SOIL-MAT ENGINEERS & CONSULTANTS LTD.

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PROJECT NO.: SM 230902-E December 4, 2023

CAIRNWOOD HOMES
331 Major Street
Welland, Ontario
L3B 3T7

Attention: Mr. Jordan Plett

PRELIMINARY PHASE TWO ENVIRONMENTAL SITE ASSESSMENT
111 VICTORIA STREET
WELLAND, ONTARIO

Dear Mr. Plett,

1.0 EXECUTIVE SUMMARY

SOIL-MAT ENGINEERS & CONSULTANTS LTD. [SOIL-MAT ENGINEERS] were retained by CAIRNWOOD HOMES to undertake Preliminary Phase Two Environmental Site Assessment [ESA] activities on the above captioned property. Of note, our Phase Two activities were conducted in accordance with Ontario Regulation 153/04 [as amended] to support the eventual filing of a Record of Site Condition [RSC] for the property.

Our Phase Two activities included the advancement of five [5] machine dug test pits on the Phase Two Property to facilitate the collection and submission of select soil samples for laboratory analytical testing.

Based on SOIL-MAT ENGINEERS' field observations and the laboratory analytical test results received in its office, SOIL-MAT ENGINEERS is pleased to offer the following:

- Our Phase Two activities revealed elevated levels of select Metal parameters in a soil sample secured from the northern portion of the Phase Two Property. Specifically, an elevated level of Cobalt, Copper, Molybdenum, Nickel, and Zinc in soil sample 'TP1'.
- Our Phase Two activities revealed an elevated level of a select Organochlorine Pesticide parameter in a soil sample secured from the southern portion of the Phase Two Property. Specifically, an elevated level of DDE in soil sample 'TP5'.
- With the exception of the above, the remaining soil samples subjected to laboratory analytical testing, for the contaminant of potential concern groupings, all reporting met the applicable site condition standards.
- Of note, groundwater samples were not secured as part of our preliminary Phase Two activities.

The samples secured for analytical testing are believed to be representative of the conditions at the sample locations only. If any significant changes are noted, i.e., odours, staining etc., SOIL-MAT ENGINEERS should be contacted to reassess the environmental characteristics of the Site.

It is noted that subsurface soil conditions may be present on-site that are not typical of those presented in this Report. If future activities reveal such soils, SOIL-MAT ENGINEERS should be contacted to assess the soil conditions with respect to the proposed activity.

NEXT STEPS

Our Phase Two activities [to date] are considered preliminary as the scope of work was limited to near surface soil sampling in select locations on the Phase Two Property. In addition, the preliminary Phase Two activities were not designed, as requested, to assess all the areas of potential environmental concern on the Phase Two Property and/or all the potential mediums of concern. However, with that being said, the preliminary Phase Two activities revealed isolated 'hot spots' with elevated levels of select Metal and Organochlorine Pesticide parameters. As such, it is recommended that future Phase Two activities include specific intrusive sampling to further assess the lateral and vertical extent of the documented 'hot spot' areas.

2.0 INTRODUCTION

SOIL-MAT ENGINEERS were retained by CAIRNWOOD HOMES to undertake a Preliminary Phase Two Environmental Site Assessment on the above captioned property. It is noted that the Phase Two activities were conducted in accordance with Ontario Regulation 153/04 [as amended] to support the filing of an RSC. However, as the Phase Two activities were preliminary in nature additional intrusive sampling will be required to satisfy the sampling requirements of the RSC Regulation.

A Phase One Environmental Site Assessment was previously prepared by SOIL-MAT ENGINEERS and was utilised as a supporting document in determining the rationale for these Phase Two activities [refer to SOIL-MAT ENGINEERS' Report No.: SM 230169-E dated May 25, 2023].

Our fieldwork, laboratory testing and interpretation in connection with the assessment activities has been finalised and our comments and recommendations, based on our findings, are presented in the following paragraphs.

The subject property is herein referred to as the Phase Two Property and/or the *Site*.

2.0 (i) SITE DESCRIPTION

The Site is comprised of a roughly rectangular shaped parcel of vacant land located on the corner of Victoria Street and Hester Lane in the City of Welland, Ontario. Specifically, the Site was observed to be relatively flat and mainly comprised of grass covered areas. In addition, remnants of a former building foundation were observed on the central portion of the Phase Two Property, and a gravel covered driveway was observed on the southeastern portion of the Phase Two Property.

The Site was bounded to the north by Victoria Street, to the south by 270 Burgar Street, to the east by Hester Lane, and to the west by 97 Victoria Street, 260 and 264 Burgar Street.

The Site is recognised with the municipal address of '111 Victoria Street, Welland, Ontario'. The property identification number [PIN] of the Site is '64110-0038'.

The area of the Site is 0.2 hectares.

2.0 (ii) PROPERTY OWNERSHIP

At the time of our Phase One ESA Report, the Site was owned by Deham Canada Inc. However, as noted in the preamble of this Report, SOIL-MAT ENGINEERS were retained by CAIRNWOOD HOMES. to undertake the Phase Two activities on the Site in support of the redevelopment of the Site.

The contact information for the client is provided below:

1. Contact Name: Mr. Jordan Plett
2. Mailing Address: 331 Major Street, Welland, Ontario, L3B 3T7
3. Contact e-mail: jordan@cairnwood.ca

4. Contact Phone: 905-246-1902

2.0 (iii) CURRENT AND PROPOSED FUTURE USE

Current Use: Commercial Use
Proposed Use: Residential Use

Based on the current use and the proposed use of the Site, the proposed development is subject to a mandatory filing of an RSC in support of a residential redevelopment.

2.0 (iv) APPLICABLE SITE CONDITION STANDARDS

The following criteria were utilised to determine the appropriate site classification and applicable soil and groundwater standards.

- Current land use: Industrial;
- Intended land use: Residential Use;
- Drinking Water Supply: Non-Potable Ground Water;
- On-site Soil Texture: Coarse Grained Soils;
- Depth to Bedrock: greater than 20.0 metres;
- pH of soils on the Site: Within the Applicable Generic Site Condition Standards Range;
- Surface Water Body: Not observed on-Site or within 30 metres of the Site.

Based on the above, the applicable site condition standards [SCSs] are the Table 3 SCSs for a Residential/Parkland/Institutional Use [RPI] property use in a non-potable groundwater condition from the Ministry of the Environment document “Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environment Protection Act, (2011), hereinafter referred to as the ‘Table 3 RPI Standards’. However, to avoid a possible 30 day upper tier municipality non-potable water notification delay the Qualified Person [QP] opted to compare all of the available soil and groundwater analytical test results to the Table 2 Standards for a residential / parkland / institutional [RPI] property use in a potable groundwater condition from the Ministry of the Environment document “Soil, Ground Water and Sediment Standards for Use under Part XV.1 of the Environmental Protection Act, (2011), hereinafter referred to as the ‘Table 3 RPI Standards’.

3.0 BACKGROUND INFORMATION

3.0 (i) PHYSICAL SETTING

The Site is located in an area of mixed residential, commercial, and industrial use properties.

There are no water bodies in whole or in part on the Phase Two Property. In addition, surface water bodies were not observed within 30 metres of the Phase Two Property.

There are no areas of natural significance located in whole or in part on the Phase Two Property.

The topography of the Site is relatively flat and level with surface water being directed primarily to the south towards Robinson Street.

3.0 (ii) PAST INVESTIGATIONS

SOIL-MAT ENGINEERS had access to the following environmental report, which was utilized as a supporting document during the completion of this Report.

1. Soil-Mat Engineers Report Number SM 230169-E, entitled, "Phase One Environmental Site Assessment, 111 Victoria Street, Welland, Ontario", dated May 25, 2023, prepared by SOIL-MAT ENGINEERS for Deham Canada Inc.

The May 25, 2023 Phase One ESA report revealed three [3] potentially contaminating activities [PCA] that were considered likely to cause an area of potential environmental concern [APEC] on the Site, including the following:

- Information extrapolated from the existing fire insurance plans and available Title [ownership] searches revealed that a seed company [The Vaughan Seed Company] operated on the Phase One Property from circa 1909 to 2008;
- Our Phase One ESA research revealed a building, located on the central and northeast portion of the Phase One Property, was destroyed during a fire, and;
- Information extrapolated from aerial photographs, topographic maps and fire insurance plans revealed a building was formerly located on the central and northeast portion of the Phase One Property.

The lands in the general vicinity of the Phase One Property are comprised of a mixture of commercial and residential use lands. The Phase One ESA research revealed two [2] historical PCAs on lands in the Phase One Study Area that are considered likely to cause an APECon the Phase One Property, including the following:

- A foundry formerly maintained operations on a nearby property located approximately 40 metres east from the Site. Specifically, the nearby property was occupied by Welland Machine & Foundry Ltd., from circa 1913 to 1931, Welland Steel Castings, from circa 1931 to 1935, and Welland Electric Steel foundry from circa 1935 to 1954, and;
- A metal fabrication facility is located approximately 40 metres east of the Phase One Property. Specifically, the nearby property was occupied by Ward Iron Works, from

circa 1971 to 2005, and General Fabrication and Equipment Manufacturing from circa 2010 to time of this Report.

Based on the above, the PCAs, and associated APECs, were limited to the following:

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Locations of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC #1	In the immediate vicinity of the former structure on the Phase One Property.	30. Importation of Fill Material of Unknown Quality [PCA A]	On-Site	Metals, Petroleum Hydrocarbons [PHCs], and Benzene, Toluene, Ethylbenzene and Xylenes [BTEX]	Soil
		Other. Incomplete Combustion of Organic Matter [PCA B]	On-Site	Metals, PHCs, BTEX, Volatile Organic Compounds [VOCs] and Polycyclic Aromatic Hydrocarbons [PAHs]	Soil and Groundwater
APEC #2	The eastern limit of the Phase One Property	32. Iron and Steel Manufacturing and Processing [PCA D]	Off-Site	Metals and Inorganics, PHCs, BTEX, and VOCs	Soil and Groundwater
		34. Metal Fabrication [PCA E]	Off-Site	Metals, PHCs, VOCs, PCBs and PAHs	Soil and groundwater
APEC #3	The entire Phase One Property.	40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications [PCA C]	On-Site	Metals and Inorganics and Organochloride Pesticides [OCs]	Soil and groundwater

Of note, our May 25, 2023, Phase One ESA Report was supervised by a Qualified Person [QP] of SOIL-MAT ENGINEERS.

In addition to the above, SOIL-MAT ENGINEERS contacted the City of Welland to request a copy of previous environmental reports for the Site that may be on file with the Region. However, a response was not received from the Planning and Develop.

In addition, a search of the MOE's *Brownfields Environmental Site Registry* did not reveal a previous Phase One ESA that may have been undertaken on the Site.

4.0 SCOPE OF THE INVESTIGATION

4.0 (i) OVERVIEW OF SITE INVESTIGATION

Based on the Phase One ESA findings, and five [5] machine dug test pits were advanced on the Site to assess the impact to the soil, if any, as a result of the noted PCAs. Of note, our initial fieldwork on the Site is considered preliminary in nature and should not be considered a full detailed Phase Two ESA designed to address all of the PCAs and associated APECs identified in our Phase One ESA Report

Representative soil samples were secured following standard industry sampling protocols and were submitted to AGAT laboratories for laboratory analytical testing for the specific Phase Two ESA contaminants of potential concern, in this case being Petroleum Hydrocarbons [PHCs], Benzene, Toluene, Ethylbenzene, and Xylene mixture [BTEX], Volatile Organic Compounds [VOCs], Metals, Arsenic [As], Antimony [Sb], Selenium [Se], BHWS, Cyanide [CN-], Electrical Conductivity [EC], Chromium [Cr (VI)], Mercury [Hg] and Sodium Adsorption Ratio [SAR], Polycyclic Aromatic Hydrocarbons [PAHs], and Organochlorides [OCs] and Pesticides. For reporting purposes, the COPCs listed above [with the exception of PHCs, BTEX, PAHs, PCBs, and VOCs] are hereinafter referred to as “Metals”.

4.0 (ii) MEDIA INVESTIGATED

The purpose of the Phase Two activities were to undertake a preliminary assessment of the soil medium within the limits of the Phase Two Property, as related to the environmental concerns identified in our May 25, 2023 Phase One ESA report.

4.0 (iii) PHASE ONE CONCEPTUAL SITE MODEL

The Phase One Property is comprised of a rectangular shaped parcel of land located on the south side of Victoria Street, west of Hester Lane, and is commonly recognized with the municipal address of 111 Victoria Street in the City of Welland, Ontario.

SOIL-MAT ENGINEERS completed a Phase One ESA for the Site in May of 2023. The information gathered during the completion of the Phase One ESA report revealed that the Site was first developed before 1909 as residential use lands. The first readily available visual aid for the Site is an aerial photograph from 1959 which illustrates the Site as residential lands. Other visual aids, including aerial photographs from 1921, 1934, 1948, 1955, 1968, 1971, 2000, 2010, and 2018 and topographic maps from 1907, 1923, 1929, 1938, 1964, 1973, and 2022, confirm the development timeline above.

The neighbouring and nearby lands to the Site are comprised of a mixture of residential, commercial, and institutional use lands. Information gathered, for the adjoining and nearby properties, during the Phase One ESA revealed two [2] historical PCAs on lands in the Phase One Study Area that are considered likely to cause an APEC on the Site.

As a result of our Phase One ESA finding, the following PCAs and associated APECs were identified on the Site.

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Locations of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC #1	In the immediate vicinity of the former structure on the Phase One Property.	30. Importation of Fill Material of Unknown Quality [PCA A]	On-Site	Metals, Petroleum Hydrocarbons [PHCs], and Benzene, Toluene, Ethylbenzene and Xylenes [BTEX]	Soil
		Other. Incomplete Combustion of Organic Matter [PCA B]	On-Site	Metals, PHCs, BTEX, Volatile Organic Compounds [VOCs] and Polycyclic Aromatic Hydrocarbons [PAHs]	Soil and Groundwater
APEC #2	The eastern limit of the Phase One Property	32. Iron and Steel Manufacturing and Processing [PCA D]	Off-Site	Metals and Inorganics, PHCs, BTEX and VOCs	Soil and groundwater
		31. Metal Fabrication [PCA E]	Off-Site	Metals and Inorganics, PHCs, BTEX and VOCs	Soil and groundwater
APEC #3	The entire Phase One Property.	40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications [PCA C]	On-Site	Metals and Inorganics and Organochloride Pesticides [OCs]	Soil and groundwater

No other PCAs were identified on the Phase Two Property or on the neighbouring lands or lands located within the Phase One Study Area.

SOIL-MAT ENGINEERS' Phase One CSM is included in Appendix 'A' of this Report for reference.

4.0 (iv) DEVIATIONS FROM SAMPLING AND ANALYSIS PLAN

Professional care was exercised during the retrieval of each sample, the placement of each sample in the appropriate sample jar, the labeling of the field samples and associated chain of custody and in the delivery of the samples to the testing laboratory.

As our standard operating procedures dictate unusual field observations, such as visual or olfactory evidence of a suspected impact, a deviation from SOIL-MAT ENGINEERS' field sampling and handling protocols or incident on the testing laboratories' side was documented either on our field borehole logs or in-house copy of the sample certificate of analysis. There were no deviations recorded during the completion of our Phase Two ESA activities.

4.0 (v) IMPEDIMENTS

Our field technician was not able to secure a 'vertical' delineation soil sample at the location of Test Pit No. TP1 as a result of an encountered concrete slab that is presumably associated with a former structure on the Site. As such, a 'vertical' delineation soil sample was secured at the location of Test Pit No. 'TP2'.

With the exception of the above, there were no impediments to SOIL-MAT ENGINEERS' field work and/or planned Phase Two activities.

5.0 INVESTIGATION METHODS

5.0 (i) GENERAL

With the exception of deviation noted in Section 4.0 (v) above, there were no deviations in SOIL-MAT ENGINEERS' planned Phase Two ESA activities.

5.0 (ii) DRILLING AND EXCAVATING

All test pits were advanced on November 8, 2023 under the supervision of a representative of SOIL-MAT ENGINEERS.

The physical advancement of the test pits was performed by a representative of CAIRNWOOD HOMES, via a track mounted mini-excavator under the supervision of a representative of SOIL-MAT ENGINEERS.

Soil samples were generally collected at selected intervals based on the results of the headspace testing. After each sampling event, the test pit was backfilled with the excavated material.

5.0 (iii) SOIL SAMPLING

Soil samples were examined in the field for visual and olfactory evidence of potential impacts such as unusual staining and/or odours, etc. and were submitted to AGAT laboratories for analytical testing.

The soil samples that were delivered to AGAT were sealed in pre-cleaned wide mouth, amber glass sample jars, no head space, as provided by the laboratory. The samples were stored and transported in a cooler and kept under ice packs to minimise potential volatilisation of select parameters. New disposable sampling gloves were used for the collection of each soil sample with care given not to make contact with the samples and gloves. Dedicated sample retrieval equipment, including a stainless steel split-spoon, was used to retrieve each sample and before depositing it directly it into the AGAT Laboratories sample jar.

The samples were delivered to AGAT's depot location in Stoney Creek, Ontario in coolers equipped with ice packs to help maintain a temperature range between the applicable 0°C to 10°C. As reported on the chain of custody for the soil samples, the samples were delivered to AGAT with an average temperature of 1.9°C.

5.0 (iv) FIELD SCREENING MEASUREMENTS

All of the Phase Two ESA soil samples were examined in the field for visual and olfactory evidence of potential PHC impact(s), such as unusual staining and/or odours, etc.

In addition, an RKI Eagle gas vapour field screening unit was utilised during the collection of the soil samples. Of note, all of the samples subjected to field screening had a recorded a value of 5 ppm or less.

5.0 (v) GROUND WATER: MONITORING WELL INSTALLATION

Groundwater sampling was not conducted as part of the preliminary Phase Two ESA activities as the medium investigated was limited to the soil medium at this time.

5.0 (vi) GROUND WATER: FIELD MEASUREMENT OF WATER QUALITY PARAMETERS

Groundwater sampling was not conducted as part of the preliminary Phase Two ESA activities as the medium investigated was limited to the soil medium at this time.

5.0 (vii) GROUND WATER: SAMPLING

Groundwater sampling was not conducted as part of the preliminary Phase Two ESA activities as the medium investigated was limited to the soil medium at this time.

5.0 (viii) SEDIMENT SAMPLING

Sediment sampling was not conducted as part of the preliminary Phase Two ESA activities as the medium investigated was limited to the soil medium at this time.

5.0 (ix) ANALYTICAL TESTING

All laboratory analytical work was performed by AGAT Laboratories [AGAT] in Mississauga, Ontario.

AGAT is a member of the Canadian Association for Laboratory Accreditation [CALA] and meets the requirements of Section 47 of the Record of Site Condition [RSC] Regulation.

5.0 (x) RESIDUAL MANAGEMENT PROCEDURES

Soil that was excavated from the test pit locations was backfilled back into the original test pit(s).

5.0 (xi) ELEVATION SURVEYING

The test pits were not surveyed as part of the preliminary Phase Two activities.

5.0 (xii) QUALITY ASSURANCE AND QUALITY CONTROL MEASURES

QA/QC was maintained during the field program through equipment decontamination and sampling procedures, as outlined in the "*MOE Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*" (May, 1996).

Standard QA/QC protocols were followed for bottle preparation, sample collection and transportation, as outlined by MOE guidance documents, including the MOE's 2011

"*Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act*".

In addition to these field-based measures, extensive QA/QC procedures were carried out by the analytical laboratories, including:

- Lab blanks;
- Spikes;
- Matrix blanks; and
- Instrument blanks and assessments of instrument tuning and performance.

Based on the evaluation of the sampling and analytical procedures used, the following data quality statements can be made:

- The data are adequate for the RSC objectives and approach utilized; and,
- Soil analytical data were of an acceptable quality for comparison to 2011 MOE SCS as defined by *O.Reg.153/04, as amended,* for current investigations.

6.0 REVIEW AND EVALUATION

6.0 (i) GEOLOGY

SOIL-MAT ENGINEERS' Phase Two ESA revealed the following Site stratigraphy:

- TOP SOIL: A surficial veneer of topsoil, approximately 150 millimetres in thickness, was encountered at test pits TP1, TP2, and TP3. A surficial veneer of topsoil, approximately 600 millimetres in thickness was encountered at test pit TP5. It is noted that the depth of topsoil may vary across the site and from the depths encountered at the test pit locations.
- SILTY CLAY/CLAYEY SILT FILL: Silty Clay/Clayey Silt fill was encountered in Test Pit Nos.: 'TP1', 'TP3', and 'TP4'. The cohesive fill was Brown in colour and noted to contain construction debris containing concrete rubble, asphalt rubble and metal tracks and rubble presumably associated with a former building.
- SILTY CLAY/CLAYEY SILT: Silty Clay/Clayey Silt was encountered at all test pit locations. The cohesive soil was Brown in colour and was observed to contain traces of sand and gravel.

6.0 (ii) GROUND WATER: ELEVATIONS AND FLOW DIRECTIONS

All test pits were recorded as 'dry' upon completion of the advancement of the test pits at depths of 2.5 metres below the existing ground surface. Groundwater sampling was not conducted as part of the preliminary Phase Two activities as the medium investigated was limited to the soil medium at this time.

6.0 (iii) GROUND WATER: HYDRAULIC GRADIENTS

Groundwater sampling was not conducted as part of the preliminary Phase Two activities as the medium investigated was limited to the soil medium at this time.

6.0 (iv) COARSE SOIL TEXTURE

SOIL-MAT ENGINEERS' visual observations indicate that the surface and subsurface soil consists primarily of silty clay/clayey silt as the predominant soil type. However, as a hydrometer was not performed on the recovered soil samples, Soil-Mat Engineers has applied the coarse textured site conditions standards at this time.

6.0 (v) SOIL: FIELD SCREENING

SOIL-MAT ENGINEERS did not observe any visual or olfactory evidence that suggested a new COPC grouping should be considered during the assessment activities.

6.0 (vi) SOIL QUALITY

In total, six [6] soil samples were secured from the Site to provide a preliminary assessment of potential adverse impact(s) on the Site as a result of PCAs noted in the Phase One ESA.

The secured soil samples were submitted to AGAT for laboratory analytical testing as described in the summary table below:

SUMMARY OF TESTED SOIL SAMPLES

Sample ID [APEC / PCA]	Depth [m bgs]	Laboratory Analysis	Soil Description
TP1 [APEC#1/PCA #Other]	1.0	Metals, PHCs, BTEX, VOCs, PAHs	Silty clay/clayey silt fill
TP2 [APEC#1/PCA #40, Other]	0.3	Metals, PAHs, OCs & Pesticides	Topsoil/silty clay/clayey silt
TP2B [APEC#1/PCA #Other]	1.5-2.1	Metals, PHCs, BTEX, VOCs, PAHs	Silty Clay/Clayey Silt
TP3 [APEC#1/PCA #Other]	1.0	Metals, PHCs, BTEX, VOCs, PAHs	Silty Clay/Clayey Silt Fill
TP4 [APEC#1/PCA #Other]	1.0	Metals, PHCs, BTEX, VOCs, PAHs	Silty Clay/Clayey Silt Fill
TP5 [APEC #1/PCA #40]	0.1	Metals, OCs & Pesticides	Topsoil/Silty Clay/ Clayey Silt
Notes: Metals = Metals, As, Sb, Se, BHWS, CN, Electrical Conductivity [EC], Cr (VI), Hg and SAR PHCs = Petroleum Hydrocarbons, VOCs = Volatile Organic Compounds, BTEX = Benzene, Toluene, Ethylbenzene, and Xylene Mixture, PAHs= Polycyclic Aromatic Hydrocarbons, PCBs = Polychlorinated Biphenyls			

The laboratory analytical test results for the submitted soil samples are summarised below:

SUMMARY OF SOIL SAMPLE TEST RESULTS

Sample ID	Depth [m bgs]	Laboratory Analysis	Soil Description	Table 3 RPI Exceedances
TP1 [APEC#1/PCA #Other]	1.0	Metals, PHCs, BTEX, VOCs, PAHs	Silty Clay/Clayey Silt Fill	Exceeds the Table 3 RPI SCS for Cobalt :34.9 µg/g reported vs 22 µg/g standard; Copper: 178 µg/g vs 140 µg/g standard; Molybdenum: 10.5 µg/g reported vs 6.9 µg/g standard; Nickel: 142 µg/g reported vs 100 µg/g standard; Zinc: 466 µg/g reported vs 340 µg/g standard
TP2 [APEC#1/PCA#40, Other]	0.3	Metals, PAHs, OCs & Pesticides	Topsoil/silty clay/clayey silt	No exceedances reported
TP2B [APEC#1/PCA#Other]	1.5-2.1	Metals, PHCs, BTEX, VOCs, PAHs	Silty Clay/Clayey Sitl	No exceedances reported
TP3 [APEC#1/PCA#Other]	1.0	Metals, PHCs, BTEX, VOCs, PAHs	Silty Clay/Clayey Silt	No exceedances reported
TP4 [APEC#1/PCA#Other]	1.0	Metals, PHCs, BTEX, VOCs, PAHs	Silty Clay/Clayey Silt	No exceedances reported
TP5 [APEC#1/PCA#40]	0.1	Metals, OCs & Pesticides	Topsoil/Silty Clay/Clayey Silt	Exceeds the Table 3 RPI SCS for DDE: 0.321 µg/g reported vs 0.26 µg/g standard
Notes: Metals = Metals, As, Sb, Se, BHWS, CN, Electrical Conductivity [EC], Cr (VI), Hg and SAR PHCs = Petroleum Hydrocarbons, VOCs = Volatile Organic Compounds, BTEX = Benzene, Toluene, Ethylbenzene, and Xylene Mixture				

PAHs = Polycyclic Aromatic Hydrocarbons

The Phase Two Property, test pit locations and laboratory analytical test results are illustrated on Drawing Nos. 3, 3A-3G and 4A-4F in Appendix 'B'.

The AGAT Certificate of Analysis is included in Appendix 'C' for reference.

6.0 (vii) GROUND WATER QUALITY

Groundwater sampling was not conducted as part of the preliminary Phase Two activities as the medium investigated was limited to the soil medium at this time.

6.0 (viii) SEDIMENT QUALITY

Sediment sampling was not conducted as part of the preliminary Phase Two fieldwork.

6.0 (ix) QUALITY ASSURANCE AND QUALITY CONTROL RESULTS

QA/QC was maintained during the field program through equipment decontamination and sampling procedures, as outlined in the "*MOE Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*" (May, 1996).

Standard QA/QC protocols were followed for bottle preparation, sample collection and transportation, as outlined by MOE guidance documents, including the MOE's 2011 "*Protocol for Analytical Methods Used in the Assessment of Properties Under Part XV.1 of the Environmental Protection Act*".

In addition to these field-based measures, extensive QA/QC procedures were carried out by the analytical laboratories, including:

- Lab blanks;
- Spikes;
- Matrix blanks; and
- Instrument blanks and assessments of instrument tuning and performance.

Based on the evaluation of the sampling and analytical procedures used, the following data quality statements can be made:

- The data is adequate for the RSC objectives and approach utilized; and,
- Soil analytical data were of an acceptable quality for comparison to Table 2 SCS as defined by *O.Reg.153/04, as amended,* for current investigations;

No deviations from the QA/QC protocols were noted during the completion of the Phase Two ESA fieldwork.

6.0 (x) PHASE TWO CONCEPTUAL SITE MODEL

SOIL-MAT ENGINEERS' has not prepared a Phase Two CSM as part of this Phase Two ESA. However, a Phase Two CSM will be prepared prior to the eventual filing of an RSC.

7.0 CONCLUSIONS

A description of the staff members associated with the completion of the Phase Two ESA activities is contained in Appendix 'D' of this Report. The ESA activities were supervised by Mr. Steve Sears, P. Eng., QP_{ESA}, who is a Qualified Person for the undertaking of ESA activities.

Based on SOIL-MAT ENGINEERS' field observations and the laboratory analytical test results received in its office, SOIL-MAT ENGINEERS is pleased to offer the following:

- Our Phase Two activities revealed elevated levels of select Metal parameters in a soil sample secured from the northern portion of the Phase Two Property. Specifically, an elevated level of Cobalt, Copper, Molybdenum, Nickel and Zinc in soil sample 'TP1'.
- Our Phase Two activities revealed an elevated level of a select Organochlorine Pesticide parameter in a soil sample secured from the southern portion of the Phase Two Property. Specifically, an elevated level of DDE in soil sample 'TP5'.
- With the exception of the above, the remaining soil samples subjected to laboratory analytical testing, for the contaminant of potential concern groupings, all reporting met the applicable site condition standards.
- Of note, groundwater samples were not secured as part of our preliminary Phase Two activities.

The samples secured for analytical testing are believed to be representative of the conditions at the sample locations only. If any significant changes are noted, i.e., odours, staining etc., SOIL-MAT ENGINEERS should be contacted to reassess the environmental characteristics of the Site.

It is noted that subsurface soil conditions may be present on-site that are not typical of those presented in this Report. If future activities reveal such soils, SOIL-MAT ENGINEERS should be contacted to assess the soil conditions with respect to the proposed activity.

NEXT STEPS

Our Phase Two activities [to date] are considered preliminary as the scope of work was limited to near surface soil sampling in select locations on the Phase Two Property. In addition, the preliminary Phase Two activities were not designed, as requested, to assess all the areas of potential environmental concern on the Phase Two Property and/or all the potential mediums of concern. However, with that being said, the preliminary Phase Two activities revealed isolated 'hot spots' with elevated levels of select Metal and Organochlorine Pesticide parameters. As such, it is recommended that future Phase Two activities include specific intrusive sampling to further assess the lateral and vertical extent of the document 'hot spot' areas.

SOIL-MAT ENGINEERS & CONSULTANTS LTD. prepared this Report for the account of CAIRNWOOD HOMES. The material in if reflects SOIL-MAT ENGINEERS' 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. SOIL-MAT ENGINEERS accepts no responsibility for damages, if any suffered by any third party as a result of decisions made or actions based on this report.

We trust this Report is satisfactory for your purposes. Please feel free to contact our Office if you have any questions, or we may be of further service to you.

Yours very truly,
SOIL-MAT ENGINEERS & CONSULTANTS LTD.

Nathan Sears, Env Tech Dipl.
Environmental Technician

Keith Gleadall, B.A., EA Dipl.
Environmental Manager

Stephen R. Sears, B. Eng. Mgmt., P. Eng., QP_{ESA}
Review Engineer

LICENSED PROFESSIONAL ENGINEER
DEC 4/23
S. R. SEARS
PROVINCE OF ONTARIO

Distribution: CAIRNWOOD HOMES. [1]

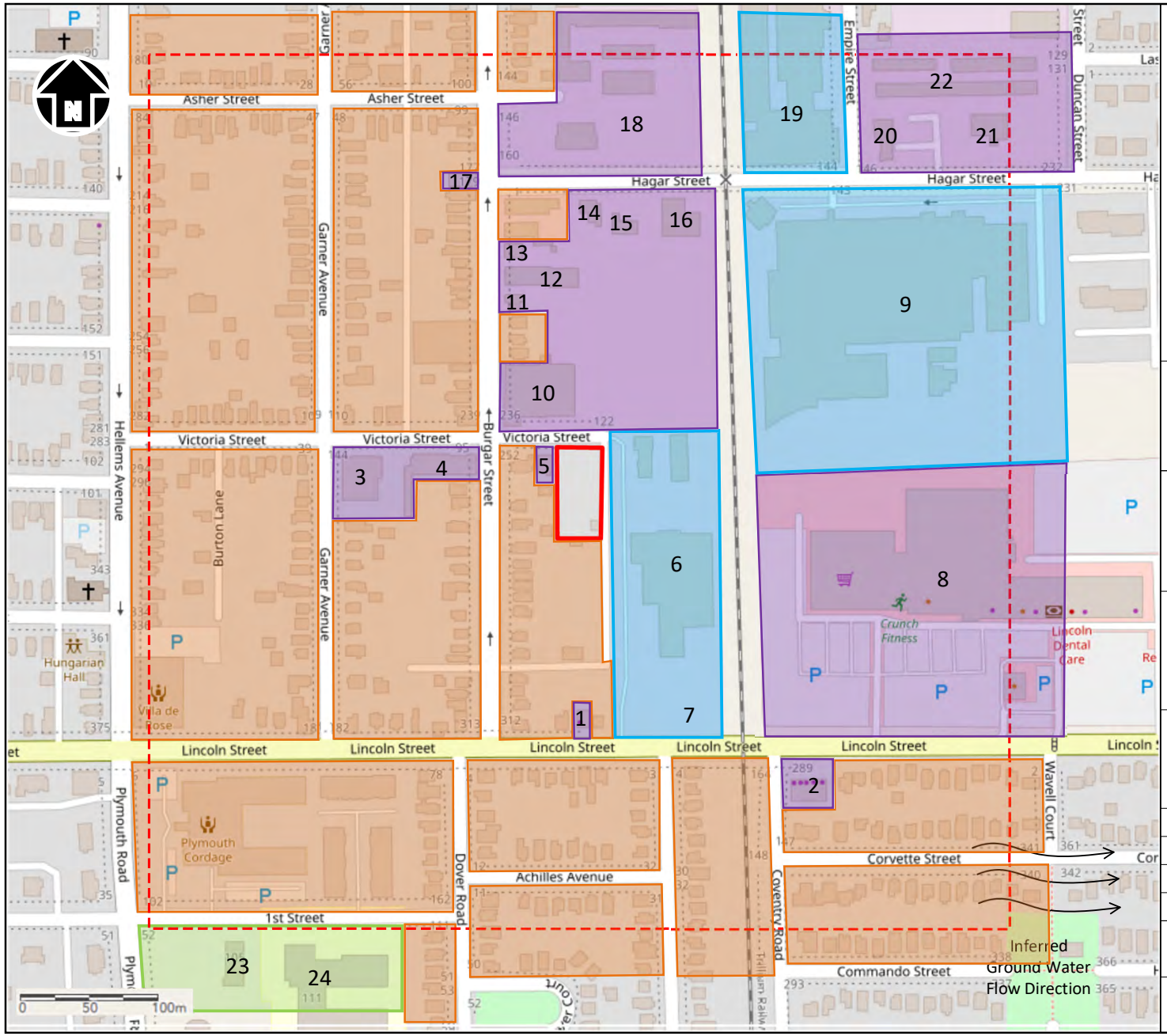
Enclosures:

Appendix 'A':	Phase One CSM
Appendix 'B'	Site Plan Drawings;
Appendix 'C'	AGAT Soil Analytical Data;
Appendix 'D'	Qualifications of Assessors;
Appendix 'E'	Statement of Limitations

Appendices

Appendix 'A'

Phase One CSM



LEGEND

- = Phase One ESA Property Boundary
- = Phase One ESA Study Area
- = Residential Properties
- = Commercial Properties
- = Industrial Properties
- = Institutional Properties

Soil-Mat
Engineers & Consultants Ltd.

CLIENT
DEHAM CANADA INC.

PROJECT TITLE
Phase One Environmental Site Assessment
111 Victoria Avenue
Welland, Ontario

DRAWING TITLE
Phase One Conceptual Site Model

PROJECT No.	SM 230169-E
DATE	April 2023
CHECKED	KG
DRAWN	PM

FILE NAME
230169 Phase One CSM.vsd

DRAWING No. 4

Conceptual Site Model Notes

CSM Off-Site Property Number	Current Occupant	Potential Contaminating Activity	Contaminants of Potential Concern	Qualified Person Specific Comments
1	Marcel's Variety	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
2	Niagara Barbershop	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
	Tuanis Baked Goods	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
	Select Water Company	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
	Avenue Locksmith	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
3	Niagara Peninsula Homes	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
4	Silver Creek Cabinetry	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
5	Lynn's Pet Centre	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
6	JT Fabrication	Yes	Metals, PHCs, VOCs, PAHs & BTEX	This operation is located approximately 30 metres east of the Site. Although this property is located down-gradient to the Site with respect to the inferred local and regional groundwater flow direction, given the proximity of the property to the Site, there may be an adverse environmental impact to the Site from this property.
	Ward Industrial Equipment Inc.	Yes	Metals, PHCs, VOCs, PAHs & BTEX	This operation is located approximately 30 metres east of the Site. Although this property is located down-gradient to the Site with respect to the inferred local and regional groundwater flow direction, given the proximity of the property to the Site, there may be an adverse environmental impact to the Site from this property.

CSM Off-Site Property Number	Current Occupant	Potential Contaminating Activity	Contaminants of Potential Concern	Qualified Person Specific Comments
7	Petro Pass Truck Stop	Yes	PHCs & BTEX	This operation is located approximately 130 metres south-southeast of the Site and is located trans-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
8	No Frills	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
	Vape Escapes	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
	Crunch Fitness	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
	Tim Hortons	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
	Little Caesars	None	Not Applicable	Operations are limited to retail commercial services that are not considered potential contaminating activities.
9	K-Line Manufacturing	Yes	Metals, PHCs, VOCs, PAHs & BTEX	This operation is located approximately 230 metres northeast of the Site and is located down-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
	A Team Plastics	Yes	PHCs, VOCs & BTEX	This operation is located approximately 230 metres northeast of the Site and is located down-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
	DnA Car Service	Yes	Metals, PHCs, VOCs, PAHs & BTEX	This operation is located approximately 230 metres northeast of the Site and is located down-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
	Top Dawgs Fitness	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
	AAA Steam Carpet Cleaning	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
10	Vacant [formerly a Bread Factory]	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
11	Jimmy D's Auto Repair	Yes	Metals, PHCs, VOCs, PAHs & BTEX	This operation is located approximately 120 metres north of the Site and is located trans-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.

CSM Off-Site Property Number	Current Occupant	Potential Contaminating Activity	Contaminants of Potential Concern	Qualified Person Specific Comments
12	Welland Metal Supplies Ltd.	Yes	Metals, PHCs, VOCs, BTEX	This operation is located approximately 130 metres north of the Site and is located trans-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
13	Welders Service Inc.	Yes	Metals, PHCs, VOCs, BTEX	This operation is located approximately 140 metres north of the Site and is located trans-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
14	Digital Detail	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
15	JR's Service Centre	Yes	Metals, PHCs, VOCs, PAHs & BTEX	This operation is located approximately 170 metres north of the Site and is located trans-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
16	Welland Packaging & Assembling	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
17	Burgar Street Laundry	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
18	Burgar Park Storage	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
19	CanForge	Yes	Metals, PHCs, VOCs, ABNs, PAHs & BTEX	This operation is located approximately 270 metres northeast of the Site and is located down-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
20	Gil's Auto	Yes	Metals, PHCs, VOCs, PAHs & BTEX	This operation is located approximately 300 metres northeast of the Site and is located down-gradient to the Site with respect to the inferred local and regional groundwater flow direction. Based on the above this property is not considered a significant environmental liability to the Phase One Property.
21	Canada Forgings Inc. [Office]	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
22	Small Storage Incorporated	None	Not Applicable	Operations are limited to commercial services that are not considered potential contaminating activities.
23	Holy Trinity Orthodox Church	None	Not Applicable	Operations are limited to institutional services that are not considered potential contaminating activities.
24	Plymouth Public School	None	Not Applicable	Operations are limited to institutional services that are not considered potential contaminating activities.

SUPPORTING INFORMATION TO SATISFY TABLE 1, SCHEDULE D, PART VI OF THE RSC REGULATION

1. Based on the findings of the Phase One ESA, three [3] potentially contaminating activities [PCAs] were identified on the Phase One ESA property and two [2] PCAs were identified in the Phase One ESA Study Area. The remaining properties located in the Phase One ESA Study Area were not considered significant environmental liabilities to the Property. The on-site PCA is listed below in Table format.

   The Phase One ESA property is illustrated on the attached Drawing No.: 1. The APEC associated with the PCA on the Property is illustrated on the attached Drawing No.: 1A.

Area of Potential Environmental Concern	Location of Area of Potential Environmental Concern on Phase One Property	Potentially Contaminating Activity	Locations of PCA (on-site or off-site)	Contaminants of Potential Concern	Media Potentially Impacted (Groundwater, soil and/or sediment)
APEC #1	In the immediate vicinity of the former structure on the Phase One Property.	30. Importation of Fill Material of Unknown Quality [PCA A]	On-Site	Metals, Petroleum Hydrocarbons [PHCs], and Benzene, Toluene, Ethylbenzene and Xylenes [BTEX]	Soil
		Other. Incomplete Combustion of Organic Matter [PCA B]	On-Site	Metals, PHCs, BTEX, Volatile Organic Compounds [VOCs] and Polycyclic Aromatic Hydrocarbons [PAHs]	Soil and Groundwater
APEC #2	The eastern limit of the Phase One Property	32. Iron and Steel Manufacturing and Processing [PCA D]	Off-Site	Metals and Inorganics, PHCs, BTEX, and VOCs	Soil and Groundwater
		34. Metal Fabrication [PCA E]	Off-Site	Metals, PHCs, VOCs, PCBs and PAHs	Soil and groundwater
APEC #3	The entire Phase One Property.	40. Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications [PCA C]	On-Site	Metals and Inorganics and Organochloride Pesticides [OCs]	Soil and groundwater

2. There are no water bodies in whole or in part on the Phase One Property or within the Phase One Study Area [250 metre radius from the limits of the Phase One Property]. The local and regional groundwater flow direction is inferred to the east towards the Welland Canal.

3. There are no areas of natural significance located in whole or in part on the Phase One Property or in the Phase One Study Area.

4. The reconnaissance of the Site did not reveal any obvious visual evidence of a suspected groundwater well or cistern. In addition, a review of the MOE's water well records did not reveal any potable groundwater wells or monitoring wells on the Phase One Property.
   In addition to the above, a review of the MOE's water well records revealed no potable wells and five [5] monitoring wells within the Phase One Study Area. The groundwater monitoring wells are reportedly located between 130 and 240 metres from the Site and reportedly terminate between 4.3 to 30 metres beneath the ground surface.

5. The Phase One property is currently not serviced with any natural gas, storm sewers, or sanitary sewers. As such, these are not anticipated to affect, direct or alter the migration of any potential off-site contaminants.

6. It is unclear whether the proposed development on the Phase One Property will be serviced with buried utilities, including storm and sanitary sewers, a municipal water supply, hydro and other soft services. However, the depth and location of these service trenches are not anticipated to affect, direct or alter the migration of any potential off-site contaminants.

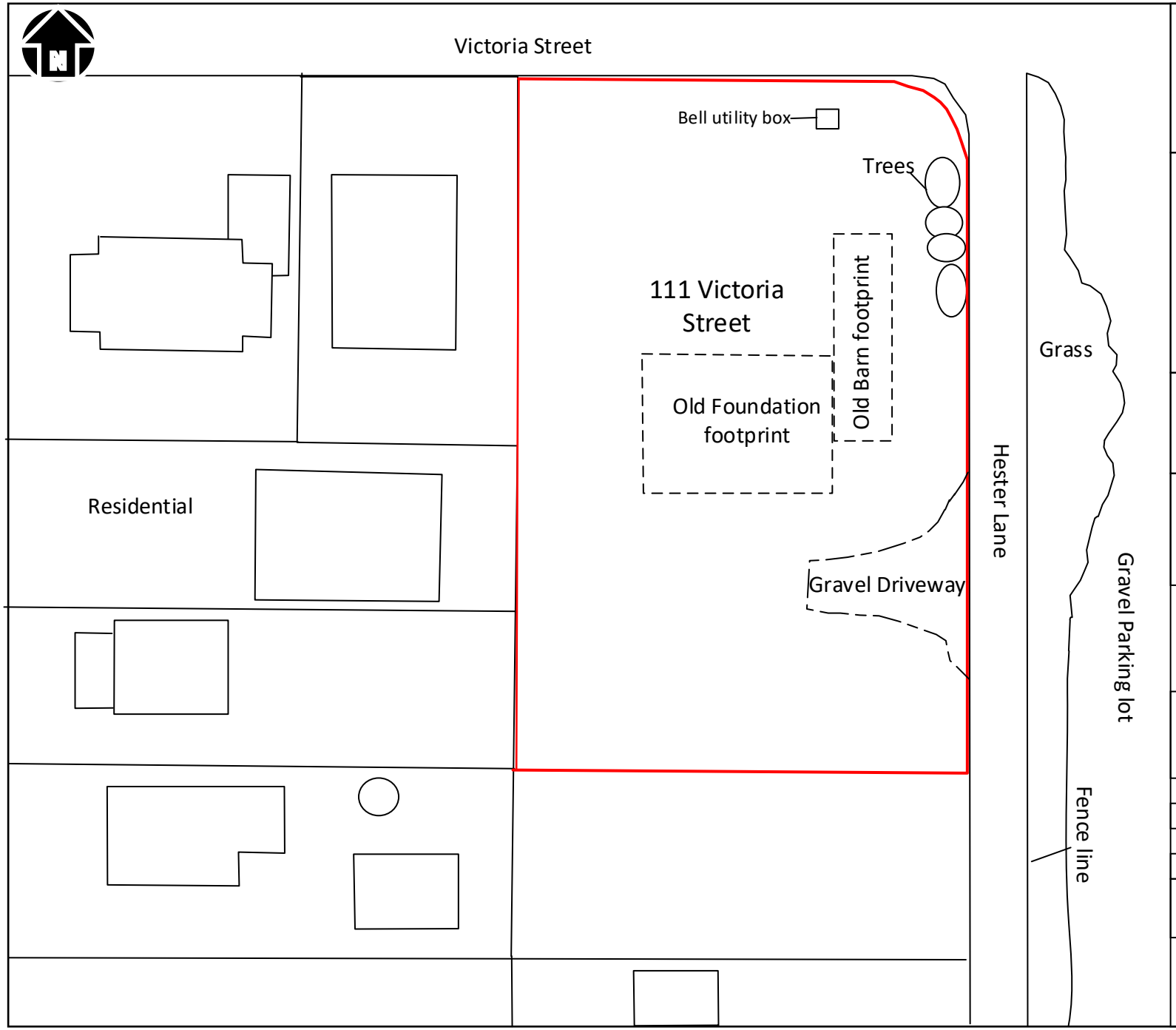
7. A review of the Ministry of Northern Development and Mine's "Quaternary Geology of the Orillia Area, Southern Ontario Sheet Map P2697" and the "Bedrock Geology of Ontario, Southern Sheet Map M2544", revealed the Site to be underlain by glaciolacustrine deeper water clay and silt, in turn, underlain by Silurian Salina Formation argillaceous dolostone, evaporates bedrock. The depth to the groundwater table is anticipated to be approximately 2.3 metres below the ground surface elevation and the depth to bedrock is anticipated to be between 30 and 32 metres below ground surface based on information ferreted out from groundwater well records for water wells located within the Phase One Study Area

8. The validity of the CSM may be affected if the future use of the Property diverts from the current understanding of the proposed development to include the installation of multi-level basements or deep groundwater wells that may artificially alter or redirect local groundwater toward the Property. In this scenario, given the distance of the limited potential contaminating activities with relation to the Site, these activities are not considered a significant liability to the property, and as a result it is recommended that intrusive soil and/or groundwater sampling and monitoring would not be required in this scenario.

9. Based on the results of the Phase One, it is the opinion of SOIL-MAT ENGINEERS & CONSULTANTS LTD. that a Phase Two ESA is required.

Appendix 'B'

1. Drawing No.: 1: Site Plan;
2. Drawing No.: 2: APECs;
3. Drawing No.: 3: Borehole Location Plan;
4. Drawing No.: 3A: Analytical Data Summary [Soil] Metals;
5. Drawing No.: 3B: Analytical Data Summary [Soil] PHCs;
6. Drawing No.: 3C: Analytical Data Summary [Soil] BTEX;
7. Drawing No.: 3D: Analytical Data Summary [Soil] VOCs;
8. Drawing No.: 3E: Analytical Data Summary [Soil] PAHs
9. Drawing No.: 3F: Analytical Data Summary [Soil] OCs and Pesticides



LEGEND

= Site Boundary

NOTES:

1. This map should be read in conjunction with Soil-Mat Engineers and Consultants Ltd. Report No.: SM 230902-E

2. Base map provided by: © 2021 Google

Soil-Mat
Engineers & Consultants Ltd.

CLIENT

CAIRNWOOD HOMES

PROJECT TITLE

Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE

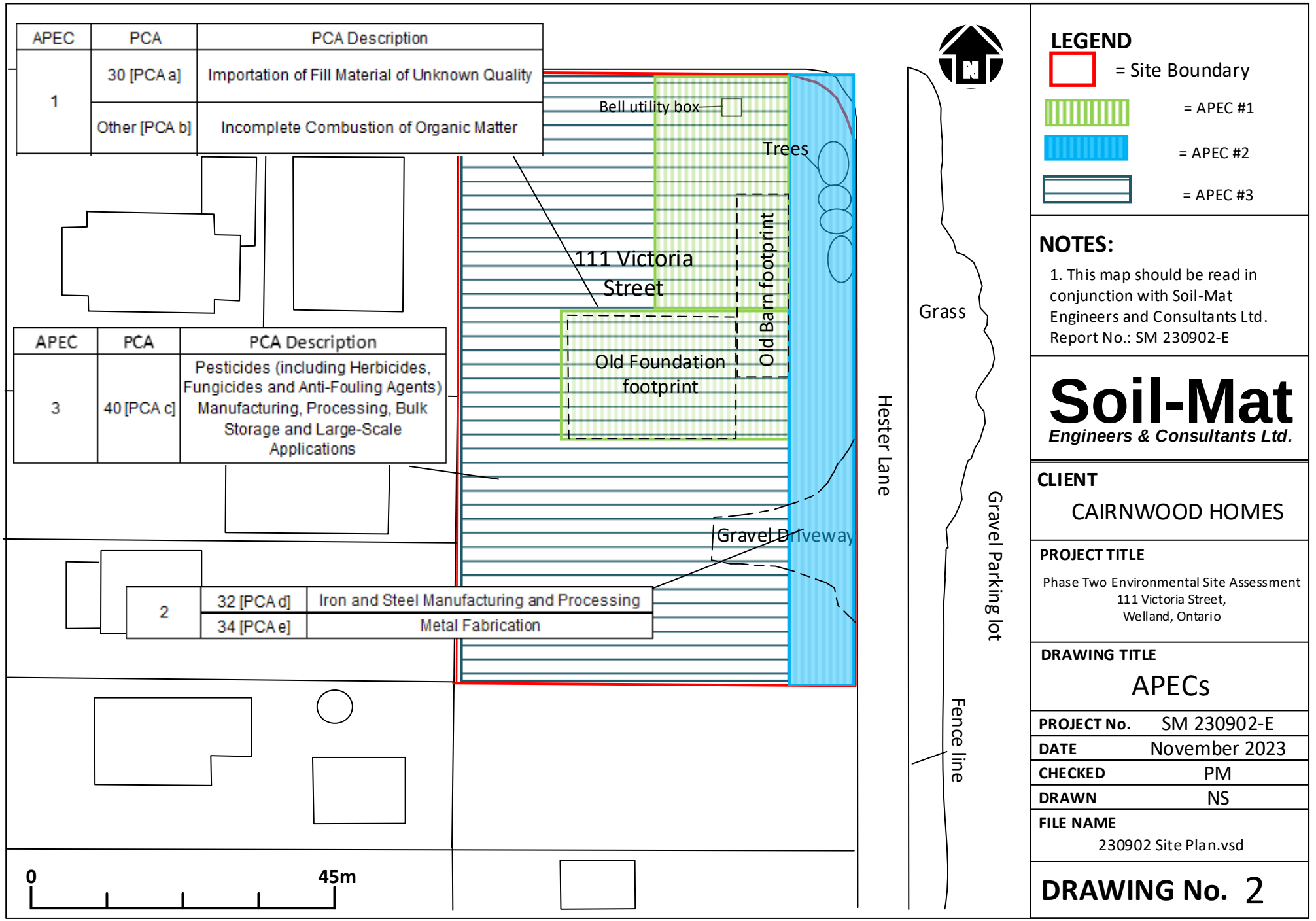
Site Plan

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS

FILE NAME

230902 Site Plan.vsd

DRAWING No. 1



LEGEND

= Site Boundary

= APEC #1

= APEC #2

= APEC #3

NOTES:

1. This map should be read in conjunction with Soil-Mat Engineers and Consultants Ltd. Report No.: SM 230902-E

Soil-Mat
Engineers & Consultants Ltd.

CLIENT
CAIRNWOOD HOMES

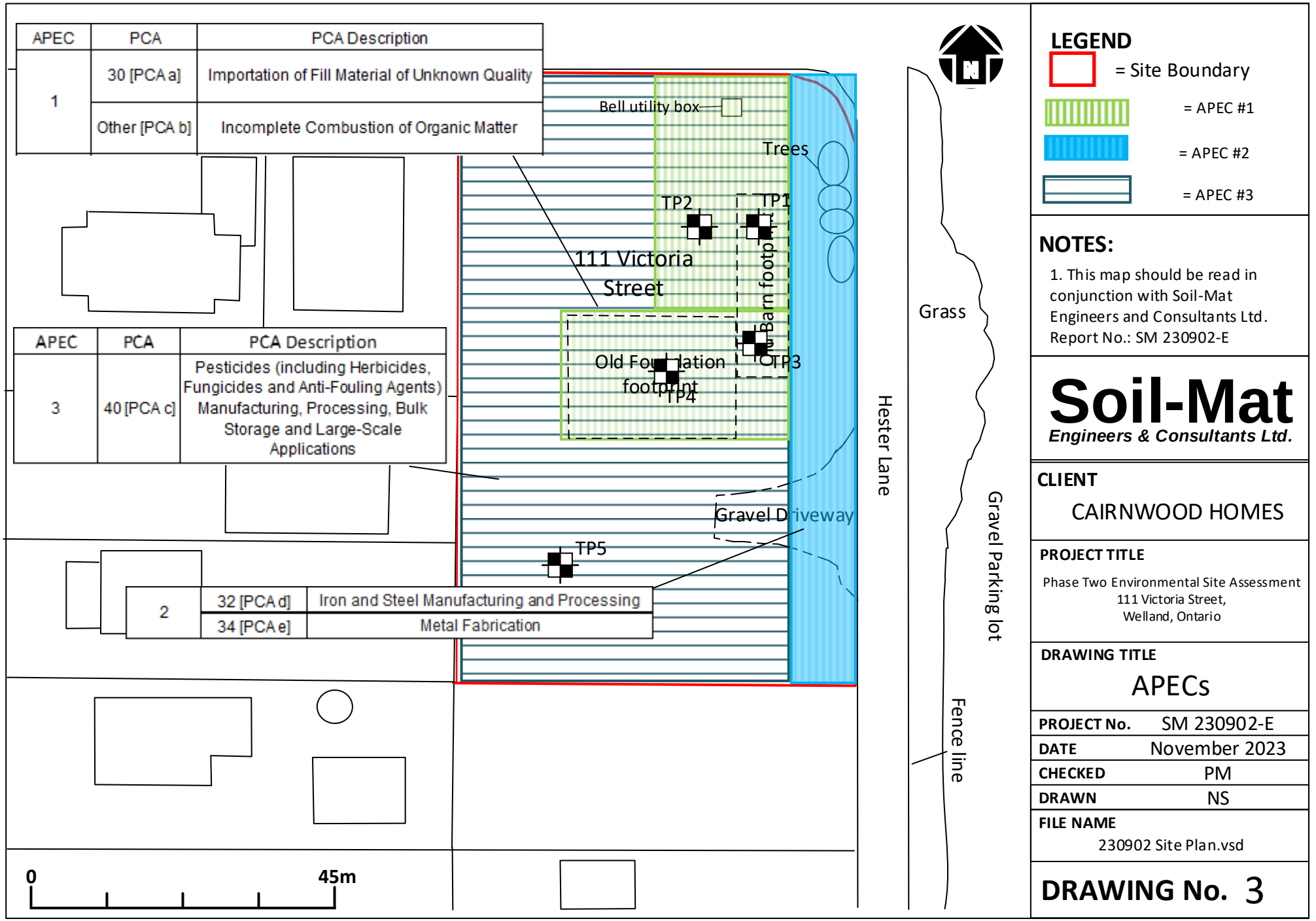
PROJECT TITLE
Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE
APECs

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS

FILE NAME
230902 Site Plan.vsd

DRAWING No. 2



LEGEND

= Site Boundary

= APEC #1

= APEC #2

= APEC #3

NOTES:

1. This map should be read in conjunction with Soil-Mat Engineers and Consultants Ltd. Report No.: SM 230902-E

Soil-Mat
Engineers & Consultants Ltd.

CLIENT
CAIRNWOOD HOMES

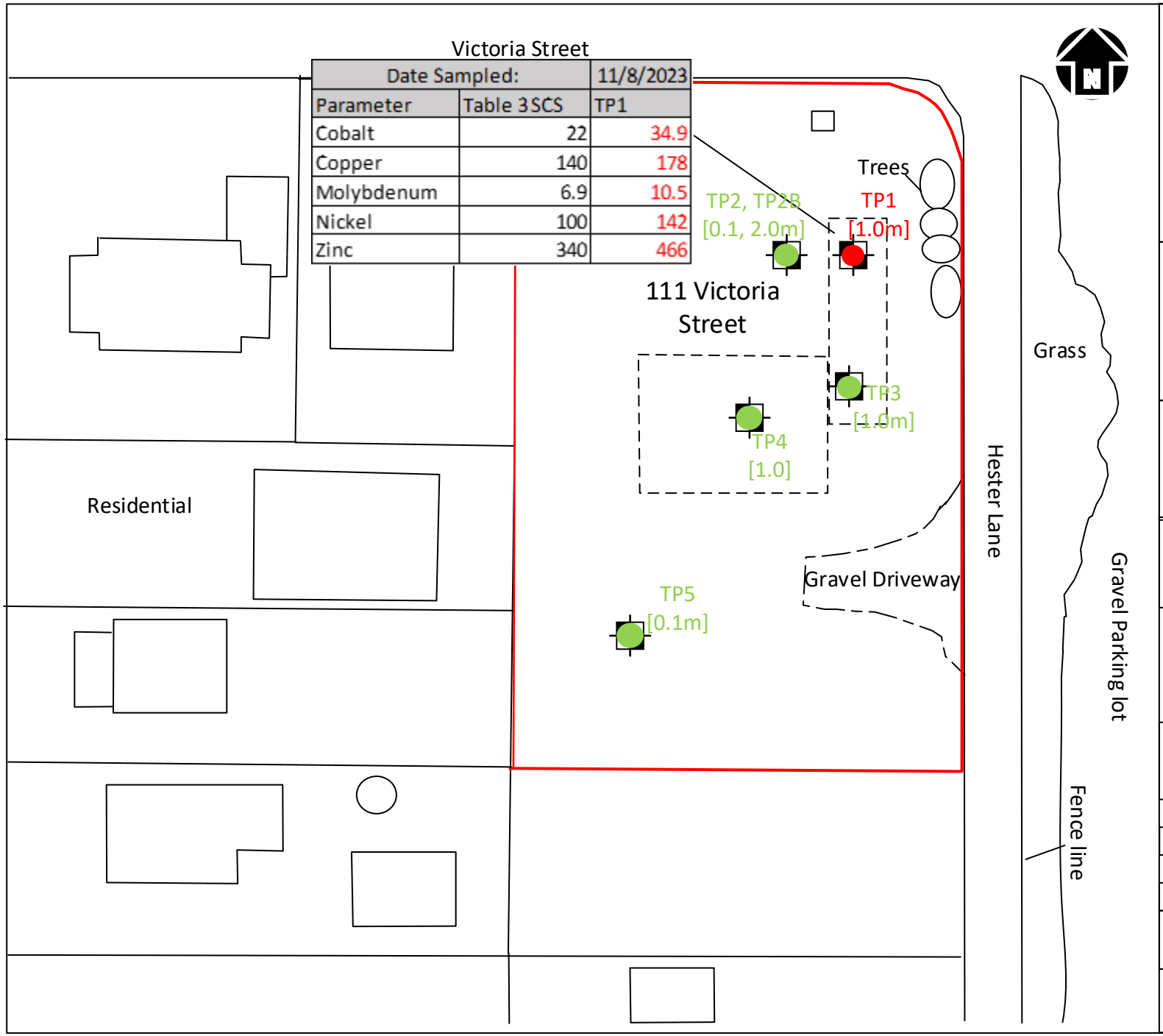
PROJECT TITLE
Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE
APECs

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS

FILE NAME
230902 Site Plan.vsd

DRAWING No. 3



LEGEND

= Site Boundary

= Test Pit Location

= Meets Table 3 RPI

= Exceeds Table 3 RPI

[#.# - #.#] = Depth (m)

NOTES:

1. The Metals grouping listed on the drawing includes: Metals, As, Sb, Se, BHWS, CN, EC, SAR, and Cr(VI).

Soil-Mat
Engineers & Consultants Ltd.

CLIENT
CAIRNWOOD HOMES

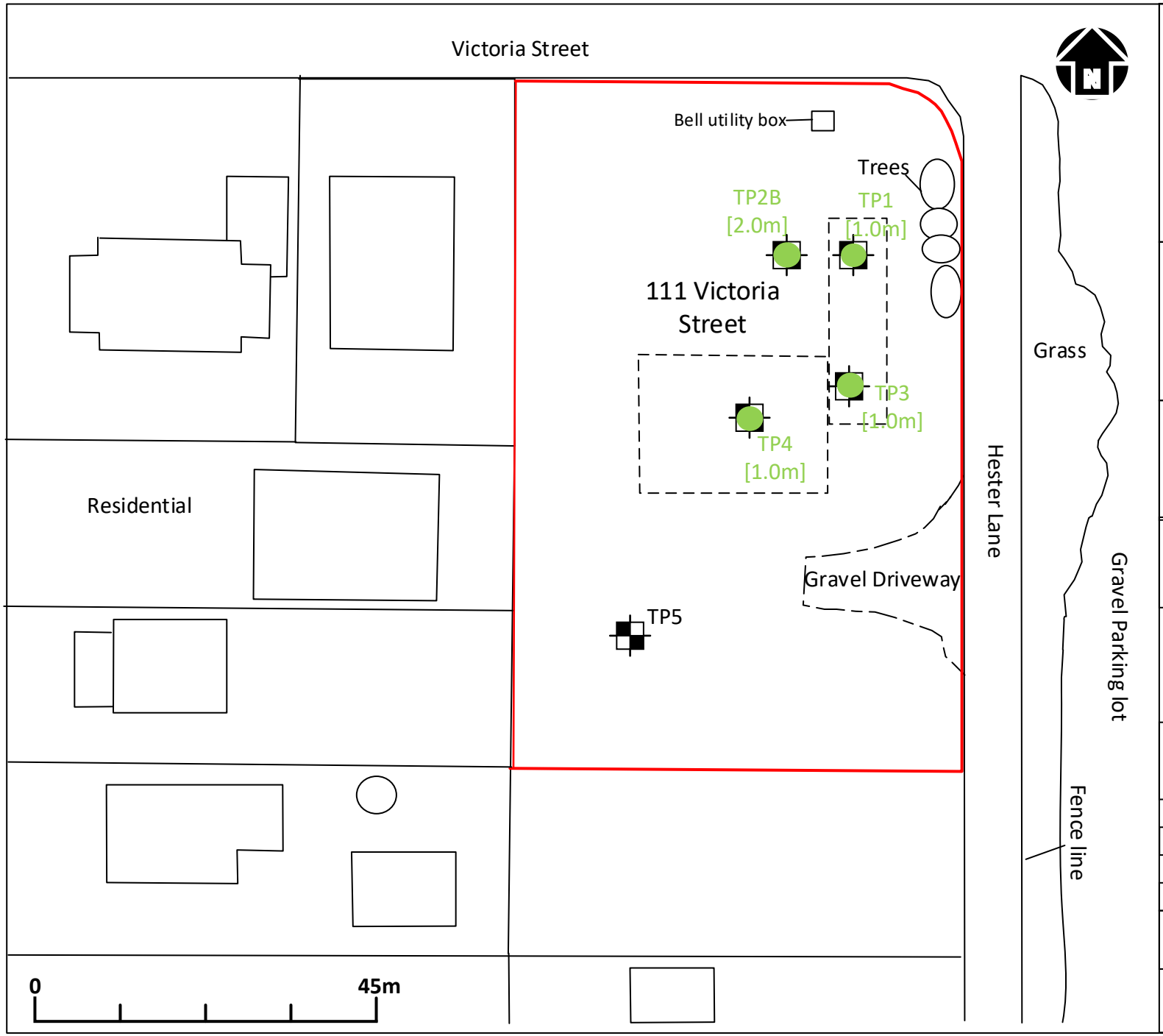
PROJECT TITLE
Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE
Soil Sampling Results – Metals and Inorganics

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS

FILE NAME
230902 Site Plan.vsd

DRAWING No. 3A



LEGEND

= Site Boundary

= Test Pit locations

= Meets Table 3

= Exceeds Table 3

[#.# - #.#] = Depth (m)

NOTES:

1. This map should be read in conjunction with Soil-Mat Engineers and Consultants Ltd. Report No.: SM 230902-E

Soil-Mat
Engineers & Consultants Ltd.

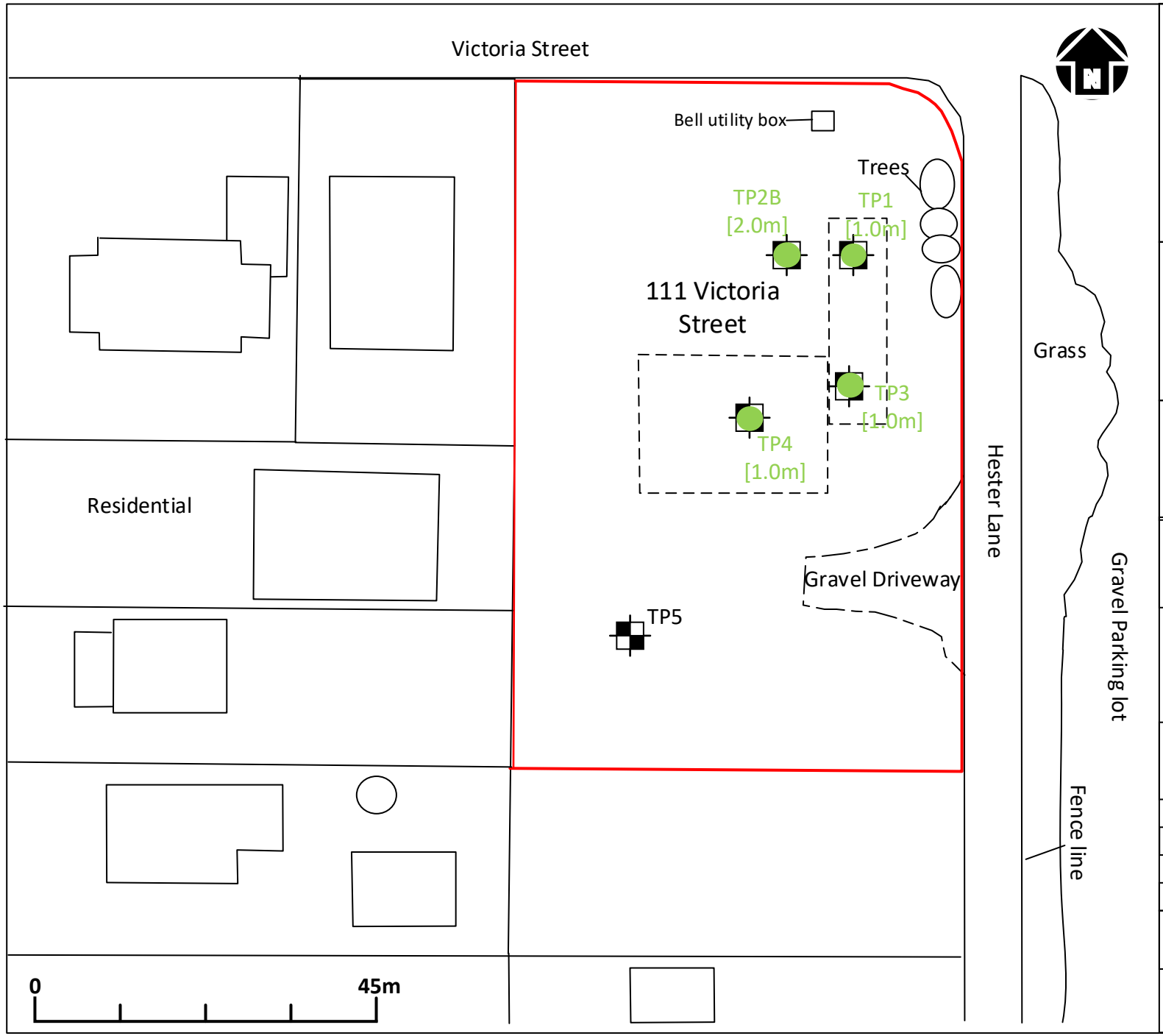
CLIENT
CAIRNWOOD HOMES

PROJECT TITLE
Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE
Soil Sampling results - PHCs

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS
FILE NAME	230902 Drawings.vsd

DRAWING No. 3B



LEGEND

= Site Boundary

= Test Pit locations

= Meets Table 3

= Exceeds Table 3

[#.# - #.#] = Depth (m)

NOTES:

1. This map should be read in conjunction with Soil-Mat Engineers and Consultants Ltd. Report No.: SM 230902-E

Soil-Mat
Engineers & Consultants Ltd.

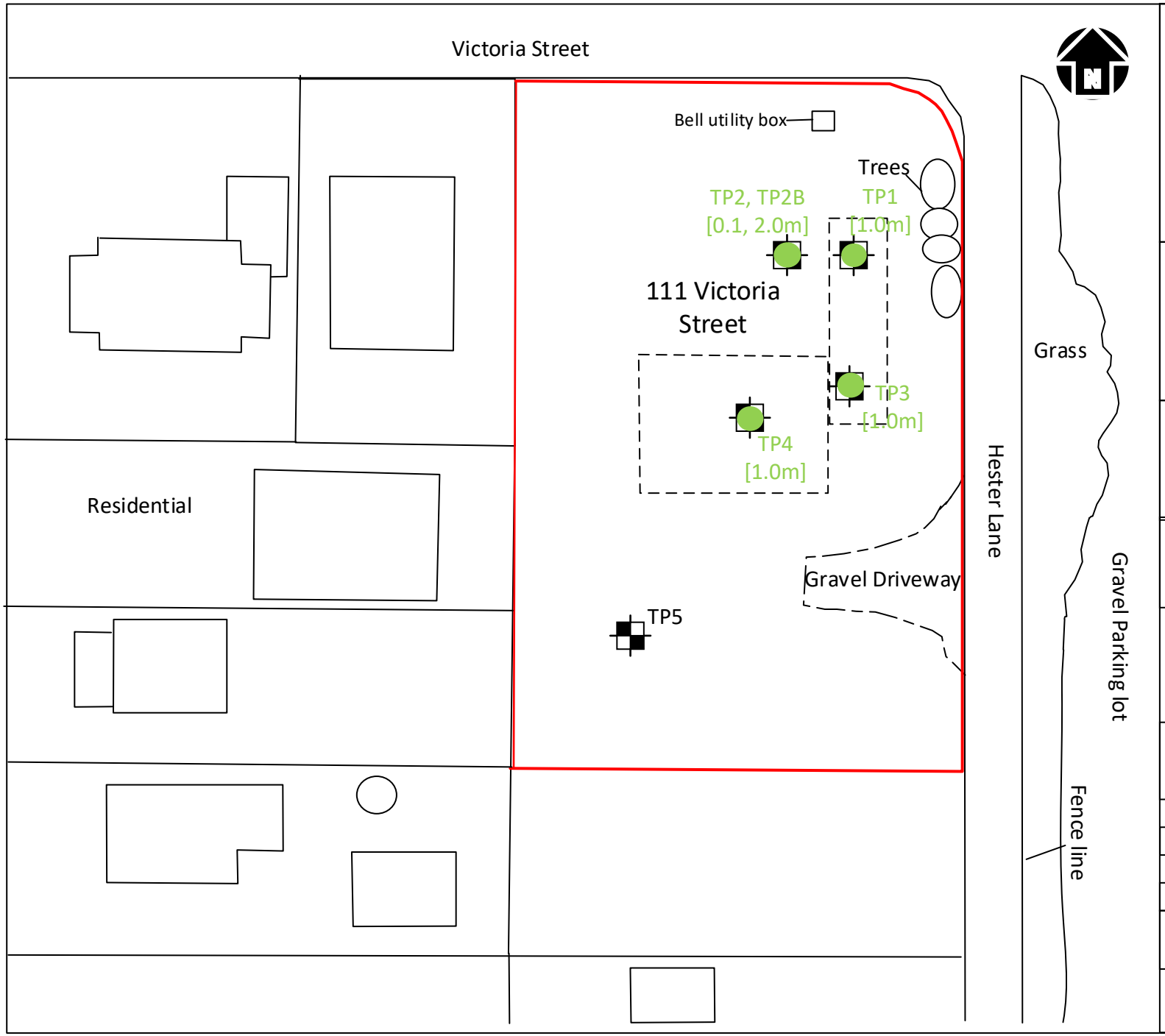
CLIENT
CAIRNWOOD HOMES

PROJECT TITLE
Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE
Soil Sampling results - BTEX

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS
FILE NAME	230902 Drawings.vsd

DRAWING No. 3C



LEGEND

= Site Boundary

= Test Pit locations

= Meets Table 3

= Exceeds Table 3

[#.# - #.#] = Depth (m)

NOTES:

1. This map should be read in conjunction with Soil-Mat Engineers and Consultants Ltd. Report No.: SM 230902-E

Soil-Mat
Engineers & Consultants Ltd.

CLIENT
CAIRNWOOD HOMES

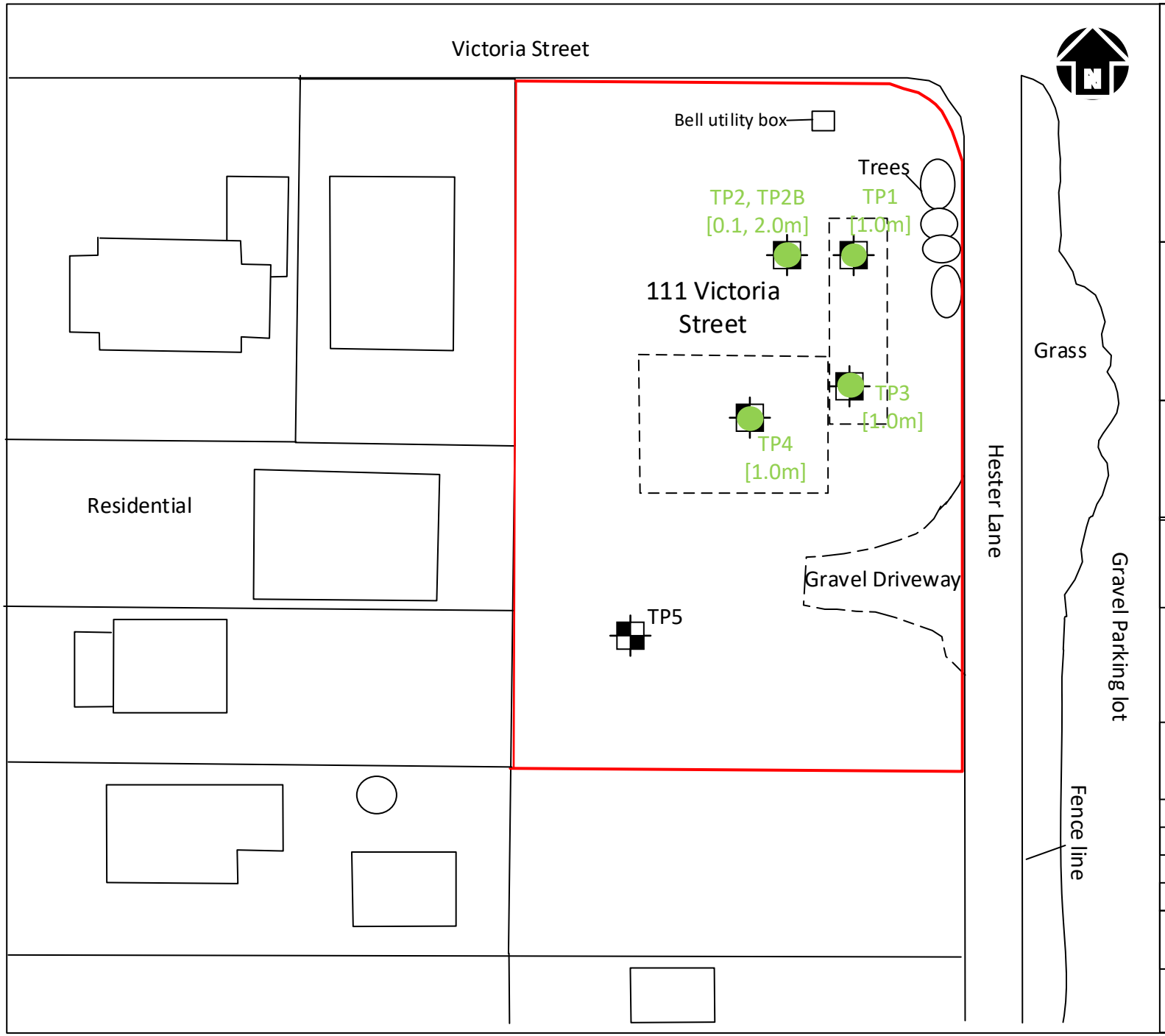
PROJECT TITLE
Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE
Soil Sampling results - VOCs

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS

FILE NAME
230902 Drawings.vsd

DRAWING No. 3D



LEGEND

= Site Boundary

= Test Pit locations

= Meets Table 3

= Exceeds Table 3

[#.# - #.#] = Depth (m)

NOTES:

1. This map should be read in conjunction with Soil-Mat Engineers and Consultants Ltd. Report No.: SM 230902-E

Soil-Mat
Engineers & Consultants Ltd.

CLIENT
CAIRNWOOD HOMES

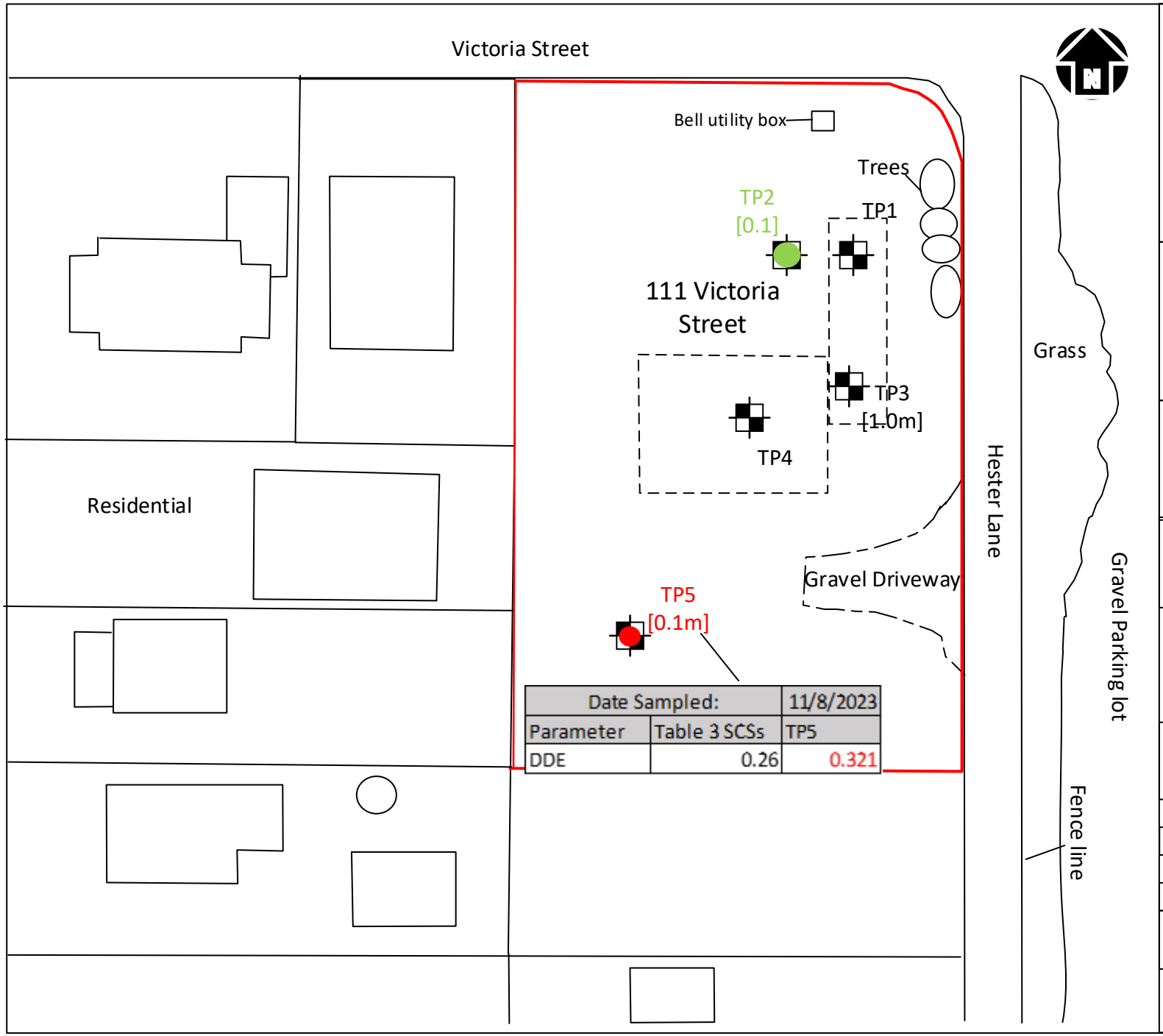
PROJECT TITLE
Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE
Soil Sampling results - PAHs

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS

FILE NAME
230902 Drawings.vsd

DRAWING No. 3E



Date Sampled:		11/8/2023
Parameter	Table 3 SCSs	TP5
DDE	0.26	0.321

LEGEND

= Site Boundary

= Test Pit locations

= Meets Table 3

= Exceeds Table 3

[#.# - #.#] = Depth (m)

NOTES:

1. This map should be read in conjunction with Soil-Mat Engineers and Consultants Ltd. Report No.: SM 230902-E

Soil-Mat
Engineers & Consultants Ltd.

CLIENT
CAIRNWOOD HOMES

PROJECT TITLE
Phase Two Environmental Site Assessment
111 Victoria Street,
Welland, Ontario

DRAWING TITLE
Soil Sampling results – OCs & Pesticides

PROJECT No.	SM 230902-E
DATE	November 2023
CHECKED	PM
DRAWN	NS

FILE NAME
230902 Drawings.vsd

DRAWING No. 3F

Appendix 'C'

AGAT Certificate 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: SOIL MAT ENGINEERS & CONSULTANTS LT
401 GRAYS ROAD
HAMILTON, ON L8E 2Z3
(905) 318-7440

ATTENTION TO: Peter Markesic

PROJECT: 230902

AGAT WORK ORDER: 23T090837

SOIL ANALYSIS REVIEWED BY: Nivine Basily, Inorganic Team Lead

TRACE ORGANICS REVIEWED BY: Radhika Chakraberty, Trace Organics Lab Manager

DATE REPORTED: Nov 17, 2023

PAGES (INCLUDING COVER): 28

VERSION*: 2

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

*Notes

VERSION 2:Version 2 supersedes work order 23T090837, Version 1, issued November 14, 2023. PHCs added to Sample ID TP4 (5439637). Nov. 17, 2023 - EJ

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: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

		SAMPLE DESCRIPTION:		TP1	TP2B	TP3	TP4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-11-08	2023-11-08	2023-11-08	2023-11-08
Parameter	Unit	G / S	RDL	5439632	5439635	5439636	5439637
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	12	7	9	8
Barium	µg/g	390	2.0	105	148	104	99.9
Beryllium	µg/g	4	0.5	0.7	1.0	0.8	0.9
Boron	µg/g	120	5	8	15	9	12
Boron (Hot Water Soluble)	µg/g	1.5	0.10	0.32	0.20	0.35	0.36
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	5	63	31	30	32
Cobalt	µg/g	22	0.8	**34.9**	17.6	20.1	15.2
Copper	µg/g	140	1.0	**178**	27.5	59.5	46.5
Lead	µg/g	120	1	47	10	38	34
Molybdenum	µg/g	6.9	0.5	**10.5**	0.6	2.4	1.8
Nickel	µg/g	100	1	**142**	36	39	34
Selenium	µg/g	2.4	0.8	<0.8	<0.8	<0.8	<0.8
Silver	µg/g	20	0.5	<0.5	<0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5	<0.5	<0.5
Uranium	µg/g	23	0.50	0.58	1.06	0.73	0.68
Vanadium	µg/g	86	2.0	38.3	44.5	36.8	42.9
Zinc	µg/g	340	5	**466**	72	223	168
Chromium, Hexavalent	µg/g	8	0.2	<0.2	<0.2	<0.2	<0.2
Cyanide, WAD	µg/g	0.051	0.040	<0.040	<0.040	<0.040	<0.040
Mercury	µg/g	0.27	0.10	<0.10	<0.10	<0.10	<0.10
Electrical Conductivity (2:1)	mS/cm	0.7	0.005	0.240	0.256	0.255	0.179
Sodium Adsorption Ratio (2:1) (Calc.)	N/A	5	N/A	0.219	0.718	0.162	0.114
pH, 2:1 CaCl2 Extraction	pH Units	5.0-9.0	NA	7.31	7.42	7.00	7.36

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals & Inorganics (Soil)

DATE RECEIVED: 2023-11-08 **DATE REPORTED: 2023-11-17**

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ON T3 S RPI CT
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.

5439632-5439637 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 prepared at 2:1 ratio. SAR is a calculated parameter.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

		SAMPLE DESCRIPTION:		TP2	TP5
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2023-11-08	2023-11-08
Parameter	Unit	G / S	RDL	5439634	5439638
Antimony	µg/g	7.5	0.8	<0.8	<0.8
Arsenic	µg/g	18	1	12	12
Barium	µg/g	390	2.0	114	114
Beryllium	µg/g	4	0.5	0.8	0.9
Boron	µg/g	120	5	9	12
Cadmium	µg/g	1.2	0.5	0.9	0.5
Chromium	µg/g	160	5	34	45
Cobalt	µg/g	22	0.8	12.2	13.7
Copper	µg/g	140	1.0	34.8	33.1
Lead	µg/g	120	1	98	68
Molybdenum	µg/g	6.9	0.5	2.1	3.4
Nickel	µg/g	100	1	47	60
Selenium	µg/g	2.4	0.8	<0.8	1.1
Silver	µg/g	20	0.5	<0.5	<0.5
Thallium	µg/g	1	0.5	<0.5	<0.5
Uranium	µg/g	23	0.50	0.70	0.88
Vanadium	µg/g	86	2.0	31.7	47.5
Zinc	µg/g	340	5	340	189

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ON T3 S RPI CT
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 *)

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

		SAMPLE DESCRIPTION:		TP2	TP5
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		2023-11-08	2023-11-08
Parameter	Unit	G / S	RDL	5439634	5439638
Hexachloroethane	µg/g	0.089	0.005	<0.005	<0.005
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005
Endosulfan I	µg/g		0.005	<0.005	<0.005
Endosulfan II	µg/g		0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005
Alpha-Chlordane	µg/g		0.005	<0.005	<0.005
gamma-Chlordane	µg/g		0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007
op'-DDE	ug/g		0.005	<0.005	0.006
pp'-DDE	µg/g		0.005	0.017	0.315
DDE	µg/g	0.26	0.007	0.017	**0.321**
op'-DDD	µg/g		0.005	<0.005	0.010
pp'-DDD	µg/g		0.005	<0.005	0.025
DDD	µg/g	3.3	0.007	<0.007	0.035
op'-DDT	µg/g		0.005	<0.005	0.030
pp'-DDT	µg/g		0.005	0.012	0.102
DDT (Total)	µg/g	1.4	0.007	0.012	0.132
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01
Moisture Content	%		0.1	20.6	13.5
wet weight OC	g		0.005	10.4	10.5
Surrogate	**Unit**	**Acceptable Limits**			
TCMX	%	50-140		105	100
Decachlorobiphenyl	%	50-140		102	112

Certified By: R. Chakraberty

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - OC Pesticides (Soil)

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ON T3 S RPI CT
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.

5439634-5439638 Results are based on the dry weight of the soil.
DDT total is a calculated parameter. The calculated value is the sum of op'DDT and pp'DDT.
DDD total is a calculated parameter. The calculated value is the sum of op'DDD and pp'DDD.
DDE total is a calculated parameter. The calculated value is the sum of op'DDE and pp'DDE.
Endosulfan total is a calculated parameter. The calculated value is the sum of Endosulfan I and Endosulfan II.
Chlordane total is a calculated parameter. The calculated value is the sum of Alpha-Chlordane and Gamma-Chlordane.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

		SAMPLE DESCRIPTION:		TP1	TP2	TP2B	TP3	TP4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-11-08	2023-11-08	2023-11-08	2023-11-08	2023-11-08
Parameter	**Unit**	**G / S**	**RDL**	**5439632**	**5439634**	**5439635**	**5439636**	**5439637**
Naphthalene	µg/g	0.6	0.05	<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	<0.05
Acenaphthene	µg/g	7.9	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluorene	µg/g	62	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Phenanthrene	µg/g	6.2	0.05	<0.05	0.06	<0.05	0.10	<0.05
Anthracene	µg/g	0.67	0.05	<0.05	<0.05	<0.05	<0.05	<0.05
Fluoranthene	µg/g	0.69	0.05	<0.05	0.10	<0.05	0.22	<0.05
Pyrene	µg/g	78	0.05	<0.05	0.10	<0.05	0.16	<0.05
Benz(a)anthracene	µg/g	0.5	0.05	<0.05	0.05	<0.05	0.08	<0.05
Chrysene	µg/g	7	0.05	<0.05	<0.05	<0.05	0.08	<0.05
Benzo(b)fluoranthene	µg/g	0.78	0.05	<0.05	0.05	<0.05	0.07	<0.05
Benzo(k)fluoranthene	µg/g	0.78	0.05	<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	<0.05
Indeno(1,2,3-cd)pyrene	µg/g	0.38	0.05	<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	<0.05
Benzo(g,h,i)perylene	µg/g	6.6	0.05	<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	<0.05
Moisture Content	%		0.1	16.3	20.6	16.3	13.9	13.6
Surrogate	**Unit**	**Acceptable Limits**						
Naphthalene-d8	%	50-140		80	70	85	80	75
Acridine-d9	%	50-140		95	100	105	90	105
Terphenyl-d14	%	50-140		105	115	70	110	85

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ON T3 S RPI CT
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.

5439632-5439637 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 *)

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-11-08 **DATE REPORTED: 2023-11-17**

		SAMPLE DESCRIPTION:		TP1	TP2B	TP3	TP4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil
		DATE SAMPLED:		2023-11-08	2023-11-08	2023-11-08	2023-11-08
Parameter	Unit	G / S	RDL	5439632	5439635	5439636	5439637
F1 (C6 to 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	90	<50
Gravimetric Heavy Hydrocarbons	µg/g	2800	50	NA	NA	NA	NA
Moisture Content	%		0.1	16.2	16.3	13.9	13.6
Surrogate	**Unit**	**Acceptable Limits**					
Toluene-d8	%	50-140		114	105	104	119
Terphenyl	%	60-140		99	98	110	78

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ON T3 S RPI CT
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.

5439632-5439637 Results are based on sample dry weight.
The C6-C10 fraction is calculated using toluene response factor.
C6–C10 (F1 minus BTEX) is a calculated parameter. The calculated value is F1 minus BTEX. The calculated parameter is 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.

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

		SAMPLE DESCRIPTION:		TP4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2023-11-08
Parameter	Unit	G / S	RDL	5439637
Dichlorodifluoromethane	µg/g	16	0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05
Trichlorofluoromethane	ug/g	4	0.05	<0.05
Acetone	ug/g	16	0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05
Methylene Chloride	ug/g	0.1	0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.084	0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.75	0.05	<0.05
1,1-Dichloroethane	ug/g	3.5	0.02	<0.02
Methyl Ethyl Ketone	ug/g	16	0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	3.4	0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.38	0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05
Benzene	ug/g	0.21	0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03
Trichloroethylene	ug/g	0.061	0.03	<0.03
Bromodichloromethane	ug/g	13	0.05	<0.05
Methyl Isobutyl Ketone	ug/g	1.7	0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04
Toluene	ug/g	2.3	0.05	<0.05
Dibromochloromethane	ug/g	9.4	0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04
Tetrachloroethylene	ug/g	0.28	0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.04	<0.04
Chlorobenzene	ug/g	2.4	0.05	<0.05
Ethylbenzene	ug/g	2	0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05

Certified By: R. Chakraberty

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

		SAMPLE DESCRIPTION:		TP4
		SAMPLE TYPE:		Soil
		DATE SAMPLED:		2023-11-08
Parameter	**Unit**	**G / S**	**RDL**	**5439637**
Bromoform	ug/g	0.27	0.05	<0.05
Styrene	ug/g	0.7	0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05
o-Xylene	ug/g		0.05	<0.05
1,3-Dichlorobenzene	ug/g	4.8	0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.05
1,2-Dichlorobenzene	ug/g	3.4	0.05	<0.05
Xylenes (Total)	ug/g	3.1	0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.04	<0.04
n-Hexane	µg/g	2.8	0.05	<0.05
Moisture Content	%		0.1	13.6
Surrogate	**Unit**	**Acceptable Limits**		
Toluene-d8	% Recovery	50-140		119
4-Bromofluorobenzene	% Recovery	50-140		78

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ON T3 S RPI CT
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.

5439637 The sample was analyzed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: R. Chakraberty

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AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (with PHC) (Soil)

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

		SAMPLE DESCRIPTION:		TP1	TP2B	TP3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2023-11-08	2023-11-08	2023-11-08
Parameter	Unit	G / S	RDL	5439632	5439635	5439636
Dichlorodifluoromethane	µg/g	16	0.05	<0.05	<0.05	<0.05
Vinyl Chloride	ug/g	0.02	0.02	<0.02	<0.02	<0.02
Bromomethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Trichlorofluoromethane	ug/g	4	0.05	<0.05	<0.05	<0.05
Acetone	ug/g	16	0.50	<0.50	<0.50	<0.50
1,1-Dichloroethylene	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Methylene Chloride	ug/g	0.1	0.05	<0.05	<0.05	<0.05
Trans- 1,2-Dichloroethylene	ug/g	0.084	0.05	<0.05	<0.05	<0.05
Methyl tert-butyl Ether	ug/g	0.75	0.05	<0.05	<0.05	<0.05
1,1-Dichloroethane	ug/g	3.5	0.02	<0.02	<0.02	<0.02
Methyl Ethyl Ketone	ug/g	16	0.50	<0.50	<0.50	<0.50
Cis- 1,2-Dichloroethylene	ug/g	3.4	0.02	<0.02	<0.02	<0.02
Chloroform	ug/g	0.05	0.04	<0.04	<0.04	<0.04
1,2-Dichloroethane	ug/g	0.05	0.03	<0.03	<0.03	<0.03
1,1,1-Trichloroethane	ug/g	0.38	0.05	<0.05	<0.05	<0.05
Carbon Tetrachloride	ug/g	0.05	0.05	<0.05	<0.05	<0.05
Benzene	ug/g	0.21	0.02	<0.02	<0.02	<0.02
1,2-Dichloropropane	ug/g	0.05	0.03	<0.03	<0.03	<0.03
Trichloroethylene	ug/g	0.061	0.03	<0.03	<0.03	<0.03
Bromodichloromethane	ug/g	13	0.05	<0.05	<0.05	<0.05
Methyl Isobutyl Ketone	ug/g	1.7	0.50	<0.50	<0.50	<0.50
1,1,2-Trichloroethane	ug/g	0.05	0.04	<0.04	<0.04	<0.04
Toluene	ug/g	2.3	0.05	<0.05	<0.05	<0.05
Dibromochloromethane	ug/g	9.4	0.05	<0.05	<0.05	<0.05
Ethylene Dibromide	ug/g	0.05	0.04	<0.04	<0.04	<0.04
Tetrachloroethylene	ug/g	0.28	0.05	<0.05	<0.05	<0.05
1,1,1,2-Tetrachloroethane	ug/g	0.058	0.04	<0.04	<0.04	<0.04
Chlorobenzene	ug/g	2.4	0.05	<0.05	<0.05	<0.05
Ethylbenzene	ug/g	2	0.05	<0.05	<0.05	<0.05
m & p-Xylene	ug/g		0.05	<0.05	<0.05	<0.05

Certified By: R. Chakraberty

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Certificate of Analysis

AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - VOCs (with PHC) (Soil)

DATE RECEIVED: 2023-11-08

DATE REPORTED: 2023-11-17

		SAMPLE DESCRIPTION:		TP1	TP2B	TP3
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		2023-11-08	2023-11-08	2023-11-08
Parameter	**Unit**	**G / S**	**RDL**	**5439632**	**5439635**	**5439636**
Bromoform	ug/g	0.27	0.05	<0.05	<0.05	<0.05
Styrene	ug/g	0.7	0.05	<0.05	<0.05	<0.05
1,1,2,2-Tetrachloroethane	ug/g	0.05	0.05	<0.05	<0.05	<0.05
o-Xylene	ug/g		0.05	<0.05	<0.05	<0.05
1,3-Dichlorobenzene	ug/g	4.8	0.05	<0.05	<0.05	<0.05
1,4-Dichlorobenzene	ug/g	0.083	0.05	<0.05	<0.05	<0.05
1,2-Dichlorobenzene	ug/g	3.4	0.05	<0.05	<0.05	<0.05
Xylenes (Total)	ug/g	3.1	0.05	<0.05	<0.05	<0.05
1,3-Dichloropropene (Cis + Trans)	µg/g	0.05	0.05	<0.05	<0.05	<0.05
n-Hexane	µg/g	2.8	0.05	<0.05	<0.05	<0.05
Moisture Content	%		0.1	16.3	16.3	13.9
Surrogate	**Unit**	**Acceptable Limits**				
Toluene-d8	% Recovery	50-140		114	105	104
4-Bromofluorobenzene	% Recovery	50-140		73	79	81

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to ON T3 S RPI CT
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.

5439632-5439636 The sample was analyzed using the high level technique. The sample was extracted using methanol, a small amount of the methanol extract was diluted in water and the purge & trap GC/MS analysis was performed. Results are based on the dry weight of the soil.
Xylenes total is a calculated parameter. The calculated value is the sum of m&p-Xylene + o-Xylene.
1,3-Dichloropropene total is a calculated parameter. The calculated value is the sum of Cis-1,3-Dichloropropene and Trans-1,3-Dichloropropene.
The calculated parameters are non-accredited. The parameters that are components of the calculation are accredited.

Analysis performed at AGAT Toronto (unless marked by *)

Certified By: R. Chakraberty

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Exceedance Summary

AGAT WORK ORDER: 23T090837

PROJECT: 230902

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

ATTENTION TO: Peter Markesic

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	UNIT	GUIDEVALUE	RESULT
5439632	TP1	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Cobalt	µg/g	22	34.9
5439632	TP1	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Copper	µg/g	140	178
5439632	TP1	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Molybdenum	µg/g	6.9	10.5
5439632	TP1	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Nickel	µg/g	100	142
5439632	TP1	ON T3 S RPI CT	O. Reg. 153(511) - Metals & Inorganics (Soil)	Zinc	µg/g	340	466
5439638	TP5	ON T3 S RPI CT	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	µg/g	0.26	0.321

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Quality Assurance

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

Soil Analysis

RPT Date: Nov 17, 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 & Inorganics (Soil)															
Antimony	5434969		<0.8	<0.8	NA	< 0.8	122%	70%	130%	81%	80%	120%	77%	70%	130%
Arsenic	5434969		3	3	NA	< 1	126%	70%	130%	105%	80%	120%	110%	70%	130%
Barium	5434969		65.4	65.3	0.0%	< 2.0	112%	70%	130%	103%	80%	120%	122%	70%	130%
Beryllium	5434969		<0.5	<0.5	NA	< 0.5	106%	70%	130%	104%	80%	120%	113%	70%	130%
Boron	5434969		<5	<5	NA	< 5	80%	70%	130%	102%	80%	120%	105%	70%	130%
Boron (Hot Water Soluble)	5435207		0.19	0.19	NA	< 0.10	91%	60%	140%	92%	70%	130%	92%	60%	140%
Cadmium	5434969		<0.5	<0.5	NA	< 0.5	115%	70%	130%	100%	80%	120%	102%	70%	130%
Chromium	5434969		22	22	NA	< 5	110%	70%	130%	109%	80%	120%	107%	70%	130%
Cobalt	5434969		4.4	4.4	0.0%	< 0.8	113%	70%	130%	113%	80%	120%	117%	70%	130%
Copper	5434969		167	166	0.7%	< 1.0	111%	70%	130%	106%	80%	120%	123%	70%	130%
Lead	5434969		67	66	1.3%	< 1	103%	70%	130%	92%	80%	120%	107%	70%	130%
Molybdenum	5434969		0.5	0.5	NA	< 0.5	118%	70%	130%	114%	80%	120%	116%	70%	130%
Nickel	5434969		16	16	2.5%	< 1	119%	70%	130%	112%	80%	120%	108%	70%	130%
Selenium	5434969		<0.8	<0.8	NA	< 0.8	95%	70%	130%	108%	80%	120%	113%	70%	130%
Silver	5434969		<0.5	<0.5	NA	< 0.5	94%	70%	130%	97%	80%	120%	98%	70%	130%
Thallium	5434969		<0.5	<0.5	NA	< 0.5	85%	70%	130%	97%	80%	120%	101%	70%	130%
Uranium	5434969		<0.50	<0.50	NA	< 0.50	94%	70%	130%	91%	80%	120%	94%	70%	130%
Vanadium	5434969		19.1	19.4	1.2%	< 2.0	107%	70%	130%	112%	80%	120%	118%	70%	130%
Zinc	5434969		196	199	1.4%	< 5	124%	70%	130%	106%	80%	120%	118%	70%	130%
Chromium, Hexavalent	5445393		<0.2	<0.2	NA	< 0.2	108%	70%	130%	102%	80%	120%	86%	70%	130%
Cyanide, WAD	5436514		<0.040	<0.040	NA	< 0.040	104%	70%	130%	98%	80%	120%	82%	70%	130%
Mercury	5434969		<0.10	<0.10	NA	< 0.10	118%	70%	130%	101%	80%	120%	105%	70%	130%
Electrical Conductivity (2:1)	5442512		1.00	1.20	18.2%	< 0.005	109%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	5435345		1.23	1.30	5.0%	NA									
pH, 2:1 CaCl2 Extraction	5431643		6.79	6.99	3.0%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

O. Reg. 153(511) - Metals & Inorganics (Soil)															
Antimony	5449184		<0.8	<0.8	NA	< 0.8	122%	70%	130%	97%	80%	120%	72%	70%	130%
Arsenic	5449184		3	3	NA	< 1	137%	70%	130%	101%	80%	120%	105%	70%	130%
Barium	5449184		14.2	15.0	5.8%	< 2.0	106%	70%	130%	101%	80%	120%	102%	70%	130%
Beryllium	5449184		<0.5	<0.5	NA	< 0.5	99%	70%	130%	107%	80%	120%	112%	70%	130%
Boron	5449184		<5	<5	NA	< 5	83%	70%	130%	110%	80%	120%	112%	70%	130%
Boron (Hot Water Soluble)	5435207		0.19	0.19	NA	< 0.10	91%	60%	140%	92%	70%	130%	92%	60%	140%
Cadmium	5449184		<0.5	<0.5	NA	< 0.5	71%	70%	130%	101%	80%	120%	100%	70%	130%
Chromium	5449184		11	11	NA	< 5	106%	70%	130%	106%	80%	120%	105%	70%	130%
Cobalt	5449184		2.8	2.8	NA	< 0.8	113%	70%	130%	109%	80%	120%	111%	70%	130%

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Quality Assurance

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Nov 17, 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
Copper	5449184		6.8	6.9	0.6%	< 1.0	102%	70%	130%	106%	80%	120%	102%	70%	130%
Lead	5449184		12	12	3.4%	< 1	106%	70%	130%	98%	80%	120%	94%	70%	130%
Molybdenum	5449184		<0.5	<0.5	NA	< 0.5	108%	70%	130%	108%	80%	120%	108%	70%	130%
Nickel	5449184		6	6	1.5%	< 1	111%	70%	130%	105%	80%	120%	106%	70%	130%
Selenium	5449184		<0.8	<0.8	NA	< 0.8	92%	70%	130%	102%	80%	120%	109%	70%	130%
Silver	5449184		<0.5	<0.5	NA	< 0.5	111%	70%	130%	103%	80%	120%	97%	70%	130%
Thallium	5449184		<0.5	<0.5	NA	< 0.5	100%	70%	130%	104%	80%	120%	100%	70%	130%
Uranium	5449184		<0.50	<0.50	NA	< 0.50	103%	70%	130%	100%	80%	120%	100%	70%	130%
Vanadium	5449184		18.4	18.3	0.9%	< 2.0	113%	70%	130%	112%	80%	120%	114%	70%	130%
Zinc	5449184		25	25	1.6%	< 5	115%	70%	130%	105%	80%	120%	126%	70%	130%
Chromium, Hexavalent	5433008		<0.2	<0.2	NA	< 0.2	108%	70%	130%	102%	80%	120%	94%	70%	130%
Cyanide, WAD	5433010		<0.040	<0.040	NA	< 0.040	108%	70%	130%	107%	80%	120%	86%	70%	130%
Mercury	5449184		<0.10	<0.10	NA	< 0.10	109%	70%	130%	105%	80%	120%	102%	70%	130%
Electrical Conductivity (2:1)	5442512		1.00	1.20	18.2%	< 0.005	109%	80%	120%						
Sodium Adsorption Ratio (2:1) (Calc.)	5435345		1.23	1.30	5.0%	NA									
pH, 2:1 CaCl2 Extraction	5439636	5439636	7.00	7.23	3.2%	NA	100%	80%	120%						

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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

Antimony	5434969	<0.8	<0.8	NA	< 0.8	122%	70%	130%	81%	80%	120%	77%	70%	130%
Arsenic	5434969	3	3	NA	< 1	126%	70%	130%	105%	80%	120%	110%	70%	130%
Barium	5434969	65.4	65.3	0.0%	< 2.0	112%	70%	130%	103%	80%	120%	122%	70%	130%
Beryllium	5434969	<0.5	<0.5	NA	< 0.5	106%	70%	130%	104%	80%	120%	113%	70%	130%
Boron	5434969	<5	<5	NA	< 5	80%	70%	130%	102%	80%	120%	105%	70%	130%
Cadmium	5434969	<0.5	<0.5	NA	< 0.5	115%	70%	130%	100%	80%	120%	102%	70%	130%
Chromium	5434969	22	22	NA	< 5	110%	70%	130%	109%	80%	120%	107%	70%	130%
Cobalt	5434969	4.4	4.4	0.0%	< 0.8	113%	70%	130%	113%	80%	120%	117%	70%	130%
Copper	5434969	167	166	0.7%	< 1.0	111%	70%	130%	106%	80%	120%	123%	70%	130%
Lead	5434969	67	66	1.3%	< 1	103%	70%	130%	92%	80%	120%	107%	70%	130%
Molybdenum	5434969	0.5	0.5	NA	< 0.5	118%	70%	130%	114%	80%	120%	116%	70%	130%
Nickel	5434969	16	16	2.5%	< 1	119%	70%	130%	112%	80%	120%	108%	70%	130%
Selenium	5434969	<0.8	<0.8	NA	< 0.8	95%	70%	130%	108%	80%	120%	113%	70%	130%
Silver	5434969	<0.5	<0.5	NA	< 0.5	94%	70%	130%	97%	80%	120%	98%	70%	130%
Thallium	5434969	<0.5	<0.5	NA	< 0.5	85%	70%	130%	97%	80%	120%	101%	70%	130%
Uranium	5434969	<0.50	<0.50	NA	< 0.50	94%	70%	130%	91%	80%	120%	94%	70%	130%
Vanadium	5434969	19.1	19.4	1.2%	< 2.0	107%	70%	130%	112%	80%	120%	118%	70%	130%

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Quality Assurance

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

Soil Analysis (Continued)

RPT Date: Nov 17, 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
Zinc	5434969		196	199	1.4%	< 5	124%	70%	130%	106%	80%	120%	118%	70%	130%

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

Certified By:

AGAT Laboratories

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Quality Assurance

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis

RPT Date: Nov 17, 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 and VOC) (Soil)															
F1 (C6 to C10)	5436926		<5	<5	NA	< 5	65%	60%	140%	82%	60%	140%	87%	60%	140%
O. Reg. 153(511) - PAHs (Soil)															
Naphthalene	5436898		<0.05	<0.05	NA	< 0.05	78%	50%	140%	78%	50%	140%	108%	50%	140%
Acenaphthylene	5436898		<0.05	<0.05	NA	< 0.05	98%	50%	140%	83%	50%	140%	75%	50%	140%
Acenaphthene	5436898		<0.05	<0.05	NA	< 0.05	86%	50%	140%	90%	50%	140%	88%	50%	140%
Fluorene	5436898		<0.05	<0.05	NA	< 0.05	75%	50%	140%	90%	50%	140%	80%	50%	140%
Phenanthrene	5436898		<0.05	<0.05	NA	< 0.05	64%	50%	140%	93%	50%	140%	73%	50%	140%
Anthracene	5436898		<0.05	<0.05	NA	< 0.05	68%	50%	140%	88%	50%	140%	88%	50%	140%
Fluoranthene	5436898		<0.05	<0.05	NA	< 0.05	64%	50%	140%	80%	50%	140%	78%	50%	140%
Pyrene	5436898		<0.05	<0.05	NA	< 0.05	62%	50%	140%	80%	50%	140%	83%	50%	140%
Benz(a)anthracene	5436898		<0.05	<0.05	NA	< 0.05	77%	50%	140%	90%	50%	140%	85%	50%	140%
Chrysene	5436898		<0.05	<0.05	NA	< 0.05	102%	50%	140%	73%	50%	140%	85%	50%	140%
Benzo(b)fluoranthene	5436898		<0.05	<0.05	NA	< 0.05	70%	50%	140%	98%	50%	140%	90%	50%	140%
Benzo(k)fluoranthene	5436898		<0.05	<0.05	NA	< 0.05	106%	50%	140%	75%	50%	140%	78%	50%	140%
Benzo(a)pyrene	5436898		<0.05	<0.05	NA	< 0.05	70%	50%	140%	113%	50%	140%	73%	50%	140%
Indeno(1,2,3-cd)pyrene	5436898		<0.05	<0.05	NA	< 0.05	90%	50%	140%	103%	50%	140%	70%	50%	140%
Dibenz(a,h)anthracene	5436898		<0.05	<0.05	NA	< 0.05	99%	50%	140%	78%	50%	140%	103%	50%	140%
Benzo(g,h,i)perylene	5436898		<0.05	<0.05	NA	< 0.05	104%	50%	140%	100%	50%	140%	78%	50%	140%
O. Reg. 153(511) - OC Pesticides (Soil)															
Hexachloroethane	5431368		< 0.005	< 0.005	NA	< 0.005	93%	50%	140%	80%	50%	140%	78%	50%	140%
Gamma-Hexachlorocyclohexane	5431368		< 0.005	< 0.005	NA	< 0.005	103%	50%	140%	86%	50%	140%	79%	50%	140%
Heptachlor	5431368		< 0.005	< 0.005	NA	< 0.005	99%	50%	140%	80%	50%	140%	82%	50%	140%
Aldrin	5431368		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	94%	50%	140%	92%	50%	140%
Heptachlor Epoxide	5431368		< 0.005	< 0.005	NA	< 0.005	96%	50%	140%	80%	50%	140%	79%	50%	140%
Endosulfan I	5431368		< 0.005	< 0.005	NA	< 0.005	99%	50%	140%	86%	50%	140%	85%	50%	140%
Endosulfan II	5431368		< 0.005	< 0.005	NA	< 0.005	102%	50%	140%	104%	50%	140%	102%	50%	140%
Alpha-Chlordane	5431368		< 0.005	< 0.005	NA	< 0.005	113%	50%	140%	101%	50%	140%	103%	50%	140%
gamma-Chlordane	5431368		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	98%	50%	140%	97%	50%	140%
op'-DDE	5431368		< 0.005	< 0.005	NA	< 0.005	99%	50%	140%	106%	50%	140%	104%	50%	140%
pp'-DDE	5431368		< 0.005	< 0.005	NA	< 0.005	106%	50%	140%	97%	50%	140%	98%	50%	140%
op'-DDD	5431368		< 0.005	< 0.005	NA	< 0.005	117%	50%	140%	86%	50%	140%	84%	50%	140%
pp'-DDD	5431368		< 0.005	< 0.005	NA	< 0.005	104%	50%	140%	80%	50%	140%	83%	50%	140%
op'-DDT	5431368		< 0.005	< 0.005	NA	< 0.005	101%	50%	140%	82%	50%	140%	81%	50%	140%
pp'-DDT	5431368		< 0.005	< 0.005	NA	< 0.005	89%	50%	140%	80%	50%	140%	82%	50%	140%
Dieldrin	5431368		< 0.005	< 0.005	NA	< 0.005	105%	50%	140%	95%	50%	140%	89%	50%	140%
Endrin	5431368		< 0.005	< 0.005	NA	< 0.005	109%	50%	140%	80%	50%	140%	82%	50%	140%
Methoxychlor	5431368		< 0.005	< 0.005	NA	< 0.005	102%	50%	140%	104%	50%	140%	107%	50%	140%
Hexachlorobenzene	5431368		< 0.005	< 0.005	NA	< 0.005	100%	50%	140%	92%	50%	140%	94%	50%	140%

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Quality Assurance

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Nov 17, 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
Hexachlorobutadiene	5431368		< 0.01	< 0.01	NA	< 0.01	107%	50%	140%	79%	50%	140%	80%	50%	140%
O. Reg. 153(511) - VOCs (Soil)															
Dichlorodifluoromethane	5436926		<0.05	<0.05	NA	< 0.05	78%	50%	140%	107%	50%	140%	76%	50%	140%
Vinyl Chloride	5436926		<0.02	<0.02	NA	< 0.02	108%	50%	140%	116%	50%	140%	92%	50%	140%
Bromomethane	5436926		<0.05	<0.05	NA	< 0.05	108%	50%	140%	116%	50%	140%	96%	50%	140%
Trichlorofluoromethane	5436926		<0.05	<0.05	NA	< 0.05	116%	50%	140%	110%	50%	140%	115%	50%	140%
Acetone	5436926		<0.50	<0.50	NA	< 0.50	97%	50%	140%	89%	50%	140%	102%	50%	140%
1,1-Dichloroethylene	5436926		<0.05	<0.05	NA	< 0.05	85%	50%	140%	94%	60%	130%	80%	50%	140%
Methylene Chloride	5436926		<0.05	<0.05	NA	< 0.05	89%	50%	140%	96%	60%	130%	96%	50%	140%
Trans- 1,2-Dichloroethylene	5436926		<0.05	<0.05	NA	< 0.05	92%	50%	140%	97%	60%	130%	88%	50%	140%
Methyl tert-butyl Ether	5436926		<0.05	<0.05	NA	< 0.05	83%	50%	140%	87%	60%	130%	80%	50%	140%
1,1-Dichloroethane	5436926		<0.02	<0.02	NA	< 0.02	84%	50%	140%	91%	60%	130%	85%	50%	140%
Methyl Ethyl Ketone	5436926		<0.50	<0.50	NA	< 0.50	106%	50%	140%	93%	50%	140%	96%	50%	140%
Cis- 1,2-Dichloroethylene	5436926		<0.02	<0.02	NA	< 0.02	84%	50%	140%	89%	60%	130%	86%	50%	140%
Chloroform	5436926		<0.04	<0.04	NA	< 0.04	88%	50%	140%	96%	60%	130%	89%	50%	140%
1,2-Dichloroethane	5436926		<0.03	<0.03	NA	< 0.03	82%	50%	140%	86%	60%	130%	103%	50%	140%
1,1,1-Trichloroethane	5436926		<0.05	<0.05	NA	< 0.05	85%	50%	140%	92%	60%	130%	76%	50%	140%
Carbon Tetrachloride	5436926		<0.05	<0.05	NA	< 0.05	92%	50%	140%	99%	60%	130%	81%	50%	140%
Benzene	5436926		<0.02	<0.02	NA	< 0.02	72%	50%	140%	79%	60%	130%	74%	50%	140%
1,2-Dichloropropane	5436926		<0.03	<0.03	NA	< 0.03	91%	50%	140%	99%	60%	130%	103%	50%	140%
Trichloroethylene	5436926		<0.03	<0.03	NA	< 0.03	94%	50%	140%	93%	60%	130%	98%	50%	140%
Bromodichloromethane	5436926		<0.05	<0.05	NA	< 0.05	75%	50%	140%	79%	60%	130%	81%	50%	140%
Methyl Isobutyl Ketone	5436926		<0.50	<0.50	NA	< 0.50	102%	50%	140%	83%	50%	140%	88%	50%	140%
1,1,2-Trichloroethane	5436926		<0.04	<0.04	NA	< 0.04	113%	50%	140%	109%	60%	130%	111%	50%	140%
Toluene	5436926		<0.05	<0.05	NA	< 0.05	112%	50%	140%	110%	60%	130%	100%	50%	140%
Dibromochloromethane	5436926		<0.05	<0.05	NA	< 0.05	115%	50%	140%	119%	60%	130%	110%	50%	140%
Ethylene Dibromide	5436926		<0.04	<0.04	NA	< 0.04	108%	50%	140%	92%	60%	130%	112%	50%	140%
Tetrachloroethylene	5436926		<0.05	<0.05	NA	< 0.05	85%	50%	140%	96%	60%	130%	105%	50%	140%
1,1,1,2-Tetrachloroethane	5436926		<0.04	<0.04	NA	< 0.04	103%	50%	140%	109%	60%	130%	99%	50%	140%
Chlorobenzene	5436926		<0.05	<0.05	NA	< 0.05	92%	50%	140%	105%	60%	130%	99%	50%	140%
Ethylbenzene	5436926		<0.05	<0.05	NA	< 0.05	97%	50%	140%	116%	60%	130%	109%	50%	140%
m & p-Xylene	5436926		<0.05	<0.05	NA	< 0.05	108%	50%	140%	115%	60%	130%	107%	50%	140%
Bromoform	5436926		<0.05	<0.05	NA	< 0.05	108%	50%	140%	119%	60%	130%	109%	50%	140%
Styrene	5436926		<0.05	<0.05	NA	< 0.05	112%	50%	140%	103%	60%	130%	103%	50%	140%
1,1,2,2-Tetrachloroethane	5436926		<0.05	<0.05	NA	< 0.05	106%	50%	140%	111%	60%	130%	100%	50%	140%
o-Xylene	5436926		<0.05	<0.05	NA	< 0.05	117%	50%	140%	109%	60%	130%	100%	50%	140%
1,3-Dichlorobenzene	5436926		<0.05	<0.05	NA	< 0.05	111%	50%	140%	115%	60%	130%	111%	50%	140%
1,4-Dichlorobenzene	5436926		<0.05	<0.05	NA	< 0.05	114%	50%	140%	106%	60%	130%	98%	50%	140%
1,2-Dichlorobenzene	5436926		<0.05	<0.05	NA	< 0.05	110%	50%	140%	104%	60%	130%	108%	50%	140%

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Quality Assurance

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Nov 17, 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
n-Hexane	5436926		<0.05	<0.05	NA	< 0.05	102%	50%	140%	118%	60%	130%	84%	50%	140%
O. Reg. 153(511) - VOCs (with PHC) (Soil)															
Dichlorodifluoromethane	5436926		<0.05	<0.05	NA	< 0.05	78%	50%	140%	107%	50%	140%	76%	50%	140%
Vinyl Chloride	5436926		<0.02	<0.02	NA	< 0.02	108%	50%	140%	116%	50%	140%	92%	50%	140%
Bromomethane	5436926		<0.05	<0.05	NA	< 0.05	108%	50%	140%	116%	50%	140%	96%	50%	140%
Trichlorofluoromethane	5436926		<0.05	<0.05	NA	< 0.05	116%	50%	140%	110%	50%	140%	115%	50%	140%
Acetone	5436926		<0.50	<0.50	NA	< 0.50	97%	50%	140%	89%	50%	140%	102%	50%	140%
1,1-Dichloroethylene	5436926		<0.05	<0.05	NA	< 0.05	85%	50%	140%	94%	60%	130%	80%	50%	140%
Methylene Chloride	5436926		<0.05	<0.05	NA	< 0.05	89%	50%	140%	96%	60%	130%	96%	50%	140%
Trans- 1,2-Dichloroethylene	5436926		<0.05	<0.05	NA	< 0.05	92%	50%	140%	97%	60%	130%	88%	50%	140%
Methyl tert-butyl Ether	5436926		<0.05	<0.05	NA	< 0.05	83%	50%	140%	87%	60%	130%	80%	50%	140%
1,1-Dichloroethane	5436926		<0.02	<0.02	NA	< 0.02	84%	50%	140%	91%	60%	130%	85%	50%	140%
Methyl Ethyl Ketone	5436926		<0.50	<0.50	NA	< 0.50	106%	50%	140%	93%	50%	140%	96%	50%	140%
Cis- 1,2-Dichloroethylene	5436926		<0.02	<0.02	NA	< 0.02	84%	50%	140%	89%	60%	130%	86%	50%	140%
Chloroform	5436926		<0.04	<0.04	NA	< 0.04	88%	50%	140%	96%	60%	130%	89%	50%	140%
1,2-Dichloroethane	5436926		<0.03	<0.03	NA	< 0.03	82%	50%	140%	86%	60%	130%	103%	50%	140%
1,1,1-Trichloroethane	5436926		<0.05	<0.05	NA	< 0.05	85%	50%	140%	92%	60%	130%	76%	50%	140%
Carbon Tetrachloride	5436926		<0.05	<0.05	NA	< 0.05	92%	50%	140%	99%	60%	130%	81%	50%	140%
Benzene	5436926		<0.02	<0.02	NA	< 0.02	72%	50%	140%	79%	60%	130%	74%	50%	140%
1,2-Dichloropropane	5436926		<0.03	<0.03	NA	< 0.03	91%	50%	140%	99%	60%	130%	103%	50%	140%
Trichloroethylene	5436926		<0.03	<0.03	NA	< 0.03	94%	50%	140%	93%	60%	130%	98%	50%	140%
Bromodichloromethane	5436926		<0.05	<0.05	NA	< 0.05	75%	50%	140%	79%	60%	130%	81%	50%	140%
Methyl Isobutyl Ketone	5436926		<0.50	<0.50	NA	< 0.50	102%	50%	140%	83%	50%	140%	88%	50%	140%
1,1,2-Trichloroethane	5436926		<0.04	<0.04	NA	< 0.04	113%	50%	140%	109%	60%	130%	111%	50%	140%
Toluene	5436926		<0.05	<0.05	NA	< 0.05	112%	50%	140%	110%	60%	130%	100%	50%	140%
Dibromochloromethane	5436926		<0.05	<0.05	NA	< 0.05	115%	50%	140%	119%	60%	130%	110%	50%	140%
Ethylene Dibromide	5436926		<0.04	<0.04	NA	< 0.04	108%	50%	140%	92%	60%	130%	112%	50%	140%
Tetrachloroethylene	5436926		<0.05	<0.05	NA	< 0.05	85%	50%	140%	96%	60%	130%	105%	50%	140%
1,1,1,2-Tetrachloroethane	5436926		<0.04	<0.04	NA	< 0.04	103%	50%	140%	109%	60%	130%	99%	50%	140%
Chlorobenzene	5436926		<0.05	<0.05	NA	< 0.05	92%	50%	140%	105%	60%	130%	99%	50%	140%
Ethylbenzene	5436926		<0.05	<0.05	NA	< 0.05	97%	50%	140%	116%	60%	130%	109%	50%	140%
m & p-Xylene	5436926		<0.05	<0.05	NA	< 0.05	108%	50%	140%	115%	60%	130%	107%	50%	140%
Bromoform	5436926		<0.05	<0.05	NA	< 0.05	108%	50%	140%	119%	60%	130%	109%	50%	140%
Styrene	5436926		<0.05	<0.05	NA	< 0.05	112%	50%	140%	103%	60%	130%	103%	50%	140%
1,1,2,2-Tetrachloroethane	5436926		<0.05	<0.05	NA	< 0.05	106%	50%	140%	111%	60%	130%	100%	50%	140%
o-Xylene	5436926		<0.05	<0.05	NA	< 0.05	117%	50%	140%	109%	60%	130%	100%	50%	140%
1,3-Dichlorobenzene	5436926		<0.05	<0.05	NA	< 0.05	111%	50%	140%	115%	60%	130%	111%	50%	140%
1,4-Dichlorobenzene	5436926		<0.05	<0.05	NA	< 0.05	114%	50%	140%	106%	60%	130%	98%	50%	140%
1,2-Dichlorobenzene	5436926		<0.05	<0.05	NA	< 0.05	110%	50%	140%	104%	60%	130%	108%	50%	140%

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Quality Assurance

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

Trace Organics Analysis (Continued)

RPT Date: Nov 17, 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
n-Hexane	5436926		<0.05	<0.05	NA	< 0.05	102%	50%	140%	118%	60%	130%	84%	50%	140%
O. Reg. 153(511) - PHCs F1 - F4 (with PAHs and VOC) (Soil)															
F1 (C6 to C10)	5449158		<5	<5	NA	< 5	111%	60%	140%	113%	60%	140%	87%	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).

Certified By: R. Chakraborty

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CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

RPT Date: Nov 17, 2023		REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Sample Id	Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
			Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals & Inorganics (Soil)										
Arsenic		137%	70%	130%	101%	80%	120%	105%	70%	130%

Comments: NA signifies Not Applicable.
pH duplicates QA acceptance criteria was met relative as stated in Table 5-15 of Analytical Protocol document.
Duplicate NA: results are under 5X the RDL and will not be calculated.

More than 90% of the elements met acceptance limits and overall data quality is acceptable for use. For a multi-element scan up to 10% of analytes may exceed the quoted limits by up to 10% absolute.

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Method Summary

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

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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
Boron (Hot Water Soluble)	MET-93-6104	modified from EPA 6010D and MSA PART 3, CH 21	ICP/OES
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
Chromium, Hexavalent	INOR-93-6068	modified from EPA 3060 and EPA 7196	SPECTROPHOTOMETER
Cyanide, WAD	INOR-93-6052	modified from ON MOECC E3015, SM 4500-CN- I, G-387	SEGMENTED FLOW ANALYSIS
Mercury	MET-93-6103	modified from EPA 7471B and SM 3112 B	ICP-MS
Electrical Conductivity (2:1)	INOR-93-6075	modified from MSA PART 3, CH 14 and SM 2510 B	PC TITRATE
Sodium Adsorption Ratio (2:1) (Calc.)	INOR-93-6007	modified from EPA 6010D & Analytical Protocol	ICP/OES
pH, 2:1 CaCl2 Extraction	INOR-93-6075	modified from EPA 9045D, MCKEAGUE 3.11 E3137	PC TITRATE

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Method Summary

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

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PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Hexachloroethane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Gamma-Hexachlorocyclohexane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Aldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Heptachlor Epoxide	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan I	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan II	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endosulfan	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
Alpha-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
gamma-Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Chlordane	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDE	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
op'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDD	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	CALCULATION
op'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
pp'-DDT	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
DDT (Total)	ORG-91-5113	modified from EPA 3570, 3620C & 8081B	CALCULATION
Dieldrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Endrin	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Methoxychlor	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobenzene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Hexachlorobutadiene	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
TCMX	ORG-91-5112	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Decachlorobiphenyl	ORG-91-5113	modified from EPA 3570 & 3620C & 8081B	GC/ECD
Moisture Content	VOL-91-5009	modified from CCME Tier 1 Method	BALANCE

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Method Summary

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
wet weight OC	ORG-91-5113		BALANCE
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
F1 (C6 to 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- 5001	modified from EPA 5030B & EPA 8260D	(P&T)GC/MS
F2 (C10 to C16)	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
F4 (C34 to C50)	VOL-91-5009	modified from CCME Tier 1 Method	GC/FID
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
Dichlorodifluoromethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Vinyl Chloride	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Carbon Tetrachloride	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
m & p-Xylene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA SW-846 5035 & 8260D	(P&T)GC/MS
Dichlorodifluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Vinyl Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromomethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichlorofluoromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Acetone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methylene Chloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trans- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl tert-butyl Ether	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Ethyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Cis- 1,2-Dichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chloroform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS

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Method Summary

CLIENT NAME: SOIL MAT ENGINEERS & CONSULTANTS LT

AGAT WORK ORDER: 23T090837

PROJECT: 230902

ATTENTION TO: Peter Markesic

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Carbon Tetrachloride	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Benzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichloropropane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Trichloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromodichloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Methyl Isobutyl Ketone	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2-Trichloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Dibromochloromethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylene Dibromide	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Tetrachloroethylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,1,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Chlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Ethylbenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
m & p-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Bromoform	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Styrene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,1,2,2-Tetrachloroethane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
o-Xylene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,4-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,2-Dichlorobenzene	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Xylenes (Total)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
1,3-Dichloropropene (Cis + Trans)	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
n-Hexane	VOL-91-5002	modified from EPA 5035A and EPA 8260D	(P&T)GC/MS
Toluene-d8	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS
4-Bromofluorobenzene	VOL-91-5002	modified from EPA 5035A & EPA 8260D	(P&T)GC/MS

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Have feedback? Scan here for a quick survey!

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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 #: 23T090837
Cooler Quantity: 1 large
Arrival Temperatures: 1.5 | 2.0 | 2.2
Custody Seal Intact: ☐Yes ☐No ☐N/A
Notes: FREE ICE

Report Information:
Company: SOiL-MAT
Contact:
Address:
Phone: Fax:
Reports to be sent to:
1. Email: Nathan Sears
2. Email: Peter Markasic

Project Information:
Project: 230902
Site Location: 111 Victoria Street, Welland
Sampled By: NS
AGAT Quote #: 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:

Regulatory Requirements:
(Please check all applicable boxes)

☑ Regulation 153/04 — Table 1 (Indicate One): ☐Ind/Com ☐Res/Park ☐Agriculture
Soil Texture (Check One): ☐Coarse ☐Fine

☐ Regulation 406 — 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

Sample Matrix Legend
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	VOC	PAHs	PCBs	PCBs: Aroclors ☐	O. Reg 558: Landfill Disposal Characterization TCLP: TCLP: ☐ M&I ☐ VOCs ☐ ABNs ☐ B(a)P ☐ PCBs	O. Reg 406: Regulation 406 SPLP Rainwater Leach SPLP: ☐ Metals ☐ VOCs ☐ SVOCs	Regulation 406 Characterization Package pH, ICPMS Metals, BTEX, F1-F4	Corrosivity: ☐ Moisture ☐ Sulphide	OCs + Pesticides	Potentially Hazardous or High Concentration (Y/N)
1. TP1	Nov 8	AM PM	4	S			✓												
2. TP2		AM PM	3				✓	✓										✓	
3. TP2B		AM PM	4				✓	✓	✓	✓	✓								
4. TP3		AM PM	4				✓	✓	✓	✓	✓								
5. TP4		AM PM	4				✓	✓	✓	✓	✓								
6. TP5		AM PM	2					✓										✓	
7.		AM PM																	
8.		AM PM																	
9.		AM PM																	
10.		AM PM																	
11.		AM PM																	

Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
			Aniqa Tahir	08/11/2023	4:42 pm
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time
Samples Relinquished By (Print Name and Sign):	Date	Time	Samples Received By (Print Name and Sign):	Date	Time

Page ____ of ____
N°: T - 150195

Pink Copy - Client | Yellow Copy - AGAT | White Copy - AGAT

Appendix 'D'

Qualifications of Assessors

COMPANY BACKGROUND

SOIL-MAT ENGINEERS & CONSULTANTS LTD. [SOIL-MAT ENGINEERS] is a Canadian Consulting Engineering firm owned by its senior staff. Over the past thirty years the principals of SOIL-MAT ENGINEERS have undertaken geotechnical investigations in all areas of Hamilton and surrounding area and are familiar with the distinct geology of the area and therefore well-versed with the various soil, bedrock and groundwater conditions. SOIL-MAT ENGINEERS has a staff of over twenty-five engineers and technical staff who specialize in geotechnical assignments, environmental assessments, hydrogeological investigations and construction quality control/assurance projects. The company commenced operation on June 15, 1992 and has undertaken over 5,000 projects since its inception. The firm and all professional staff are in good standing with Professional Engineers Ontario. The company has maintained a current Certificate of Authorisation since it was granted on April 28, 1992. The firm's office and laboratory facilities are located at 401 Grays Road in Hamilton, Ontario.

REPORT AUTHORS

Nathan Sears
Environmental Technician

Mr. Sears has over two years of experience in conducting Phase II ESA fieldwork, including soil and groundwater sampling. Mr. Sears has also been a key member on a number of projects including the supervision and direction of traditional 'dig and dump' remediation projects.

Stephen R. Sears, B. Eng. Mgmt., P. Eng.
[Director/ Senior Professional]

Mr. Sears has over twenty-two years of experience in the geotechnical and geo-environmental fields. Mr. Sears holds current Consulting Engineer designations with the Professional Engineers Ontario and the Association of Professional Engineers and Geoscientists of Saskatchewan and has supervised the geotechnical investigations for numerous industrial, commercial and residential development projects in Southern Ontario, slope stability assignments associated with Hamilton Conservation Authority, Conservation Halton and Niagara Peninsula Conservation Authority requirements, and several high rise developments throughout Ontario. Mr. Sears has also been involved in geotechnical and hydrogeological investigations for industrial park developments in the Greater Toronto Area and Niagara Peninsula. Some of Mr. Sears' projects have included the decommissioning and reconstruction of underground and above ground fuel oil storage tanks in Ontario and Saskatchewan, the study of the containment structures at a number of Petroleum Storage Facilities in Ontario and and numerous 'dig and dump' remediation projects.

Keith Gleadall, B.A., EA Dipl.
Vice-President [Senior Professional]

Mr. Gleadall has over fourteen years of experience in conducting Phase I, II and III Environmental Site Assessments and has successfully completed the requirements of the Associated Environmental Site Assessors of Canada and a Post Graduate Diploma in Environmental Site Assessment from Niagara College. Mr. Gleadall is responsible for undertaking numerous hydrogeological investigations, primarily within the City of Hamilton, associated with the development of residential and commercial subdivision projects, together with Phase I, II and III Environmental Site Assessments. Projects have included the decommissioning of underground and above ground fuel oil storage tanks, the implementation of in-situ and ex-situ remediation programmes, the decommissioning of a former dry-cleaning facility and numerous 'dig and dump' remediation projects.

Appendix 'E'

Statement of Limitations

REPORT LIMITATIONS

Achieving the objectives that are stated in this report has required SOIL-MAT ENGINEERS to derive conclusions based upon the best and most recent information currently available to SOIL-MAT ENGINEERS. No investigative method can completely eliminate the possibility of obtaining partially imprecise information. SOIL-MAT ENGINEERS has expressed professional judgement in gathering and analysing the information obtained and in the formulation of its conclusions.

Information in this report was obtained from sources deemed to be reliable, however, no representation or warranty is made as to the accuracy of this information. To the best of SOIL-MAT ENGINEERS' knowledge, the information gathered from outside sources contained in this report on which SOIL-MAT ENGINEERS has formulated its opinions and conclusions, are both true and correct. SOIL-MAT ENGINEERS assumes no responsibility for any misrepresentation of facts gathered from outside sources.

This report was prepared to assess and document evidence of potential environmental contamination, and not to judge the acceptability of the risks associated with such environmental contamination. Much of the information gathered for this report is only accurate at the time of collection and a change in the Site conditions may alter the interpretation of SOIL-MAT ENGINEERS' findings. Furthermore, the reader should note that the Site reconnaissance described in this report was an environmental assessment of the Site, not a regulatory compliance or an environmental audit of the Site.

SOIL-MAT ENGINEERS & CONSULTANTS LTD. prepared this Report for the account of CAIRNWOOD HOMES. The material in it reflects SOIL-MAT ENGINEERS 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. SOIL-MAT ENGINEERS accepts no responsibility for damages, if any suffered by any third party as a result of decisions made or actions based on this report.