PHASE TWO ENVIRONMENTAL SITE ASSESSMENT

5584 Fraser Street, Niagara Falls, ON

Project Location:
5584 Fraser Street
Niagara Falls, ON
L2E 3C9

Prepared For:
Sam Visca Electric
5602 George Street
Niagara Falls, ON
L2E 3E2

NIAGARA SOILS SOLUTIONS LTD.

Prepared By:
Niagara Soils Solutions Ltd.
3300 Merrittville Highway, Unit 5
Thorold, ON
L2V 4Y6

Date: March 30, 2023
NSSL File No.: NS22122-02

EXCUTIVE SUMMARY

Niagara Soils Solutions Ltd. [NSSL] was retained by Sam Visca Electric to conduct a Phase Two Environmental Site Assessment [ESA] of the vacant former residential property located at 5584 Fraser Street in Niagara Falls, Ontario. A Phase One ESA was completed by NSSL in December 2022 that identified two [2] areas of potential environmental concern relating to fill material associated with a historic residential dwelling on-site and off-site adjacent railway.

The Phase Two ESA was completed in general accordance with Ontario Regulation 153/04, as amended, and has been supervised by a Qualified Person [QP_{ESA}] to support a filing of a Record of Site Condition [RSC] with the Ministry of the Environment, Conservation and Parks.

The scope of work and findings for the Phase Two ESA investigation are presented as follows:

- Five [5] boreholes were drilled across the study site within the identified APEC areas.
- Seven [7] select soil samples were submitted for analytical testing at AGAT laboratories Ltd.
- Fill material was encountered in all five [5] boreholes.
- One [1] exceedance to Metals [Lead] was identified at BH3-1 within the fill material.
- Subsequently, four [4] delineation samples were taken from the same sampling depth and within 2.0 metres of the original BH3-1 sample, north, south, east, and west.
- All delineation samples met Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional property use, coarse-textured soils.

Based on the soil testing results described herein, Niagara Soils Solutions Ltd. is of the opinion that no further environmental investigations or work is required at this time across the Phase Two ESA property. The lands are considered suitable for residential land use.

NOTE: This executive summary provides a brief overview of the study findings. It is not intended to be substituted for the complete report, nor does it detail specific issues discussed within the report. This summary is not to be adopted in lieu of reading the complete report.

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1.0 INTRODUCTION

1.1 Site Description

Niagara Soils Solutions Ltd. [NSSL] was retained by Mr. Sam Visca to conduct a Phase Two Environmental Site Assessment [ESA] of the vacant former residential lot located at 5584 Fraser Street in the City of Niagara Falls, Ontario [herein referred to as the "Phase Two Property" or the "Site"]. The Phase Two Property is currently owned by Ms. Rita Visca. The Phase Two ESA was requested for due diligence purposes relating to potential site re-development. The Site location is shown on Figure 1.

The legal description of the site is stated as; LT 29 PL 31 STAMFORD; LT 30 PL 31 STAMFORD; NIAGARA FALLS. The Property Identification Number [PIN] is 64323-0208 [LT].

The size of the Phase Two Site is approximately 0.11 hectares with the rectangular shaped parcel of land situated south of Fraser Street and 155 m west of Stanley Avenue. The subject property is situated between a commercial business on the west and residential properties north and east. The southern property boundary of the site is characterized as a deep vegetated swale, with historical records identifying the Niagara, St. Catharines, and Toronto [NS & T] railway corridor in use from 1899 to the early 1950's. Further south of the railway track is Niagara Fall's Fairview Cemetery. Historical documents depict the Phase Two Property to have been occupied by a residential dwelling documented on-site dating from 1934 until at least 1965 based upon aerial images. The next available imaged dated 2000 depicts the land as vacant. Currently the south portion of the property has successional vegetation growth that extends into the adjacent swale and remnant train tracks. The Phase Two property has a raised central elevation that slopes downwards towards Fraser Street to the north and a steeper decline to the created railway swale at the south.

1.2 Property Ownership

The Phase Two Property is owned by Ms. Rita Visca. The work was requested by Mr. Sam Visca of Sam Visca Electric, 5602 George Street, Niagara Falls, ON.

1.3 Current and Proposed Future Uses

The Phase Two ESA property is currently described as a vacant grass covered parcel of land. Future site redevelopment plans have not been finalized.

1.4 Applicable Site Condition Standard

Under O. Reg. 153/04 as amended, the Ministry of the Environment, Conservation and Parks [MECP] has outlined Site Condition Standards [SCS] in the document "Soil, Ground Water and Sediment Standards for Use Under Part XV.1 of the Environmental Protection Act" dated April 15, 2011. The SCS applicable to the Phase Two ESA property has been evaluated based upon the following rationale:

Property Use	The proposed land use has not been identified at this time, potential land use may include residential purposes and therefore the SCS for Residential/Parkland/Institutional property land use would apply.
Grain Size	As per Niagara Testing & Inspection report available in Appendix C, the grain size was determined to be coarse-grained.
Water Wells	Domestic water wells were not identified within 250 metres [m] of the Phase Two Property. The proposed development will be serviced by municipal water.
Within 30 m of a Waterbody	In accordance with O. Reg. 153/04, 5584 Fraser Street does not include land that is within 30 m of a waterbody.
Depth to Bedrock	Based on the borehole results, there is more than 2 m of soil between ground surface and the top of the bedrock surface at the site. Therefore shallow soil criteria does not apply.
pH	The pH levels across the site were noted as above 5 and below 9. The measured pH value within the subsurface soils ranged from 7.10 to 7.38 [average 7.24].
Environmentally Sensitive Area	The Phase Two Property has not been identified within an environmentally sensitive area.
Area of Natural Significance	The Phase Two Property is not classified as an environmentally sensitive area under O. Reg. 153/04 as amended, as the Phase Two Property does not include land, or is within 30 m of land, which would be classified as an area of natural significance as defined by O. Reg. 153/04 as amended.

Therefore Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Groundwater Condition for Residential/Parkland/Institutional [R/P/I] property use, coarse-textured soils were utilized for the assessment.

2.0 BACKGROUND INFORMATION

2.1 Physical Setting

Based on NSSL's site visits the ground surface level of the site slopes northwards. No water pooling was noted onsite.

A review of the "Quaternary Geology of Niagara-Welland" Geological Series, Map 2496, shows the Phase One subject area is located within the Late Wisconsian formation, consisting of Glaciolacustrine nearshore and deltaic sand and silt. The Paleozoic Geology of Southern Ontario, Ontario Division of Mines, Map 2254, reveals that the study area is situated on the Lockport-Amabel Formation consisting of dolomite. Groundwater was reported to be approximately 18–22 metres below ground surface based on a review of local well records. The study area contains the Queenston-Chippawa Hydro Canal, constructed between 1917-1925, for the purpose of transporting water from upstream Niagara River to the Sir Adam Beck Power Generating Station. The 10.2 km long Niagara Tunnel Project was bored between 2006-2013 approximately 140 m below the study area to allow for further diversion of water to the power generation station downstream.

From surface to about 0.15 m granular material was encountered in boreholes BH1 to BH5. A gravelly sandy silt fill material was found to depths of between about 0 m – 0.52 m below grade. The fill/reworked material was found to be firm in consistency and to contain a trace of silt, gravel and organic inclusions. It appears that the fill/reworked material was spread across the majority of the site. A native silty sand / sandy silt was found to underlie the fill materials. The silty sand / sandy silt was found to be layered and to contain a trace of gravel. The silty sand / sandy silt was noted to be firm to very stiff in consistency in the upper level and become softer with depth. Bedrock was not encountered in the borings.

3.0 SCOPE OF INVESTIGATION

3.1 Overview of Site Investigation

The Phase Two ESA site investigation at the Site consisted of the following components:

- Underground service locates were completed using Ontario One Call and a private locating service.
- A total of five [5] environmental boreholes were advanced at the site to a maximum depth of 5.20 m below ground surface.
- Seven [7] selected soil samples were submitted for laboratory analysis, including Metals, PHC/BTEX, PAHs, and pH/SAR/EC.
- The Phase Two ESA was completed in general accordance with the requirements of O. Reg. 153/04 as amended.

3.2 Media Investigated

Soil was the only medium investigated as part of this Phase Two assessment.

3.3 Deviation from Sampling and Analysis Plan

There were no deviations from NSSL's Sampling and Analysis Plan.

3.4 Impediments

There were no physical impediments or denial of access during the Phase Two ESA.

4.0 INVESTIGATION METHOD

4.1 General

The Phase Two ESA was carried out in accordance with the Sampling and Analysis Plan, and NSSL's Standard Operating Procedures. The Phase Two ESA consisted of the advancement of five [5] environmental boreholes across the study site to a maximum depth of 5.20 m bgs terminating in native soils.

The sampling and decontamination procedures were conducted in accordance with the "Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario", May 1996, revised December 1996, as amended by O. Reg. 511/09.

Laboratory analytical methods, protocols and procedures were carried out in accordance with the 'Protocol for Analytical Methods Use in the Assessment of Properties under Part XV.1 of the Environmental Protection Act", dated March 9, 2004, amended as of July 1, 2011, in accordance with O. Reg. 511/09 and O. Reg. 269/11.

4.2 Utility Clearance

Prior to the commencement of the subsurface investigation, underground service utility locates were obtained for the Site through Ontario One Call. Additionally, a private underground service locating company, Ontario Utility Locates, located all on-site underground services [hydro, gas, water, sewer, and communications].

4.3 Drilling Activities

Five [5] environmental boreholes were advanced across the site by Davis Drilling Ltd. utilizing a CME-55 on March 2nd, 2023. Two [2] of the boreholes were advanced to 5.20 m bgs and three [3] of the boreholes were terminated in 3.65 m. The locations of the boreholes are shown in Figure 5.

4.4 Soil Sampling

Seven [7] samples were collected from boreholes BH-1 to BH-5. Recovered soil samples were immediately logged for soil type, moisture, colour, texture and visual evidence of impacts. The samples were then stored for potential laboratory analyses. All soil samples were placed in clean coolers during transportation to the subcontract laboratory, AGAT Laboratories Ltd. in Stoney Creek, Ontario. The

samples were transported and submitted to AGAT following Chain of Custody [COC] protocols for chemical analyses.

4.5 Analytical Testing

The soil sample analyses were completed by AGAT Laboratories Ltd., Glover Road, Stoney Creek, ON. AGAT is accredited by the Canadian Association for Laboratory Accreditation [CALA] in accordance with ISO/IEC 17025:1999 – "General Requirements for the Competence of Testing and Calibration Laboratories" for all the parameters analyzed during this investigation.

4.6 Elevation Surveying

The elevation of the existing ground surface at each borehole was referenced to a temporary site benchmark, described as the northeast corner of the west adjacent building with an elevation of 100 metres by Niagara Soils Solutions Ltd.

4.7 Quality Assurance and Quality Control Measures

All activities completed as part of this Phase Two ESA were conducted as per applicable regulatory requirements.

5.0 REVIEW AND EVALUATION

5.1 Geology

The soil stratigraphy for the study site generally consisted of a thin layer of topsoil over top of reworked material – brown Sandy Silt / Silty Sand, trace clay and gravel, between about 0.15 m bgs. Native material was encountered at depths from 0.31 – 3.66 m to termination of the borehole and described as brown sandy Silty / silty Sand, with trace gravel.

5.2 Ground Water Flow Direction

Groundwater was not investigated within the scope of work for the Phase Two ESA.

5.3 Coarse Soil Texture

Grain size analysis was performed by Niagara Testing and Inspection Ltd. as Part of the Phase Two ESA and indicated 30.1% and 20.8% of the soil matrix passed the No. 200 sieve resulting in a coarse-grained soil texture. Therefore, the site condition standards for coarse-textured soils were used in the assessment. Coarse textured soil is classified as soil that contains less than 50 percent by mass of particles that are 75 micrometres or larger in mean diameter. Reported results are located in Appendix C.

The hydraulic conductivity of the selected soil samples was estimated using applicable empirical equations based on the particle gradations. As shown in the table below, the estimated K value for the tested soil ranged from 1×10^{-6} - 1×10^{-7}.

Borehole ID	Sample #	Soil Sample Depth [m bgs]	Soil Type	K Value [cm/s]
BH 1-2	SS2	0.76 – 1.37mbgs	Sandy Silt / Silty Sand	1×10^{-6} - 1×10^{-7}
BH 4-4	SS4	2.93 – 3.51mbgs	Gravely Sand	1×10^{-6} - 1×10^{-7}

5.4 Soil Quality

Soil sampling was conducted on March 2nd, 2023. Seven [7] representative soil samples were obtained from within the reworked and native material and submitted to AGAT Laboratories Ltd. for analysis of Metals, PHC/BTEX, PAHs, and pH/SAR/EC.

The soil results revealed one [1] exceedance for Metals [Lead] to applicable Table 3 residential site condition standards at sample location BH3-1. Complete soil laboratory results are provided in Appendix B and displayed on Figure 7A.

Parameter	Reg 153/04 (2011)-Table 3 Residential, coarse	BH3-1
Metals		
Lead	120 ug/g	**138**

pH/SAR/EC

The pH levels across the site were noted as above 5 and below 9. The measured pH value within the surface reworked material and the subsurface native soils was from 7.10 to 7.38 [average 7.24]. SAR and EC samples met the applicable criteria.

5.5 Quality Assurance and Quality Control Results

All soil samples submitted as part of this Phase Two ESA investigation were handled in accordance with AGAT laboratory analytical protocols in regards to holding time, preservation method, storage requirements, and container type. A Certificate of Analysis has been received for each sample submitted for analysis, and all Certificates of Analysis are appended to this report. The quality of the field data collected during this Phase Two ESA are considered to be sufficient to meet the overall objective of this study.

6.0 DELINEATION

Additional soil sampling was conducted on March 15th, 2023, via hand auger to delineate the extent of Metals exceedances at the site. Four [4] soil samples for horizontal delineation purpose were obtained at the same sampling depths and from within 2.0 m of the initial exceedance locations. The intent of the additional soil investigative work was to determine if the soil could meet the criteria as per section 48 [2] of O. Reg. 153/04 as follows:

> *"if two or more samples of soil or sediment are taken from sampling points at the same sampling location [two metre radius from initial sample location] that are at the same depth on, in or under the property, the property meets a standard mentioned in subsection (1) if the average of the sampling results meets the standard and in no other circumstances".*

Alternatively, the sample results from the delineation work would help refine the impacted area[s] for remedial planning purposes.

Initial soil results revealed an exceedance to Metals [Lead] at one [1] sample locations BH3-1. Four [4] hand augured samples surrounding BH3 were collected and submitted to AGAT Laboratories for Lead analysis.

Sample ID	Sample Depth [m bgs]	Parameter Analysed [O. Reg. 153/04 as amended]
TP-A	0.1 – 0.3	Metals; Lead
TP-B	0.1 – 0.3	Metals; Lead
TP-C	0.1 – 0.3	Metals; Lead
TP-D	0.1 – 0.3	Metals; Lead

6.1 Delineation Results

All delineation samples met applicable Table 3 criteria with the averaging of all samples also being below the Table 3 criteria limit of 120 ug/g as per below.

Parameter	Reg 153/04 (2011)- Table 3 Residential, coarse	BH3-1	TP-A	TP-B	TP-C	TP-D	Average
Metals							
Lead	120 ug/g	**138**	105	102	114	12	**94.2**

7.0 CONCLUSIONS

Niagara Soils Solutions Ltd. [NSSL] was retained by Sam Visca Electric to conduct a Phase Two Environmental Site Assessment [ESA] on 5584 Fraser Street, in the City Niagara Falls, Ontario. The primary findings of the Phase Two ESA are:

- Five [5] boreholes were drilled across the study site within the identified APEC areas.
- Seven [7] select soil samples were submitted for analytical testing at AGAT laboratories Ltd.
- Fill material was encountered in all five [5] boreholes.
- One [1] exceedance to Metals [Lead] was identified at BH3-1 within the fill material.
- Subsequently, four [4] delineation samples were taken from the same sampling depth and within 2.0 metres of the original BH3-1 sample, north, south, east, and west.
- All delineation samples met Table 3 Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition for Residential/Parkland/Institutional property use, coarse-textured soils.

Based on the soil testing results described herein, Niagara Soils Solutions Ltd. is of the opinion that no further environmental investigations or work is required at this time across the Phase Two ESA property. The lands are considered suitable for residential land use.

8.0 LIMITATIONS

Niagara Soils Solutions Ltd. prepared this Report for the account of Sam Visca Electric and is intended to provide a Phase Two Environmental Site Assessment on the property located at 5548 Fraser Street, Niagara Falls, ON. The material in it reflects Niagara Soils Solutions Ltd.'s best judgement in light of the information available to it at the time of preparation. Any use which a third party makes of this report, or any reliance on or decisions to be made based on it, are the responsibility of such third parties. Should additional parties require reliance on this report, written authorization from NSSL will be required. With respect to third parties, NSSL has no liability or responsibility for losses of any kind whatsoever, including direct or consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The investigation undertaken by NSSL with respect to this report and any conclusions or recommendations made in this report reflect NSSL's judgment based on the site conditions observed at the time of the Site inspection on the date[s] set out in this report and on information available at the time of preparation of this report. This report has been prepared for specific application to this Site and it is based, in part, upon visual observation of the Phase Two Property, subsurface investigation at discrete locations and depths, and specific analysis of specific chemical parameters and materials during a specific time interval, all as described in this report. Unless otherwise stated, the findings cannot be extended to previous or future Site conditions, portions of the Phase Two Property, which were unavailable for direct investigation, subsurface locations, which were not investigated directly, or chemical parameters, materials or analysis which were not addressed. Niagara Soils Solutions Ltd. has expressed professional judgement in gathering and analysing the information obtained and in the formulation of its conclusions.

NSSL makes no other representation whatsoever, including those concerning the legal significance of its findings, or as to other legal matters touched on in this report, including but not limited to, ownership of any property, or the application of any law to the facts set forth herein. With respect to regulatory compliance issues, regulatory statutes are subject to interpretation and change. Such interpretations and regulatory changes should be reviewed with legal counsel.

Yours very truly,
Niagara Soils Solutions Ltd.

John Monkman, P.Eng., FEC
President

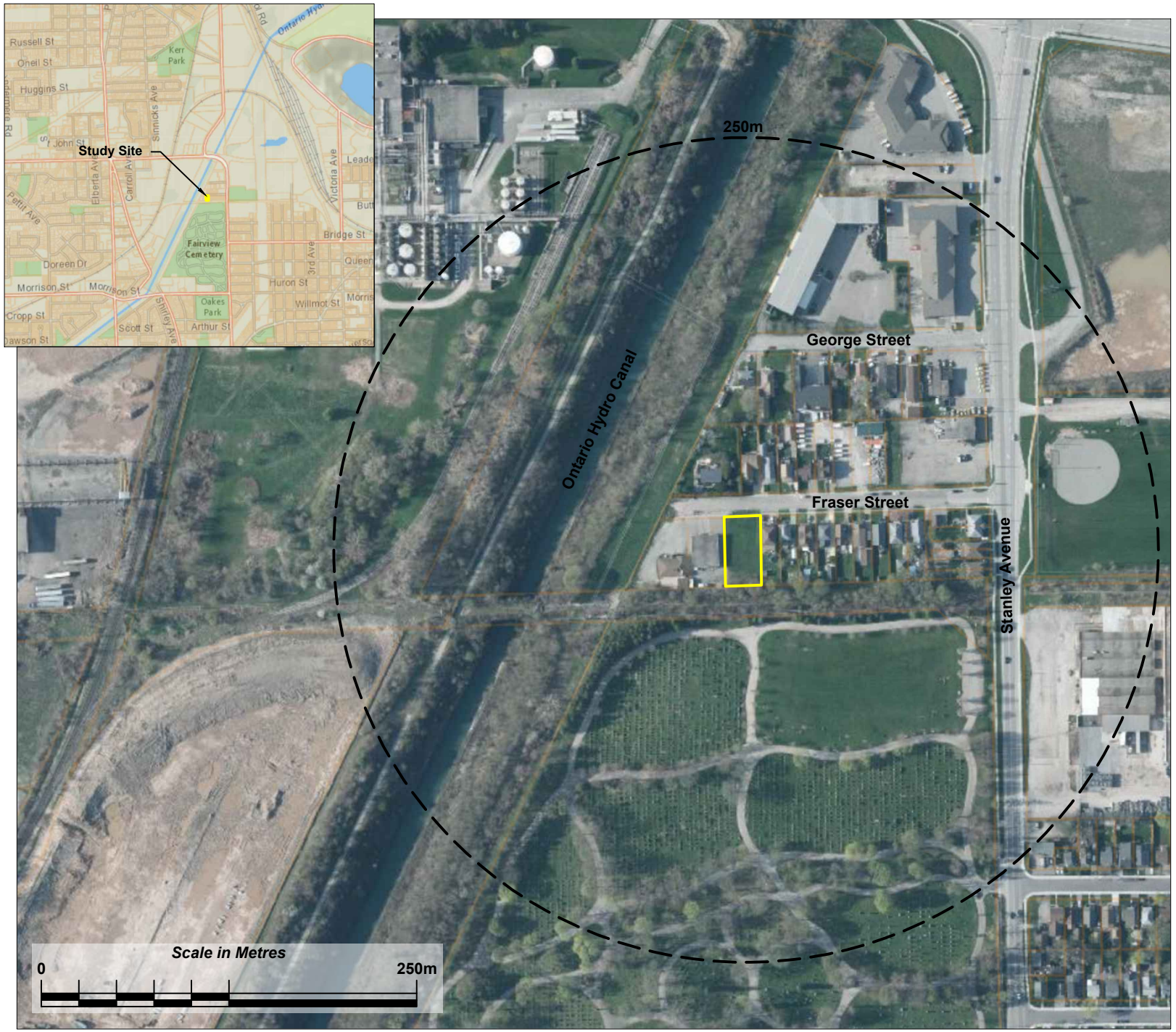
Jodie Glasier, M.MM, PD-EMA, EP
Vice President

9.0 REFERENCES

The following resources were utilized as references:

- Ontario Division of Mines' "Paleozoic Geology of Southern Ontario, Map 2254".
- Ministry of Natural Resources' "Quaternary Geology, Niagara-Welland, Map P2496.
- Water Wells Ontario site.
- Ontario Oil, Gas, and Salt Resources Library
- Interactive Map – Niagara Navigator, https://navigator.niagararegion.ca/
- Ontario Base Mapping
- Niagara Peninsula Conservation Authority [NPCA] Watershed Explorer

FIGURES



REFERENCE: BASE MAP PROVIDED BY NIAGARA NAVIGATOR, https://maps-beta.niagararegion.ca/Navigator/
NOTE: FOR ILLUSTRATION PURPOSES ONLY, ALL LOCATIONS APPROXIMATE.

LEGEND

- Phase Two ESA Property Boundary
- 250 m Study Area

NIAGARA SOILS SOLUTIONS LTD.

CLIENT: **Sam Visca Electric**

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street,
Niagara Falls, Ontario

TITLE:

SITE LOCATION PLAN

DRAWN BY:	DN
CHECKED BY:	JM
DATE:	MARCH 2023
PROJECT NO:	NS22122-02
SCALE:	AS SHOWN
NO:	Figure 1

REFERENCE: BASE MAP PROVIDED BY NIAGARA NAVIGATOR, https://maps-beta.niagararegion.ca/Navigator/
NOTE: FOR ILLUSTRATION PURPOSES ONLY, ALL LOCATIONS APPROXIMATE.

LEGEND

Phase Two ESA Property Boundary

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CLIENT:
Sam Visca Electric

PROJECT:
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street,
Niagara Falls, Ontario

TITLE:
SITE LAYOUT & FEATURES

DRAWN BY: DN

CHECKED BY: JM

DATE: MARCH 2023

PROJECT NO: NS22122-02

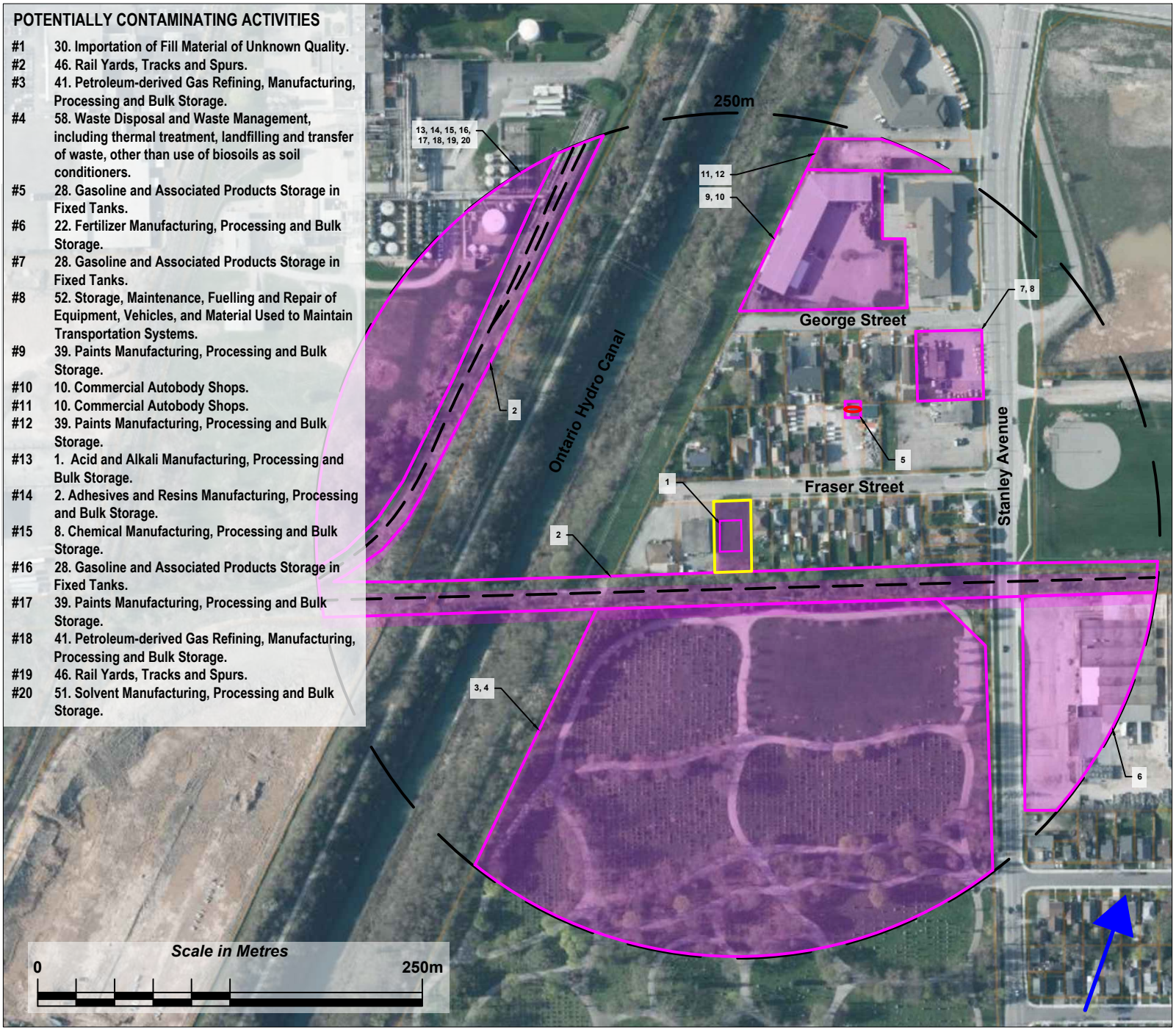
SCALE: AS SHOWN

NO:

Figure 2

POTENTIALLY CONTAMINATING ACTIVITIES

#1	30. Importation of Fill Material of Unknown Quality.
#2	46. Rail Yards, Tracks and Spurs.
#3	41. Petroleum-derived Gas Refining, Manufacturing, Processing and Bulk Storage.
#4	58. Waste Disposal and Waste Management, including thermal treatment, landfilling and transfer of waste, other than use of biosoils as soil conditioners.
#5	28. Gasoline and Associated Products Storage in Fixed Tanks.
#6	22. Fertilizer Manufacturing, Processing and Bulk Storage.
#7	28. Gasoline and Associated Products Storage in Fixed Tanks.
#8	52. Storage, Maintenance, Fuelling and Repair of Equipment, Vehicles, and Material Used to Maintain Transportation Systems.
#9	39. Paints Manufacturing, Processing and Bulk Storage.
#10	10. Commercial Autobody Shops.
#11	10. Commercial Autobody Shops.
#12	39. Paints Manufacturing, Processing and Bulk Storage.
#13	1. Acid and Alkali Manufacturing, Processing and Bulk Storage.
#14	2. Adhesives and Resins Manufacturing, Processing and Bulk Storage.
#15	8. Chemical Manufacturing, Processing and Bulk Storage.
#16	28. Gasoline and Associated Products Storage in Fixed Tanks.
#17	39. Paints Manufacturing, Processing and Bulk Storage.
#18	41. Petroleum-derived Gas Refining, Manufacturing, Processing and Bulk Storage.
#19	46. Rail Yards, Tracks and Spurs.
#20	51. Solvent Manufacturing, Processing and Bulk Storage.



LEGEND

- Phase Two ESA Property Boundary
- 250 m Study Area
- PCA Areas
- Underground Storage Tanks [UST]
- Inferred Groundwater Flow Direction

NIAGARA SOILS SOLUTIONS LTD.

CLIENT: Sam Visca Electric

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street,
Niagara Falls, Ontario

TITLE:

POTENTIALLY CONTAMINATING ACTIVITIES

DRAWN BY: DN

CHECKED BY: JM

DATE: MARCH 2023

PROJECT NO: NS22122-02

SCALE: AS SHOWN

NO:

Figure 3

REFERENCE: BASE MAP PROVIDED BY NIAGARA NAVIGATOR, https://maps-beta.niagararegion.ca/Navigator/
NOTE: FOR ILLUSTRATION PURPOSES ONLY, ALL LOCATIONS APPROXIMATE.

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LEGEND

- Phase Two ESA Property Boundary
- APEC Areas

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CLIENT: **Sam Visca Electric**

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street,
Niagara Falls, Ontario

TITLE:
AREAS OF POTENTIAL ENVIRONMENTAL CONCERN

DRAWN BY: DN

CHECKED BY: JM

DATE: MARCH 2023

PROJECT NO: NS22122-02

SCALE: AS SHOWN

NO:

Figure 4

LEGEND

Phase Two ESA Property Boundary

BH 1 Borehole Location

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CLIENT:
Sam Visca Electric

PROJECT:
PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street,
Niagara Falls, Ontario

TITLE:
BOREHOLE LOCATIONS

DRAWN BY: DN

CHECKED BY: JM

DATE: MARCH 2023

PROJECT NO: NS22122-02

SCALE: AS SHOWN

NO:

Figure 5

REFERENCE: BASE MAP PROVIDED BY NIAGARA NAVIGATOR, https://maps-beta.niagararegion.ca/Navigator/
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LEGEND

- Phase Two ESA Property Boundary
- Topographic Contour

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PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street,
Niagara Falls, Ontario

TITLE:

TOPOGRAPHIC CONTOUR

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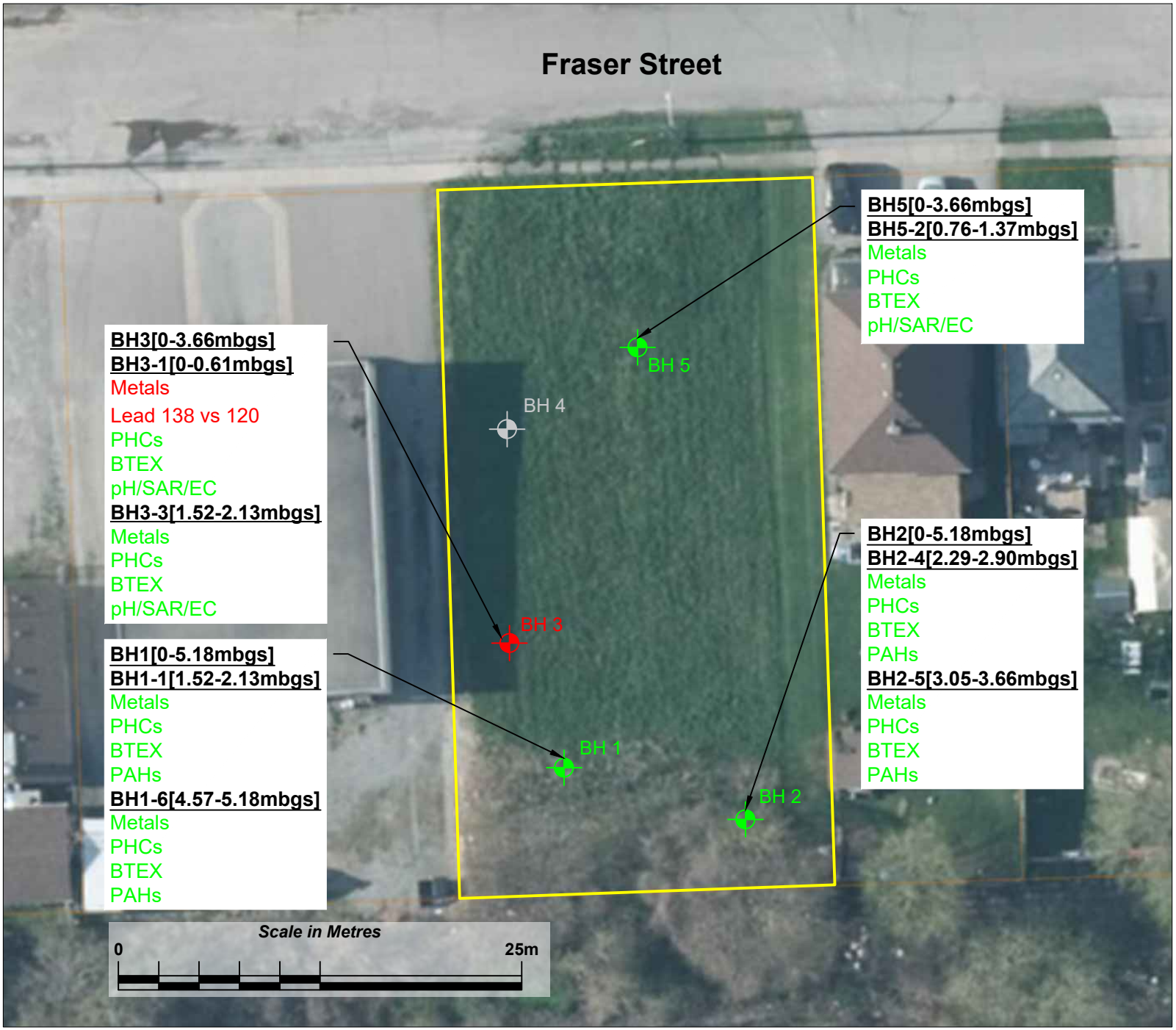
DATE:	MARCH 2023
PROJECT NO:	NS22122-02
SCALE:	AS SHOWN
NO:	Figure 6



REFERENCE: BASE MAP PROVIDED BY NIAGARA NAVIGATOR, https://maps-beta.niagararegion.ca/Navigator/
NOTE: FOR ILLUSTRATION PURPOSES ONLY, ALL LOCATIONS APPROXIMATE.

LEGEND

- Phase Two ESA Property Boundary
- BH 1 — Borehole Location
- BH 1 — Results Meet Criteria
- BH 1 — Results Exceed Criteria

Results Compared to O.Reg 153/04, Table 3: Residential Non-Potable, Coarse

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CLIENT: **Sam Visca Electric**

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street,
Niagara Falls, Ontario

TITLE:

SOIL RESULTS

DRAWN BY:	DN
CHECKED BY:	JM
DATE:	MARCH 2023
PROJECT NO:	NS22122-02
SCALE:	AS SHOWN
NO:	Figure 7A

REFERENCE: BASE MAP PROVIDED BY NIAGARA NAVIGATOR, https://maps-beta.niagararegion.ca/Navigator/
NOTE: FOR ILLUSTRATION PURPOSES ONLY, ALL LOCATIONS APPROXIMATE.

LEGEND

- Phase Two ESA Property Boundary
- BH 1 — Borehole Location
- BH 1 — Results Meet Criteria
- BH 1 — Results Exceed Criteria

Results Compared to O.Reg 153/04, Table 3: Residential Non-Potable, Coarse

NIAGARA SOILS SOLUTIONS LTD.

CLIENT: Sam Visca Electric

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street, Niagara Falls, Ontario

TITLE:

DELINEATION SOIL RESULTS

DRAWN BY: DN

CHECKED BY: JM

DATE: MARCH 2023

PROJECT NO: NS22122-02

SCALE: AS SHOWN

NO:

Figure 7B

REFERENCE: BASE MAP PROVIDED BY NIAGARA NAVIGATOR, https://maps-beta.niagararegion.ca/Navigator/
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LEGEND

- Phase Two ESA Property Boundary
- BH 1 — Borehole Location
- X — X' Cross Section

NIAGARA SOILS SOLUTIONS LTD.

CLIENT: **Sam Visca Electric**

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street,
Niagara Falls, Ontario

TITLE:

CROSS SECTION PLAN VIEW; A-A' & B-B'

DRAWN BY: DN

CHECKED BY: JM

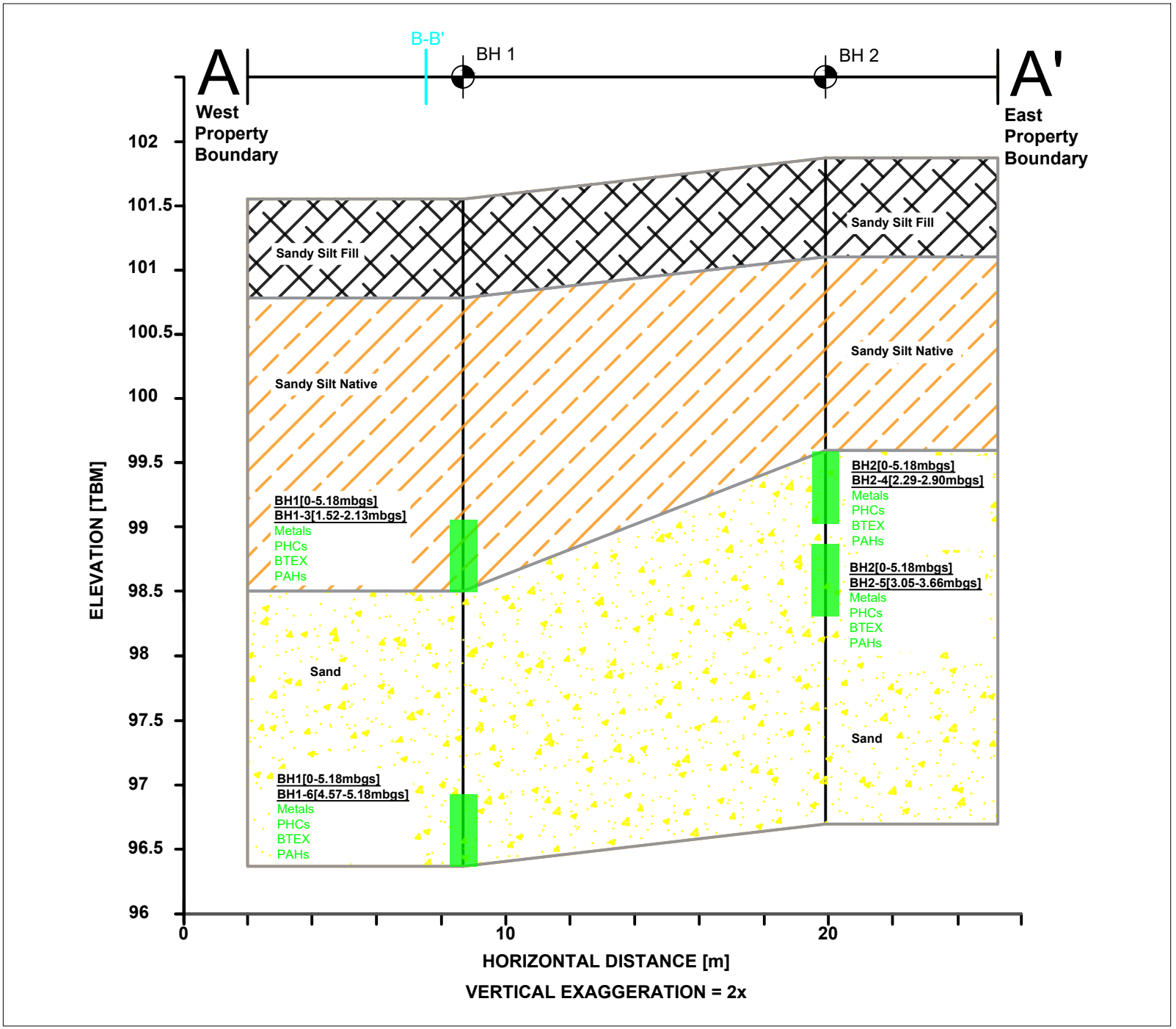
DATE: MARCH 2023

PROJECT NO: NS22122-02

SCALE: AS SHOWN

NO:

Figure 8



NOTE: FOR ILLUSTRATION PURPOSES ONLY, ALL LOCATIONS APPROXIMATE.

LEGEND

- Sandy Silt; Fill Material
- Sandy Silt; Native Material
- Sand
- Meets Standards
- Exceeds Standards

Results Compared to O. Reg. 153/04, Table 3: Residential, Coarse Criteria

NIAGARA SOILS SOLUTIONS LTD.

CLIENT: Sam Visca Electric

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street, Niagara Falls, Ontario

TITLE:

CROSS SECTION A-A'

DRAWN BY: DN

CHECKED BY: JM

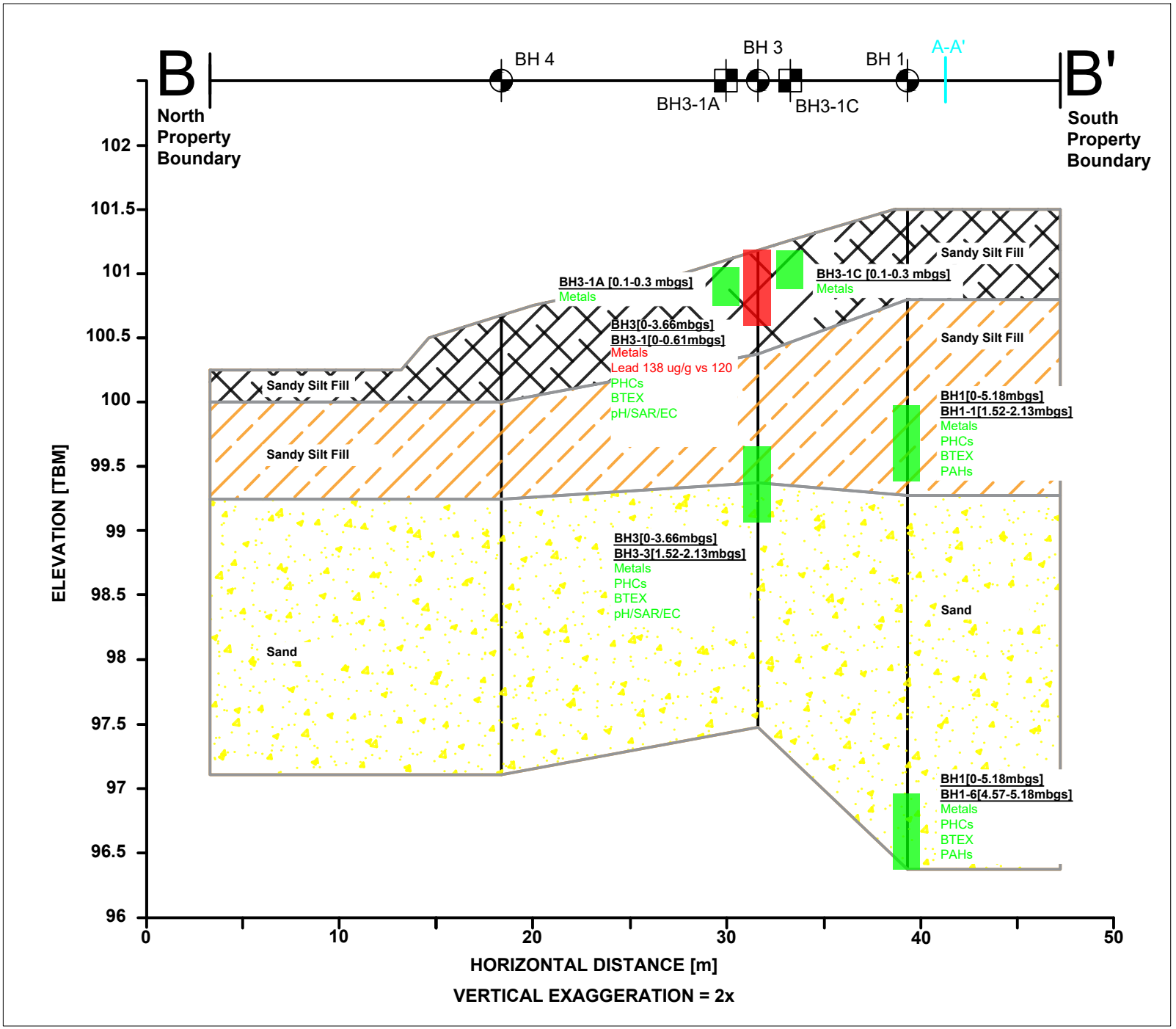
DATE: MARCH 2023

PROJECT NO: NS22122-02

SCALE: AS SHOWN

NO:

Figure 8A



LEGEND

- Sandy Silt; Fill Material
- Sandy Silt; Native Material
- Sand
- Meets Standards
- Exceeds Standards

Results Compared to O. Reg. 153/04, Table 3: Residential, Coarse Criteria

NIAGARA SOILS SOLUTIONS LTD.

CLIENT: Sam Visca Electric

PROJECT:

PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
5584 Fraser Street, Niagara Falls, Ontario

TITLE:

CROSS SECTION B-B'

DRAWN BY: DN

CHECKED BY: JM

DATE: MARCH 2023

PROJECT NO: NS22122-02

SCALE: AS SHOWN

NO:

Figure 8B

NOTE: FOR ILLUSTRATION PURPOSES ONLY, ALL LOCATIONS APPROXIMATE.

APPENDIX A

FIELD LOGS

RECORD OF BOREHOLE: BH-1

PROJECT NO.: NS22122-02
PROJECT: Residential
LOCATION: 5584 Fraser Street, Niagara Falls, ON
CLIENT: Sam Visca Electric

DRILLING COMPANY: Davis Drilling Ltd
DRILLING METHOD: Track Mounted Solid Stem 100mm
DRILL RIG: CME - 55
BOREHOLE COORDINATE (UTM): 4311202 E, 7908818 N

SHEET 1 of 1
DATE STARTED: March 2, 2023
DATE COMPLETED: March 2, 2023
DATUM: TBM

SOIL PROFILE		SAMPLES				DEPTH SCALE ft / m	ELEVATION (m / mbgs)	FIELD TESTING		LAB TESTING	WELL INSTALLATION	COMMENTS
LITHOLOGY PLOT	DESCRIPTION	TYPE	NUMBER	SPT 'N' VALUE	RECOVERY (%)			SPT (N) 25 50 75 100	COV (ppm / %LEL)	LAB ANALYSIS		
	Ground Surface					ft / m	101.55					
	50mm Topsoil					0.0 / 0.0	0.00					
	Brown Sandy Silt Fill Trace Gravel Trace Organics Loose Slightly Moist	SS	1	2,1,3,4		1.0		4	0			
						2.0	100.79					
	Brown Sandy Silt Fill Trace Gravel Trace Organics Loose Slightly Moist					3.0 / 1.0	0.76					
		SS	2	2,2,2,2		4.0		4	0			
						5.0						
		SS	3	2,3,3,11		6.0 / 2.0		6	0	Soil: Metals, PHC, BTEX, PAHs		
						7.0	99.26					
	Brown Sand Trace Gravel, Trace Boulder Compact Dry Coarser with depth					8.0	2.29					
		SS	4	2,3,3,7		9.0		6	0			
						10.0 / 3.0						
		SS	5	4,8,10,11		11.0		18	0			
						12.0						
		SS				13.0 / 4.0						
						14.0						
						15.0						
		SS	6	7,9,9,12		16.0 / 5.0		18	0	Soil: Metals, PHC, BTEX, PAHs		
						17.0	96.37					
	End of Borehole					18.0	5.18					
						19.0						
						20.0 / 6.0						

Groundwater Level Upon Completion:
Secondary Groundwater Level:

INITIAL WATER LEVEL: Dry
SECONDARY WATER LEVEL: N/A
BOREHOLE CAVE UPON COMPLETION: N/A

INITIAL WATER LEVEL DATE: March 2, 2023
SECONDARY WATER LEVEL DATE: N/A

LOGGED: JT / DN
COMPILED: MD
CHECKED: JM

Niagara Soils Solutions Ltd.
3300 Merrittville Highway, Unit 5
Thorold, Ontario, L2V 4Y6

Note: This borehole log has been prepared for environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole details as presented, do not constitute a through understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer/Geoscientist.

RECORD OF BOREHOLE: BH-2

PROJECT NO.: NS22122-02
PROJECT: Residential
LOCATION: 5584 Fraser Street, Niagara Falls, ON
CLIENT: Sam Visca Electric

DRILLING COMPANY: Davis Drilling Ltd
DRILLING METHOD: Track Mounted Solid Stem 100mm
DRILL RIG: CME - 55
BOREHOLE COORDINATE (UTM): 4311202 E, 7908818 N

SHEET 1 of 1
DATE STARTED: March 2, 2023
DATE COMPLETED: March 2, 2023
DATUM: TBM

SOIL PROFILE		SAMPLES				DEPTH SCALE ft / m	ELEVATION (m / mbgs)	FIELD TESTING		LAB TESTING		
LITHOLOGY PLOT	DESCRIPTION	TYPE	NUMBER	SPT 'N' VALUE	RECOVERY (%)			SPT (N) 25 50 75 100	COV (ppm / %LEL)	LAB ANALYSIS	WELL INSTALLATION	COMMENTS
	Ground Surface					ft m	101.87					
	50mm Topsoil					0.0 0.0	0.00					
	Brown Sandy Silt Fill Trace Gravel Trace Organics Loose Slightly Moist	SS	1	2,2,2,2		1.0		4	0			
						2.0	101.11					
	Brown Sandy Silt Native Trace Gravel Trace Organics Loose Slightly Moist	SS	2	1,5,1,1		3.0 1.0	0.76	4	0			
		SS	3	2,2,2,2		4.0 5.0 6.0 2.0		6	0			
						7.0	99.58					
	Brown Sand Trace Gravel, Sand and silt Coarser with depth Compact Dry	SS	4	3,3,6,8		8.0	2.29	6	0	Soil: Metals, PHC, BTEX, PAHs		
						9.0 10.0 3.0						
		SS	5	8,11,12,10		11.0		18	0	Soil: Metals, PHC, BTEX, PAHs		
						12.0 13.0 4.0						
						14.0	97.30					
	Brown gravelly sand Compact Dry	SS	6	8,12,14,10		15.0	4.57	18	0			
						16.0 5.0						
	End of Borehole					17.0	96.69					
						18.0 19.0 6.0	5.18					
						20.0						

Groundwater Level Upon Completion:
Secondary Groundwater Level:

INITIAL WATER LEVEL: Dry
SECONDARY WATER LEVEL: N/A
BOREHOLE CAVE UPON COMPLETION: N/A

INITIAL WATER LEVEL DATE: March 2, 2023
SECONDARY WATER LEVEL DATE: N/A

LOGGED: JT / DN
COMPILED: MD
CHECKED: JM

Niagara Soils Solutions Ltd.
3300 Merrittville Highway, Unit 5
Thorold, Ontario, L2V 4Y6

RECORD OF BOREHOLE: BH-3

PROJECT NO.: NS22122-02
PROJECT: Residential
LOCATION: 5584 Fraser Street, Niagara Falls, ON
CLIENT: Sam Visca Electric

DRILLING COMPANY: Davis Drilling Ltd
DRILLING METHOD: Track Mounted Solid Stem 100mm
DRILL RIG: CME - 55
BOREHOLE COORDINATE (UTM): 4311202 E, 7908818 N

SHEET 1 of 1
DATE STARTED: March 2, 2023
DATE COMPLETED: March 2, 2023
DATUM: TBM

SOIL PROFILE		SAMPLES						FIELD TESTING		LAB TESTING		
LITHOLOGY PLOT	DESCRIPTION	TYPE	NUMBER	SPT 'N' VALUE	RECOVERY (%)	DEPTH SCALE ft / m	ELEVATION (m / mbgs)	SPT (N) 25 50 75 100	COV (ppm / %LEL)	LAB ANALYSIS	WELL INSTALLATION	COMMENTS
	Ground Surface					0.0 / 0.0	101.14					
	75mm Topsoil						0.00					
	Brown Gravelly Sand Fill Some Silt Loose Moist	SS	1	5,3,2,3		1.0		5	0	Soil: Metals, PHC, BTEX, pH/ SAR/ EC		
						2.0	100.38					
	Brown Sandy Silt Fill Trace Gravel						0.76					
		SS	2	3,3,5,6		3.0 / 1.0		8	0			
						4.0						
		SS	3	3,3,4,6,		5.0						
	Brown Silty Sand Native Trace Gravel Loose					6.0	99.31 1.83	7	0	Soil: Metals, PHC, BTEX, pH/ SAR/ EC		
	Brown Sand Native Trace Gravel Compacted Dry					2.0	99.01 2.13					
		SS	4	15,33,39,44		7.0		72	0			
						8.0						
						9.0						
						10.0 / 3.0						
		SS	5	17,21,23,22		11.0		24	0			
	End of Borehole					12.0	97.48 3.66					
						13.0 / 4.0						
						14.0						
						15.0						
						16.0						
						5.0						
						17.0						
						18.0						
						19.0						
						6.0 / 20.0						

Groundwater Level Upon Completion:
Secondary Groundwater Level:

INITIAL WATER LEVEL: Dry
SECONDARY WATER LEVEL: N/A
BOREHOLE CAVE UPON COMPLETION: N/A

INITIAL WATER LEVEL DATE: March 2, 2023
SECONDARY WATER LEVEL DATE: N/A

LOGGED: JT / DN
COMPILED: MD
CHECKED: JM

Niagara Soils Solutions Ltd.
3300 Merrittville Highway, Unit 5
Thorold, Ontario, L2V 4Y6

Note: This borehole log has been prepared for environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole details as presented, do not constitute a through understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer/Geoscientist.

RECORD OF BOREHOLE: BH-4

PROJECT NO.: NS22122-02
PROJECT: Residential
LOCATION: 5584 Fraser Street, Niagara Falls, ON
CLIENT: Sam Visca Electric

DRILLING COMPANY: Davis Drilling Ltd
DRILLING METHOD: Track Mounted Solid Stem 100mm
DRILL RIG: CME - 55
BOREHOLE COORDINATE (UTM): 4311217 E, 7908829 N

SHEET 1 of 1
DATE STARTED: March 2, 2023
DATE COMPLETED: March 2, 2023
DATUM: TBM

SOIL PROFILE		SAMPLES						FIELD TESTING		LAB TESTING		
LITHOLOGY PLOT	DESCRIPTION	TYPE	NUMBER	SPT 'N' VALUE	RECOVERY (%)	DEPTH SCALE ft / m	ELEVATION (m / mbgs)	SPT (N) 25 50 75 100	COV (ppm / %LEL)	LAB ANALYSIS	WELL INSTALLATION	COMMENTS
	Ground Surface					0.0 ft / 0.0 m	100.76					
	75mm Topsoil						0.00					
	Brown Sandy Silt Fill Black staining Trace Asphalt, Trace Gravel	SS	1	2,2,1,2		2.0		3	0			
							100.00					
	Brown Sand Silt Fill Trace Gravel Compact Dry	SS	2	3,6,4,10		3.0 / 1.0 4.0	0.76	10	0			
							99.24					
	Brown Sand Native Trace Gravel Compacted Dry	SS	3	11,14,15,10		5.0 6.0 / 2.0	1.52	29	0			
	Brown Gravelly Sand Coarser with depth Compact Dry					7.0	98.63 2.13					
		SS	4	13,13,15,19		8.0 9.0 10.0 / 3.0		28	0			
		SS	5	8,6,10,11		11.0		16	0			
	End of Borehole					12.0	97.10 3.66					
						13.0 / 4.0 14.0 15.0 16.0 / 5.0 17.0 18.0 19.0 20.0 / 6.0						

Groundwater Level Upon Completion:
Secondary Groundwater Level:

INITIAL WATER LEVEL: Dry
SECONDARY WATER LEVEL: N/A
BOREHOLE CAVE UPON COMPLETION: N/A

INITIAL WATER LEVEL DATE: March 2, 2023
SECONDARY WATER LEVEL DATE: N/A

LOGGED: JT / DN
COMPILED: MD
CHECKED: JM

Niagara Soils Solutions Ltd.
3300 Merrittville Highway, Unit 5
Thorold, Ontario, L2V 4Y6

Note: This borehole log has been prepared for environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole details as presented, do not constitute a through understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer/Geoscientist.

RECORD OF BOREHOLE: BH-5

PROJECT NO.: NS22122-02
PROJECT: Residential
LOCATION: 5584 Fraser Street, Niagara Falls, ON
CLIENT: Sam Visca Electric

DRILLING COMPANY: Davis Drilling Ltd
DRILLING METHOD: Track Mounted Solid Stem 100mm
DRILL RIG: CME - 55
BOREHOLE COORDINATE (UTM): 4311226 E, 7908823 N

SHEET 1 of 1
DATE STARTED: March 2, 2023
DATE COMPLETED: March 2, 2023
DATUM: TBM

SOIL PROFILE		SAMPLES						FIELD TESTING		LAB TESTING		
LITHOLOGY PLOT	DESCRIPTION	TYPE	NUMBER	SPT 'N' VALUE	RECOVERY (%)	DEPTH SCALE ft / m	ELEVATION (m / mbgs)	SPT (N) 25 50 75 100	COV (ppm / %LEL)	LAB ANALYSIS	WELL INSTALLATION	COMMENTS
	Ground Surface					0.0 ft / 0.0 m	100.44					
	75mm Topsoil						0.00					
	Brown Sandy Silt Native Trace Gravel Dry Soft	SS	1	1,1,2,4		1.0 / 2.0		3	0			
							99.68					
							0.76					
	Brown Silty Sand Trace Boulder Dry Soft	SS	2	3,5,6,4		3.0 / 4.0 / 1.0		11	0	Soil: Metals, PHC, BTEX, pH/ SAR/ EC		
							98.92					
							1.52					
	Grey - Brown Gravelly Sand Trace silt Dry Compact	SS	3	3,7,8,10		5.0 / 6.0 / 2.0		15	0			
		SS	4	5,8,10,13		7.0 / 8.0 / 9.0 / 3.0		18	0			
		SS	5	11,11,14,18		10.0 / 11.0		23	0			
							96.78					
							3.66					
	End of Borehole					12.0 / 4.0 / 13.0 / 14.0 / 15.0 / 16.0 / 5.0 / 17.0 / 18.0 / 19.0 / 6.0 / 20.0						

Groundwater Level Upon Completion:
Secondary Groundwater Level:

INITIAL WATER LEVEL: Dry
SECONDARY WATER LEVEL: N/A
BOREHOLE CAVE UPON COMPLETION: N/A

INITIAL WATER LEVEL DATE: March 2, 2023
SECONDARY WATER LEVEL DATE: N/A

LOGGED: JT / DN
COMPILED: MD
CHECKED: JM

Niagara Soils Solutions Ltd.
3300 Merrittville Highway, Unit 5
Thorold, Ontario, L2V 4Y6

Note: This borehole log has been prepared for environmental purposes and does not necessarily contain information suitable for a geotechnical assessment of the subsurface conditions. Borehole details as presented, do not constitute a through understanding of all potential conditions present and require interpretative assistance from a qualified Geotechnical Engineer/Geoscientist.

APPENDIX B

CERTIFICATES OF ANALYSIS – SOIL

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD
3300 MERRITTVILLE HIGHWAY
THOROLD, ON L2V 4Y6
905-407-4030
ATTENTION TO: Jodie Glasier
PROJECT: NS22122-02
AGAT WORK ORDER: 23H003051
SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
TRACE ORGANICS REVIEWED BY: Neli Popnikolova, Senior Chemist
DATE REPORTED: Mar 13, 2023
PAGES (INCLUDING COVER): 16
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
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- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
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- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*
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AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

O. Reg. 153(511) - Metals (Including Hydrides) (Soil)

DATE RECEIVED: 2023-03-06 **DATE REPORTED: 2023-03-13**

		SAMPLE DESCRIPTION:		BH1-3	BH1-6	BH2-4	BH2-5	BH3-3	BH3-1	BH5-2
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-03-02	2023-03-02	2023-03-02	2023-03-02	2023-03-02	2023-03-02	2023-03-02
Parameter	Unit	G / S	RDL	4829483	4829484	4829485	4829486	4829487	4829488	4829489
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	2	4	5	5	2	11	7
Barium	µg/g	390	2.0	37.3	46.6	38.5	54.0	29.1	147	121
Beryllium	µg/g	4	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	0.4	<0.4
Boron	µg/g	120	5	<5	7	9	7	<5	<5	6
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5
Chromium	µg/g	160	5	8	12	14	12	7	15	11
Cobalt	µg/g	22	0.5	4.1	7.5	9.0	7.8	4.8	6.6	7.2
Copper	µg/g	140	1.0	12.1	35.3	44.0	33.5	8.7	40.7	15.4
Lead	µg/g	120	1	4	7	7	5	3	**138**	8
Molybdenum	µg/g	6.9	0.5	<0.5	1.3	0.6	0.6	<0.5	0.6	0.7
Nickel	µg/g	100	1	8	15	19	15	10	16	15
Selenium	µg/g	2.4	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Silver	µg/g	20	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Uranium	µg/g	23	0.50	<0.50	<0.50	0.53	<0.50	<0.50	<0.50	0.51
Vanadium	µg/g	86	0.4	14.2	20.7	25.9	22.0	13.8	21.7	19.5
Zinc	µg/g	340	5	26	38	46	37	24	201	41

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

O. Reg. 153(511) - ORPs (Soil)

DATE RECEIVED: 2023-03-06

DATE REPORTED: 2023-03-13

		SAMPLE DESCRIPTION:		BH3-3	BH3-1	BH5-2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2023-03-02	2023-03-02	2023-03-02
Parameter	Unit	G / S	RDL	4829487	4829488	4829489
Electrical Conductivity (2:1)	mS/cm	0.7	0.005	0.117	0.159	0.121
pH, 2:1 CaCl2 Extraction	pH Units	5.0-9.0	NA	7.10	7.10	7.38
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	N/A	0.072	0.065	0.090

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4829487-4829489 EC was determined on the DI water extract obtained from the 2:1 leaching procedure (2 parts DI water:1 part soil). pH was determined on the 0.01M CaCl2 extract obtained from 2:1 leaching procedure (2 parts extraction fluid:1 part wet soil). SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

O. Reg. 153(511) - PAHs (Soil)

DATE RECEIVED: 2023-03-06

DATE REPORTED: 2023-03-13

		SAMPLE DESCRIPTION:		BH1-3	BH1-6	BH2-4	BH2-5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-03-02	2023-03-02	2023-03-02	2023-03-02
Parameter	**Unit**	**G / S**	**RDL**	**4829483**	**4829484**	**4829485**	**4829486**
Naphthalene	µg/g	0.6	0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthylene	µg/g	0.15	0.05	<0.05	<0.05	<0.05	<0.05
Acenaphthene	µg/g	7.9	0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	<0.05	<0.05	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	<0.05	<0.05	<0.05
Pyrene	µg/g	78	0.05	<0.05	<0.05	<0.05	<0.05
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	<0.05	<0.05	<0.05
Chrysene	µg/g	7	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(a)pyrene	µg/g	0.3	0.05	<0.05	<0.05	<0.05	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<0.05	<0.05	<0.05	<0.05
Dibenz(a,h)anthracene	µg/g	0.1	0.05	<0.05	<0.05	<0.05	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<0.05	<0.05	<0.05	<0.05
1 and 2 Methlynaphthalene	µg/g	0.99	0.05	<0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	14.1	6.2	5.5	19.6
Surrogate	**Unit**	**Acceptable Limits**					
Naphthalene-d8	%	50-140		80	95	70	70
Acridine-d9	%	50-140		100	80	75	75
Terphenyl-d14	%	50-140		110	100	75	100

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 2: Full Depth Generic Site Condition Standards in a Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils **pH range listed applies to surface soil only**
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4829483-4829486 Results are based on the dry weight of the soil.
Note: The result for Benzo(b)Fluoranthene is the total of the Benzo(b)&j)Fluoranthene isomers because the isomers co-elute on the GC column.
2- and 1-Methyl Naphthalene is a calculated parameter. The calculated value is the sum of 2-Methyl Naphthalene and 1-Methyl Naphthalene.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popnikolof

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Certificate of Analysis

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2023-03-06

DATE REPORTED: 2023-03-13

		SAMPLE DESCRIPTION:		BH3-3	BH3-1	BH5-2
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2023-03-02	2023-03-02	2023-03-02
Parameter	**Unit**	**G / S**	**RDL**	**4829487**	**4829488**	**4829489**
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05	<0.05	<0.05
m & p-Xylene	µg/g		0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g		0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g	3.1	0.05	<0.05	<0.05	<0.05
F1 (C6 - C10)	µg/g	55	5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA
Moisture Content	%		0.1	16.8	13.7	16.1
Surrogate	**Unit**	**Acceptable Limits**				
Toluene-d8	% Recovery	60-140		110	97	116
Terphenyl	%	60-140		88	90	82

Certified By:

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PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

O. Reg. 153(511) - PHCs F1 - F4 (Soil)

DATE RECEIVED: 2023-03-06 **DATE REPORTED: 2023-03-13**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4829487-4829489 Results are based on sample dry weight.
The C6-C10 fraction is calculated using Toluene response factor.
Xylenes is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX contribution.
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC6 and nC10 response factors are within 30% of Toluene response factor.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.
Fractions 1-4 are quantified with the contribution of PAHs. Under Ontario Regulation 153, results are considered valid without determining the PAH contribution if not requested by the client.
Quality Control Data is available upon request.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: 

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Certificate of Analysis

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2023-03-06

DATE REPORTED: 2023-03-13

		SAMPLE DESCRIPTION:		BH1-3	BH1-6	BH2-4	BH2-5
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-03-02	2023-03-02	2023-03-02	2023-03-02
Parameter	**Unit**	**G / S**	**RDL**	**4829483**	**4829484**	**4829485**	**4829486**
Benzene	µg/g	0.21	0.02	<0.02	<0.02	<0.02	<0.02
Toluene	µg/g	2.3	0.05	<0.05	<0.05	<0.05	<0.05
Ethylbenzene	µg/g	2	0.05	<0.05	<0.05	<0.05	<0.05
m & p-Xylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
o-Xylene	µg/g		0.05	<0.05	<0.05	<0.05	<0.05
Xylenes (Total)	µg/g	3.1	0.05	<0.05	<0.05	<0.05	<0.05
F1 (C6 - C10)	µg/g	55	5	<5	<5	<5	<5
F1 (C6 to C10) minus BTEX	µg/g	55	5	<5	<5	<5	<5
F2 (C10 to C16)	µg/g	98	10	<10	<10	<10	<10
F2 (C10 to C16) minus Naphthalene	µg/g		10	<10	<10	<10	<10
F3 (C16 to C34)	µg/g	300	50	<50	<50	<50	<50
F3 (C16 to C34) minus PAHs	µg/g		50	<50	<50	<50	<50
F4 (C34 to C50)	µg/g	2800	50	<50	<50	<50	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA
Moisture Content	%		0.1	14.1	6.2	5.5	19.6
Surrogate	**Unit**	**Acceptable Limits**					
Toluene-d8	% Recovery	60-140		101	114	111	102
Terphenyl	%	60-140		78	75	85	88

Certified By: NPopowich

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Certificate of Analysis

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)

DATE RECEIVED: 2023-03-06 **DATE REPORTED: 2023-03-13**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

4829483-4829486 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene and o-Xylene.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.
The C10 - C16, C16 - C34, and C34 - C50 fractions are calculated using the average response factor for n-C10, n-C16, and n-C34.
Gravimetric Heavy Hydrocarbons are not included in the Total C16-C50 and are only determined if the chromatogram of the C34 - C50 hydrocarbons indicates that hydrocarbons >C50 are present.
The chromatogram has returned to baseline by the retention time of nC50.
Total C6 - C50 results are corrected for BTEX and PAH contributions.
C>10 – C16 (F2- Naphthalene) is a calculated parameter. The calculated value is F2 - Naphthalene.
C>16 - C34 (F3-PAH) is a calculated parameter. The calculated value is F3-PAH (PAH: sum of Phenanthrene, Benzo(a)anthracene, Benzo(b)fluoranthene, Benzo(k)fluoranthene, Benzo(a)pyrene, Fluoranthene, Dibenzo(a,h)anthracene, Indeno(1,2,3-c,d)pyrene and Pyrene).
This method complies with the Reference Method for the CWS PHC and is validated for use in the laboratory.
nC10, nC16 and nC34 response factors are within 10% of their average.
C50 response factor is within 70% of nC10 + nC16 + nC34 average.
Linearity is within 15%.
Extraction and holding times were met for this sample.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: N Popowich

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Exceedance Summary

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
4829488	BH3-1	ON T3 S RPI CT	O. Reg. 153(511) - Metals (Including Hydrides) (Soil)	Lead	µg/g	120	138

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Quality Assurance

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD
AGAT WORK ORDER: 23H003051
PROJECT: NS22122-02
ATTENTION TO: Jodie Glasier
SAMPLING SITE:Niagara Falls
SAMPLED BY:JT/PN

Soil Analysis

RPT Date: Mar 13, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Including Hydrides) (Soil)															
Antimony	4823122		0.9	0.9	NA	< 0.8	99%	70%	130%	84%	80%	120%	85%	70%	130%
Arsenic	4823122		7	7	0.0%	< 1	118%	70%	130%	106%	80%	120%	107%	70%	130%
Barium	4823122		98.5	96.8	1.7%	< 2.0	110%	70%	130%	102%	80%	120%	110%	70%	130%
Beryllium	4823122		0.4	<0.4	NA	< 0.4	96%	70%	130%	101%	80%	120%	107%	70%	130%
Boron	4823122		5	9	NA	< 5	73%	70%	130%	99%	80%	120%	91%	70%	130%
Cadmium	4823122		0.5	0.6	NA	< 0.5	114%	70%	130%	101%	80%	120%	114%	70%	130%
Chromium	4823122		15	15	NA	< 5	99%	70%	130%	102%	80%	120%	109%	70%	130%
Cobalt	4823122		6.3	6.3	0.0%	< 0.5	103%	70%	130%	101%	80%	120%	106%	70%	130%
Copper	4823122		41.2	39.4	4.5%	< 1.0	99%	70%	130%	104%	80%	120%	92%	70%	130%
Lead	4823122		174	182	4.5%	< 1	112%	70%	130%	108%	80%	120%	112%	70%	130%
Molybdenum	4823122		0.8	0.8	NA	< 0.5	110%	70%	130%	109%	80%	120%	115%	70%	130%
Nickel	4823122		14	14	0.0%	< 1	115%	70%	130%	104%	80%	120%	105%	70%	130%
Selenium	4823122		1.2	1.1	NA	< 0.8	88%	70%	130%	108%	80%	120%	110%	70%	130%
Silver	4823122		0.9	1.0	NA	< 0.5	101%	70%	130%	105%	80%	120%	104%	70%	130%
Thallium	4823122		<0.5	<0.5	NA	< 0.5	100%	70%	130%	107%	80%	120%	109%	70%	130%
Uranium	4823122		<0.50	<0.50	NA	< 0.50	108%	70%	130%	102%	80%	120%	105%	70%	130%
Vanadium	4823122		20.3	21.7	6.7%	< 0.4	103%	70%	130%	106%	80%	120%	109%	70%	130%
Zinc	4823122		219	226	3.1%	< 5	106%	70%	130%	96%	80%	120%	123%	70%	130%

Comments: NA Signifies Not Applicable.
Duplicate NA: results are under 5X the RDL and will not be calculated.

O. Reg. 153(511) - ORPs (Soil)									
Electrical Conductivity (2:1)	4829487	4829487	0.117	0.104	11.8%	< 0.005	96%	80%	120%
pH, 2:1 CaCl2 Extraction	4836753		6.69	6.93	3.5%	NA	93%	80%	120%
Sodium Adsorption Ratio (2:1) (Calc.)	4829487	4829487	0.072	0.064	11.8%	NA			

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.

Certified By:

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Quality Assurance

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

Trace Organics Analysis

RPT Date: Mar 13, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs) (Soil)															
Benzene	4828919		<0.02	<0.02	NA	< 0.02	100%	60%	140%	92%	60%	140%	97%	60%	140%
Toluene	4828919		<0.05	<0.05	NA	< 0.05	92%	60%	140%	96%	60%	140%	92%	60%	140%
Ethylbenzene	4828919		<0.05	<0.05	NA	< 0.05	111%	60%	140%	102%	60%	140%	94%	60%	140%
m & p-Xylene	4828919		<0.05	<0.05	NA	< 0.05	104%	60%	140%	99%	60%	140%	101%	60%	140%
o-Xylene	4828919		<0.05	<0.05	NA	< 0.05	105%	60%	140%	104%	60%	140%	100%	60%	140%
F1 (C6 - C10)	4828919		<5	<5	NA	< 5	96%	60%	140%	109%	60%	140%	115%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	4829391		<0.05	<0.05	NA	< 0.05	103%	50%	140%	83%	50%	140%	80%	50%	140%
Acenaphthylene	4829391		<0.05	<0.05	NA	< 0.05	100%	50%	140%	85%	50%	140%	100%	50%	140%
Acenaphthene	4829391		<0.05	<0.05	NA	< 0.05	79%	50%	140%	113%	50%	140%	100%	50%	140%
Fluorene	4829391		<0.05	<0.05	NA	< 0.05	67%	50%	140%	83%	50%	140%	103%	50%	140%
Phenanthrene	4829391		<0.05	<0.05	NA	< 0.05	73%	50%	140%	73%	50%	140%	85%	50%	140%
Anthracene	4829391		<0.05	<0.05	NA	< 0.05	73%	50%	140%	80%	50%	140%	78%	50%	140%
Fluoranthene	4829391		<0.05	<0.05	NA	< 0.05	72%	50%	140%	100%	50%	140%	113%	50%	140%
Pyrene	4829391		<0.05	<0.05	NA	< 0.05	85%	50%	140%	78%	50%	140%	98%	50%	140%
Benz(a)anthracene	4829391		<0.05	<0.05	NA	< 0.05	101%	50%	140%	85%	50%	140%	78%	50%	140%
Chrysene	4829391		<0.05	<0.05	NA	< 0.05	82%	50%	140%	115%	50%	140%	85%	50%	140%
Benzo(b)fluoranthene	4829391		<0.05	<0.05	NA	< 0.05	96%	50%	140%	113%	50%	140%	113%	50%	140%
Benzo(k)fluoranthene	4829391		<0.05	<0.05	NA	< 0.05	105%	50%	140%	100%	50%	140%	100%	50%	140%
Benzo(a)pyrene	4829391		<0.05	<0.05	NA	< 0.05	107%	50%	140%	93%	50%	140%	93%	50%	140%
Indeno(1,2,3-cd)pyrene	4829391		<0.05	<0.05	NA	< 0.05	74%	50%	140%	100%	50%	140%	103%	50%	140%
Dibenz(a,h)anthracene	4829391		<0.05	<0.05	NA	< 0.05	68%	50%	140%	93%	50%	140%	83%	50%	140%
Benzo(g,h,i)perylene	4829391		<0.05	<0.05	NA	< 0.05	72%	50%	140%	75%	50%	140%	85%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (Soil)															
Benzene	4828919		<0.02	<0.02	NA	< 0.02	100%	60%	140%	92%	60%	140%	97%	60%	140%
Toluene	4828919		<0.05	<0.05	NA	< 0.05	92%	60%	140%	96%	60%	140%	92%	60%	140%
Ethylbenzene	4828919		<0.05	<0.05	NA	< 0.05	111%	60%	140%	102%	60%	140%	94%	60%	140%
m & p-Xylene	4828919		<0.05	<0.05	NA	< 0.05	104%	60%	140%	99%	60%	140%	101%	60%	140%
o-Xylene	4828919		<0.05	<0.05	NA	< 0.05	105%	60%	140%	104%	60%	140%	100%	60%	140%
F1 (C6 - C10)	4828919		<5	<5	NA	< 5	96%	60%	140%	109%	60%	140%	115%	60%	140%
F2 (C10 to C16)	4830503		<10	<10	NA	< 10	97%	60%	140%	116%	60%	140%	119%	60%	140%
F3 (C16 to C34)	4830503		<50	<50	NA	< 50	103%	60%	140%	119%	60%	140%	111%	60%	140%
F4 (C34 to C50)	4830503		<50	<50	NA	< 50	103%	60%	140%	101%	60%	140%	93%	60%	140%

Comments: When the average of the sample and duplicate results is less than 5x the RDL, the Relative Percent Difference (RPD) will be indicated as Not Applicable (NA).

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Quality Assurance

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

Trace Organics Analysis (Continued)

RPT Date: Mar 13, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Certified By:

AGAT Laboratories

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Method Summary

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Arsenic	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Barium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Beryllium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Boron	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cadmium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Chromium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Cobalt	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Copper	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Molybdenum	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Nickel	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Selenium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Silver	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Thallium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Uranium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Vanadium	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Zinc	MET 93 -6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
pH, 2:1 CaCl2 Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES

AGAT Laboratories

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FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Naphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acenaphthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluorene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Phenanthrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benz(a)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Chrysene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(b)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(k)fluoranthene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(a)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Indeno(1,2,3-cd)pyrene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Dibenz(a,h)anthracene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Benzo(g,h,i)perylene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
1 and 2 Methlynaphthalene	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Naphthalene-d8	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Acridine-d9	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Terphenyl-d14	ORG-91-5106	modified from EPA 3570 and EPA 8270E	GC/MS
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Benzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Toluene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Ethylbenzene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
m & p-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
o-Xylene	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
Xylenes (Total)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/MS
F1 (C6 - C10)	VOL-91-5009	modified from CCME Tier 1 Method	(P&T)GC/FID
F1 (C6 to C10) minus BTEX	VOL-91-5009	modified from CCME Tier 1 Method	P&T GC/FID
Toluene-d8	VOL-91-5009	modified from EPA SW-846 5030C & 8260D	(P&T)GC/MS
F2 (C10 to C16)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

AGAT Laboratories

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FAX (905)712-5122
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Method Summary

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

AGAT WORK ORDER: 23H003051

PROJECT: NS22122-02

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:JT/PN

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Gravimetric Heavy Hydrocarbons	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE
Terphenyl	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F2 (C10 to C16) minus Naphthalene	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
F3 (C16 to C34) minus PAHs	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID

AGAT Laboratories
5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Laboratory Use Only
Work Order #: 23H003051
Cooler Quantity: LG COOLER
Arrival Temperatures: 19.1 | 18.9 | 18.7 / 7.9 | 8.2 | 8.5
Custody Seal Intact: ☐ Yes ☐ No ☐ N/A
Notes: NO ICE

Report Information:
Company: NSSL
Contact: Jodie Glasier
Address: 3300 Merrithville Hwy Unit 5, Thorold, L2V 4Y6
Phone: 289-407-6341 Fax:
Reports to be sent to:
1. Email: Jglasier@nssl.ca
2. Email:

Regulatory Requirements:
(Please check all applicable boxes)
☒ Regulation 153/04 — Table 3 (Indicate One) — ☐ Ind/Com ☒ Res/Park ☐ Agriculture
Soil Texture (Check One): ☒ Coarse ☐ Fine
☐ Excess Soils R406 — Table (Indicate One)
☐ Regulation 558
☐ CCME
☐ Sewer Use ☐ Sanitary ☐ Storm — (Region)
☐ Prov. Water Quality Objectives (PWQO)
☐ Other (Indicate One)

Turnaround Time (TAT) Required:
Regular TAT ☑ 5 to 7 Business Days
Rush TAT (Rush Surcharges Apply)
☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day
OR Date Required (Rush Surcharges May Apply):
Please provide prior notification for rush TAT
*TAT is exclusive of weekends and statutory holidays
For 'Same Day' analysis, please contact your AGAT CPM

Project Information:
Project: NS22122-02
Site Location: Niagara Falls.
Sampled By: JT/PN.
AGAT Quote #: 763961 EB PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Is this submission for a Record of Site Condition? ☒ Yes ☐ No

Report Guideline on Certificate of Analysis ☑ Yes ☐ No

Invoice Information: Bill To Same: Yes ☒ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend
B Biota
GW Ground Water
O Oil
P Paint
S Soil
SD Sediment
SW Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC Y/N	O. Reg 153: Metals & Inorganics	Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	BTEX, F1-F4 PHCs	PAHs	PCBs	VOC	Aroclors	O. Reg 558: Landfill Disposal Characterization TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: Include Moisture ☐ Sulphide ☐	pH/ISAL/EC						Potentially Hazardous or High Concentration (Y/N)
BH1-3	3-2	AM PM	3	S				X	X	X								X						
BH1-6	"	AM PM	"	"				X	X	X														
BH2-4		AM PM						X	X	X														
BH2-5		AM PM						X	X	X														
BH3-3		AM PM						X	X									X						
BH3-1		AM PM						X	X									X						
BH5-2	↓	AM PM	↓	↓				X	X									X						
		AM PM																						
		AM PM																						
		AM PM																						
		AM PM																						

Samples Relinquished By (Print Name and Sign)	Date	Time	Samples Received By (Print Name and Sign)	Date	Time
Damen Nyland				March 6/23	2:45pm
	March 6/23	3pm			

Page 1 of 1
N°: T-136621

AGAT Laboratories

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD
3300 MERRITTVILLE HIGHWAY
THOROLD, ON L2V 4Y6
905-407-4030
ATTENTION TO: Jodie Glasier
PROJECT: NS22122-02
AGAT WORK ORDER: 23H006353
SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganics Report Writer
DATE REPORTED: Mar 24, 2023
PAGES (INCLUDING COVER): 5
VERSION*: 1

Should you require any information regarding this analysis please contact your client services representative at (905) 712-5100

Notes

Disclaimer:

- *All work conducted herein has been done using accepted standard protocols, and generally accepted practices and methods. AGAT test methods may incorporate modifications from the specified reference methods to improve performance.*
- *All samples will be disposed of within 30 days after receipt unless a Long Term Storage Agreement is signed and returned. Some specialty analysis may be exempt, please contact your Client Project Manager for details.*
- *AGAT's liability in connection with any delay, performance or non-performance of these services is only to the Client and does not extend to any other third party. Unless expressly agreed otherwise in writing, AGAT's liability is limited to the actual cost of the specific analysis or analyses included in the services.*
- *This Certificate shall not be reproduced except in full, without the written approval of the laboratory.*
- *The test results reported herewith relate only to the samples as received by the laboratory.*
- *Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, warranties of merchantability, fitness for a particular purpose, or non-infringement. AGAT assumes no responsibility for any errors or omissions in the guidelines contained in this document.*
- *All reportable information as specified by ISO/IEC 17025:2017 is available from AGAT Laboratories upon request.*
- *For environmental samples in the Province of Quebec: The analysis is performed on and results apply to samples as received. A temperature above 6°C upon receipt, as indicated in the Sample Reception Notification (SRN), could indicate the integrity of the samples has been compromised if the delay between sampling and submission to the laboratory could not be minimized.*

AGAT Laboratories

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CANADA L4Z 1Y2
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FAX (905)712-5122
http://www.agatlabs.com

Certificate of Analysis

AGAT WORK ORDER: 23H006353

PROJECT: NS22122-02

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:DN

O. Reg. 153(511) - Metals (Including Hydrides) (Soil)

DATE RECEIVED: 2023-03-16

DATE REPORTED: 2023-03-24

			SAMPLE DESCRIPTION:	BH3-1 A	BH3-1 B	BH3-1 C	BH3-1 D
			SAMPLE TYPE:	Soil	Soil	Soil	Soil
			DATE SAMPLED:	2023-03-15 11:00	2023-03-15 11:00	2023-03-15 11:00	2023-03-15 11:00
Parameter	Unit	G / S	RDL	4857617	4857618	4857619	4857620
Lead	µg/g	120	1	105	102	114	12

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to Table 3: Full Depth Generic Site Condition Standards in a Non-Potable Ground Water Condition - Soil - Residential/Parkland/Institutional Property Use - Coarse Textured Soils
Guideline values are for general reference only. The guidelines provided may or may not be relevant for the intended use. Refer directly to the applicable standard for regulatory interpretation.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By:

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Quality Assurance

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

AGAT WORK ORDER: 23H006353

PROJECT: NS22122-02

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:DN

Soil Analysis

RPT Date: Mar 24, 2023			DUPLICATE				REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD	Method Blank	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Including Hydrides) (Soil)															
Lead	4860114		18	15	18.2%	< 1	111%	70%	130%	103%	80%	120%	87%	70%	130%

Certified By:

AGAT Laboratories

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MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
FAX (905)712-5122
http://www.agatlabs.com

Method Summary

CLIENT NAME: NIAGARA SOIL SOLUTIONS LTD

AGAT WORK ORDER: 23H006353

PROJECT: NS22122-02

ATTENTION TO: Jodie Glasier

SAMPLING SITE:Niagara Falls

SAMPLED BY:DN

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Lead	MET-93-6103	modified from EPA 3050B and EPA 6020B and ON MOECC	ICP-MS

AGAT Laboratories

5835 Coopers Avenue
Mississauga, Ontario L4Z 1Y2
Ph: 905.712.5100 Fax: 905.712.5122
webearth.agatlabs.com

Laboratory Use Only

Work Order #: 23H006353

Cooler Quantity: LG COOLER

Arrival Temperatures: 7.3 | 7.1 | 7.9
2.6 | 2.3 | 2.7

Custody Seal Intact: ☐ Yes ☐ No ☐ N/A

Notes: BAGGED ICE

Chain of Custody Record

If this is a Drinking Water sample, please use Drinking Water Chain of Custody Form (potable water consumed by humans)

Report Information:

Company: NSSL
Contact: Jodie Glasier
Address: 3300 Merrittville Hwy Unit 5
Thorold, ON L2V 4Y6
Phone: 289.407.6341 Fax:
Reports to be sent to:
1. Email: jglasier@nssl.ca
2. Email:

Regulatory Requirements:

(Please check all applicable boxes)

☒ Regulation 153/04
Table 3 *Indicate One*
☐ Ind/Com
☒ Res/Park
☐ Agriculture

Soil Texture *(Check One)*
☒ Coarse
☐ Fine

☐ Excess Soils R406
Table ______ *Indicate One*

☐ Regulation 558

☐ CCME

☐ Sewer Use
☐ Sanitary ☐ Storm
______ *Region*

☐ Prov. Water Quality Objectives (PWQO)

☐ Other
______ *Indicate One*

Is this submission for a Record of Site Condition? ☒ Yes ☐ No

Report Guideline on *Certificate of Analysis* ☒ Yes ☐ No

Turnaround Time (TAT) Required:

Regular TAT ☐ 5 to 7 Business Days

Rush TAT (Rush Surcharges Apply)

☐ 3 Business Days ☐ 2 Business Days ☐ Next Business Day

OR Date Required (Rush Surcharges May Apply):

Please provide prior notification for rush TAT
**TAT is exclusive of weekends and statutory holidays*

For 'Same Day' analysis, please contact your AGAT CPM

Project Information:

Project: NS22122-02
Site Location: Niagara Falls.
Sampled By: DJ
AGAT Quote #: 763961 EB PO:
Please note: If quotation number is not provided, client will be billed full price for analysis.

Invoice Information:

Bill To Same: Yes ☑ No ☐
Company:
Contact:
Address:
Email:

Sample Matrix Legend

B	Biota
GW	Ground Water
O	Oil
P	Paint
S	Soil
SD	Sediment
SW	Surface Water

Sample Identification	Date Sampled	Time Sampled	# of Containers	Sample Matrix	Comments/ Special Instructions	Field Filtered - Metals, Hg, CrVI, DOC Y/N	O. Reg 153: Metals & Inorganics	O. Reg 153: Metals - ☐ CrVI, ☐ Hg, ☐ HWSB	O. Reg 153: BTEX, F1-F4 PHCs	PAHs	PCBs	VOC	Aroclors	O. Reg 558: Landfill Disposal Characterization TCLP: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Excess Soils SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	O. Reg 406: Excess Soils Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: Include Moisture ☐ Sulphide ☐	Lead ONLY ↳ Metals.						Potentially Hazardous or High Concentration (Y/N)
BH3-1 A	3-15	11 AM	1	S	Only Lead													X						
BH3-1 B	↓	11 AM	1	S	↓													X						
BH3-1 C	↓	11 AM	1	S	↓													X						
BH3-1 D	↓	11 AM PM	1	S	↓													X						
		AM PM																						
		AM PM																						
		AM PM																						
		AM PM																						
		AM PM																						
		AM PM																						
		AM PM																						

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
[signature]	3-15		DJAC [signature]	MAR/6/23	8am
Samples Relinquished By (Print Name and Sign): Aimee Nykerk. DJAC [signature]	MAR-16/23	3PM	Samples Received By (Print Name and Sign): KMC	16/3/23	5pm
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page ____ of ____

Nº: T - 139473

APPENDIX C

GRAIN SIZE ANALYSIS

Project No.: NT23044 March 10, 2023

Niagara Soils Solutions Ltd.
3300 Merrittville Highway, Unit 5
Thorold, Ontario
L2V 4Y6

Attention: Ms. Jodie Glasier, Vice President

RE: Laboratory Analysis for Soil Texture Classification
Niagara Soils Solutions Ltd. Project No. NS22122-02
5584 Fraser Street, Niagara Falls, Ontario

Dear Ms. Glasier:

As requested, Niagara Testing & Inspection Ltd. (NTIL) was retained to perform laboratory analysis on soil samples for soil texture classification (i.e., fine/medium or coarse grain soil determination) as defined in Ontario Regulation 153/04 (as amended).

On Friday March 3rd, 2023, two (2) soil samples were delivered by Niagara Soils Solutions Ltd. to NTIL soils laboratory for 75-micron (µm) (#200) single-sieve grain size analysis. Results for the analysis are summarized in the table below.

Sample I.D.	*Percent Passing 75 µm (#200) Sieve*	*Percent Retained on 75 µm (#200) Sieve*	*Soil Texture*
BH 1-2	30.1 %	69.9 %	Coarse Grained
BH 4-4	20.8 %	79.2 %	Coarse Grained

We trust that this information is satisfactory for your purposes. Should you have any queries please do not hesitate to contact the undersigned.

Regards:

Niagara Testing & Inspection Ltd.

Prepared by:

Dwayne Neill, P.Eng.
Geotechnical Engineer

Reviewed by:

John Monkman, P.Eng.
Project Engineer

LICENSED PROFESSIONAL ENGINEER
J. D. MONKMAN
PROVINCE OF ONTARIO
Mar 10, 2023

Distribution:
Jodie Glasier – jglasier@nssl.ca