspects of the development. This study is intended to provide a preliminary engineering opinion for due diligence purposes only. As the design and approvals are refined, additional site-specific boreholes/ monitoring wells with in-situ testing and updated detailed engineering advice are required. Once completed, the future detailed engineering reports by Grounded Engineering would supersede this feasibility letter.

1 Introduction

The site is irregular in shape, with a total area of 21,920 m^2, and is currently occupied by two residential apartment buildings and one multi-tenant commercial building. The buildings are surrounded by asphalt surface parking and grassed areas. The site is considered to be in commercial land use as defined by the Ministry of the Environment, Conservation and Parks (MECP) Ontario Regulation 153/04.

The proposed concept is still preliminary in nature, but presently consists of two (2) new high-rise towers (potentially ranging from 25 to 28-storeys), resting on two levels of underground parking (P2). For preliminary purposes, the proposed P2 level is estimated to be at 7± m depth, with a finished floor elevation (FFE) estimated at approximate Elev. 98± m. It is understood that although the proposed underground structure will be connected to the existing P1 underground structures at 2333-2235 Hurontario St (referred to as Lots A and B), the proposed development parcel (referred to as Lots C and D) will be legally severed from the remainder of the site. We are unaware of proposed conveyances or land dedications at present.

Grounded has been provided with the following reports and drawings to assist in our scope of work:

- Phase I Environmental Site Assessment (ESA), dated March 30, 2022, prepared by Pinchin Ltd. (Pinchin).
- Concept Site Plans and Drawings, received on June 6, 2024, provided by Starlight Developments.

2 Scope of Work

A field investigation was completed by Grounded as part of this due diligence scope of work, which included:

- Advancement of three (3) boreholes with monitoring wells. Rock coring was also completed at each borehole location.
- Geotechnical and environmental quality testing of select soil samples collected from the boreholes.
- In situ hydraulic conductivity testing was conducted in select monitoring wells, and one (1) groundwater quality sample was collected/analyzed for the applicable Sewer Use Bylaw Limits on the site.

3 Ground Conditions

The borehole results are detailed on the attached borehole logs from Grounded's subsurface investigation. Our assessment of the relevant stratigraphic units is intended to highlight the strata as they relate to geotechnical engineering. The ground conditions reported here will vary between and beyond the borehole location. The stratigraphic boundary lines shown on the borehole logs are assessed from non-continuous samples supplemented by drilling observations. These stratigraphic boundary lines represent transitions between soil types and should be regarded as approximate and gradual. They are not exact points of stratigraphic change. Groundwater levels fluctuate with time depending on the amount of precipitation and surface runoff and may be influenced by known or unknown dewatering activities at nearby sites. Elevations are measured relative to geodetic datum.

A summary of the relevant subsurface conditions is provided as follows, for general guidance only. Details are provided on the borehole logs. The average existing grade is estimated at Elev. 105± m for discussion purposes.

- Surficial layers (incl. topsoil and pavement), and earth fill,
- A native sand deposit extending to Elev. 101± m,
- A variable glacial till (composition ranging from clayey silt, sandy to sandy silt, some clay, and transitions from very stiff to hard / dense to very dense with increasing depth) extending down to Elev. 94± m, overlying
- Georgian Bay Formation shale bedrock below Elev. 94± m, with the transition to sound bedrock observed at Elev. 93.7 to 93.8 m as identified on the rock core logs.

- For preliminary design purposes, the groundwater table is currently observed at Elev. 99.5± m (about 5.5± m below grade).

Within the zone of excavation, the earth fill and native sand will permit the free-flow of water when wet. While the native glacial till will typically preclude free-flowing water when penetrated below the groundwater, there may be discrete layers of more permeable soils (sands and gravels) which will produce some seepage; however, these zones are likely of limited extent and are not horizontally continuous layers. There is also infiltrated stormwater in the earth fill. Groundwater levels fluctuate with time depending on the amount of precipitation and surface runoff and may be influenced by known or unknown dewatering activities at nearby sites.

4 Geotechnical Engineering Feasibility

A proposed P2 level is assumed to have a Finished Floor Elevation (FFE) about 7± m below grade, or Elev. 98± m. Conventional spread footing foundations made at 1-2 m below FFE will bear on hard / very dense glacial till. We anticipate that spread footings resting on the glacial till can be designed using a preliminary net geotechnical reaction at serviceability limit state (SLS) of 700 kPa (for estimated 25 mm of settlement) and a preliminary maximum factored geotechnical resistance at ultimate limit state (ULS) of 900 kPa. We have conservatively assumed that spread footings have a maximum width of 3.5 m and nominally founded a minimum of 1 m below FFE. These capacities can likely be improved by additional investigation (e.g. boreholes and pressuremeter testing) during detailed design.

If higher capacities are required by the Structural Engineer, end bearing caissons made to bear on sound bedrock (observed at Elev. 93.7 to 93.8± m) may be considered. We anticipate that end-bearing caissons bearing on sound bedrock can be designed using a preliminary net geotechnical reaction at SLS of 9 MPa (for estimated 25 mm of settlement) and a preliminary maximum factored geotechnical resistance at ULS of 12 MPa. This must be verified by additional boreholes (with rock coring) for detailed design.

The site designation for seismic analysis is **Class C**, per Table 4.1.8.4.A of the Ontario Building Code (2012). Consideration should be given to conducting a site-specific Multichannel Analysis of Surface Waves (MASW) as part of a future scope of work (in accordance with the current 2024 Ontario Building Code).

During below-grade construction, seepage into excavations may be allowed to drain into the excavation and then controlled by a conventional sump pump arrangement. Delays in excavation will occur as the seepage is controlled and these delays should be anticipated in the construction schedule.

A conventional slab on grade made for the proposed P4 level can be designed using a modulus of subgrade reaction of 50,000 kPa/m.

In terms of long-term groundwater control, a fully drained basement including perimeter and filter-wrapped subfloor drains (min. 100 mm diameter) spaced at a minimum 6 m o/c is feasible. See Section 5 for estimated groundwater discharge volumes.

Shoring will be required to preserve the integrity of adjacent lands and structures, since a sloped excavation would extend beyond the property boundaries on all sides. Pile and lagging shoring is feasible where adjacent structures do not need to be supported in a state approximating at-rest; otherwise, rigid caisson wall shoring is required. Post-grouted tiebacks can be designed for 55 kN/m in the compact to dense sand, and 70 kN/m in the very stiff to hard / dense to very dense glacial till. Depending on the depth of the adjacent existing underground parking level (P1) and underside elevations of the existing foundations, underpinning to support these footings adjacent to the excavation or shoring walls may be required.

5 Hydrogeological Engineering Feasibility

5.1 Groundwater Quality for City Discharge

One (1) groundwater quality sample was collected for City of Mississauga Storm Sewer and Region of Peel Sanitary Sewer Use By-Law analysis. The results indicate:

- No exceedances of the Region of Peel Sanitary Sewer discharge criteria
- TSS and manganese exceeded the Mississauga Storm Sewer discharge criteria.

A treatment system would be required for future discharge to the storm sewer; however, this result should be confirmed with additional quality testing.

5.2 Groundwater Quantity

The proposed P2 FFE at Elev. 98± m will be below the preliminary groundwater table (Elev. 99.5± m). Excavations for foundations and other lower protrusions will extend below the groundwater table into the glacial till. On this basis, seepage into excavations may be allowed to drain into the excavation and then controlled by a conventional sump pump arrangement.

The estimated groundwater flow volumes provided below should be confirmed by the civil engineer against downstream system capacity. The final design of the drainage system will depend upon the findings of a future hydrogeological investigation.

Numerical analyses were conducted for the various dewatering scenarios, using the Finite Element Modelling (FEM) method. The FEM for groundwater seepage indicates the steady state short-term (construction) and long-term (permanent) dewatering requirements as provided below. The groundwater seepage estimates provided represent the steady state groundwater seepage; there will also be an initial drawdown of the groundwater before a steady state condition is reached. The hydraulic conductivities of various soil types were estimated from grain size analyses and in situ hydraulic conductivity testing (appended).

The following design considerations and values have been incorporated into the dewatering estimates:

- Short term (construction) dewatering assumes a permeable soldier pile and lagging shoring system.
- A Factor of Safety of 3 was used for all groundwater seepage volume calculations.

The preliminary design hydraulic conductivities for the applicable stratigraphic units observed at the site are:

Stratum/Formation	Hydraulic Conductivity (m/s)	Method of Determination
Earth Fill	1.0×10^{-4}	Literature
Sand	1.5×10^{-5}	Grain Size
Glacial Till	1.1×10^{-7}	Slug Test

The table below summarizes the estimated flow rates for the proposed underground development.

Basement Depth	FFE*	Shoring System Type	Building Drainage System	Preliminary Groundwater Discharge Volumes (L/day factored, FoS = 3)	
				Short Term	Long Term
P2	98± m	Soldier Pile and Lagging	Fully drained walls and subfloor	Groundwater: 30,000 Rainfall: 24,000 **Total: 54,000**	Groundwater: 15,000 Rainfall: 8,000 **Total: 23,000**

* Assumed FFE

Based on the above-noted preliminary groundwater discharge volumes, the following potential regulatory requirements are noted:

Regulatory Requirements	
Environmental Activity and Sector Registry (EASR) Posting	Required
Short Term Permit to Take Water (PTTW)	Not Required
Long Term Permit to Take Water (PTTW)	Not Required
Short Term Discharge Agreement	Required
Long Term Discharge Agreement	Required

6 Environmental Conditions

6.1 Previous Reports Summary

The following environmental report was provided for review for the Property. The findings of the report are summarized below:

Title	Phase I ESA, 2233 and 2235 Hurontario Street, Mississauga, ON
Report Date	March 30, 2022
Prepared By	Pinchin
Prepared for	Karl Fay Investments Ltd.
Description of Data, Analysis or Findings	▪ The Phase I ESA was completed for the purposes of due diligence for refinancing the Property and was generally completed in accordance with CSA Standard Z768-01. ▪ At the time of the site inspection complete on March 14, 2022, the Property was occupied by a single storey multi-tenant commercial (medical/fitness offices) building at 2233 Hurontario St and two 13-storey residential buildings with retail operations on the ground floor at 2233-2235 Hurontario St. The buildings were underlain by underground structures (parking or basements). The Property was reportedly heated by a natural gas-fired boilers at the time. Hydro vaults and pad-mounted transformer were present at the site. ▪ Notable historical uses of the site included: o The buildings were reportedly built in the early 1970s. o The central portion of 2233 Hurontario St was historically occupied by an orchard from 1939 to 1950s o The commercial building at 2233 Hurontario St reportedly housed a swimming pool in the basement that has since been decommissioned. o Various dry cleaning facilities were noted at 2235 Hurontario St in 1970 – 1986. Pinchin concluded that these operations were likely drop-off locations only. ▪ The report included a brief summary of a 2016 Phase I ESA report by S2S Environmental Inc. (S2S). These reports were not provided to Grounded for review; however Pinchin's summary indicated the following notable items: o S2S's report included review of a previous Phase I ESA report by JWEL (2006) prepared for the site. o Based on the available records, the site has reportedly always been heated by natural gas. o Interviews and review of the JWEL background documents confirmed that the historical dry cleaning facilities listed at the property were noted to be drop-off operations only.

	▪ The report concluded that there were no significant potential environmental concerns reportedly identified in the report and no further investigation was recommended. ▪ The report identified designated substances and special attention items to be considered prior to any renovation or demolition: o Lead and asbestos in building materials o PCBs in light ballasts

6.2 Soil Quality Summary

Select fill and native samples from BH1 to BH3 were submitted for chemical analysis (total of 6 samples). These samples were analyzed for the following parameters:

- Metals (M)
- Metals, Hydride-Forming: As, Se & Sb (H-M)
- Other Regulated Parameters (ORPs):
  - Boron, hot water soluble (HWS)
  - Cyanide (CN-)
  - Electrical Conductivity (EC)
  - Hexavalent Chromium (CrVI)
  - Mercury (Hg)
  - pH
  - Sodium Adsorption Ratio (SAR)
- Polycyclic Aromatic Hydrocarbons (PAHs)
- Petroleum Hydrocarbons (PHCs)
- Volatile Organic Compounds I (VOCs)
- Volatile Organic Compounds II: Benzene, Toluene, Ethylbenzene, Xylene (BTEX)
- Trihalomethanes (THMs)

It is understood that although the proposed underground garage will be connected to the existing underground structures at 2333-2235 Hurontario St (referred to as Lots A and B), the proposed development parcel at (Referred to as Lots C and D) will be legally severed from the remainder of the site. As such, the applicable Site Condition Standards (SCS) for the site are the following:

- **O.Reg. 153/04 Table 3 Full Depth Generic Site Condition Standards** in a Non-Potable Ground Water Condition for Residential, Parkland and Institutional Land Use for coarse soil texture (Table 3 RPI CT). The SCS was chosen for the following reasons:
  - The site is proposed for Residential Land Use.
  - Bedrock is located at a depth of greater than 2 m.
  - The site is located in an urban setting, which obtains its potable water from surface water sources.

- Although the site boundary (if including Lots A and B) is located within 30 m of a surface water body, the development area (Lots C and D) will not located within 30 m of a surface water body after legal severance.
- The soil is coarse texture.
- The site is not located in or adjacent to or within 30 m of an area of natural significance.

- The results of the chemical analysis were also compared to the following excess soil quality standards (ESQS) to determine if the soil material was suitable as clean fill for reuse by any potential receiving site(s):
  - **O.Reg. 406/19 Table 2.1: Volume Independent Full Depth Excess Soil Quality Standards** in a Potable Ground Water Condition for Residential, Parkland and Institutional Land Use (Table 2.1 RPI)

The results of the soil chemical analysis indicate the following:

Sample ID	Depth Range (m)	Elevation Range (masl)	O.Reg.153/04 Table 3 RPI CT	O.Reg. 406/19 Table 2.1 RPI
BH1 SS1	0.0 - 0.6	105.5 - 104.8	Meets	Meets
BH1 SS2A	0.8 - 1.0	104.7 - 104.5	Meets	Exceeds [PHCs (F2) - 12 ug/g vs Standard 10 ug/g]
BH1 SS4	2.3 - 2.9	103.2 - 102.6	Meets	Meets
DUP14 (BH1 SS4)	2.3 - 2.9	103.2 - 102.6	Meets	Meets
BH1 SS7B	4.9 - 5.2	100.6 - 100.3	Meets	Meets
DUP17B (BH1 SS7B)	4.9 - 5.2	100.6 - 100.3	Meets	Meets
BH2 SS1	0.0 - 0.6	105.1 - 104.5	Meets	Meets
BH2 SS6	3.8 - 4.4	101.3 - 100.7	Meets	Meets
BH2 SS7	4.6 - 5.2	100.5 - 99.9	Meets	Meets
BH2 SS8	6.1 - 6.7	99.0 - 98.4	Meets	Exceeds [PHCs (F2) - 29 ug/g vs Standard 10 ug/g]
BH2 SS10B	9.3 - 9.8	95.7 - 95.3	Meets	Meets
BH3 SS1B	0.2 - 0.6	104.6 - 104.2	Exceed (SAR)	Exceeds (SAR)
BH3 SS2	0.8 - 1.4	104.1 - 103.4	Meets	Meets
BH3 SS4	2.3 - 2.9	102.5 - 101.9	Meets	Meets
BH3 SS5	3.0 - 3.7	101.8 - 101.2	Meets	Meets

As per O.Reg. 153/04 Section 49.1, the Qualified Person has determined that applicable site condition standard for EC and SAR is exceeded at a property solely because a substance (salt) has been applied to surfaces for the safety of vehicular or pedestrian traffic under conditions of snow or ice or both. As such, the salt related parameters for EC/SAR are determined to **not exceed** the applicable Table 3 RPI standard.

In addition to the O.Reg.153/04 analysis noted above, one (1) sample was submitted for analysis of O.Reg.347 Schedule 4 parameters (TCLP analysis) for waste classification purposes. The analysis was conducted for the following parameters.

- Benzo(a)pyrene
- Metals & Inorganics
- Volatile Organic Compounds (VOCs)
- Polychlorinated Biphenyls (PCBs)

The results of chemical analysis indicate the soil is considered **non-hazardous** and should be handled as accordingly.

6.3 Groundwater Quality Summary

Groundwater was not analyzed at this time. It is noted that a sheen was observed during well development at BH2, however, no free phase liquid (LNAPL or DNAPL) was detected during subsequent groundwater level monitoring.

Groundwater level in the aquifer was determined to be approximately 5.5 mbgs and groundwater flow is expected to flow east/southeast towards Cooksville Creek, and ultimately south towards Lake Ontario.

7 Conclusions

7.1 Geotechnical & Hydrogeological Engineering

Grounded considers this site to be **feasible** from a geotechnical and hydrogeological engineering perspective provided the below recommendations are implemented:

- Based on our preliminary analysis, it is anticipated that the proposed development may be supported by spread footings bearing on competent glacial till, or high capacity end-bearing caissons made on sound bedrock (observed at Elev. 93.7 to 93.8± m).
- Groundwater control will be required during construction; seepage may be allowed to drain into the excavation and then pumped out using a conventional sump pump arrangement.
- A soldier pile and lagging shoring system is feasible in areas where there are no adjacent structures to be supported; otherwise, a rigid caisson shoring wall is required.

- A drained below-grade structure is feasible; the downstream capacity should be confirmed by the civil engineer.

7.2 Environmental Engineering

Grounded considers that this site is **feasible** from environmental engineering perspective. The following considerations and preliminary recommendations should be taken into account for development of the site and is subject to change as the development design is refined:

- It is understood that although the proposed underground garage will be connected to the existing underground structures at 2333 and 2335 Hurontario St (referred to as Lots A and B), the proposed development parcel (Referred to as Lots C and D) will be legally severed from the remainder of the site. As the development parcel will be beyond 30 m from a water body, the less stringent Table 3 RPI SCS will apply.
- The assessed soil at the Property **meets** the applicable Site Condition Standards for the development lands area i.e., Table 3 RPI CT Standards, as per O.Reg. 153/04 requirements.
- A Record of Site Condition (RSC) will be mandatory for the development parcel (Lots C and D) under the Environmental Protection Act (O.Reg. 153/04) since there will be a change to a more sensitive Land Use (i.e., commercial to residential).
    - Additional boreholes with soil and groundwater sampling to fully address areas of potential environmental concern on the Property will be required to meet the O.Reg. 153/04 requirements prior to RSC filing.
    - If any impacts are found at that time, remediation of the soil impacts and confirmatory soil sampling in accordance with O.Reg. 153/04, may be required.
    - If P2 underground structure is to be advanced, the soil and groundwater impacts above this depth will likely be removed during bulk excavation or dewatering; thereby improving the environmental quality at the site.
- The management and removal of Excess Soil from a development Property is now governed under Ontario Regulation 406/19. Since an underground structure is proposed, approximately 36,000 $m^3$of excess soil is estimated to be generated at the Property for a P2 underground structure (assumed excavation area of 4,500 m^2 and bulk excavation depth of 8 m).
    - The limited assessment of soil during this study indicated localized impacted soils (PHCs) when compared to Table 2.1 RPI excess soil quality standards both within the fill material (above 1 mbgs) and locally within the native soils (6 -6.7 mbgs).
    - Additional soil characterization and reporting in accordance with O.Reg. 406/19 will be required once the development design has been finalized. This characterization will allow for delineation of the identified impacts and potential management of impacts through mechanisms within the regulations (e.g. statistical analysis, remediation, BRAT, etc.).

- The excavation tender should carry allowance for premium costs for disposal of impacted soils.
- The above volume estimates and comments are subject to change as additional data becomes available for the site and if the applicable excess soil standards are revised.

8 Recommendations

Based on the factual information at the site, Grounded recommends the following:

- Additional investigation (incl. boreholes with rock coring and monitoring wells) must be advanced for detailed design and regulatory requirements.
  - Additional boreholes with rock coring are required for detailed geotechnical foundation design. Pressuremeter testing may also be considered to refine and improve upon the soil stiffness parameters for optimal design for spread footing capacity.
  - Additional monitoring wells below the lowest proposed FFE are required for detailed hydrogeological design.
  - These boreholes can also be used for environmental delineation of impacts.
  - Additional shallow boreholes with monitoring wells to Elev. 98 masl to provide coverage for RSC purposes. These wells can be advanced from within the existing P1 underground structure. The soil sampling must assess for the historical uses including an orchard on the central portion of the site in the late 1930s to 1950s, and infilling of former swimming pool in the commercial building basement.
  - Groundwater monitoring and sampling in select existing monitoring wells (Boreholes 1 to 3).
- A test pitting program to observe the undersides of select existing footings immediately adjacent to the proposed excavation extent may be considered to refine the potential shoring or underpinning strategies at the site.
- A Record of Site Condition (RSC) will be mandatory under the Environmental Protection Act (O.Reg. 153/04) since there will be a change to a more sensitive Land Use (i.e., commercial to residential).
  - It is noted that the City of Mississauga typically requires RSC prior to issuance of above-grade permits. A site screening questionnaire completed by a Qualified Person may also be required during Site Plan Approval.
- A complete Phase One and Phase Two ESA conducted in accordance with O.Reg. 153/04, as amended (dated within 18 months of the filing of the RSC), will be required to support the filing of an RSC for the proposed change of land use.
- Since an underground structure is proposed, excess soil will be generated at the Property. Compliance with the planning requirements (Section 14) of O.Reg. 406/19 (i.e., assessment of past uses, sampling analysis plan, soil characterization, soil destination report and tracking) will be required prior to movement of excess soil generated from bulk exaction of proposed development. It is recommended that these scopes be completed 2-3 months prior to issuance of soil tender.

- Additional soil sampling is to be conducted to quantify the quality of the soils for offsite disposal prior to disposal, in accordance with O.Reg. 406/19. It is recommended that this sampling be completed 3-6 months prior to excavation tender.

9 Limitations and Restrictions

This feasibility study is intended for due diligence purposes only. As the design details are finalized, additional site-specific boreholes, groundwater monitoring wells, in situ and laboratory testing, and updated detailed engineering reports are required. Once completed, the future detailed engineering reports by Grounded would then supersede this feasibility letter. Note that preliminary findings can vary significantly from the findings of a detailed comprehensive study.

The results of this analysis are in reference to only the soil samples and groundwater collected from specific locations, and soil chemistry and soil composition may vary between and beyond the locations of the analysed samples.

A carefully conducted, fully comprehensive investigation and sampling scope of work carried out under the most stringent level of oversight may still fail to detect certain ground conditions. As such, users of this report must be aware of the risks inherent in using engineered field investigations to observe and record subsurface conditions. As a necessary requirement of working with discrete test locations, Grounded has assumed that the conditions between test locations are the same as the test locations themselves, for the purposes of providing geotechnical engineering advice.

The analytical results contained in this report should not be considered a warranty with respect to the soil quality or the use of the soil for any specific purpose. This letter provides the factual results of the chemical analysis only for the specific parameters analysed, in the locations actually sampled. No opinion is presented regarding the earthwork or suitability of the soil for any purpose. Earthworks related to the soil removal at the site should be conducted under the supervision of qualified personnel, thus ensuring that the soil material is properly inspected and that any deleterious materials, if present, are properly identified and removed. If there is indication of soil quality variation and/or other chemical/environmental concerns, further chemical testing should be carried out as necessary. Further, it must be noted that our scope of work, as directed by the client, was only limited to collecting soil samples and review of the analytical results.

It is not possible to design a field investigation with enough test locations that would provide complete subsurface information, nor is it possible to provide engineering advice that completely identifies or quantifies every element that could affect construction, scheduling, or tendering. Contractors undertaking work based on this report (in whole or in part) must make their own determination of how they may be affected by the subsurface conditions, based on their own analysis of the factual information provided and based on their own means and methods. Contractors using this report must be aware of the risks implicit in using factual information at discrete test locations to infer subsurface conditions across the site and are directed to conduct their own investigations as needed.

This report provides preliminary geotechnical, hydrogeological, and environmental engineering advice intended for use by the owner and their retained design team for due diligence only. These preliminary interpretations, design parameters, advice, and discussion on construction considerations are not complete. Grounded will not be responsible for any future overages to project pro formas or tenders/construction budgets as this is the sole responsibility of the client. Detailed site-specific subsurface investigations must be conducted by Grounded during design development to confirm and update the preliminary recommendations provided here.

10 Closure

We trust that the information contained in this letter is sufficient for your present requirements. If we can be of further assistance, please do not hesitate to contact us.

GROUNDED ENGINEERING

LICENSED PROFESSIONAL ENGINEER
S. MELANTA
100169431
Aug 16, 2024
PROVINCE OF ONTARIO

Suvish Melanta, P.Eng., QP_{ESA}
Associate, Environmental Engineering

LICENSED PROFESSIONAL ENGINEER
N. Y.-Q. NG
100510783
2024.08.16
PROVINCE OF ONTARIO

Nick Ng, P.Eng.
Team Lead, Geotechnical Engineering

David MacGillivray, P.Geo., P.Eng., $QP_{ESA|RA}$
Associate, Environmental Engineering

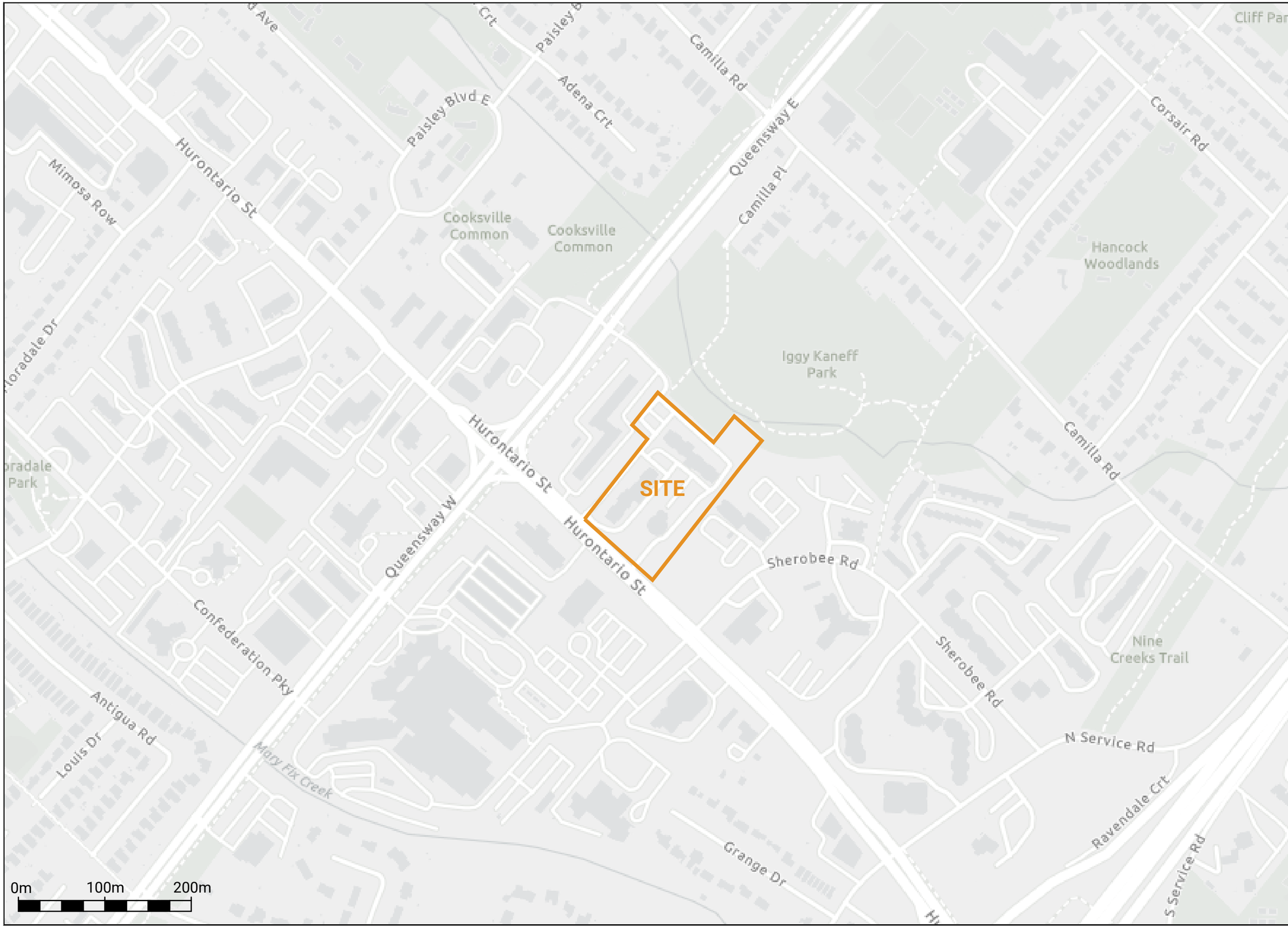
Jason Crowder, Ph.D., P.Eng.
Principal, Geotechnical Engineering

Figure 1 – Site Location Plan
Figure 2 – Borehole Location Plan (Existing Condition)
Figure 3 – Borehole Location Plans (Proposed Conditions – Site Plan, P1 Level, P2 Level)

Appendix A – Borehole Logs; Abbreviations and Terminology;
Appendix B – Geotechnical Laboratory Results
Appendix C – Rock Core Photographs; Rock Core Laboratory Results
Appendix D – Aquifer Response Tests
Appendix E – HydrogeoSieveXL Data
Appendix F – Laboratory Certificates of Analysis (Groundwater Quality for Discharge)
Appendix G – Laboratory Certifications (Soil Chemistry)
Appendix H – Dewatering Calculations
Appendix I – Typical Details

FIGURES





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LEGEND

APPROXIMATE SITE BOUNDARY

Note

Reference

ArcGIS Online 2024

Project

2233 HURONTARIO ST, MISSISSAUGA, ONTARIO

Figure Title

SITE LOCATION PLAN

North

TRUE
PROJECT

Date

JULY 2024

Scale

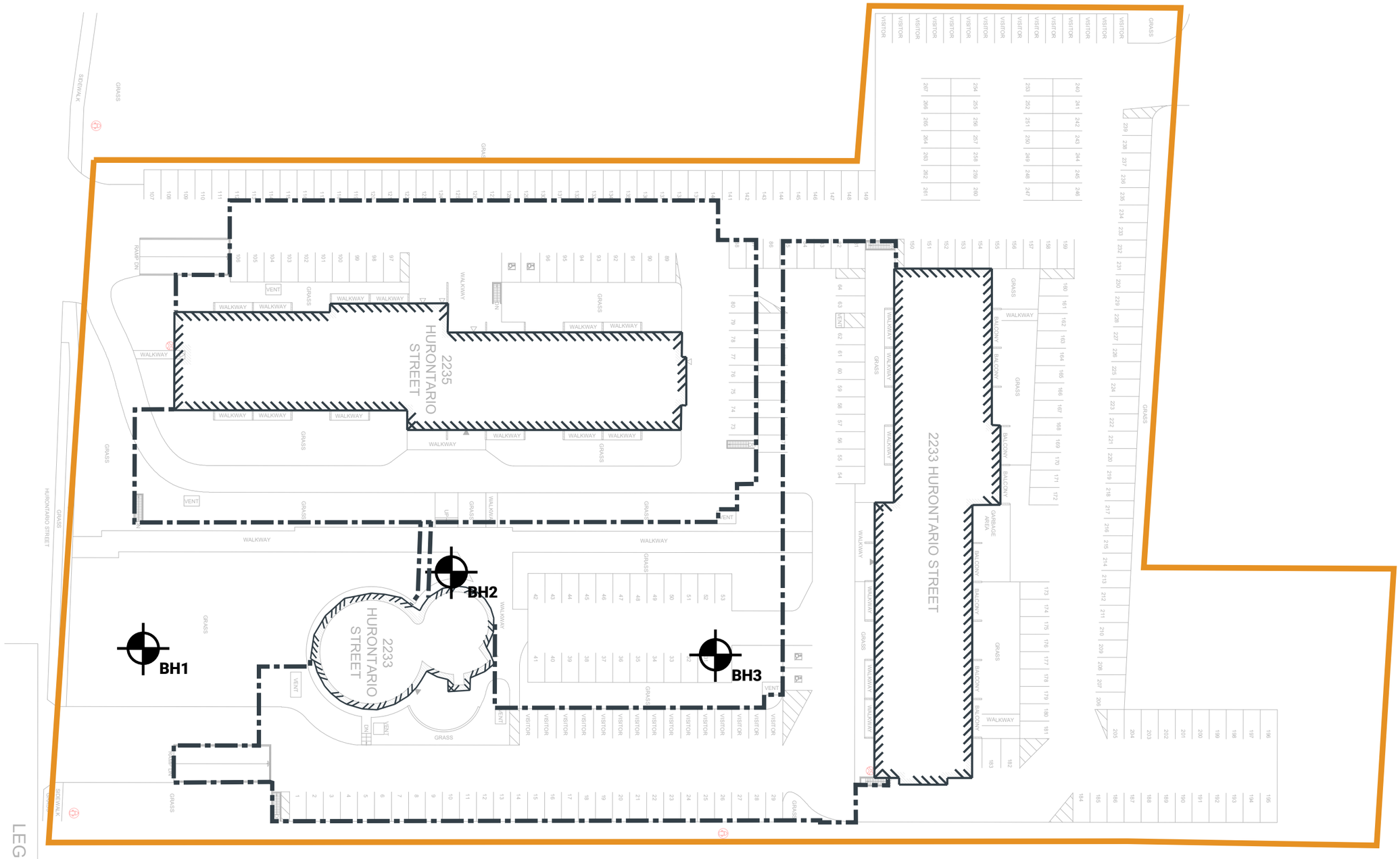
AS INDICATED

Job No

24-099

Figure No

FIGURE 1



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LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EXTENT OF EXISTING UNDERGROUND PARKING LEVEL
- APPROXIMATE MONITORING WELL/BOREHOLE LOCATION BY GROUNDED

Note

Reference

Topographic Survey,

Project

2233 HURONTARIO ST, MISSISSAUGA, ONTARIO

Figure Title

BOREHOLE LOCATION PLAN - EXISTING CONDITION

North

TRUE
PROJECT

Date

JULY 2024

Scale

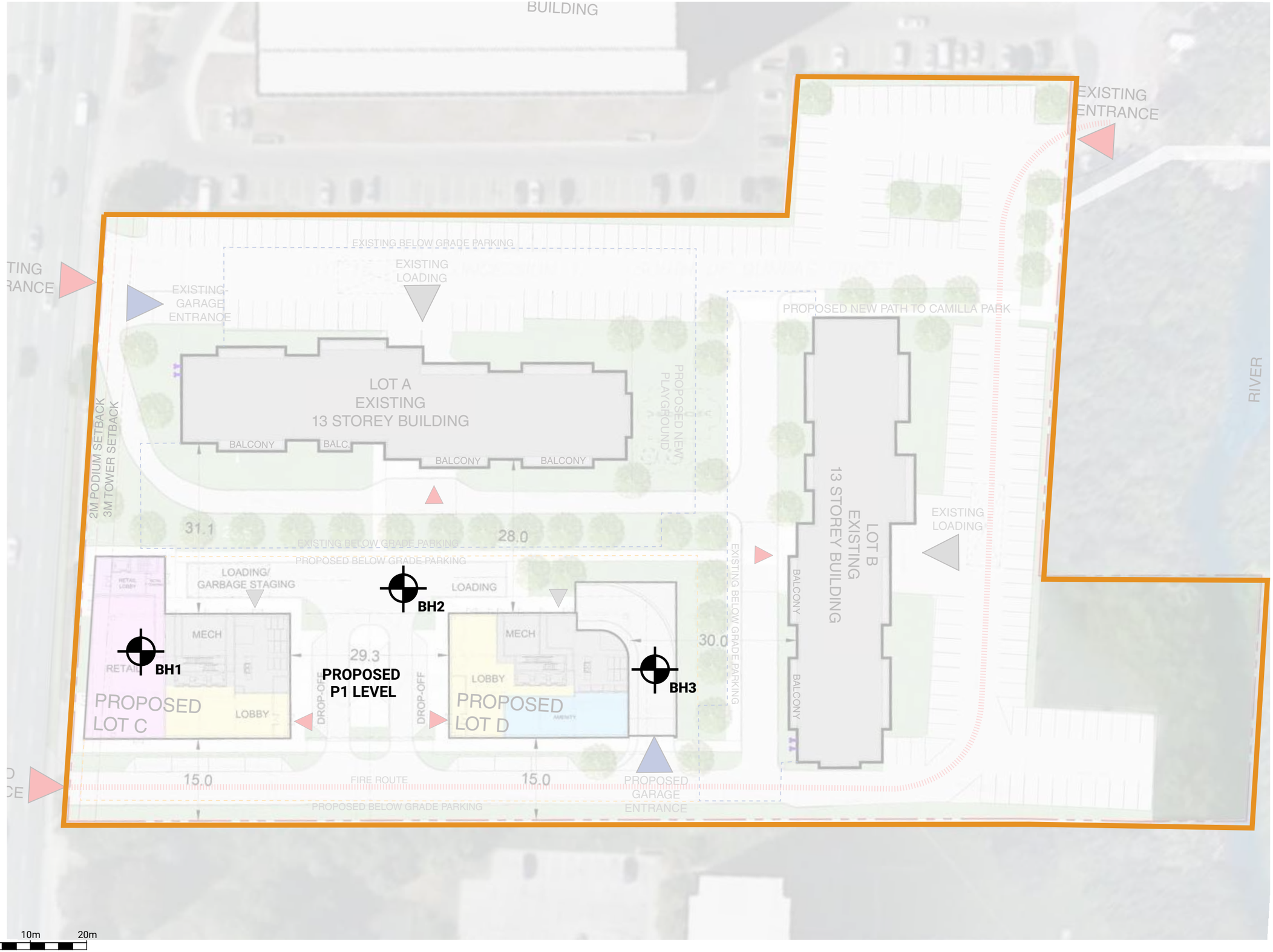
AS INDICATED

Job No

24-099

Figure No

FIGURE 2



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LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EXTENT OF PROPOSED UNDERGROUND PARKING
- APPROXIMATE EXTENT OF PROPOSED HIGH-RISE TOWERS
- APPROXIMATE MONITORING WELL/BOREHOLE LOCATION BY GROUNDED

Note

Reference

Architectural Drawings, "2233 Hurontario Street - Parking P1 Level"; dated October 28, 2022, prepared by Ark Petroff

Project

2233 HURONTARIO ST, MISSISSAUGA, ONTARIO

Figure Title

BOREHOLE LOCATION PLAN - PROPOSED CONDITION - SITE PLAN

North

TRUE
PROJECT

Date

JULY 2024

Scale

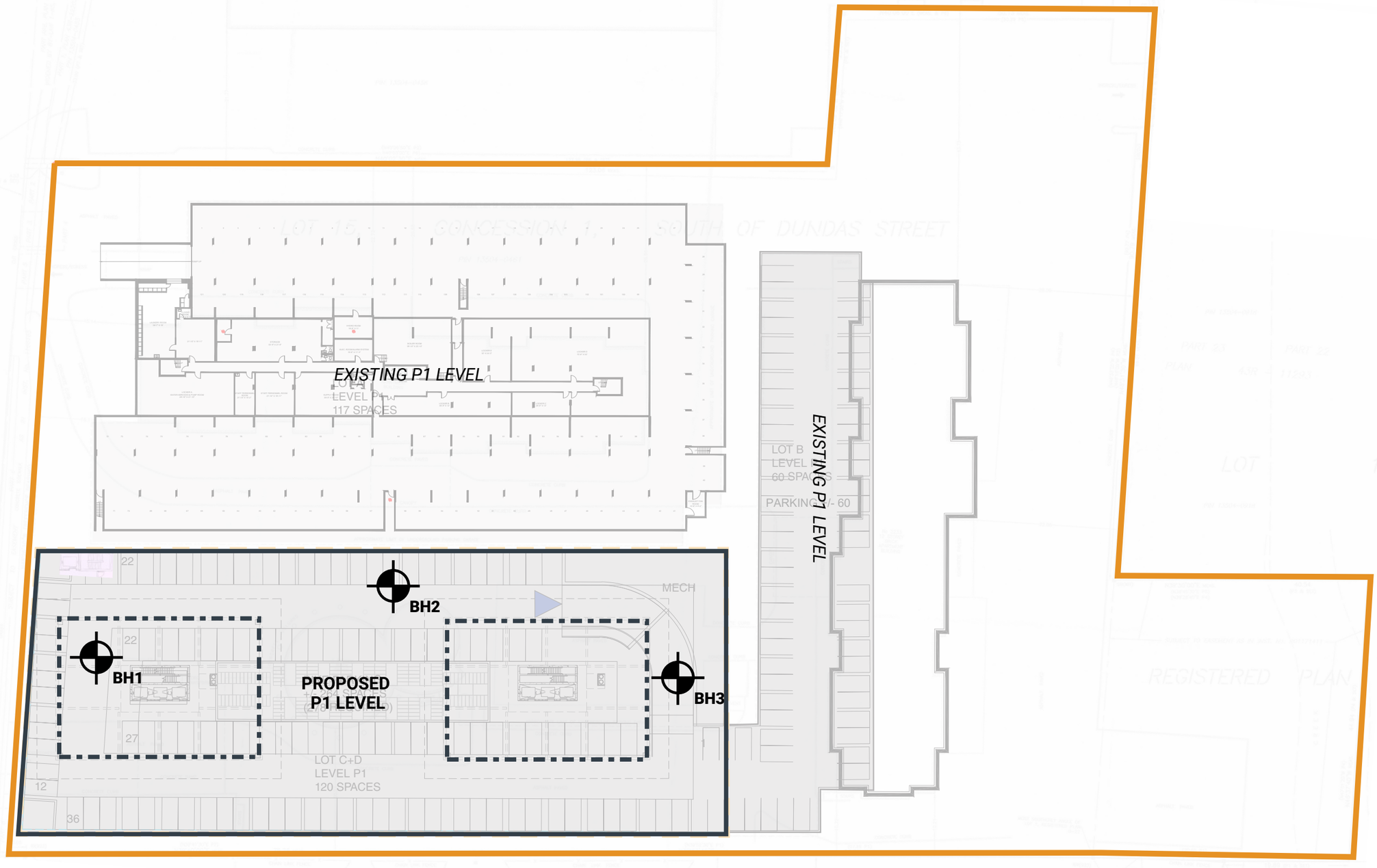
AS INDICATED

Job No

24-099

Figure No

FIGURE 3A



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LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EXTENT OF PROPOSED UNDERGROUND PARKING
- APPROXIMATE EXTENT OF PROPOSED HIGH-RISE TOWERS
- APPROXIMATE MONITORING WELL/BOREHOLE LOCATION BY GROUNDED

Note

Reference

Architectural Drawings, "2233 Hurontario Street - Parking P1 Level"; dated October 28, 2022, prepared by Ark Petroff

Project

2233 HURONTARIO ST, MISSISSAUGA, ONTARIO

Figure Title

BOREHOLE LOCATION PLAN - PROPOSED CONDITION - P1 LEVEL

North

TRUE
PROJECT

Date

JULY 2024

Scale

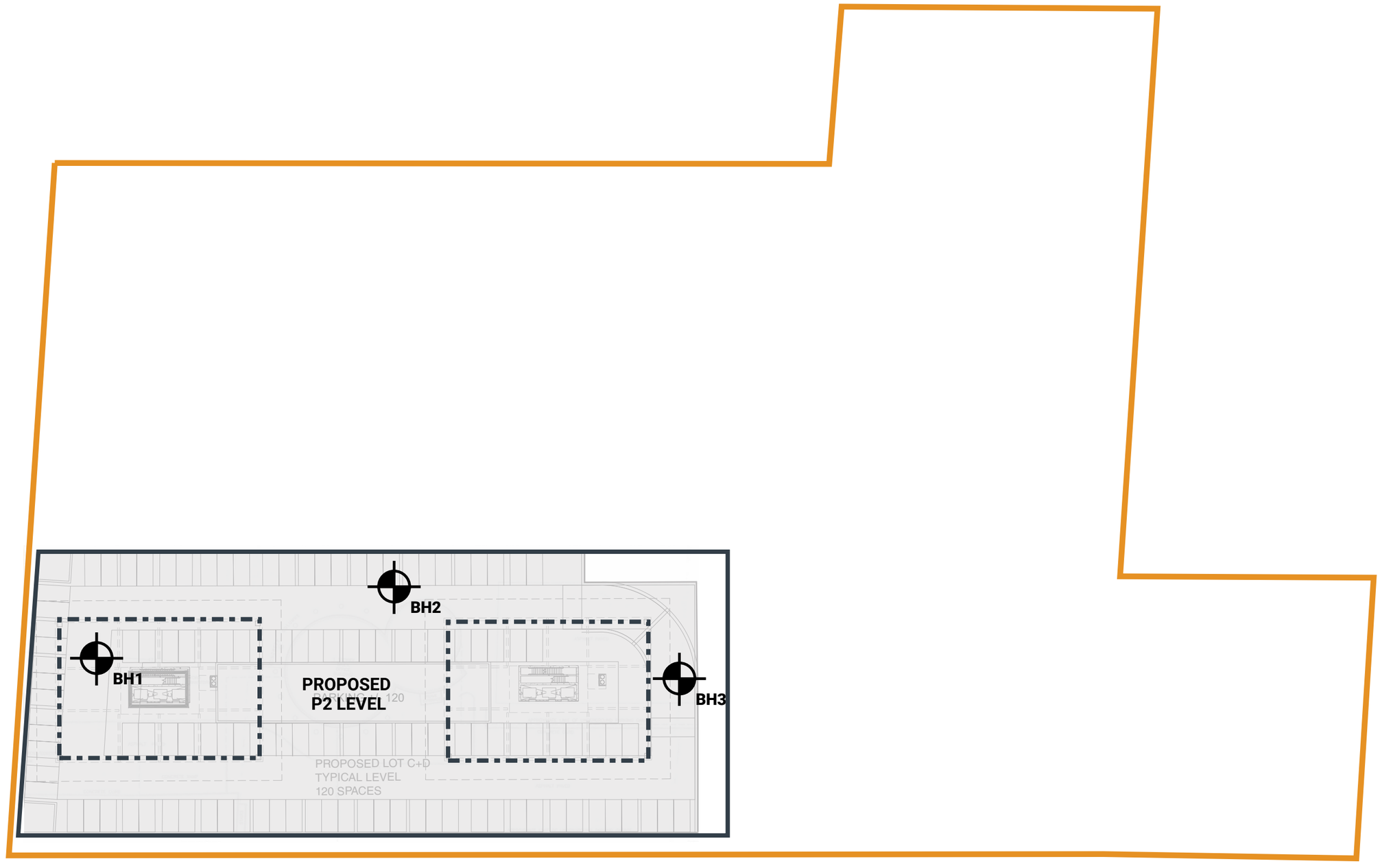
AS INDICATED

Job No

24-099

Figure No

FIGURE 3B



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LEGEND

- APPROXIMATE SITE BOUNDARY
- APPROXIMATE EXTENT OF PROPOSED UNDERGROUND PARKING
- APPROXIMATE EXTENT OF PROPOSED HIGH-RISE TOWERS
- APPROXIMATE MONITORING WELL/BOREHOLE LOCATION BY GROUNDED

Note

Reference

Architectural Drawings, "2233 Hurontario Street - Parking P1 Level"; dated October 28, 2022, prepared by Ark Petroff

Project

2233 HURONTARIO ST, MISSISSAUGA, ONTARIO

Figure Title

BOREHOLE LOCATION PLAN - PROPOSED CONDITION - P2 LEVEL

North

TRUE
PROJECT

Date

JULY 2024

Scale

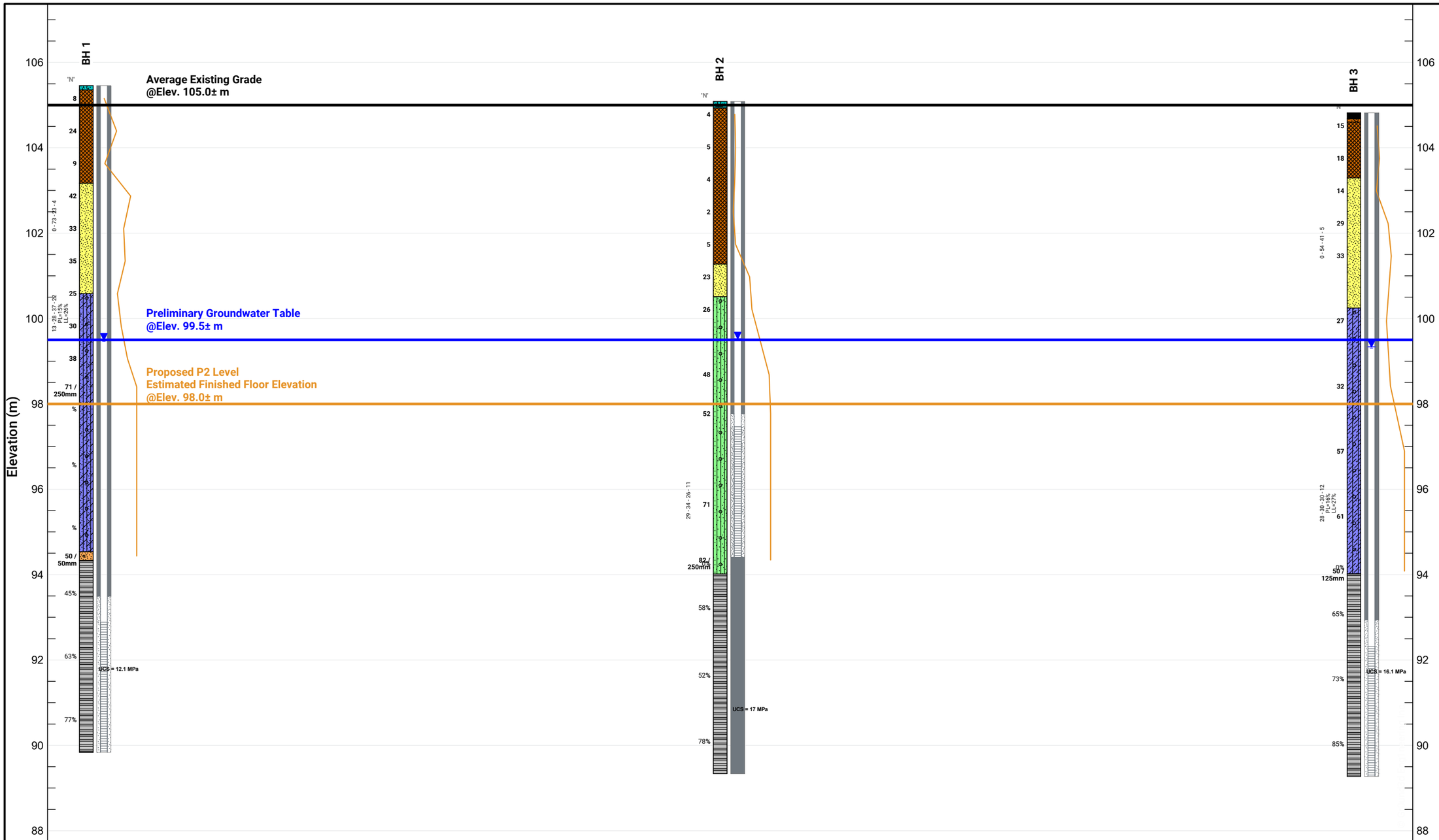
AS INDICATED

Job No

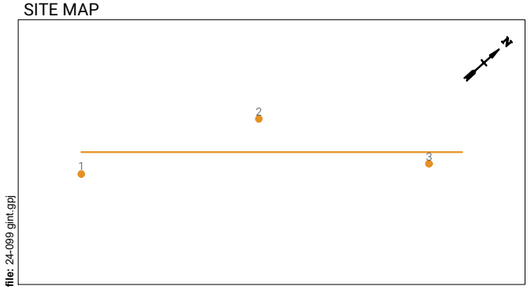
24-099

Figure No

FIGURE 3C



SITE MAP



file: 24-099 gint.gpj

Boreholes Equally Spaced

BOREHOLE STRATIGRAPHY LEGEND

- Topsoil
- Fill
- Sand
- Clayey Silt Till (sandy)
- Gravelly Sand
- Bedrock (cored)
- Sandy Silt Till
- Asphalt
- Aggregate
- Clayey Silt Till

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LEGEND

- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLESS TILLS
- COHESIVE SOILS (clayey silt to clay, incl. tills)
- DISTURBED/REWORKED/ORGANIC

BH 101 BOREHOLES BY GROUNDED

T-BH7 BOREHOLES BY OTHERS

- water level, unstabilized
- water level, stabilized (latest)
- water level, stabilized (highest)

Project

2233 & 2235 HURONTARIO ST MISSISSAUGA

Figure Title

SUBSURFACE PROFILE

Date

AUGUST 2024

Scale

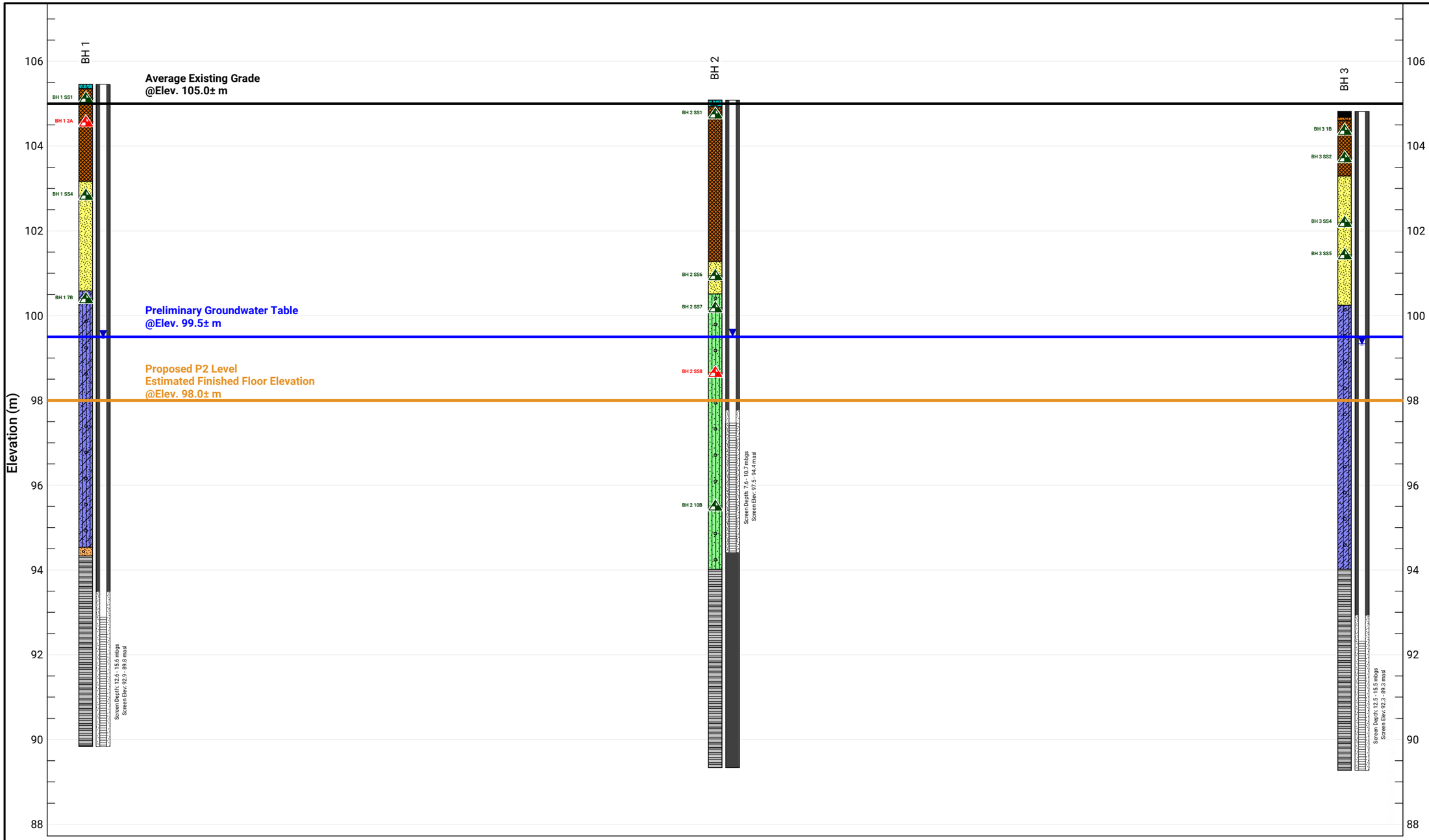
AS INDICATED

Job No

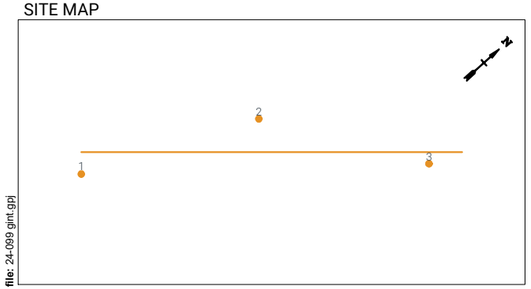
24-099

Figure No

FIGURE 4



SITE MAP



file: 24-099.gint.gpj

Boreholes Equally Spaced

BOREHOLE STRATIGRAPHY LEGEND

- Topsoil
- Fill
- Sand
- Clayey Silt Till (sandy)
- Gravelly Sand
- Bedrock (cored)
- Sandy Silt Till
- Asphalt
- Aggregate
- Clayey Silt Till

SS1 SOIL SAMPLE LOCATION MEETS STANDARD

SS1 SOIL SAMPLE LOCATION EXCEEDS STANDARD

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LEGEND

- FILL
- GRAVELS (gravel to gravelly sand)
- SILT TO SAND (not till)
- COHESIONLESS TILLS
- COHESIVE SOILS (clayey silt to clay, incl. tills)
- DISTURBED/REWORKED/ORGANIC

BH 101 BOREHOLES BY GROUNDED

T-BH7 BOREHOLES BY OTHERS

- water level, unstabilized
- water level, stabilized

Project

2233 & 2235 HURONTARIO ST MISSISSAUGA

Figure Title

SUBSURFACE CROSS-SECTION

ENVIRONMENTAL SOIL QUALITY

All Parameters Tested

Date

AUGUST 2024

Scale

AS INDICATED

Job No

24-099

Figure No

FIGURE 5

APPENDIX A



BOREHOLE LOG TERMINOLOGY

GROUNDED ENGINEERING

SAMPLING/TESTING METHODS

SS: split spoon sample

AS: auger sample

GS: grab sample

FV: shear vane

DP: direct push

PMT: pressuremeter test

ST: shelby tube

CORE: soil coring

RUN: rock coring

SYMBOLS & ABBREVIATIONS

MC: moisture content

LL: liquid limit

PL: plastic limit

NP: non-plastic

γ: soil unit weight (bulk)

G_s: specific gravity

S_u: undrained shear strength

▽ unstabilized water level

▼ water level measurement

▼ highest water level measurement

ENVIRONMENTAL SAMPLES

M&I: metals and inorganic parameters

PAH: polycyclic aromatic hydrocarbon

PCB: polychlorinated biphenyl

VOC: volatile organic compound

PHC: petroleum hydrocarbon

BTEX: benzene, toluene, ethylbenzene and xylene

PPM: parts per million

FIELD MOISTURE (based on tactile inspection)

DRY: no observable pore water

MOIST: inferred pore water, not observable (i.e. grey, cool, etc.)

WET: visible pore water

COHESIONLESS

Relative Density	N-Value
Very Loose	<4
Loose	4 - 10
Compact	10 - 30
Dense	30 - 50
Very Dense	>50

COHESIVE

Consistency	N-Value	Su (kPa)
Very Soft	<2	<12
Soft	2 - 4	12 - 25
Firm	4 - 8	25 - 50
Stiff	8 - 15	50 - 100
Very Stiff	15 - 30	100 - 200
Hard	>30	>200

COMPOSITION

Term	% by weight
trace silt	<10
some silt	10 - 20
silt***y***	20 - 35
sand ***and*** silt	>35

ASTM STANDARDS

ASTM D1586 Standard Penetration Test (SPT)
Driving a 51 mm O.D. split-barrel sampler ("split spoon") into soil with a 63.5 kg weight free falling 760 mm. The blows required to drive the split spoon 300 mm ("bpf") after an initial penetration of 150 mm is referred to as the N-Value.

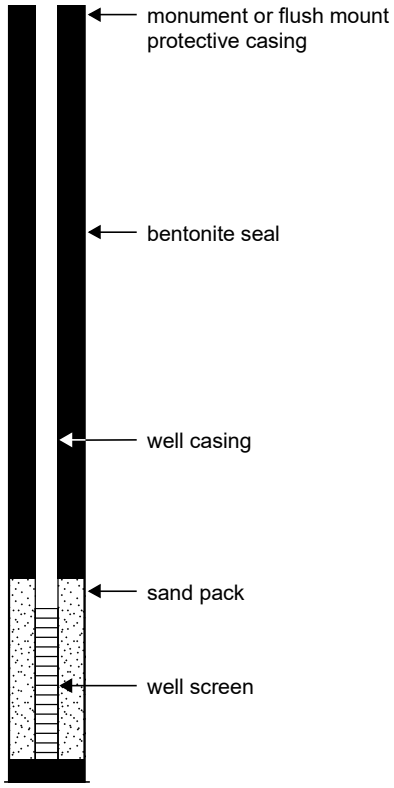
ASTM D3441 Cone Penetration Test (CPT)
Pushing an internal still rod with a outer hollow rod ("sleeve") tipped with a cone with an apex angle of 60° and a cross-sectional area of 1000 mm^2 into soil. The resistance is measured in the sleeve and at the tip to determine the skin friction and the tip resistance.

ASTM D2573 Field Vane Test (FVT)
Pushing a four blade vane into soil and rotating it from the surface to determine the torque required to shear a cylindrical surface with the vane. The torque is converted to the shear strength of the soil using a limit equilibrium analysis.

ASTM D1587 Shelby Tubes (ST)
Pushing a thin-walled metal tube into the in-situ soil at the bottom of a borehole, removing the tube and sealing the ends to prevent soil movement or changes in moisture content for the purposes of extracting a relatively undisturbed sample.

ASTM D4719 Pressuremeter Test (PMT)
Place an inflatable cylindrical probe into a pre-drilled hole and expanding it while measuring the change in volume and pressure in the probe. It is inflated under either equal pressure increments or equal volume increments. This provides the stress-strain response of the soil.

WELL LEGEND



ROCK CORE TERMINOLOGY (MTO SHALE)

TCR **Total Core Recovery** the total length of recovery (soil or rock) per run, as a percentage of the drilled length
SCR **Solid Core Recovery** the total length of sound full-diameter rock core pieces per run, as a percentage of the drilled length
RQD **Rock Quality Designation** the sum of all pieces of sound rock core in a run which are 10 cm or greater in length, as a percentage of the drilled length

Natural Fracture Frequency (typically per 0.3 m) The number of natural discontinuities (joints, faults, etc.) which are present per 0.3m. Ignores mechanical or drill-induced breaks, and closed discontinuities (e.g. bedding planes).

LOGGING DISCONTINUITIES

Discontinuity Type

BP bedding parting
CL cleavage
CS crushed seam
FZ fracture zone
MB mechanical break
IS infilled seam
JT Joint
SS shear surface
SZ shear zone
VN vein
VO void

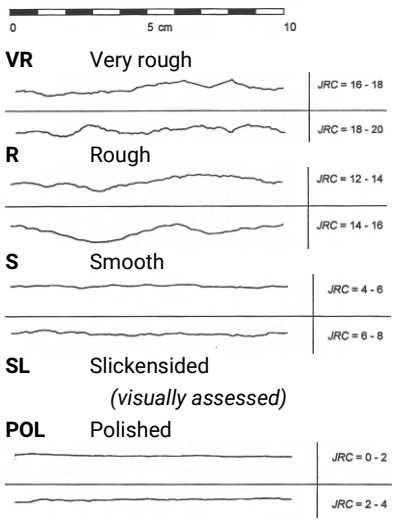
Coating

CN Clean
SN Stained
OX Oxidized
VN Veneer
CT Coating (>1 mm)

Dip Inclination

H	horizontal/flat	0 - 20°
D	dipping	20 - 50°
SV	sub-vertical	50 - 90°
V	vertical	90±°

Roughness (Barton et al.)



Spacing in Discontinuity Sets (*ISRM 1981*)

VC	very close	< 60 mm
C	close	60 – 200 mm
M	mod. close	0.2 to 0.6 m
W	wide	0.6 to 2 m
VW	very wide	> 2 m

Aperture Size

T	closed / tight	< 0.5 mm
GA	gapped	0.5 to 10 mm
OP	open	> 10 mm

Planarity

PR	Planar
UN	Undulating
ST	Stepped
IR	Irregular
DIS	Discontinuous
CU	Curved

GENERAL

Degree of Weathering (*after MTO, RR229 Evaluation of Shales for Construction Projects*)

Zone	Degree	Description
Z1	unweathered	shale, regular jointing
Z2	partially weathered	angular blocks of unweathered shale, no matrix, with chemically weathered but intact shale
Z3		soil-like matrix with frequent angular shale fragments < 25mm diameter
Z4a		soil-like matrix with occasional shale fragments < 3mm diameter
Z4b	fully weathered	soil-like matrix only

Strength classification (*after Marinos and Hoek, 2001; ISRM 1981b*)

Grade		UCS (MPa)	Field Estimate (Description)
R6	extremely strong	> 250	can only be chipped by geological hammer
R5	very strong	100 - 250	requires many blows from geological hammer
R4	strong	50 - 100	requires more than one blow from geological hammer
R3	medium strong	25 - 50	can't be scraped, breaks under one blow from geological hammer
R2	weak	5 - 25	can be peeled / scraped with knife with difficulty
R1	very weak	1 - 5	easily scraped / peeled, crumbles under firm blow of geo. hammer
R0	extremely weak	< 1	indented by thumbnail

Bedding Thickness (*Q. J. Eng. Geology, Vol 3, 1970*)

Very thickly bedded	> 2 m
Thickly bedded	0.6 – 2m
Medium bedded	200 – 600mm
Thinly bedded	60 – 200mm
Very thinly bedded	20 – 60mm
Laminated	6 – 20mm
Thinly Laminated	< 6mm

GROUNDED ENGINEERING

Date Started : Jun 26, 2024
Position : E: 612593, N: 4825406 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 1

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

drill method : CME 75

elev depth (m)	description	graphic log	number	type	SPT N-value
105.5	**GROUND SURFACE**				
	100mm **TOPSOIL**				
	FILL, silty sand, trace clay, trace gravel, trace rootlets, loose to compact, brown, moist		1	SS	8
	...at 1.0 m, trace wood fragments		2A 2B	SS	24
	...at 1.5 m, trace cinder, light brown and dark brown		3	SS	9
103.2					
2.3	**SAND**, trace to some silt, trace clay, dense, brown, moist		4	SS	42
	...at 3.0 m, silty sand, greyish brown		5	SS	33
	...at 3.8 m, wet		6	SS	35
	...at 4.6 m, compact, grey		7A	SS	25
100.6					
4.9	**SANDY SILT**, clayey, trace to some gravel, very stiff to hard, grey, moist (GLACIAL TILL)		7B	SS	
			8	SS	30
			9	SS	38
			10	SS	71 / 250mm
			1	RUN	
			2	RUN	
			3	RUN	

hollow stem augers OD=215 mm

rock coring (HQ) OD=96 mm

depth scale (m) 0 1 2 3 4 5 6 7 8 9

well details

elevation (m) 105 104 103 102 101 100 99 98 97 96

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
△ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

SS1: H-Ms, Metals, ORPs

2A: BTEX, PAHs, PHCs, VOCs

SS4: H-Ms, Metals, ORPs, PAHs

0 73 23 4

7B: BTEX, PHCs, VOCs

13 28 37 22

split-spoon sampler refusal, cobble/boulder inferred, started coring to penetrate through obstruction

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

(continued next page)

GROUNDED ENGINEERING

Date Started : Jun 26, 2024
Position : E: 612593, N: 4825406 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 1

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

drill method : CME 75

rock coring (HQ) OD=96 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
	(continued)				
	SANDY SILT, clayey, trace to some gravel, very stiff to hard, grey, moist (GLACIAL TILL) *(continued)*		3	RUN	
94.6					
10.9					
94.4	**GRAVELLY SAND**, trace silt, trace clay, very dense, grey, wet		11	SS	50 / 50mm
11.1					
	GEORGIAN BAY FORMATION (See rock core log for details)		4	RUN	
			5	RUN	
			6	RUN	
89.9					
15.6					

depth scale (m): 10, 11, 12, 13, 14, 15

well details

elevation (m): 95, 94, 93, 92, 91, 90

undrained shear strength (kPa)
■ unconfined + field vane
● pocket penetrometer ○ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
△ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

11.7 m (Elev. 93.8 m): transition to sound bedrock

END OF BOREHOLE

Borehole was filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Jul 4, 2024	6.1	99.4
Jul 12, 2024	6.0	99.5

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

GROUNDED ENGINEERING

Date Started : Jun 26, 2024
Position : E: 612593, N: 4825406 (UTM 17T)
Elev. Datum : Geodetic

ROCK CORE LOG 1

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

depth (m)	stratigraphy	Run	elev. depth (m)	recovery	elevation (m)	shale weathering zones	UCS (MPa) / estimated strength	natural fracture frequency	laboratory testing	notes and comments
	Rock coring started at 7.0m below grade		**98.5**							
	SANDY SILT, clayey, trace to some gravel, very stiff to hard, grey, moist (GLACIAL TILL)		7.0							
		R1		TCR = **93%**						
8			97.3		98					
			8.2							
		R2		TCR = **98%**	97					
9			95.9							
			9.6		96					
		R3		TCR = **0%**						**9.6 / 95.9 - 10.9 / 94.5m:** core loss (no recovery)
10					95					
11	**GRAVELLY SAND**, trace silt, trace clay, very dense, grey, wet		94.4							
	GEORGIAN BAY FORMATION **Shale**, dark grey, laminated to thinly bedded, weak; joints are horizontal, gapped, clean to unaltered;		11.1		94			2+RZ		**11.1 / 94.3 - 11.3 / 94.2m:** rubbilized zone
								3+WZ		**11.4 / 94.1m:** 75mm weathered zone
	interbedded with **limestone**, light grey, laminated to thinly bedded, strong									**11.5 / 94.0m:** 25mm FC SV PR S GA CN
12	*Overall shale: 92%, limestone: 8%* **... at 11.7 m (Elev. 93.8 m), transition to sound rock**	R4		TCR = **100%** SCR = **83%** RQD = **45%**				1		**11.6 / 93.8m:** 13mm IS clay
	Run 4 : 8% limestone 92% shale							4		
			92.9		93			4		
			12.6					4+WZ		**12.9 / 92.6m:** 38mm IS clay
13								4		**12.9 / 92.6 - 13.0 / 92.5m:** weathered zone
		R5		TCR = **100%** SCR = **95%** RQD = **63%**	92			1		**13.1 / 92.4m:** 25mm IS clay
								2	**El. 91.8m**: UCS = 12.1 MPa E = 2.90 GPa γ = 25.4 kN/m^3	
14	Run 5 : 6% limestone 94% shale		91.4					3		**13.9 / 91.6m:** 25mm weathered zone
			14.1					2		**14.0 / 91.5m:** 38mm rubbilized zone
					91			2		
		R6		TCR = **100%** SCR = **100%** RQD = **77%**				2		
15								2		
	Run 6 : 8% limestone 92% shale		89.9		90			1		**15.5 / 90.0m:** 25mm FC SV PR S T CN
			15.6m							

END OF COREHOLE

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

GROUNDED ENGINEERING

Date Started : Jun 27, 2024
Position : E: 612614, N: 4825451 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 2

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

drill method : CME 75

elev / depth (m)	description	graphic log	number	type	SPT N-value
105.1	**GROUND SURFACE**				
104.9 / 0.2	150mm **TOPSOIL**				
	FILL, silty sand, trace clay, trace gravel, trace rootlets, very loose to loose, dark brown and light brown, moist		1	SS	4
			2	SS	5
	...at 1.5 m, trace rock fragments		3	SS	4
	...at 2.3 m, trace wood fragments		4	SS	2
	...at 3.0 m, greyish brown		5	SS	5
101.3 / 3.8	**SAND**, trace silt, trace clay, compact, greyish brown, wet		6	SS	23
100.5 / 4.6	**SANDY SILT**, some clay, trace gravel, compact to dense, grey, moist (GLACIAL TILL)		7	SS	26
	...at 6.1 m, trace clay		8	SS	48
	...at 7.0 m, very dense below		9	SS	52
	...at 9.1 m, gravelly sand, silty, some clay, trace rock fragments, grey with orange, moist, very dense		10A / 10B	SS	71
	...at 10.7 m, trace shale fragments		11	SS	82 / 250mm
94.0 / 11.1	**GEORGIAN BAY FORMATION** (See rock core log for details)		2	RUN	

hollow stem augers OD=215 mm

rock coring (HQ) OD=96 mm

depth scale (m): 0 1 2 3 4 5 6 7 8 9 10 11

well details

elevation (m): 105 104 103 102 101 100 99 98 97 96 95 94

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene △ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

11.4 m (Elev. 93.7 m): transition to sound bedrock

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

SS1: H-Ms, Metals, ORPs, PAHs

SS6: BTEX, PHCs, VOCs

SS7: H-Ms, Metals, ORPs, PAHs

SS8: BTEX, PHCs

7.0m: auger grinding

29 34 26 11

10B: BTEX, PHCs, VOCs

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

(continued next page)

GROUNDED ENGINEERING

Date Started : Jun 27, 2024
Position : E: 612614, N: 4825451 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 2

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

drill method : CME 75
rock coring (HQ) OD=96 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
	(continued)				
	GEORGIAN BAY FORMATION (See rock core log for details) *(continued)*		2	RUN	
			3	RUN	
			4	RUN	
89.4					
15.7	**END OF BOREHOLE**				

depth scale (m): 12, 13, 14, 15
elevation (m): 93, 92, 91, 90

undrained shear strength (kPa): unconfined, field vane, pocket penetrometer, Lab Vane; 40 80 120 160
SPT N-values (bpf): dynamic cone; 10 20 30 40
headspace vapour (ppm): hexane, isobutylene, methane; 100 200 300
moisture / plasticity: PL MC LL; 10 20 30
unstabilized water level
lab data and comments
grain size distribution (%) (MIT): GR SA SI CL

Borehole was filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Jul 4, 2024	4.4	100.7
Jul 12, 2024	5.6	99.5

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

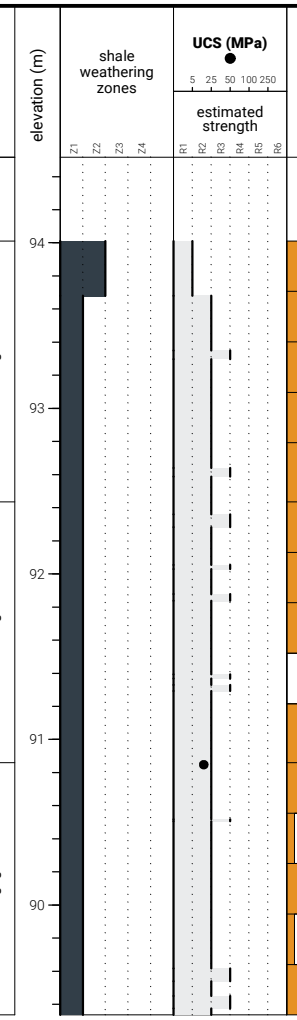
GROUNDED ENGINEERING

Date Started : Jun 27, 2024
Position : E: 612614, N: 4825451 (UTM 17T)
Elev. Datum : Geodetic

ROCK CORE LOG 2

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

depth (m)	stratigraphy	Run / elev / depth (m)	recovery
	Rock coring started at 10.6m below grade	**94.5**	
11	**SANDY SILT**, some clay, trace gravel, compact to dense, grey, moist (GLACIAL TILL)	10.6 R1	TCR = **45%** SCR = **0%** RQD = **0%**
	GEORGIAN BAY FORMATION **Shale**, dark grey, laminated to thinly bedded, weak; joints are horizontal, closed to gapped, clean to unaltered; interbedded with **limestone**, light grey, laminated to thinly bedded, strong *Overall shale: 90%, limestone: 10%* **... at 11.4 m (Elev. 93.7 m), transition to sound rock**	11.1 R2	TCR = **100%** SCR = **89%** RQD = **58%**
12	Run 2 : 8% limestone 92% shale	92.5	
		12.6 R3	TCR = **100%** SCR = **95%** RQD = **52%**
13			
14	Run 3 : 13% limestone 87% shale	90.9	
		14.2 R4	TCR = **100%** SCR = **100%** RQD = **78%**
15	Run 4 : 11% limestone 89% shale	89.4	
		15.7m	
	END OF COREHOLE		



El. 90.8m:
UCS = 17 MPa
E = 3.00 GPa
γ = 25.7 kN/m^3

laboratory testing

notes and comments

10.6 / 94.5 - 10.9 / 94.1m: possible caved material

10.9 / 94.1 - 11.1 / 94.0m: core loss (no recovery)

11.3 / 93.8 - 11.4 / 93.7m: rubbilized zone

12.0 / 93.1 - 12.0 / 93.0m: 25mm rubbilized zone

12.6 / 92.4 - 12.7 / 92.4m: 75mm rubbilized zone

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

GROUNDED ENGINEERING

Date Started : Jun 27, 2024
Position : E: 612652, N: 4825476 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 3

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

drill method : CME 75

hollow stem augers OD=215 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
104.8	**GROUND SURFACE**				
104.6	140mm **ASPHALT**		1A	SS	15
0.2	125mm **AGGREGATE**		1B		
	FILL, sand, trace to some silt, trace gravel, trace asphalt, compact, brown with orange, moist				
	...at 0.8 m, orangey brown		2	SS	18
103.3					
1.5	**SAND**, trace to some silt, trace clay, compact to dense, brown, moist		3	SS	14
			4	SS	29
	...at 3.0 m, sand and silt, trace clay, grey, wet		5	SS	33
100.2					
4.6	**CLAYEY SILT**, sandy, trace gravel, very stiff to hard, grey (GLACIAL TILL)		6	SS	27
			7	SS	32
	...at 7.6 m, sandy silt, trace clay, very dense, grey, moist		8	SS	57
	...at 9.1 m, sandy silt, gravelly, some clay, very dense, grey, moist		9	SS	61

depth scale (m): 0 1 2 3 4 5 6 7 8 9

well details

elevation (m): 104 103 102 101 100 99 98 97 96 95

undrained shear strength (kPa)
○ unconfined + field vane
● pocket penetrometer ■ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
△ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

1B: H-Ms, Metals, ORPs

SS2: BTEX, PAHs, PHCs, VOCs

SS4: H-Ms, Metals, ORPs, PAHs

0 54 41 5

SS5: BTEX, PHCs, VOCs

28 30 30 12

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

(continued next page)

GROUNDED ENGINEERING

Date Started : Jun 27, 2024
Position : E: 612652, N: 4825476 (UTM 17T)
Elev. Datum : Geodetic

BOREHOLE LOG 3

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

drill method : CME 75

rock coring (HQ) OD=96 mm

elev depth (m)	description	graphic log	number	type	SPT N-value
	(continued)				
	CLAYEY SILT, sandy, trace gravel, very stiff to hard, grey (GLACIAL TILL) *(continued)*				
94.0	...at 10.7 m, weathered shale, very dense,		10	SS	50 / 125mm
10.8	grey, moist				
	GEORGIAN BAY FORMATION (See rock core log for details)		2	RUN	
			3	RUN	
			4	RUN	
89.3					
15.5					

depth scale (m): 10, 11, 12, 13, 14, 15

well details

elevation (m): 94, 93, 92, 91, 90

undrained shear strength (kPa)
■ unconfined + field vane
● pocket penetrometer ○ Lab Vane
40 80 120 160

SPT N-values (bpf)
× dynamic cone
10 20 30 40

headspace vapour (ppm)
× hexane □ isobutylene
△ methane
100 200 300

moisture / plasticity
PL MC LL
10 20 30

11.0 m (Elev. 93.8 m): transition to sound bedrock

unstabilized water level

lab data and comments

grain size distribution (%) (MIT)
GR SA SI CL

10.7m: split spoon sampler bouncing

11.0m: Run 1 recovered possible caved material (refer to Rock Core Log)

END OF BOREHOLE

Borehole was filled with drill water upon completion of drilling.

50 mm dia. monitoring well installed.
No. 10 screen

GROUNDWATER LEVELS

date	depth (m)	elevation (m)
Jul 4, 2024	5.6	99.2
Jul 12, 2024	5.5	99.3

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

GROUNDED ENGINEERING

Date Started : Jun 27, 2024
Position : E: 612652, N: 4825476 (UTM 17T)
Elev. Datum : Geodetic

ROCK CORE LOG 3

File No. : 24-099 **Project** : 2233 & 2235 Hurontario St, Mississauga **Client** : Starlight Development

Rock coring started at 10.3m below grade

depth (m)	stratigraphy	Run	elev / depth (m)	recovery
	CLAYEY SILT, sandy, trace gravel, very stiff to hard, grey (GLACIAL TILL)		10.3	
		R1		TCR = **92%** SCR = **19%** RQD = **0%**
			93.8	
11	**GEORGIAN BAY FORMATION** **Shale**, dark grey, laminated to thinly bedded, weak; joints are horizontal, closed to gapped, clean to unaltered;		11.0	
	interbedded with **limestone**, light grey, laminated to thinly bedded, strong	R2		TCR = **100%** SCR = **93%** RQD = **65%**
	Overall shale: 91%, limestone: 9% **... at 11.0 m (Elev. 93.8 m), transition to sound rock**		92.3	
12	Run 1 : 4% limestone 96% shale		12.5	
13	Run 2 : 13% limestone 87% shale	R3		TCR = **98%** SCR = **95%** RQD = **73%**
			90.8	
14	Run 3 : 3% limestone 97% shale		14.0	
		R4		TCR = **100%** SCR = **100%** RQD = **85%**
15	Run 4 : 9% limestone 91% shale		89.3	
			15.5m	

END OF COREHOLE

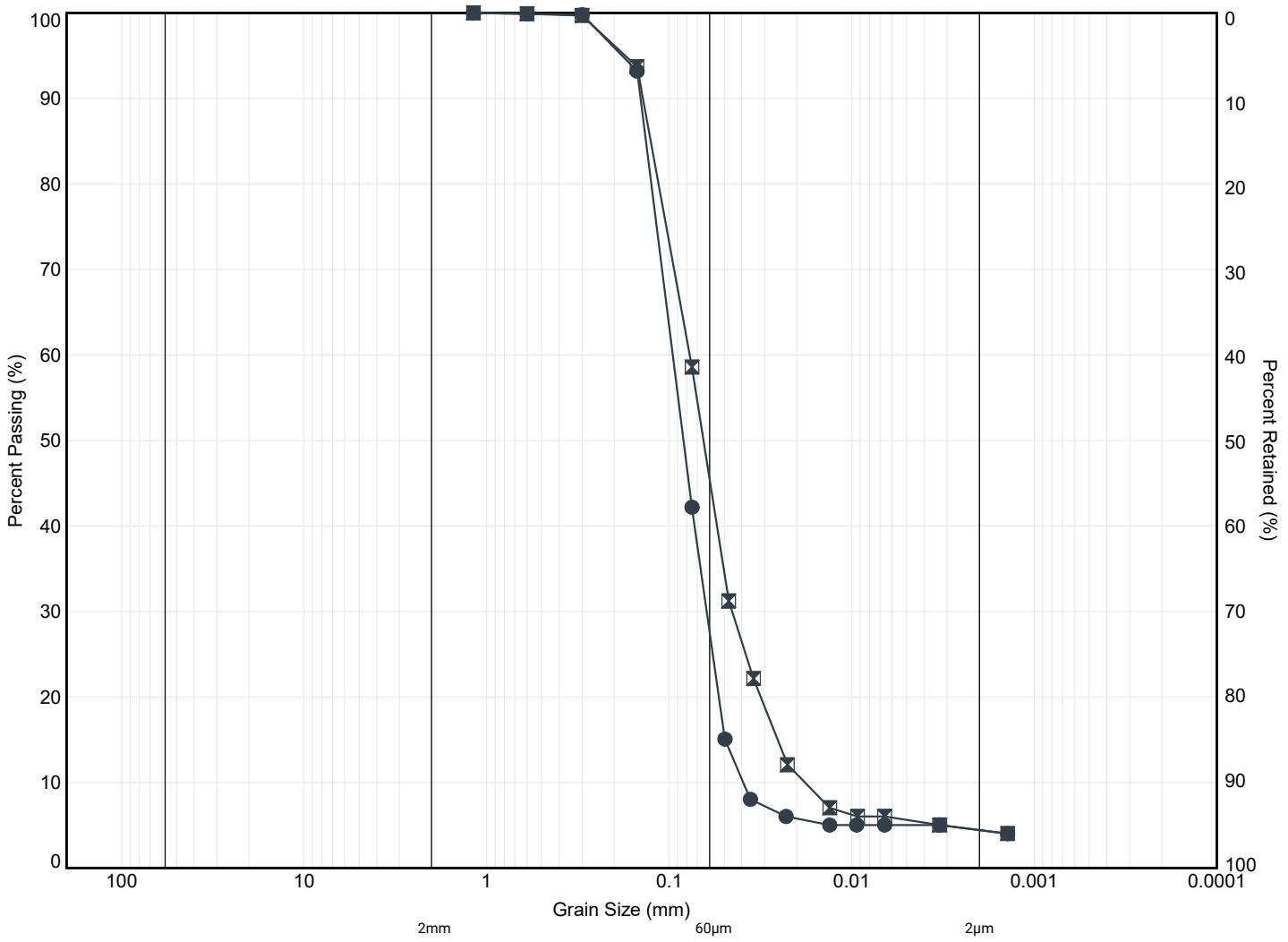
elevation (m)	shale weathering zones	UCS (MPa) / estimated strength	natural fracture frequency	laboratory testing	notes and comments	elevation (m)
94	Z1 Z2 Z3 Z4	R1 R2 R3 R4 R5 R6 (5 25 50 100 250)	NA		**10.3 / 94.5 - 10.8 / 94.0m:** possible caved material	
			5		**10.8 / 94.0 - 10.9 / 93.9m:** rubbilized zone	94
			2			
			4		**11.6 / 93.2 - 11.6 / 93.2m:** 50mm rubbilized zone	
93			3+RZ			93
			3		**12.2 / 92.6 - 12.2 / 92.6m:** 25mm FC SV PR S T CN	
			2+RZ		**12.3 / 92.5 - 12.3 / 92.5m:** 25mm rubbilized zone	
			2+RZ		**12.5 / 92.3 - 12.6 / 92.3m:** 63mm rubbilized zone	
92			6			92
			3	**El. 91.7m**: UCS = 16.1 MPa E = 3.40 GPa γ = 25.7 kN/m^3		
			1			
91			0			91
			2			
			1			
90			2			90
			2			
			1			

file: 24-099 gint.gpj

Tech : IH | **PM** : JAW/VT | **Rev** : NN

APPENDIX B





MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

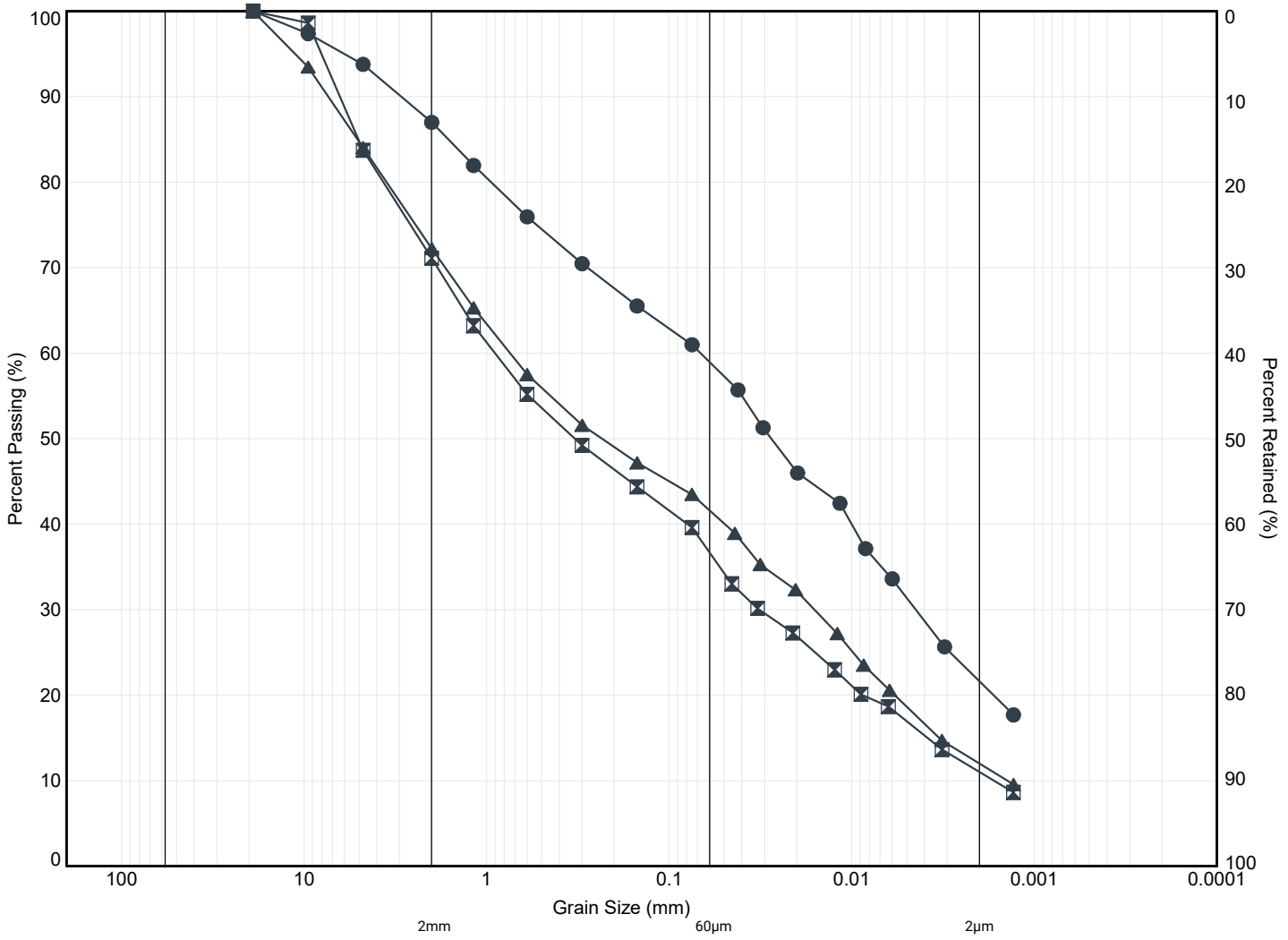
	Location	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**BH 1**	SS5	3.4	102.1	0	73	23	4	*(0)*
⊠	**BH 3**	SS5	3.4	101.5	0	54	41	5	*(0)*

GROUNDED ENGINEERING

Title: **GRAIN SIZE DISTRIBUTION SANDS**

File No.: **24-099**

file: 24-099 gint.gpj



MIT SYSTEM	COBBLES	GRAVEL			SAND			SILT	CLAY
		COARSE	MEDIUM	FINE	COARSE	MEDIUM	FINE		

MIT SYSTEM

	Location	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	*(Fines, %)*
●	**BH 1**	SS8	5.6	99.8	13	28	37	22	*(0)*
⊠	**BH 2**	10B	9.6	95.5	29	34	26	11	*(0)*
▲	**BH 3**	SS9	9.4	95.4	28	30	30	12	*(0)*

GROUNDED ENGINEERING

Title: **GRAIN SIZE DISTRIBUTION GLACIAL TILL**

File No.: **24-099**

file: 24-099 gint.gpj

APPENDIX C



Borehole 1

Run #	Depth (m)	Elevation (m)
1	7.0 – 8.2	98.5 – 97.3
2	8.2 – 9.6	97.3 – 95.9
3	9.6 – 11.1	95.9 – 94.4
4	11.1 – 12.6	94.4 – 92.9
5	12.6 – 14.1	92.9 – 91.4
6	14.1 – 15.6	91.4 – 89.9

Runs 1 and 2



Runs 3 and 4



Runs 5 and 6



Borehole 2

Run #	Depth (m)	Elevation (m)
1	10.6 – 11.1	94.5 – 94.0
2	11.1 – 12.6	94.0 – 92.5
3	12.6 – 14.2	92.5 – 90.9
4	14.2 – 15.7	90.9 – 89.4

Runs 1 and 2



Runs 3 and 4



Borehole 3

Run #	Depth (m)	Elevation (m)
1	10.3 – 11.0	94.5 – 93.8
2	11.0 – 12.5	93.8 – 92.3
3	12.5 – 14.0	92.3 – 90.8
4	14.0 – 15.5	90.8 – 89.3

Runs 1 and 2

s



Runs 3 and 4



Geomechanica Inc.
#14-1240 Speers Rd.
Oakville ON
L6L 2X4 Canada

July 10, 2024

James Wagner
Grounded Engineering Inc.
1 Banigan Drive,
Toronto, Ontario
Canada, M4H 1G3

Re: UCS Testing (Grounded Engineering Inc. Project No. 24-099)

Dear James Wagner:

On July 04, 2024 a series of three (3) core samples (HQ-sized) were received by Geomechanica Inc. via drop-off by Grounded personnel. These samples were identified as being from Grounded Engineering Inc. Project No. 24-099. From these samples, 3 Uniaxial Compressive Strength (UCS) tests were completed.

Details regarding the steps of specimen preparation and testing along with the test results are presented in the accompanying laboratory report and summary spreadsheet.

Sincerely,



Bryan Tatone, PhD, PEng

Geomechanica Inc.
Tel: +1-647-478-9767
lab@geomechanica.com

GEOMECHANICA

Rock Laboratory Testing Results

A report submitted to:

James Wagner
Grounded Engineering Inc.
1 Banigan Drive,
Toronto, Ontario
Canada, M4H 1G3

Prepared by:

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July 10, 2024
Project number: 24-099

Abstract

This document summarizes the results of rock laboratory testing of 3 Uniaxial Compressive Strength (UCS) tests. The UCS values and Young's modulus values along with photographs of specimens before and after testing are presented herein.

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1 Uniaxial Compressive Strength Tests

1.1 Overview

This section summarizes the results of uniaxial compressive strength (UCS) testing. The testing was performed in Geomechanica Inc.'s rock testing laboratory using a 150 ton (1.3 MN) Forney loading frame equipped with pressure-compensated control valve to maintain an axial displacement rate of approximately 0.150 mm/min (Figure 1). The preparation and testing procedure for each specimen included the following:

1. Unwrapping the core sample, inspecting it for damage, and re-wrapping it in electrical tape to minimize exposure to moisture during subsequent specimen preparation.
2. Diamond cutting the core sample to obtain a cylindrical specimen with an appropriate length (length:diameter = 2:1) and nearly parallel end faces.
3. Diamond grinding the specimen to obtain flat (within ± 0.025 mm) and parallel end faces (within 0.25°).
4. Placing the specimen into the loading frame, applying a 1 kN axial load, and removing the electrical tape.
5. Axially loading the specimen to rupture while continuously recording axial force to determine the peak strength (UCS) and the axial deformation to determine the tangent Young's modulus.



Figure 1: Forney loading frame setup for UCS testing.

Using a precision V-block mounted on the magnetic chuck of the surface grinder, test specimens met the end flatness, end parallelism, and perpendicularity criteria set out in ASTM D4543-19. The side straightness criteria, as checked with a feeler gauge, and the minimum length:diameter criteria were met for all specimens unless noted otherwise in Table 1. Testing of the specimens included the measurement of the UCS and elastic

modulus, but not the Poisson's ratio. This represents a hybrid between Methods C and D of ASTM D7012-14.

1.2 Results

The results of UCS testing are summarized in Table 1. The corresponding stress-strain curves are presented in Figure 2. The Young's modulus is the tangent modulus calculated as the slope of the best-fit line through a selection of data points defining the stress-strain curve. Typically the modulus is defined at 50% of the UCS strength. However, due to non-linear pre-peak stress-strain behaviour of some specimens, a custom stress range (where the specimen deformed linearly) was selected for modulus determination. These stress ranges along with additional specimen details and measurements are provided in the summary spreadsheet that accompanies this report.

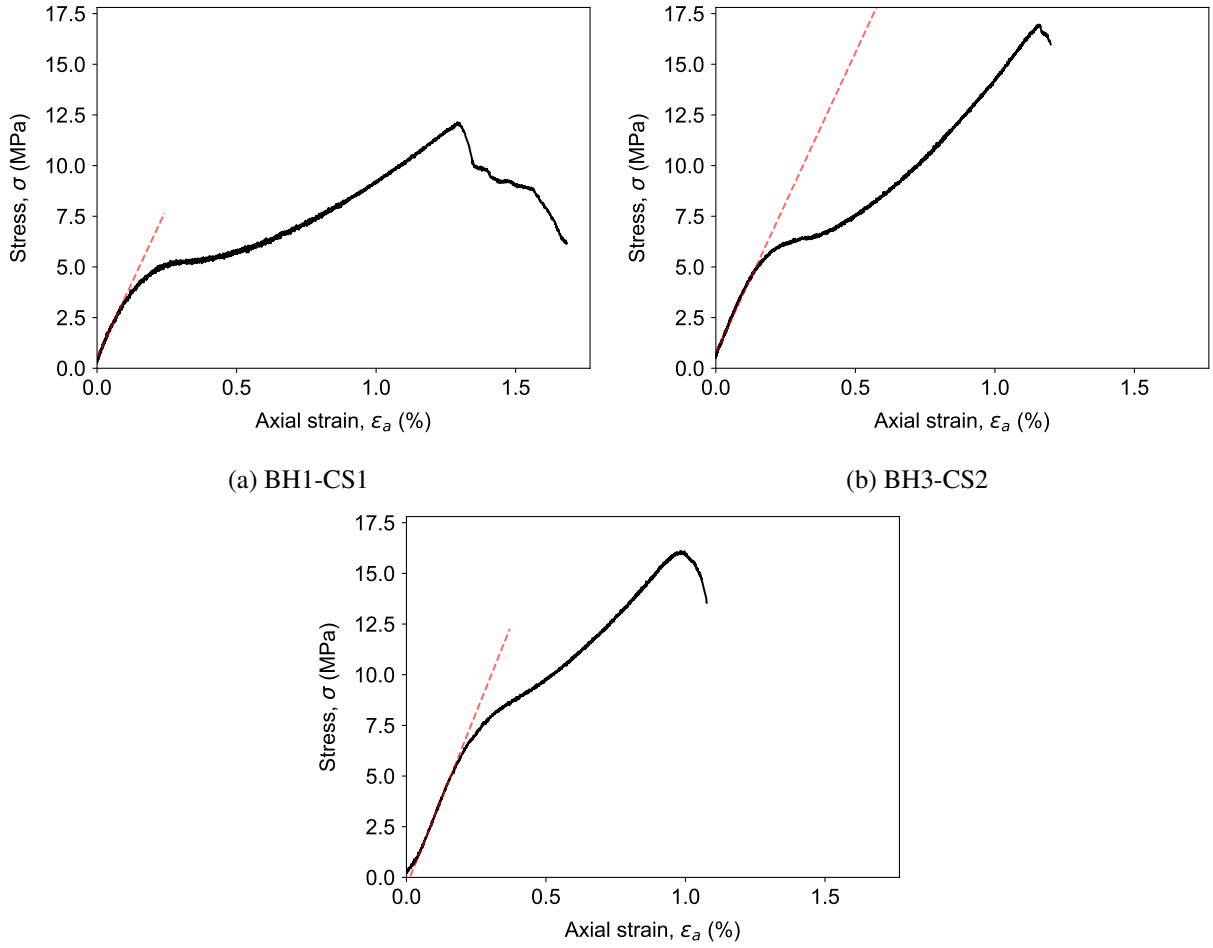
Table 1: Summary of UCS test results.

Sample	Depth (ft' in")	Bulk density ρ (g/cm^3)	UCS (MPa)	Young's modulus E (GPa)	Lithology	Failure description
BH1, CS1	44'10" - 45'4.5"	2.585	12.1	2.9	Shale	1, 2, 3
BH3, CS2	46'8.5" - 47'3"	2.615	17.0	3.0	Shale	4, 3
BH2, CS3	42'11" - 43'7"	2.617	16.1	3.4	Shale	1, 3

[1] Inclined shear failure
[2] Partial hourglass failure
[3] Specimen emitted pore water upon loading
[4] Inclined shear fracture and axial splitting failure

1.3 Specimen photographs

Photographs of the specimens before and after testing are presented in the Appendix of this report.



(a) BH1-CS1

(b) BH3-CS2

(c) BH2-CS3

Figure 2: Measured stress-strain curves.

Appendices

Specimen sheets

- BH1, CS1
- BH3, CS2
- BH2, CS3

GEOMECHANICA

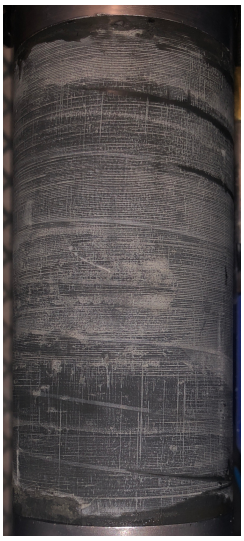
Uniaxial Compression Test

Client	Grounded Engineering Inc.	**Project**	24-099
Sample	BH1, CS1	**Depth**	44'10" - 45'4.5"

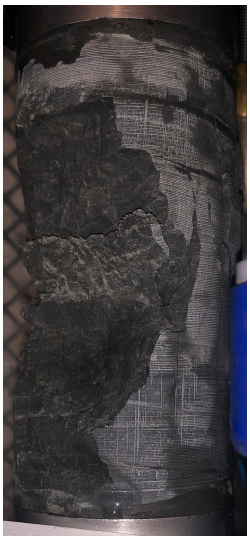
Specimen parameters	
Diameter (mm) [a]	63.18
Length (mm) [a]	125.69
Bulk density ρ (g/cm^3)	2.585
UCS (MPa)	12.1
Young's modulus E (GPa) [b]	2.9
Lithology	Shale
Failure description [c]	1, 2, 3

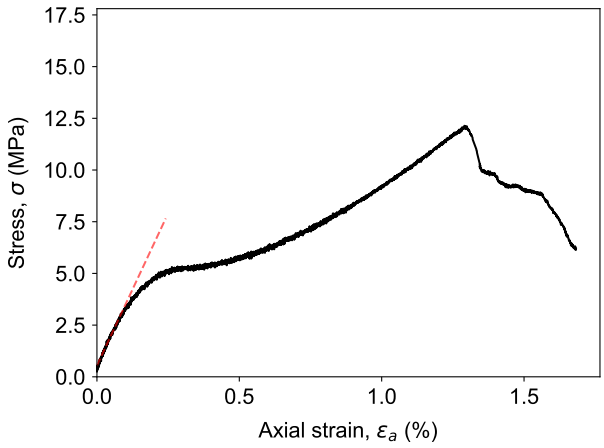
[a] Additional specimen measurement/details provided in accompanying summary spreadsheet.
[b] Tangent modulus, calculated as the slope of the best fit line through ±43 data points on either side of the point representing 15.0% of the peak strength.
[c] Failure description: [1] Inclined shear failure; [2] Partial hourglass failure; [3] Specimen emitted pore water upon loading;

Prior to testing



After testing





Remarks: Loading Rate: 0.15 mm/min.

Performed by	AB	**Date**	2024-07-08

GEOMECHANICA

Uniaxial Compression Test

Client	Grounded Engineering Inc.	**Project**	24-099
Sample	BH3, CS2	**Depth**	46'8.5" - 47'3"

Specimen parameters

Diameter (mm) [a]	63.11
Length (mm) [a]	125.81
Bulk density ρ (g/cm^3)	2.615
UCS (MPa)	17.0
Young's modulus E (GPa) [b]	3.0
Lithology	Shale
Failure description [c]	4, 3

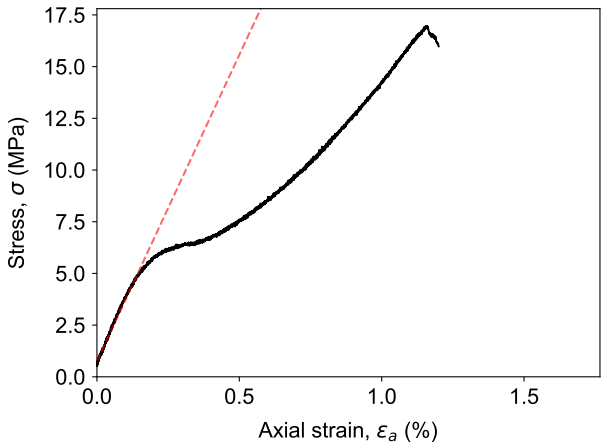
[a] Additional specimen measurement/details provided in accompanying summary spreadsheet.
[b] Tangent modulus, calculated as the slope of the best fit line through ±300 data points on either side of the point representing 15.0% of the peak strength.
[c] Failure description: [4] Inclined shear fracture and axial splitting failure; [3] Specimen emitted pore water upon loading;

Prior to testing



After testing





Remarks: Loading Rate: 0.15 mm/min.

Performed by	AB	**Date**	2024-07-08

GEOMECHANICA

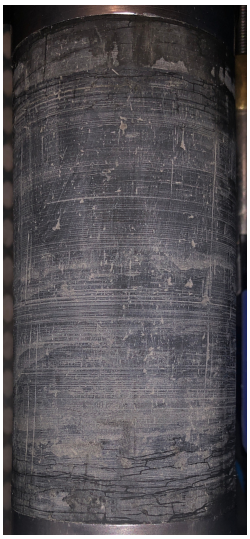
Uniaxial Compression Test

Client	Grounded Engineering Inc.	**Project**	24-099
Sample	BH2, CS3	**Depth**	42'11" - 43'7"

Specimen parameters	
Diameter (mm) [a]	62.92
Length (mm) [a]	123.61
Bulk density ρ (g/cm^3)	2.617
UCS (MPa)	16.1
Young's modulus E (GPa) [b]	3.4
Lithology	Shale
Failure description [c]	1, 3

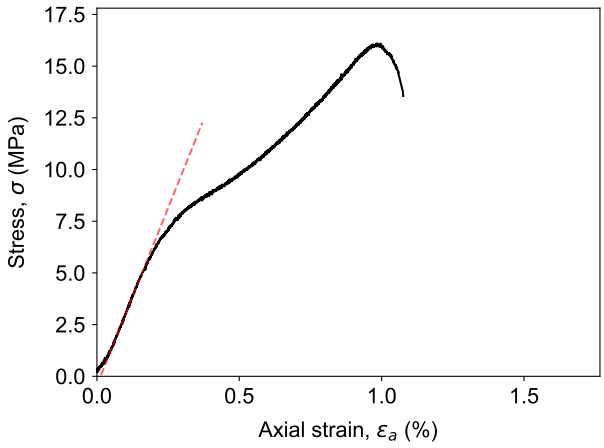
[a] Additional specimen measurement/details provided in accompanying summary spreadsheet.
[b] Tangent modulus, calculated as the slope of the best fit line through $\pm$68 data points on either side of the point representing 15.0% of the peak strength.
[c] Failure description: [1] Inclined shear failure; [3] Specimen emitted pore water upon loading;

Prior to testing



After testing





Remarks: Loading Rate: 0.15 mm/min.

Performed by	AB	**Date**	2024-07-08

APPENDIX D



GROUNDED ENGINEERING

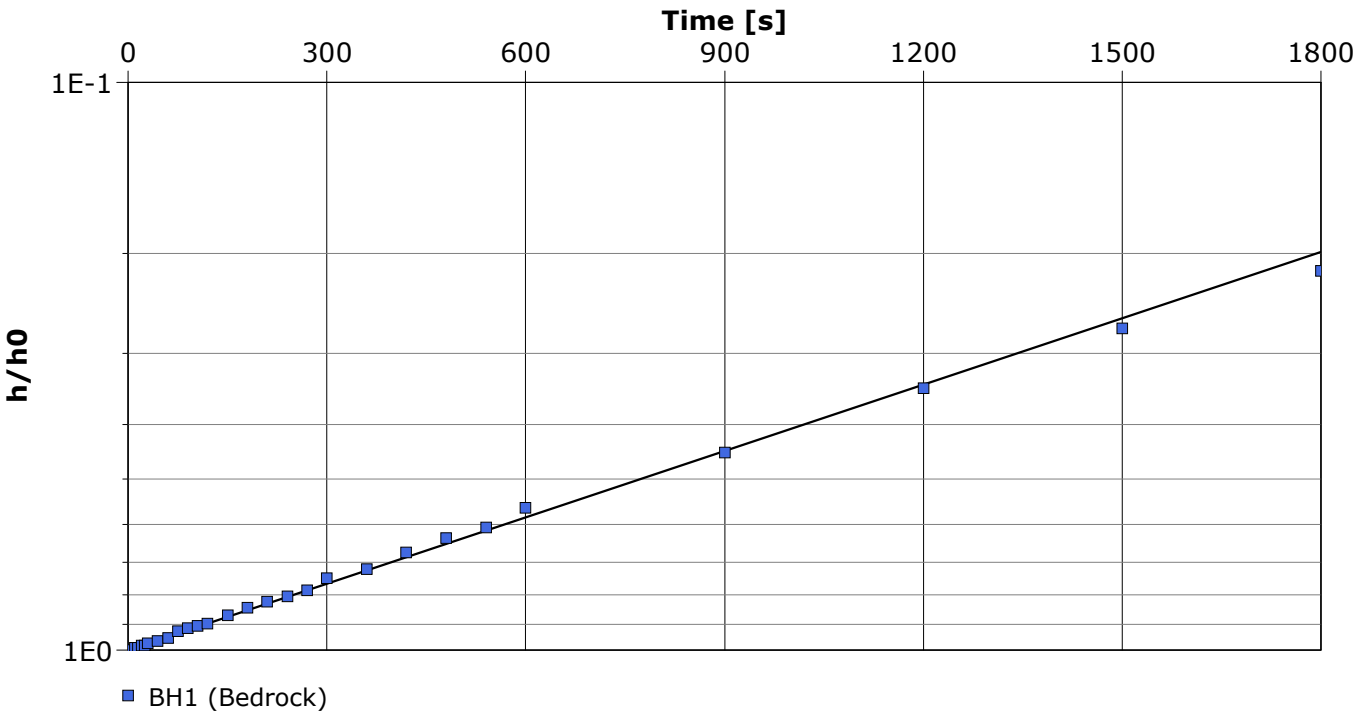
Slug Test Analysis Report

Project: 2233 Hurontario St

Number: 24-099

Client: Starlight Investments

Location: Mississauga, ON	Slug Test: BH1 - RHT	Test Well: BH1 (Bedrock)
Test Conducted by: MW		Test Date: 2024-07-12
Analysis Performed by: JAW	Bouwer & Rice	Analysis Date: 2024-07-23
Aquifer Thickness: 16.00 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH1 (Bedrock)	3.97×10^{-7}	

GROUNDED ENGINEERING

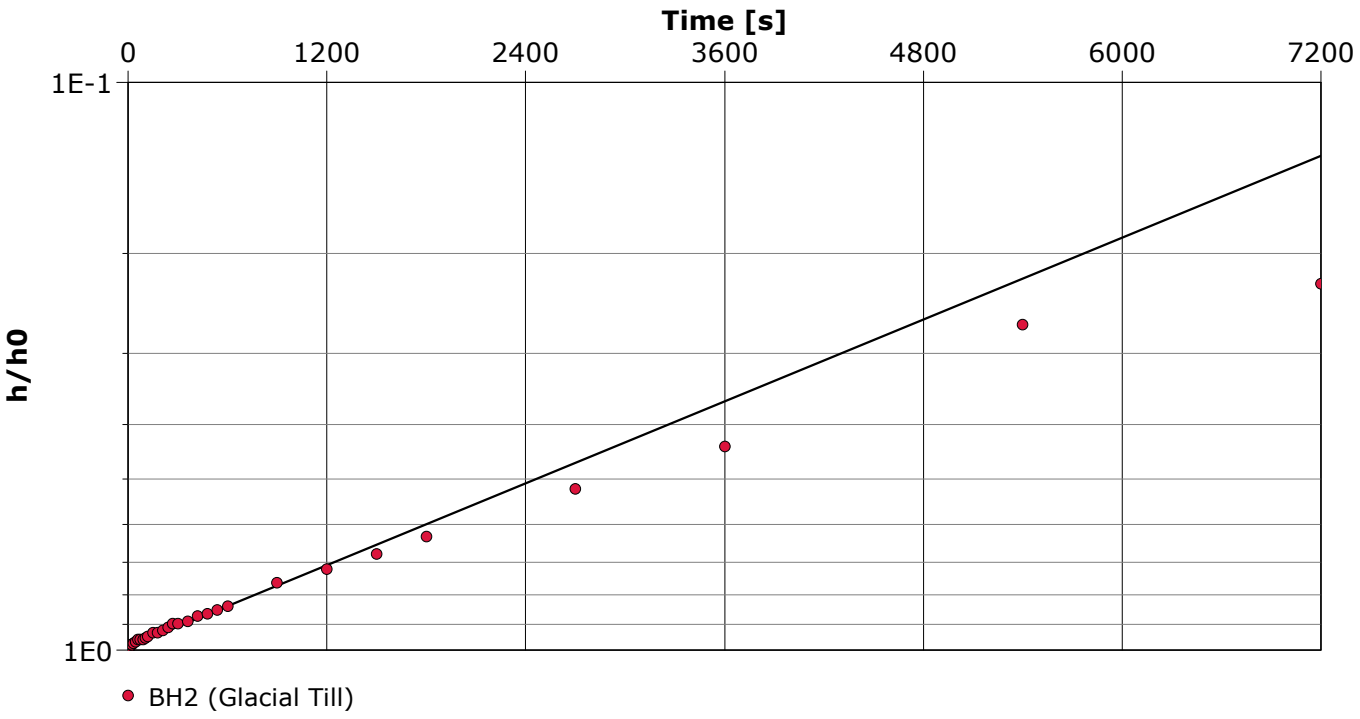
Slug Test Analysis Report

Project: 2233 Hurontario St

Number: 24-099

Client: Starlight Investments

Location: Mississauga, ON	Slug Test: BH2 - RHT	Test Well: BH2 (Glacial Till)
Test Conducted by: MW		Test Date: 2024-07-12
Analysis Performed by: JAW	Bouwer & Rice	Analysis Date: 2024-07-23
Aquifer Thickness: 16.00 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH2 (Glacial Till)	1.09×10^{-7}	

GROUNDED ENGINEERING

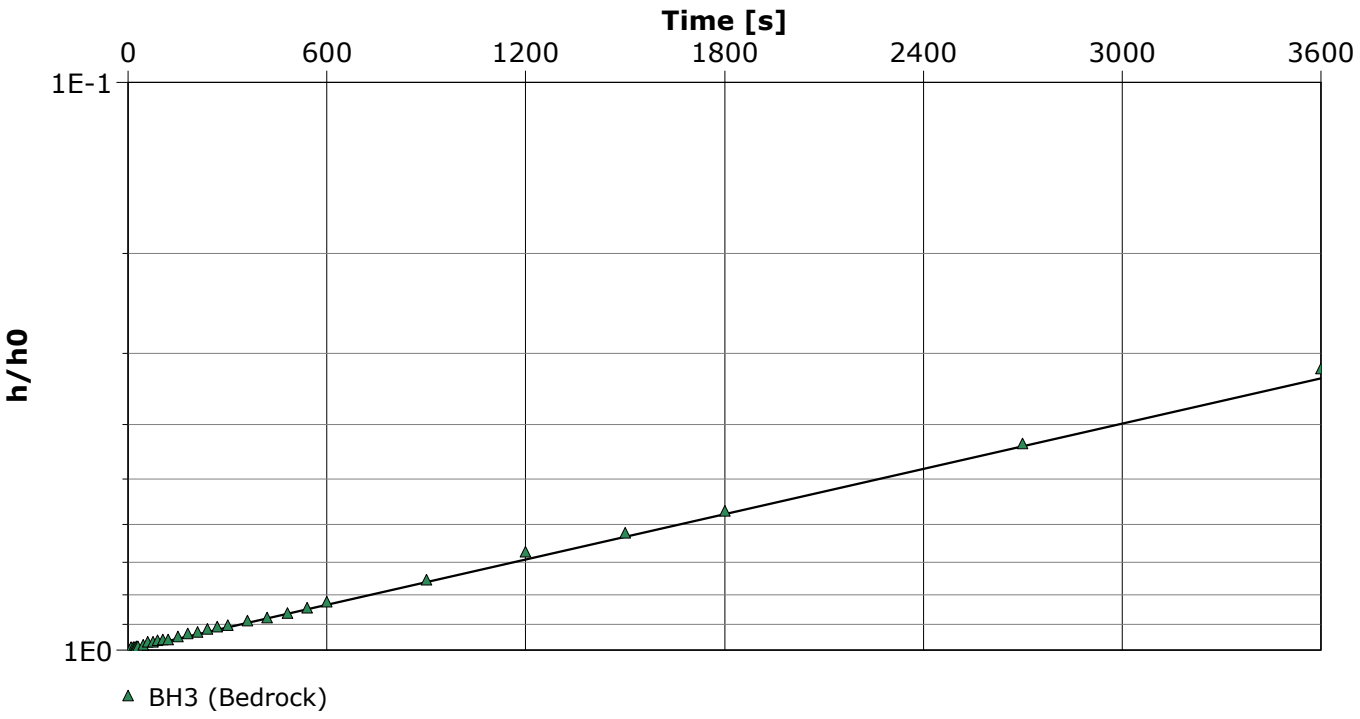
Slug Test Analysis Report

Project: 2233 Hurontario St

Number: 24-099

Client: Starlight Investments

Location: Mississauga, ON	Slug Test: BH3 - RHT	Test Well: BH3 (Bedrock)
Test Conducted by: MW		Test Date: 2024-07-12
Analysis Performed by: JAW	Bouwer & Rice	Analysis Date: 2024-07-23
Aquifer Thickness: 16.00 m		



Calculation using Bouwer & Rice

Observation Well	Hydraulic Conductivity [m/s]	
BH3 (Bedrock)	1.34×10^{-7}	

APPENDIX E



K from Grain Size Analysis Report

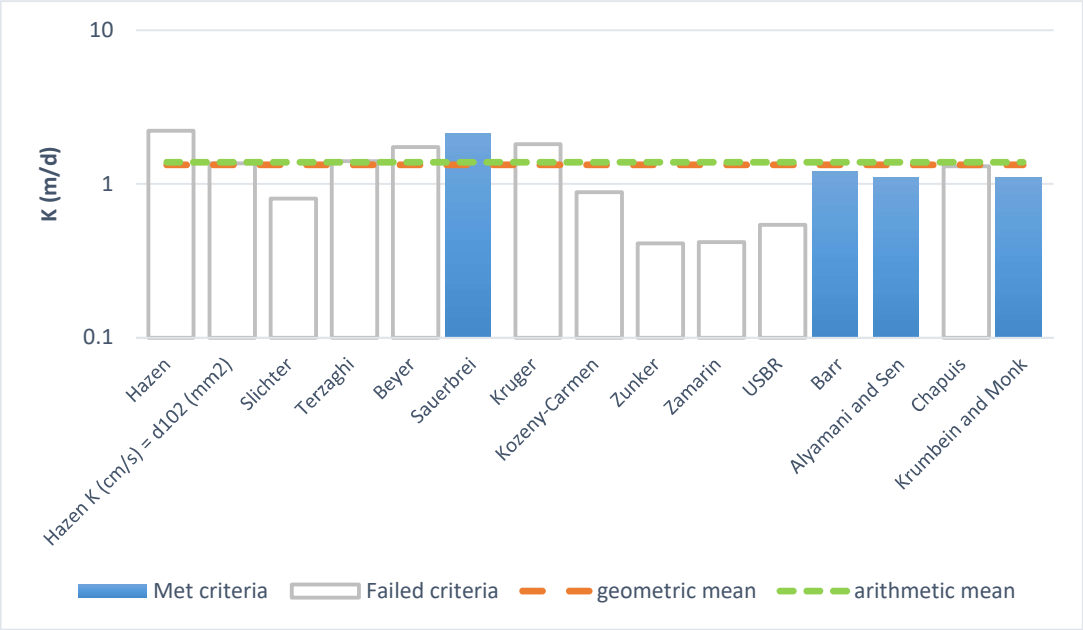
Date: 22-Jul-24

Sample Name: BH1-SS5

Mass Sample (g): 130.63

T (oC) 23

Moderately well sorted sand low in fines



Estimation of Hydraulic Conductivity	cm/s	m/s	m/d	de
Hazen	2.6E-03	2.6E-05	2.22	
Hazen K (cm/s) = d_{10} (mm)	1.6E-03	1.6E-05	1.36	
Slichter	9.3E-04	9.3E-06	0.80	
Terzaghi	1.6E-03	1.6E-05	1.41	
Beyer	2.0E-03	2.0E-05	1.74	
Sauerbrei	2.5E-03	2.5E-05	2.13	
Kruger	2.1E-03	2.1E-05	1.81	
Kozeny-Carmen	1.0E-03	1.0E-05	0.88	
Zunker	4.8E-04	4.8E-06	0.41	
Zamarin	4.8E-04	4.8E-06	0.42	
USBR	6.3E-04	6.3E-06	0.54	
Barr	1.4E-03	1.4E-05	1.21	
Alyamani and Sen	1.3E-03	1.3E-05	1.11	
Chapuis	1.5E-03	1.5E-05	1.31	
Krumbein and Monk	1.3E-03	1.3E-05	1.11	
geometric mean	1.5E-03	1.5E-05	1.33	
arithmetic mean	1.6E-03	1.6E-05	1.39	

K from Grain Size Analysis Report

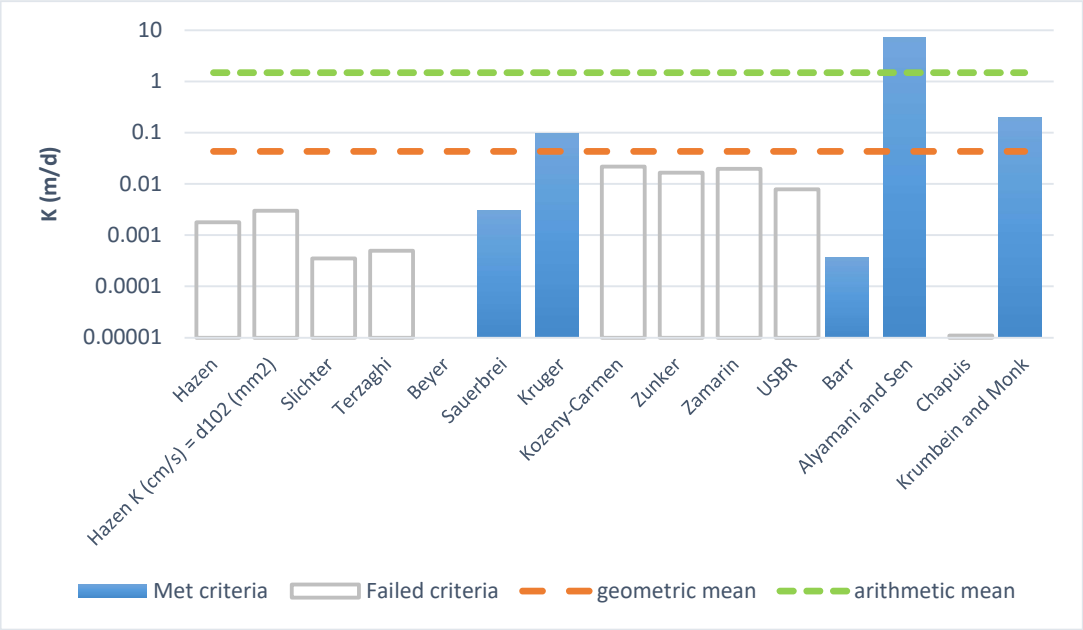
Date: 25-Jul-24

Sample Name: BH2-SS10B

Mass Sample (g): 129.11

T (oC) 22

Poorly sorted gravelly sand with fines



Estimation of Hydraulic Conductivity	cm/s	m/s	m/d	de
Hazen	2.1E-06	2.1E-08	0.00	
Hazen K (cm/s) = d_{10} (mm)	3.5E-06	3.5E-08	0.00	
Slichter	4.0E-07	4.0E-09	0.00	
Terzaghi	5.8E-07	5.8E-09	0.00	
Beyer	-1.7E-08	-1.7E-10	0.00	
Sauerbrei	3.6E-06	3.6E-08	0.00	
Kruger	1.1E-04	1.1E-06	0.09	
Kozeny-Carmen	2.5E-05	2.5E-07	0.02	
Zunker	1.9E-05	1.9E-07	0.02	
Zamarin	2.3E-05	2.3E-07	0.02	
USBR	9.1E-06	9.1E-08	0.01	
Barr	4.3E-07	4.3E-09	0.00	
Alyamani and Sen	8.3E-03	8.3E-05	7.18	
Chapuis	1.3E-08	1.3E-10	0.00	
Krumbein and Monk	2.3E-04	2.3E-06	0.20	
geometric mean	5.0E-05	5.0E-07	0.04	
arithmetic mean	1.7E-03	1.7E-05	1.49	

K from Grain Size Analysis Report

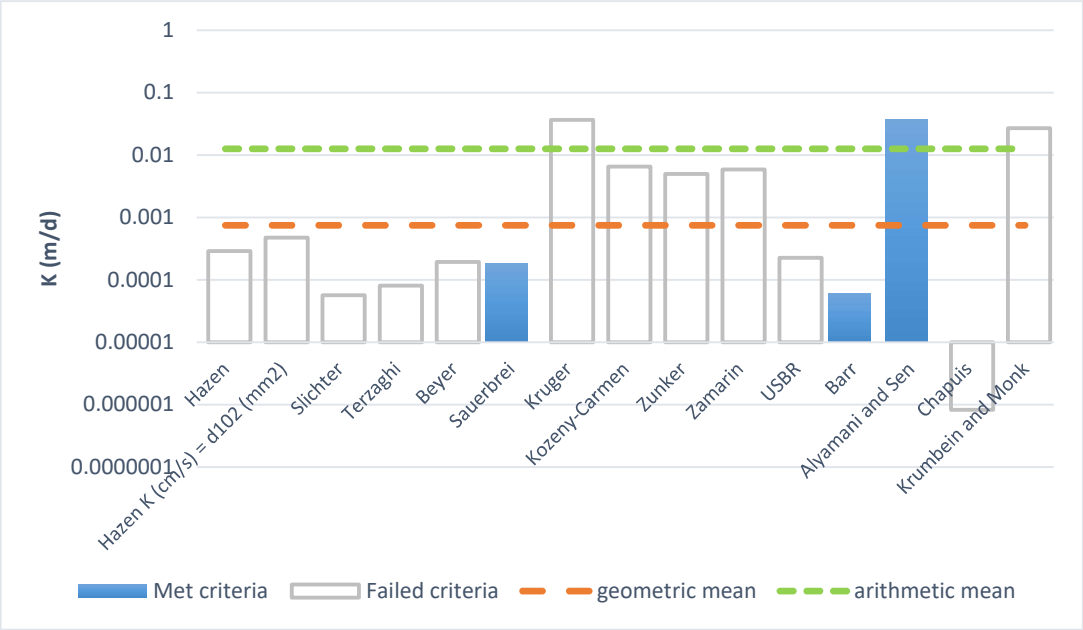
Date: 22-Jul-24

Sample Name: BH1-SS8

Mass Sample (g): 259.69

T (oC) 23

Poorly sorted sandy gravelly silt with fines



Estimation of Hydraulic Conductivity	cm/s	m/s	m/d	de
Hazen	3.3E-07	3.3E-09	0.00	
Hazen K (cm/s) = d_{10} (mm)	5.5E-07	5.5E-09	0.00	
Slichter	6.6E-08	6.6E-10	0.00	
Terzaghi	9.4E-08	9.4E-10	0.00	
Beyer	2.2E-07	2.2E-09	0.00	
Sauerbrei	2.1E-07	2.1E-09	0.00	
Kruger	4.2E-05	4.2E-07	0.04	
Kozeny-Carmen	7.6E-06	7.6E-08	0.01	
Zunker	5.8E-06	5.8E-08	0.00	
Zamarin	6.8E-06	6.8E-08	0.01	
USBR	2.6E-07	2.6E-09	0.00	
Barr	7.0E-08	7.0E-10	0.00	
Alyamani and Sen	4.4E-05	4.4E-07	0.04	
Chapuis	9.5E-10	9.5E-12	0.00	
Krumbein and Monk	3.1E-05	3.1E-07	0.03	
geometric mean	8.7E-07	8.7E-09	0.00	
arithmetic mean	1.5E-05	1.5E-07	0.01	

K from Grain Size Analysis Report

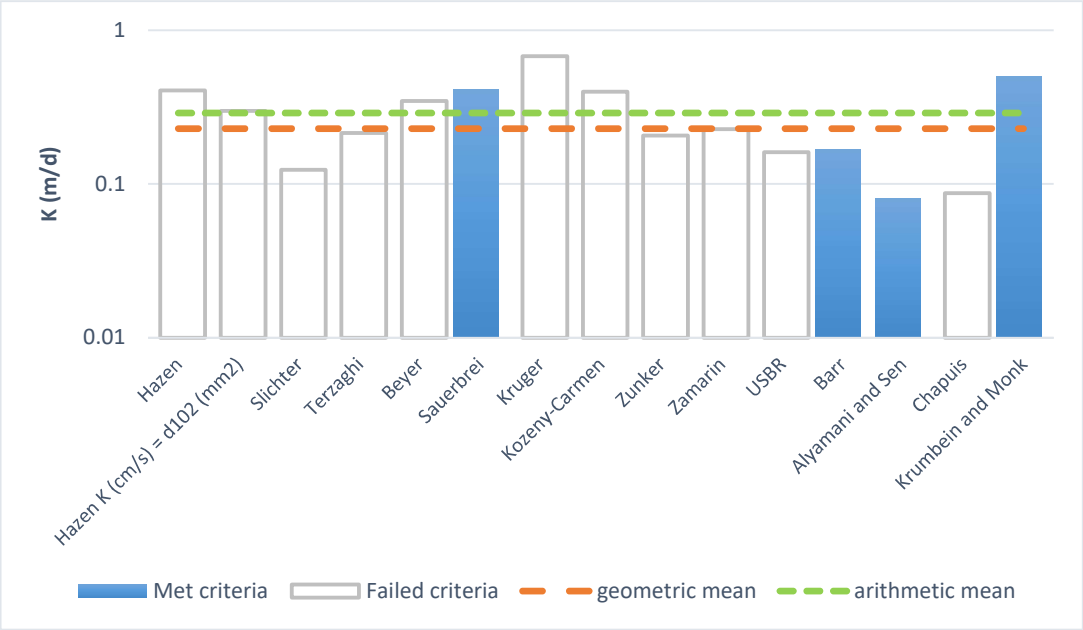
Date: 22-Jul-24

Sample Name: BH3-SS5

Mass Sample (g): 159.98

T (oC) 23

Moderately well sorted sand low in fines



Estimation of Hydraulic Conductivity	cm/s	m/s	m/d	de
Hazen	4.7E-04	4.7E-06	0.41	
Hazen K (cm/s) = d_{10} (mm)	3.5E-04	3.5E-06	0.30	
Slichter	1.4E-04	1.4E-06	0.12	
Terzaghi	2.5E-04	2.5E-06	0.21	
Beyer	4.0E-04	4.0E-06	0.35	
Sauerbrei	4.7E-04	4.7E-06	0.41	
Kruger	7.8E-04	7.8E-06	0.68	
Kozeny-Carmen	4.6E-04	4.6E-06	0.40	
Zunker	2.4E-04	2.4E-06	0.21	
Zamarin	2.6E-04	2.6E-06	0.23	
USBR	1.9E-04	1.9E-06	0.16	
Barr	1.9E-04	1.9E-06	0.17	
Alyamani and Sen	9.4E-05	9.4E-07	0.08	
Chapuis	1.0E-04	1.0E-06	0.09	
Krumbein and Monk	5.8E-04	5.8E-06	0.50	
geometric mean	2.7E-04	2.7E-06	0.23	
arithmetic mean	3.4E-04	3.4E-06	0.29	

K from Grain Size Analysis Report

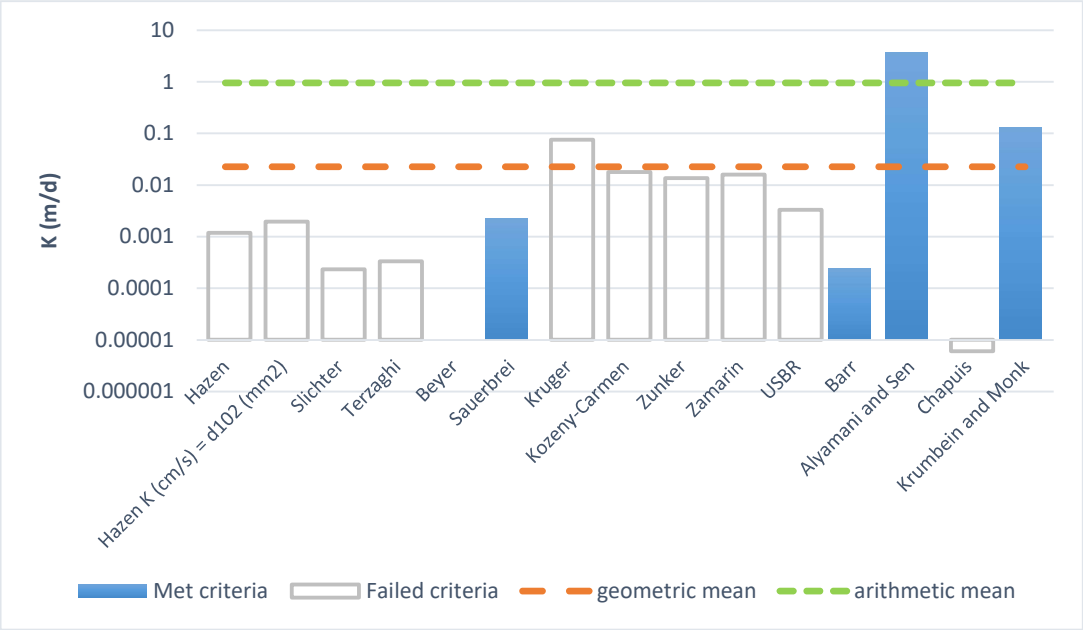
Date: 22-Jul-24

Sample Name: BH3-SS9

Mass Sample (g): 218.42

T (oC) 23

Poorly sorted gravelly sand with fines



Estimation of Hydraulic Conductivity	cm/s	m/s	m/d	de
Hazen	1.4E-06	1.4E-08	0.00	
Hazen K (cm/s) = d_{10} (mm)	2.3E-06	2.3E-08	0.00	
Slichter	2.7E-07	2.7E-09	0.00	
Terzaghi	3.8E-07	3.8E-09	0.00	
Beyer	-2.6E-08	-2.6E-10	0.00	
Sauerbrei	2.6E-06	2.6E-08	0.00	
Kruger	8.7E-05	8.7E-07	0.08	
Kozeny-Carmen	2.1E-05	2.1E-07	0.02	
Zunker	1.6E-05	1.6E-07	0.01	
Zamarin	1.9E-05	1.9E-07	0.02	
USBR	3.9E-06	3.9E-08	0.00	
Barr	2.9E-07	2.9E-09	0.00	
Alyamani and Sen	4.3E-03	4.3E-05	3.74	
Chapuis	6.9E-09	6.9E-11	0.00	
Krumbein and Monk	1.5E-04	1.5E-06	0.13	
geometric mean	2.6E-05	2.6E-07	0.02	
arithmetic mean	1.1E-03	1.1E-05	0.97	

APPENDIX F



Your Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Your C.O.C. #: C#997578-01-01, 1001907-01-01

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/29
Report #: R8254777
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4L1909
Received: 2024/07/11, 18:20

Sample Matrix: Water
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
ABN Compounds in Water by GC/MS	1	2024/07/15	2024/07/16	CAM SOP-00301	EPA 8270 m
Carbonaceous BOD	1	2024/07/13	2024/07/18	CAM SOP-00427	SM 24 5210B m
Total Cyanide	1	2024/07/15	2024/07/15	CAM SOP-00457	OMOE E3015 5 m
Fluoride	1	2024/07/16	2024/07/16	CAM SOP-00449	SM 24 4500-F C m
Mercury in Water by CVAA	1	2024/07/18	2024/07/18	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	2024/07/17	2024/07/17	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2024/07/12	CAM SOP-00552	SM9222B, MECP E3371
Total Nonylphenol in Liquids by HPLC	1	2024/07/16	2024/07/16	CAM SOP-00313	In-house Method
Nonylphenol Ethoxylates in Liquids: HPLC	1	2024/07/16	2024/07/16	CAM SOP-00313	Bureau Veritas
Animal and Vegetable Oil and Grease	1	N/A	2024/07/16	CAM SOP-00326	EPA1664B m,SM5520B m
Total Oil and Grease	1	2024/07/15	2024/07/16	CAM SOP-00326	EPA1664B m,SM5520B m
Polychlorinated Biphenyl in Water	1	2024/07/16	2024/07/16	CAM SOP-00309	EPA 8082A m
Phenols (4AAP)	1	N/A	2024/07/18	CAM SOP-00444	OMOE E3179 m
pH	1	2024/07/15	2024/07/15	CAM SOP-00413	SM 24th-4500H+ B
Sulphate by Automated Turbidimetry	1	N/A	2024/07/16	CAM SOP-00464	SM 24 4500-SO42- E m
Total Kjeldahl Nitrogen in Water	1	2024/07/17	2024/07/19	CAM SOP-00938	OMOE E3516 m
Mineral/Synthetic O & G (TPH Heavy Oil) (1)	1	2024/07/15	2024/07/16	CAM SOP-00326	EPA1664B m,SM5520F m
Total Suspended Solids	1	2024/07/17	2024/07/18	CAM SOP-00428	SM 24 2540D m
Volatile Organic Compounds in Water	1	N/A	2024/07/15	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Your Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Your C.O.C. #: C#997578-01-01, 1001907-01-01

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/29
Report #: R8254777
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4L1909
Received: 2024/07/11, 18:20

Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Note: TPH (Heavy Oil) is equivalent to Mineral / Synthetic Oil & Grease

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Marijane Cruz, Senior Project Manager
Email: Marijane.Cruz@bureauveritas.com
Phone# (905)817-5756

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Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

PEEL SANITARY & STORM SEWER (53-2010)

Bureau Veritas ID				ZRV634			ZRV634		
Sampling Date				2024/07/11 15:45			2024/07/11 15:45		
COC Number				C#997578-01-01			C#997578-01-01		
	UNITS	Criteria	Criteria-2	SW-UF-BH2	RDL	QC Batch	SW-UF-BH2 Lab-Dup	RDL	QC Batch
Calculated Parameters									
Total Animal/Vegetable Oil and Grease	mg/L	150	-	<0.50	0.50	9507863			
Inorganics									
Total Carbonaceous BOD	mg/L	300	15	3	2	9513081			
Fluoride (F-)	mg/L	10	-	0.39	0.10	9516710			
Total Kjeldahl Nitrogen (TKN)	mg/L	100	1	**1.7**	0.50	9520787			
pH	pH	5.5:10.0	6.0:9.0	7.64		9514353			
Phenols-4AAP	mg/L	1	0.008	0.0010	0.0010	9522326			
Total Suspended Solids	mg/L	350	15	**16**	10	9519524	**18**	10	9519524
Dissolved Sulphate (SO4)	mg/L	1500	-	120	1.0	9513736			
Total Cyanide (CN)	mg/L	2	0.02	<0.0050	0.0050	9514465			
Petroleum Hydrocarbons									
Total Oil & Grease	mg/L	-	-	<0.50	0.50	9515551			
Total Oil & Grease Mineral/Synthetic	mg/L	15	-	<0.50	0.50	9515553			
Miscellaneous Parameters									
Nonylphenol Ethoxylate (Total)	mg/L	0.2	-	<0.025	0.025	9516507			
Nonylphenol (Total)	mg/L	0.02	-	<0.001	0.001	9516500			
Metals									
Mercury (Hg)	mg/L	0.01	0.0004	<0.00010	0.00010	9522377			
Total Aluminum (Al)	mg/L	50	-	0.27	0.0049	9519817			
Total Antimony (Sb)	mg/L	5	-	0.00094	0.00050	9519817			
Total Arsenic (As)	mg/L	1	0.02	0.0021	0.0010	9519817			
Total Cadmium (Cd)	mg/L	0.7	0.008	0.000091	0.000090	9519817			
Total Chromium (Cr)	mg/L	5	0.08	<0.0050	0.0050	9519817			
Total Cobalt (Co)	mg/L	5	-	0.0011	0.00050	9519817			
Total Copper (Cu)	mg/L	3	0.05	0.0019	0.00090	9519817			
Total Lead (Pb)	mg/L	3	0.12	<0.00050	0.00050	9519817			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: The Regional Municipality of Peel Sanitary Sewer Discharge. By-Law Number 53-2010.
Criteria-2: The Regional Municipality of Peel Storm Sewer Discharge. By-Law Number 53-2010.

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PEEL SANITARY & STORM SEWER (53-2010)

Bureau Veritas ID				ZRV634			ZRV634		
Sampling Date				2024/07/11 15:45			2024/07/11 15:45		
COC Number				C#997578-01-01			C#997578-01-01		
	UNITS	Criteria	Criteria-2	SW-UF-BH2	RDL	QC Batch	SW-UF-BH2 Lab-Dup	RDL	QC Batch
Total Manganese (Mn)	mg/L	5	0.05	**0.24**	0.0020	9519817			
Total Molybdenum (Mo)	mg/L	5	-	0.046	0.00050	9519817			
Total Nickel (Ni)	mg/L	3	0.08	0.0033	0.0010	9519817			
Total Phosphorus (P)	mg/L	10	-	<0.10	0.10	9519817			
Total Selenium (Se)	mg/L	1	0.02	<0.0020	0.0020	9519817			
Total Silver (Ag)	mg/L	5	0.12	<0.000090	0.000090	9519817			
Total Tin (Sn)	mg/L	5	-	0.0097	0.0010	9519817			
Total Titanium (Ti)	mg/L	5	-	0.0051	0.0050	9519817			
Total Zinc (Zn)	mg/L	3	0.04	0.023	0.0050	9519817			
Semivolatile Organics									
Bis(2-ethylhexyl)phthalate	mg/L	0.012	0.0088	<0.0020	0.0020	9515592			
Di-N-butyl phthalate	mg/L	0.08	0.015	<0.0020	0.0020	9515592			
Volatile Organics									
Benzene	mg/L	0.01	0.002	0.00029	0.00020	9513591			
Chloroform	mg/L	0.04	0.002	<0.00020	0.00020	9513591			
1,2-Dichlorobenzene	mg/L	0.05	0.0056	<0.00040	0.00040	9513591			
1,4-Dichlorobenzene	mg/L	0.08	0.0068	<0.00040	0.00040	9513591			
cis-1,2-Dichloroethylene	mg/L	4	0.0056	<0.00050	0.00050	9513591			
trans-1,3-Dichloropropene	mg/L	0.14	0.0056	<0.00040	0.00040	9513591			
Ethylbenzene	mg/L	0.16	0.002	<0.00020	0.00020	9513591			
Methylene Chloride(Dichloromethane)	mg/L	2	0.0052	<0.0020	0.0020	9513591			
Methyl Ethyl Ketone (2-Butanone)	mg/L	8.0	-	<0.010	0.010	9513591			
Styrene	mg/L	0.2	-	<0.00040	0.00040	9513591			
1,1,1,2-Tetrachloroethane	mg/L	-	-	<0.00050	0.00050	9513591			
1,1,2,2-Tetrachloroethane	mg/L	1.4	0.017	<0.00040	0.00040	9513591			
Tetrachloroethylene	mg/L	1	0.0044	<0.00020	0.00020	9513591			
Toluene	mg/L	0.27	0.002	<0.00020	0.00020	9513591			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: The Regional Municipality of Peel Sanitary Sewer Discharge. By-Law Number 53-2010.
Criteria-2: The Regional Municipality of Peel Storm Sewer Discharge. By-Law Number 53-2010.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

PEEL SANITARY & STORM SEWER (53-2010)

Bureau Veritas ID				ZRV634			ZRV634		
Sampling Date				2024/07/11 15:45			2024/07/11 15:45		
COC Number				C#997578-01-01			C#997578-01-01		
	UNITS	**Criteria**	**Criteria-2**	**SW-UF-BH2**	**RDL**	**QC Batch**	**SW-UF-BH2 Lab-Dup**	**RDL**	**QC Batch**
Trichloroethylene	mg/L	0.4	0.008	<0.00020	0.00020	9513591			
p+m-Xylene	mg/L	-	-	<0.00020	0.00020	9513591			
o-Xylene	mg/L	-	-	<0.00020	0.00020	9513591			
Total Xylenes	mg/L	1.4	0.0044	<0.00020	0.00020	9513591			
PCBs									
Total PCB	mg/L	0.001	0.0004	<0.00005	0.00005	9516516			
Microbiological									
Escherichia coli	CFU/100mL	-	200	2.0	N/A	9512705			
Surrogate Recovery (%)									
2,4,6-Tribromophenol	%	-	-	78		9515592			
2-Fluorobiphenyl	%	-	-	63		9515592			
2-Fluorophenol	%	-	-	29		9515592			
D14-Terphenyl	%	-	-	83		9515592			
D5-Nitrobenzene	%	-	-	61		9515592			
D5-Phenol	%	-	-	21		9515592			
Decachlorobiphenyl	%	-	-	83		9516516			
4-Bromofluorobenzene	%	-	-	102		9513591			
D4-1,2-Dichloroethane	%	-	-	113		9513591			
D8-Toluene	%	-	-	93		9513591			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: The Regional Municipality of Peel Sanitary Sewer Discharge.
By-Law Number 53-2010.
Criteria-2: The Regional Municipality of Peel Storm Sewer Discharge.
By-Law Number 53-2010.
N/A = Not Applicable

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Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

TEST SUMMARY

Bureau Veritas ID: ZRV634
Sample ID: SW-UF-BH2
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
ABN Compounds in Water by GC/MS	GC/MS	9515592	2024/07/15	2024/07/16	Adriana Zurita
Carbonaceous BOD	DO	9513081	2024/07/13	2024/07/18	Prakash Piya
Total Cyanide	SKAL/CN	9514465	2024/07/15	2024/07/15	Prgya Panchal
Fluoride	ISE	9516710	2024/07/16	2024/07/16	Surinder Rai
Mercury in Water by CVAA	CV/AA	9522377	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519817	2024/07/17	2024/07/17	Azita Fazaeli
E.coli, (CFU/100mL)	PL	9512705	N/A	2024/07/12	Jessica (Ya Ping) Qiang
Total Nonylphenol in Liquids by HPLC	LC/FLU	9516500	2024/07/16	2024/07/16	Dennis Boodram
Nonylphenol Ethoxylates in Liquids: HPLC	LC/FLU	9516507	2024/07/16	2024/07/16	Dennis Boodram
Animal and Vegetable Oil and Grease	BAL	9507863	N/A	2024/07/16	Automated Statchk
Total Oil and Grease	BAL	9515551	2024/07/15	2024/07/16	Andrews Philip
Polychlorinated Biphenyl in Water	GC/ECD	9516516	2024/07/16	2024/07/16	Farag Mansour
Phenols (4AAP)	TECH/PHEN	9522326	N/A	2024/07/18	Chloe Pollock
pH	AT	9514353	2024/07/15	2024/07/15	Taslima Aktar
Sulphate by Automated Turbidimetry	SKAL	9513736	N/A	2024/07/16	Massarat Jan
Total Kjeldahl Nitrogen in Water	SKAL	9520787	2024/07/17	2024/07/19	Rajni Tyagi
Mineral/Synthetic O & G (TPH Heavy Oil)	BAL	9515553	2024/07/15	2024/07/16	Andrews Philip
Total Suspended Solids	BAL	9519524	2024/07/17	2024/07/18	Razieh Tabesh
Volatile Organic Compounds in Water	GC/MS	9513591	N/A	2024/07/15	Manpreet Sarao

Bureau Veritas ID: ZRV634 Dup
Sample ID: SW-UF-BH2
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Suspended Solids	BAL	9519524	2024/07/17	2024/07/18	Razieh Tabesh

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Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	19.3°C

Revised Report (2024/07/29) : Results have been split onto separate reports per client request.

Cooler custody seal present and intact.

Sample ZRV634 [SW-UF-BH2] : Total BOD < Carbonaceous BOD: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9513591	4-Bromofluorobenzene	2024/07/15	101	70 - 130	101	70 - 130	102	%				
9513591	D4-1,2-Dichloroethane	2024/07/15	108	70 - 130	106	70 - 130	108	%				
9513591	D8-Toluene	2024/07/15	101	70 - 130	100	70 - 130	96	%				
9515592	2,4,6-Tribromophenol	2024/07/16	85	10 - 130	87	10 - 130	76	%				
9515592	2-Fluorobiphenyl	2024/07/16	42	30 - 130	59	30 - 130	57	%				
9515592	2-Fluorophenol	2024/07/16	20	10 - 130	36	10 - 130	32	%				
9515592	D14-Terphenyl	2024/07/16	88	30 - 130	93	30 - 130	81	%				
9515592	D5-Nitrobenzene	2024/07/16	38	30 - 130	66	30 - 130	60	%				
9515592	D5-Phenol	2024/07/16	16	10 - 130	26	10 - 130	22	%				
9516516	Decachlorobiphenyl	2024/07/16	107	60 - 130	91	60 - 130	93	%				
9513081	Total Carbonaceous BOD	2024/07/18					<2	mg/L	5.9	30	98	80 - 120
9513591	1,1,1,2-Tetrachloroethane	2024/07/15	109	70 - 130	104	70 - 130	<0.00050	mg/L				
9513591	1,1,2,2-Tetrachloroethane	2024/07/15	113	70 - 130	105	70 - 130	<0.00040	mg/L				
9513591	1,2-Dichlorobenzene	2024/07/15	106	70 - 130	100	70 - 130	<0.00040	mg/L	NC	30		
9513591	1,4-Dichlorobenzene	2024/07/15	107	70 - 130	101	70 - 130	<0.00040	mg/L	NC	30		
9513591	Benzene	2024/07/15	105	70 - 130	102	70 - 130	<0.00020	mg/L	0.70	30		
9513591	Chloroform	2024/07/15	109	70 - 130	106	70 - 130	<0.00020	mg/L				
9513591	cis-1,2-Dichloroethylene	2024/07/15	107	70 - 130	104	70 - 130	<0.00050	mg/L				
9513591	Ethylbenzene	2024/07/15	104	70 - 130	100	70 - 130	<0.00020	mg/L	NC	30		
9513591	Methyl Ethyl Ketone (2-Butanone)	2024/07/15	133	60 - 140	120	60 - 140	<0.010	mg/L				
9513591	Methylene Chloride(Dichloromethane)	2024/07/15	105	70 - 130	101	70 - 130	<0.0020	mg/L				
9513591	o-Xylene	2024/07/15	102	70 - 130	101	70 - 130	<0.00020	mg/L	NC	30		
9513591	p+m-Xylene	2024/07/15	104	70 - 130	100	70 - 130	<0.00020	mg/L	0	30		
9513591	Styrene	2024/07/15	104	70 - 130	103	70 - 130	<0.00040	mg/L				
9513591	Tetrachloroethylene	2024/07/15	104	70 - 130	100	70 - 130	<0.00020	mg/L				
9513591	Toluene	2024/07/15	105	70 - 130	101	70 - 130	<0.00020	mg/L	3.2	30		
9513591	Total Xylenes	2024/07/15					<0.00020	mg/L	0	30		
9513591	trans-1,3-Dichloropropene	2024/07/15	112	70 - 130	101	70 - 130	<0.00040	mg/L				
9513591	Trichloroethylene	2024/07/15	104	70 - 130	102	70 - 130	<0.00020	mg/L				
9513736	Dissolved Sulphate (SO4)	2024/07/16	80	75 - 125	95	80 - 120	<1.0	mg/L	NC	20		
9514353	pH	2024/07/15			102	98 - 103			0.12	N/A		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9514465	Total Cyanide (CN)	2024/07/15	99	80 - 120	102	80 - 120	<0.0050	mg/L	NC	20		
9515551	Total Oil & Grease	2024/07/16			98	80 - 110	<0.50	mg/L	0.25	25		
9515553	Total Oil & Grease Mineral/Synthetic	2024/07/16			96	65 - 130	<0.50	mg/L	0.52	25		
9515592	Bis(2-ethylhexyl)phthalate	2024/07/16	98	30 - 130	98	30 - 130	<0.0020	mg/L	NC	40		
9515592	Di-N-butyl phthalate	2024/07/16	96	30 - 130	97	30 - 130	<0.0020	mg/L	NC	40		
9516500	Nonylphenol (Total)	2024/07/16	95	50 - 130	97	50 - 130	<0.001	mg/L	NC	40		
9516507	Nonylphenol Ethoxylate (Total)	2024/07/16	93	50 - 130	88	50 - 130	<0.025	mg/L	NC	40		
9516516	Total PCB	2024/07/16	96	60 - 130	89	60 - 130	<0.00005	mg/L	NC	40		
9516710	Fluoride (F-)	2024/07/16	111	80 - 120	102	80 - 120	<0.10	mg/L	NC	20		
9519524	Total Suspended Solids	2024/07/18			98	80 - 120	<10	mg/L	12	20		
9519817	Total Aluminum (Al)	2024/07/17	97	80 - 120	101	80 - 120	<0.0049	mg/L	4.1	20		
9519817	Total Antimony (Sb)	2024/07/17	102	80 - 120	103	80 - 120	<0.00050	mg/L	0.86	20		
9519817	Total Arsenic (As)	2024/07/17	98	80 - 120	101	80 - 120	<0.0010	mg/L	16	20		
9519817	Total Cadmium (Cd)	2024/07/17	98	80 - 120	101	80 - 120	<0.000090	mg/L	NC	20		
9519817	Total Chromium (Cr)	2024/07/17	95	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20		
9519817	Total Cobalt (Co)	2024/07/17	94	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20		
9519817	Total Copper (Cu)	2024/07/17	95	80 - 120	98	80 - 120	<0.00090	mg/L	7.2	20		
9519817	Total Lead (Pb)	2024/07/17	94	80 - 120	98	80 - 120	<0.00050	mg/L	2.2	20		
9519817	Total Manganese (Mn)	2024/07/17	93	80 - 120	97	80 - 120	<0.0020	mg/L	2.8	20		
9519817	Total Molybdenum (Mo)	2024/07/17	99	80 - 120	100	80 - 120	<0.00050	mg/L	1.1	20		
9519817	Total Nickel (Ni)	2024/07/17	92	80 - 120	98	80 - 120	<0.0010	mg/L	9.0	20		
9519817	Total Phosphorus (P)	2024/07/17	96	80 - 120	95	80 - 120	<0.10	mg/L	4.2	20		
9519817	Total Selenium (Se)	2024/07/17	103	80 - 120	109	80 - 120	<0.0020	mg/L	NC	20		
9519817	Total Silver (Ag)	2024/07/17	95	80 - 120	97	80 - 120	<0.000090	mg/L	NC	20		
9519817	Total Tin (Sn)	2024/07/17	100	80 - 120	101	80 - 120	<0.0010	mg/L	17	20		
9519817	Total Titanium (Ti)	2024/07/17	89	80 - 120	102	80 - 120	<0.0050	mg/L	7.6	20		
9519817	Total Zinc (Zn)	2024/07/17	98	80 - 120	104	80 - 120	<0.0050	mg/L	3.0	20		
9520787	Total Kjeldahl Nitrogen (TKN)	2024/07/18	89	80 - 120	96	80 - 120	<0.10	mg/L	8.7 (1)	20	96	80 - 120
9522326	Phenols-4AAP	2024/07/18	102	80 - 120	102	80 - 120	<0.0010	mg/L	3.3	20		

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9522377	Mercury (Hg)	2024/07/18	93	75 - 125	95	80 - 120	<0.00010	mg/L	NC	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) TKN < NH4: Both values fall within acceptable RPD limits for duplicates and are likely equivalent.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Cristina Carriere, Senior Scientific Specialist

Jessica (Ya Ping) Qiang, Analyst II

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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MICRO

Bureau Veritas
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvna.com

NONT-2024-07-1171

INVOICE TO:

Company Name: #36876 Grounded Engineering Inc.
Attention: Vivi Tran and James Wagner
Address: 1 Banigan Drive, Toronto ON M4H 1G3
Tel: (647) 264-7909 Fax:
Email: vtran@groundedeng.ca, jwagner@groundedeng.ca

REPORT TO:

Company Name:
Attention: Vivi Tran, and James Wagner
Address:
Tel: Fax:
Email: vtran@groundedeng.ca, jwagner@groundedeng.ca

PROJECT INFORMATION:

Quotation #: C35487
P.O. #:
Project: 24-099
Project Name:
Site #: 2233 HURONTARIO
Sampled By:

Use Only:

Bottle Order #: 997578
COC #: C#997578-01-01
Project Manager: Marijane Cruz

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
☐ Table 1 ☐ Res/Park ☐ Medium/Fine
☐ Table 2 ☐ Ind/Comm ☐ Coarse
☐ Table 3 ☐ Agri/Other ☐ For RSC
☐ Table ___

Other Regulations
☐ CCME ☑ Sanitary Sewer Bylaw
☐ Reg 558. ☑ Storm Sewer Bylaw
☐ MISA Municipality Peel SANI/MISS STORM
☐ PWQO ☐ Reg 406 Table
☐ Other

Special Instructions
MISSISSAUGA STORM & PEEL SANITARY

Include Criteria on Certificate of Analysis (Y/N)? ____

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Field Filtered (please circle): Metals / Hg / Cr VI
Peel Sanitary & Storm Sewer (53-2010)
MISSISSAUGA STORM & PEEL SANI

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ____ Time Required: ____ ☐
Rush Confirmation Number: ____ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	# of Bottles	Comments
1		SW-4F-BH2	24/07/11	1545	GW	17	
2							
3							
4							
5							
6							
7							
8							
9							
10							

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Michell Wong	24/07/11	1715		24/07/11	18:20	

Laboratory Use Only
Time Sensitive
Temperature (°C) on Recei 17/20/21
Custody Seal Present ☑ Intact ☑

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

Exceedance Summary Table – Peel Region Sanitary 2010

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Peel Region Storm 2010

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
SW-UF-BH2	ZRV634-10	Total Kjeldahl Nitrogen (TKN)	1	1.7	0.50	mg/L
SW-UF-BH2	ZRV634-08	Total Manganese (Mn)	0.05	0.24	0.0020	mg/L
SW-UF-BH2	ZRV634-06	Total Suspended Solids	15	16	10	mg/L
SW-UF-BH2	ZRV634-06-Lab Dup	Total Suspended Solids	15	18	10	mg/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

C4L6620
2024/07/16 11:31

Bureau Veritas
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Page of

NONT-2024-07-1763

Bottle Order #: 1001907

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#36876 Grounded Engineering Inc.	Company Name:		Quotation #:	C35487
Attention:	Vivi Tran and James Wagner	Attention:	Vivi Tran and James Wagner	P.O. #:	
Address:	1 Banigan Drive Toronto ON M4H 1G3	Address:		Project:	24-099
Tel:	(647) 264-7909 Fax:	Tel:	Fax:	Project Name:	
Email:	vtran@groundedeng.ca, jwagner@groundedeng.ca	Email:	vtran@groundedeng.ca, jwagner@groundedeng.ca	Site #:	2233 Hurontario
				Sampled By:	

COC #: C#1001907-01-01

Project Manager: Marijane Cruz

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___	☐ CCME ☑ Sanitary Sewer Bylaw ☐ Reg 558. ☑ Storm Sewer Bylaw ☐ MISA Municipality Peel Sani. / Mississ. Storm ☐ PWQO ☐ Reg 406 Table ___ ☐ Other ___	Mississauga Storm + Peel Sanitary

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Total Residual Chlorine	Chromium (VI) in Water	PAH Compounds in Water by GC/MS (SIM)	Peel Sanitary Storm Sewer (153-2011)	Mississauga Storm + Peel Sanitary					# of Bottles	Comments
1		SW-UF-BH2	24/07/16	10:00	GW						X					4	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
MARY DAKA	24/07/16	10:30				

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	13 11 9 13	Present	✓	
		Intact	✓	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Your Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Your C.O.C. #: C#997578-01-01, 1001907-01-01

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/29
Report #: R8254881
Version: 4 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4L1909
Received: 2024/07/11, 18:20

Sample Matrix: Water
Samples Received: 2

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Biochemical Oxygen Demand (BOD)	1	2024/07/15	2024/07/20	CAM SOP-00427	SM 24 5210B m
Total Residual Chlorine	1	2024/07/17	2024/07/17	CAM SOP 00425	SM 24 4500-CL G m
Chromium (VI) in Water	1	N/A	2024/07/19	CAM SOP-00436	EPA 7199 m
Total Cyanide	1	2024/07/15	2024/07/15	CAM SOP-00457	OMOE E3015 5 m
Mercury in Water by CVAA	1	2024/07/18	2024/07/18	CAM SOP-00453	EPA 7470A m
Total Metals Analysis by ICPMS	1	2024/07/17	2024/07/17	CAM SOP-00447	EPA 6020B m
E.coli, (CFU/100mL)	1	N/A	2024/07/12	CAM SOP-00552	SM9222B, MECP E3371
PAH Compounds in Water by GC/MS (SIM)	1	2024/07/19	2024/07/20	CAM SOP-00318	EPA 8270E
Polychlorinated Biphenyl in Water	1	2024/07/16	2024/07/16	CAM SOP-00309	EPA 8082A m
Phenols (4AAP)	1	N/A	2024/07/18	CAM SOP-00444	OMOE E3179 m
pH	1	2024/07/15	2024/07/15	CAM SOP-00413	SM 24th-4500H+ B
Total PAHs: Barrie/Mississauga Sewer Use (1)	1	N/A	2024/07/22	CAM SOP - 00301	
Total Suspended Solids	1	2024/07/17	2024/07/18	CAM SOP-00428	SM 24 2540D m
Volatile Organic Compounds in Water	1	N/A	2024/07/15	CAM SOP-00228	EPA 8260D

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Your Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Your C.O.C. #: C#997578-01-01, 1001907-01-01

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/29
Report #: R8254881
Version: 4 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4L1909
Received: 2024/07/11, 18:20

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Total PAHs include only those PAHs specified in the sewer use by-by-law.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Marijane Cruz, Senior Project Manager
Email: Marijane.Cruz@bureauveritas.com
Phone# (905)817-5756

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

MISSISSAUGA STORM SEWER BYLAW (46-2022)

Bureau Veritas ID			ZRV634			ZRV634		
Sampling Date			2024/07/11 15:45			2024/07/11 15:45		
COC Number			C#997578-01-01			C#997578-01-01		
	UNITS	Criteria	SW-UF-BH2	RDL	QC Batch	SW-UF-BH2 Lab-Dup	RDL	QC Batch
Inorganics								
Total BOD	mg/L	15	3	2	9514884			
pH	pH	6:9	7.64		9514353			
Phenols-4AAP	mg/L	0.008	0.0010	0.0010	9522326			
Total Suspended Solids	mg/L	15	**16**	10	9519524	**18**	10	9519524
Total Cyanide (CN)	mg/L	0.02	<0.0050	0.0050	9514465			
Metals								
Mercury (Hg)	mg/L	0.0004	<0.00010	0.00010	9522377			
Total Aluminum (Al)	mg/L	1.0	0.27	0.0049	9519817			
Total Antimony (Sb)	mg/L	-	0.00094	0.00050	9519817			
Total Arsenic (As)	mg/L	0.02	0.0021	0.0010	9519817			
Total Cadmium (Cd)	mg/L	0.008	0.000091	0.000090	9519817			
Total Chromium (Cr)	mg/L	0.08	<0.0050	0.0050	9519817			
Total Cobalt (Co)	mg/L	-	0.0011	0.00050	9519817			
Total Copper (Cu)	mg/L	0.04	0.0019	0.00090	9519817			
Total Lead (Pb)	mg/L	0.12	<0.00050	0.00050	9519817			
Total Manganese (Mn)	mg/L	2.0	0.24	0.0020	9519817			
Total Molybdenum (Mo)	mg/L	-	0.046	0.00050	9519817			
Total Nickel (Ni)	mg/L	0.08	0.0033	0.0010	9519817			
Total Phosphorus (P)	mg/L	0.4	<0.10	0.10	9519817			
Total Selenium (Se)	mg/L	0.02	<0.0020	0.0020	9519817			
Total Silver (Ag)	mg/L	0.12	<0.000090	0.000090	9519817			
Total Tin (Sn)	mg/L	-	0.0097	0.0010	9519817			
Total Titanium (Ti)	mg/L	-	0.0051	0.0050	9519817			
Total Zinc (Zn)	mg/L	0.2	0.023	0.0050	9519817			
Volatile Organics								
Benzene	mg/L	0.002	0.00029	0.00020	9513591			
Chloroform	mg/L	-	<0.00020	0.00020	9513591			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: City of Mississauga Storm Sewer Use By-Law 0046-2022

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

MISSISSAUGA STORM SEWER BYLAW (46-2022)

Bureau Veritas ID			ZRV634			ZRV634		
Sampling Date			2024/07/11 15:45			2024/07/11 15:45		
COC Number			C#997578-01-01			C#997578-01-01		
	UNITS	Criteria	SW-UF-BH2	RDL	QC Batch	SW-UF-BH2 Lab-Dup	RDL	QC Batch
1,2-Dichlorobenzene	mg/L	0.0056	<0.00040	0.00040	9513591			
1,4-Dichlorobenzene	mg/L	0.0068	<0.00040	0.00040	9513591			
cis-1,2-Dichloroethylene	mg/L	-	<0.00050	0.00050	9513591			
trans-1,3-Dichloropropene	mg/L	-	<0.00040	0.00040	9513591			
Ethylbenzene	mg/L	0.002	<0.00020	0.00020	9513591			
Methylene Chloride(Dichloromethane)	mg/L	0.0052	<0.0020	0.0020	9513591			
Methyl Ethyl Ketone (2-Butanone)	mg/L	-	<0.010	0.010	9513591			
Styrene	mg/L	-	<0.00040	0.00040	9513591			
1,1,1,2-Tetrachloroethane	mg/L	-	<0.00050	0.00050	9513591			
1,1,2,2-Tetrachloroethane	mg/L	0.017	<0.00040	0.00040	9513591			
Tetrachloroethylene	mg/L	0.0044	<0.00020	0.00020	9513591			
Toluene	mg/L	0.002	<0.00020	0.00020	9513591			
Trichloroethylene	mg/L	0.0076	<0.00020	0.00020	9513591			
p+m-Xylene	mg/L	-	<0.00020	0.00020	9513591			
o-Xylene	mg/L	-	<0.00020	0.00020	9513591			
Total Xylenes	mg/L	0.0044	<0.00020	0.00020	9513591			
PCBs								
Total PCB	mg/L	0.0004	<0.00005	0.00005	9516516			
Microbiological								
Escherichia coli	CFU/100mL	200	2.0	N/A	9512705			
Surrogate Recovery (%)								
Decachlorobiphenyl	%	-	83		9516516			
4-Bromofluorobenzene	%	-	102		9513591			
D4-1,2-Dichloroethane	%	-	113		9513591			
D8-Toluene	%	-	93		9513591			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: City of Mississauga Storm Sewer Use By-Law 0046-2022
N/A = Not Applicable

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

MISSISSAUGA STORM SEWER BYLAW (46-2022)

Bureau Veritas ID			ZSU712			ZSU712		
Sampling Date			2024/07/16 10:00			2024/07/16 10:00		
COC Number			1001907-01-01			1001907-01-01		
	UNITS	Criteria	SW-UF-BH2	RDL	QC Batch	SW-UF-BH2 Lab-Dup	RDL	QC Batch
Inorganics								
Total Chlorine	mg/L	1.0	<0.1	0.1	9521461	<0.1	0.1	9521461
Metals								
Chromium (VI)	mg/L	0.04	<0.00050	0.00050	9525137			
Calculated Parameters								
Total PAHs	mg/L	0.002	<0.00020	0.00020	9521369			
Polyaromatic Hydrocarbons								
Acenaphthene	mg/L	-	<0.000050	0.000050	9524957			
Acenaphthylene	mg/L	-	<0.000050	0.000050	9524957			
Anthracene	mg/L	-	<0.000050	0.000050	9524957			
Benzo(a)anthracene	mg/L	-	<0.000050	0.000050	9524957			
Benzo(a)pyrene	mg/L	-	<0.0000090	0.0000090	9524957			
Benzo(g,h,i)perylene	mg/L	-	<0.000050	0.000050	9524957			
Benzo(k)fluoranthene	mg/L	-	<0.000050	0.000050	9524957			
Chrysene	mg/L	-	<0.000050	0.000050	9524957			
Dibenzo(a,h)anthracene	mg/L	-	<0.000050	0.000050	9524957			
Fluoranthene	mg/L	-	<0.000050	0.000050	9524957			
Fluorene	mg/L	-	<0.000050	0.000050	9524957			
Indeno(1,2,3-cd)pyrene	mg/L	-	<0.000050	0.000050	9524957			
1-Methylnaphthalene	mg/L	-	<0.000050	0.000050	9524957			
2-Methylnaphthalene	mg/L	-	<0.000050	0.000050	9524957			
Naphthalene	mg/L	-	<0.000050	0.000050	9524957			
Phenanthrene	mg/L	-	<0.000030	0.000030	9524957			
Pyrene	mg/L	-	<0.000050	0.000050	9524957			
Benzo(b)fluoranthene	mg/L	-	<0.000030	0.000030	9524957			
Surrogate Recovery (%)								
D10-Anthracene	%	-	99		9524957			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: City of Mississauga Storm Sewer Use By-Law 0046-2022

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

MISSISSAUGA STORM SEWER BYLAW (46-2022)

Bureau Veritas ID			ZSU712			ZSU712		
Sampling Date			2024/07/16 10:00			2024/07/16 10:00		
COC Number			1001907-01-01			1001907-01-01		
	UNITS	**Criteria**	**SW-UF-BH2**	**RDL**	**QC Batch**	**SW-UF-BH2 Lab-Dup**	**RDL**	**QC Batch**
D14-Terphenyl (FS)	%	-	95		9524957			
D8-Acenaphthylene	%	-	84		9524957			

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: City of Mississauga Storm Sewer Use By-Law 0046-2022

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Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

TEST SUMMARY

Bureau Veritas ID: ZRV634
Sample ID: SW-UF-BH2
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Biochemical Oxygen Demand (BOD)	DO	9514884	2024/07/15	2024/07/20	Amrutha Anilkumar
Total Cyanide	SKAL/CN	9514465	2024/07/15	2024/07/15	Prgya Panchal
Mercury in Water by CVAA	CV/AA	9522377	2024/07/18	2024/07/18	Aswathy Neduveli Suresh
Total Metals Analysis by ICPMS	ICP/MS	9519817	2024/07/17	2024/07/17	Azita Fazaeli
E.coli, (CFU/100mL)	PL	9512705	N/A	2024/07/12	Jessica (Ya Ping) Qiang
Polychlorinated Biphenyl in Water	GC/ECD	9516516	2024/07/16	2024/07/16	Farag Mansour
Phenols (4AAP)	TECH/PHEN	9522326	N/A	2024/07/18	Chloe Pollock
pH	AT	9514353	2024/07/15	2024/07/15	Taslima Aktar
Total Suspended Solids	BAL	9519524	2024/07/17	2024/07/18	Razieh Tabesh
Volatile Organic Compounds in Water	GC/MS	9513591	N/A	2024/07/15	Manpreet Sarao

Bureau Veritas ID: ZRV634 Dup
Sample ID: SW-UF-BH2
Matrix: Water

Collected: 2024/07/11
Shipped:
Received: 2024/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Suspended Solids	BAL	9519524	2024/07/17	2024/07/18	Razieh Tabesh

Bureau Veritas ID: ZSU712
Sample ID: SW-UF-BH2
Matrix: Water

Collected: 2024/07/16
Shipped:
Received: 2024/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Residual Chlorine	SPEC	9521461	2024/07/17	2024/07/17	Taslima Aktar
Chromium (VI) in Water	IC	9525137	N/A	2024/07/19	Surleen Kaur Romana
PAH Compounds in Water by GC/MS (SIM)	GC/MS	9524957	2024/07/19	2024/07/20	Jonghan Yoon
Total PAHs: Barrie/Mississauga Sewer Use	CALC	9521369	N/A	2024/07/22	Automated Statchk

Bureau Veritas ID: ZSU712 Dup
Sample ID: SW-UF-BH2
Matrix: Water

Collected: 2024/07/16
Shipped:
Received: 2024/07/11

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Total Residual Chlorine	SPEC	9521461	2024/07/17	2024/07/17	Taslima Aktar

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	19.3°C

Revised Report (2024/07/29) : Results have been split onto separate reports per client request.

Cooler custody seal present and intact.

Sample ZRV634 [SW-UF-BH2] : Total BOD < Carbonaceous BOD: Both values fall within the method uncertainty for duplicates and are likely equivalent.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9513591	4-Bromofluorobenzene	2024/07/15	101	70 - 130	101	70 - 130	102	%				
9513591	D4-1,2-Dichloroethane	2024/07/15	108	70 - 130	106	70 - 130	108	%				
9513591	D8-Toluene	2024/07/15	101	70 - 130	100	70 - 130	96	%				
9516516	Decachlorobiphenyl	2024/07/16	107	60 - 130	91	60 - 130	93	%				
9524957	D10-Anthracene	2024/07/19	104	50 - 130	104	50 - 130	104	%				
9524957	D14-Terphenyl (FS)	2024/07/19	111	50 - 130	111	50 - 130	110	%				
9524957	D8-Acenaphthylene	2024/07/19	97	50 - 130	98	50 - 130	95	%				
9513591	1,1,1,2-Tetrachloroethane	2024/07/15	109	70 - 130	104	70 - 130	<0.00050	mg/L				
9513591	1,1,2,2-Tetrachloroethane	2024/07/15	113	70 - 130	105	70 - 130	<0.00040	mg/L				
9513591	1,2-Dichlorobenzene	2024/07/15	106	70 - 130	100	70 - 130	<0.00040	mg/L	NC	30		
9513591	1,4-Dichlorobenzene	2024/07/15	107	70 - 130	101	70 - 130	<0.00040	mg/L	NC	30		
9513591	Benzene	2024/07/15	105	70 - 130	102	70 - 130	<0.00020	mg/L	0.70	30		
9513591	Chloroform	2024/07/15	109	70 - 130	106	70 - 130	<0.00020	mg/L				
9513591	cis-1,2-Dichloroethylene	2024/07/15	107	70 - 130	104	70 - 130	<0.00050	mg/L				
9513591	Ethylbenzene	2024/07/15	104	70 - 130	100	70 - 130	<0.00020	mg/L	NC	30		
9513591	Methyl Ethyl Ketone (2-Butanone)	2024/07/15	133	60 - 140	120	60 - 140	<0.010	mg/L				
9513591	Methylene Chloride(Dichloromethane)	2024/07/15	105	70 - 130	101	70 - 130	<0.0020	mg/L				
9513591	o-Xylene	2024/07/15	102	70 - 130	101	70 - 130	<0.00020	mg/L	NC	30		
9513591	p+m-Xylene	2024/07/15	104	70 - 130	100	70 - 130	<0.00020	mg/L	0	30		
9513591	Styrene	2024/07/15	104	70 - 130	103	70 - 130	<0.00040	mg/L				
9513591	Tetrachloroethylene	2024/07/15	104	70 - 130	100	70 - 130	<0.00020	mg/L				
9513591	Toluene	2024/07/15	105	70 - 130	101	70 - 130	<0.00020	mg/L	3.2	30		
9513591	Total Xylenes	2024/07/15					<0.00020	mg/L	0	30		
9513591	trans-1,3-Dichloropropene	2024/07/15	112	70 - 130	101	70 - 130	<0.00040	mg/L				
9513591	Trichloroethylene	2024/07/15	104	70 - 130	102	70 - 130	<0.00020	mg/L				
9514353	pH	2024/07/15			102	98 - 103			0.12	N/A		
9514465	Total Cyanide (CN)	2024/07/15	99	80 - 120	102	80 - 120	<0.0050	mg/L	NC	20		
9514884	Total BOD	2024/07/20					<2	mg/L	1.8	30	94	80 - 120
9516516	Total PCB	2024/07/16	96	60 - 130	89	60 - 130	<0.00005	mg/L	NC	40		
9519524	Total Suspended Solids	2024/07/18			98	80 - 120	<10	mg/L	12	20		
9519817	Total Aluminum (Al)	2024/07/17	97	80 - 120	101	80 - 120	<0.0049	mg/L	4.1	20		

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9519817	Total Antimony (Sb)	2024/07/17	102	80 - 120	103	80 - 120	<0.00050	mg/L	0.86	20		
9519817	Total Arsenic (As)	2024/07/17	98	80 - 120	101	80 - 120	<0.0010	mg/L	16	20		
9519817	Total Cadmium (Cd)	2024/07/17	98	80 - 120	101	80 - 120	<0.000090	mg/L	NC	20		
9519817	Total Chromium (Cr)	2024/07/17	95	80 - 120	99	80 - 120	<0.0050	mg/L	NC	20		
9519817	Total Cobalt (Co)	2024/07/17	94	80 - 120	98	80 - 120	<0.00050	mg/L	NC	20		
9519817	Total Copper (Cu)	2024/07/17	95	80 - 120	98	80 - 120	<0.00090	mg/L	7.2	20		
9519817	Total Lead (Pb)	2024/07/17	94	80 - 120	98	80 - 120	<0.00050	mg/L	2.2	20		
9519817	Total Manganese (Mn)	2024/07/17	93	80 - 120	97	80 - 120	<0.0020	mg/L	2.8	20		
9519817	Total Molybdenum (Mo)	2024/07/17	99	80 - 120	100	80 - 120	<0.00050	mg/L	1.1	20		
9519817	Total Nickel (Ni)	2024/07/17	92	80 - 120	98	80 - 120	<0.0010	mg/L	9.0	20		
9519817	Total Phosphorus (P)	2024/07/17	96	80 - 120	95	80 - 120	<0.10	mg/L	4.2	20		
9519817	Total Selenium (Se)	2024/07/17	103	80 - 120	109	80 - 120	<0.0020	mg/L	NC	20		
9519817	Total Silver (Ag)	2024/07/17	95	80 - 120	97	80 - 120	<0.000090	mg/L	NC	20		
9519817	Total Tin (Sn)	2024/07/17	100	80 - 120	101	80 - 120	<0.0010	mg/L	17	20		
9519817	Total Titanium (Ti)	2024/07/17	89	80 - 120	102	80 - 120	<0.0050	mg/L	7.6	20		
9519817	Total Zinc (Zn)	2024/07/17	98	80 - 120	104	80 - 120	<0.0050	mg/L	3.0	20		
9521461	Total Chlorine	2024/07/17	119 (1)	85 - 115	101	85 - 115	<0.1	mg/L	NC	25		
9522326	Phenols-4AAP	2024/07/18	102	80 - 120	102	80 - 120	<0.0010	mg/L	3.3	20		
9522377	Mercury (Hg)	2024/07/18	93	75 - 125	95	80 - 120	<0.00010	mg/L	NC	20		
9524957	1-Methylnaphthalene	2024/07/19	76	50 - 130	81	50 - 130	<0.000050	mg/L	NC	30		
9524957	2-Methylnaphthalene	2024/07/19	74	50 - 130	79	50 - 130	<0.000050	mg/L	NC	30		
9524957	Acenaphthene	2024/07/19	86	50 - 130	90	50 - 130	<0.000050	mg/L	NC	30		
9524957	Acenaphthylene	2024/07/19	87	50 - 130	92	50 - 130	<0.000050	mg/L	NC	30		
9524957	Anthracene	2024/07/19	91	50 - 130	96	50 - 130	<0.000050	mg/L	NC	30		
9524957	Benzo(a)anthracene	2024/07/19	89	50 - 130	97	50 - 130	<0.000050	mg/L	NC	30		
9524957	Benzo(a)pyrene	2024/07/19	88	50 - 130	98	50 - 130	<0.0000090	mg/L	NC	30		
9524957	Benzo(b)fluoranthene	2024/07/19	84	50 - 130	94	50 - 130	<0.000030	mg/L				
9524957	Benzo(g,h,i)perylene	2024/07/19	101	50 - 130	116	50 - 130	<0.000050	mg/L	NC	30		
9524957	Benzo(k)fluoranthene	2024/07/19	86	50 - 130	92	50 - 130	<0.000050	mg/L	NC	30		
9524957	Chrysene	2024/07/19	89	50 - 130	97	50 - 130	<0.000050	mg/L	NC	30		
9524957	Dibenzo(a,h)anthracene	2024/07/19	98	50 - 130	113	50 - 130	<0.000050	mg/L	NC	30		

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD		QC Standard	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits	% Recovery	QC Limits
9524957	Fluoranthene	2024/07/19	100	50 - 130	105	50 - 130	<0.000050	mg/L	NC	30		
9524957	Fluorene	2024/07/19	86	50 - 130	90	50 - 130	<0.000050	mg/L	NC	30		
9524957	Indeno(1,2,3-cd)pyrene	2024/07/19	99	50 - 130	113	50 - 130	<0.000050	mg/L	NC	30		
9524957	Naphthalene	2024/07/19	76	50 - 130	81	50 - 130	<0.000050	mg/L	NC	30		
9524957	Phenanthrene	2024/07/19	94	50 - 130	99	50 - 130	<0.000030	mg/L	NC	30		
9524957	Pyrene	2024/07/19	96	50 - 130	101	50 - 130	<0.000050	mg/L	NC	30		
9525137	Chromium (VI)	2024/07/19	101	80 - 120	101	80 - 120	<0.00050	mg/L	NC	20		

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

QC Standard: A sample of known concentration prepared by an external agency under stringent conditions. Used as an independent check of method accuracy.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:

Anastassia Hamanov, Supervisor-Afternoon Shift

Cristina Carriere, Senior Scientific Specialist

Jessica (Ya Ping) Qiang, Analyst II

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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MICRO

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NONT-2024-07-1171

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:		Use Only:
Company Name:	#36876 Grounded Engineering Inc.	Company Name:		Quotation #:	C35487	Bottle Order #:
Attention:	Vivi Tran and James Wagner	Attention:	Vivi Tran, and James Wagner	P.O. #:		997578
Address:	1 Banigan Drive Toronto ON M4H 1G3	Address:		Project:	24-099	
Tel:	(647) 264-7909 Fax:	Tel:	Fax:	Project Name:		COC #:
Email:	vtran@groundedeng.ca, jwagner@groundedeng.ca	Email:	vtran@groundedeng.ca, jwagner@groundedeng.ca	Site #:	2233 HURONTARIO	C#997578-01-01
				Sampled By:		Project Manager: Marijane Cruz

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☐ Res/Park ☐ Medium/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☐ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☑ Sanitary Sewer Bylaw
- ☐ Reg 558. ☑ Storm Sewer Bylaw
- ☐ MISA Municipality Peel SANI/MISS STORM
- ☐ PWQO ☐ Reg 406 Table ___
- ☐ Other ___

Special Instructions: MISSISSAUGA STORM + PEEL SANITARY

Include Criteria on Certificate of Analysis (Y/N)? ___

ANALYSIS REQUESTED (PLEASE BE SPECIFIC)

Turnaround Time (TAT) Required:
Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Peel Sanitary & Storm Sewer (53-2010) → MISSISSAUGA STORM + PEEL SANI								# of Bottles	Comments
1		SW-4F-BH2	24/07/11	1545	GW		X								17	
2																
3																
4																
5																
6																
7																
8																
9																
10																

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Michell Wong	24/07/11	1715		24/07/11	18:20	

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	17/20/21	Present	✓	
		Intact	✓	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

Bureau Veritas Job #: C4L1909
Report Date: 2024/07/29

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST, MISSISSAUGA
Sampler Initials: MD, MW

Exceedance Summary Table – Mississauga Storm Sewer

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
SW-UF-BH2	ZRV634-06	Total Suspended Solids	15	16	10	mg/L
SW-UF-BH2	ZRV634-06-Lab Dup	Total Suspended Solids	15	18	10	mg/L

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

C4L6620
2024/07/16 11:31

Bureau Veritas
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvna.com

Page of

NONT-2024-07-1763

Bottle Order #: 1001907

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#36876 Grounded Engineering Inc.	Company Name:		Quotation #:	C35487
Attention:	Vivi Tran and James Wagner	Attention:	Vivi Tran and James Wagner	P.O. #:	
Address:	1 Banigan Drive Toronto ON M4H 1G3	Address:		Project:	24-099
Tel:	(647) 264-7909 Fax:	Tel:	Fax:	Project Name:	
Email:	vtran@groundedeng.ca, jwagner@groundedeng.ca	Email:	vtran@groundedeng.ca, jwagner@groundedeng.ca	Site #:	2233 Hurontario
				Sampled By:	

COC #: C#1001907-01-01

Project Manager: Marijane Cruz

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)	Other Regulations	Special Instructions
☐ Table 1 ☐ Res/Park ☐ Medium/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☐ Table 3 ☐ Agri/Other ☐ For RSC ☐ Table ___	☐ CCME ☑ Sanitary Sewer Bylaw ☐ Reg 558. ☑ Storm Sewer Bylaw ☐ MISA Municipality Peel Sani. / Mississ. Storm ☐ PWQO ☐ Reg 406 Table ___ ☐ Other ___	Mississauga Storm + Peel Sanitary

Include Criteria on Certificate of Analysis (Y/N)? ___

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☑
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	Total Residual Chlorine	Chromium (VI) in Water	PAH Compounds in Water by GC/MS (SIM)	Peel Sanitary Storm Sewer (153-2011)	Mississauga Storm + Peel Sanitary					# of Bottles	Comments
1		SW-UF-BH2	24/07/16	10:00	GW						X					4	
2																	
3																	
4																	
5																	
6																	
7																	
8																	
9																	
10																	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
MARY DAKA	24/07/16	10:30				

Laboratory Use Only

Time Sensitive	Temperature (°C) on Recei	Custody Seal	Yes	No
	13 11 9 13	Present	✓	
		Intact	✓	

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

Bureau Veritas Canada (2019) Inc.

APPENDIX G



Your Project #: 24-099
Site Location: 2233 HURONTARIO ST
Your C.O.C. #: N/A

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/15
Report #: R8234709
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4K4753
Received: 2024/07/04, 17:22

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
1,3-Dichloropropene Sum	1	N/A	2024/07/12		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Soil (1)	1	2024/07/10	2024/07/11	CAM SOP-00316	CCME CWS m
Moisture	1	N/A	2024/07/10	CAM SOP-00445	Carter 2nd ed 70.2 m
Volatile Organic Compounds and F1 PHCs	1	N/A	2024/07/11	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: 24-099
Site Location: 2233 HURONTARIO ST
Your C.O.C. #: N/A

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/15
Report #: R8234709
Version: 2 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4K4753
Received: 2024/07/04, 17:22

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Marijane Cruz, Senior Project Manager
Email: Marijane.Cruz@bureauveritas.com
Phone# (905)817-5756

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/15

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID			ZQK650			
Sampling Date			2024/06/28 15:40			
COC Number			N/A			
	UNITS	Criteria	BH2 SS10B	RDL	MDL	QC Batch
Calculated Parameters						
1,3-Dichloropropene (cis+trans)	ug/g	0.05	<0.050	0.050	0.010	9505064
Volatile Organics						
Acetone (2-Propanone)	ug/g	0.5	<0.49	0.49	0.49	9508041
Benzene	ug/g	0.02	<0.0060	0.0060	0.0060	9508041
Bromodichloromethane	ug/g	0.05	<0.040	0.040	0.040	9508041
Bromoform	ug/g	0.05	<0.040	0.040	0.040	9508041
Bromomethane	ug/g	0.05	<0.040	0.040	0.040	9508041
Carbon Tetrachloride	ug/g	0.05	<0.040	0.040	0.040	9508041
Chlorobenzene	ug/g	0.083	<0.040	0.040	0.040	9508041
Chloroform	ug/g	0.05	<0.040	0.040	0.040	9508041
Dibromochloromethane	ug/g	0.05	<0.040	0.040	0.040	9508041
1,2-Dichlorobenzene	ug/g	3.4	<0.040	0.040	0.040	9508041
1,3-Dichlorobenzene	ug/g	0.26	<0.040	0.040	0.040	9508041
1,4-Dichlorobenzene	ug/g	0.05	<0.040	0.040	0.040	9508041
Dichlorodifluoromethane (FREON 12)	ug/g	1.5	<0.040	0.040	0.040	9508041
1,1-Dichloroethane	ug/g	0.05	<0.040	0.040	0.040	9508041
1,2-Dichloroethane	ug/g	0.05	<0.049	0.049	0.049	9508041
1,1-Dichloroethylene	ug/g	0.05	<0.040	0.040	0.040	9508041
cis-1,2-Dichloroethylene	ug/g	0.05	<0.040	0.040	0.040	9508041
trans-1,2-Dichloroethylene	ug/g	0.05	<0.040	0.040	0.040	9508041
1,2-Dichloropropane	ug/g	0.05	<0.040	0.040	0.040	9508041
cis-1,3-Dichloropropene	ug/g	0.05	<0.030	0.030	0.030	9508041
trans-1,3-Dichloropropene	ug/g	0.05	<0.040	0.040	0.040	9508041
Ethylbenzene	ug/g	0.05	<0.010	0.010	0.010	9508041
Ethylene Dibromide	ug/g	0.05	<0.040	0.040	0.040	9508041
Hexane	ug/g	2.5	<0.040	0.040	0.040	9508041
Methylene Chloride(Dichloromethane)	ug/g	0.05	<0.049	0.049	0.049	9508041
Methyl Ethyl Ketone (2-Butanone)	ug/g	0.5	<0.40	0.40	0.40	9508041

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/15

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID			ZQK650			
Sampling Date			2024/06/28 15:40			
COC Number			N/A			
	UNITS	Criteria	BH2 SS10B	RDL	MDL	QC Batch
Methyl Isobutyl Ketone	ug/g	0.5	<0.40	0.40	0.40	9508041
Methyl t-butyl ether (MTBE)	ug/g	0.05	<0.040	0.040	0.040	9508041
Styrene	ug/g	0.05	<0.040	0.040	0.040	9508041
1,1,1,2-Tetrachloroethane	ug/g	0.05	<0.040	0.040	0.040	9508041
1,1,2,2-Tetrachloroethane	ug/g	0.05	<0.040	0.040	0.040	9508041
Tetrachloroethylene	ug/g	0.05	<0.040	0.040	0.040	9508041
Toluene	ug/g	0.2	<0.020	0.020	0.020	9508041
1,1,1-Trichloroethane	ug/g	0.11	<0.040	0.040	0.040	9508041
1,1,2-Trichloroethane	ug/g	0.05	<0.040	0.040	0.040	9508041
Trichloroethylene	ug/g	0.05	<0.010	0.010	0.010	9508041
Trichlorofluoromethane (FREON 11)	ug/g	0.25	<0.040	0.040	0.040	9508041
Vinyl Chloride	ug/g	0.02	<0.019	0.019	0.019	9508041
p+m-Xylene	ug/g	-	<0.020	0.020	0.020	9508041
o-Xylene	ug/g	-	<0.020	0.020	0.020	9508041
Total Xylenes	ug/g	0.091	<0.020	0.020	0.020	9508041
F1 (C6-C10)	ug/g	25	<10	10	2.0	9508041
F1 (C6-C10) - BTEX	ug/g	25	<10	10	2.0	9508041
F2-F4 Hydrocarbons						
F2 (C10-C16 Hydrocarbons)	ug/g	10	<10	10	5.0	9507495
F3 (C16-C34 Hydrocarbons)	ug/g	240	<50	50	5.0	9507495
F4 (C34-C50 Hydrocarbons)	ug/g	2800	<50	50	10	9507495
Reached Baseline at C50	ug/g	-	Yes			9507495
Surrogate Recovery (%)						
o-Terphenyl	%	-	100			9507495
4-Bromofluorobenzene	%	-	101			9508041
D10-o-Xylene	%	-	101			9508041
D4-1,2-Dichloroethane	%	-	99			9508041
D8-Toluene	%	-	98			9508041

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4K4753
Report Date: 2024/07/15

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		ZQK650			
Sampling Date		2024/06/28 15:40			
COC Number		N/A			
	UNITS	**BH2 SS10B**	**RDL**	**MDL**	**QC Batch**
Inorganics					
Moisture	%	6.8	1.0	0.50	9505728

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/15

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZQK650
Sample ID: BH2 SS10B
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/07/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9505064	N/A	2024/07/12	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9507495	2024/07/10	2024/07/11	Mohammed Abdul Nafay Shoeb
Moisture	BAL	9505728	N/A	2024/07/10	Joe Thomas
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9508041	N/A	2024/07/11	Cheng-Yu Sha

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/15

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.3°C

Revised Report (2024/07/15) : Regulatory critetia added per client request.

Cooler custody seal present and intact.

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9507495	o-Terphenyl	2024/07/11	102	60 - 130	100	60 - 130	100	%		
9508041	4-Bromofluorobenzene	2024/07/11	94	60 - 140	95	60 - 140	93	%		
9508041	D10-o-Xylene	2024/07/11	104	60 - 130	95	60 - 130	94	%		
9508041	D4-1,2-Dichloroethane	2024/07/11	95	60 - 140	95	60 - 140	95	%		
9508041	D8-Toluene	2024/07/11	106	60 - 140	106	60 - 140	103	%		
9505728	Moisture	2024/07/10							0	20
9507495	F2 (C10-C16 Hydrocarbons)	2024/07/11	111	60 - 130	106	80 - 120	<10	ug/g	NC	30
9507495	F3 (C16-C34 Hydrocarbons)	2024/07/11	113	60 - 130	109	80 - 120	<50	ug/g	NC	30
9507495	F4 (C34-C50 Hydrocarbons)	2024/07/11	94	60 - 130	89	80 - 120	<50	ug/g	NC	30
9508041	1,1,1,2-Tetrachloroethane	2024/07/11	98	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	1,1,1-Trichloroethane	2024/07/11	92	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	1,1,2,2-Tetrachloroethane	2024/07/11	94	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
9508041	1,1,2-Trichloroethane	2024/07/11	96	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	1,1-Dichloroethane	2024/07/11	92	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	1,1-Dichloroethylene	2024/07/11	93	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
9508041	1,2-Dichlorobenzene	2024/07/11	96	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	1,2-Dichloroethane	2024/07/11	89	60 - 140	85	60 - 130	<0.049	ug/g	NC	50
9508041	1,2-Dichloropropane	2024/07/11	92	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	1,3-Dichlorobenzene	2024/07/11	103	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
9508041	1,4-Dichlorobenzene	2024/07/11	101	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
9508041	Acetone (2-Propanone)	2024/07/11	85	60 - 140	83	60 - 140	<0.49	ug/g	NC	50
9508041	Benzene	2024/07/11	90	60 - 140	87	60 - 130	<0.0060	ug/g	NC	50
9508041	Bromodichloromethane	2024/07/11	93	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508041	Bromoform	2024/07/11	95	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
9508041	Bromomethane	2024/07/11	81	60 - 140	70	60 - 140	<0.040	ug/g	NC	50
9508041	Carbon Tetrachloride	2024/07/11	95	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	Chlorobenzene	2024/07/11	96	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	Chloroform	2024/07/11	92	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
9508041	cis-1,2-Dichloroethylene	2024/07/11	91	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
9508041	cis-1,3-Dichloropropene	2024/07/11	93	60 - 140	82	60 - 130	<0.030	ug/g	NC	50
9508041	Dibromochloromethane	2024/07/11	101	60 - 140	93	60 - 130	<0.040	ug/g	NC	50

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9508041	Dichlorodifluoromethane (FREON 12)	2024/07/11	73	60 - 140	58 (1)	60 - 140	<0.040	ug/g	NC	50
9508041	Ethylbenzene	2024/07/11	98	60 - 140	94	60 - 130	<0.010	ug/g	NC	50
9508041	Ethylene Dibromide	2024/07/11	94	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	F1 (C6-C10) - BTEX	2024/07/11					<10	ug/g	NC	30
9508041	F1 (C6-C10)	2024/07/11	82	60 - 140	88	80 - 120	<10	ug/g	NC	30
9508041	Hexane	2024/07/11	91	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
9508041	Methyl Ethyl Ketone (2-Butanone)	2024/07/11	88	60 - 140	87	60 - 140	<0.40	ug/g	NC	50
9508041	Methyl Isobutyl Ketone	2024/07/11	90	60 - 140	88	60 - 130	<0.40	ug/g	NC	50
9508041	Methyl t-butyl ether (MTBE)	2024/07/11	87	60 - 140	85	60 - 130	<0.040	ug/g	NC	50
9508041	Methylene Chloride(Dichloromethane)	2024/07/11	98	60 - 140	93	60 - 130	<0.049	ug/g	NC	50
9508041	o-Xylene	2024/07/11	96	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
9508041	p+m-Xylene	2024/07/11	96	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
9508041	Styrene	2024/07/11	97	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
9508041	Tetrachloroethylene	2024/07/11	99	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
9508041	Toluene	2024/07/11	96	60 - 140	90	60 - 130	<0.020	ug/g	NC	50
9508041	Total Xylenes	2024/07/11					<0.020	ug/g	NC	50
9508041	trans-1,2-Dichloroethylene	2024/07/11	93	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	trans-1,3-Dichloropropene	2024/07/11	100	60 - 140	82	60 - 130	<0.040	ug/g	NC	50
9508041	Trichloroethylene	2024/07/11	91	60 - 140	88	60 - 130	<0.010	ug/g	NC	50
9508041	Trichlorofluoromethane (FREON 11)	2024/07/11	95	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508041	Vinyl Chloride	2024/07/11	87	60 - 140	77	60 - 130	<0.019	ug/g	NC	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

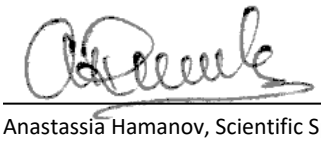
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/15

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

CHAIN OF CUSTODY RECORD

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Grounded Engineering	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: Vivi Tran	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 1 Bangian Dr, Toronto, M4H1G3	Address:	Project #: 24-099	Rush TAT (Surcharges will be applied)
Phone: Fax:	Phone: Fax:	Site Location: 223 Hurontario St	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Email: vtran@groundedeng.ca	Email:	Site #:	Date Required:
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY		Site Location Province: ON Sampled By: LH	Rush Confirmation #:

Regulation 153	Other Regulations
[ ] Table 1 [X] Res/Park [ ] Med/ Fine	[ ] CCME [ ] Sanitary Sewer Bylaw
[ ] Table 2 [ ] Ind/Comm [X] Coarse	[ ] MISA [ ] Storm Sewer Bylaw
[X] Table 3 [ ] Agri/ Other	[ ] PWQO Region
[X] Table ~~2~~	[ ] Other (Specify)
FOR RSC (PLEASE CIRCLE) Y / N	[ ] REG 558 (MIN. 3 DAY TAT REQUIRED)
	[X] REG 406 Table 2.1 RPI

Include Criteria on Certificate of Analysis: (Y) / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)								HOLD- DO NOT ANALYZE
1	BH2 SS1OB	2024/06/28	15:40	Soil	3		X	X	X											
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

LABORATORY USE ONLY

CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
Y	N	2 | 3 | 2

COOLING MEDIA PRESENT: (Y) / N

COMMENTS: Please hold, but extract sample

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
V Tran	2024/07/04	12:00	BUREAU DELIVERY	2024/07/04	17:22

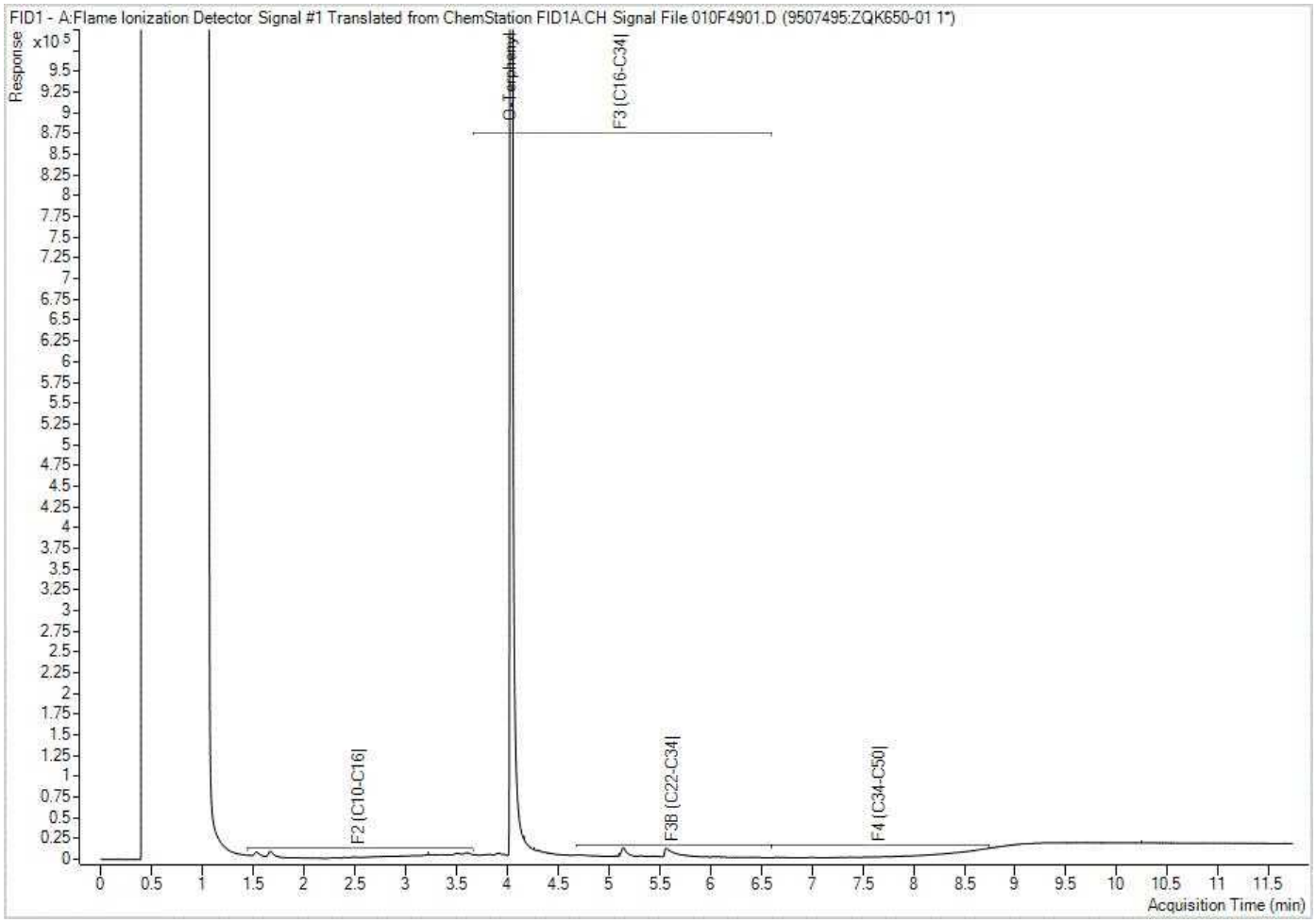
NONT-2024-07-419

239808

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/15
Bureau Veritas Sample: ZQK650

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233 HURONTARIO ST
Client ID: BH2 SS10B

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/15

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

Exceedance Summary Table – Reg 406 T2.1 Res (S)

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

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Your Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Your C.O.C. #: C#997323-02-01

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/10
Report #: R8227739
Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4J8953
Received: 2024/06/28, 17:57

Sample Matrix: Soil
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum	6	N/A	2024/07/08	CAM SOP-00301	EPA 8270D m
Methylnaphthalene Sum	1	N/A	2024/07/09	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron	7	2024/07/05	2024/07/08	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum	7	N/A	2024/07/06		EPA 8260C m
Free (WAD) Cyanide	7	2024/07/06	2024/07/08	CAM SOP-00457	OMOE E3015 m
Conductivity	5	2024/07/05	2024/07/06	CAM SOP-00414	OMOE E3530 v1 m
Conductivity	2	2024/07/08	2024/07/08	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	7	2024/07/05	2024/07/05	CAM SOP-00436	EPA 3060A/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (2)	7	2024/07/05	2024/07/05	CAM SOP-00316	CCME CWS m
Acid Extractable Metals by ICPMS	7	2024/07/05	2024/07/08	CAM SOP-00447	EPA 6020B m
Moisture	14	N/A	2024/07/02	CAM SOP-00445	Carter 2nd ed 70.2 m
PAH Compounds in Soil by GC/MS (SIM)	1	2024/07/04	2024/07/05	CAM SOP-00318	EPA 8270E
PAH Compounds in Soil by GC/MS (SIM)	6	2024/07/06	2024/07/07	CAM SOP-00318	EPA 8270E
pH CaCl2 EXTRACT	7	2024/07/08	2024/07/08	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	7	N/A	2024/07/09	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs	7	N/A	2024/07/06	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Your C.O.C. #: C#997323-02-01

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/10
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Version: 2 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4J8953

Received: 2024/06/28, 17:57

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.

Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.

This Certificate shall not be reproduced except in full, without the written approval of the laboratory.

Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.

* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.

(1) Soils are reported on a dry weight basis unless otherwise specified.

(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Marijane Cruz, Senior Project Manager
Email: Marijane.Cruz@bureauveritas.com
Phone# (905)817-5756

==========

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG545		ZPG547			
Sampling Date				2024/06/26 13:35		2024/06/26 13:45			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS1	QC Batch	BH1 SS4	RDL	MDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	5.0	5	0.25 (1)	9487948	0.40			9489769
Inorganics									
Conductivity	mS/cm	0.7	0.7	0.20	9497316	0.11	0.002	0.0005	9497316
Available (CaCl2) pH	pH	-	-	7.59	9500541	7.91			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	9499256	<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	8	8	<0.18	9497182	<0.18	0.18	0.050	9497253
Metals									
Hot Water Ext. Boron (B)	ug/g	1.5	1.5	<0.050	9496928	0.064	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	9497505	<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18	5.8	9497505	<1.0	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	390	390	21	9497505	7.7	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	4	4	0.25	9497505	<0.20	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	120	120	<5.0	9497505	5.1	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.13	9497505	<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	160	160	11	9497505	5.9	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22	3.7	9497505	2.0	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	140	140	12	9497505	4.7	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120	27	9497505	2.2	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	0.56	9497505	<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	100	100	8.0	9497505	4.0	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	9497505	<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	20	20	<0.20	9497505	<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1	<0.050	9497505	<0.050	0.050	0.010	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG545		ZPG547			
Sampling Date				2024/06/26 13:35		2024/06/26 13:45			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS1	QC Batch	BH1 SS4	RDL	MDL	QC Batch
Acid Extractable Uranium (U)	ug/g	23	23	0.44	9497505	0.33	0.050	0.030	9497505
Acid Extractable Vanadium (V)	ug/g	86	86	21	9497505	15	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	340	340	34	9497505	9.7	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27	<0.050	9497505	<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG547			ZPG549			
Sampling Date				2024/06/26 13:45			2024/06/27 14:30			
COC Number				C#997323-02-01			C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS4 Lab-Dup	MDL	QC Batch	BH3 SS1B	RDL	MDL	QC Batch
Calculated Parameters										
Sodium Adsorption Ratio	N/A	5.0	5				**21**			9487948
Inorganics										
Conductivity	mS/cm	0.7	0.7				0.59	0.002	0.0005	9497316
Available (CaCl2) pH	pH	-	-	7.91		9500541	7.96			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051				<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	8	8				<0.18	0.18	0.050	9497182
Metals										
Hot Water Ext. Boron (B)	ug/g	1.5	1.5				0.13	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5				<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18				3.0	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	390	390				25	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	4	4				0.31	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	120	120				<5.0	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2				<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	160	160				11	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22				5.4	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	140	140				16	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120				13	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9				<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	100	100				11	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	2.4	2.4				<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	20	20				<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1				0.062	0.050	0.010	9497505
Acid Extractable Uranium (U)	ug/g	23	23				0.43	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG547			ZPG549			
Sampling Date				2024/06/26 13:45			2024/06/27 14:30			
COC Number				C#997323-02-01			C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS4 Lab-Dup	MDL	QC Batch	BH3 SS1B	RDL	MDL	QC Batch
Acid Extractable Vanadium (V)	ug/g	86	86				21	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	340	340				35	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27				<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG551		ZPG553			
Sampling Date				2024/06/27 14:40		2024/06/26			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS4	QC Batch	DUP14	RDL	MDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	5.0	5	3.5	9489769	0.38			9489769
Inorganics									
Conductivity	mS/cm	0.7	0.7	0.27	9497316	0.10	0.002	0.0005	9500359
Available (CaCl2) pH	pH	-	-	8.00	9500541	7.96			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	9499256	<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	8	8	<0.18	9497253	<0.18	0.18	0.050	9497253
Metals									
Hot Water Ext. Boron (B)	ug/g	1.5	1.5	0.053	9496928	0.058	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5	<0.20	9497505	<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18	<1.0	9497505	1.0	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	390	390	5.9	9497505	6.7	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	4	4	<0.20	9497505	<0.20	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	120	120	<5.0	9497505	<5.0	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	<0.10	9497505	<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	160	160	6.3	9497505	6.2	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22	2.2	9497505	1.9	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	140	140	5.7	9497505	4.6	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120	2.4	9497505	2.2	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9	<0.50	9497505	<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	100	100	4.3	9497505	4.1	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	2.4	2.4	<0.50	9497505	<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	20	20	<0.20	9497505	<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1	<0.050	9497505	<0.050	0.050	0.010	9497505
Acid Extractable Uranium (U)	ug/g	23	23	0.33	9497505	0.33	0.050	0.030	9497505
Acid Extractable Vanadium (V)	ug/g	86	86	16	9497505	15	5.0	0.50	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG551		ZPG553			
Sampling Date				2024/06/27 14:40		2024/06/26			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS4	QC Batch	DUP14	RDL	MDL	QC Batch
Acid Extractable Zinc (Zn)	ug/g	340	340	10	9497505	9.2	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27	<0.050	9497505	<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG553				ZPG555			
Sampling Date				2024/06/26				2024/06/28 16:00			
COC Number				C#997323-02-01				C#997323-02-01			
	UNITS	Criteria	Criteria-2	DUP14 Lab-Dup	RDL	MDL	QC Batch	BH2 SS1	RDL	MDL	QC Batch
Calculated Parameters											
Sodium Adsorption Ratio	N/A	5.0	5					0.33 (1)			9489769
Inorganics											
Conductivity	mS/cm	0.7	0.7					0.11	0.002	0.0005	9500359
Available (CaCl2) pH	pH	-	-					7.60			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	0.01	0.0019	9499256	<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	8	8					<0.18	0.18	0.050	9497253
Metals											
Hot Water Ext. Boron (B)	ug/g	1.5	1.5					0.095	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5					<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18					2.1	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	390	390					15	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	4	4					<0.20	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	120	120					<5.0	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2					<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	160	160					8.6	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22					3.0	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	140	140					8.4	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120					6.6	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9					<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	100	100					6.0	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	2.4	2.4					<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	20	20					<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1					<0.050	0.050	0.010	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG553				ZPG555			
Sampling Date				2024/06/26				2024/06/28 16:00			
COC Number				C#997323-02-01				C#997323-02-01			
	UNITS	Criteria	Criteria-2	DUP14 Lab-Dup	RDL	MDL	QC Batch	BH2 SS1	RDL	MDL	QC Batch
Acid Extractable Uranium (U)	ug/g	23	23					0.39	0.050	0.030	9497505
Acid Extractable Vanadium (V)	ug/g	86	86					21	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	340	340					19	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27					<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG555				ZPG557			
Sampling Date				2024/06/28 16:00				2024/06/28 16:10			
COC Number				C#997323-02-01				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS1 Lab-Dup	RDL	MDL	QC Batch	BH2 SS7	RDL	MDL	QC Batch
Calculated Parameters											
Sodium Adsorption Ratio	N/A	5.0	5					0.62			9489769
Inorganics											
Conductivity	mS/cm	0.7	0.7					0.28	0.002	0.0005	9497316
Available (CaCl2) pH	pH	-	-					7.82			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051					<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	8	8	<0.18	0.18	0.050	9497253	<0.18	0.18	0.050	9497253
Metals											
Hot Water Ext. Boron (B)	ug/g	1.5	1.5					0.29	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	7.5	7.5					<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18					5.3	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	390	390					53	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	4	4					0.83	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	120	120					12	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2					<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	160	160					23	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22					14	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	140	140					26	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120					8.3	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	6.9	6.9					<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	100	100					31	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	2.4	2.4					<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	20	20					<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1					0.095	0.050	0.010	9497505
Acid Extractable Uranium (U)	ug/g	23	23					0.53	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG555				ZPG557			
Sampling Date				2024/06/28 16:00				2024/06/28 16:10			
COC Number				C#997323-02-01				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS1 Lab-Dup	RDL	MDL	QC Batch	BH2 SS7	RDL	MDL	QC Batch
Acid Extractable Vanadium (V)	ug/g	86	86					29	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	340	340					70	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27					<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG546	ZPG547	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:45	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS4	BH3 SS2	RDL	MDL	QC Batch
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	0.99	0.59	<0.0071	<0.0071	<0.0071	0.0071	N/A	9487936
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	7.9	2.5	<0.0050	<0.0050	<0.0050	0.0050	0.0020	9499252
Acenaphthylene	ug/g	0.15	0.093	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Anthracene	ug/g	0.67	0.16	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Benzo(a)anthracene	ug/g	0.5	0.5	<0.0050	<0.0050	<0.0050	0.0050	0.0020	9499252
Benzo(a)pyrene	ug/g	0.3	0.31	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Benzo(b/j)fluoranthene	ug/g	0.78	3.2	<0.0050	<0.0050	<0.0050	0.0050	0.0020	9499252
Benzo(g,h,i)perylene	ug/g	6.6	6.6	<0.0050	<0.0050	<0.0050	0.0050	0.0040	9499252
Benzo(k)fluoranthene	ug/g	0.78	3.1	<0.0050	<0.0050	<0.0050	0.0050	0.0020	9499252
Chrysene	ug/g	7	7	0.0057	<0.0050	<0.0050	0.0050	0.0020	9499252
Dibenzo(a,h)anthracene	ug/g	0.1	0.57	<0.0050	<0.0050	<0.0050	0.0050	0.0040	9499252
Fluoranthene	ug/g	0.69	0.69	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Fluorene	ug/g	62	6.8	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Indeno(1,2,3-cd)pyrene	ug/g	0.38	0.38	<0.0050	<0.0050	<0.0050	0.0050	0.0040	9499252
1-Methylnaphthalene	ug/g	0.99	0.59	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
2-Methylnaphthalene	ug/g	0.99	0.59	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Naphthalene	ug/g	0.6	0.2	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Phenanthrene	ug/g	6.2	6.2	0.015	<0.0050	<0.0050	0.0050	0.0010	9499252
Pyrene	ug/g	78	28	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Biphenyl	ug/g	0.31	0.05	<0.0050	<0.0050	<0.0050	0.0050	N/A	9499252
Surrogate Recovery (%)									
D10-Anthracene	%	-	-	98	95	105			9499252
D14-Terphenyl (FS)	%	-	-	89	99	111			9499252
D8-Acenaphthylene	%	-	-	93	84	95			9499252

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

N/A = Not Applicable

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O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG551		ZPG553			
Sampling Date				2024/06/27 14:40		2024/06/26			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS4	QC Batch	DUP14	RDL	MDL	QC Batch
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	0.99	0.59	<0.0071	9487936	<0.0071	0.0071	N/A	9487936
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	7.9	2.5	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Acenaphthylene	ug/g	0.15	0.093	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Anthracene	ug/g	0.67	0.16	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Benzo(a)anthracene	ug/g	0.5	0.5	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Benzo(a)pyrene	ug/g	0.3	0.31	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Benzo(b/j)fluoranthene	ug/g	0.78	3.2	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Benzo(g,h,i)perylene	ug/g	6.6	6.6	<0.0050	9499252	<0.0050	0.0050	0.0040	9496264
Benzo(k)fluoranthene	ug/g	0.78	3.1	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Chrysene	ug/g	7	7	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Dibenzo(a,h)anthracene	ug/g	0.1	0.57	<0.0050	9499252	<0.0050	0.0050	0.0040	9496264
Fluoranthene	ug/g	0.69	0.69	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Fluorene	ug/g	62	6.8	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Indeno(1,2,3-cd)pyrene	ug/g	0.38	0.38	<0.0050	9499252	<0.0050	0.0050	0.0040	9496264
1-Methylnaphthalene	ug/g	0.99	0.59	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
2-Methylnaphthalene	ug/g	0.99	0.59	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Naphthalene	ug/g	0.6	0.2	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Phenanthrene	ug/g	6.2	6.2	0.0061	9499252	<0.0050	0.0050	0.0010	9496264
Pyrene	ug/g	78	28	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Biphenyl	ug/g	0.31	0.05	<0.0050	9499252	<0.0050	0.0050	N/A	9496264
Surrogate Recovery (%)									
D10-Anthracene	%	-	-	97	9499252	110			9496264
D14-Terphenyl (FS)	%	-	-	72	9499252	90			9496264
D8-Acenaphthylene	%	-	-	87	9499252	90			9496264

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG555	ZPG557			
Sampling Date				2024/06/28 16:00	2024/06/28 16:10			
COC Number				C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS1	BH2 SS7	RDL	MDL	QC Batch
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/g	0.99	0.59	<0.0071	<0.0071	0.0071	N/A	9487936
Polyaromatic Hydrocarbons								
Acenaphthene	ug/g	7.9	2.5	<0.0050	<0.0050	0.0050	0.0020	9499252
Acenaphthylene	ug/g	0.15	0.093	<0.0050	<0.0050	0.0050	0.0010	9499252
Anthracene	ug/g	0.67	0.16	<0.0050	<0.0050	0.0050	0.0010	9499252
Benzo(a)anthracene	ug/g	0.5	0.5	0.0083	<0.0050	0.0050	0.0020	9499252
Benzo(a)pyrene	ug/g	0.3	0.31	0.0084	<0.0050	0.0050	0.0010	9499252
Benzo(b/j)fluoranthene	ug/g	0.78	3.2	0.011	<0.0050	0.0050	0.0020	9499252
Benzo(g,h,i)perylene	ug/g	6.6	6.6	0.0051	<0.0050	0.0050	0.0040	9499252
Benzo(k)fluoranthene	ug/g	0.78	3.1	<0.0050	<0.0050	0.0050	0.0020	9499252
Chrysene	ug/g	7	7	0.0084	0.0067	0.0050	0.0020	9499252
Dibenzo(a,h)anthracene	ug/g	0.1	0.57	<0.0050	<0.0050	0.0050	0.0040	9499252
Fluoranthene	ug/g	0.69	0.69	0.013	<0.0050	0.0050	0.0010	9499252
Fluorene	ug/g	62	6.8	<0.0050	<0.0050	0.0050	0.0010	9499252
Indeno(1,2,3-cd)pyrene	ug/g	0.38	0.38	<0.0050	<0.0050	0.0050	0.0040	9499252
1-Methylnaphthalene	ug/g	0.99	0.59	<0.0050	<0.0050	0.0050	0.0010	9499252
2-Methylnaphthalene	ug/g	0.99	0.59	<0.0050	<0.0050	0.0050	0.0010	9499252
Naphthalene	ug/g	0.6	0.2	<0.0050	<0.0050	0.0050	0.0010	9499252
Phenanthrene	ug/g	6.2	6.2	0.0066	0.0074	0.0050	0.0010	9499252
Pyrene	ug/g	78	28	0.012	<0.0050	0.0050	0.0010	9499252
Biphenyl	ug/g	0.31	0.05	<0.0050	<0.0050	0.0050	N/A	9499252
Surrogate Recovery (%)								
D10-Anthracene	%	-	-	96	98			9499252
D14-Terphenyl (FS)	%	-	-	86	88			9499252
D8-Acenaphthylene	%	-	-	87	94			9499252

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil

Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG546	ZPG548	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:55	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS7B	BH3 SS2	RDL	MDL	QC Batch
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	0.05	0.05	<0.050	<0.050	<0.050	0.050	0.010	9487949
Volatile Organics									
Acetone (2-Propanone)	ug/g	16	0.5	<0.49	<0.49	<0.49	0.49	0.49	9490760
Benzene	ug/g	0.21	0.02	<0.0060	<0.0060	<0.0060	0.0060	0.0060	9490760
Bromodichloromethane	ug/g	13	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Bromoform	ug/g	0.27	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Bromomethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Carbon Tetrachloride	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Chlorobenzene	ug/g	2.4	0.083	<0.040	<0.040	<0.040	0.040	0.040	9490760
Chloroform	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Dibromochloromethane	ug/g	9.4	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichlorobenzene	ug/g	3.4	3.4	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,3-Dichlorobenzene	ug/g	4.8	0.26	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Dichlorodifluoromethane (FREON 12)	ug/g	16	1.5	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1-Dichloroethane	ug/g	3.5	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	<0.049	<0.049	0.049	0.049	9490760
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
cis-1,2-Dichloroethylene	ug/g	3.4	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
trans-1,2-Dichloroethylene	ug/g	0.084	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichloropropane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
cis-1,3-Dichloropropene	ug/g	0.05	0.05	<0.030	<0.030	<0.030	0.030	0.030	9490760
trans-1,3-Dichloropropene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Ethylbenzene	ug/g	2	0.05	<0.010	<0.010	<0.010	0.010	0.010	9490760
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Hexane	ug/g	2.8	2.5	<0.040	<0.040	<0.040	0.040	0.040	9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG546	ZPG548	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:55	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS7B	BH3 SS2	RDL	MDL	QC Batch
Methylene Chloride(Dichloromethane)	ug/g	0.1	0.05	<0.049	<0.049	<0.049	0.049	0.049	9490760
Methyl Ethyl Ketone (2-Butanone)	ug/g	16	0.5	<0.40	<0.40	<0.40	0.40	0.40	9490760
Methyl Isobutyl Ketone	ug/g	1.7	0.5	<0.40	<0.40	<0.40	0.40	0.40	9490760
Methyl t-butyl ether (MTBE)	ug/g	0.75	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Styrene	ug/g	0.7	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Tetrachloroethylene	ug/g	0.28	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Toluene	ug/g	2.3	0.2	<0.020	<0.020	<0.020	0.020	0.020	9490760
1,1,1-Trichloroethane	ug/g	0.38	0.11	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Trichloroethylene	ug/g	0.061	0.05	<0.010	<0.010	<0.010	0.010	0.010	9490760
Trichlorofluoromethane (FREON 11)	ug/g	4	0.25	<0.040	<0.040	<0.040	0.040	0.040	9490760
Vinyl Chloride	ug/g	0.02	0.02	<0.019	<0.019	<0.019	0.019	0.019	9490760
p+m-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	0.020	9490760
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	0.020	9490760
Total Xylenes	ug/g	3.1	0.091	<0.020	<0.020	<0.020	0.020	0.020	9490760
F1 (C6-C10)	ug/g	55	25	<10	<10	<10	10	2.0	9490760
F1 (C6-C10) - BTEX	ug/g	55	25	<10	<10	<10	10	2.0	9490760
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	98	10	**12**	<10	<10	10	5.0	9496441
F3 (C16-C34 Hydrocarbons)	ug/g	300	240	<50	<50	<50	50	5.0	9496441
F4 (C34-C50 Hydrocarbons)	ug/g	2800	2800	<50	<50	<50	50	10	9496441
Reached Baseline at C50	ug/g	-	-	Yes	Yes	Yes			9496441
Surrogate Recovery (%)									
o-Terphenyl	%	-	-	95	95	95			9496441
4-Bromofluorobenzene	%	-	-	105	101	99			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG546	ZPG548	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:55	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS7B	BH3 SS2	RDL	MDL	QC Batch
D10-o-Xylene	%	-	-	87	94	94			9490760
D4-1,2-Dichloroethane	%	-	-	114	110	112			9490760
D8-Toluene	%	-	-	94	100	102			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG552	ZPG554	ZPG556			
Sampling Date				2024/06/27 14:45	2024/06/26 13:55	2024/06/28 16:05			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS5	DUP17B	BH2 SS6	RDL	MDL	QC Batch
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	0.05	0.05	<0.050	<0.050	<0.050	0.050	0.010	9487949
Volatile Organics									
Acetone (2-Propanone)	ug/g	16	0.5	<0.49	<0.49	<0.49	0.49	0.49	9490760
Benzene	ug/g	0.21	0.02	<0.0060	<0.0060	<0.0060	0.0060	0.0060	9490760
Bromodichloromethane	ug/g	13	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Bromoform	ug/g	0.27	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Bromomethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Carbon Tetrachloride	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Chlorobenzene	ug/g	2.4	0.083	<0.040	<0.040	<0.040	0.040	0.040	9490760
Chloroform	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Dibromochloromethane	ug/g	9.4	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichlorobenzene	ug/g	3.4	3.4	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,3-Dichlorobenzene	ug/g	4.8	0.26	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Dichlorodifluoromethane (FREON 12)	ug/g	16	1.5	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1-Dichloroethane	ug/g	3.5	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	<0.049	<0.049	0.049	0.049	9490760
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
cis-1,2-Dichloroethylene	ug/g	3.4	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
trans-1,2-Dichloroethylene	ug/g	0.084	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichloropropane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
cis-1,3-Dichloropropene	ug/g	0.05	0.05	<0.030	<0.030	<0.030	0.030	0.030	9490760
trans-1,3-Dichloropropene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Ethylbenzene	ug/g	2	0.05	<0.010	<0.010	<0.010	0.010	0.010	9490760
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Hexane	ug/g	2.8	2.5	<0.040	<0.040	<0.040	0.040	0.040	9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG552	ZPG554	ZPG556			
Sampling Date				2024/06/27 14:45	2024/06/26 13:55	2024/06/28 16:05			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS5	DUP17B	BH2 SS6	RDL	MDL	QC Batch
Methylene Chloride(Dichloromethane)	ug/g	0.1	0.05	<0.049	<0.049	<0.049	0.049	0.049	9490760
Methyl Ethyl Ketone (2-Butanone)	ug/g	16	0.5	<0.40	<0.40	<0.40	0.40	0.40	9490760
Methyl Isobutyl Ketone	ug/g	1.7	0.5	<0.40	<0.40	<0.40	0.40	0.40	9490760
Methyl t-butyl ether (MTBE)	ug/g	0.75	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Styrene	ug/g	0.7	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Tetrachloroethylene	ug/g	0.28	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Toluene	ug/g	2.3	0.2	<0.020	<0.020	<0.020	0.020	0.020	9490760
1,1,1-Trichloroethane	ug/g	0.38	0.11	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Trichloroethylene	ug/g	0.061	0.05	<0.010	<0.010	<0.010	0.010	0.010	9490760
Trichlorofluoromethane (FREON 11)	ug/g	4	0.25	<0.040	<0.040	<0.040	0.040	0.040	9490760
Vinyl Chloride	ug/g	0.02	0.02	<0.019	<0.019	<0.019	0.019	0.019	9490760
p+m-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	0.020	9490760
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	0.020	9490760
Total Xylenes	ug/g	3.1	0.091	<0.020	<0.020	<0.020	0.020	0.020	9490760
F1 (C6-C10)	ug/g	55	25	<10	<10	<10	10	2.0	9490760
F1 (C6-C10) - BTEX	ug/g	55	25	<10	<10	<10	10	2.0	9490760
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	98	10	<10	<10	<10	10	5.0	9496441
F3 (C16-C34 Hydrocarbons)	ug/g	300	240	<50	<50	<50	50	5.0	9496441
F4 (C34-C50 Hydrocarbons)	ug/g	2800	2800	<50	<50	<50	50	10	9496441
Reached Baseline at C50	ug/g	-	-	Yes	Yes	Yes			9496441
Surrogate Recovery (%)									
o-Terphenyl	%	-	-	95	96	95			9496441
4-Bromofluorobenzene	%	-	-	102	101	98			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG552	ZPG554	ZPG556			
Sampling Date				2024/06/27 14:45	2024/06/26 13:55	2024/06/28 16:05			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS5	DUP17B	BH2 SS6	RDL	MDL	QC Batch
D10-o-Xylene	%	-	-	92	92	99			9490760
D4-1,2-Dichloroethane	%	-	-	117	117	114			9490760
D8-Toluene	%	-	-	100	99	101			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG558			
Sampling Date				2024/06/28 16:15			
COC Number				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS8	RDL	MDL	QC Batch
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/g	0.05	0.05	<0.050	0.050	0.010	9487949
Volatile Organics							
Acetone (2-Propanone)	ug/g	16	0.5	<0.49	0.49	0.49	9490760
Benzene	ug/g	0.21	0.02	<0.0060	0.0060	0.0060	9490760
Bromodichloromethane	ug/g	13	0.05	<0.040	0.040	0.040	9490760
Bromoform	ug/g	0.27	0.05	<0.040	0.040	0.040	9490760
Bromomethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Carbon Tetrachloride	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Chlorobenzene	ug/g	2.4	0.083	<0.040	0.040	0.040	9490760
Chloroform	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Dibromochloromethane	ug/g	9.4	0.05	<0.040	0.040	0.040	9490760
1,2-Dichlorobenzene	ug/g	3.4	3.4	<0.040	0.040	0.040	9490760
1,3-Dichlorobenzene	ug/g	4.8	0.26	<0.040	0.040	0.040	9490760
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.040	0.040	0.040	9490760
Dichlorodifluoromethane (FREON 12)	ug/g	16	1.5	<0.040	0.040	0.040	9490760
1,1-Dichloroethane	ug/g	3.5	0.05	<0.040	0.040	0.040	9490760
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	0.049	0.049	9490760
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
cis-1,2-Dichloroethylene	ug/g	3.4	0.05	<0.040	0.040	0.040	9490760
trans-1,2-Dichloroethylene	ug/g	0.084	0.05	<0.040	0.040	0.040	9490760
1,2-Dichloropropane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
cis-1,3-Dichloropropene	ug/g	0.05	0.05	<0.030	0.030	0.030	9490760
trans-1,3-Dichloropropene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Ethylbenzene	ug/g	2	0.05	<0.010	0.010	0.010	9490760
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG558			
Sampling Date				2024/06/28 16:15			
COC Number				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS8	RDL	MDL	QC Batch
Hexane	ug/g	2.8	2.5	<0.040	0.040	0.040	9490760
Methylene Chloride(Dichloromethane)	ug/g	0.1	0.05	<0.049	0.049	0.049	9490760
Methyl Ethyl Ketone (2-Butanone)	ug/g	16	0.5	<0.40	0.40	0.40	9490760
Methyl Isobutyl Ketone	ug/g	1.7	0.5	<0.40	0.40	0.40	9490760
Methyl t-butyl ether (MTBE)	ug/g	0.75	0.05	<0.040	0.040	0.040	9490760
Styrene	ug/g	0.7	0.05	<0.040	0.040	0.040	9490760
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05	<0.040	0.040	0.040	9490760
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Tetrachloroethylene	ug/g	0.28	0.05	<0.040	0.040	0.040	9490760
Toluene	ug/g	2.3	0.2	<0.020	0.020	0.020	9490760
1,1,1-Trichloroethane	ug/g	0.38	0.11	<0.040	0.040	0.040	9490760
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Trichloroethylene	ug/g	0.061	0.05	<0.010	0.010	0.010	9490760
Trichlorofluoromethane (FREON 11)	ug/g	4	0.25	<0.040	0.040	0.040	9490760
Vinyl Chloride	ug/g	0.02	0.02	<0.019	0.019	0.019	9490760
p+m-Xylene	ug/g	-	-	<0.020	0.020	0.020	9490760
o-Xylene	ug/g	-	-	<0.020	0.020	0.020	9490760
Total Xylenes	ug/g	3.1	0.091	<0.020	0.020	0.020	9490760
F1 (C6-C10)	ug/g	55	25	<10	10	2.0	9490760
F1 (C6-C10) - BTEX	ug/g	55	25	<10	10	2.0	9490760
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	98	10	**29**	10	5.0	9496441
F3 (C16-C34 Hydrocarbons)	ug/g	300	240	87	50	5.0	9496441
F4 (C34-C50 Hydrocarbons)	ug/g	2800	2800	<50	50	10	9496441
Reached Baseline at C50	ug/g	-	-	Yes			9496441

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG558			
Sampling Date				2024/06/28 16:15			
COC Number				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS8	RDL	MDL	QC Batch
Surrogate Recovery (%)							
o-Terphenyl	%	-	-	93			9496441
4-Bromofluorobenzene	%	-	-	102			9490760
D10-o-Xylene	%	-	-	96			9490760
D4-1,2-Dichloroethane	%	-	-	116			9490760
D8-Toluene	%	-	-	101			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		ZPG545		ZPG546	ZPG547	ZPG548			
Sampling Date		2024/06/26 13:35		2024/06/26 13:40	2024/06/26 13:45	2024/06/26 13:55			
COC Number		C#997323-02-01		C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	BH1 SS1	QC Batch	BH1 SS2A	BH1 SS4	BH1 SS7B	RDL	MDL	QC Batch
Inorganics									
Moisture	%	9.8	9490677	9.5	8.0	12	1.0	0.50	9490878

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		ZPG549		ZPG550	ZPG551	ZPG551			
Sampling Date		2024/06/27 14:30		2024/06/27 14:35	2024/06/27 14:40	2024/06/27 14:40			
COC Number		C#997323-02-01		C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	BH3 SS1B	QC Batch	BH3 SS2	BH3 SS4	BH3 SS4 Lab-Dup	RDL	MDL	QC Batch
Inorganics									
Moisture	%	6.7	9490677	6.7	10	11	1.0	0.50	9490878

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Bureau Veritas ID		ZPG552		ZPG553	ZPG553		ZPG554			
Sampling Date		2024/06/27 14:45		2024/06/26	2024/06/26		2024/06/26 13:55			
COC Number		C#997323-02-01		C#997323-02-01	C#997323-02-01		C#997323-02-01			
	UNITS	BH3 SS5	QC Batch	DUP14	DUP14 Lab-Dup	QC Batch	DUP17B	RDL	MDL	QC Batch
Inorganics										
Moisture	%	17	9490878	8.0	7.9	9490834	12	1.0	0.50	9490878

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		ZPG555	ZPG556	ZPG557	ZPG558			
Sampling Date		2024/06/28 16:00	2024/06/28 16:05	2024/06/28 16:10	2024/06/28 16:15			
COC Number		C#997323-02-01	C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	BH2 SS1	BH2 SS6	BH2 SS7	BH2 SS8	RDL	MDL	QC Batch
Inorganics								
Moisture	%	6.5	17	9.4	8.2	1.0	0.50	9490878

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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TEST SUMMARY

Bureau Veritas ID: ZPG545
Sample ID: BH1 SS1
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497182	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490677	N/A	2024/07/02	Joe Thomas
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9487948	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG546
Sample ID: BH1 SS2A
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG547
Sample ID: BH1 SS4
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG547 Dup
Sample ID: BH1 SS4
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

TEST SUMMARY

Bureau Veritas ID: ZPG548 **Collected:** 2024/06/26
Sample ID: BH1 SS7B **Shipped:**
Matrix: Soil **Received:** 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG549 **Collected:** 2024/06/27
Sample ID: BH3 SS1B **Shipped:**
Matrix: Soil **Received:** 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497182	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490677	N/A	2024/07/02	Joe Thomas
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9487948	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG550 **Collected:** 2024/06/27
Sample ID: BH3 SS2 **Shipped:**
Matrix: Soil **Received:** 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG551 **Collected:** 2024/06/27
Sample ID: BH3 SS4 **Shipped:**
Matrix: Soil **Received:** 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZPG551
Sample ID: BH3 SS4
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG551 Dup
Sample ID: BH3 SS4
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel

Bureau Veritas ID: ZPG552
Sample ID: BH3 SS5
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG553
Sample ID: DUP14
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/09	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9500359	2024/07/08	2024/07/08	Taslima Aktar
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490834	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9496264	2024/07/04	2024/07/05	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG553 Dup
Sample ID: DUP14
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Moisture	BAL	9490834	N/A	2024/07/02	Raj Patel

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZPG554
Sample ID: DUP17B
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG555
Sample ID: BH2 SS1
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9500359	2024/07/08	2024/07/08	Taslima Aktar
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG555 Dup
Sample ID: BH2 SS1
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila

Bureau Veritas ID: ZPG556
Sample ID: BH2 SS6
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG557
Sample ID: BH2 SS7
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZPG557
Sample ID: BH2 SS7
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG558
Sample ID: BH2 SS8
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	19.0°C

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9490760	4-Bromofluorobenzene	2024/07/06	100	60 - 140	100	60 - 140	100	%		
9490760	D10-o-Xylene	2024/07/06	103	60 - 130	95	60 - 130	95	%		
9490760	D4-1,2-Dichloroethane	2024/07/06	110	60 - 140	117	60 - 140	109	%		
9490760	D8-Toluene	2024/07/06	104	60 - 140	103	60 - 140	101	%		
9496264	D10-Anthracene	2024/07/05	86	50 - 130	102	50 - 130	115	%		
9496264	D14-Terphenyl (FS)	2024/07/05	71	50 - 130	84	50 - 130	88	%		
9496264	D8-Acenaphthylene	2024/07/05	78	50 - 130	94	50 - 130	92	%		
9496441	o-Terphenyl	2024/07/05	106	60 - 130	95	60 - 130	97	%		
9499252	D10-Anthracene	2024/07/07	90	50 - 130	96	50 - 130	106	%		
9499252	D14-Terphenyl (FS)	2024/07/07	80	50 - 130	87	50 - 130	106	%		
9499252	D8-Acenaphthylene	2024/07/07	83	50 - 130	88	50 - 130	79	%		
9490677	Moisture	2024/07/02							0	20
9490760	1,1,1,2-Tetrachloroethane	2024/07/06	110	60 - 140	113	60 - 130	<0.040	ug/g	NC	50
9490760	1,1,1-Trichloroethane	2024/07/06	117	60 - 140	109	60 - 130	<0.040	ug/g	NC	50
9490760	1,1,2,2-Tetrachloroethane	2024/07/06	105	60 - 140	121	60 - 130	<0.040	ug/g	NC	50
9490760	1,1,2-Trichloroethane	2024/07/06	114	60 - 140	121	60 - 130	<0.040	ug/g	NC	50
9490760	1,1-Dichloroethane	2024/07/06	114	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	1,1-Dichloroethylene	2024/07/06	125	60 - 140	107	60 - 130	<0.040	ug/g	NC	50
9490760	1,2-Dichlorobenzene	2024/07/06	104	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
9490760	1,2-Dichloroethane	2024/07/06	116	60 - 140	117	60 - 130	<0.049	ug/g	NC	50
9490760	1,2-Dichloropropane	2024/07/06	107	60 - 140	107	60 - 130	<0.040	ug/g	NC	50
9490760	1,3-Dichlorobenzene	2024/07/06	108	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
9490760	1,4-Dichlorobenzene	2024/07/06	105	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
9490760	Acetone (2-Propanone)	2024/07/06	103	60 - 140	108	60 - 140	<0.49	ug/g	NC	50
9490760	Benzene	2024/07/06	109	60 - 140	102	60 - 130	<0.0060	ug/g	NC	50
9490760	Bromodichloromethane	2024/07/06	109	60 - 140	112	60 - 130	<0.040	ug/g	NC	50
9490760	Bromoform	2024/07/06	101	60 - 140	109	60 - 130	<0.040	ug/g	NC	50
9490760	Bromomethane	2024/07/06	100	60 - 140	81	60 - 140	<0.040	ug/g	NC	50
9490760	Carbon Tetrachloride	2024/07/06	118	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	Chlorobenzene	2024/07/06	105	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	Chloroform	2024/07/06	111	60 - 140	110	60 - 130	<0.040	ug/g	NC	50

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9490760	cis-1,2-Dichloroethylene	2024/07/06	111	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	cis-1,3-Dichloropropene	2024/07/06	99	60 - 140	99	60 - 130	<0.030	ug/g	NC	50
9490760	Dibromochloromethane	2024/07/06	110	60 - 140	116	60 - 130	<0.040	ug/g	NC	50
9490760	Dichlorodifluoromethane (FREON 12)	2024/07/06	119	60 - 140	70	60 - 140	<0.040	ug/g	NC	50
9490760	Ethylbenzene	2024/07/06	108	60 - 140	105	60 - 130	<0.010	ug/g	NC	50
9490760	Ethylene Dibromide	2024/07/06	105	60 - 140	112	60 - 130	<0.040	ug/g	NC	50
9490760	F1 (C6-C10) - BTEX	2024/07/06					<10	ug/g	NC	30
9490760	F1 (C6-C10)	2024/07/06	102	60 - 140	96	80 - 120	<10	ug/g	NC	30
9490760	Hexane	2024/07/06	128	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	Methyl Ethyl Ketone (2-Butanone)	2024/07/06	95	60 - 140	106	60 - 140	<0.40	ug/g	NC	50
9490760	Methyl Isobutyl Ketone	2024/07/06	94	60 - 140	112	60 - 130	<0.40	ug/g	NC	50
9490760	Methyl t-butyl ether (MTBE)	2024/07/06	103	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
9490760	Methylene Chloride(Dichloromethane)	2024/07/06	119	60 - 140	113	60 - 130	<0.049	ug/g	NC	50
9490760	o-Xylene	2024/07/06	104	60 - 140	104	60 - 130	<0.020	ug/g	NC	50
9490760	p+m-Xylene	2024/07/06	102	60 - 140	100	60 - 130	<0.020	ug/g	NC	50
9490760	Styrene	2024/07/06	109	60 - 140	113	60 - 130	<0.040	ug/g	NC	50
9490760	Tetrachloroethylene	2024/07/06	112	60 - 140	105	60 - 130	<0.040	ug/g	NC	50
9490760	Toluene	2024/07/06	104	60 - 140	99	60 - 130	<0.020	ug/g	NC	50
9490760	Total Xylenes	2024/07/06					<0.020	ug/g	NC	50
9490760	trans-1,2-Dichloroethylene	2024/07/06	113	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
9490760	trans-1,3-Dichloropropene	2024/07/06	105	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	Trichloroethylene	2024/07/06	108	60 - 140	101	60 - 130	<0.010	ug/g	NC	50
9490760	Trichlorofluoromethane (FREON 11)	2024/07/06	121	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
9490760	Vinyl Chloride	2024/07/06	118	60 - 140	90	60 - 130	<0.019	ug/g	NC	50
9490834	Moisture	2024/07/02							1.3	20
9490878	Moisture	2024/07/02							2.9	20
9496264	1-Methylnaphthalene	2024/07/05	97	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
9496264	2-Methylnaphthalene	2024/07/05	96	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
9496264	Acenaphthene	2024/07/05	97	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
9496264	Acenaphthylene	2024/07/05	99	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
9496264	Anthracene	2024/07/05	114	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9496264	Benzo(a)anthracene	2024/07/05	108	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
9496264	Benzo(a)pyrene	2024/07/05	105	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
9496264	Benzo(b/j)fluoranthene	2024/07/05	101	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
9496264	Benzo(g,h,i)perylene	2024/07/05	99	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40
9496264	Benzo(k)fluoranthene	2024/07/05	104	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
9496264	Biphenyl	2024/07/05	102	50 - 130	105	50 - 130	<0.0050	ug/g	NC	40
9496264	Chrysene	2024/07/05	106	50 - 130	107	50 - 130	<0.0050	ug/g	NC	40
9496264	Dibenzo(a,h)anthracene	2024/07/05	103	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
9496264	Fluoranthene	2024/07/05	99	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
9496264	Fluorene	2024/07/05	107	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
9496264	Indeno(1,2,3-cd)pyrene	2024/07/05	102	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
9496264	Naphthalene	2024/07/05	88	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
9496264	Phenanthrene	2024/07/05	108	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40
9496264	Pyrene	2024/07/05	100	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
9496441	F2 (C10-C16 Hydrocarbons)	2024/07/05	126	60 - 130	111	80 - 120	<10	ug/g	NC	30
9496441	F3 (C16-C34 Hydrocarbons)	2024/07/05	130	60 - 130	114	80 - 120	<50	ug/g	NC	30
9496441	F4 (C34-C50 Hydrocarbons)	2024/07/05	121	60 - 130	105	80 - 120	<50	ug/g	NC	30
9496928	Hot Water Ext. Boron (B)	2024/07/09	110	75 - 125	95	75 - 125	<0.050	ug/g	NC	40
9497182	Chromium (VI)	2024/07/05	90	70 - 130	92	80 - 120	<0.18	ug/g	NC	35
9497253	Chromium (VI)	2024/07/05	79	70 - 130	94	80 - 120	<0.18	ug/g	NC	35
9497316	Conductivity	2024/07/06			103	90 - 110	<0.002	mS/cm	8.0	10
9497505	Acid Extractable Antimony (Sb)	2024/07/08	89	75 - 125	105	80 - 120	<0.20	ug/g	11	30
9497505	Acid Extractable Arsenic (As)	2024/07/08	96	75 - 125	104	80 - 120	<1.0	ug/g	2.4	30
9497505	Acid Extractable Barium (Ba)	2024/07/08	NC	75 - 125	101	80 - 120	<0.50	ug/g	4.4	30
9497505	Acid Extractable Beryllium (Be)	2024/07/08	101	75 - 125	102	80 - 120	<0.20	ug/g	1.1	30
9497505	Acid Extractable Boron (B)	2024/07/08	98	75 - 125	106	80 - 120	<5.0	ug/g	2.5	30
9497505	Acid Extractable Cadmium (Cd)	2024/07/08	97	75 - 125	99	80 - 120	<0.10	ug/g	NC	30
9497505	Acid Extractable Chromium (Cr)	2024/07/08	NC	75 - 125	101	80 - 120	<1.0	ug/g	2.5	30
9497505	Acid Extractable Cobalt (Co)	2024/07/08	92	75 - 125	100	80 - 120	<0.10	ug/g	7.2	30
9497505	Acid Extractable Copper (Cu)	2024/07/08	94	75 - 125	99	80 - 120	<0.50	ug/g	2.0	30
9497505	Acid Extractable Lead (Pb)	2024/07/08	94	75 - 125	99	80 - 120	<1.0	ug/g	2.2	30

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9497505	Acid Extractable Mercury (Hg)	2024/07/08	100	75 - 125	104	80 - 120	<0.050	ug/g	NC	30
9497505	Acid Extractable Molybdenum (Mo)	2024/07/08	90	75 - 125	95	80 - 120	<0.50	ug/g	6.2	30
9497505	Acid Extractable Nickel (Ni)	2024/07/08	NC	75 - 125	104	80 - 120	<0.50	ug/g	3.2	30
9497505	Acid Extractable Selenium (Se)	2024/07/08	97	75 - 125	103	80 - 120	<0.50	ug/g	NC	30
9497505	Acid Extractable Silver (Ag)	2024/07/08	96	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
9497505	Acid Extractable Thallium (Tl)	2024/07/08	94	75 - 125	100	80 - 120	<0.050	ug/g	2.0	30
9497505	Acid Extractable Uranium (U)	2024/07/08	95	75 - 125	99	80 - 120	<0.050	ug/g	0.62	30
9497505	Acid Extractable Vanadium (V)	2024/07/08	NC	75 - 125	103	80 - 120	<5.0	ug/g	1.8	30
9497505	Acid Extractable Zinc (Zn)	2024/07/08	NC	75 - 125	101	80 - 120	<5.0	ug/g	1.6	30
9499252	1-Methylnaphthalene	2024/07/07	94	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
9499252	2-Methylnaphthalene	2024/07/07	94	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
9499252	Acenaphthene	2024/07/07	96	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
9499252	Acenaphthylene	2024/07/07	94	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
9499252	Anthracene	2024/07/07	96	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(a)anthracene	2024/07/07	98	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(a)pyrene	2024/07/07	96	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(b/j)fluoranthene	2024/07/07	94	50 - 130	114	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(g,h,i)perylene	2024/07/07	115	50 - 130	134 (1)	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(k)fluoranthene	2024/07/07	94	50 - 130	116	50 - 130	<0.0050	ug/g	NC	40
9499252	Biphenyl	2024/07/07	96	50 - 130	83	50 - 130	<0.0050	ug/g		
9499252	Chrysene	2024/07/07	96	50 - 130	110	50 - 130	<0.0050	ug/g	NC	40
9499252	Dibenzo(a,h)anthracene	2024/07/07	106	50 - 130	124	50 - 130	<0.0050	ug/g	NC	40
9499252	Fluoranthene	2024/07/07	96	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
9499252	Fluorene	2024/07/07	97	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40
9499252	Indeno(1,2,3-cd)pyrene	2024/07/07	101	50 - 130	122	50 - 130	<0.0050	ug/g	NC	40
9499252	Naphthalene	2024/07/07	88	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
9499252	Phenanthrene	2024/07/07	95	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
9499252	Pyrene	2024/07/07	95	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40
9499256	WAD Cyanide (Free)	2024/07/08	95	75 - 125	101	80 - 120	<0.01	ug/g	NC	35
9500359	Conductivity	2024/07/08			99	90 - 110	<0.002	mS/cm	4.6	10

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9500541	Available (CaCl2) pH	2024/07/08			100	97 - 103			0.085	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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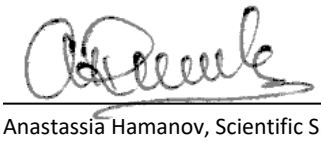
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvna.com

CI

NONT-2024-06-3204

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#36876 Grounded Engineering Inc.	Company Name:		Quotation #:	C35487
Attention:	Vivi Tran	Attention:	Vivi Tran	P.O. #:	
Address:	1 Banigan Drive	Address:		Project:	24-099
	Toronto ON M4H 1G3			Project Name:	
Tel:	(647) 264-7909 Fax:	Tel:	Fax:	Site #:	
Email:	vtran@groundedeng.ca	Email:	vtran@groundedeng.ca	Sampled By:	IH

Bottle Order #: 997323

COC #: C#997323-02-01

Project Manager: Marijane Cruz

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- ☐ Table 1 ☒ Res/Park ☐ Medium/Fine
- ☐ Table 2 ☐ Ind/Comm ☐ Coarse
- ☒ Table 3 ☐ Agri/Other ☐ For RSC
- ☐ Table ___

Other Regulations
- ☐ CCME ☐ Sanitary Sewer Bylaw
- ☐ Reg 558. ☐ Storm Sewer Bylaw
- ☐ MISA Municipality ___
- ☐ PWQO ☒ Reg 406 Table 2.1
- ☐ Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? Y

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: ☒
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ ☐
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	O.Reg 153 Metals & Inorganics Pkg (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 PHCs, BTEX/F1-F4 (Soil)	O.Reg 153 VOCs by HS (Soil)	O.Reg 558 TCLP Inorganics Package	O.Reg 558 TCLP VOCs by HS	O.Reg 558 TCLP PCBs	O.Reg 558 TCLP Benzo(a)pyrene	Soil Corrosivity Package		# of Bottles	Comments
1		BH1 SS1	24/06/26	13:35	SOIL		X										1	
2		BH1 SS2A	↓	13:40				X	X	X							4	
3		BH1 SS4		13:45			X	X									2	
4		BH1 SS7B	↓	13:55				X	X	X							3	
5		BH3 SS1B	24/06/27	14:30			X										1	
6		BH3 SS2		14:35				X	X	X							4	
7		BH3 SS4		14:40			X	X									2	
8		BH3 SS5	↓	14:45					X	X							3	
9		DUP 14	24/06/26				X	X									2	
10		DUP 17B	↓	13:55					X	X							3	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Imran Haji	24/06/28	17:35			17:57	

Laboratory Use Only

Time Sensitive | Temperature (°C) on Recei: 4/18/22 | Custody Seal Present: Yes ✓ / No | Intact

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

ON U

Bureau Veritas Canada (2019) Inc.

www.BVNA.com

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Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD

ENV COC - 00014v5

Invoice Information	Invoice to (requires report) ☐	Report Information (if differs from invoice)		Project Information		
Company:	Grounded Engineering	Company:		Quotation #:	C35487	LAB USE ONLY - PLACE STICKER HERE
Contact Name:	V.V. Tran	Contact Name:		P.O. #/ AFE#:		
Street Address:	1 Bonisen Dr	Street Address:		Project #:	24-099	
City:	Toronto Prov: ON Postal Code: M4M3G3	City: Prov: Postal Code:		Site #:		
Phone:	647 264-7909	Phone:		Site Location:		Rush Confirmation #:
Email:	vtran@groundedeng.ca.	Email:		Site Location Province:		
Copies:		Copies:		Sampled By:	TH	

Regulatory Criteria

REG 153: ☐ Table 1 ☐ Res/Park ☐ Med/Fine ☐ Table 2 ☐ Ind/Comm ☐ Coarse ☒ Table 3 ☐ Agri/other ☐ For RSC ☐ Table _____

OTHER: ☐ CCME ☒ Reg 406, Table: 2-1 ☐ Reg 558* ☐ Sanitary Sewer Bylaw *min 3 day TAT ☐ Storm Sewer Bylaw ☐ MISA Municipality _____ ☐ PWQO ☐ Other:

Include Criteria on Certificate of Analysis (check if yes): ☒

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	Sample Identification (Please print or Type)	Date Sampled YYYY	MM	DD	Time (24hr) HH	MM	Matrix	1 FIELD FILTERED	2 FIELD PRESERVED	3 LAB FILTRATION REQUIRED	4 BTEX/ F1	5 F2 - F4	6 VOCs	7 Reg 153 metals and inorganics	8 Reg 153 ICPMS metals	9 Reg 153 metals (Hg, Cr VI, ICPMS metals, HWS - B)	10 METALS	11 PAH	12 PHC/BTEX	13 VOC	14	15	16	17	18	19	20	21 # OF CONTAINERS SUBMITTED	22 HOLD - DO NOT ANALYZE
1	BH2SS1	24	06	28	16	00	SOIL										X	X										2	
2	BH2SS6				16	05													X	X								3	
3	BH2SS7				16	10											X	X										2	
4	BH2SS8				16	15													X	X								3	
5																													
6																													
7																													
8																													
9																													
10																													
11																													
12																													

Regular Turnaround Time (TAT)

☒ 5 to 7 Day ☐ 10 Day

Rush Turnaround Time (TAT) Surcharges apply

☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 4 Day

Date Required: YYYY MM DD

Comments

*UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS AND CONDITIONS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS OR BY CALLING THE LABORATORY LISTED ABOVE TO OBTAIN A COPY

LAB USE ONLY	Yes	No	°C	1	2	3
Seal present						
Seal intact						
Cooling media present						

LAB USE ONLY	Yes	No	°C	1	2	3
Seal present						
Seal intact						
Cooling media present						

LAB USE ONLY	Yes	No	°C	1	2	3
Seal present						
Seal intact						
Cooling media present						

Temperature reading by:

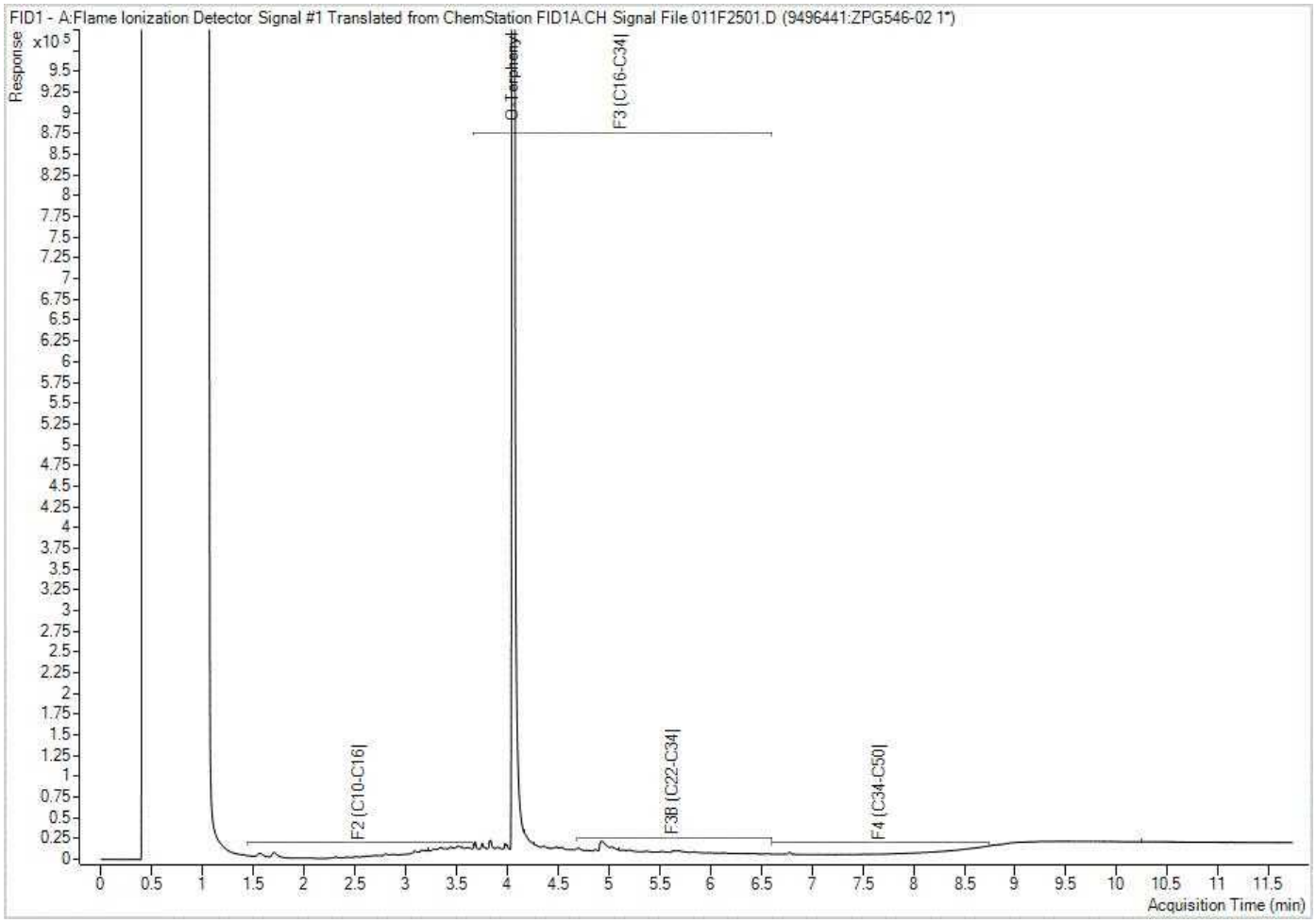
	Relinquished by: (Signature/ Print)	Date YYYY	MM	DD	Time HH	MM	Received by: (Signature/ Print)	Date YYYY	MM	DD	Time HH	MM
1	Imran Haji	24	06	28	17	35	1					
2							2					

Special instructions

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG546

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH1 SS2A

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

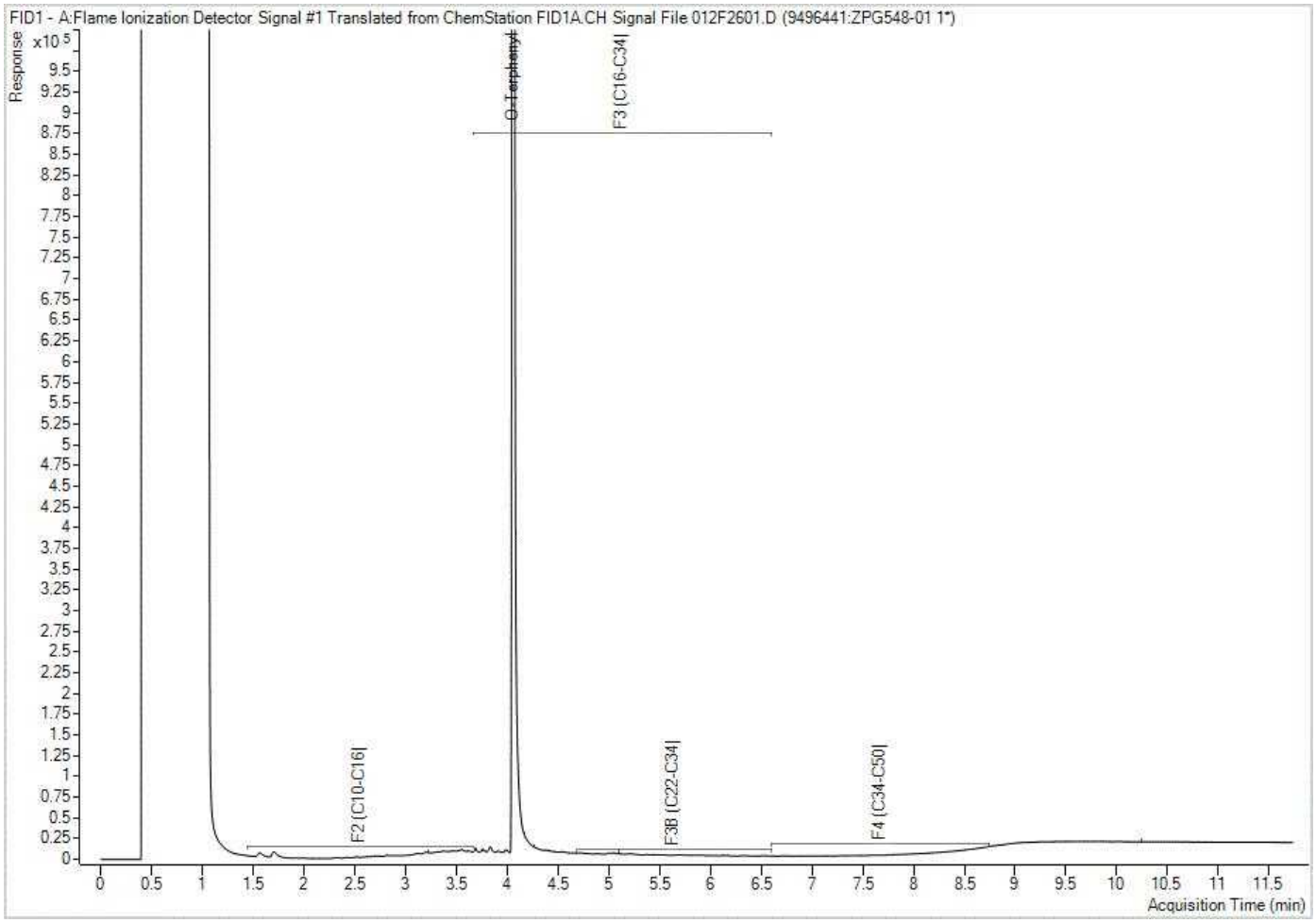


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG548

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH1 SS7B

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

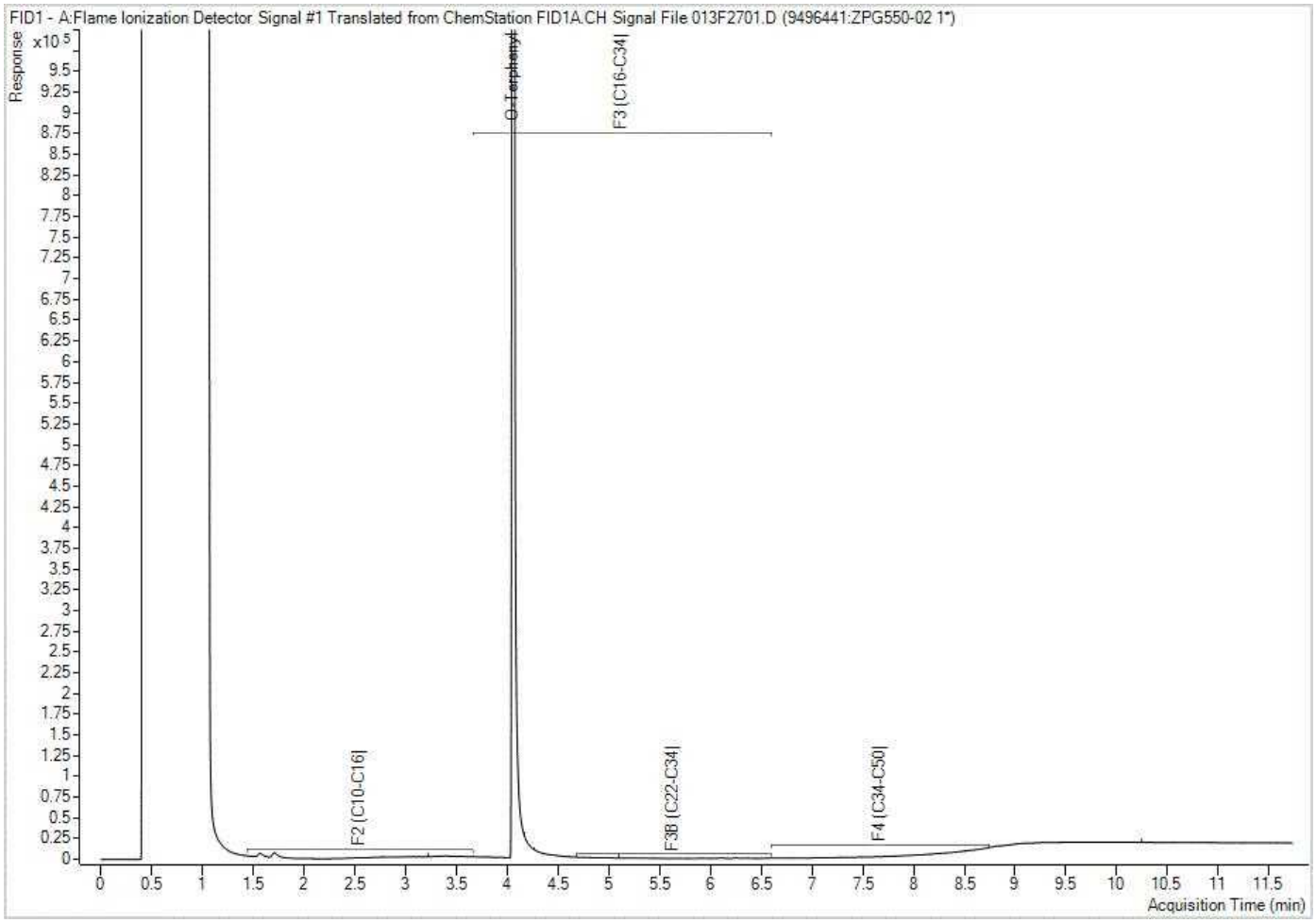


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG550

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH3 SS2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

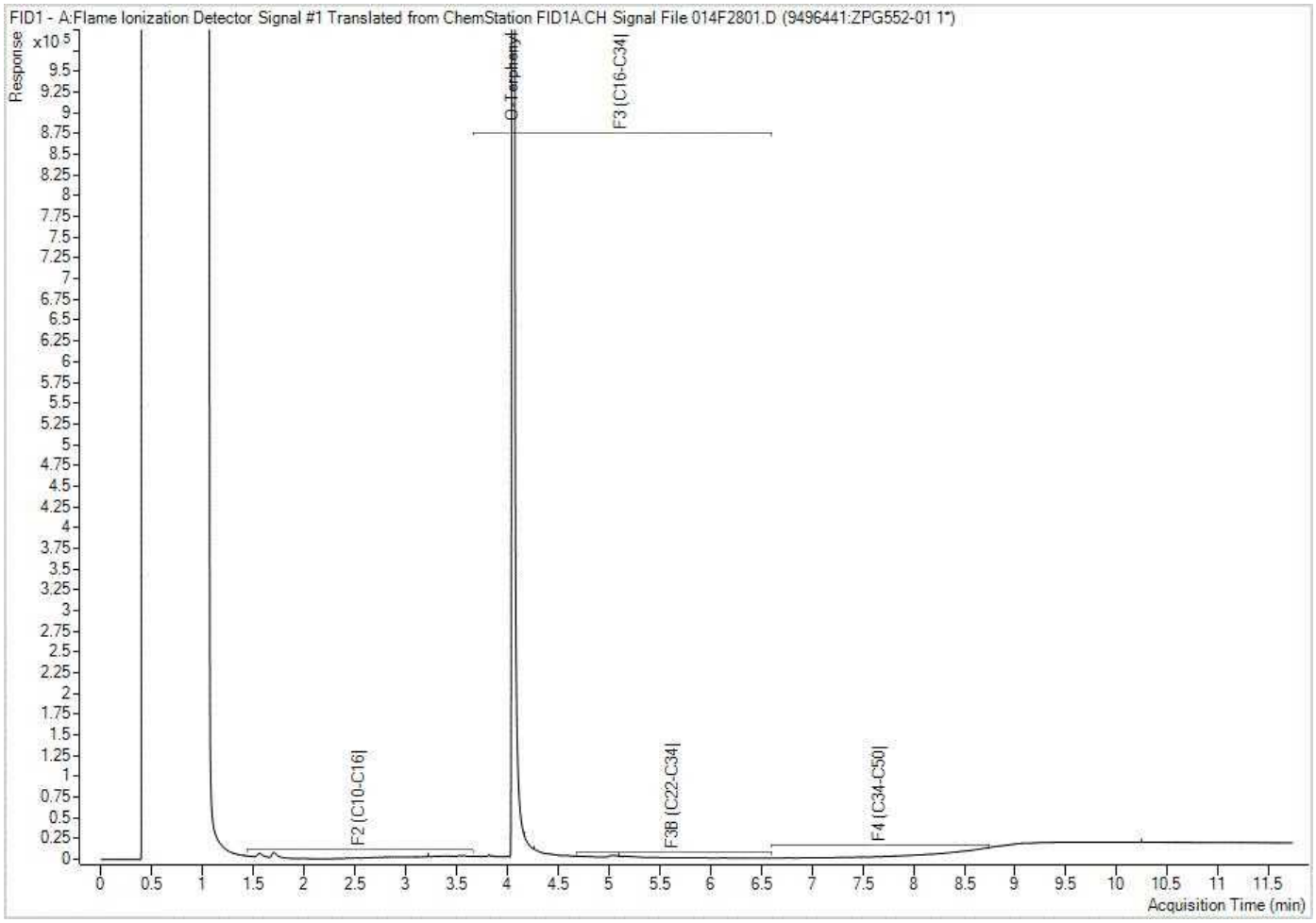


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG552

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH3 SS5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

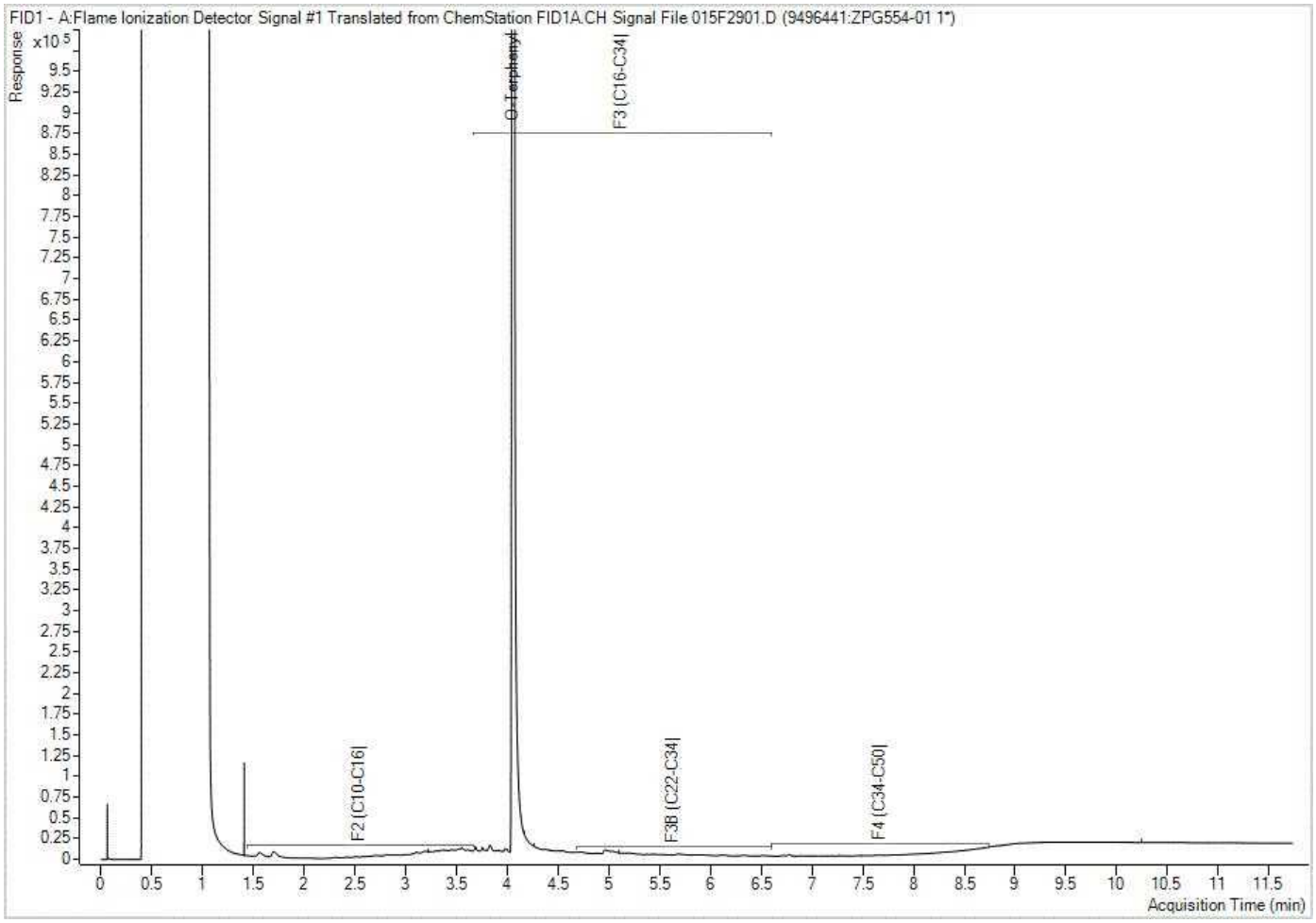


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG554

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: DUP17B

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

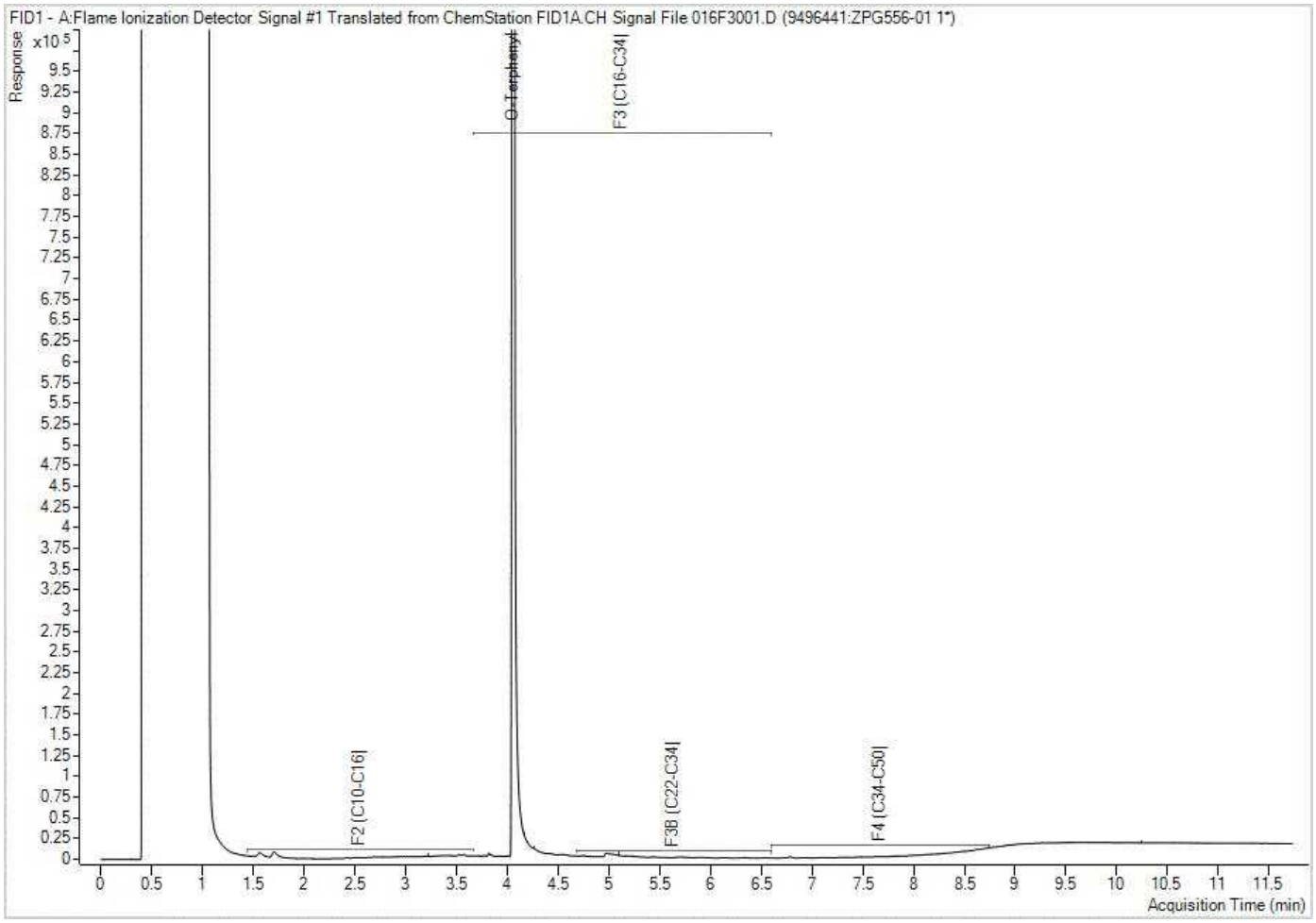


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG556

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH2 SS6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

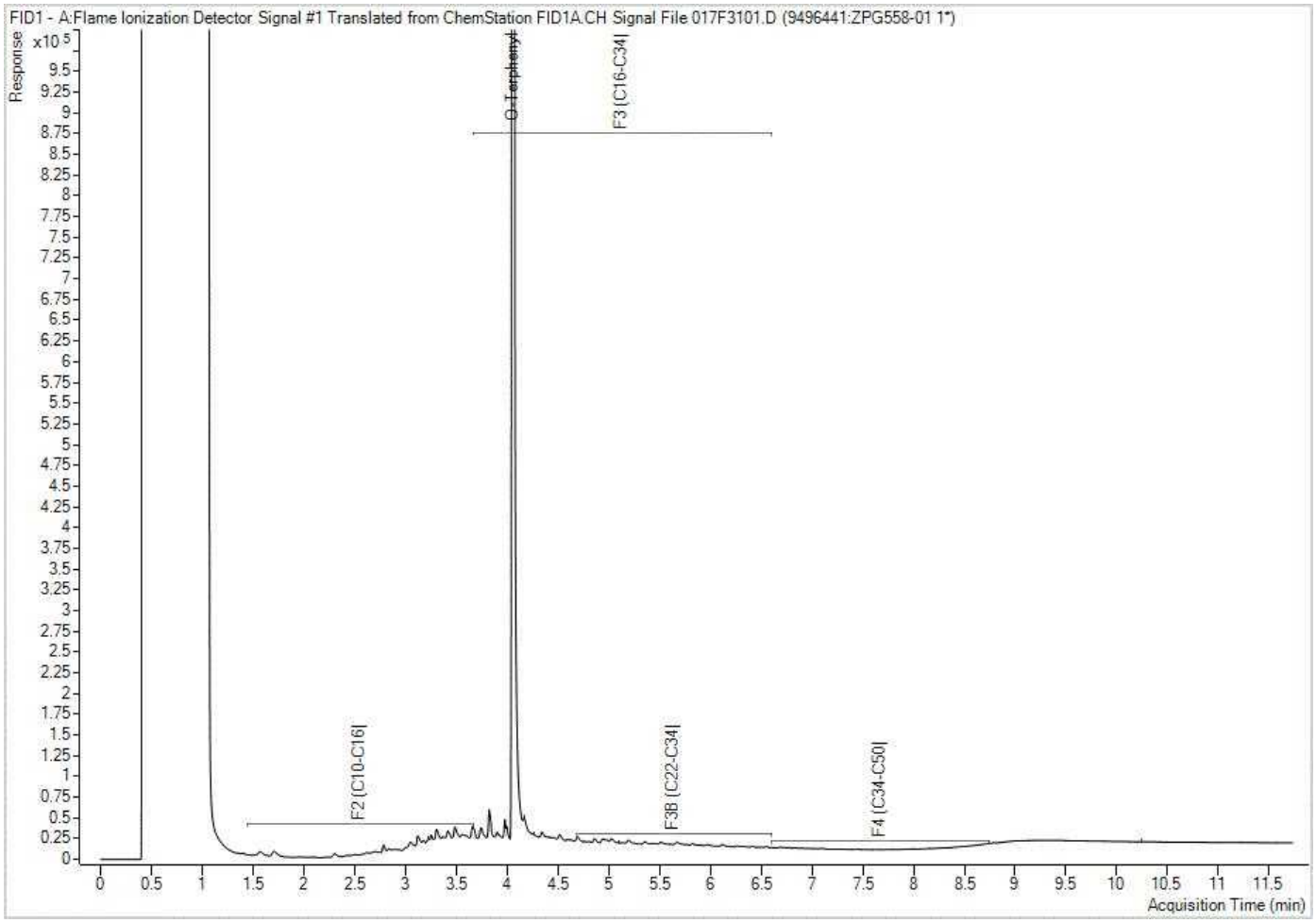


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG558

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH2 SS8

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

Exceedance Summary Table – Reg153/04 T3-Soil/Res-C

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BH3 SS1B	ZPG549-01	Sodium Adsorption Ratio	5.0	21		N/A

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Reg 406 T2.1 Res (S)

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BH1 SS2A	ZPG546-02	F2 (C10-C16 Hydrocarbons)	10	12	10	ug/g
BH3 SS1B	ZPG549-01	Sodium Adsorption Ratio	5	21		N/A
BH2 SS8	ZPG558-01	F2 (C10-C16 Hydrocarbons)	10	29	10	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Your Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Your C.O.C. #: C#997323-02-01

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/10
Report #: R8227872
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4J8953
Received: 2024/06/28, 17:57

Sample Matrix: Soil
Samples Received: 14

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
Methylnaphthalene Sum	6	N/A	2024/07/08	CAM SOP-00301	EPA 8270D m
Methylnaphthalene Sum	1	N/A	2024/07/09	CAM SOP-00301	EPA 8270D m
Hot Water Extractable Boron	7	2024/07/05	2024/07/08	CAM SOP-00408	R153 Ana. Prot. 2011
1,3-Dichloropropene Sum	7	N/A	2024/07/06		EPA 8260C m
Free (WAD) Cyanide	7	2024/07/06	2024/07/08	CAM SOP-00457	OMOE E3015 m
Conductivity	5	2024/07/05	2024/07/06	CAM SOP-00414	OMOE E3530 v1 m
Conductivity	2	2024/07/08	2024/07/08	CAM SOP-00414	OMOE E3530 v1 m
Hexavalent Chromium in Soil by IC (1)	7	2024/07/05	2024/07/05	CAM SOP-00436	EPA 3060A/7199 m
Petroleum Hydrocarbons F2-F4 in Soil (2)	7	2024/07/05	2024/07/05	CAM SOP-00316	CCME CWS m
Acid Extractable Metals by ICPMS	7	2024/07/05	2024/07/08	CAM SOP-00447	EPA 6020B m
Moisture	14	N/A	2024/07/02	CAM SOP-00445	Carter 2nd ed 70.2 m
PAH Compounds in Soil by GC/MS (SIM)	1	2024/07/04	2024/07/05	CAM SOP-00318	EPA 8270E
PAH Compounds in Soil by GC/MS (SIM)	6	2024/07/06	2024/07/07	CAM SOP-00318	EPA 8270E
pH CaCl2 EXTRACT	7	2024/07/08	2024/07/08	CAM SOP-00413	EPA 9045 D m
Sodium Adsorption Ratio (SAR)	7	N/A	2024/07/09	CAM SOP-00102	EPA 6010C
Volatile Organic Compounds and F1 PHCs	7	N/A	2024/07/06	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Your Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Your C.O.C. #: C#997323-02-01

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/10
Report #: R8227872
Version: 3 - Revision

CERTIFICATE OF ANALYSIS – REVISED REPORT

BUREAU VERITAS JOB #: C4J8953
Received: 2024/06/28, 17:57

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix "m" indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) Soils are reported on a dry weight basis unless otherwise specified.
(2) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following "Alberta Environment's Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003". Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Marijane Cruz, Senior Project Manager
Email: Marijane.Cruz@bureauveritas.com
Phone# (905)817-5756
==========
Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG545		ZPG547			
Sampling Date				2024/06/26 13:35		2024/06/26 13:45			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS1	QC Batch	BH1 SS4	RDL	MDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	5.0	5	0.25 (1)	9487948	0.40			9489769
Inorganics									
Conductivity	mS/cm	0.7	0.7	0.20	9497316	0.11	0.002	0.0005	9497316
Available (CaCl2) pH	pH	-	-	7.59	9500541	7.91			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	9499256	<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	0.66	8	<0.18	9497182	<0.18	0.18	0.050	9497253
Metals									
Hot Water Ext. Boron (B)	ug/g	1.5	1.5	<0.050	9496928	0.064	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	1.3	7.5	<0.20	9497505	<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18	5.8	9497505	<1.0	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	220	390	21	9497505	7.7	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	2.5	4	0.25	9497505	<0.20	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	36	120	<5.0	9497505	5.1	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	0.13	9497505	<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	70	160	11	9497505	5.9	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22	3.7	9497505	2.0	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	92	140	12	9497505	4.7	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120	27	9497505	2.2	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	2	6.9	0.56	9497505	<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	82	100	8.0	9497505	4.0	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	1.5	2.4	<0.50	9497505	<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	0.5	20	<0.20	9497505	<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1	<0.050	9497505	<0.050	0.050	0.010	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG545		ZPG547			
Sampling Date				2024/06/26 13:35		2024/06/26 13:45			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS1	QC Batch	BH1 SS4	RDL	MDL	QC Batch
Acid Extractable Uranium (U)	ug/g	2.5	23	0.44	9497505	0.33	0.050	0.030	9497505
Acid Extractable Vanadium (V)	ug/g	86	86	21	9497505	15	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	290	340	34	9497505	9.7	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27	<0.050	9497505	<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG547			ZPG549			
Sampling Date				2024/06/26 13:45			2024/06/27 14:30			
COC Number				C#997323-02-01			C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS4 Lab-Dup	MDL	QC Batch	BH3 SS1B	RDL	MDL	QC Batch
Calculated Parameters										
Sodium Adsorption Ratio	N/A	5.0	5				**21**			9487948
Inorganics										
Conductivity	mS/cm	0.7	0.7				0.59	0.002	0.0005	9497316
Available (CaCl2) pH	pH	-	-	7.91		9500541	7.96			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051				<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	0.66	8				<0.18	0.18	0.050	9497182
Metals										
Hot Water Ext. Boron (B)	ug/g	1.5	1.5				0.13	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	1.3	7.5				<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18				3.0	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	220	390				25	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	2.5	4				0.31	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	36	120				<5.0	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2				<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	70	160				11	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22				5.4	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	92	140				16	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120				13	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	2	6.9				<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	82	100				11	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	1.5	2.4				<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	0.5	20				<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1				0.062	0.050	0.010	9497505
Acid Extractable Uranium (U)	ug/g	2.5	23				0.43	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG547			ZPG549			
Sampling Date				2024/06/26 13:45			2024/06/27 14:30			
COC Number				C#997323-02-01			C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS4 Lab-Dup	MDL	QC Batch	BH3 SS1B	RDL	MDL	QC Batch
Acid Extractable Vanadium (V)	ug/g	86	86				21	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	290	340				35	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27				<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG551		ZPG553			
Sampling Date				2024/06/27 14:40		2024/06/26			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS4	QC Batch	DUP14	RDL	MDL	QC Batch
Calculated Parameters									
Sodium Adsorption Ratio	N/A	5.0	5	3.5	9489769	0.38			9489769
Inorganics									
Conductivity	mS/cm	0.7	0.7	0.27	9497316	0.10	0.002	0.0005	9500359
Available (CaCl2) pH	pH	-	-	8.00	9500541	7.96			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	9499256	<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	0.66	8	<0.18	9497253	<0.18	0.18	0.050	9497253
Metals									
Hot Water Ext. Boron (B)	ug/g	1.5	1.5	0.053	9496928	0.058	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	1.3	7.5	<0.20	9497505	<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18	<1.0	9497505	1.0	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	220	390	5.9	9497505	6.7	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	2.5	4	<0.20	9497505	<0.20	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	36	120	<5.0	9497505	<5.0	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2	<0.10	9497505	<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	70	160	6.3	9497505	6.2	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22	2.2	9497505	1.9	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	92	140	5.7	9497505	4.6	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120	2.4	9497505	2.2	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	2	6.9	<0.50	9497505	<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	82	100	4.3	9497505	4.1	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	1.5	2.4	<0.50	9497505	<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	0.5	20	<0.20	9497505	<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1	<0.050	9497505	<0.050	0.050	0.010	9497505
Acid Extractable Uranium (U)	ug/g	2.5	23	0.33	9497505	0.33	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG551		ZPG553			
Sampling Date				2024/06/27 14:40		2024/06/26			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS4	QC Batch	DUP14	RDL	MDL	QC Batch
Acid Extractable Vanadium (V)	ug/g	86	86	16	9497505	15	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	290	340	10	9497505	9.2	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27	<0.050	9497505	<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG553				ZPG555			
Sampling Date				2024/06/26				2024/06/28 16:00			
COC Number				C#997323-02-01				C#997323-02-01			
	UNITS	Criteria	Criteria-2	DUP14 Lab-Dup	RDL	MDL	QC Batch	BH2 SS1	RDL	MDL	QC Batch
Calculated Parameters											
Sodium Adsorption Ratio	N/A	5.0	5					0.33 (1)			9489769
Inorganics											
Conductivity	mS/cm	0.7	0.7					0.11	0.002	0.0005	9500359
Available (CaCl2) pH	pH	-	-					7.60			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051	<0.01	0.01	0.0019	9499256	<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	0.66	8					<0.18	0.18	0.050	9497253
Metals											
Hot Water Ext. Boron (B)	ug/g	1.5	1.5					0.095	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	1.3	7.5					<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18					2.1	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	220	390					15	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	2.5	4					<0.20	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	36	120					<5.0	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2					<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	70	160					8.6	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22					3.0	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	92	140					8.4	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120					6.6	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	2	6.9					<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	82	100					6.0	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	1.5	2.4					<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	0.5	20					<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1					<0.050	0.050	0.010	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use
(1) Sodium was not detected. To report SAR the sodium detection limit was used in the calculation. This value represents a maximum ratio.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG553				ZPG555			
Sampling Date				2024/06/26				2024/06/28 16:00			
COC Number				C#997323-02-01				C#997323-02-01			
	UNITS	Criteria	Criteria-2	DUP14 Lab-Dup	RDL	MDL	QC Batch	BH2 SS1	RDL	MDL	QC Batch
Acid Extractable Uranium (U)	ug/g	2.5	23					0.39	0.050	0.030	9497505
Acid Extractable Vanadium (V)	ug/g	86	86					21	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	290	340					19	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27					<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG555				ZPG557			
Sampling Date				2024/06/28 16:00				2024/06/28 16:10			
COC Number				C#997323-02-01				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS1 Lab-Dup	RDL	MDL	QC Batch	BH2 SS7	RDL	MDL	QC Batch
Calculated Parameters											
Sodium Adsorption Ratio	N/A	5.0	5					0.62			9489769
Inorganics											
Conductivity	mS/cm	0.7	0.7					0.28	0.002	0.0005	9497316
Available (CaCl2) pH	pH	-	-					7.82			9500541
WAD Cyanide (Free)	ug/g	0.051	0.051					<0.01	0.01	0.0019	9499256
Chromium (VI)	ug/g	0.66	8	<0.18	0.18	0.050	9497253	<0.18	0.18	0.050	9497253
Metals											
Hot Water Ext. Boron (B)	ug/g	1.5	1.5					0.29	0.050	0.030	9496928
Acid Extractable Antimony (Sb)	ug/g	1.3	7.5					<0.20	0.20	0.10	9497505
Acid Extractable Arsenic (As)	ug/g	18	18					5.3	1.0	0.10	9497505
Acid Extractable Barium (Ba)	ug/g	220	390					53	0.50	0.30	9497505
Acid Extractable Beryllium (Be)	ug/g	2.5	4					0.83	0.20	0.020	9497505
Acid Extractable Boron (B)	ug/g	36	120					12	5.0	1.0	9497505
Acid Extractable Cadmium (Cd)	ug/g	1.2	1.2					<0.10	0.10	0.030	9497505
Acid Extractable Chromium (Cr)	ug/g	70	160					23	1.0	0.20	9497505
Acid Extractable Cobalt (Co)	ug/g	22	22					14	0.10	0.020	9497505
Acid Extractable Copper (Cu)	ug/g	92	140					26	0.50	0.20	9497505
Acid Extractable Lead (Pb)	ug/g	120	120					8.3	1.0	0.10	9497505
Acid Extractable Molybdenum (Mo)	ug/g	2	6.9					<0.50	0.50	0.10	9497505
Acid Extractable Nickel (Ni)	ug/g	82	100					31	0.50	0.20	9497505
Acid Extractable Selenium (Se)	ug/g	1.5	2.4					<0.50	0.50	0.10	9497505
Acid Extractable Silver (Ag)	ug/g	0.5	20					<0.20	0.20	0.040	9497505
Acid Extractable Thallium (Tl)	ug/g	1	1					0.095	0.050	0.010	9497505
Acid Extractable Uranium (U)	ug/g	2.5	23					0.53	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK INORGANICS (SOIL)

Bureau Veritas ID				ZPG555				ZPG557			
Sampling Date				2024/06/28 16:00				2024/06/28 16:10			
COC Number				C#997323-02-01				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS1 Lab-Dup	RDL	MDL	QC Batch	BH2 SS7	RDL	MDL	QC Batch
Acid Extractable Vanadium (V)	ug/g	86	86					29	5.0	0.50	9497505
Acid Extractable Zinc (Zn)	ug/g	290	340					70	5.0	0.50	9497505
Acid Extractable Mercury (Hg)	ug/g	0.27	0.27					<0.050	0.050	0.030	9497505

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG546	ZPG547	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:45	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS4	BH3 SS2	RDL	MDL	QC Batch
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	0.59	0.59	<0.0071	<0.0071	<0.0071	0.0071	N/A	9487936
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	0.072	2.5	<0.0050	<0.0050	<0.0050	0.0050	0.0020	9499252
Acenaphthylene	ug/g	0.093	0.093	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Anthracene	ug/g	0.22	0.16	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Benzo(a)anthracene	ug/g	0.36	0.5	<0.0050	<0.0050	<0.0050	0.0050	0.0020	9499252
Benzo(a)pyrene	ug/g	0.3	0.31	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Benzo(b/j)fluoranthene	ug/g	0.47	3.2	<0.0050	<0.0050	<0.0050	0.0050	0.0020	9499252
Benzo(g,h,i)perylene	ug/g	0.68	6.6	<0.0050	<0.0050	<0.0050	0.0050	0.0040	9499252
Benzo(k)fluoranthene	ug/g	0.48	3.1	<0.0050	<0.0050	<0.0050	0.0050	0.0020	9499252
Chrysene	ug/g	2.8	7	0.0057	<0.0050	<0.0050	0.0050	0.0020	9499252
Dibenzo(a,h)anthracene	ug/g	0.1	0.57	<0.0050	<0.0050	<0.0050	0.0050	0.0040	9499252
Fluoranthene	ug/g	0.69	0.69	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Fluorene	ug/g	0.19	6.8	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Indeno(1,2,3-cd)pyrene	ug/g	0.23	0.38	<0.0050	<0.0050	<0.0050	0.0050	0.0040	9499252
1-Methylnaphthalene	ug/g	0.59	0.59	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
2-Methylnaphthalene	ug/g	0.59	0.59	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Naphthalene	ug/g	0.09	0.2	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Phenanthrene	ug/g	0.69	6.2	0.015	<0.0050	<0.0050	0.0050	0.0010	9499252
Pyrene	ug/g	1	28	<0.0050	<0.0050	<0.0050	0.0050	0.0010	9499252
Biphenyl	ug/g	0.05	0.05	<0.0050	<0.0050	<0.0050	0.0050	N/A	9499252
Surrogate Recovery (%)									
D10-Anthracene	%	-	-	98	95	105			9499252
D14-Terphenyl (FS)	%	-	-	89	99	111			9499252

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use
N/A = Not Applicable

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O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG546	ZPG547	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:45	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS4	BH3 SS2	RDL	MDL	QC Batch
D8-Acenaphthylene	%	-	-	93	84	95			9499252

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG551		ZPG553			
Sampling Date				2024/06/27 14:40		2024/06/26			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS4	QC Batch	DUP14	RDL	MDL	QC Batch
Calculated Parameters									
Methylnaphthalene, 2-(1-)	ug/g	0.59	0.59	<0.0071	9487936	<0.0071	0.0071	N/A	9487936
Polyaromatic Hydrocarbons									
Acenaphthene	ug/g	0.072	2.5	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Acenaphthylene	ug/g	0.093	0.093	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Anthracene	ug/g	0.22	0.16	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Benzo(a)anthracene	ug/g	0.36	0.5	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Benzo(a)pyrene	ug/g	0.3	0.31	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Benzo(b/j)fluoranthene	ug/g	0.47	3.2	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Benzo(g,h,i)perylene	ug/g	0.68	6.6	<0.0050	9499252	<0.0050	0.0050	0.0040	9496264
Benzo(k)fluoranthene	ug/g	0.48	3.1	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Chrysene	ug/g	2.8	7	<0.0050	9499252	<0.0050	0.0050	0.0020	9496264
Dibenzo(a,h)anthracene	ug/g	0.1	0.57	<0.0050	9499252	<0.0050	0.0050	0.0040	9496264
Fluoranthene	ug/g	0.69	0.69	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Fluorene	ug/g	0.19	6.8	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Indeno(1,2,3-cd)pyrene	ug/g	0.23	0.38	<0.0050	9499252	<0.0050	0.0050	0.0040	9496264
1-Methylnaphthalene	ug/g	0.59	0.59	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
2-Methylnaphthalene	ug/g	0.59	0.59	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Naphthalene	ug/g	0.09	0.2	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Phenanthrene	ug/g	0.69	6.2	0.0061	9499252	<0.0050	0.0050	0.0010	9496264
Pyrene	ug/g	1	28	<0.0050	9499252	<0.0050	0.0050	0.0010	9496264
Biphenyl	ug/g	0.05	0.05	<0.0050	9499252	<0.0050	0.0050	N/A	9496264
Surrogate Recovery (%)									
D10-Anthracene	%	-	-	97	9499252	110			9496264
D14-Terphenyl (FS)	%	-	-	72	9499252	90			9496264

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use
N/A = Not Applicable

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O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG551		ZPG553			
Sampling Date				2024/06/27 14:40		2024/06/26			
COC Number				C#997323-02-01		C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS4	QC Batch	DUP14	RDL	MDL	QC Batch
D8-Acenaphthylene	%	-	-	87	9499252	90			9496264

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG555	ZPG557			
Sampling Date				2024/06/28 16:00	2024/06/28 16:10			
COC Number				C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS1	BH2 SS7	RDL	MDL	QC Batch
Calculated Parameters								
Methylnaphthalene, 2-(1-)	ug/g	0.59	0.59	<0.0071	<0.0071	0.0071	N/A	9487936
Polyaromatic Hydrocarbons								
Acenaphthene	ug/g	0.072	2.5	<0.0050	<0.0050	0.0050	0.0020	9499252
Acenaphthylene	ug/g	0.093	0.093	<0.0050	<0.0050	0.0050	0.0010	9499252
Anthracene	ug/g	0.22	0.16	<0.0050	<0.0050	0.0050	0.0010	9499252
Benzo(a)anthracene	ug/g	0.36	0.5	0.0083	<0.0050	0.0050	0.0020	9499252
Benzo(a)pyrene	ug/g	0.3	0.31	0.0084	<0.0050	0.0050	0.0010	9499252
Benzo(b/j)fluoranthene	ug/g	0.47	3.2	0.011	<0.0050	0.0050	0.0020	9499252
Benzo(g,h,i)perylene	ug/g	0.68	6.6	0.0051	<0.0050	0.0050	0.0040	9499252
Benzo(k)fluoranthene	ug/g	0.48	3.1	<0.0050	<0.0050	0.0050	0.0020	9499252
Chrysene	ug/g	2.8	7	0.0084	0.0067	0.0050	0.0020	9499252
Dibenzo(a,h)anthracene	ug/g	0.1	0.57	<0.0050	<0.0050	0.0050	0.0040	9499252
Fluoranthene	ug/g	0.69	0.69	0.013	<0.0050	0.0050	0.0010	9499252
Fluorene	ug/g	0.19	6.8	<0.0050	<0.0050	0.0050	0.0010	9499252
Indeno(1,2,3-cd)pyrene	ug/g	0.23	0.38	<0.0050	<0.0050	0.0050	0.0040	9499252
1-Methylnaphthalene	ug/g	0.59	0.59	<0.0050	<0.0050	0.0050	0.0010	9499252
2-Methylnaphthalene	ug/g	0.59	0.59	<0.0050	<0.0050	0.0050	0.0010	9499252
Naphthalene	ug/g	0.09	0.2	<0.0050	<0.0050	0.0050	0.0010	9499252
Phenanthrene	ug/g	0.69	6.2	0.0066	0.0074	0.0050	0.0010	9499252
Pyrene	ug/g	1	28	0.012	<0.0050	0.0050	0.0010	9499252
Biphenyl	ug/g	0.05	0.05	<0.0050	<0.0050	0.0050	N/A	9499252
Surrogate Recovery (%)								
D10-Anthracene	%	-	-	96	98			9499252
D14-Terphenyl (FS)	%	-	-	86	88			9499252

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use
N/A = Not Applicable

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK PAHS (SOIL)

Bureau Veritas ID				ZPG555	ZPG557			
Sampling Date				2024/06/28 16:00	2024/06/28 16:10			
COC Number				C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS1	BH2 SS7	RDL	MDL	QC Batch
D8-Acenaphthylene	%	-	-	87	94			9499252

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG546	ZPG548	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:55	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS7B	BH3 SS2	RDL	MDL	QC Batch
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	0.05	0.05	<0.050	<0.050	<0.050	0.050	0.010	9487949
Volatile Organics									
Acetone (2-Propanone)	ug/g	0.5	0.5	<0.49	<0.49	<0.49	0.49	0.49	9490760
Benzene	ug/g	0.02	0.02	<0.0060	<0.0060	<0.0060	0.0060	0.0060	9490760
Bromodichloromethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Bromoform	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Bromomethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Carbon Tetrachloride	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Chlorobenzene	ug/g	0.05	0.083	<0.040	<0.040	<0.040	0.040	0.040	9490760
Chloroform	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Dibromochloromethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichlorobenzene	ug/g	0.05	3.4	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,3-Dichlorobenzene	ug/g	0.05	0.26	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Dichlorodifluoromethane (FREON 12)	ug/g	0.05	1.5	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1-Dichloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	<0.049	<0.049	0.049	0.049	9490760
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
cis-1,2-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
trans-1,2-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichloropropane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
cis-1,3-Dichloropropene	ug/g	0.05	0.05	<0.030	<0.030	<0.030	0.030	0.030	9490760
trans-1,3-Dichloropropene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Ethylbenzene	ug/g	0.05	0.05	<0.010	<0.010	<0.010	0.010	0.010	9490760
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Hexane	ug/g	0.05	2.5	<0.040	<0.040	<0.040	0.040	0.040	9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG546	ZPG548	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:55	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS7B	BH3 SS2	RDL	MDL	QC Batch
Methylene Chloride(Dichloromethane)	ug/g	0.05	0.05	<0.049	<0.049	<0.049	0.049	0.049	9490760
Methyl Ethyl Ketone (2-Butanone)	ug/g	0.5	0.5	<0.40	<0.40	<0.40	0.40	0.40	9490760
Methyl Isobutyl Ketone	ug/g	0.5	0.5	<0.40	<0.40	<0.40	0.40	0.40	9490760
Methyl t-butyl ether (MTBE)	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Styrene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Tetrachloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Toluene	ug/g	0.2	0.2	<0.020	<0.020	<0.020	0.020	0.020	9490760
1,1,1-Trichloroethane	ug/g	0.05	0.11	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Trichloroethylene	ug/g	0.05	0.05	<0.010	<0.010	<0.010	0.010	0.010	9490760
Trichlorofluoromethane (FREON 11)	ug/g	0.25	0.25	<0.040	<0.040	<0.040	0.040	0.040	9490760
Vinyl Chloride	ug/g	0.02	0.02	<0.019	<0.019	<0.019	0.019	0.019	9490760
p+m-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	0.020	9490760
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	0.020	9490760
Total Xylenes	ug/g	0.05	0.091	<0.020	<0.020	<0.020	0.020	0.020	9490760
F1 (C6-C10)	ug/g	25	25	<10	<10	<10	10	2.0	9490760
F1 (C6-C10) - BTEX	ug/g	25	25	<10	<10	<10	10	2.0	9490760
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	10	10	**12**	<10	<10	10	5.0	9496441
F3 (C16-C34 Hydrocarbons)	ug/g	240	240	<50	<50	<50	50	5.0	9496441
F4 (C34-C50 Hydrocarbons)	ug/g	120	2800	<50	<50	<50	50	10	9496441
Reached Baseline at C50	ug/g	-	-	Yes	Yes	Yes			9496441
Surrogate Recovery (%)									
o-Terphenyl	%	-	-	95	95	95			9496441
4-Bromofluorobenzene	%	-	-	105	101	99			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG546	ZPG548	ZPG550			
Sampling Date				2024/06/26 13:40	2024/06/26 13:55	2024/06/27 14:35			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH1 SS2A	BH1 SS7B	BH3 SS2	RDL	MDL	QC Batch
D10-o-Xylene	%	-	-	87	94	94			9490760
D4-1,2-Dichloroethane	%	-	-	114	110	112			9490760
D8-Toluene	%	-	-	94	100	102			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG552	ZPG554	ZPG556			
Sampling Date				2024/06/27 14:45	2024/06/26 13:55	2024/06/28 16:05			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS5	DUP17B	BH2 SS6	RDL	MDL	QC Batch
Calculated Parameters									
1,3-Dichloropropene (cis+trans)	ug/g	0.05	0.05	<0.050	<0.050	<0.050	0.050	0.010	9487949
Volatile Organics									
Acetone (2-Propanone)	ug/g	0.5	0.5	<0.49	<0.49	<0.49	0.49	0.49	9490760
Benzene	ug/g	0.02	0.02	<0.0060	<0.0060	<0.0060	0.0060	0.0060	9490760
Bromodichloromethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Bromoform	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Bromomethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Carbon Tetrachloride	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Chlorobenzene	ug/g	0.05	0.083	<0.040	<0.040	<0.040	0.040	0.040	9490760
Chloroform	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Dibromochloromethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichlorobenzene	ug/g	0.05	3.4	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,3-Dichlorobenzene	ug/g	0.05	0.26	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Dichlorodifluoromethane (FREON 12)	ug/g	0.05	1.5	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1-Dichloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	<0.049	<0.049	0.049	0.049	9490760
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
cis-1,2-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
trans-1,2-Dichloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,2-Dichloropropane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
cis-1,3-Dichloropropene	ug/g	0.05	0.05	<0.030	<0.030	<0.030	0.030	0.030	9490760
trans-1,3-Dichloropropene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Ethylbenzene	ug/g	0.05	0.05	<0.010	<0.010	<0.010	0.010	0.010	9490760
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Hexane	ug/g	0.05	2.5	<0.040	<0.040	<0.040	0.040	0.040	9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG552	ZPG554	ZPG556			
Sampling Date				2024/06/27 14:45	2024/06/26 13:55	2024/06/28 16:05			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS5	DUP17B	BH2 SS6	RDL	MDL	QC Batch
Methylene Chloride(Dichloromethane)	ug/g	0.05	0.05	<0.049	<0.049	<0.049	0.049	0.049	9490760
Methyl Ethyl Ketone (2-Butanone)	ug/g	0.5	0.5	<0.40	<0.40	<0.40	0.40	0.40	9490760
Methyl Isobutyl Ketone	ug/g	0.5	0.5	<0.40	<0.40	<0.40	0.40	0.40	9490760
Methyl t-butyl ether (MTBE)	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Styrene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Tetrachloroethylene	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Toluene	ug/g	0.2	0.2	<0.020	<0.020	<0.020	0.020	0.020	9490760
1,1,1-Trichloroethane	ug/g	0.05	0.11	<0.040	<0.040	<0.040	0.040	0.040	9490760
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	<0.040	<0.040	0.040	0.040	9490760
Trichloroethylene	ug/g	0.05	0.05	<0.010	<0.010	<0.010	0.010	0.010	9490760
Trichlorofluoromethane (FREON 11)	ug/g	0.25	0.25	<0.040	<0.040	<0.040	0.040	0.040	9490760
Vinyl Chloride	ug/g	0.02	0.02	<0.019	<0.019	<0.019	0.019	0.019	9490760
p+m-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	0.020	9490760
o-Xylene	ug/g	-	-	<0.020	<0.020	<0.020	0.020	0.020	9490760
Total Xylenes	ug/g	0.05	0.091	<0.020	<0.020	<0.020	0.020	0.020	9490760
F1 (C6-C10)	ug/g	25	25	<10	<10	<10	10	2.0	9490760
F1 (C6-C10) - BTEX	ug/g	25	25	<10	<10	<10	10	2.0	9490760
F2-F4 Hydrocarbons									
F2 (C10-C16 Hydrocarbons)	ug/g	10	10	<10	<10	<10	10	5.0	9496441
F3 (C16-C34 Hydrocarbons)	ug/g	240	240	<50	<50	<50	50	5.0	9496441
F4 (C34-C50 Hydrocarbons)	ug/g	120	2800	<50	<50	<50	50	10	9496441
Reached Baseline at C50	ug/g	-	-	Yes	Yes	Yes			9496441
Surrogate Recovery (%)									
o-Terphenyl	%	-	-	95	96	95			9496441
4-Bromofluorobenzene	%	-	-	102	101	98			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG552	ZPG554	ZPG556			
Sampling Date				2024/06/27 14:45	2024/06/26 13:55	2024/06/28 16:05			
COC Number				C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH3 SS5	DUP17B	BH2 SS6	RDL	MDL	QC Batch
D10-o-Xylene	%	-	-	92	92	99			9490760
D4-1,2-Dichloroethane	%	-	-	117	117	114			9490760
D8-Toluene	%	-	-	100	99	101			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG558			
Sampling Date				2024/06/28 16:15			
COC Number				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS8	RDL	MDL	QC Batch
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/g	0.05	0.05	<0.050	0.050	0.010	9487949
Volatile Organics							
Acetone (2-Propanone)	ug/g	0.5	0.5	<0.49	0.49	0.49	9490760
Benzene	ug/g	0.02	0.02	<0.0060	0.0060	0.0060	9490760
Bromodichloromethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Bromoform	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Bromomethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Carbon Tetrachloride	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Chlorobenzene	ug/g	0.05	0.083	<0.040	0.040	0.040	9490760
Chloroform	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Dibromochloromethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
1,2-Dichlorobenzene	ug/g	0.05	3.4	<0.040	0.040	0.040	9490760
1,3-Dichlorobenzene	ug/g	0.05	0.26	<0.040	0.040	0.040	9490760
1,4-Dichlorobenzene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Dichlorodifluoromethane (FREON 12)	ug/g	0.05	1.5	<0.040	0.040	0.040	9490760
1,1-Dichloroethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	0.049	0.049	9490760
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
cis-1,2-Dichloroethylene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
trans-1,2-Dichloroethylene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
1,2-Dichloropropane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
cis-1,3-Dichloropropene	ug/g	0.05	0.05	<0.030	0.030	0.030	9490760
trans-1,3-Dichloropropene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Ethylbenzene	ug/g	0.05	0.05	<0.010	0.010	0.010	9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG558			
Sampling Date				2024/06/28 16:15			
COC Number				C#997323-02-01			
	UNITS	Criteria	Criteria-2	BH2 SS8	RDL	MDL	QC Batch
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Hexane	ug/g	0.05	2.5	<0.040	0.040	0.040	9490760
Methylene Chloride(Dichloromethane)	ug/g	0.05	0.05	<0.049	0.049	0.049	9490760
Methyl Ethyl Ketone (2-Butanone)	ug/g	0.5	0.5	<0.40	0.40	0.40	9490760
Methyl Isobutyl Ketone	ug/g	0.5	0.5	<0.40	0.40	0.40	9490760
Methyl t-butyl ether (MTBE)	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Styrene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
1,1,1,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Tetrachloroethylene	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Toluene	ug/g	0.2	0.2	<0.020	0.020	0.020	9490760
1,1,1-Trichloroethane	ug/g	0.05	0.11	<0.040	0.040	0.040	9490760
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9490760
Trichloroethylene	ug/g	0.05	0.05	<0.010	0.010	0.010	9490760
Trichlorofluoromethane (FREON 11)	ug/g	0.25	0.25	<0.040	0.040	0.040	9490760
Vinyl Chloride	ug/g	0.02	0.02	<0.019	0.019	0.019	9490760
p+m-Xylene	ug/g	-	-	<0.020	0.020	0.020	9490760
o-Xylene	ug/g	-	-	<0.020	0.020	0.020	9490760
Total Xylenes	ug/g	0.05	0.091	<0.020	0.020	0.020	9490760
F1 (C6-C10)	ug/g	25	25	<10	10	2.0	9490760
F1 (C6-C10) - BTEX	ug/g	25	25	<10	10	2.0	9490760
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	10	10	**29**	10	5.0	9496441
F3 (C16-C34 Hydrocarbons)	ug/g	240	240	87	50	5.0	9496441
F4 (C34-C50 Hydrocarbons)	ug/g	120	2800	<50	50	10	9496441

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use
Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZPG558			
Sampling Date				2024/06/28 16:15			
COC Number				C#997323-02-01			
	UNITS	**Criteria**	**Criteria-2**	**BH2 SS8**	**RDL**	**MDL**	**QC Batch**
Reached Baseline at C50	ug/g	-	-	Yes			9496441
Surrogate Recovery (%)							
o-Terphenyl	%	-	-	93			9496441
4-Bromofluorobenzene	%	-	-	102			9490760
D10-o-Xylene	%	-	-	96			9490760
D4-1,2-Dichloroethane	%	-	-	116			9490760
D8-Toluene	%	-	-	101			9490760

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit

QC Batch = Quality Control Batch

Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)

Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition

Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Criteria-2: Ont. Reg. 406/19 Excess Soil Quality Standards, Table 2.1, Full Depth Excess Soil Quality Standards in a Potable Ground Water Condition, Residential/ Parkland/ Institutional Property Use

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		ZPG545		ZPG546	ZPG547	ZPG548			
Sampling Date		2024/06/26 13:35		2024/06/26 13:40	2024/06/26 13:45	2024/06/26 13:55			
COC Number		C#997323-02-01		C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	BH1 SS1	QC Batch	BH1 SS2A	BH1 SS4	BH1 SS7B	RDL	MDL	QC Batch
Inorganics									
Moisture	%	9.8	9490677	9.5	8.0	12	1.0	0.50	9490878

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

Bureau Veritas ID		ZPG549		ZPG550	ZPG551	ZPG551			
Sampling Date		2024/06/27 14:30		2024/06/27 14:35	2024/06/27 14:40	2024/06/27 14:40			
COC Number		C#997323-02-01		C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	BH3 SS1B	QC Batch	BH3 SS2	BH3 SS4	BH3 SS4 Lab-Dup	RDL	MDL	QC Batch
Inorganics									
Moisture	%	6.7	9490677	6.7	10	11	1.0	0.50	9490878

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

Bureau Veritas ID		ZPG552		ZPG553	ZPG553		ZPG554			
Sampling Date		2024/06/27 14:45		2024/06/26	2024/06/26		2024/06/26 13:55			
COC Number		C#997323-02-01		C#997323-02-01	C#997323-02-01		C#997323-02-01			
	UNITS	BH3 SS5	QC Batch	DUP14	DUP14 Lab-Dup	QC Batch	DUP17B	RDL	MDL	QC Batch
Inorganics										
Moisture	%	17	9490878	8.0	7.9	9490834	12	1.0	0.50	9490878

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Lab-Dup = Laboratory Initiated Duplicate

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		ZPG555	ZPG556	ZPG557	ZPG558			
Sampling Date		2024/06/28 16:00	2024/06/28 16:05	2024/06/28 16:10	2024/06/28 16:15			
COC Number		C#997323-02-01	C#997323-02-01	C#997323-02-01	C#997323-02-01			
	UNITS	BH2 SS1	BH2 SS6	BH2 SS7	BH2 SS8	RDL	MDL	QC Batch
Inorganics								
Moisture	%	6.5	17	9.4	8.2	1.0	0.50	9490878

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZPG545
Sample ID: BH1 SS1
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497182	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490677	N/A	2024/07/02	Joe Thomas
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9487948	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG546
Sample ID: BH1 SS2A
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG547
Sample ID: BH1 SS4
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG547 Dup
Sample ID: BH1 SS4
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZPG548
Sample ID: BH1 SS7B
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG549
Sample ID: BH3 SS1B
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497182	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490677	N/A	2024/07/02	Joe Thomas
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9487948	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG550
Sample ID: BH3 SS2
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG551
Sample ID: BH3 SS4
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon

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Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZPG551
Sample ID: BH3 SS4
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG551 Dup
Sample ID: BH3 SS4
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel

Bureau Veritas ID: ZPG552
Sample ID: BH3 SS5
Matrix: Soil

Collected: 2024/06/27
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG553
Sample ID: DUP14
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/09	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9500359	2024/07/08	2024/07/08	Taslima Aktar
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490834	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9496264	2024/07/04	2024/07/05	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG553 Dup
Sample ID: DUP14
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Moisture	BAL	9490834	N/A	2024/07/02	Raj Patel

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZPG554
Sample ID: DUP17B
Matrix: Soil

Collected: 2024/06/26
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG555
Sample ID: BH2 SS1
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9500359	2024/07/08	2024/07/08	Taslima Aktar
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG555 Dup
Sample ID: BH2 SS1
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila

Bureau Veritas ID: ZPG556
Sample ID: BH2 SS6
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

Bureau Veritas ID: ZPG557
Sample ID: BH2 SS7
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Methylnaphthalene Sum	CALC	9487936	N/A	2024/07/08	Automated Statchk
Hot Water Extractable Boron	ICP	9496928	2024/07/05	2024/07/08	Japneet Gill

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZPG557
Sample ID: BH2 SS7
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
Free (WAD) Cyanide	TECH	9499256	2024/07/06	2024/07/08	Prgya Panchal
Conductivity	AT	9497316	2024/07/05	2024/07/06	Gurparteek KAUR
Hexavalent Chromium in Soil by IC	IC/SPEC	9497253	2024/07/05	2024/07/05	Violeta Porcila
Acid Extractable Metals by ICPMS	ICP/MS	9497505	2024/07/05	2024/07/08	Jaswinder Kaur
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
PAH Compounds in Soil by GC/MS (SIM)	GC/MS	9499252	2024/07/06	2024/07/07	Jonghan Yoon
pH CaCl2 EXTRACT	AT	9500541	2024/07/08	2024/07/08	Taslima Aktar
Sodium Adsorption Ratio (SAR)	CALC/MET	9489769	N/A	2024/07/09	Automated Statchk

Bureau Veritas ID: ZPG558
Sample ID: BH2 SS8
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/06/28

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9487949	N/A	2024/07/06	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9496441	2024/07/05	2024/07/05	Agnieszka Brzuzy-Snopko
Moisture	BAL	9490878	N/A	2024/07/02	Raj Patel
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9490760	N/A	2024/07/06	Anna Gabrielyan

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	19.0°C

Revised Report (2024/07/10) : Table 9 RPI Criteria included as per client request.

Results relate only to the items tested.

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9490760	4-Bromofluorobenzene	2024/07/06	100	60 - 140	100	60 - 140	100	%		
9490760	D10-o-Xylene	2024/07/06	103	60 - 130	95	60 - 130	95	%		
9490760	D4-1,2-Dichloroethane	2024/07/06	110	60 - 140	117	60 - 140	109	%		
9490760	D8-Toluene	2024/07/06	104	60 - 140	103	60 - 140	101	%		
9496264	D10-Anthracene	2024/07/05	86	50 - 130	102	50 - 130	115	%		
9496264	D14-Terphenyl (FS)	2024/07/05	71	50 - 130	84	50 - 130	88	%		
9496264	D8-Acenaphthylene	2024/07/05	78	50 - 130	94	50 - 130	92	%		
9496441	o-Terphenyl	2024/07/05	106	60 - 130	95	60 - 130	97	%		
9499252	D10-Anthracene	2024/07/07	90	50 - 130	96	50 - 130	106	%		
9499252	D14-Terphenyl (FS)	2024/07/07	80	50 - 130	87	50 - 130	106	%		
9499252	D8-Acenaphthylene	2024/07/07	83	50 - 130	88	50 - 130	79	%		
9490677	Moisture	2024/07/02							0	20
9490760	1,1,1,2-Tetrachloroethane	2024/07/06	110	60 - 140	113	60 - 130	<0.040	ug/g	NC	50
9490760	1,1,1-Trichloroethane	2024/07/06	117	60 - 140	109	60 - 130	<0.040	ug/g	NC	50
9490760	1,1,2,2-Tetrachloroethane	2024/07/06	105	60 - 140	121	60 - 130	<0.040	ug/g	NC	50
9490760	1,1,2-Trichloroethane	2024/07/06	114	60 - 140	121	60 - 130	<0.040	ug/g	NC	50
9490760	1,1-Dichloroethane	2024/07/06	114	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	1,1-Dichloroethylene	2024/07/06	125	60 - 140	107	60 - 130	<0.040	ug/g	NC	50
9490760	1,2-Dichlorobenzene	2024/07/06	104	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
9490760	1,2-Dichloroethane	2024/07/06	116	60 - 140	117	60 - 130	<0.049	ug/g	NC	50
9490760	1,2-Dichloropropane	2024/07/06	107	60 - 140	107	60 - 130	<0.040	ug/g	NC	50
9490760	1,3-Dichlorobenzene	2024/07/06	108	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
9490760	1,4-Dichlorobenzene	2024/07/06	105	60 - 140	110	60 - 130	<0.040	ug/g	NC	50
9490760	Acetone (2-Propanone)	2024/07/06	103	60 - 140	108	60 - 140	<0.49	ug/g	NC	50
9490760	Benzene	2024/07/06	109	60 - 140	102	60 - 130	<0.0060	ug/g	NC	50
9490760	Bromodichloromethane	2024/07/06	109	60 - 140	112	60 - 130	<0.040	ug/g	NC	50
9490760	Bromoform	2024/07/06	101	60 - 140	109	60 - 130	<0.040	ug/g	NC	50
9490760	Bromomethane	2024/07/06	100	60 - 140	81	60 - 140	<0.040	ug/g	NC	50
9490760	Carbon Tetrachloride	2024/07/06	118	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	Chlorobenzene	2024/07/06	105	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	Chloroform	2024/07/06	111	60 - 140	110	60 - 130	<0.040	ug/g	NC	50

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9490760	cis-1,2-Dichloroethylene	2024/07/06	111	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	cis-1,3-Dichloropropene	2024/07/06	99	60 - 140	99	60 - 130	<0.030	ug/g	NC	50
9490760	Dibromochloromethane	2024/07/06	110	60 - 140	116	60 - 130	<0.040	ug/g	NC	50
9490760	Dichlorodifluoromethane (FREON 12)	2024/07/06	119	60 - 140	70	60 - 140	<0.040	ug/g	NC	50
9490760	Ethylbenzene	2024/07/06	108	60 - 140	105	60 - 130	<0.010	ug/g	NC	50
9490760	Ethylene Dibromide	2024/07/06	105	60 - 140	112	60 - 130	<0.040	ug/g	NC	50
9490760	F1 (C6-C10) - BTEX	2024/07/06					<10	ug/g	NC	30
9490760	F1 (C6-C10)	2024/07/06	102	60 - 140	96	80 - 120	<10	ug/g	NC	30
9490760	Hexane	2024/07/06	128	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	Methyl Ethyl Ketone (2-Butanone)	2024/07/06	95	60 - 140	106	60 - 140	<0.40	ug/g	NC	50
9490760	Methyl Isobutyl Ketone	2024/07/06	94	60 - 140	112	60 - 130	<0.40	ug/g	NC	50
9490760	Methyl t-butyl ether (MTBE)	2024/07/06	103	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
9490760	Methylene Chloride(Dichloromethane)	2024/07/06	119	60 - 140	113	60 - 130	<0.049	ug/g	NC	50
9490760	o-Xylene	2024/07/06	104	60 - 140	104	60 - 130	<0.020	ug/g	NC	50
9490760	p+m-Xylene	2024/07/06	102	60 - 140	100	60 - 130	<0.020	ug/g	NC	50
9490760	Styrene	2024/07/06	109	60 - 140	113	60 - 130	<0.040	ug/g	NC	50
9490760	Tetrachloroethylene	2024/07/06	112	60 - 140	105	60 - 130	<0.040	ug/g	NC	50
9490760	Toluene	2024/07/06	104	60 - 140	99	60 - 130	<0.020	ug/g	NC	50
9490760	Total Xylenes	2024/07/06					<0.020	ug/g	NC	50
9490760	trans-1,2-Dichloroethylene	2024/07/06	113	60 - 140	103	60 - 130	<0.040	ug/g	NC	50
9490760	trans-1,3-Dichloropropene	2024/07/06	105	60 - 140	106	60 - 130	<0.040	ug/g	NC	50
9490760	Trichloroethylene	2024/07/06	108	60 - 140	101	60 - 130	<0.010	ug/g	NC	50
9490760	Trichlorofluoromethane (FREON 11)	2024/07/06	121	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
9490760	Vinyl Chloride	2024/07/06	118	60 - 140	90	60 - 130	<0.019	ug/g	NC	50
9490834	Moisture	2024/07/02							1.3	20
9490878	Moisture	2024/07/02							2.9	20
9496264	1-Methylnaphthalene	2024/07/05	97	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
9496264	2-Methylnaphthalene	2024/07/05	96	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
9496264	Acenaphthene	2024/07/05	97	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
9496264	Acenaphthylene	2024/07/05	99	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
9496264	Anthracene	2024/07/05	114	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40

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Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9496264	Benzo(a)anthracene	2024/07/05	108	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
9496264	Benzo(a)pyrene	2024/07/05	105	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
9496264	Benzo(b/j)fluoranthene	2024/07/05	101	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
9496264	Benzo(g,h,i)perylene	2024/07/05	99	50 - 130	102	50 - 130	<0.0050	ug/g	NC	40
9496264	Benzo(k)fluoranthene	2024/07/05	104	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
9496264	Biphenyl	2024/07/05	102	50 - 130	105	50 - 130	<0.0050	ug/g	NC	40
9496264	Chrysene	2024/07/05	106	50 - 130	107	50 - 130	<0.0050	ug/g	NC	40
9496264	Dibenzo(a,h)anthracene	2024/07/05	103	50 - 130	99	50 - 130	<0.0050	ug/g	NC	40
9496264	Fluoranthene	2024/07/05	99	50 - 130	104	50 - 130	<0.0050	ug/g	NC	40
9496264	Fluorene	2024/07/05	107	50 - 130	106	50 - 130	<0.0050	ug/g	NC	40
9496264	Indeno(1,2,3-cd)pyrene	2024/07/05	102	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
9496264	Naphthalene	2024/07/05	88	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
9496264	Phenanthrene	2024/07/05	108	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40
9496264	Pyrene	2024/07/05	100	50 - 130	103	50 - 130	<0.0050	ug/g	NC	40
9496441	F2 (C10-C16 Hydrocarbons)	2024/07/05	126	60 - 130	111	80 - 120	<10	ug/g	NC	30
9496441	F3 (C16-C34 Hydrocarbons)	2024/07/05	130	60 - 130	114	80 - 120	<50	ug/g	NC	30
9496441	F4 (C34-C50 Hydrocarbons)	2024/07/05	121	60 - 130	105	80 - 120	<50	ug/g	NC	30
9496928	Hot Water Ext. Boron (B)	2024/07/09	110	75 - 125	95	75 - 125	<0.050	ug/g	NC	40
9497182	Chromium (VI)	2024/07/05	90	70 - 130	92	80 - 120	<0.18	ug/g		
9497253	Chromium (VI)	2024/07/05	79	70 - 130	94	80 - 120	<0.18	ug/g	NC	35
9497316	Conductivity	2024/07/06			103	90 - 110	<0.002	mS/cm	8.0	10
9497505	Acid Extractable Antimony (Sb)	2024/07/08	89	75 - 125	105	80 - 120	<0.20	ug/g	11	30
9497505	Acid Extractable Arsenic (As)	2024/07/08	96	75 - 125	104	80 - 120	<1.0	ug/g	2.4	30
9497505	Acid Extractable Barium (Ba)	2024/07/08	NC	75 - 125	101	80 - 120	<0.50	ug/g	4.4	30
9497505	Acid Extractable Beryllium (Be)	2024/07/08	101	75 - 125	102	80 - 120	<0.20	ug/g	1.1	30
9497505	Acid Extractable Boron (B)	2024/07/08	98	75 - 125	106	80 - 120	<5.0	ug/g	2.5	30
9497505	Acid Extractable Cadmium (Cd)	2024/07/08	97	75 - 125	99	80 - 120	<0.10	ug/g	NC	30
9497505	Acid Extractable Chromium (Cr)	2024/07/08	NC	75 - 125	101	80 - 120	<1.0	ug/g	2.5	30
9497505	Acid Extractable Cobalt (Co)	2024/07/08	92	75 - 125	100	80 - 120	<0.10	ug/g	7.2	30
9497505	Acid Extractable Copper (Cu)	2024/07/08	94	75 - 125	99	80 - 120	<0.50	ug/g	2.0	30
9497505	Acid Extractable Lead (Pb)	2024/07/08	94	75 - 125	99	80 - 120	<1.0	ug/g	2.2	30

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QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9497505	Acid Extractable Mercury (Hg)	2024/07/08	100	75 - 125	104	80 - 120	<0.050	ug/g	NC	30
9497505	Acid Extractable Molybdenum (Mo)	2024/07/08	90	75 - 125	95	80 - 120	<0.50	ug/g	6.2	30
9497505	Acid Extractable Nickel (Ni)	2024/07/08	NC	75 - 125	104	80 - 120	<0.50	ug/g	3.2	30
9497505	Acid Extractable Selenium (Se)	2024/07/08	97	75 - 125	103	80 - 120	<0.50	ug/g	NC	30
9497505	Acid Extractable Silver (Ag)	2024/07/08	96	75 - 125	97	80 - 120	<0.20	ug/g	NC	30
9497505	Acid Extractable Thallium (Tl)	2024/07/08	94	75 - 125	100	80 - 120	<0.050	ug/g	2.0	30
9497505	Acid Extractable Uranium (U)	2024/07/08	95	75 - 125	99	80 - 120	<0.050	ug/g	0.62	30
9497505	Acid Extractable Vanadium (V)	2024/07/08	NC	75 - 125	103	80 - 120	<5.0	ug/g	1.8	30
9497505	Acid Extractable Zinc (Zn)	2024/07/08	NC	75 - 125	101	80 - 120	<5.0	ug/g	1.6	30
9499252	1-Methylnaphthalene	2024/07/07	94	50 - 130	87	50 - 130	<0.0050	ug/g	NC	40
9499252	2-Methylnaphthalene	2024/07/07	94	50 - 130	94	50 - 130	<0.0050	ug/g	NC	40
9499252	Acenaphthene	2024/07/07	96	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
9499252	Acenaphthylene	2024/07/07	94	50 - 130	97	50 - 130	<0.0050	ug/g	NC	40
9499252	Anthracene	2024/07/07	96	50 - 130	96	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(a)anthracene	2024/07/07	98	50 - 130	93	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(a)pyrene	2024/07/07	96	50 - 130	98	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(b/j)fluoranthene	2024/07/07	94	50 - 130	114	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(g,h,i)perylene	2024/07/07	115	50 - 130	134 (1)	50 - 130	<0.0050	ug/g	NC	40
9499252	Benzo(k)fluoranthene	2024/07/07	94	50 - 130	116	50 - 130	<0.0050	ug/g	NC	40
9499252	Biphenyl	2024/07/07	96	50 - 130	83	50 - 130	<0.0050	ug/g		
9499252	Chrysene	2024/07/07	96	50 - 130	110	50 - 130	<0.0050	ug/g	NC	40
9499252	Dibenzo(a,h)anthracene	2024/07/07	106	50 - 130	124	50 - 130	<0.0050	ug/g	NC	40
9499252	Fluoranthene	2024/07/07	96	50 - 130	100	50 - 130	<0.0050	ug/g	NC	40
9499252	Fluorene	2024/07/07	97	50 - 130	92	50 - 130	<0.0050	ug/g	NC	40
9499252	Indeno(1,2,3-cd)pyrene	2024/07/07	101	50 - 130	122	50 - 130	<0.0050	ug/g	NC	40
9499252	Naphthalene	2024/07/07	88	50 - 130	95	50 - 130	<0.0050	ug/g	NC	40
9499252	Phenanthrene	2024/07/07	95	50 - 130	108	50 - 130	<0.0050	ug/g	NC	40
9499252	Pyrene	2024/07/07	95	50 - 130	111	50 - 130	<0.0050	ug/g	NC	40
9499256	WAD Cyanide (Free)	2024/07/08	95	75 - 125	101	80 - 120	<0.01	ug/g	NC	35
9500359	Conductivity	2024/07/08			99	90 - 110	<0.002	mS/cm	4.6	10

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9500541	Available (CaCl2) pH	2024/07/08			100	97 - 103			0.085	N/A

N/A = Not Applicable

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Matrix Spike): The recovery in the matrix spike was not calculated. The relative difference between the concentration in the parent sample and the spike amount was too small to permit a reliable recovery calculation (matrix spike concentration was less than the native sample concentration)

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) Recovery or RPD for this parameter is outside control limits. The overall quality control for this analysis meets acceptability criteria.

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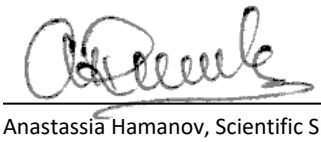
Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233-2235 HURONTARIO ST, MISSISSAUGA
Sampler Initials: IH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Microbiology testing is conducted at 6660 Campobello Rd. Chemistry testing is conducted at 6740 Campobello Rd.

Bureau Veritas
6740 Campobello Road, Mississauga, Ontario Canada L5N 2L8 Tel:(905) 817-5700 Toll-free:800-563-6266 Fax:(905) 817-5777 www.bvna.com

CI

NONT-2024-06-3204

INVOICE TO:		REPORT TO:		PROJECT INFORMATION:	
Company Name:	#36876 Grounded Engineering Inc.	Company Name:		Quotation #:	C35487
Attention:	Vivi Tran	Attention:	Vivi Tran	P.O. #:	
Address:	1 Banigan Drive	Address:		Project:	24-099
	Toronto ON M4H 1G3			Project Name:	
Tel:	(647) 264-7909 Fax:	Tel:	Fax:	Site #:	
Email:	vtran@groundedeng.ca	Email:	vtran@groundedeng.ca	Sampled By:	IH

Bottle Order #: 997323

COC #: C#997323-02-01

Project Manager: Marijane Cruz

MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY

Regulation 153 (2011)
- [ ] Table 1 [X] Res/Park [ ] Medium/Fine
- [ ] Table 2 [ ] Ind/Comm [ ] Coarse
- [X] Table 3 [ ] Agri/Other [ ] For RSC
- [ ] Table ___

Other Regulations
- [ ] CCME [ ] Sanitary Sewer Bylaw
- [ ] Reg 558. [ ] Storm Sewer Bylaw
- [ ] MISA Municipality ___
- [ ] PWQO [X] Reg 406 Table 2.1
- [ ] Other ___

Special Instructions

Include Criteria on Certificate of Analysis (Y/N)? Y

Turnaround Time (TAT) Required:

Please provide advance notice for rush projects

Regular (Standard) TAT: [X]
(will be applied if Rush TAT is not specified):
Standard TAT = 5-7 Working days for most tests..
Please note: Standard TAT for certain tests such as BOD and Dioxins/Furans are > 5 days - contact your Project Manager for details.

Job Specific Rush TAT (if applies to entire submission)
Date Required: ___ Time Required: ___ [ ]
Rush Confirmation Number: ___ *(call lab for #)*

	Sample Barcode Label	Sample (Location) Identification	Date Sampled	Time Sampled	Matrix	Field Filtered (please circle): Metals / Hg / Cr VI	ANALYSIS REQUESTED (PLEASE BE SPECIFIC): O.Reg 153 Metals & Inorganics Pkg (Soil)	O.Reg 153 PAHs (Soil)	O.Reg 153 PHCs, BTEX/F1-F4 (Soil)	O.Reg 153 VOCs by HS (Soil)	O.Reg 558 TCLP Inorganics Package	O.Reg 558 TCLP VOCs by HS	O.Reg 558 TCLP PCBs	O.Reg 558 TCLP Benzo(a)pyrene	Soil Corrosivity Package		# of Bottles	Comments
1		BH1 SS1	24/06/26	13:35	SOIL		X										1	
2		BH1 SS2A	↓	13:40				X	X	X							4	
3		BH1 SS4		13:45			X	X									2	
4		BH1 SS7B	↓	13:55				X	X	X							3	
5		BH3 SS1B	24/06/27	14:30			X										1	
6		BH3 SS2		14:35				X	X	X							4	
7		BH3 SS4		14:40			X	X									2	
8		BH3 SS5	↓	14:45					X	X							3	
9		DUP 14	24/06/26				X	X									2	
10		DUP 17B	↓	13:55					X	X							3	

* RELINQUISHED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	RECEIVED BY: (Signature/Print)	Date: (YY/MM/DD)	Time	# jars used and not submitted
Imran Haji	24/06/28	17:35		24/06/28	17:57	

Laboratory Use Only

Time Sensitive

Temperature (°C) on Recei: 4/18/22

Custody Seal	Yes	No
Present		
Intact		

* UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS'S STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/COC-TERMS-AND-CONDITIONS.

* IT IS THE RESPONSIBILITY OF THE RELINQUISHER TO ENSURE THE ACCURACY OF THE CHAIN OF CUSTODY RECORD. AN INCOMPLETE CHAIN OF CUSTODY MAY RESULT IN ANALYTICAL TAT DELAYS.

** SAMPLE CONTAINER, PRESERVATION, HOLD TIME AND PACKAGE INFORMATION CAN BE VIEWED AT WWW.BVNA.COM/ENVIRONMENTAL-LABORATORIES/RESOURCES/CHAIN-CUSTODY-FORMS-COCS.

SAMPLES MUST BE KEPT COOL (< 10° C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

White: Bureau Veritas Yellow: Client

ON U

Bureau Veritas Canada (2019) Inc.

www.BVNA.com

6740 Campobello Road, Mississauga, Ontario L5N 2L8
Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266

CHAIN OF CUSTODY RECORD

ENV COC - 00014v5

Invoice Information	Invoice to (requires report) ☐	Report Information (if differs from invoice)		Project Information	
Company:	Grounded Engineering	Company:		Quotation #:	C35487
Contact Name:	V.V. Tran	Contact Name:		P.O. #/ AFE#:	
Street Address:	1 Bonisen Dr	Street Address:		Project #:	24-099
City:	Toronto Prov: ON Postal Code: M4M3G3	City:	Prov: Postal Code:	Site #:	
Phone:	647 264-7909	Phone:		Site Location:	
Email:	vtran@groundedeng.ca.	Email:		Site Location Province:	
Copies:		Copies:		Sampled By:	TH

LAB USE ONLY - PLACE STICKER HERE

Rush Confirmation #:

Regulatory Criteria

REG 153: ☐ Table 1 ☐ Table 2 ☒ Table 3 ☐ Table _____ ☐ Res/Park ☐ Ind/Comm ☐ Agri/other ☐ Med/Fine ☐ Coarse ☐ For RSC

OTHER: ☐ CCME ☐ Reg 558* ☐ *min 3 day TAT ☐ MISA ☐ PWQO ☒ Reg 406, Table: 2-1 ☐ Sanitary Sewer Bylaw ☐ Storm Sewer Bylaw Municipality _____ ☐ Other:

Include Criteria on Certificate of Analysis (check if yes): ☒

SAMPLES MUST BE KEPT COOL (<10°C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

Regular Turnaround Time (TAT)

☒ 5 to 7 Day ☐ 10 Day

Rush Turnaround Time (TAT) Surcharges apply

☐ Same Day ☐ 1 Day ☐ 2 Day ☐ 3 Day ☐ 4 Day

Date Required: YYYY MM DD

	Sample Identification (Please print or Type)	Date Sampled YYYY	MM	DD	Time (24hr) HH	MM	Matrix	1 FIELD FILTERED	2 FIELD PRESERVED	3 LAB FILTRATION REQUIRED	4 BTEX/ F1	5 F2 - F4	6 VOCs	7 Reg 153 metals and inorganics	8 Reg 153 ICPMS metals	9 Reg 153 metals (Hg, Cr VI, ICPMS metals, HWS - B)	10	11	12	13	14	15	16	17	18	19	20	21 # OF CONTAINERS SUBMITTED	22 HOLD - DO NOT ANALYZE	Comments
																	M&I	PAH	PHC/BTEX	VOC										
1	BH2SS1	24	06	28	16	00	SOIL										X	X										2		
2	BH2SS6				16	05													X	X								3		
3	BH2SS7				16	10											X	X										2		
4	BH2SS8				16	15													X	X								3		
5																														
6																														
7																														
8																														
9																														
10																														
11																														
12																														

*UNLESS OTHERWISE AGREED TO IN WRITING, WORK SUBMITTED ON THIS CHAIN OF CUSTODY IS SUBJECT TO BUREAU VERITAS STANDARD TERMS AND CONDITIONS. SIGNING OF THIS CHAIN OF CUSTODY DOCUMENT IS ACKNOWLEDGMENT AND ACCEPTANCE OF OUR TERMS AND CONDITIONS WHICH ARE AVAILABLE FOR VIEWING AT WWW.BVNA.COM/TERMS-AND-CONDITIONS OR BY CALLING THE LABORATORY LISTED ABOVE TO OBTAIN A COPY

LAB USE ONLY	Yes	No	°C	1	2	3
Seal present						
Seal intact						
Cooling media present						

LAB USE ONLY	Yes	No	°C	1	2	3
Seal present						
Seal intact						
Cooling media present						

LAB USE ONLY	Yes	No	°C	1	2	3
Seal present						
Seal intact						
Cooling media present						

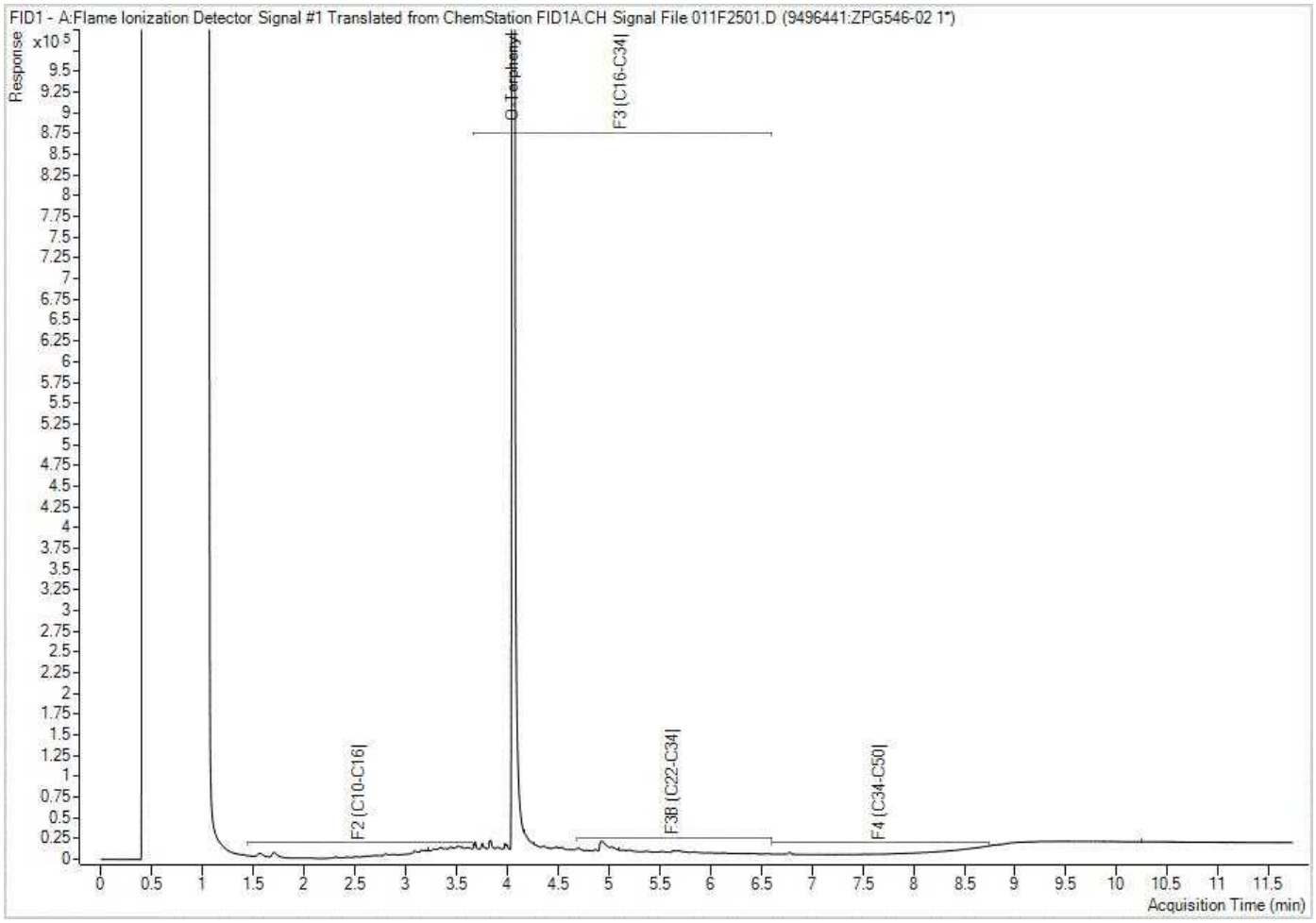
Temperature reading by:

Relinquished by: (Signature/ Print)	Date YYYY	MM	DD	Time HH	MM	Received by: (Signature/ Print)	Date YYYY	MM	DD	Time HH	MM	Special instructions
1 Imran Haji	24	06	28	17	35	1 Jill Pugh						
2						2						

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG546

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH1 SS2A

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

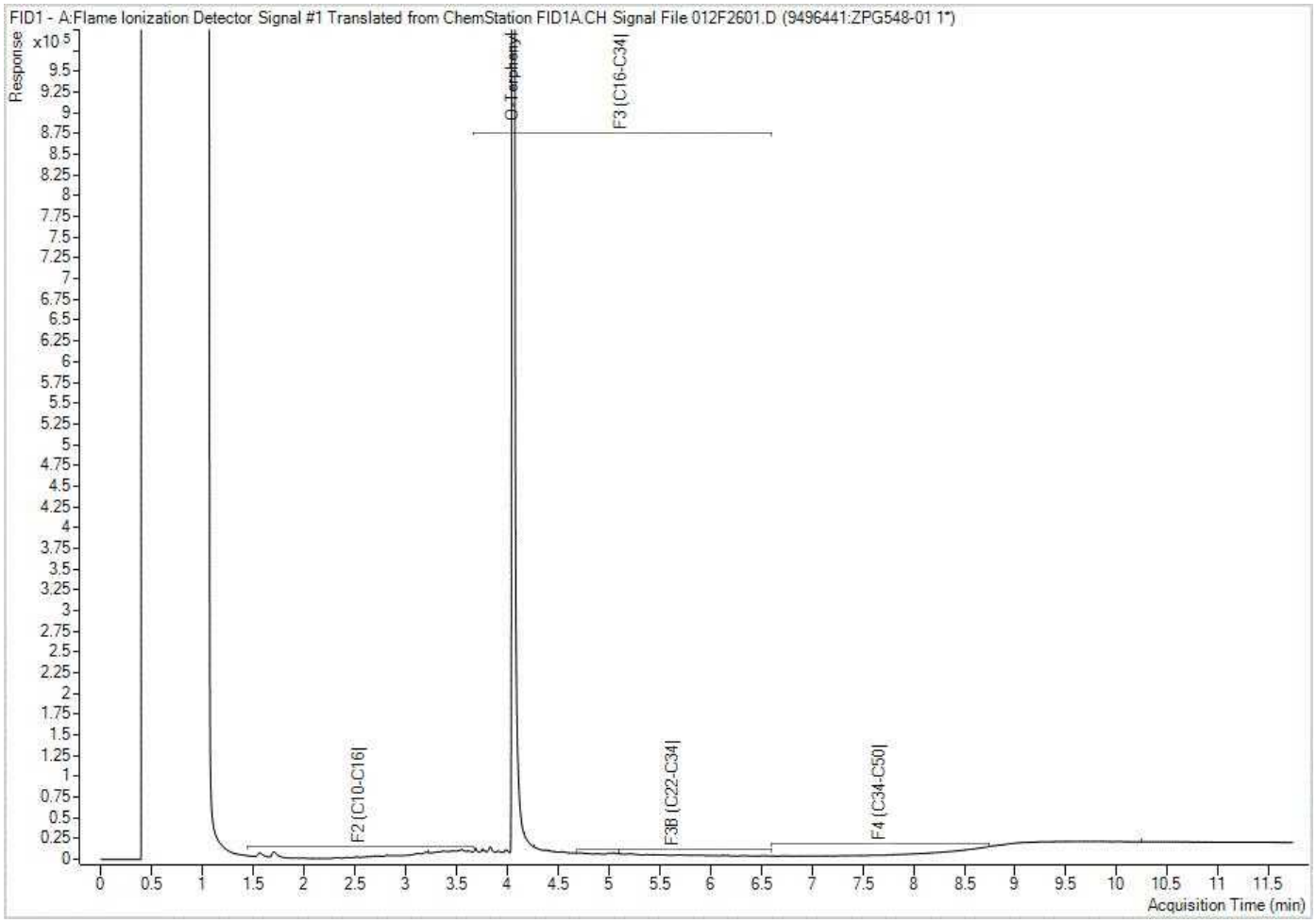


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG548

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH1 SS7B

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

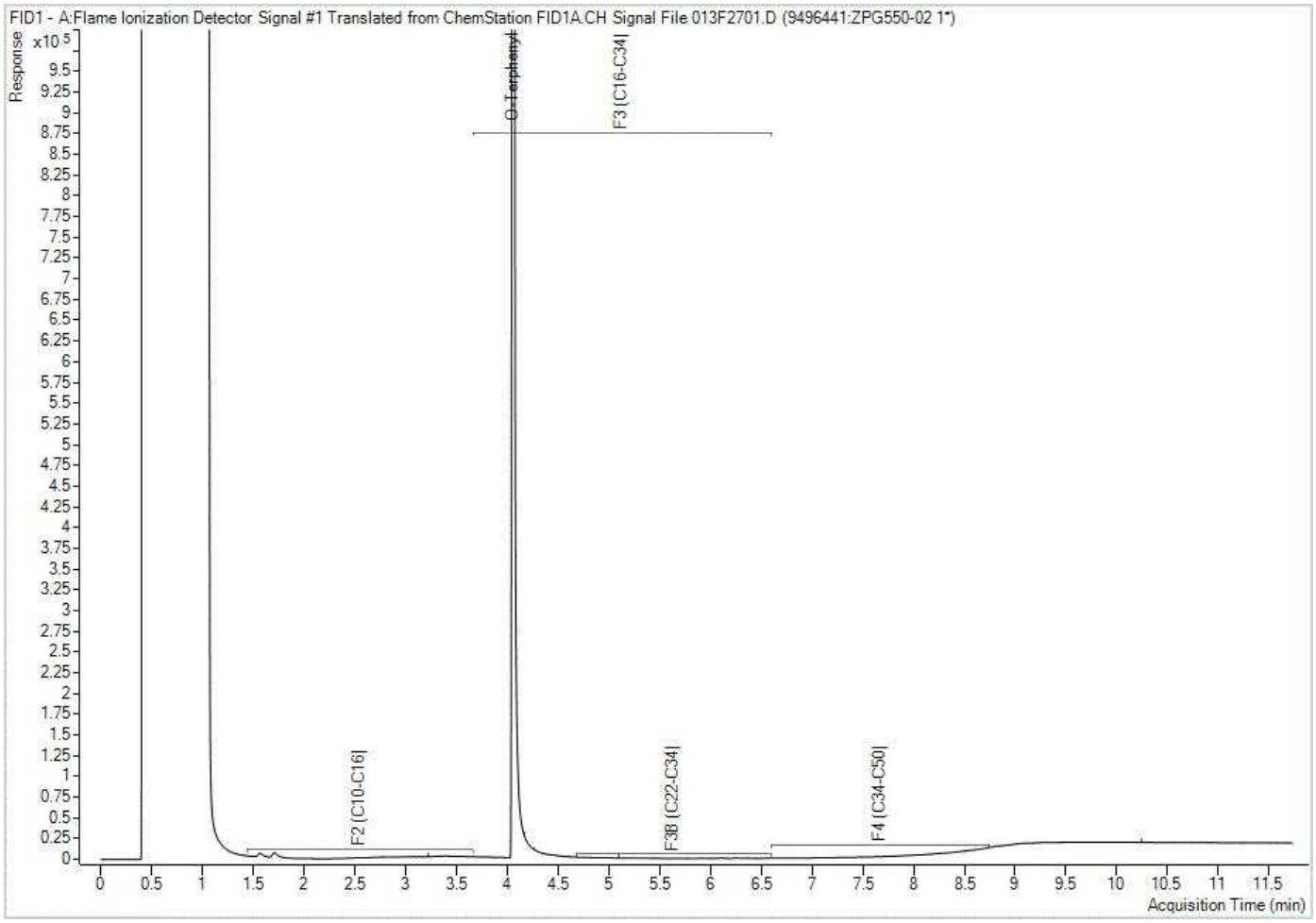


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG550

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH3 SS2

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

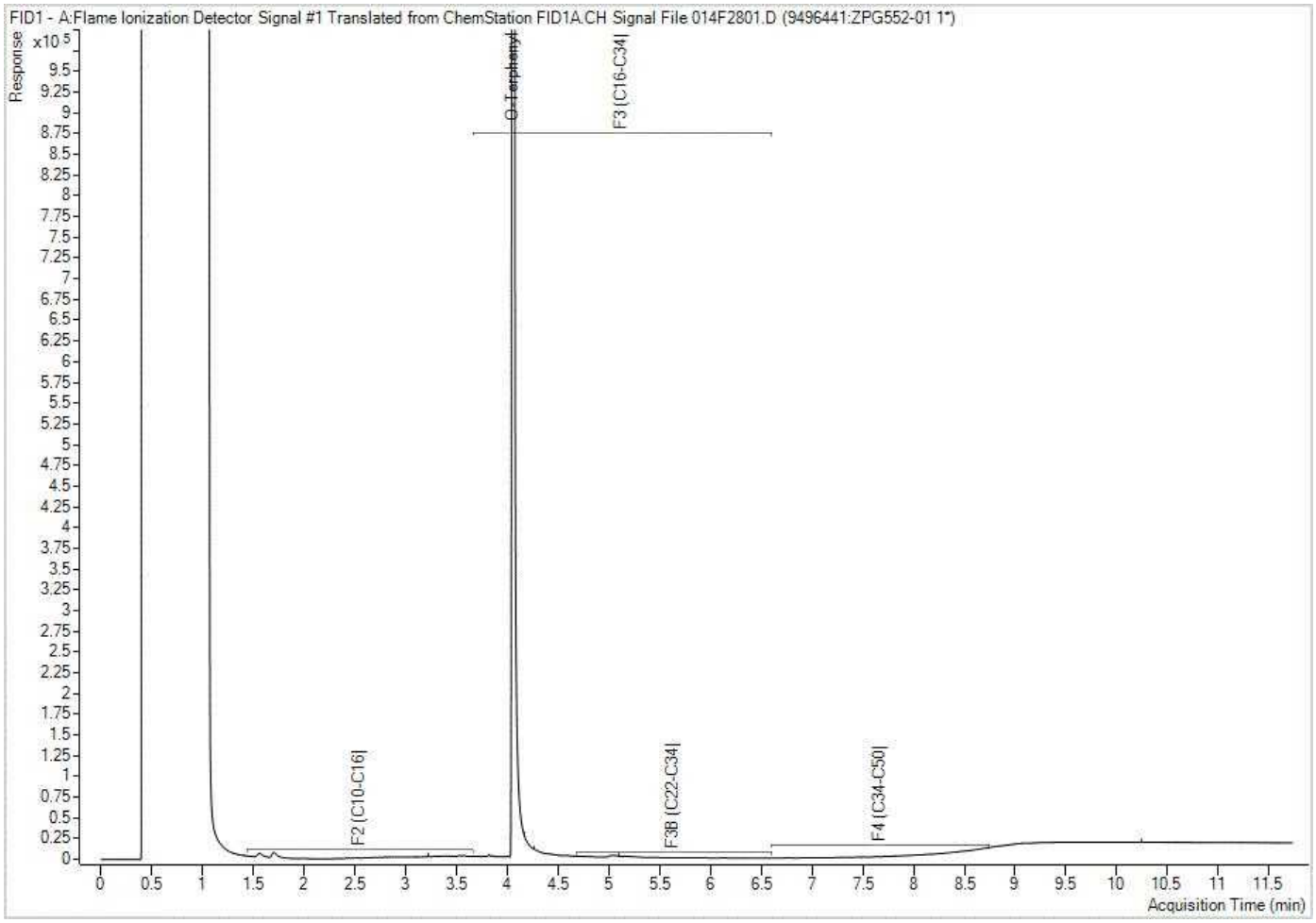


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG552

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH3 SS5

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

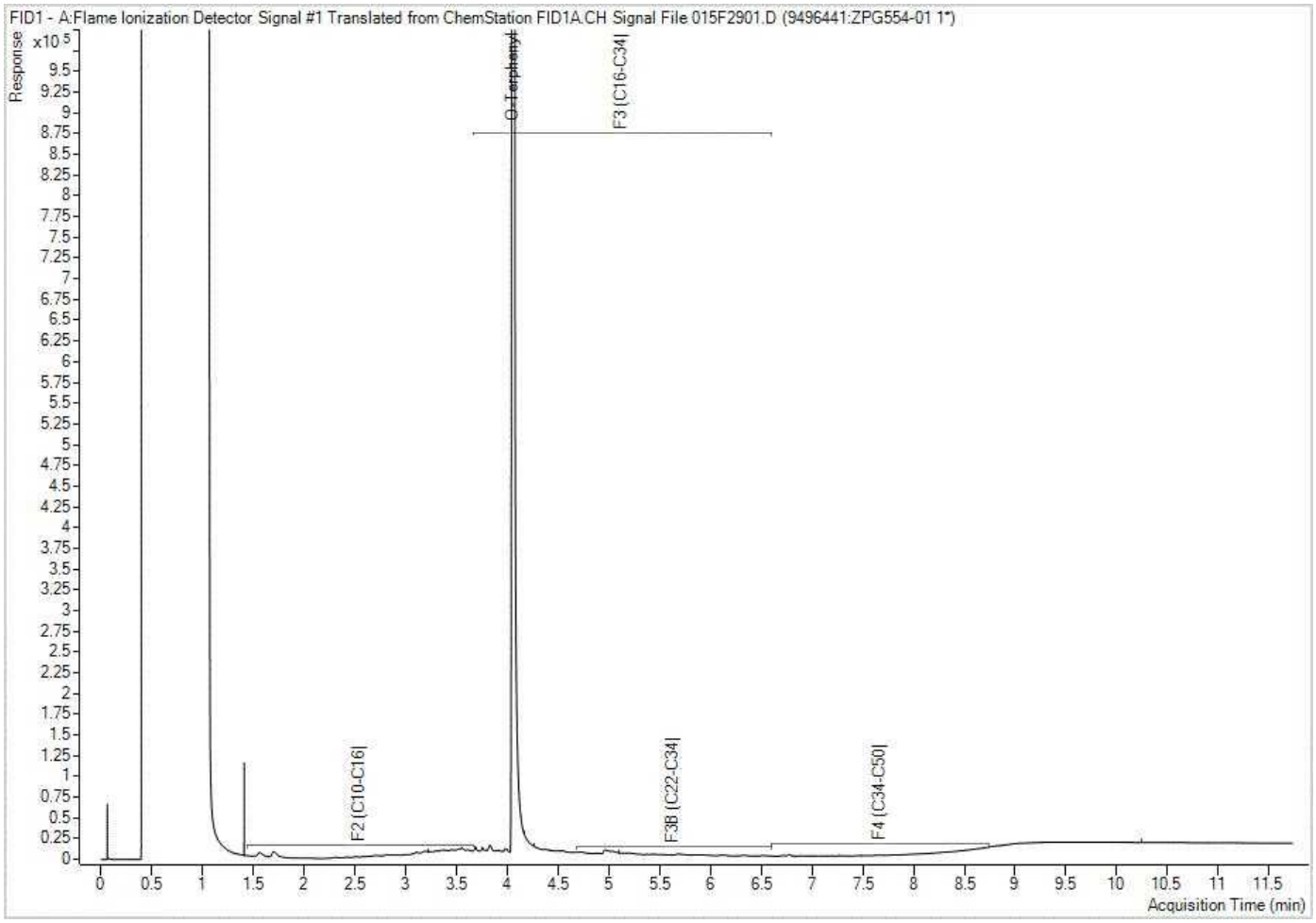


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG554

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: DUP17B

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

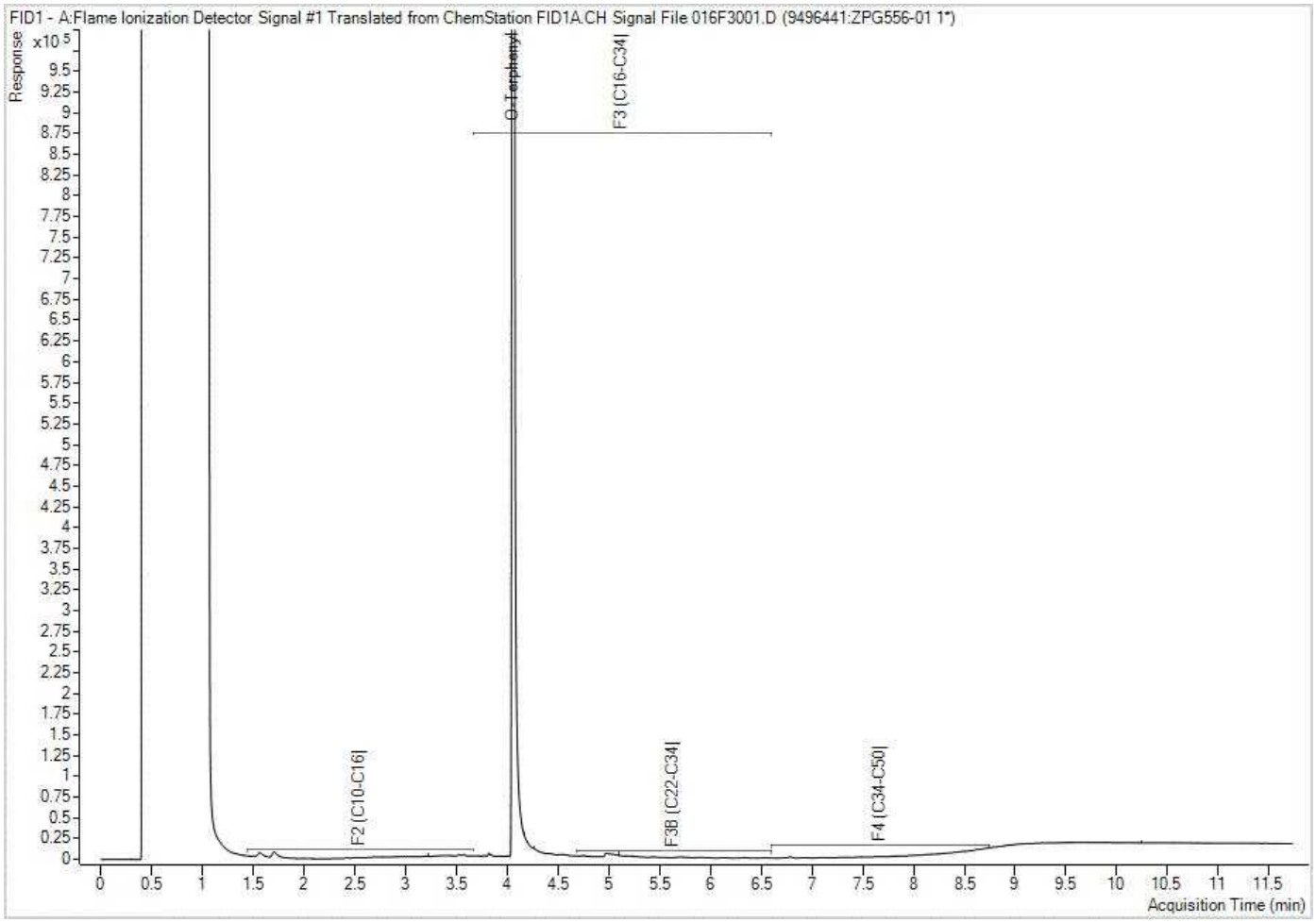


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG556

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH2 SS6

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram

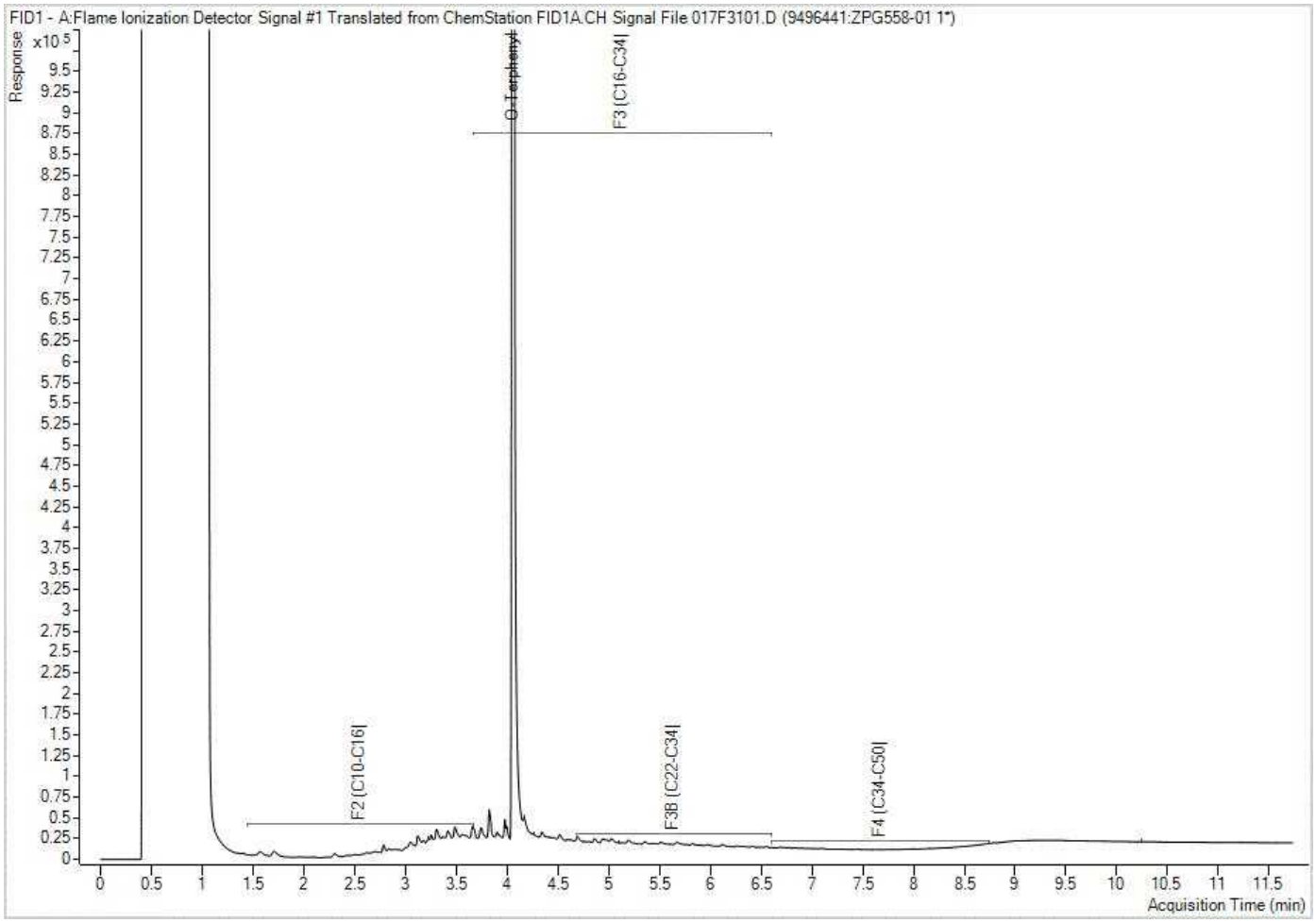


Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4J8953
Report Date: 2024/07/10
Bureau Veritas Sample: ZPG558

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233-2235 HURONTARIO ST, MISSISSAUGA
Client ID: BH2 SS8

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Exceedance Summary Table – Reg153/04 T9-Soil/Res

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BH1 SS2A	ZPG546-02	F2 (C10-C16 Hydrocarbons)	10	12	10	ug/g
BH3 SS1B	ZPG549-01	Sodium Adsorption Ratio	5.0	21		N/A
BH2 SS8	ZPG558-01	F2 (C10-C16 Hydrocarbons)	10	29	10	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Reg 406 T2.1 Res (S)

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
BH1 SS2A	ZPG546-02	F2 (C10-C16 Hydrocarbons)	10	12	10	ug/g
BH3 SS1B	ZPG549-01	Sodium Adsorption Ratio	5	21		N/A
BH2 SS8	ZPG558-01	F2 (C10-C16 Hydrocarbons)	10	29	10	ug/g

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

Your Project #: 24-099
Site Location: 2233 HURONTARIO ST
Your C.O.C. #: N/A

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/12
Report #: R8232187
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K4753
Received: 2024/07/04, 17:22

Sample Matrix: Soil
Samples Received: 1

Analyses	Quantity	Date Extracted	Date Analyzed	Laboratory Method	Analytical Method
1,3-Dichloropropene Sum	1	N/A	2024/07/12		EPA 8260C m
Petroleum Hydrocarbons F2-F4 in Soil (1)	1	2024/07/10	2024/07/11	CAM SOP-00316	CCME CWS m
Moisture	1	N/A	2024/07/10	CAM SOP-00445	Carter 2nd ed 70.2 m
Volatile Organic Compounds and F1 PHCs	1	N/A	2024/07/11	CAM SOP-00230	EPA 8260C m

Remarks:

Bureau Veritas is accredited to ISO/IEC 17025 for specific parameters on scopes of accreditation. Unless otherwise noted, procedures used by Bureau Veritas are based upon recognized Provincial, Federal or US method compendia such as CCME, EPA, APHA or the Quebec Ministry of Environment.

All work recorded herein has been done in accordance with procedures and practices ordinarily exercised by professionals in Bureau Veritas' profession using accepted testing methodologies, quality assurance and quality control procedures (except where otherwise agreed by the client and Bureau Veritas in writing). All data is in statistical control and has met quality control and method performance criteria unless otherwise noted. All method blanks are reported; unless indicated otherwise, associated sample data are not blank corrected. Where applicable, unless otherwise noted, Measurement Uncertainty has not been accounted for when stating conformity to the referenced standard.

Bureau Veritas liability is limited to the actual cost of the requested analyses, unless otherwise agreed in writing. There is no other warranty expressed or implied. Bureau Veritas has been retained to provide analysis of samples provided by the Client using the testing methodology referenced in this report. Interpretation and use of test results are the sole responsibility of the Client and are not within the scope of services provided by Bureau Veritas, unless otherwise agreed in writing. Bureau Veritas is not responsible for the accuracy or any data impacts, that result from the information provided by the customer or their agent.

Solid sample results, except biota, are based on dry weight unless otherwise indicated. Organic analyses are not recovery corrected except for isotope dilution methods.
Results relate to samples tested. When sampling is not conducted by Bureau Veritas, results relate to the supplied samples tested.
This Certificate shall not be reproduced except in full, without the written approval of the laboratory.
Reference Method suffix “m” indicates test methods incorporate validated modifications from specific reference methods to improve performance.
* RPDs calculated using raw data. The rounding of final results may result in the apparent difference.
(1) All CCME PHC results met required criteria unless otherwise stated in the report. The CWS PHC methods employed by Bureau Veritas conform to all prescribed elements of the reference method and performance based elements have been validated. All modifications have been validated and proven equivalent following “Alberta Environment’s Interpretation of the Reference Method for the Canada-Wide Standard for Petroleum Hydrocarbons in Soil Validation of Performance-Based Alternative Methods September 2003”. Documentation is available upon request. Modifications from Reference Method for the Canada-wide Standard for Petroleum Hydrocarbons in Soil-Tier 1 Method: F2/F3/F4 data reported using validated cold solvent extraction instead of Soxhlet extraction.

Your Project #: 24-099
Site Location: 2233 HURONTARIO ST
Your C.O.C. #: N/A

Attention: Vivi Tran

Grounded Engineering Inc.
1 Banigan Drive
Toronto, ON
CANADA M4H 1G3

Report Date: 2024/07/12
Report #: R8232187
Version: 1 - Final

CERTIFICATE OF ANALYSIS

BUREAU VERITAS JOB #: C4K4753
Received: 2024/07/04, 17:22

Encryption Key

Please direct all questions regarding this Certificate of Analysis to:
Marijane Cruz, Senior Project Manager
Email: Marijane.Cruz@bureauveritas.com
Phone# (905)817-5756

==========

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Bureau Veritas Job #: C4K4753
Report Date: 2024/07/12

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZQK650			
Sampling Date				2024/06/28 15:40			
COC Number				N/A			
	UNITS	Criteria	Criteria-2	BH2 SS10B	RDL	MDL	QC Batch
Calculated Parameters							
1,3-Dichloropropene (cis+trans)	ug/g	0.05	0.05	<0.050	0.050	0.010	9505064
Volatile Organics							
Acetone (2-Propanone)	ug/g	16	0.5	<0.49	0.49	0.49	9508041
Benzene	ug/g	0.21	0.02	<0.0060	0.0060	0.0060	9508041
Bromodichloromethane	ug/g	13	0.05	<0.040	0.040	0.040	9508041
Bromoform	ug/g	0.27	0.05	<0.040	0.040	0.040	9508041
Bromomethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
Carbon Tetrachloride	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
Chlorobenzene	ug/g	2.4	0.05	<0.040	0.040	0.040	9508041
Chloroform	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
Dibromochloromethane	ug/g	9.4	0.05	<0.040	0.040	0.040	9508041
1,2-Dichlorobenzene	ug/g	3.4	0.05	<0.040	0.040	0.040	9508041
1,3-Dichlorobenzene	ug/g	4.8	0.05	<0.040	0.040	0.040	9508041
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.040	0.040	0.040	9508041
Dichlorodifluoromethane (FREON 12)	ug/g	16	0.05	<0.040	0.040	0.040	9508041
1,1-Dichloroethane	ug/g	3.5	0.05	<0.040	0.040	0.040	9508041
1,2-Dichloroethane	ug/g	0.05	0.05	<0.049	0.049	0.049	9508041
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
cis-1,2-Dichloroethylene	ug/g	3.4	0.05	<0.040	0.040	0.040	9508041
trans-1,2-Dichloroethylene	ug/g	0.084	0.05	<0.040	0.040	0.040	9508041
1,2-Dichloropropane	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
cis-1,3-Dichloropropene	ug/g	0.05	0.05	<0.030	0.030	0.030	9508041
trans-1,3-Dichloropropene	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
Ethylbenzene	ug/g	2	0.05	<0.010	0.010	0.010	9508041

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soil
Criteria-2: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 9: Generic Site Condition Standards for Use within 30 m of a Water Body in a Non-Potable Groundwater Condition
Soil - Residential/Parkland/Institutional/Industrial/Commercial/Community Property Use

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZQK650			
Sampling Date				2024/06/28 15:40			
COC Number				N/A			
	UNITS	Criteria	Criteria-2	BH2 SS10B	RDL	MDL	QC Batch
Ethylene Dibromide	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
Hexane	ug/g	2.8	0.05	<0.040	0.040	0.040	9508041
Methylene Chloride(Dichloromethane)	ug/g	0.1	0.05	<0.049	0.049	0.049	9508041
Methyl Ethyl Ketone (2-Butanone)	ug/g	16	0.5	<0.40	0.40	0.40	9508041
Methyl Isobutyl Ketone	ug/g	1.7	0.5	<0.40	0.40	0.40	9508041
Methyl t-butyl ether (MTBE)	ug/g	0.75	0.05	<0.040	0.040	0.040	9508041
Styrene	ug/g	0.7	0.05	<0.040	0.040	0.040	9508041
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.05	<0.040	0.040	0.040	9508041
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
Tetrachloroethylene	ug/g	0.28	0.05	<0.040	0.040	0.040	9508041
Toluene	ug/g	2.3	0.2	<0.020	0.020	0.020	9508041
1,1,1-Trichloroethane	ug/g	0.38	0.05	<0.040	0.040	0.040	9508041
1,1,2-Trichloroethane	ug/g	0.05	0.05	<0.040	0.040	0.040	9508041
Trichloroethylene	ug/g	0.061	0.05	<0.010	0.010	0.010	9508041
Trichlorofluoromethane (FREON 11)	ug/g	4	0.25	<0.040	0.040	0.040	9508041
Vinyl Chloride	ug/g	0.02	0.02	<0.019	0.019	0.019	9508041
p+m-Xylene	ug/g	-	-	<0.020	0.020	0.020	9508041
o-Xylene	ug/g	-	-	<0.020	0.020	0.020	9508041
Total Xylenes	ug/g	3.1	0.05	<0.020	0.020	0.020	9508041
F1 (C6-C10)	ug/g	55	25	<10	10	2.0	9508041
F1 (C6-C10) - BTEX	ug/g	55	25	<10	10	2.0	9508041
F2-F4 Hydrocarbons							
F2 (C10-C16 Hydrocarbons)	ug/g	98	10	<10	10	5.0	9507495
F3 (C16-C34 Hydrocarbons)	ug/g	300	240	<50	50	5.0	9507495
F4 (C34-C50 Hydrocarbons)	ug/g	2800	120	<50	50	10	9507495

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
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O.REG 406 EXCESS SOIL BULK VOCS/F1-F4 (SOIL)

Bureau Veritas ID				ZQK650			
Sampling Date				2024/06/28 15:40			
COC Number				N/A			
	UNITS	**Criteria**	**Criteria-2**	**BH2 SS10B**	**RDL**	**MDL**	**QC Batch**
Reached Baseline at C50	ug/g	-	-	Yes			9507495
Surrogate Recovery (%)							
o-Terphenyl	%	-	-	100			9507495
4-Bromofluorobenzene	%	-	-	101			9508041
D10-o-Xylene	%	-	-	101			9508041
D4-1,2-Dichloroethane	%	-	-	99			9508041
D8-Toluene	%	-	-	98			9508041

No Fill	No Exceedance
Grey	Exceeds 1 criteria policy/level
Black	Exceeds both criteria/levels

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch
Criteria: Ontario Reg. 153/04 (Amended April 15, 2011)
Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition
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Bureau Veritas Job #: C4K4753
Report Date: 2024/07/12

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

RESULTS OF ANALYSES OF SOIL

Bureau Veritas ID		ZQK650			
Sampling Date		2024/06/28 15:40			
COC Number		N/A			
	UNITS	**BH2 SS10B**	**RDL**	**MDL**	**QC Batch**
Inorganics					
Moisture	%	6.8	1.0	0.50	9505728

RDL = Reportable Detection Limit
QC Batch = Quality Control Batch

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Bureau Veritas Job #: C4K4753
Report Date: 2024/07/12

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

TEST SUMMARY

Bureau Veritas ID: ZQK650
Sample ID: BH2 SS10B
Matrix: Soil

Collected: 2024/06/28
Shipped:
Received: 2024/07/04

Test Description	Instrumentation	Batch	Extracted	Date Analyzed	Analyst
1,3-Dichloropropene Sum	CALC	9505064	N/A	2024/07/12	Automated Statchk
Petroleum Hydrocarbons F2-F4 in Soil	GC/FID	9507495	2024/07/10	2024/07/11	Mohammed Abdul Nafay Shoeb
Moisture	BAL	9505728	N/A	2024/07/10	Joe Thomas
Volatile Organic Compounds and F1 PHCs	GC/MSFD	9508041	N/A	2024/07/11	Cheng-Yu Sha

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GENERAL COMMENTS

Each temperature is the average of up to three cooler temperatures taken at receipt

Package 1	2.3°C

Cooler custody seal present and intact.

Results relate only to the items tested.

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QUALITY ASSURANCE REPORT

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9507495	o-Terphenyl	2024/07/11	102	60 - 130	100	60 - 130	100	%		
9508041	4-Bromofluorobenzene	2024/07/11	94	60 - 140	95	60 - 140	93	%		
9508041	D10-o-Xylene	2024/07/11	104	60 - 130	95	60 - 130	94	%		
9508041	D4-1,2-Dichloroethane	2024/07/11	95	60 - 140	95	60 - 140	95	%		
9508041	D8-Toluene	2024/07/11	106	60 - 140	106	60 - 140	103	%		
9505728	Moisture	2024/07/10							0	20
9507495	F2 (C10-C16 Hydrocarbons)	2024/07/11	111	60 - 130	106	80 - 120	<10	ug/g	NC	30
9507495	F3 (C16-C34 Hydrocarbons)	2024/07/11	113	60 - 130	109	80 - 120	<50	ug/g	NC	30
9507495	F4 (C34-C50 Hydrocarbons)	2024/07/11	94	60 - 130	89	80 - 120	<50	ug/g	NC	30
9508041	1,1,1,2-Tetrachloroethane	2024/07/11	98	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	1,1,1-Trichloroethane	2024/07/11	92	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	1,1,2,2-Tetrachloroethane	2024/07/11	94	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
9508041	1,1,2-Trichloroethane	2024/07/11	96	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	1,1-Dichloroethane	2024/07/11	92	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	1,1-Dichloroethylene	2024/07/11	93	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
9508041	1,2-Dichlorobenzene	2024/07/11	96	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	1,2-Dichloroethane	2024/07/11	89	60 - 140	85	60 - 130	<0.049	ug/g	NC	50
9508041	1,2-Dichloropropane	2024/07/11	92	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	1,3-Dichlorobenzene	2024/07/11	103	60 - 140	97	60 - 130	<0.040	ug/g	NC	50
9508041	1,4-Dichlorobenzene	2024/07/11	101	60 - 140	96	60 - 130	<0.040	ug/g	NC	50
9508041	Acetone (2-Propanone)	2024/07/11	85	60 - 140	83	60 - 140	<0.49	ug/g	NC	50
9508041	Benzene	2024/07/11	90	60 - 140	87	60 - 130	<0.0060	ug/g	NC	50
9508041	Bromodichloromethane	2024/07/11	93	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508041	Bromoform	2024/07/11	95	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
9508041	Bromomethane	2024/07/11	81	60 - 140	70	60 - 140	<0.040	ug/g	NC	50
9508041	Carbon Tetrachloride	2024/07/11	95	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	Chlorobenzene	2024/07/11	96	60 - 140	91	60 - 130	<0.040	ug/g	NC	50
9508041	Chloroform	2024/07/11	92	60 - 140	89	60 - 130	<0.040	ug/g	NC	50
9508041	cis-1,2-Dichloroethylene	2024/07/11	91	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
9508041	cis-1,3-Dichloropropene	2024/07/11	93	60 - 140	82	60 - 130	<0.030	ug/g	NC	50
9508041	Dibromochloromethane	2024/07/11	101	60 - 140	93	60 - 130	<0.040	ug/g	NC	50

QUALITY ASSURANCE REPORT(CONT'D)

			Matrix Spike		SPIKED BLANK		Method Blank		RPD	
QC Batch	Parameter	Date	% Recovery	QC Limits	% Recovery	QC Limits	Value	UNITS	Value (%)	QC Limits
9508041	Dichlorodifluoromethane (FREON 12)	2024/07/11	73	60 - 140	58 (1)	60 - 140	<0.040	ug/g	NC	50
9508041	Ethylbenzene	2024/07/11	98	60 - 140	94	60 - 130	<0.010	ug/g	NC	50
9508041	Ethylene Dibromide	2024/07/11	94	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	F1 (C6-C10) - BTEX	2024/07/11					<10	ug/g	NC	30
9508041	F1 (C6-C10)	2024/07/11	82	60 - 140	88	80 - 120	<10	ug/g	NC	30
9508041	Hexane	2024/07/11	91	60 - 140	87	60 - 130	<0.040	ug/g	NC	50
9508041	Methyl Ethyl Ketone (2-Butanone)	2024/07/11	88	60 - 140	87	60 - 140	<0.40	ug/g	NC	50
9508041	Methyl Isobutyl Ketone	2024/07/11	90	60 - 140	88	60 - 130	<0.40	ug/g	NC	50
9508041	Methyl t-butyl ether (MTBE)	2024/07/11	87	60 - 140	85	60 - 130	<0.040	ug/g	NC	50
9508041	Methylene Chloride(Dichloromethane)	2024/07/11	98	60 - 140	93	60 - 130	<0.049	ug/g	NC	50
9508041	o-Xylene	2024/07/11	96	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
9508041	p+m-Xylene	2024/07/11	96	60 - 140	92	60 - 130	<0.020	ug/g	NC	50
9508041	Styrene	2024/07/11	97	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
9508041	Tetrachloroethylene	2024/07/11	99	60 - 140	94	60 - 130	<0.040	ug/g	NC	50
9508041	Toluene	2024/07/11	96	60 - 140	90	60 - 130	<0.020	ug/g	NC	50
9508041	Total Xylenes	2024/07/11					<0.020	ug/g	NC	50
9508041	trans-1,2-Dichloroethylene	2024/07/11	93	60 - 140	88	60 - 130	<0.040	ug/g	NC	50
9508041	trans-1,3-Dichloropropene	2024/07/11	100	60 - 140	82	60 - 130	<0.040	ug/g	NC	50
9508041	Trichloroethylene	2024/07/11	91	60 - 140	88	60 - 130	<0.010	ug/g	NC	50
9508041	Trichlorofluoromethane (FREON 11)	2024/07/11	95	60 - 140	90	60 - 130	<0.040	ug/g	NC	50
9508041	Vinyl Chloride	2024/07/11	87	60 - 140	77	60 - 130	<0.019	ug/g	NC	50

Duplicate: Paired analysis of a separate portion of the same sample. Used to evaluate the variance in the measurement.

Matrix Spike: A sample to which a known amount of the analyte of interest has been added. Used to evaluate sample matrix interference.

Spiked Blank: A blank matrix sample to which a known amount of the analyte, usually from a second source, has been added. Used to evaluate method accuracy.

Method Blank: A blank matrix containing all reagents used in the analytical procedure. Used to identify laboratory contamination.

Surrogate: A pure or isotopically labeled compound whose behavior mirrors the analytes of interest. Used to evaluate extraction efficiency.

NC (Duplicate RPD): The duplicate RPD was not calculated. The concentration in the sample and/or duplicate was too low to permit a reliable RPD calculation (absolute difference <= 2x RDL).

(1) The recovery was below the lower control limit. This may represent a low bias in some results for this specific analyte.

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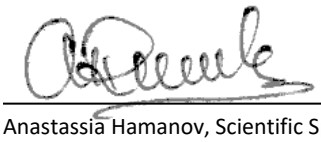
Bureau Veritas Job #: C4K4753
Report Date: 2024/07/12

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

VALIDATION SIGNATURE PAGE

The analytical data and all QC contained in this report were reviewed and validated by:



Anastassia Hamanov, Scientific Specialist

Bureau Veritas has procedures in place to guard against improper use of the electronic signature and have the required "signatories", as per ISO/IEC 17025, signing the reports. For Service Group specific validation, please refer to the Validation Signatures page if included, otherwise available by request. For Department specific Analyst/Supervisor validation names, please refer to the Test Summary section if included, otherwise available by request. This report is authorized by Rodney Major, General Manager responsible for Ontario Environmental laboratory operations.

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Phone: 905-817-5700 Fax: 905-817-5779 Toll Free: 800-563-6266
CAM FCD-01191/6

CHAIN OF CUSTODY RECORD

Invoice Information	Report Information (if differs from invoice)	Project Information (where applicable)	Turnaround Time (TAT) Required
Company Name: Grounded Engineering	Company Name:	Quotation #:	[X] Regular TAT (5-7 days) Most analyses
Contact Name: Vivi Tran	Contact Name:	P.O. #/ AFE#:	PLEASE PROVIDE ADVANCE NOTICE FOR RUSH PROJECTS
Address: 1 Bangian Dr, Toronto, M4H1G3	Address:	Project #: 24-099	Rush TAT (Surcharges will be applied)
Phone: Fax:	Phone: Fax:	Site Location: 223 Hurontario St	[ ] 1 Day [ ] 2 Days [ ] 3-4 Days
Email: vtran@groundedeng.ca	Email:	Site #:	Date Required:
MOE REGULATED DRINKING WATER OR WATER INTENDED FOR HUMAN CONSUMPTION MUST BE SUBMITTED ON THE BUREAU VERITAS DRINKING WATER CHAIN OF CUSTODY		Site Location Province: ON Sampled By: LH	Rush Confirmation #:

Regulation 153	Other Regulations
[ ] Table 1 [X] Res/Park [ ] Med/ Fine	[ ] CCME [ ] Sanitary Sewer Bylaw
[ ] Table 2 [ ] Ind/Comm [X] Coarse	[ ] MISA [ ] Storm Sewer Bylaw
[X] Table 3 [ ] Agri/ Other	[ ] PWQO Region
[X] Table ~~2~~ 4	[ ] Other (Specify)
FOR RSC (PLEASE CIRCLE) Y / N	[ ] REG 558 (MIN. 3 DAY TAT REQUIRED)
	[X] REG 406 Table 2.1 RPI

Include Criteria on Certificate of Analysis: (Y) / N

SAMPLES MUST BE KEPT COOL (< 10 °C) FROM TIME OF SAMPLING UNTIL DELIVERY TO BUREAU VERITAS

	SAMPLE IDENTIFICATION	DATE SAMPLED (YYYY/MM/DD)	TIME SAMPLED (HH:MM)	MATRIX	# OF CONTAINERS SUBMITTED	FIELD FILTERED (CIRCLE) Metals / Hg / CrVI	BTEX/ PHC F1	PHCs F2 - F4	VOCs	REG 153 METALS & INORGANICS	REG 153 ICPMS METALS	REG 153 METALS (Hg, Cr VI, ICPMS Metals, HWS - B)								HOLD- DO NOT ANALYZE
1	BH2 SS1OB	2024/06/28	15:40	Soil	3		X	X	X											
2																				
3																				
4																				
5																				
6																				
7																				
8																				
9																				
10																				

LABORATORY USE ONLY		
CUSTODY SEAL Y / N		COOLER TEMPERATURES
Present	Intact	
Y	N	2 | 3 | 2

COOLING MEDIA PRESENT: (Y) / N

COMMENTS: Please hold, but extract sample

RELINQUISHED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)	RECEIVED BY: (Signature/Print)	DATE: (YYYY/MM/DD)	TIME: (HH:MM)
V Tran	2024/07/04	12:00	BUREAU DELIVERY	2024/07/04	17:22

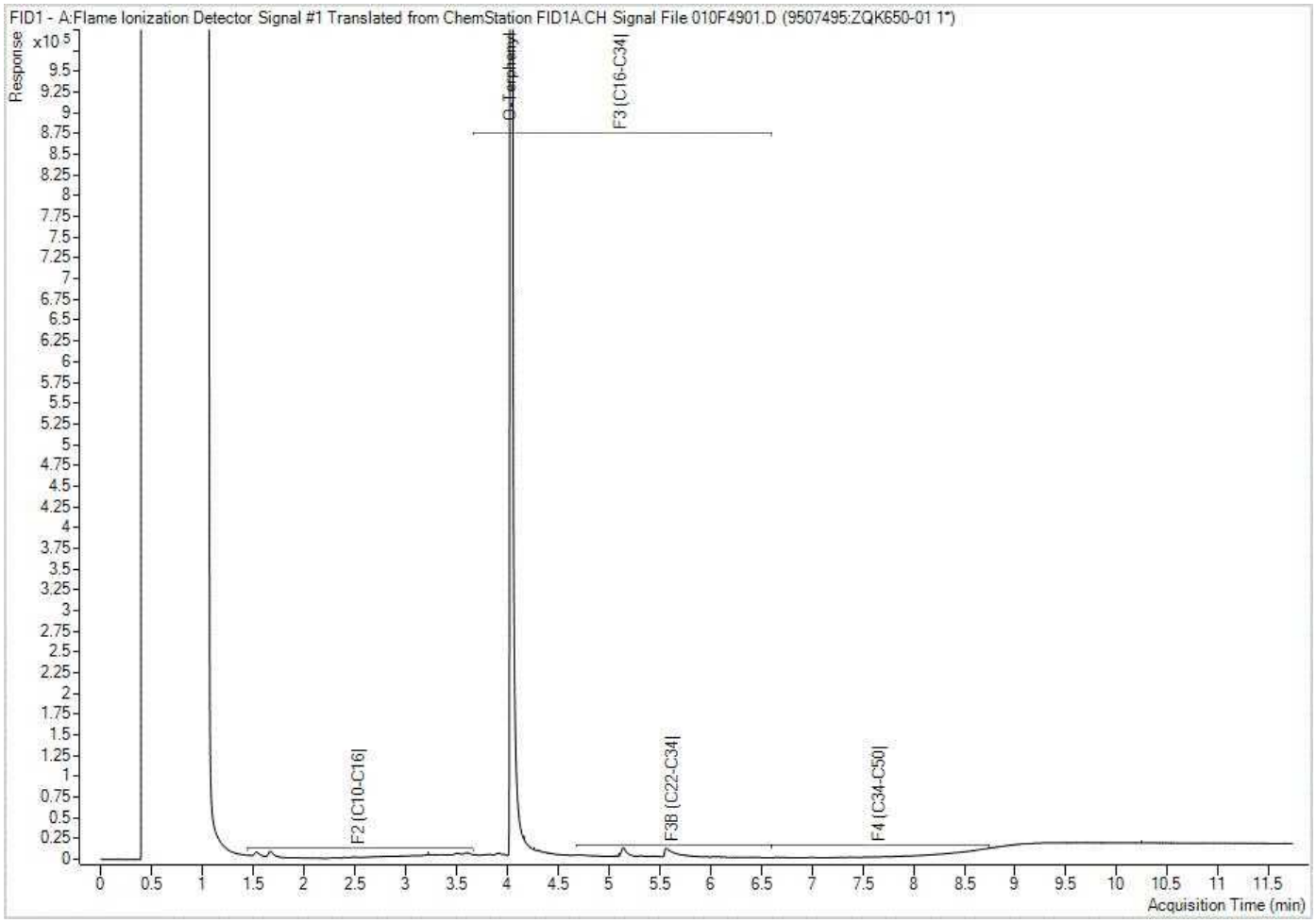
NONT-2024-07-419

239808

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/12
Bureau Veritas Sample: ZQK650

Grounded Engineering Inc.
Client Project #: 24-099
Project name: 2233 HURONTARIO ST
Client ID: BH2 SS10B

Petroleum Hydrocarbons F2-F4 in Soil Chromatogram



Note: This information is provided for reference purposes only. Should detailed chemist interpretation or fingerprinting be required, please contact the laboratory.

Bureau Veritas Job #: C4K4753
Report Date: 2024/07/12

Grounded Engineering Inc.
Client Project #: 24-099
Site Location: 2233 HURONTARIO ST
Sampler Initials: IH

Exceedance Summary Table – Reg153/04 T3-Soil/Res-C

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Exceedance Summary Table – Reg153/04 T9-Soil/Res

Result Exceedances

Sample ID	Bureau Veritas ID	Parameter	Criteria	Result	DL	UNITS
No Exceedances						

The exceedance summary table is for information purposes only and should not be considered a comprehensive listing or statement of conformance to applicable regulatory guidelines.

Bureau Veritas 6740 Campobello Road, Mississauga, Ontario, L5N 2L8 Tel: (905) 817-5700 Toll-Free: 800-563-6266 Fax: (905) 817-5777 www.bvna.com

APPENDIX H



SHORT TERM - PILE AND LAGGING

Excavation Dimensions [m]	
N-S	20
E-W	49
Area (m2)	955.5
Perimeter (m)	137

Rainfall Data		
Year	2	100
Hour	3	12
Depth (mm)	25	94
Depth (m)	0.025	0.094

Section		Flow [m3/day]	Length [m]	Volume [L/day]
Base		0.09366	49	4,589
Sides		0.029965	137	4,105
(extra row if sides are different)			0	-
Total				8,695
Factor of Safety	3.0			26,084

Storm Events	
2 Year [L/day]	100 Year [L/day]
23,888	90,000

Summary	L/day	L/min
Groundwater	30,000	20.8
Rainfall	24,000	16.7
Total	54,000	37.5

LONG TERM - PILE AND LAGGING

Excavation Dimensions [m]	
N-S	20
E-W	49
Area (m2)	955.5
Perimeter (m)	137

Rainfall Data		
Year	2	100
Hour	3	12
Depth (mm)	25	94
Depth (m)	0.025	0.094

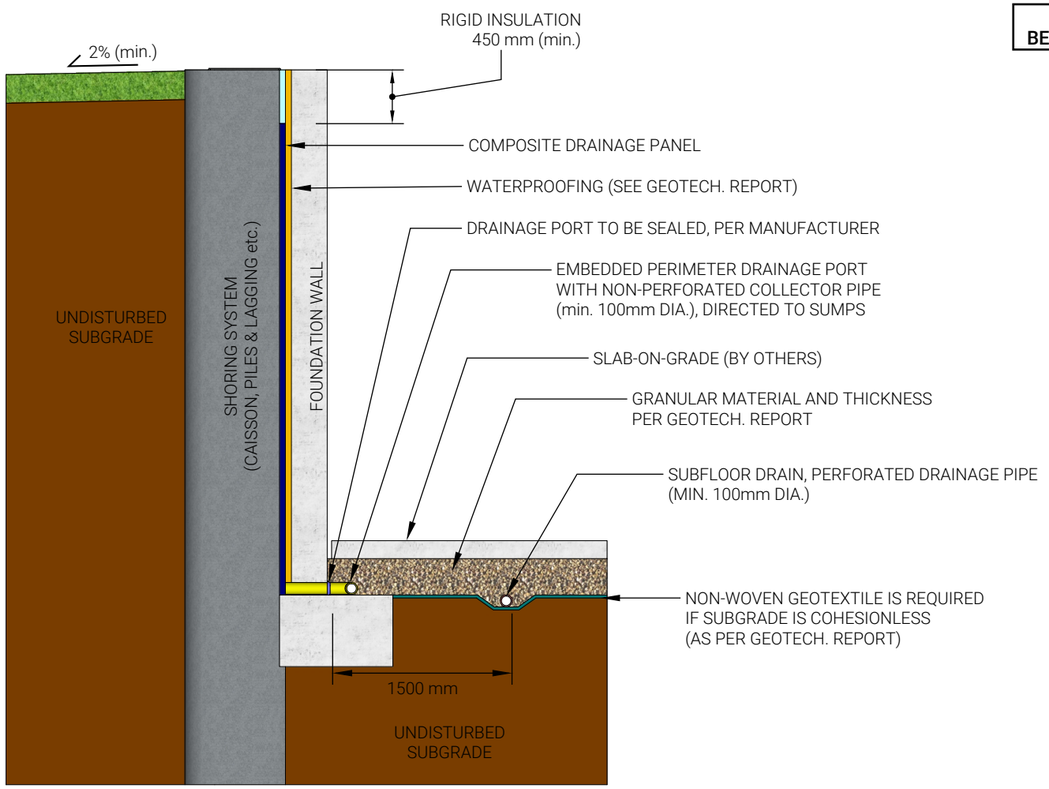
Section		Flow [m3/day]	Length [m]	Volume [L/day]
Base		0.049942	49	2,447
Sides		0.011844	137	1,623
(extra row if sides are different)			0	-
Total				4,070
Factor of Safety	3.0			12,209

Infiltration [L/day]
7128.75

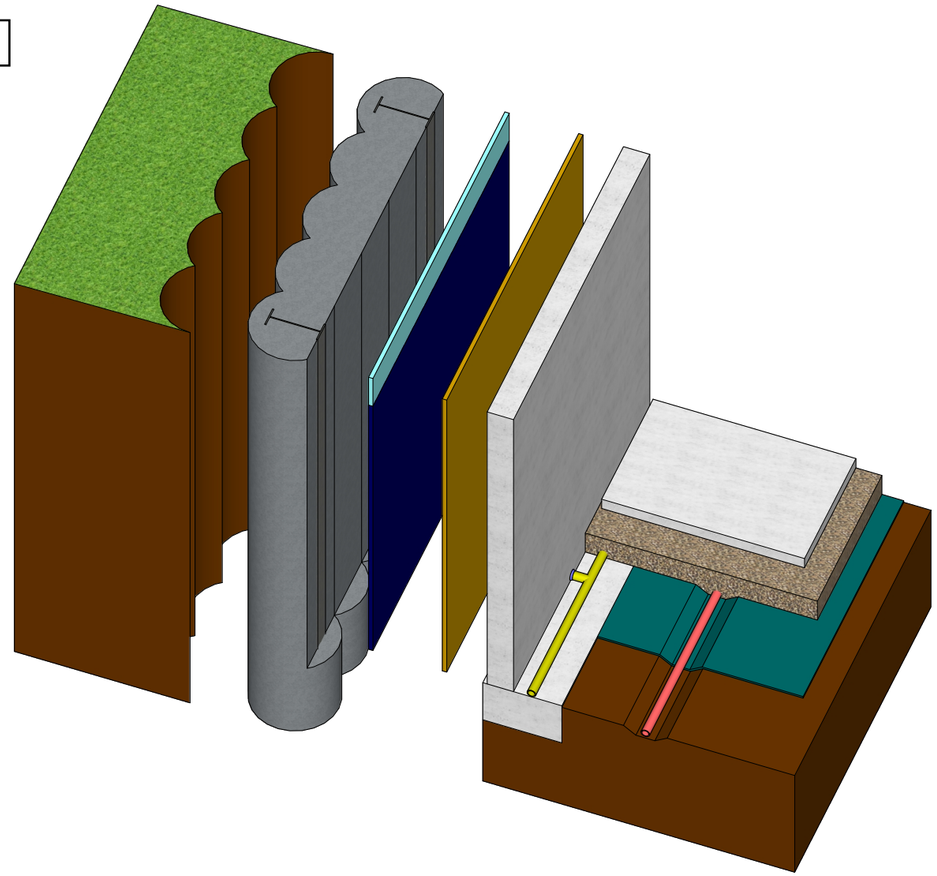
Summary	L/day	L/min
Groundwater	15,000	10.4
Infiltration	8,000	5.6
Total	23,000	16.0

APPENDIX I





OBJECTS ARE COLOR-CODED BETWEEN TWO VIEWS FOR CLARITY



SECTIONAL VIEW

ISOMETRIC VIEW

SUBFLOOR DRAINAGE SYSTEM

1. THE SUBFLOOR DRAINS SHOULD BE SET IN PARALLEL ROWS, IN ONE DIRECTION, AND SPACED AS PER THE GEOTECHNICAL REPORT.
2. THE INVERT OF THE PIPES SHOULD BE A MINIMUM OF 300mm BELOW THE UNDERSIDE OF THE SLAB-ON-GRADE.
3. A CAPILLARY MOISTURE BARRIER (I.E. DRAINAGE LAYER) CONSISTING OF A MINIMUM 200 mm LAYER OF CLEAR STONE (OPSS MUNI 1004) COMPACTED TO A DENSE STATE (OR AS PER THE GEOTECHNICAL REPORT). WHERE VEHICULAR TRAFFIC IS REQUIRED, THE UPPER 50 mm OF THE CAPILLARY MOISTURE BARRIER MAY BE REPLACED WITH GRANULAR A (OPSS MUNI 1010) COMPACTED TO A MINIMUM 98% SPMDD.
4. A NON-WOVEN GEOTEXTILE MUST SEPARATE THE SUBGRADE FROM THE SUBFLOOR DRAINAGE LAYER IF THE SUBGRADE IS COHESIONLESS. SEE THE GEOTECHNICAL REPORT FOR GEOTEXTILE REQUIREMENTS.

PERIMETER DRAINAGE SYSTEM

1. FOR A DISTANCE OF 1.2m FROM THE BUILDING, THE GROUND SURFACE SHOULD HAVE A MINIMUM 2% GRADE.
2. PREFABRICATED COMPOSITE DRAINAGE PANEL (CONTINUOUS COVER, AS PER MANUFACTURER'S REQUIREMENTS) IS RECOMMENDED BETWEEN THE BASEMENT WALL AND RIGID SHORING WALL. THE DRAINAGE PANEL MAY CONSIST OF MIRADRAIN 6000 OR AN APPROVED EQUIVALENT.
3. PERIMETER DRAINAGE IS TO BE COLLECTED IN NON-PERFORATED PIPES AND CONVEYED DIRECTLY TO THE BUILDING SUMPS.
4. PERIMETER DRAINAGE PORTS SHOULD BE SPACED A MAXIMUM 3m ON-CENTRE. EACH PORT SHOULD HAVE A MINIMUM CROSS-SECTIONAL AREA OF 1500 mm2.

GENERAL NOTES

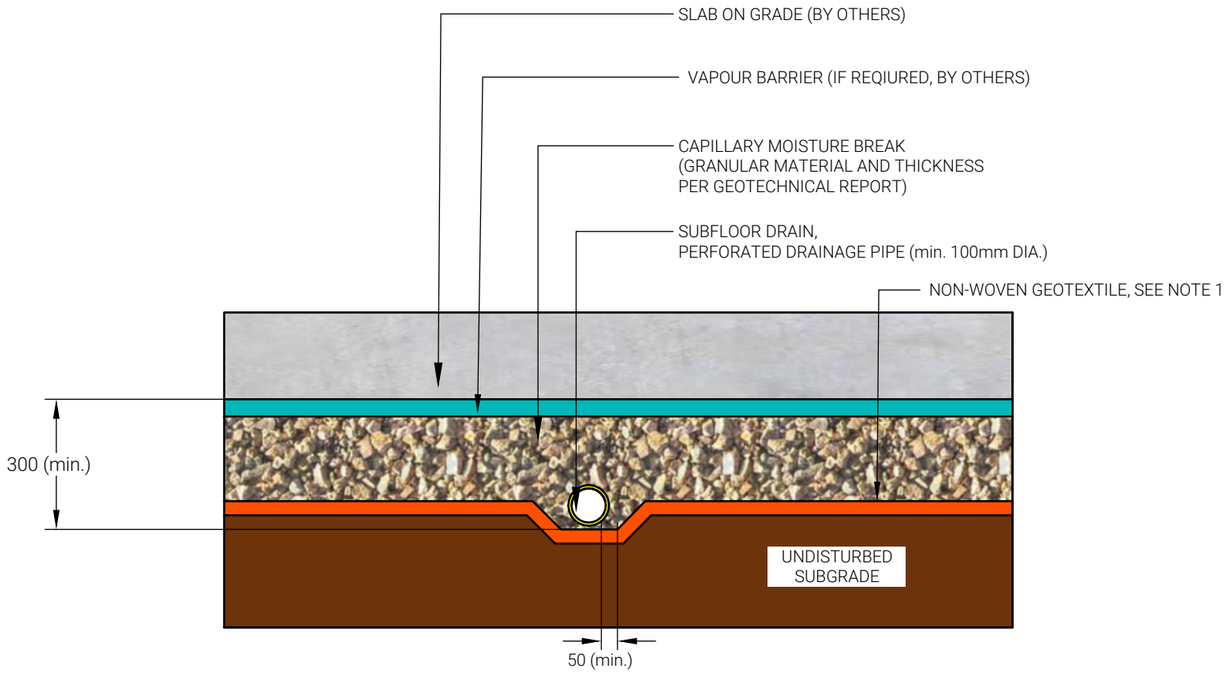
1. THERE SHOULD BE NO STRUCTURAL CONNECTION BETWEEN THE SLAB-ON-GRADE AND THE FOUNDATION WALL OR FOOTING.
2. THERE SHOULD BE NO CONNECTION BETWEEN THE SUBFLOOR AND PERIMETER DRAINAGE SYSTEMS.
3. THIS IS ONLY A TYPICAL BASEMENT DRAINAGE DETAIL. THE GEOTECHNICAL REPORT SHOULD BE CONSULTED FOR SITE SPECIFIC RECOMMENDATIONS.
4. THE FINAL BASEMENT DRAINAGE DESIGN SHOULD BE REVIEWED BY THE GEOTECHNICAL ENGINEER TO CONFIRM THE DESIGN IS ACCEPTABLE.

GROUNDED ENGINEERING

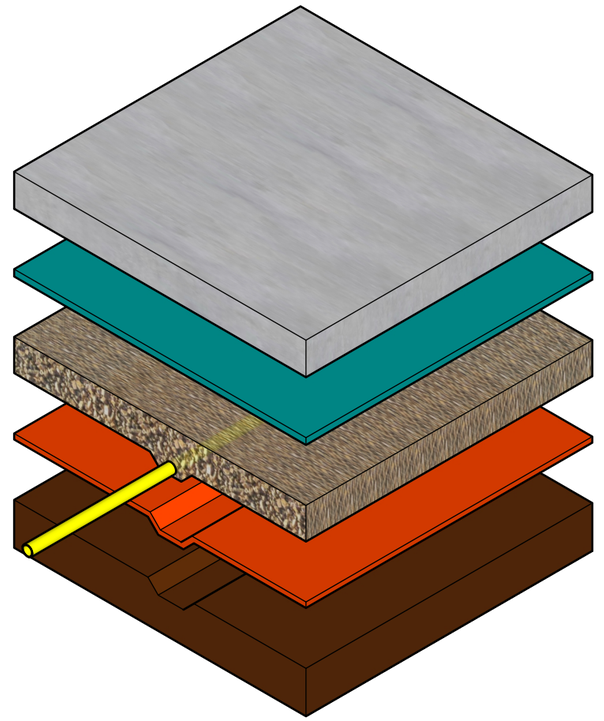
Title

BASEMENT DRAINAGE SHORING SYSTEM TYPICAL DETAILS

OBJECTS ARE COLOR-CODED BETWEEN TWO VIEWS FOR CLARITY



SECTIONAL VIEW



ISOMETRIC VIEW

NOTES

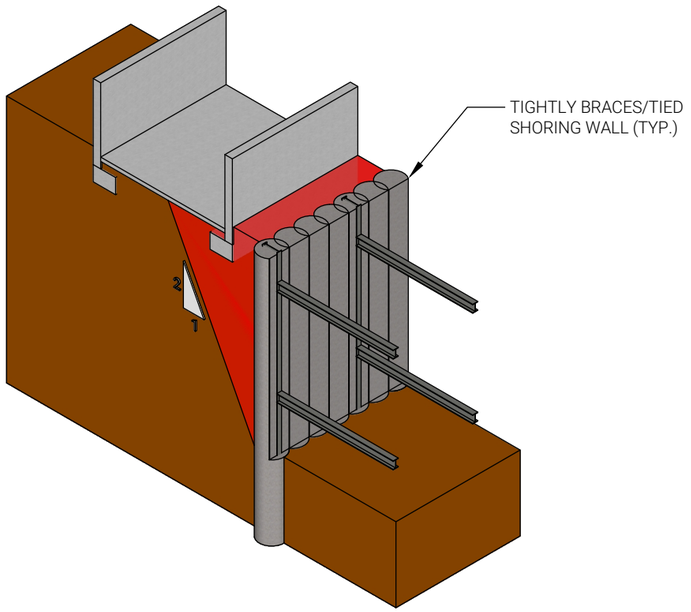
1. WHEN THE SUBGRADE CONSISTS OF COHESIONLESS SOIL, IT MUST BE SEPARATED FROM THE SUBFLOOR DRAINAGE LAYER USING A NON-WOVEN GEOTEXTILE (WITH AN APPARENT OPENING SIZE OF < 0.250mm AND A TEAR RESISTANCE OF > 200 N).

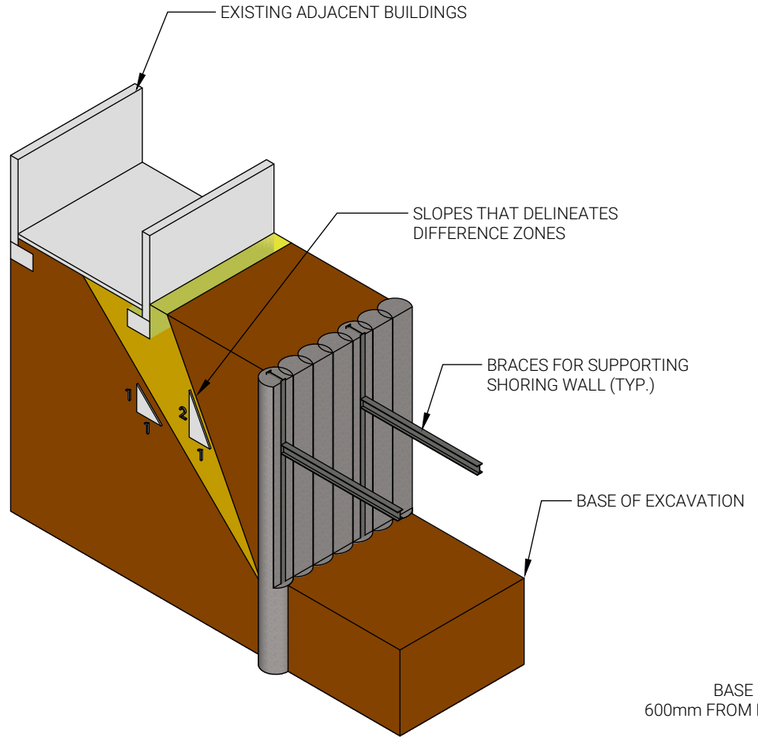
2. TYPICAL SCHEMATIC ONLY. MUST BE READ IN CONJUNCTION WITH GEOTECHNICAL REPORT.

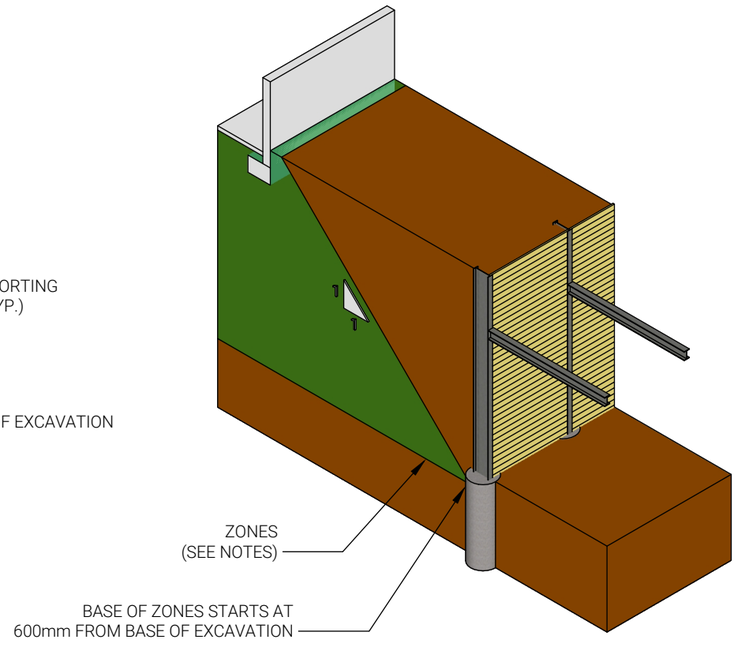
GROUNDED ENGINEERING

Title

BASEMENT SUBDRAIN TYPICAL DETAIL







ZONE A (RED)

FOUNDATIONS WITHIN THIS ZONE OFTEN REQUIRE UNDERPINNING OR SHORING SYSTEM. HORIZONTAL AND VERTICAL PRESSURES ON EXCAVATION WALL OF NON-UNDERPINNED FOUNDATION MUST BE CONSIDERED

ZONE B (YELLOW)

FOUNDATIONS WITHIN THIS ZONE OFTEN DO NOT REQUIRE UNDERPINNING BUT MAY REQUIRE SHORING SYSTEM. HORIZONTAL AND VERTICAL PRESSURES ON EXCAVATION WALL OF NON-UNDERPINNED FOUNDATION MUST BE CONSIDERED

ZONE C (GREEN)

FOUNDATIONS WITHIN THIS ZONE USUALLY DO NOT REQUIRE UNDERPINNING OR SHORING SYSTEM

NOTES:
1. USER'S GUIDE - NBC 2005 STRUCTURAL COMMENTARIES (PART 4 OF DIVISION B) - COMMENTARY K.

GROUNDED ENGINEERING

Title

EXCAVATION ZONE OF INFLUENCE GUIDELINES