



Terraprobe

*Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing*

ADDITIONAL PHASE TWO ENVIRONMENTAL SITE ASSESSMENT TRAILS OF COLLINGWOOD – HIGH STREET AND TELFER ROAD COLLINGWOOD, ONTARIO

Prepared for: **Helen Court Homes**
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Attention: Mr. David Ferracuti

File No: 1-17-0918-42.1
Date: May 22, 2020

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1.0 EXECUTIVE SUMMARY

Helen Court Homes retained Terraprobe Inc. (Terraprobe), to complete an additional Phase Two Environmental Site Assessment (ESA) of the property located at the northeast corner of High Street and Telfer Road in Collingwood, Ontario, hereafter referred to as '*the Property*'.

The Property is irregular in shape, with a total area of approximately 7.6 ha (18.78 acres). The Property is currently vacant with historical agricultural land use as an orchard on the western portion of the Property and is proposed to be developed for residential purposes. The Property is considered to be in Agricultural or Other Land Use by the Ontario Ministry of the Environment, Conservation and Parks (MECP).

According to the Collingwood Zoning By-law Maps (revised on December, 7 2015) and By-Law No. 2010-040, the Property is zoned as Residential Third Density (R3) and the northeast corner of the Property is zoned as Environmental Protection (EP). The Property is also designated as a Holding Zone (H13) with the following conditions:

- No sensitive land use is permitted until the completion and acceptance of a record of site condition confirming that the land is appropriate for such use.
- All other uses permitted by the underlying parent zone, or the exception zone, are lawfully permitted while the H13 symbol is in place.

Sensitive land use in the By-Law refers to “The use of land or building for an agricultural use or other use, an institutional use, a parkland use or a residential use within the meaning of the Environmental Protection Act, R.S.O. 1990, Chapter E. 19, Ontario Regulation 153/04, as amended.”

Moreover, due to the unevaluated wetlands (locally significant) and wetland buffer on the Property, part of the Property is regulated under the Nottawasaga Valley Conservation Authority.

Phase One ESA

A Phase One Environmental Site Assessment (Phase One ESA) was conducted for the Property by Terraprobe in May, 2018 to identify any Potentially Contaminating Activities (PCAs) on the Property and in the study area. Based on the findings of the Phase One ESA report, one (1) PCA was noted on the Property, which caused one (1) Area of Potential Environmental Concern (APEC), as follows:

- #40 – Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications

The Phase One ESA indicated that the APEC covers the entire Property.

Phase Two ESA

A Phase Two Environmental Site Assessment was conducted in May, 2018 by Terraprobe to investigate the APEC identified on the Property arising from the historical PCA found at the Property.

The Phase Two ESA included the drilling of three (3) boreholes and the installation of three (3) monitoring wells. The monitoring wells were installed to depths of approximately 5, 4.3 and 3.7 m below ground surface for BH1, BH2 and BH3, respectively. The following are the findings of the Phase Two ESA:

- The applicable Site Condition Standards are the 2011 Ministry of the Environment, Conservation and Parks Table 2 Standards for Residential, Parkland, and Institutional Land Use with coarse textured soils (MECP Table 2 RPI Standards).
- There were exceedances of the applicable Site Condition Standards noted in the earth fill material for DDE (OC Pesticides) on the Property in the Phase Two ESA.
- Applicable Site Condition Standards were met in the native soil located on the Property for the Phase Two ESA in BH1, BH2 and BH3.
- Applicable Site Condition Standards were met for ground water on the Property.

Based on the conclusions of the Phase Two ESA, a Remedial Action Plan was recommended to determine the feasibility of a remediation or a Risk Assessment on the Property. Vertical and horizontal delineation of the impacted material may be recommended as part of the Remedial Action Plan. As a result, a Remedial Plan was developed for the Property.

Additional Phase Two ESA

GHD Limited conducted a Peer Review of Terraprobe's Phase Two ESA and Remedial Action Plan. Based on GHD's Peer Review comments, nine (9) additional monitoring wells are recommended to be installed across the Property to further characterize soil and ground water quality across the Property. The investigation outlined in this report addresses those recommendations.

The conclusions of the Additional Phase Two ESA were:

- The applicable Site Condition Standards for the Property is the 2011 Ministry of Environment, Conservation and Parks (MECP) Table 2 Standards for Residential/Parkland/Institutional Property Use with coarse textured soils.
- Nine (9) boreholes were drilled between March 9 and March 13, 2020 and nine (9) monitoring wells were installed. The monitoring wells were installed at depths ranging from 1.8 to 6.1 m below ground surface (mbgs).
- The ground water depths ranged from 0.70 to 1.51 mbgs.
- The stratigraphy of the site is generally summarized as approximately 100 to 200 mm of topsoil, followed by reworked native soil consisting of silty sand to sandy soil, sandy silt with trace clay and gravel, loose, brown, moist to wet with rootlet. Gravelly sand was noted in BH9. The reworked material was underlain by native soil which consisted of silty sand to sandy silt with trace clay and gravel, some organic, brown and moist. At deeper depth and closer to the bedrock, gravelly sand with trace of silt and clay was noted.

- One (1) surface soil sample collected from BH4 contained Arsenic, Lead, Total DDE and Total DDT in excess of the Table 2 RPI Standards.
- One (1) surface soil sample collected from BH6 contained Arsenic and Total DDE in excess of the Table 2 RPI Standards.
- Five (5) surface soil samples collected from BH5, BH7, BH8, BH11 and BH12 contained Total DDE in excess of the Table 2 RPI Standards.
- All soil samples collected from native soil met the Table 2 RPI Standards.
- In total, twelve (12) groundwater samples were collected from the, previously and newly, installed monitoring wells. The results of the chemical analysis indicated that all groundwater samples submitted for chemical analysis met the Applicable Site Condition Standards. It should be noted that monitoring wells should be decommissioned as per O. Reg. 903 when are no longer in use.

2.0 INTRODUCTION

Helen Court Homes retained Terraprobe Inc. (Terraprobe), to complete an additional Phase Two ESA of the property which is located at the northeast corner of High Street and Telfer Road in Collingwood, Ontario.

It was noted that the conclusions of the Phase One ESA indicated one (1) Areas of Potential Environmental Concern (APECs) at the Property. Previous Phase Two ESA investigations indicated that the sampled fill soil material on the Property is in excess of the Applicable Site Condition Standards. Therefore, it was recommended that an additional Phase Two ESA is required to further investigate the soil and ground water quality on the Property. The Additional Phase Two ESA was completed in compliance with Ontario Regulation 153/04 (O.Reg. 153/04). Since the Property will be changing from Agricultural or Other Land Use to Residential Land Use, the MECP will not require a Record of Site Condition (RSC). However, the Town of Collingwood requires a RSC as part of the development and permitting process.

2.1 Site Description

The Property is irregular in shape, with a total area of approximately 7.6 ha (18.78 acres). The Property is currently vacant with overgrown trees and shrubs with historical agricultural land use as an orchard on the western portion of the Property. It is proposed to develop the Property for residential purposes. The Property is considered to be in Agricultural or Other Land Use by the Ontario Ministry of the Environment, Conservation and Parks (MECP). The general location of the Property is presented on Figure 1. The legal survey is attached in Appendix B.

The Property information is provided below.

Legal Description	Lot P, and Part of Lots N, R, S, T, V, and X and Part of Cameron Street (Closed by By-Law 93-2) and Part of Spruce Street (Closed by By-Law 93-2) Registered Plan 263, Town of Collingwood, County of Simcoe
Roll Number	Not Provided
PIN(s)	58274-0267, 58274-0284, 58274-0276, 58274-0282, 58274-0280, 58274-0277, 58274-0269, 58274-0157
Municipal Address	No Municipal Address, referred to as High Street & Telfer Road
Zoning	The Property is zoned as Residential Third Density (R3) and the northeast corner of the Property is zoned as Environmental Protection (EP). The Property is also designated as a Holding Zone (H13) with the following conditions: ▪ No sensitive land use is permitted until the completion and acceptance of a record of site condition confirming that the land is appropriate for such use.

	All other uses permitted by the underlying parent zone, or the exception zone, are lawfully permitted while the H13 symbol is in place.
Area	7.6 ha (18.78 acres)
Property Owner Information	Helen Court Homes Ltd. 23 Princess Anne Crescent Toronto, Ontario, M9A 2N9
Persons, other than Property Owner, who engaged the Qualified Person to conduct the Phase One ESA	David Ferracuti dferracuti@ambientmechanical.ca T: 416 477 2473

2.2 Property Ownership

The ownership information for the Phase Two Property is as follows:

Legal Description	Lot P, and Part of Lots N, R, S, T, V, and X and Part of Cameron Street (Closed by By-Law 93-2) and Part of Spruce Street (Closed by By-Law 93-2) Registered Plan 263, Town of Collingwood, County of Simcoe
PIN(s)	58274-0267, 58274-0284, 58274-0276, 58274-0282, 58274-0280, 58274-0277, 58274-0269, 58274-0157
Property Owner Information	Helen Court Homes Ltd. 23 Princess Anne Crescent Toronto, Ontario, M9A 2N9

2.3 Current and Proposed Future Uses

2.3.1 Current Property Use

The Property is vacant undeveloped land that was previously used as an apple orchard. Under O.Reg. 153/04, the Current Land Use of the Property would be considered Agricultural or Other Land Use.

2.3.2 Future Property Use

The Property is proposed to be developed for Residential Land Use with the Parkland Block portion of the Property being developed for Parkland Use, a storm water management pond on the northeast corner of the Property, as well as community roads to be conveyed to the Town of Collingwood.

2.4 Applicable Site Condition Standards

The applicable Site Condition Standards are the 2011 Ministry of the Environment, Conservation and Parks (MECP) Table 2 Standards for Residential/Parkland/Institutional Property Use with coarse textured soils in “*Soil, Groundwater and Sediment Standards for Use under part XV.1 of the Environmental Protection Act*”, MECP, July 01, 2011. The MECP Table 2 RPI CT Standards is the applicable Standards based on the following reasons:

- The proposed Property Use is Residential Property Use;
- Soil at the Property was found to be coarse textured based on the results of soil grain size analyses. The results of soil grain size analyses indicated at least 1/3 of the soil at the Property consists of coarse textured soil. Thus, coarse textured soil standards were applied;
- The Property is not located within 30 m of a surface water body;
- The Property is not located in, adjacent to, or within 30 m of an area of natural significance;
- With the exception of the west portion of the Property, where bedrock was found at 1.65 m below ground surface in one borehole location, the bedrock was found at depths greater than 2 m in other parts of the Property;
- The Property is located in the Town of Collingwood and would be considered potable ground water as there are five (5) drinking water wells located within the Study Area.; and,
- The pH value of tested soil samples was between 5 and 9.

2.5 Objectives of Investigation

The general objectives of the investigation include the following:

- To determine the concentration and location of Contaminants of Potential Concern (COPCs) identified in a Phase One ESA for the Property, and found through the course of conducting the Phase Two ESA, in soil, sediment, and ground water, as applicable.
- If a Risk Assessment is being undertaken, to obtain the information required by the regulation to conduct such an assessment, in particular with respect to any COPCs identified.
- To determine if all COPCs identified in the investigation met the generic Site Condition Standard or standard specified in a Risk Assessment, as applicable.

To ensure that the general objectives of the investigation were met, the Qualified Person ensured the following:

- That the investigation provided sufficient information to provide an understanding of the geological and hydrogeological conditions at the Phase Two Property; and
- That one or more rounds of field sampling are conducted for all COPCs identified for the Property, as identified in the Sampling and Analysis Plan (Appendix C) of the Phase Two ESA

and found through the course of conducting the Phase Two ESA, in soil, sediment, and ground water, as applicable.

Due to the current COVID-19 work restrictions that have been imposed by the provincial government, the continued environmental work (i.e. groundwater sampling and water levels) was temporarily placed on-hold. Terraprobe will now continue conducting the environmental work as the provincial emergency orders have been lifted.



3.0 BACKGROUND INFORMATION

3.1 Physical Setting

3.1.1 Water Bodies, Wetlands and Areas of Natural Significance

Mapping from the Ontario Ministry of Natural Resources and Forestry (MNRF) was reviewed to determine if water bodies were present on the Property and within 250 m of the Property. The MNRF National Heritage Information Centre database for listings of Areas of Natural or Scientific Interest (ANSIs) was reviewed. The information is summarized below.

Water Bodies (Property)	No water bodies were identified on the Property; however a manmade drainage ditch runs east to west along the north boundary of the Property.
Water Bodies (Study Area)	- Black Ash Creek appears to be approximately 175m west of the Property. - A storm water management pond is located 20 m east/ southeast of the Property. The storm water management pond identified during site reconnaissance was not identified on the MNR map, further confirming it as a storm water management pond.
Wetland (Property)	<u>Provincially Significant</u> - No Provincially Significant wetlands were present on the Property <u>Non-Provincially Significant</u> - No Non-Provincially Significant wetlands were present on the Property <u>Unevaluated</u> - No Unevaluated wetlands were present on the Property
Wetland (Study Area)	<u>Provincially Significant</u> - No Provincially Significant wetlands were present in the Study Area. <u>Non-Provincially Significant</u> - No Non-Provincially Significant wetlands were present in the Study Area <u>Unevaluated</u> - Unevaluated wetlands are present in the Study Area approximately 100 m west of the Property.

ANSIs (Property)	<u>Provincially Significant Life Science ANSI</u> - No Life Science ANSIs were identified on the Property. <u>Provincially Significant Earth Science ANSI</u> - No Earth Science ANSIs were identified on the Property.
ANSIs (Study Area)	<u>Provincially Significant Life Science ANSI</u> - No Life Science ANSIs were identified in the Study Area. <u>Provincially Significant Earth Science ANSI</u> - No Earth Science ANSIs were identified in the Study Area.

3.1.2 Topography and Surface Water Drainage

A topographic map from the MNRF and the geological mapping produced by the Ontario Ministry of Northern Development and Mines - Ontario Geological Survey was reviewed. The information gleaned from the mapping is summarized below.

Elevation	The OBM and Topographic Map showed the elevation of the Property was approximately 190 m above sea level (m asl).
Topography	The Property is gently rolling and appears to have a slight slope to the northeast. Thus, surface water is anticipated to flow to the northeast. Ground water is anticipated to be directed towards Georgian Bay to the north.
Hydrogeology	Black Ash Creek appears to be approximately 175m west of the Property. There is a manmade storm water management pond located approximately 20 m to the east /southeast of the Property.
Geology (overburden)	Based on published geology, the overburden material across majority of the Property is generally silt and clay with minor sand and gravel. However, the northeastern corner of the Property is generally stone-poor, sandy silt to silty sand.
Geology (bedrock)	The bedrock on the site is of the Lindsay formation, which is comprised of limestone.
Geology (depth to bedrock)	Based on published geological information in the area, the depth to bedrock depth is approximately 10 m within the vicinity of the Property. Based on MECP Well records in the area, the depth to bedrock is approximately 6.7 m. Previous investigations on the Property identified bedrock ranging from 1.7 to 5.5 mbgs.

3.2 Past Investigations

All available previous environmental reports are summarized below. Additionally, the following geotechnical report was conducted:

- Peto MacCallum Ltd. Consulting Engineers “*Geotechnical Investigation, Proposed Residential Development High St, Collingwood Ontario*” dated October 5, 2006.

Report Title	Environmental Site Assessment (Phase 1), The Trails at Collingwood Condominium Development (Proposed), High Street, Collingwood, Ontario
Report Date	June 21, 2007
Prepared By	Kodiak Environmental Limited
Prepared For	Helen Court Homes Limited

Scope of Report

- Environmental Site Assessment (Phase 1) reviewed available background/historical data, an inspection of the Property and neighboring properties and individual contact with various government agencies with respect to regulatory compliance.

Results of Report

- The subject site is currently a vacant parcel of land. The site was under private ownership, likely for agricultural purposes until 1917 and then Corporate interests appear to have held ownership since 2007.
- There are no known wells or septic systems, above ground service tanks (ASTs), underground service tanks (USTs) observed at the site during inspection. No designated substances or hazardous materials were observed at the site.
- The Property has historically been used for agricultural operations, including an orchard and it is expected that various pesticides have been used at the Property in the past. Apples are historically the crop most intensively sprayed with pesticides in Canada. Although there was no direct evidence of any negative environmental impact associated with the historical use of pesticides at the site, the possibility is noted.

Report Title	Cost Estimate of Site Remediation Update, Trails of Collingwood, Collingwood, Ontario
Report Date	June 19, 2015
Prepared By	Terraprobe Inc
Prepared For	Municipal Property Assessment Corporation

Scope of Report

- Following an initial investigation, Terraprobe Inc. (Terraprobe) provided a letter to the Municipal Property Assessment Corporation (MPAC) on March 17, 2014, as well as supporting information on April 11, 2014, indicating that a significant portion of the Trails of Collingwood property had shallow soil contamination and provided a cost estimate to conduct remediation of the Property.

Results of Report

- Additional investigation was conducted in December 2014. The letter provides an update of the results and a revised cost estimate to remediate the site, along with supporting details.
- The property was divided up into a grid pattern with seventy-one (71) sampling locations. At least one sample from every sampling location was contaminated by arsenic, DDT, or DDE in excess of the Ontario Ministry of the Environment Standards that are applicable to the Property with the exception of grid location IJ12. A sample was not analyzed from grid location GH89 due to wet site conditions. The pesticide contaminants are typically found in shallow soil, which is in agreement with the results. The soil was generally impacted to depths of 0.3 m or 0.6 m.
- The area impacted is approximately 98% of the total site, or approximately 7.4 hectares. A remediation cost estimate of approximately \$2.8 million was provided in the prior letter on the basis of 5.9 hectares being confirmed or assumed to be impacted. The revised cost estimate to strip, stockpile, and dispose of the soil, including environmental sampling, is approximately \$3.5 million based on the revised area of 7.4 hectares

Report Title	Summary of Site Remediation and Record of Site Condition Process, Trails of Collingwood Development, Collingwood, Ontario
Report Date	October 24, 2016
Prepared By	Terraprobe Inc
Prepared For	WMI & Associates Ltd.

Scope of Report

- Terraprobe has conducted a number of investigations to assess the environmental condition of the Property. In summary, the results of these investigations indicated that the surficial soil over much of the Property has been impacted as a result of pesticide use from the historical orchard operations. The investigations indicate that the surficial soil may be contaminated by DDT, DDE, and/or arsenic in excess of the Ministry of Environment Table 2 standards for residential land uses. The impact typically extends to depth of 0.3 to 0.6 m below grade.

Results of Report

- The former land use of the Property was agricultural, and the proposed land use will be residential. There is not a mandatory requirement to obtain an RSC for the Property under Ontario Regulation 153/04, based on the proposed land use change from agricultural to residential; however, since surface impacted soil is found on the Property, an RSC will be required for the property prior to proposed development.
- The results of the investigation indicate that there are approximately 42,000 cubic meters of marginally impacted soil found on the site and as such off-site disposal of the impacted soils is not appropriate.
- The proposed approach to site remediation consists of conducting a risk assessment, and managing the impacted soils on site.

Report Title	Phase One Environmental Site Assessment, Trails of Collingwood – High Street & Telfer Road, Collingwood, Ontario
Report Date	May 1, 2018
File Number	1-17-0918-41
Prepared By	Terraprobe Inc.
Prepared For	Trails of Collingwood

Scope of Report

- The Phase One ESA included a review of available background/historical data, an inspection of the Property and neighboring properties, as well as individual contact with various government agencies with respect to regulatory compliance to identify potential environmental concerns.

Results of Report

- The Property was used for Agricultural and Other Land Uses. It was determined that an apple orchard was located on the western portion of the Property in 1973.
- The study area generally consists of agricultural or other use and residential properties. No Potentially Contaminating Activities (PCAs) leading to an APEC were identified in the study area.
- The Phase One ESA identified the following Area of Potential Environmental Concern on the Property due to the Potentially Contaminating Activities (PCAs) noted:

Location of PCA	PCA	Details
High Street and Telfer Road Phase One Property	#40 – Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications	Based on previous reports and prior agricultural use of the Property as an apple orchard it is likely that herbicides and pesticides were used in the past. With the possibility of Metals and Inorganics contamination from the apple orchards operations

Based on the findings of the Phase One ESA, a Phase Two ESA is required to assess soil and groundwater chemical quality which may have been adversely impacted by the historical orchard on the Property. The Phase One CSM is attached in Appendix A.

Report Title	Draft Phase Two Environmental Site Assessment, Trails of Collingwood – High Street & Telfer Road, Collingwood, Ontario
Report Date	May 23, 2018
File Number	1-17-0918-42
Prepared By	Terraprobe Inc.
Prepared For	Trails of Collingwood

Scope of Report

- The Phase Two ESA was conducted to investigate the APECs for the Contaminants of Potential Concern (COPCs) that were identified on the Property from the Phase One ESA.

Results of Report

- Three (3) boreholes were drilled on January 29, 2018 and three (3) stick-up monitoring wells were installed. The monitoring wells were installed to depths of approximately 5, 4.3 and 3.7 m below ground surface for BH1, BH2 and BH3 respectively.
- There were exceedances of the applicable Site Condition Standards noted in the earth fill material for DDE (OC Pesticides) on the Property in the Phase Two ESA. There were no exceedances of the applicable Site Condition Standards noted in the native soil.
- Applicable Site Condition Standards were met for ground water on the Property.

Based on the conclusions of the Phase Two ESA, a Remedial Action Plan was recommended to determine the feasibility of a remediation or a Risk Assessment on the Property. Vertical and horizontal delineation of the impacted material may be recommended as part of the Remedial Action Plan.

Report Title	Summary of Site Remediation Plan, Trails of Collingwood, High Street & Telfer Road, Collingwood, Ontario
Report Date	October 10, 2018
File Number	1-17-0918
Prepared By	Terraprobe Inc.
Prepared For	Trails of Collingwood

Scope of Report

- The report outlines the scope of work for the site remediation plan that was developed as a response to the results of the previous investigations, which indicated that there are approximately 48,000 cubic meters of impacted soil found on the Property.

Results of Report

- The proposed approach to site remediation will consist of removing the impacted soil from the entire Property with the exception of the Parkland Block, where contaminated soil will be used to backfill the area.
- The Parkland Block will be managed with proper risk management measures (RMMs) and a Risk Assessment (RA) would be conducted
- The conceptual approach to remediation and risk management will consist of the following:
 - Development of a Verification Plan to confirm that all impacted soils are properly identified and removed. This will include a program of detailed sampling and chemical analysis during excavation to ensure that all impacted soil are properly identified and relocated to the risk management area beneath the park. The confirmatory sampling will verify the remediated portion of the Property.
 - Development of a detailed Soil Management Plan including general operations, traffic control, dust and odour control, spills management, waste management, unknown or unexpected operation conditions, on-site soil management and imported soils requirements for the entire Property.
 - Conduct a RA and develop RMMs on the Parkland Block. Once the Property is remediated and all the impacted soil is placed on the Parkland Block, the Parkland Block will undergo additional investigation to determine the extent of the contamination. A RA will be conducted and proper RMM will be identified and implemented. The RMMs could include a soft or hard cap to properly isolate the impacted soil. Once the RA is acknowledged a Certificate of Property Use (CPU) will be issued by the MECP. The

CPU will summarize the site conditions and outline any potential restrictions to future property use and any requirements for Risk Management Measures (RMMs).

Report Title	Terraprobe Response to Draft Comments by GHD Limited Dated July 19, 2019 (Reference No. 11176351)
Report Date	November 21, 2019
File Number	1-17-0918
Prepared By	Terraprobe Inc.
Prepared For	Mr. Mark Bryan, Community Planner – Town of Collingwood

Scope of Report

- To address the GHD's Environmental Peer Review comments made in their letter entitled "*Review of Conference Call Meeting Minutes, Trails of Collingwood,*" dated July 29, 2019 which was prepared on behalf of the Town of Collingwood. The report also outlines previous correspondence with the GHD regarding comments made in their letter entitled "*Environmental Peer Review, Trails of Collingwood Remediation Plan,*" dated November 20, 2018.

Results of Report

- A table that summarizes the comments made by GHD and Terraprobe's responses is provided in Appendix M.
- Based on the comments and recommendations made, the following actions were (or will be) taken:
 - A leaching analysis was conducted entitled '*Leachate Analysis Study – Trails of Collingwood, High Street & Telfer Road, Collingwood, Ontario,*' dated May 12, 2020.
 - A groundwater sampling program will be conducted for the groundwater quality prior to possession of the Parkland by the Town.
 - As part of the Additional Phase Two ESA, a total of nine (9) boreholes were drilled and instrumented with groundwater monitoring wells, as recommended by GHD.
 - As part of excavating the Parkland area, a hydrogeological study will be conducted to assess the potential volume of groundwater that may enter the excavation. If the volume of water is greater than 50,000 L/day, a Permit-to-Take-Water (PTTW) will be required. The hydrogeological study will also address if short-term dewatering is required.
 - As part of the Parkland excavation, the soil will be properly placed and compacted on the Parkland area and an engineering fill report will be prepared regarding the potential settlement and will include the compaction, density and grain size results.
 - As part of the proposed Risk Assessment that will be conducted for the Parkland area, a Methane Management Plan will be issued to ensure that there is no methane generation in the area.

- The thickness of the clean soil cap over the Parkland area will be changed from 1.0 meter to 1.5 meter to accommodate any future deep rooted trees that may be planted in the Parkland area.
- Financial assurance will be included in the proposed RA and future Certificate of Property Use (CPU) for future monitoring and maintenance of the parkland. The Financial assurance will be used as part of the transfer agreement.
- A comprehensive verification sampling plan (Remedial Plan) will be submitted to the Town for review.
- Communication with the MECP to ensure regulatory requirements are met will be conducted for the Remedial Plan, Groundwater Sampling Program, Leaching Potential Study, and Plan of placement of impacted soils in the Parkland Area.
- The RSC will be filed for Roadways, Parkland, and the storm water management (SWM) facility prior to severance of these lands. There is to be no movement of soil between properties after the RSC has been filed.
- The municipal roadways, park and storm water management (SWM) facilities will be conveyed to the Town of Collingwood. The proposed RMMs will be sent to the Town for review before the submission to the MECP.
- The storm water management will be addressed during the remedial activities.

All of the comments made by GHD were acknowledged and addressed, as applicable.



4.0 SCOPE OF THE INVESTIGATION

The scope of work for the Phase Two ESA was determined on the basis of the results of the Phase One ESA which was conducted for the Property and in accordance with the scope of work proposed by Terraprobe.

4.1 Overview of Site Investigation

In March 2020, Terraprobe conducted the following subsurface investigation at the Property for an additional Phase Two ESA:

- A total of nine (9) boreholes were drilled between March 9 and March 13, 2020 (BH4 to BH12). All boreholes were drilled to assumed top of bedrock. The borehole depths varied from 1.8 to 6 mbgs;
- All boreholes were instrumented with groundwater monitoring wells;
- Laboratory analysis of selected soil samples for parameters including;
 - Metals;
 - Hydride-Forming Metals (As, Sb, Se);
 - Selected Other Regulated Parameters (ORPs)
 - Boron - Hot Water Soluble (B-HWS)
 - Hexavalent Chromium (CrVI)
 - Mercury (Hg)
 - pH
 - Organochlorine Pesticides (OCs).
- Survey of all boreholes and monitoring wells to a geodetic benchmark;
- Measurement of groundwater elevations to determine groundwater flow direction;
- Development and sampling of all previously and newly installed monitoring wells.
- Laboratory analyses of groundwater samples for:
 - Metals;
 - Hydride-Forming Metals (As, Sb, Se);
 - Selected Other Regulated Parameters (ORPs)
 - Sodium (Na)
 - Hexavalent Chromium (CrVI)
 - Mercury (Hg)
 - Organochlorine Pesticides (OCs).

The table below summarizes the scope of work conducted by Terraprobe. The number of samples conducted includes duplicate analyses, but do not include the trip blanks and field blanks that were collected. Water level measurements are provided in Appendix G. Field protocols are provided in Appendix D.

Date	Scope of Investigation	Scope of Soil Analysis	Scope of Ground Water Analysis
March 9 – March 13, 2020	• Drilled 9 boreholes (BH4 to BH12) • Installed 9 monitoring wells (BH4 to BH12)		
March 17, 2020	• Submitted soil samples to ALS Environmental Laboratory	• 18 Metals analyses • 18 H-F Metals analyses • 18 ORP analyses • 19 OCs analyses • 9 TCLP (Metals) • 9 TCLP (H-F Metals) • 9 TCLP (ORP Metals) • 9 TCLP (OCs) • 1 TCLP (PCB) • 1 TCLP (PHCs/VOCs) • 1 TCLP (PAHs)	
March 24 – March 26, 2020	• Took water levels, developed, stabilized and sampled monitoring wells BH1 to BH12.		• 14 Metals analyses • 14 H-F Metals analyses • 14 ORP analyses • 14 OCs analyses

Notes:

- ORPs (if any) for soil include B-HWS, CrVI, Hg, pH
- ORPs (if any) for ground water include Na, CrVI, Hg

Due to the current COVID-19 work restrictions that have been imposed by the provincial government, the continued environmental work (i.e. groundwater sampling and water levels) was temporarily placed on-hold. Terraprobe will now continue conducting the environmental work as the provincial emergency orders have been lifted.

4.2 Media Investigated

4.2.1 Rationale for Inclusion or Exclusion of Media

Media	Included or Excluded	Rationale
Soil	Included	Based upon the Phase One ESA, soil sampling was required on the Property for the select contaminants of concern (COCs). Sample locations were selected based on the findings of the Phase One ESA to characterize soil across the Property.
Sediment	Excluded	Sediment sampling was not conducted on the Phase Two Property because there are no water bodies on-site.
Groundwater	Included	Based upon the Phase One ESA, groundwater sampling was required on the Property for the COCs. Monitoring wells were installed to characterize groundwater quality across the Property.
Surface Water	Excluded	Surface water sampling was not conducted on the Phase Two Property because there are no water bodies on-site.

4.2.2 Overview of Field Investigation of Media

Soil sampling was conducted during the drilling program by use of a split spoon sampler. Groundwater sampling was conducted from monitoring wells installed in the boreholes.

4.3 Deviations from Sampling and Analysis Plan

Since previous investigations did not indicate any exceedances in the selected Other Regulated Parameters (ORPs), only the following ORPs were selected for this investigation:

Selected Other Regulated Parameters (ORPs) for soil include: Sodium (Na), Hexavalent Chromium (CrVI), and Mercury (Hg)

Selected Other Regulated Parameters (ORPs) for ground water include: Boron - Hot Water Soluble (B-HWS), Hexavalent Chromium (CrVI), Mercury (Hg), and pH.

The sampling and analysis plan is provided in Appendix C.

4.4 Impediments

There were no impediments encountered during the investigation.

5.0 INVESTIGATION METHOD

5.1 General

Public and private utility clearances were undertaken prior to commencing the subsurface investigation.

Sampling methodology was consistent with the requirement of the MECP's "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*", December 1996 (the "1996 Guideline"), "*Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04*", May 2019 (the "Phase Two Guide") and "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", March 09, 2004, amended July 01, 2011 (the "Analytical Protocol"), as applicable.

The methods used in the Phase Two ESA investigation did not differ from the associated standard operating procedures. The Standard Field Investigation Protocol is presented in Appendix D.

5.2 Drilling

The drilling information for the Phase Two ESA is provided below:

Borehole	BH4 to BH12
Date of Work	March 9 to 13, 2020
Name of Contractor	Strata Drilling and Pontil Drilling
Equipment Used	Geoprobe 323 and Track-mounted drill rig 75, hollow and solid stem augers, 2 inch split spoon sampling device
Decontamination Measures	The split spoon sampling device was washed between each sample to minimize the potential for cross-contamination.
Sampling Frequency	Please refer to the borehole logs in Appendix E for the sampling frequency.

5.3 Soil Sampling

5.3.1 Equipment Used

- Laboratory-supplied sampling containers;
- Nitrile gloves;
- Cooler with loose ice; and,
- RKI Instruments EAGLE 2 Monitor.

5.3.2 Geological Description of Soil

Please refer to the borehole logs in Appendix E for the geological description of each soil sample collected.

5.4 Field Screening Measurements

Soil samples were screened in the field using portable hydrocarbon vapour testing equipment and following the procedure outlined in the “*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*” published by the Ministry of the Environment, Conservation and Parks.

Samples were screened using an RKI Instruments EAGLE 2 Monitor. The monitor has a range of 0 parts per million (ppm) to 50,000 ppm and an accuracy of +/- 5%. The monitor was calibrated with hexane prior to field screening as per the calibration procedure outlined by RKI Instruments in “*Instruction Manual Eagle Series Portable Multi-Gas Detector 71-0028RK*” released August 8, 2010.

Field screening measurements were used to help select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix E.

5.5 Groundwater Monitoring Well Installation

Monitoring wells were installed in all nine (9) boreholes. The monitoring wells were drilled by drilling sub-contractors between March 9 and 13, 2020, under the supervision of an experienced Terraprobe technician. All monitoring wells were constructed of 50-mm (2-in) PVC screens and risers. Filter sand pack was placed around the well screen to approximately 0.6 m above the top of the screen. All monitoring wells were then backfilled with bentonite to approximately 0.3 m below ground surface. The monitoring wells were finished with stick-up casings.

As per Ontario Regulation 903, the monitoring wells were tagged with water well records. The monitoring well locations are provided on Figure 3 and 4. The borehole and monitoring well installation details are provided on the borehole logs in Appendix E. All monitoring well should be decommissioned when they are no longer in use.

5.6 Field Measurement of Water Quality Parameters Groundwater: Sampling

Field measurement of water quality parameters was completed using a YSI 63 Handheld System.

YSI 63 Hand-held System

Range

- pH 0.00 to 14.00 pH
- EC 0.0 to 200.0 mS/cm
- Salinity 0.0 to 80.0 ppt
- Temperature -5.0 to 75.0°C

Resolution

- pH 0.01 pH
- EC 0.1 mS/cm
- Salinity 0.1 ppt
- Temperature 0.1°C

Accuracy

- pH ± 0.1 pH within 10°C of calibration, pH ± 0.2 pH within 20°C
- EC $\pm 0.5\%$ F.S.
- Salinity $\pm 2\%$ or ± 0.1 ppt
- Temperature $\pm 0.1^\circ\text{C}$

5.7 Groundwater Sampling

The monitoring wells were purged using a standard flow Waterra inertial pump system. Groundwater was sampled using a dedicated bailer. Stabilization of parameters (pH, conductivity, temperature, etc.) of the purged water had been monitored before a sample was taken.

Stabilization was considered to occur when consecutive readings were within the following:

- Conductivity $\pm 3\%$
- Temperature $\pm 3\%$
- pH ± 0.1 unit

The use of a dedicated bailer helps prevent cross contamination and mitigate disturbances to the sample collected. Sampling methodology from the MECP's "*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*", December 1996 (the "1996 Guideline"), "*Guide for Completing Phase Two Environmental Site Assessments under Ontario Regulation 153/04*", May 2019 and "*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*", March 09, 2004, amended July 01, 2011 (the "Analytical Protocol").

5.8 Sediment Sampling

No sediment sampling was conducted as part of this investigation because there are no water bodies on-site.

5.9 Analytical Testing

Analytical testing of all soil and ground water samples was conducted by ALS Environmental, a laboratory accredited by the Canadian Association for Laboratory Accreditation.

5.10 Residue Management Procedures

5.10.1 Soil Cuttings

Soil cuttings generated during the drilling activities were left on site.

5.10.2 Fluids from Equipment Cleaning

The fluids from cleaning were removed from the Property and disposed of by the driller.

5.11 Elevation Surveying

The elevations of the boreholes on the Property were surveyed by Terraprobe using a Trimble R10 Global Navigation Satellite System (GNSS). The Trimble R10 system is a differential global positioning system (GPS) which involves the cooperation of two receivers, one that is stationary and another that is roving around making position measurements. The elevation of each borehole on the Property is presented on the borehole logs in Appendix E.

5.12 Quality Assurance and Quality Control Measures

5.12.1 Containers, Labelling, Handling and Chain of Custody

Containers

The following laboratory-supplied sample containers were used for all sampling conducted on the Property (where applicable).

Soil Parameters	Container
PHC (F1, BTEX), VOCs, 1,4-Dioxane	2 x 40mL glass vial (methanol preservative)
Metals, Mercury, Boron-HWS, Chromium Hexavalent, EC, SAR, pH, Chloride, Cyanide	250 mL glass jar, Teflon lined lid
PHCs (F2-F4), VOC moisture, PAHs, OCs, PCBs, CPs, ABNs, Methyl mercury, FOCs, Dioxins & Furans	125 mL glass jar, Teflon lined lid
Ground Water Parameters	Container
Chloride, electrical conductivity, pH	125 mL HDPE
Cyanide (CN ⁻)	60 mL HDPE (sodium hydroxide preservative)
Hexavalent chromium	60 mL HDPE (0.45um field filter followed by ammonium buffer solution)
Metals (includes hydride-forming metals, calcium, magnesium, sodium)	60 mL HDPE (0.45um field filter nitric acid preservative)
Mercury	40 mL clear glass bottle (0.45um field filter hydrochloric acid preservative)
Methyl mercury	125 mL Teflon (FLPE) (hydrochloric acid preservative)
BTEX, PHCs (F1), THMs, VOCs;	2 x 40 mL glass VOA vials (sodium bisulfate preservative, no headspace)
PHCs (F2-F4), PAHs	2 x 100 mL amber glass bottle, (sodium bisulfate preservative, 1 cm headspace)
PCBs	2 x 250 mL amber glass bottle, Teflon lined lid
Benzo(a)pyrene (Lab Filtered)	2 x 100 mL amber glass bottle, Teflon lined lid (sodium bisulfate preservative, 1 cm headspace)
OCs	2 x 500 mL amber glass bottle, Teflon lined lid
CPs, ABNs,	500 mL amber glass bottle, Teflon lined lid
Dioxins and furans	2 x 1 L amber glass bottle, Teflon lined lid

Labelling

All sampling containers were identified with laboratory-supplied labels. The labels included the following information:

- Unique Sample ID;
- Company Name;
- Date and Time; and,
- Project Number

Handling

Samples were placed in coolers with loose ice after collection for transportation to the laboratory. Sample hold times were met for all submitted soil and groundwater samples.

Chain of Custody

Laboratory-supplied Chain of Custody forms were completed for all samples submitted for analysis.

5.12.2 Equipment Cleaning Procedures

All non-dedicated sampling and monitoring equipment was cleaned following each use. During soil sampling the split spoon sampling device was washed between samples to minimize cross-contamination. During groundwater sampling any part of the interface meter which came into contact with the ground water was cleaned between monitoring wells.

Dedicated equipment (nitrile gloves, terra core samplers, bladders, tubing) was changed between each sample to avoid cross contamination.

5.12.3 Field Quality Control Measures

- All non-dedicated sampling and monitoring equipment was cleaned following each use.
- Where groundwater samples are to be analyzed for volatile organic compounds, one trip blank sample was submitted for laboratory analysis with each laboratory submission.
- Sufficient field duplicate samples were collected in each medium being sampled, so that at least one (1) field duplicate sample can be submitted for laboratory analysis for every ten (10) samples submitted for laboratory analysis.
- Calibration checks on field instruments occurred daily prior to the commencement of sampling.

5.12.4 Deviations in the Quality Assurance and Quality Control Measures

There were no deviations in the quality assurance and quality control measures.

6.0 REVIEW AND EVALUATION

6.1 Geology

Detailed geological information for the Property is presented on the borehole logs in Appendix E. The geology at the Property is summarized below.

6.1.1 Geological Unit Thicknesses (Estimated)

The topsoil material, where encountered, ranged in thickness from approximately 0.1 m to 0.2 m in BH1 to BH6. The reworked native material thickness ranged from approximately 0.2 m to 0.6 m and was encountered in all boreholes, except BH9. The native soil thickness ranged from approximately 1.5 m to 5.5 m and was encountered in all boreholes. Assumed bedrock was encountered in all of the boreholes during the investigation. The top of assumed bedrock material ranged from approximately 1.8 mbgs in BH6 to 6.1 mbgs in BH11 and BH12. The geological unit thicknesses are presented in Appendix H.

6.1.2 Elevations of Geological Units

The elevation of the topsoil material started at approximately 188.9 masl (ranging from 189.3 masl to 188.6 masl) and extended to an elevation depth of approximately 188.7 masl (ranging from 189.1 masl to 188.5 masl). The elevation of the reworked native material started at approximately 188.5 masl (ranging from 189.1 masl to 188.2 masl) and extended to an elevation depth of approximately 188.0 masl (ranging from 188.7 masl to 187.6 masl). The native soil elevation started at approximately 188.0 masl (ranging from 188.7 masl to 187.6 masl) and extended to the top of bedrock elevation of approximately 184.4 masl (ranging from 186.8 masl to 182.2 masl). The geological unit elevations are presented in Appendix H.

6.1.3 Material in Geological Units

Surficial Layers

A topsoil layer of 100 to 200 mm thickness was encountered at the ground surface of BH1 to BH6.

The above topsoil structure thicknesses were measured from the borehole drilling and are approximate. We recommend that a shallow test pit investigation be carried out to determine a precise topsoil structure thickness present across the site for quantity estimation and costing purposes.

Reworked Native

Reworked native materials, consisting of sandy silt and silty sand, with trace to some clay and some rootlets and organics were encountered beneath the topsoil layer in all boreholes except for BH9. The reworked native material extended to a maximum depth of 0.8 mbgs.

Gravelly sand with some silt, clay, and organics were encountered in BH9.

Standard Penetration Test results (N-values) obtained from the cohesionless reworked native zones ranged from 0 to 7 blows per 300 mm of penetration, indicating a very loose to loose density.

Native

Sandy silt and silty sand was encountered beneath the reworked native zone in BH4, BH5, BH6, BH7, BH8, BH10, and BH11.

Gravelly sand, with some silt and trace to some clay was encountered beneath the reworked native zone in BH4, BH7 and BH8.

Clayey silt, with trace to some sand and trace to some gravel was encountered in BH9, BH11 and BH12.

The results of the Standard Penetration Test (N-values) obtained from the cohesionless native zones ranged from 1 to 53 blows per 300 mm of penetration, indicating a very loose to very dense density. Standard Penetration Test results (N-values) obtained from the cohesive native zones ranged from 1 to 18 blows per 300 mm of penetration, indicating a very soft to very stiff consistency.

Bedrock (Assumed)

Assumed bedrock was encountered at the full depth of each borehole in this investigation.

6.2 Groundwater Elevations and Flow Direction

6.2.1 Rationale for Monitoring Well Locations and Screen Intervals

Monitoring wells were located across the Property in order to provide full site coverage. The monitoring wells were screened within the native soil across the Property to allow for the collection of groundwater samples within the strata of interest.

6.2.2 Results of Interface Probe Measurements

Interface probe measurements indicated that only water was present on the Property. No light non-aqueous phase liquids (LNAPL) or dense non-aqueous phase liquids (DNAPL) were detected.

6.2.3 Thickness of Free Flowing Product

No free flowing product was encountered on the Property.

6.2.4 Groundwater Elevations

Groundwater levels were measured in each borehole and presented in Appendix G. Groundwater levels were measured on March 24, 2020 in all of the installed monitoring wells, including BH1 to BH12, using an interface probe. The measurements varied between 0.70 to 1.51 mbgs. Groundwater elevation in the monitoring wells ranged between 186.80 and 188.0 masl.

Due to the current COVID-19 work restrictions that have been imposed by the provincial government, the continued environmental work (i.e. groundwater sampling and water levels) was temporarily placed on-hold. Terraprobe will now continue conducting the environmental work as the provincial emergency orders have been lifted.

6.2.5 Interpreted Direction of Groundwater Flow

The interpreted direction of groundwater flow will be determined based on the second round of water levels that will be taken.

6.2.6 Influence of Buried Utilities

No buried utilities appear to be located on the Property. As such, there is no effect from buried utilities to influence the ground water flow.

6.3 Groundwater Hydraulic Gradients and Hydraulic Conductivity

6.3.1 Horizontal Hydraulic Gradients

The horizontal hydraulic gradient is calculated using the following equation:

$$I = \Delta h / \Delta s$$

where: I = horizontal hydraulic gradient,
 Δh (m) = ground water elevation difference; and,
 Δs (m) = separation distance

The horizontal hydraulic gradient will be calculated once the interpreted direction of groundwater flow and the contour lines are determined, which will be based on the second round of water levels.

6.3.2 Vertical Hydraulic Gradients

The vertical hydraulic gradient cannot be accurately determined at this time since there are no nested wells installed on the Property. The vertical hydraulic gradient needs to be measured between two neighboring monitoring wells installed between two different strata (shallow and deep).

6.3.3 Hydraulic Conductivity

The hydraulic conductivities from Terraprobe's monitoring wells BH1 to BH3 were determined based on the grain size distribution graphs and Hazen Equation. The Hazen Equation method relies on the interrelationship between hydraulic conductivity and effective grain size, d_{10} , in the soil media. This empirical relation predicts a power-law relation with K , as follow:

$$K = A d_{10}^2$$

where;

d_{10} : Value of the soil grain size gradation curve as determined by sieve analysis, whereby 10% by weight of the soil particles are finer and 90% by weight of the soil particles are coarser.

A : Coefficient; it is equal to 1 when K in cm/sec and d_{10} is in mm

The Hazen Equation estimation provides an indication of the groundwater yield capacity for saturated soil strata at the depths where soils samples were selected for grain size analysis. The hydraulic conductivities of the strata applicable to the Property are as follows:

Monitoring Well	Soil Sample Depth (mbgs)	Sample Elevation (masl)	Classified Soil	Hydraulic Conductivity (Hazen Equation, m/s)
BH1	2.3 (AS4)	186.4	Silty Sandy Gravel (Till)	4.00×10^{-8}
BH2	3.4 (SS6)	185.2	Sandy Gravelly Silt (Till)	6.25×10^{-8}
BH3	1.5 (SS3)	187.1	Sandy Silt	2.25×10^{-8}

It should be noted that the above hydraulic conductivities were estimated based on grain size analysis of the disturbed collected sample and does not consider compaction or saturation of the soils. Generally the in situ hydraulic conductivity test produces more accurate results, and the grain size analysis is used for discussion and comparison purposes. The grain size analysis can be found in Appendix F.

According to Freeze and Cherry (1979), the typical hydraulic conductivities of the strata investigated at the Property are:

- Silty Sand 10^{-3} m/s to 10^{-7}
- Silt 10^{-5} m/s to 10^{-9} m/s
- Clayey Silt 10^{-8} m/s to 10^{-10} m/s
- Glacial Till 10^{-6} m/s to 10^{-12} m/s

The hydraulic conductivity field results are relatively consistent with the published values associated with the geological materials which were tested.

6.4 Soil Texture

6.4.1 Rationale for Use of Coarse Soil Texture

A total of three (3) soil samples from native soil were submitted for grain size analysis, as follows (Appendix F):

- BH1-AS4 (Clay = 10.0%, Silt = 26.0%, Sand = 30.0%, Gravel = 34.0%)
- BH2-SS5 (Clay = 10.0%, Silt = 35.0%, Sand = 26.0%, Gravel = 29.0%)
- BH3-SS3 (Clay = 12.0%, Silt = 56.0%, Sand = 22.0%, Gravel = 10%)

Two (2) out of the three soil samples collected from native soil contained more than 50% by weight of particles greater than 75 micrometres in size, which meets the following definition of coarse textured soil from subsection 42(1) of O.Reg. 153/04:

'If the qualified person determines that at least 1/3 of the soil at the property, measured by volume, consists of coarse textured soil, the qualified person shall apply the standard for coarse textured soil.'

Three (3) soil samples of the native soil were selected for grain size analysis. Given the consistency of the soil across the Property, it was determined by the Qualified Person that the total of three (3) samples provided adequate representative samples to determine soil texture for the Property.

6.5 Soil: Field Screening

All recovered soil samples were screened in the field using a portable hydrocarbon vapour testing equipment and following the procedure outlined in the 1996 *Guideline*.

Field screening measurements were used to help select samples for petroleum hydrocarbon and volatile organic compounds laboratory analysis. Complete field screening readings are provided on the borehole logs in Appendix E.

6.6 Soil Quality

6.6.1 Location and Depth of Samples

The soil samples submitted for chemical analysis (excluding duplicates) are summarized in the table below. Borehole samples (depth measured from original ground surface):

Sample ID	Depth/ Elev. (m)/(masl)	Strata	Date Sampled	Soil											
				Metals	H-F Metals	ORPs	OCs	TCLP							
								Metals	H-F Metals	ORPs	OCs	PHCs	VOCs	PAHs	PCBs
BH4-SS1	0.0-0.6/ 189.3-188.7	Reworked Native	Mar 10, 2020	✓	✓	✓	✓	✓	✓	✓	✓				
BH4-SS2	0.8-1.4/ 188.5-187.9	Native	Mar 10, 2020	✓	✓	✓	✓								
BH5-SS1	0.0-0.6/ 188.7-188.1	Reworked Native	Mar 9, 2020	✓	✓	✓	✓	✓	✓	✓	✓				
BH5-SS2	0.8-1.4/ 187.9-187.3	Native	Mar 9, 2020	✓	✓	✓	✓								
BH6-SS1	0.0-0.6/ 188.6-188.0	Reworked Native	Mar 9, 2020	✓	✓	✓	✓	✓	✓	✓	✓				
BH6-SS2	0.8-1.4/ 187.8-187.2	Native	Mar 9, 2020	✓	✓	✓	✓								
BH7-SS1	0.0-0.6/ 188.4-187.8	Reworked Native	Mar 10, 2020	✓	✓	✓	✓	✓	✓	✓	✓				
BH8-SS1	0.0-0.6/ 188.6-188.0	Reworked Native	Mar 12, 2020	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BH8-SS2	0.8-1.4/ 187.8-187.2	Native	Mar 12, 2020	✓	✓	✓	✓								
BH8-SS3	1.6-2.1/ 187.0-186.5	Native	Mar 12, 2020				✓								
BH9-SS1	0.0-0.6/ 188.3-187.7	Native	Mar 12, 2020	✓	✓	✓	✓	✓	✓	✓	✓				
BH9-SS2	0.8-1.4/ 187.5-186.9	Native	Mar 12, 2020	✓	✓	✓	✓								
BH10-SS1	0.0-0.6/ 188.2-187.6	Reworked Native	Mar 12, 2020	✓	✓	✓	✓	✓	✓	✓	✓				
BH10-SS2	0.8-1.4/ 187.4-186.8	Native	Mar 12, 2020	✓	✓	✓	✓								
BH11-SS1	0.0-0.6/ 188.3-187.7	Reworked Native	Mar 13, 2020	✓	✓	✓	✓	✓	✓	✓	✓				
BH11-SS2	0.8-1.4/ 187.5-186.9	Native	Mar 13, 2020	✓	✓	✓	✓								

Sample ID	Depth/ Elev. (m)/(masl)	Strata	Date Sampled	Soil											
				Metals	H-F Metals	ORPs	OCs	TCLP							
								Metals	H-F Metals	ORPs	OCs	PHCs	VOCs	PAHs	PCBs
BH12-SS1	0.0-0.6/ 188.5-187.9	Reworked Native	Mar 13, 2020	✓	✓	✓	✓	✓	✓	✓	✓				
BH12-SS2	0.8-1.4/ 187.7-187.1	Native	Mar 13, 2020	✓	✓	✓	✓								

Notes: ORPs analyzed (if any) include Boron (HWS), Chromium VI, Mercury, and pH.

Note that the abovementioned soil samples submitted for the Toxicity Characteristic Leaching Procedure (TCLP) are discussed in a separate report titled *'Leachate Analysis Study – Trails of Collingwood, High Street & Telfer Road, Collingwood, Ontario,'* dated May 12, 2020.

6.6.2 Comparison to Applicable Standards (Soil)

Select soil samples were analysed for the following Contaminants of Potential Concern (COPCs):

- Metals;
- Hydride-Forming Metals (As, Sb, Se);
- Selected Other Regulated Parameters (ORPs)
 - Boron - Hot Water Soluble (B-HWS)
 - Hexavalent Chromium (CrVI)
 - Mercury (Hg)
 - pH
- Organochlorine Pesticides (OCs)

The results of the analysis were compared to the applicable MECP site condition standards for the Property (MECP Table 2 RPI Coarse Standards). The laboratory certificates of analysis are provided in Appendix J, and the results of the soil chemical analysis are provided in Tables 1 and 2.

Metals in Soil

The following exceedances for metals of the MECP Table 2 RPI Coarse Standards were noted in the samples analyzed:

Contaminants of Concern	Units	MECP Table 2 RPI CT	BH4 SS1 Reworked Native (0.0-0.6 mbgs)
Lead (Pb)	µg/g	120	133

Notes: **RED** values exceed the applicable MECP Table 2 RPI Coarse Standards
BLUE values meet the applicable MECP Table 2 RPI Coarse Standards

All other samples analyzed met the MECP Table 2 RPI Coarse Standards for metals. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix J. The samples exceeding for metals as noted above are shown on Figure 5. The assumed extent of contamination due to exceedances in metals and hydride-forming metals are illustrated in the shaded area with diagonal lines of Figure 5. The assumed extent of contamination due to exceedances in metals from Terraprobe's past investigation entitled "*Cost Estimate of Site Remediation Update, Trails of Collingwood, Collingwood, Ontario,*" dated June 19, 2015 is also shown by the shaded light orange area of Figure 5.

Hydride-Forming Metals in Soil

The following exceedances for hydride-forming metals of the MECP Table 2 RPI Coarse Standards were noted in the samples analyzed:

Contaminants of Concern	Units	MECP Table 2 RPI CT	BH4 SS1 Reworked Native (0.0-0.6 mbgs)	BH6 SS1 Reworked Native (0.0-0.6 mbgs)
Arsenic (As)	µg/g	18	79.7	18.9

Notes: **RED** values exceed the applicable MECP Table 2 RPI Coarse Standards
BLUE values meet the applicable MECP Table 2 RPI Coarse Standards

All other samples analyzed met the MECP Table 2 RPI Coarse Standards for hydride-forming metals. The results are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix J. The samples exceeding for hydride-forming metals, as noted above, are shown on Figure 5. The assumed extent of contamination due to exceedances in metals and hydride-forming metals are illustrated in the shaded area with diagonal lines of Figure 5. The assumed extent of contamination due to exceedances in metals from Terraprobe's past investigation entitled "*Cost Estimate of Site Remediation Update, Trails of Collingwood, Collingwood, Ontario,*" dated June 19, 2015 is also shown by the shaded light orange area of Figure 5.

Other Regulated Parameters in Soil

No ORPs exceedances of the MECP Table 2 RPI Coarse Standards were noted in the samples analyzed. All samples are summarized in Table 1 and the laboratory certificates of analysis are provided in Appendix J.

Organochlorine Pesticides in Soil

The following exceedances for Organochlorine Pesticides of the MECP Table 2 RPI Coarse Standards were noted in the samples analyzed:

Contaminants of Concern	Units	MECP Table 2 RPI CT	Previous Investigation (2018)	BH4 SS1 Reworked Native (0.0-0.6 mbgs)	BH5 SS1 Reworked Native (0.0-0.6 mbgs)	BH6 SS1 Reworked Native (0.0-0.6 mbgs)
			BH3 SS1 Fill (0.0-0.6 mbgs)			
Total DDE	µg/g	0.26	0.446	4.29	3.48	4.05
Total DDT	µg/g	1.40	0.301	1.78	1.10	0.924

Notes: **RED** values exceed the applicable MECP Table 2 RPI Coarse Standards

BLUE values meet the applicable MECP Table 2 RPI Coarse Standards

Contaminants of Concern	Units	MECP Table 2 RPI CT	BH7 SS1 Reworked Native (0.0-0.6 mbgs)	BH8 SS1 Reworked Native (0.0-0.6 mbgs)	BH11 SS1 Reworked Native (0.0-0.6 mbgs)	BH12 SS1 Reworked Native (0.0-0.6 mbgs)
Total DDE	µg/g	0.26	0.699	0.478	0.283	0.752
Total DDT	µg/g	1.40	0.405	0.285	0.110	0.369

Notes: **RED** values exceed the applicable MECP Table 2 RPI Coarse Standards

BLUE values meet the applicable MECP Table 2 RPI Coarse Standards

All other samples analyzed met the MECP Table 2 RPI Coarse Standards for Organochlorine Pesticides. The results are summarized in Table 2 and the laboratory certificates of analysis are provided in Appendix J. The samples exceeding for OCs, as noted above, are shown on Figure 6. The assumed extent of contamination due to exceedances in OC Pesticides is illustrated in the shaded area with diagonal lines of Figure 6. The assumed extent of contamination due to exceedances in OC Pesticides from Terraprobe's past investigation entitled "Cost Estimate of Site Remediation Update, Trails of Collingwood, Collingwood, Ontario," dated June 19, 2015 is also shown by the shaded light green area of Figure 6.

6.6.3 Contaminants of Concern (Soil)

The Contaminants of Concern associated with the earth fill or reworked native (as applicable) on the Property are:

- Metals
 - Lead (Pb).
- Hydride-Forming Metals
 - Arsenic (As).
- Organochlorine Pesticides
 - Total DDE; and
 - Total DDT.

There are no Contaminants of Concern associated with the native soil on the Property. The native soil samples taken from the Property meet the applicable Site Condition Standards.

6.6.4 Contamination Impact on Other Media

The Contaminants of Concern identified within the shallow soil, which exceeded the applicable Site Condition Standards, are unlikely to impact ground water.

6.6.5 Presence of Light or Dense Non-Aqueous Phase Liquids (In Soil)

Light non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) were not detected in the earth fill or native soil on the Property.

6.7 Groundwater Quality

6.7.1 Location and Depth of Sample Locations

Groundwater samples were collected from the previously and newly installed monitoring wells on the Property. Groundwater samples were analysed for parameters including Metals, Hydride-Forming Metals (H-F Metals), ORPs and OCs. The laboratory certificates of analysis are provided in Appendix J.

Monitoring Well	Screen/Sample Elevation (masl)	Ground Water			
		Metals	H-F Metals	ORPs	OCs
BH1	186.74-183.69	✓	✓	✓	✓
BH2	187.35-184.3	✓	✓	✓	✓
BH3	187.39-184.95	✓	✓	✓	✓
BH4	186.90-185.50	✓	✓	✓	✓
BH5	187.60-186.40	✓	✓	✓	✓

Monitoring Well	Screen/Sample Elevation (masl)	Ground Water			
		Metals	H-F Metals	ORPs	OCs
BH6	187.40-186.80	✓	✓	✓	✓
BH7	186.80-185.20	✓	✓	✓	✓
BH8	186.35-184.80	✓	✓	✓	✓
BH9	186.20-183.10	✓	✓	✓	✓
BH10	185.80-182.80	✓	✓	✓	✓
BH11	185.25-182.20	✓	✓	✓	✓
BH12	185.45-182.40	✓	✓	✓	✓

Notes: ORPs analyzed (if any) include Sodium, Chromium VI, and Mercury

6.7.2 Field Filtering

Field filtering occurred for all metal samples analyses that require field filtering as per the requirements of the Ministry of the Environment, Conservation and Parks “*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*”, March 09, 2004, amended July 01, 2011. Field filtration utilized a 0.45 micron filter.

6.7.3 Comparison to Applicable Standards (Groundwater)

Select groundwater samples were analysed for the following COPCs:

- Metals;
- Hydride-Forming Metals (As, Sb, Se);
- Selected Other Regulated Parameters (ORPs)
 - Sodium (Na)
 - Hexavalent Chromium (CrVI)
 - Mercury (Hg)
- Organochlorine Pesticides (OCs).

The results of the analysis were compared to the applicable MECP site condition standard for the Property (MECP Table 2 RPI Standards). The laboratory certificates of analysis are provided in Appendix J, and the results of the groundwater chemical analysis are provided in Tables 3 and 4.

Metals in Groundwater

No metal exceedances of the MECP Table 2 All Property Use Standards were noted in the samples analyzed. The results are summarized in Table 3 and the laboratory certificates of analysis are provided in Appendix J.

Hydride-Forming Metals in Groundwater

No hydride-forming metal exceedances of the MECP Table 2 All Property Use Standards were noted in the samples analyzed. All samples are summarized in Table 3 and the laboratory certificates of analysis are provided in Appendix J.

Other Regulated Parameters in Ground Water

No ORPs exceedances of the MECP Table 2 All Property Use Standards were noted in the samples analyzed. All samples are summarized in Table 3 and the laboratory certificates of analysis are provided in Appendix J.

Organochlorine Pesticides in Groundwater

No OCs exceedances of the MECP Table 2 All Property Use Standards were noted in the samples analyzed. All samples are summarized in Table 4 and the laboratory certificates of analysis are provided in Appendix J.

6.7.4 Contaminants of Concern (Groundwater)

There were no Contaminants of Concern associated with the ground water quality on the Property. All of the samples analyzed met the MECP Table 2 Standards. The results are summarized in Tables 3 and 4 and the laboratory certificates of analysis are provided in Appendix J.

6.7.5 Chemical or Biological Transformations

There was no indication of chemical or biological transformations.

6.7.6 Contamination Impact on Other Media

There were no Contaminations of Concern identified within the ground water media.

6.7.7 Presence of Light or Dense Non-Aqueous Phase Liquids (Groundwater)

Light non-aqueous phase liquids (LNAPL) and dense non-aqueous phase liquids (DNAPL) were not detected in the groundwater on the Property.

6.8 Quality Assurance and Quality Control Results

6.8.1 Types of Quality Control Samples Collected and Results

In general, samples were handled in accordance with the Analytical Protocol with respect to preservation method, storage requirement and sample container type. Laboratory results were compared to MECP

standards for quality control under Ontario Regulation 153/04 which require laboratory results to meet performance criteria such as specific method detection limits (MDLs). The sampling and analyses performed conformed with the following:

- “*Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*”, MECP, December 1996; and
- “*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act of Ontario*”, MECP, March 09, 2004, amended July 01, 2011.

Duplicate samples were submitted at a rate of approximately 10% and trip blanks were used with ground water samples to be analyzed for VOCs.

6.8.2 Sample Handling

Holding Time

All samples met the holding time as specified in “*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*”, MECP, March 09, 2004, amended July 01, 2011.

Preservation Method

All samples met the preservation methods as specified in “*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*”, MECP, March 09, 2004, amended July 01, 2011.

Storage Requirement

All samples met the storage requirements as specified in “*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*”, MECP, March 09, 2004, amended July 01, 2011.

Container Type

All samples were collected in the container type as specified in “*Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*”, MECP, March 09, 2004, amended July 01, 2011.

6.8.3 Subsection 47 (3) of the Regulation

All certificates of analysis or analytical reports received pursuant to clause 47 (2) (b) of the regulation comply with subsection 47(3). A certificate of analysis or analytical report has been received for each sample submitted for analysis. All certificates of analysis or analytical reports received have been included in full in Appendix J of the Phase Two ESA report.

6.8.4 Results Qualified by Laboratory

The Laboratory did not make any significant comments that changed the outcome of the analytical results regarding the soil and groundwater samples.

6.8.5 Overall Quality of Field Data

Decision making regarding the environmental condition of the Property was not affected by the overall quality of the field data. The overall quality of the field data was considered by the Qualified Person to meet the objectives of the investigation and assessment.



7.0 CONCLUSIONS

7.1 Location and Concentration of Contamination

7.1.1 Land

There were exceedances of the applicable Site Condition Standards noted in the fill and reworked native materials consisting of Lead (Metals), Arsenic (Hydride-Forming Metals), Total DDE (OCs), and Total DDT (OCs). There were no Contaminants of Concern associated with the native soil on the Property. The native soil samples taken from the Property met the applicable Site Condition Standards.

The soil exceedances in the fill and reworked native, as noted above, for metals and H-F metals are outlined in Table 1. The soil exceedances in the OCs are outlined in Table 2. The locations of the exceedances are noted on Figures 5 and 6.

7.1.2 Groundwater

There were no Contaminants of Concern associated with the ground water quality on the Property. All of the samples analyzed met the MECP Table 2 Standards. The results are summarized in Tables 3 and 4 and the laboratory certificates of analysis are provided in Appendix J.

7.2 Environmental Conditions

Exceedances of the applicable Site Condition Standards were noted in the fill and shallow reworked native layers on the Property. If a Record of Site Condition is required, a Risk Assessment or remediation will need to be conducted for the Property. Terraprobe understands that majority of the Property is to undergo remediation and the Parkland Block area, as can be seen in the Site Survey in Appendix B, will be utilized to stockpile the impacted soil from the Property. The Parkland Block is to then undergo additional soil and groundwater investigation. A Risk Assessment will then be conducted on the Parkland Block. After the Risk Assessment has been acknowledged and the Certificate of Property Use (CPU) has been approved, a Record of Site Condition (RSC) can be filed.

7.3 Signatures

The Phase Two Environmental Site Assessment report was completed under the direction and supervision of R. Baker Wohayeb, M.A.Sc., P.Eng, QP_{RA}. The findings and conclusions presented in this report have been determined on the basis of the information that was obtained and reviewed from review of previous investigations provided and on the current investigation for the Phase Two Property.

The Phase Two Environmental Site Assessment was completed in accordance with Ontario Regulation 153/04 (Records of Site Condition–Part XV.1 of the Environmental Protection Act). The Phase Two Environmental Site Assessment met the objectives and requirements set out in that Ontario Regulation 153/04 for a Phase Two Environmental Site Assessment were applied in carrying out the environmental site assessment and preparation of the report.

We trust this report meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

Terraprobe Inc.



Yousr Hiweish, B. Eng., E.I.T
Project Manager



R. Baker Wohayeb, M.A.Sc., P.Eng, QP_{RA}
Principal

Brampton Office

8.0 REFERENCES

1. Armstrong, D.K. and Dodge, J.E.P. *Paleozoic Geology Map of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 219.
2. Chapman, L.J. and Putnam, D.F. 2007. *The Physiography of Southern Ontario*. Ontario Geological Survey, Miscellaneous Release--Data 228.
3. Freeze, R. Allen and Cherry, John A., 1979. *Groundwater*. Page 29.
4. Ministry of the Environment, Conservation and Parks, December 1996. *Guidance on Sampling and Analytical Methods for Use at Contaminated Sites in Ontario*.
5. Ministry of Environment, Conservation and Parks, 15 April 2011. *Soil, Ground Water and Sediment Standards for use under part XV.1 of the Environmental Protection Act*.
6. Ministry of the Environment, Conservation and Parks, June 2011. *Guide for Completing Phase Two Environmental Site Assessments under Ontario regulation 153/04*.
7. Ministry of the Environment, Conservation and Parks, July 2011. *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*.
8. Peto MacCallum Ltd. Consulting Engineers. "Geotechnical Investigation, Proposed Residential Development High St, Collingwood Ontario," dated October 5, 2006.
9. Kodiak Environmental Limited. "Environmental Site Assessment (Phase 1), The Trails at Collingwood Condominium Development (Proposed), High Street, Collingwood, Ontario," dated June 21, 2007.
10. Terraprobe Inc. "Cost Estimate of Site Remediation Update, Trails of Collingwood, Collingwood, Ontario," dated June 19, 2015. File Number 13-11-6138.
11. Terraprobe Inc. "Summary of Site Remediation and Record of Site Condition Process, Trails of Collingwood Development, Collingwood, Ontario," dated October 24, 2016. File Number 13-11-6138.
12. Terraprobe Inc. "Phase One Environmental Site Assessment, Trails of Collingwood – High Street and Telfer Road, Collingwood, Ontario," dated May 1, 2018. File Number 1-17-0918-41.
13. Terraprobe Inc. "Draft Phase Two Environmental Site Assessment, Trails of Collingwood – High Street and Telfer Road, Collingwood, Ontario," dated May 23, 2018. File Number 1-17-0918-42.
14. Terraprobe Inc. "Summary of Site Remediation Plan, Trails of Collingwood, High Street & Telfer Road, Collingwood, Ontario," dated October 10, 2018.
15. Terraprobe Inc. "Terraprobe Response to Draft Comments by GHD Limited, dated July 19, 2019 (Reference No. 11176351)," dated November 21, 2019.

9.0 LIMITATIONS AND USE OF THE REPORT

This report was prepared for the exclusive use of Helen Court Homes (Client) and is intended to provide an assessment of the environmental condition on the property located at the northeast corner of High Street and Telfer Road intersection in Collingwood, Ontario.

The report was prepared for the purpose of identifying potential environmental concerns, including an assessment of the likelihood that the environmental quality of the soil and ground water at the Property may have been adversely affected by past and present practices at the Property, and/or those of the surrounding properties prior to development of the Property. 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. Terraprobe accepts no responsibility for damages, if any, suffered by any third party as a result of decisions made or actions based on this report, including consequential financial effects on transactions or property values, or requirements for follow-up actions and costs.

The assessment should not be considered a comprehensive audit that eliminates all risks of encountering environmental problems. The information presented in this report is based on information collected during the completion of the subsurface investigation conducted by Terraprobe Inc. It is based on conditions at the Property at the time of the site inspection. The subsurface conditions were assessed based on information collected at specific borehole and monitoring well locations. The actual subsurface conditions between the sampling points may vary.

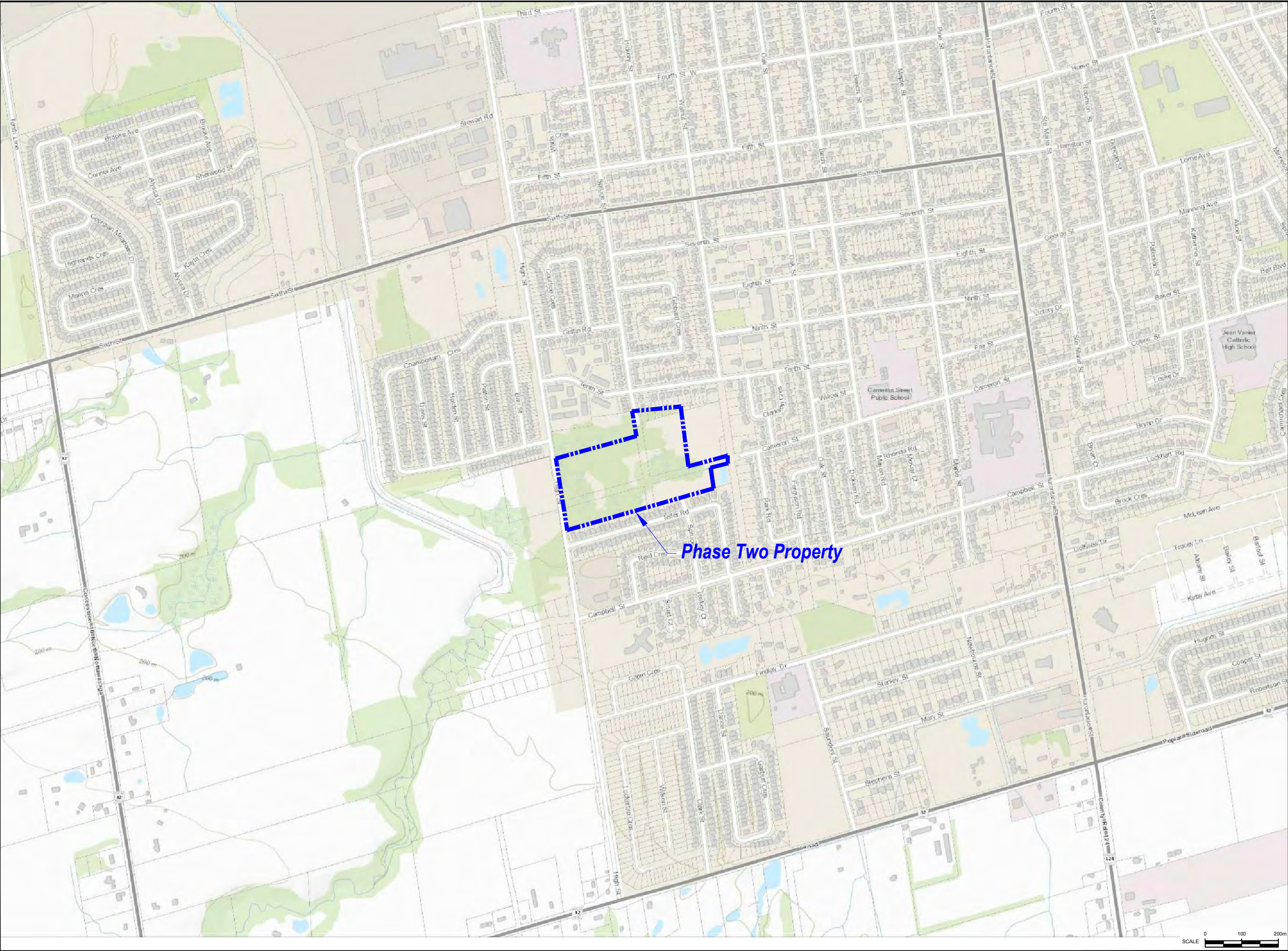
There is no warranty expressed or implied by this report regarding the environmental status of the Property. Professional judgment was exercised in gathering and analyzing information collected by our staff, as well as that submitted by others. The conclusions presented are the product of professional care and competence, and cannot be construed as an absolute guarantee.

In the event that during future work new information regarding the environmental condition of the Property is encountered, or in the event that the outstanding responses from the regulatory agencies indicate outstanding issues on file with respect to the Property, Terraprobe should be notified in order that we may re-evaluate the findings of this assessment and provide amendments, as required.

FIGURES

TERRAPROBE INC.







Terraprobe Inc.
Consulting Geotechnical & Environmental Engineering
Construction Materials, Inspection & Testing
11 Indell Lane - Brampton Ontario L6T 3Y3 (905) 796-2650



Reference:

County of Simcoe

Notes:

Legend:

Phase Two Property Boundary

Project Title:

Additional Phase Two Environmental Site Assessment

Site Location:

High St & Telfer Rd, Trails of Collingwood, Ontario

Figure Title:

PHASE TWO PROPERTY LOCATION

Designed By:

AM

File No.:

1-17-0918-42.1

Drawn By:

SSK

Scale:

As Shown

Reviewed By:

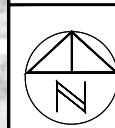
BW

Figure No.:

1

Date:

May 2020



Reference:

County of Simcoe

Notes:

APEC - Area of Potential Environmental Concern

PCA - Potentially Contaminating Activity

#00 PCA Causing APEC

#00 PCA Not Causing APEC

Legend:


#40


Phase Two Property Boundary
Phase Two Study Area, 250m
Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications
Transformer Manufacturing, Processing and Use
APEC 1

Project Title:

Additional Phase Two Environmental Site Assessment

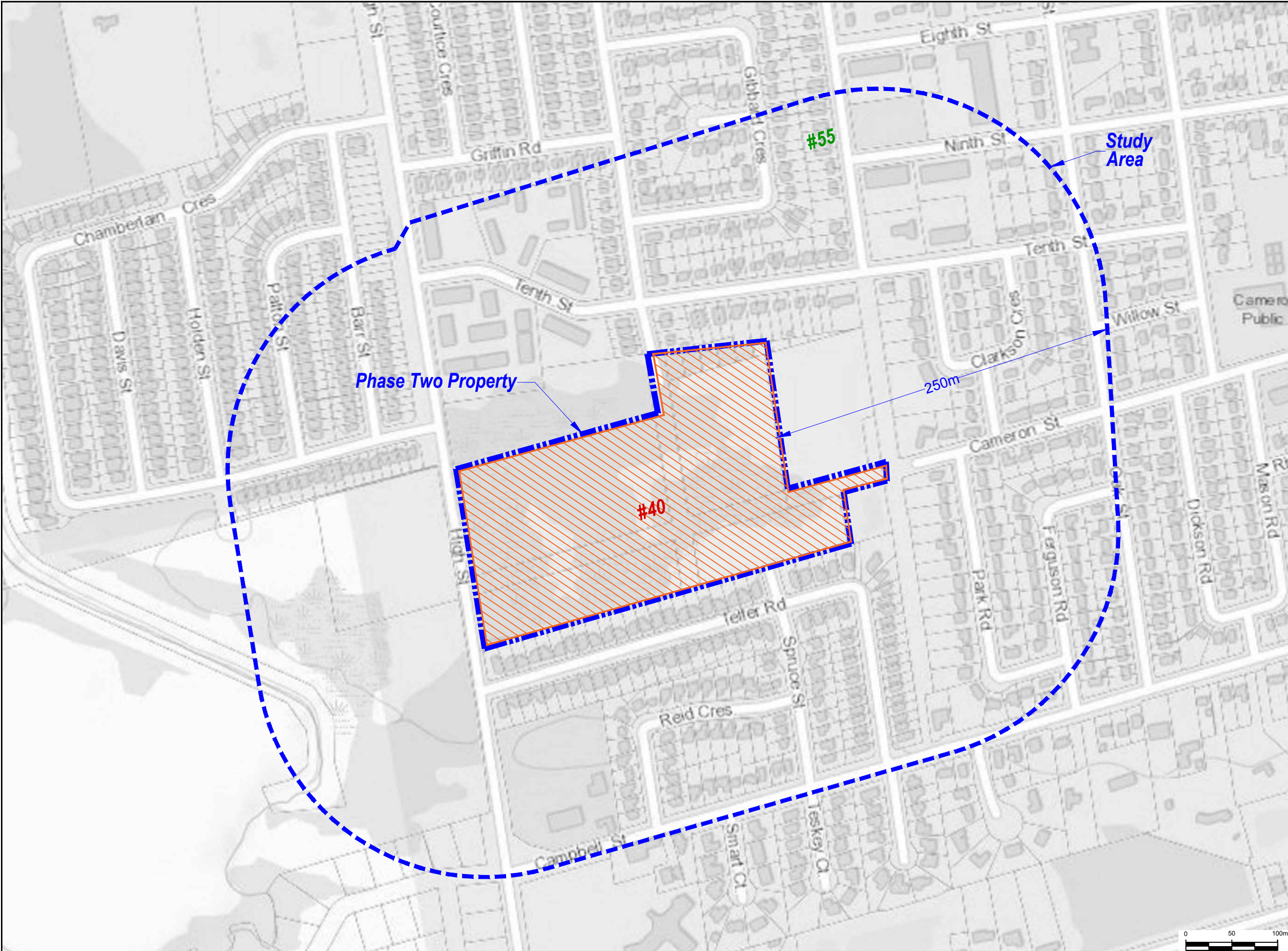
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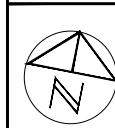
High St & Telfer Rd, Trails of Collingwood, Ontario

Figure Title:

PHASE ONE CSM

Designed By: AM	File No.: 1-17-0918-42.1
Drawn By: SSK	Scale: As Shown
Reviewed By: BW	Figure No.: 2
Date: May 2020	





Reference:
Title: Trails of Collingwood Subdivision
Prepared By: GLOBAL Architect Inc.
Project No: 09-25
DWG No: DP-1
Dated: September, 2017

Notes:

Legend:

 Phase Two Property Boundary

 Existing Borehole with Monitoring Well Location (Terraprobe 2017)

 Proposed Borehole / Monitoring Well Location Based on the Current Chemical Analysis and Proposed TCLP Testing

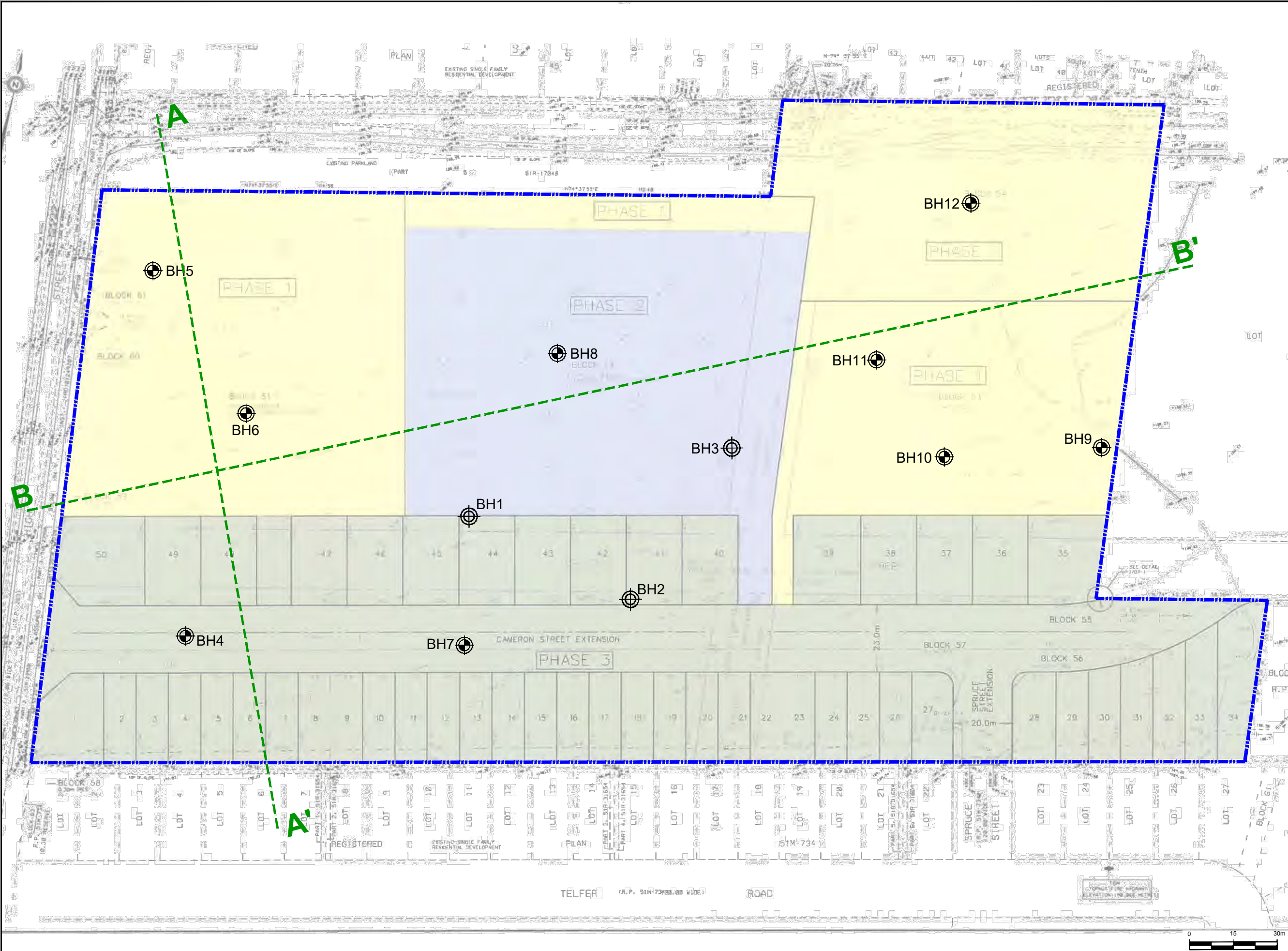
 Approximate Cross Section Location

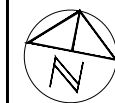
Project Title:
Additional Phase Two Environmental Site Assessment

Site Location:
High St & Telfer Rd, Trails of Collingwood, Ontario

Figure Title:
BOREHOLE / MONITORING WELL LOCATION PLAN

Designed By: AM	File No.: 1-17-0918-42.1
Drawn By: SSK	Scale: As Shown
Reviewed By: BW	Figure No.: 3
Date: May 2020	





Reference:
Title: Trails of Collingwood Subdivision
Prepared By: GLOBAL Architect Inc.
Project No: 09-25
DWG No: DP-1
Dated: September, 2017

Notes:

Legend:

- Phase Two Property Boundary
- Existing Borehole with Monitoring Well Location (Terraprobe 2017)
- Proposed Borehole / Monitoring Well Location Based on the Current Chemical Analysis and Proposed TCLP Testing
- Approximate Ground Water Elevations (masl); March 24, 2020

Project Title:

Additional Phase Two Environmental Site Assessment

Site Location:

High St & Telfer Rd, Trails of Collingwood, Ontario

Figure Title:

GROUND WATER ELEVATIONS

Designed By:

AM

Drawn By:

SSK

Reviewed By:

BW

Date:

May 2020

File No.:

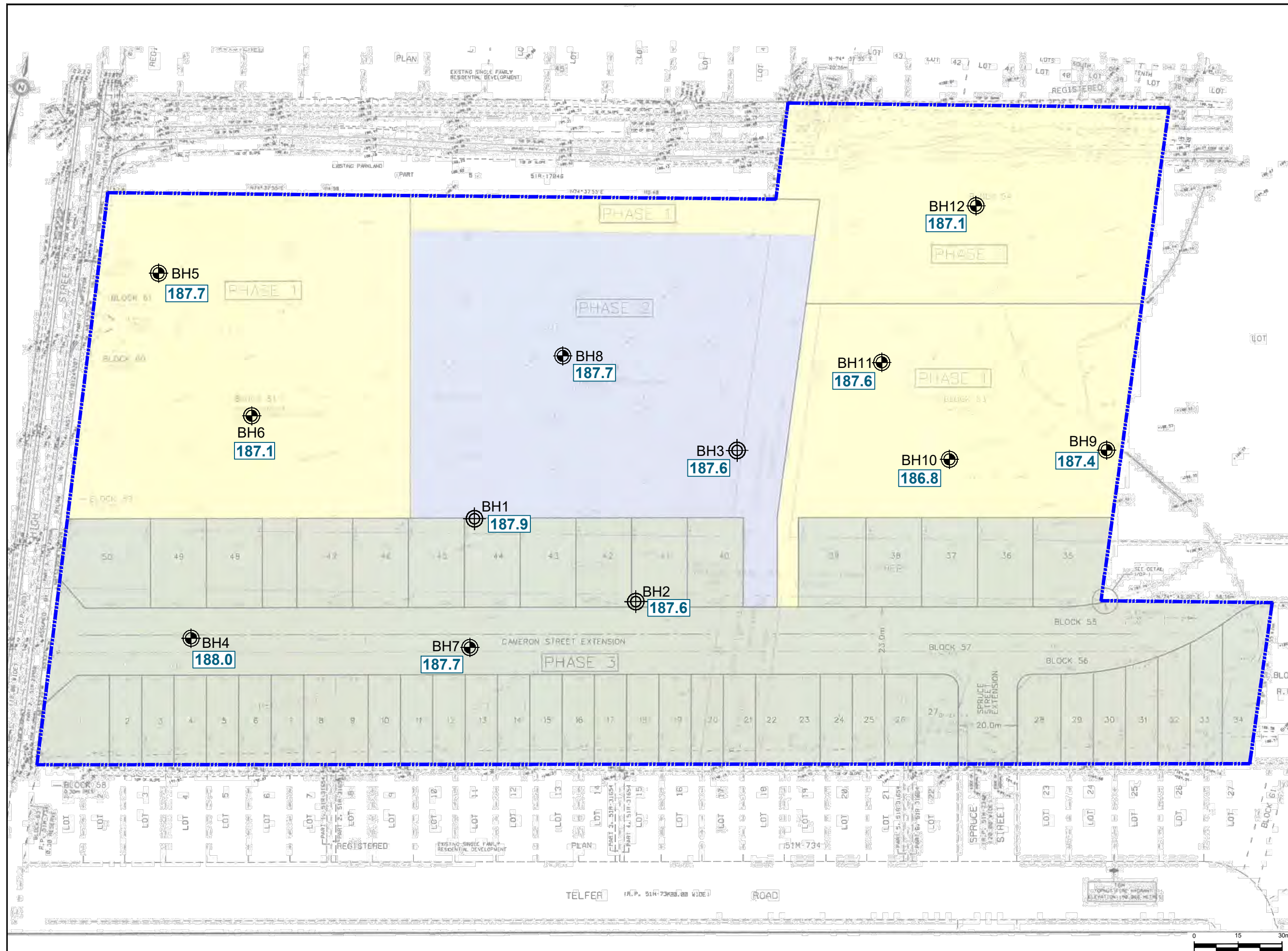
1-17-0918-42.1

Scale:

As Shown

Figure No.:

4





Reference:
Title: Trails of Collingwood Subdivision
Prepared By: GLOBAL Architect Inc.
Project No: 09-25
DWG No: DP-1
Dated: September, 2017

Notes:

Legend:

- Phase Two Property Boundary
- Existing Borehole with Monitoring Well Location (Terraprobe 2017)
- Proposed Borehole / Monitoring Well Location Based on the Current Chemical Analysis and Proposed TCLP Testing
- Approximate Cross Section Location
- Samples Not Tested for Parameters
- Samples Exceed Parameters
- Samples Meet Parameters
- Assumed Extent of Contamination; (2015 Investigation)
- Assumed Extent of Contamination; (Current Investigation)

Project Title:
Additional Phase Two Environmental Site Assessment

Site Location:
High St & Telfer Rd, Trails of Collingwood, Ontario

Figure Title:
SOIL CHEMICAL ANALYSIS- METALS AND OTHER REGULATED PARAMETERS- PLAN VIEW

Designed By: AM

Drawn By: SSK

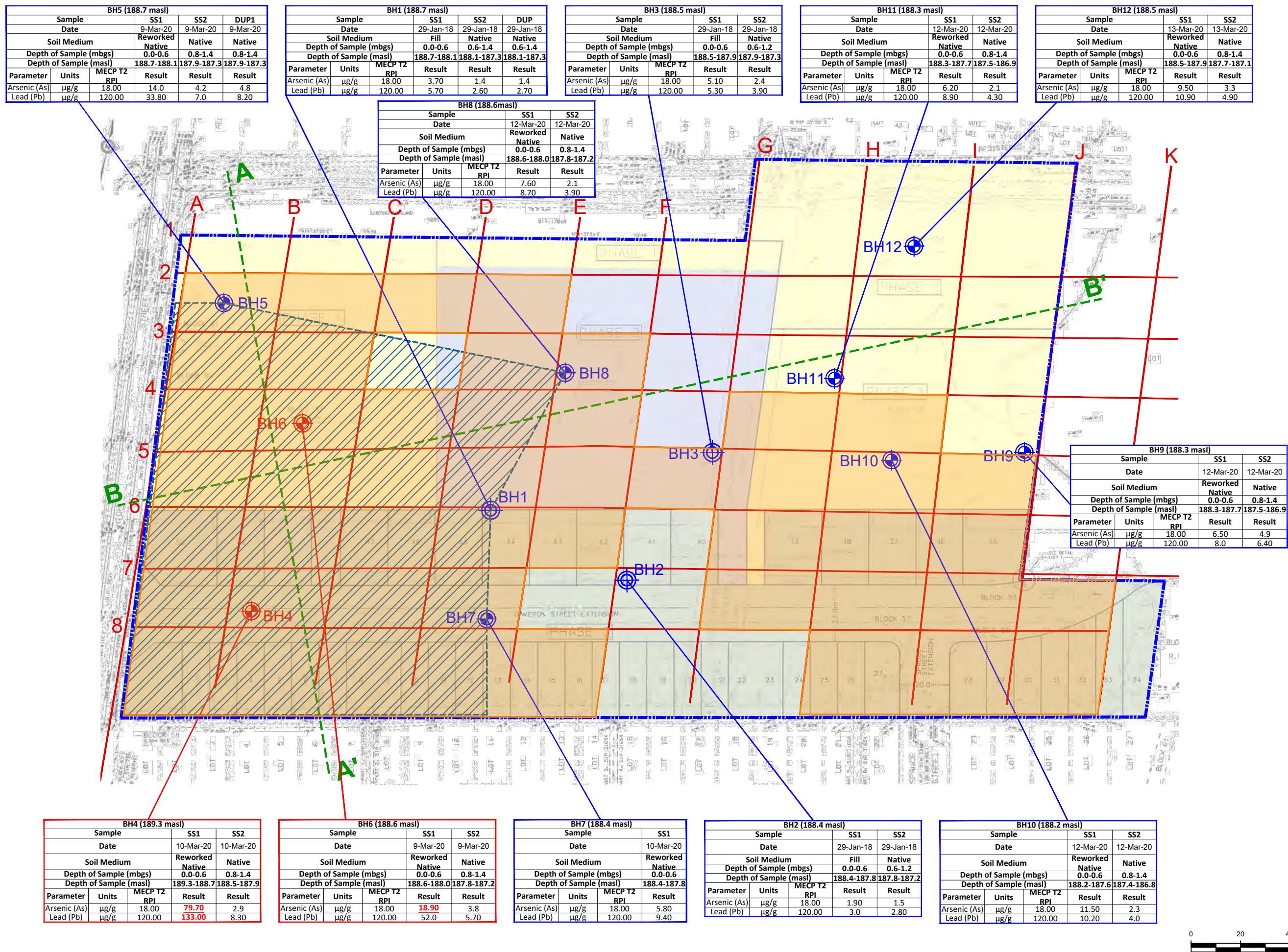
Reviewed By: BW

Date: May 2020

File No.: 1-17-0918-42.1

Scale: As Shown

Figure No.: 5



BH5 (188.7 masl)				
Sample		SS1		SS2
Date		9-Mar-20		9-Mar-20
Soil Medium		Reworked		Native
Depth of Sample (mbgs)		0.0-0.6		0.8-1.4
Depth of Sample (masl)		188.7-188.1		187.9-187.3
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	3.48	<0.028
Total DDT	µg/g	1.40	1.10	<0.028

BH6 (188.6 masl)				
Sample		SS1		SS2
Date		9-Mar-20		9-Mar-20
Soil Medium		Reworked		Native
Depth of Sample (mbgs)		0.0-0.6		0.8-1.4
Depth of Sample (masl)		188.6-188.0		187.8-187.2
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	4.05	<0.028
Total DDT	µg/g	1.40	0.924	<0.028

BH3 (188.5 masl)				
Sample		SS1		SS2
Date		29-Jan-18		29-Jan-18
Soil Medium		Fill		Native
Depth of Sample (mbgs)		0.0-0.6		0.6-1.2
Depth of Sample (masl)		188.5-187.9		187.9-187.3
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	0.45	<0.028
Total DDT	µg/g	1.40	0.30	<0.028

BH11 (188.3 masl)				
Sample		SS1		SS2
Date		12-Mar-20		12-Mar-20
Soil Medium		Reworked		Native
Depth of Sample (mbgs)		0.0-0.6		0.8-1.4
Depth of Sample (masl)		188.3-187.7		187.5-186.9
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	0.28	<0.028
Total DDT	µg/g	1.40	0.110	<0.028

BH12 (188.5 masl)				
Sample		SS1		SS2
Date		13-Mar-20		13-Mar-20
Soil Medium		Reworked		Native
Depth of Sample (mbgs)		0.0-0.6		0.8-1.4
Depth of Sample (masl)		188.5-187.9		187.7-187.1
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	0.75	<0.028
Total DDT	µg/g	1.40	0.37	<0.028

BH8 (188.6masl)				
Sample		SS1		SS2
Date		12-Mar-20		12-Mar-20
Soil Medium		Reworked		Native
Depth of Sample (mbgs)		0.0-0.6		0.8-1.4
Depth of Sample (masl)		188.6-188.0		187.8-187.2
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	0.48	<0.028
Total DDT	µg/g	1.40	0.29	<0.028

BH4 (189.3 masl)				
Sample		SS1		SS2
Date		10-Mar-20		10-Mar-20
Soil Medium		Reworked		Native
Depth of Sample (mbgs)		0.0-0.6		0.8-1.4
Depth of Sample (masl)		189.3-188.7		188.5-187.9
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	4.29	0.099
Total DDT	µg/g	1.40	1.78	<0.028

BH1 (188.7 masl)				
Sample		SS1		SS2
Date		29-Jan-18		29-Jan-18
Soil Medium		Fill		Native
Depth of Sample (mbgs)		0.0-0.6		0.6-1.4
Depth of Sample (masl)		188.7-188.1		188.1-187.3
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	<0.028	<0.028
Total DDT	µg/g	1.40	<0.028	<0.028

BH7 (188.4 masl)				
Sample		SS1		
Date		10-Mar-20		
Soil Medium		Reworked		
Depth of Sample (mbgs)		Native		
Depth of Sample (masl)		0.0-0.6		
Parameter	Units	MECPT 2 RPI	Result	
Total DDE	µg/g	0.26	0.70	
Total DDT	µg/g	1.40	0.41	

BH2 (188.4 masl)				
Sample		SS1		SS2
Date		29-Jan-18		29-Jan-18
Soil Medium		Fill		Native
Depth of Sample (mbgs)		0.0-0.6		0.6-1.2
Depth of Sample (masl)		188.4-187.8		187.8-187.2
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	<0.028	<0.028
Total DDT	µg/g	1.40	<0.028	<0.028

BH10 (188.2 masl)				
Sample		SS1		SS2
Date		12-Mar-20		12-Mar-20
Soil Medium		Reworked		Native
Depth of Sample (mbgs)		0.0-0.6		0.8-1.4
Depth of Sample (masl)		188.2-187.6		187.4-186.8
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	0.18	<0.028
Total DDT	µg/g	1.40	0.04	<0.028

BH9 (188.3 masl)				
Sample		SS1		SS2
Date		12-Mar-20		13-Mar-20
Soil Medium		Reworked		Native
Depth of Sample (mbgs)		0.0-0.6		0.8-1.4
Depth of Sample (masl)		188.3-187.7		187.5-186.9
Parameter	Units	MECPT 2 RPI	Result	Result
Total DDE	µg/g	0.26	0.09	0.029
Total DDT	µg/g	1.40	<0.028	<0.028



Reference:
Title: Trails of Collingwood Subdivision
Prepared By: GLOBAL Architect Inc.
Project No: 09-25
DWG No: DP-1
Dated: September, 2017

Notes:

Legend:

- Phase Two Property Boundary
- Existing Borehole with Monitoring Well Location (Terraprobe 2017)
- Proposed Borehole / Monitoring Well Location Based on the Current Chemical Analysis and Proposed TCLP Testing
- Approximate Cross Section Location
- Samples Not Tested for Parameters
- Samples Exceed Parameters
- Samples Meet Parameters
- Assumed Extent of Contamination; (2015 Investigation)
- Assumed Extent of Contamination; (Current Investigation)

Project Title:
Additional Phase Two Environmental Site Assessment

Site Location:
High St & Telfer Rd, Trails of Collingwood, Ontario

Figure Title:
SOIL CHEMICAL ANALYSIS-
ORGANOCHLORINE PESTICIDES-
PLAN VIEW

Designed By: AM
Drawn By: SSK
Reviewed By: BW
Date: May 2020
File No.: 1-17-0918-42.1
Scale: As Shown
Figure No.: 6

TABLES

TERRAPROBE INC.



TABLE 1
SOIL QUALITY ANALYSIS
METALS & INORGANIC
Trails of Collingwood
COLLINGWOOD, ONTARIO

Sample Name	MECP			BH4 SS1	BH4 SS2	BH5 SS1	BH5 SS2	DUP1	BH6 SS1	BH6 SS2	BH7 SS1	BH8 SS1	BH8 SS2	BH8 SS3	BH9 SS1	BH9 SS2	DUP2	BH10 SS1	BH10 SS2	BH11 SS1	BH11 SS2	BH12 SS1	BH12 SS2
ALS Lab ID#	Table 2			L2428783-1	L2428783-2	L2428783-3	L2428783-4	L2428783-20	L2428783-5	L2428783-6	L2428783-7	L2428783-9	L2428783-10	L2428783-11	L2428783-12	L2428783-13	L2428783-21	L2428783-14	L2428783-15	L2428783-16	L2428783-17	L2428783-18	L2428783-19
Date	Criteria			10-Mar-20	10-Mar-20	09-Mar-20	09-Mar-20	09-Mar-20	09-Mar-20	09-Mar-20	10-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	13-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	13-Mar-20	13-Mar-20
Depth of Sample (mbgl)	Coarse	Maximum	Units	0.0-0.6	0.8-1.4	0.0-0.6	0.8-1.4	0.8-1.4	0.0-0.6	0.8-1.4	0.0-0.6	0.0-0.6	0.8-1.4	1.6-2.1	0.0-0.6	0.8-1.4	0.8-1.4	0.0-0.6	0.8-1.4	0.0-0.6	0.8-1.4	0.0-0.6	0.8-1.4
Sample Medium				Reworked Native	Native	Reworked Native	Native	Native	Reworked Native	Native	Reworked Native	Reworked Native	Native	Native	Reworked Native	Native	Native	Reworked Native	Native	Reworked Native	Native	Reworked Native	Native
Parameter	R/P/I							(BH5 SS2)									(BH9 SS2)						
Metals																							
Barium	390	60.5	µg/g	56.5	27.8	60.5	34.9	30.5	55.4	26.4	44.0	26.3	6.0	NA	23.1	21.7	NA	27.5	7.8	23.6	7.6	25.1	23.9
Beryllium	4	0.63	µg/g	< 0.50	< 0.50	0.63	< 0.50	< 0.50	0.54	< 0.50	0.52	< 0.50	< 0.50	NA	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Boron	120	15.1	µg/g	8.2	5.3	13.3	14.9	12.5	15.1	13.2	11	7.1	<5.0	NA	8.7	8.4	NA	9.4	< 5.0	8.7	< 5.0	7.2	10.6
Cadmium	1.2	< 0.5	µg/g	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Chromium	160	20.6	µg/g	15.4	10.9	20.6	16.6	15.8	19.4	13.5	18.0	12.1	8.8	NA	11.5	11.2	NA	11.6	8.6	10.8	9.0	11.5	11.7
Cobalt	22	8.4	µg/g	5.5	4.7	7.0	7.4	8.4	6.1	6.5	6.6	4.6	2.7	NA	3.8	4.2	NA	4.8	3.1	4.7	3.0	4.3	4.8
Copper	140	73.1	µg/g	73.1	7.3	31.2	17.8	20.1	33.8	18.4	20.2	16.8	11.6	NA	16.2	14.2	NA	20.5	9.6	19.5	10.9	17.4	13.2
Lead	120	133	µg/g	133	8.3	33.8	7.0	8.2	52.0	5.7	9.4	8.7	3.9	NA	8.0	6.4	NA	10.2	4.0	8.9	4.3	10.9	4.9
Molybdenum	6.9	< 1	µg/g	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Nickel	100	19.4	µg/g	12.8	9.1	16	17.7	19.4	14.7	15.3	14.1	9.200	4.3	NA	8.7	9.6	NA	10.4	4.6	10.1	4.8	9.5	10.9
Silver	20	< 0.2	µg/g	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	NA	< 0.20	< 0.20	NA	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Thallium	1	0.5	µg/g	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	NA	< 0.50	< 0.50	NA	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Uranium	23	< 1	µg/g	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Vanadium	86	29.3	µg/g	22.9	15.1	29.3	21.6	20.7	25.3	19	22.5	19.4	20.4	NA	15.6	16.5	NA	17.8	18.4	16.1	19.3	18.8	16
Zinc	340	65.1	µg/g	56.2	32.3	63	29.9	32.8	65.1	25.5	58.3	29.4	17.6	NA	25.1	25.5	NA	28.4	16	25	19.2	27.3	20.3
Hydride Metals																							
Antimony	7.5	< 1.3	µg/g	1.3	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Arsenic	18	79.7	µg/g	79.7	2.9	14.0	4.2	4.8	18.9	3.8	5.8	7.6	2.1	NA	6.5	4.9	NA	11.5	2.3	6.2	2.1	9.5	3.3
Selenium	2.4	< 1	µg/g	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	NA	< 1.0	< 1.0	NA	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0
Other Regulated Parameters																							
Boron (Hot Water Soluble)	1.5	1.2	µg/g	1.20	0.33	0.77	0.17	0.22	0.57	0.12	0.67	0.48	< 0.10	NA	0.46	0.20	NA	1.00	0.14	0.67	0.12	0.31	0.14
Chromium, Hexavalent	8	0.2	µg/g	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	NA	< 0.20	< 0.20	NA	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Mercury	0.27	0.125	µg/g	0.125	0.0319	0.0943	0.0114	0.0175	0.114	0.0121	0.0778	0.0319	< 0.005	NA	0.0204	0.0131	NA	0.0327	< 0.005	0.0282	< 0.005	0.0208	0.0083
pH	-	7.82	pH	6.93	7.45	7.23	7.73	7.78	7.31	7.63	7.46	7.36	7.70	7.74	7.18	7.75	7.76	7.50	7.82	7.39	7.81	7.38	7.65

Notes
Value highlighted in red indicate exceedances above the applicable criteria
Values highlighted in yellow indicate the parameter was not detected, but the Reporting Limit exceeded the applicable standard
ND = Not detected
NV = No value
NA = Not assessed

TABLE 2
SOIL QUALITY ANALYSIS
ORGANOCHLORINE PESTICIDES
Trails of Collingwood
COLLINGWOOD, ONTARIO

Sample Name	MECP			BH4 SS1	BH4 SS2	BH5 SS1	BH5 SS2	BH6 SS1	BH6 SS2	BH7 SS1	BH8 SS1	BH8 SS2	BH8 SS3	BH9 SS1	BH9 SS2	DUP2	BH10 SS1	BH10 SS2	BH11 SS1	BH11 SS2	BH12 SS1	BH12 SS2
ALS Lab ID#	Table 2			L2428783-1	L2428783-2	L2428783-3	L2428783-4	L2428783-5	L2428783-6	L2428783-7	L2428783-9	L2428783-10	L2428783-11	L2428783-12	L2428783-13	L2428783-21	L2428783-14	L2428783-15	L2428783-16	L2428783-17	L2428783-18	L2428783-19
Date	Criteria			10-Mar-20	10-Mar-20	09-Mar-20	09-Mar-20	09-Mar-20	09-Mar-20	10-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	13-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	12-Mar-20	13-Mar-20	13-Mar-20
Depth of Sample (mbgl)	Coarse	Maximum	Units	0.0-0.6	0.8-1.4	0.0-0.6	0.8-1.4	0.0-0.6	0.8-1.4	0.0-0.6	0.0-0.6	0.8-1.4	1.6-2.1	0.0-0.6	0.8-1.4	0.8-1.4	0.0-0.6	0.8-1.4	0.0-0.6	0.8-1.4	0.0-0.6	0.8-1.4
Sample Medium				Reworked	Native	Reworked	Native	Reworked	Native	Reworked	Reworked	Native	Native	Reworked	Native	Native	Reworked	Native	Reworked	Native	Reworked	Native
Parameter	R/P/I															(BH9 SS2)						
Aldrin	0.05	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
gamma-hexachlorocyclohexane	0.056	< 0.01	µg/g	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
a-chlordane	NV	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Chlordane (Total)	0.05	< 0.028	µg/g	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028
g-chlordane	NV	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
op-DDD	NV	< 0.166	µg/g	< 0.020	< 0.020	0.157	< 0.020	0.166	< 0.020	0.042	0.029	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.091	< 0.020
pp-DDD	NV	< 0.58	µg/g	0.133	< 0.020	0.421	< 0.020	0.58	< 0.020	0.126	0.108	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.027	< 0.020	0.062	< 0.020	0.335	< 0.020
Total DDD	3.3	< 0.746	µg/g	0.133	< 0.028	0.578	< 0.028	0.746	< 0.028	0.168	0.138	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	0.062	< 0.028	0.426	< 0.028
o,p-DDE	NV	< 0.058	µg/g	< 0.020	< 0.020	0.038	< 0.020	0.058	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
pp-DDE	NV	< 4.29	µg/g	4.29	0.099	3.44	< 0.023	3.99	< 0.020	0.699	0.478	< 0.020	< 0.020	0.085	0.029	0.043	0.181	< 0.020	0.283	< 0.020	0.752	< 0.020
Total DDE	0.26	< 4.29	µg/g	4.29	0.099	3.48	< 0.028	4.05	< 0.028	0.699	0.478	< 0.028	< 0.028	0.085	0.029	0.043	0.181	< 0.028	0.283	< 0.028	0.752	< 0.028
op-DDT	NV	< 0.171	µg/g	0.171	< 0.020	0.139	< 0.020	0.134	< 0.020	0.073	0.053	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.023	< 0.020	0.092	< 0.020
pp-DDT	NV	< 1.61	µg/g	1.61	0.023	0.963	< 0.020	0.79	< 0.020	0.332	0.231	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	0.036	< 0.020	0.088	< 0.020	0.277	< 0.020
Total DDT	1.4	< 1.78	µg/g	1.78	<0.028	1.1	< 0.028	0.924	<0.028	0.405	0.285	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	0.036	< 0.028	0.110	< 0.028	0.369	< 0.028
Dieldrin	0.05	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Endosulfan I	NV	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Endosulfan II	NV	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Endosulfan (Total)	0.04	< 0.028	µg/g	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028	< 0.028
Endrin	0.04	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Heptachlor	0.15	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Heptachlor Epoxide	0.05	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
Hexachlorobenzene	0.52	< 0.01	µg/g	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachlorobutadiene	0.012	< 0.01	µg/g	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Hexachloroethane	0.089	< 0.01	µg/g	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Methoxychlor	0.13	< 0.02	µg/g	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020	< 0.020
2-Fluorobiphenyl	NV	NV	%	89.1	86.5	83.6	79.3	88.8	88.5	90	83.5	91.2	81.7	67.2	84.4	90.4	75.9	87.5	85.6	83.3	84.7	91.9
d14-Terphenyl	NV	NV	%	86.5	82.3	81.9	81	91.9	97.9	86.5	87.8	83.3	69.8	53.9	73.9	84.4	77.7	85.8	67.1	70.8	82.7	90.4

Notes
Value highlighted in red indicate exceedances above the applicable criteria
Values highlighted in yellow indicate the parameter was not detected, but the Reporting Limit exceeded the applicable standard
NV = No value

TABLE 3
GROUND WATER QUALITY ANALYSIS
METALS AND INORGANICS
Trails of Collingwood
COLLINGWOOD, ONTARIO

Sample Name	MECP			BH1	BH2	BH3	BH4	BH5	BH6	BH7	BH8	BH9	DUP2	BH10	BH11	BH12	DUP1
ALS Lab ID#	Table 2			L2432036-10	L2432036-9	L2432036-6	L2432036-7	L2432036-11	L2432036-12	L2432036-8	L2432036-5	L2432036-2	L2432036-14	L2432036-4	L2432036-3	L2432036-1	L2432036-13
Date	2011 Criteria			26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20	26-Mar-20
Screened (mbgs)	Coarse	Maximum	Units	186.74-183.69	187.35-184.3	187.39-184.95	186.90-185.50	187.60-186.40	187.40-186.80	186.80-185.20	186.35-184.40	186.20-183.10	186.20-183.10	185.80-182.80	185.25-182.20	185.45-182.40	185.45-182.40
Parameter													(BH9)				(BH12)
Metals																	
Barium	1000	131	µg/L	87.9	50.9	62.70	131.00	59.5	49.5	60.80	92.70	46.80	50.30	85.20	66.50	77.40	81.1
Beryllium	4	< 1	µg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10	< 0.10
Boron	5000	377	µg/L	199	377	351	96	< 100	< 100	237	196	336	372	350	375	137	151
Cadmium	2.7	< 0.05	µg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.050	< 0.050	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Chromium	50	< 5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 5.0	< 0.50	0.83	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Cobalt	3.8	1.45	µg/L	0.13	< 0.10	< 0.10	0.13	< 1.0	< 1.0	1.45	0.89	< 0.10	< 0.10	0.27	0.13	0.25	0.25
Copper	87	5.5	µg/L	1.31	1.32	0.48	2.66	5.5	5.5	2.41	1.7	0.69	1.62	1.12	1.62	2.43	1.89
Lead	10	0.607	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	0.607	< 0.050	0.061	< 0.050	< 0.050	< 0.050	< 0.050
Molybdenum	70	6.16	µg/L	0.181	0.169	0.162	0.444	0.5	1.58	1.66	0.6	1.13	1.18	5.11	3.52	5.81	6.16
Nickel	100	5	µg/L	0.84	0.55	< 0.50	0.55	< 5.0	< 5.0	2.16	1.66	< 0.50	< 0.50	0.99	0.98	0.71	0.77
Silver	1.5	< 0.5	µg/L	< 0.050	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050	< 0.050
Thallium	2	< 0.1	µg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.10	< 0.10	< 0.010	< 0.010	< 0.010	< 0.010	0.022	< 0.010	0.021	0.022
Uranium	20	5.18	µg/L	0.048	0.042	0.049	0.31	2.97	5.18	1.42	0.333	0.102	0.103	0.931	0.65	1.18	1.24
Vanadium	6.2	< 5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 5.0	< 5.0	< 0.50	1.13	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
Zinc	1100	< 10	µg/L	2.8	2.7	< 1.0	4.2	< 10	< 10	3.2	5.5	1.8	3.4	1.1	2.2	3	2.5
Metal Hydrides																	
Antimony	6	< 1	µg/L	< 0.10	< 0.10	< 0.10	< 0.10	< 1.0	< 1.0	< 0.10	< 0.10	< 0.10	< 0.10	0.22	0.2	0.21	0.22
Arsenic	25	1.44	µg/L	0.34	0.16	0.58	0.76	1.0	< 1.0	1.44	0.79	0.36	0.43	0.59	1.0	0.41	0.39
Selenium	10	< 0.5	µg/L	0.055	< 0.050	< 0.050	< 0.050	< 0.50	< 0.50	0.076	0.051	< 0.050	< 0.050	0.121	0.054	0.139	0.107
Other Regulated Parameters																	
Sodium	490000	457000	µg/L	59700	47800	42000	175000	418000	457000	60400	52900	17400	19400	21300	26800	13200	14700
Mercury	0.29	0.005	µg/L	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050	< 0.0050
Chromium, Hexavalent	140	0.5	µg/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50

Notes

Value highlighted in red indicate exceedances above the applicable criteria

Values highlighted in yellow indicate the parameter was not detected, but, the Reporting Limit exceeded the applicable standard

ND = Not detected

NV = No value

NA = Not assessed

Table 4
GROUND WATER QUALITY ANALYSIS
ORGANOCHLORINE PESTICIDES
Trails of Collingwood
COLLINGWOOD, ONTARIO

Sample Name ALS Lab ID# Date Screened (mbgs)	MECP Table 2 2011 Criteria Coarse	Maximum	Units	BH1 L2432036-10 26-Mar-20 186.74-183.69	BH2 L2432036-9 26-Mar-20 187.35-184.3	BH3 L2432036-6 26-Mar-20 187.39-184.95	BH4 L2432036-7 26-Mar-20 186.90-185.50	BH5 L2432036-11 26-Mar-20 187.60-186.40	BH6 L2432036-12 26-Mar-20 187.40-186.80	BH7 L2432036-8 26-Mar-20 186.80-185.20	BH8 L2432036-5 26-Mar-20 186.35-184.40	BH9 L2432036-2 26-Mar-20 186.20-183.10	DUP2 L2432036-14 26-Mar-20 186.20-183.10	BH10 L2432036-4 26-Mar-20 185.80-182.80	BH11 L2432036-3 26-Mar-20 185.25-182.20	BH12 L2432036-1 26-Mar-20 185.45-182.40	DUP1 L2432036-13 26-Mar-20 185.45-182.40
Parameter				(BH9)										(BH12)			
Aldrin	0.35	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
gamma-hexachlorocyclohexane	1.2	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
α-chlordane	NV	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
Chlordane (Total)	7	< 0.011	µg/L	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011	< 0.011
γ-chlordane	NV	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
op-DDD	NV	< 0.004	µg/L	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
pp-DDD	NV	< 0.004	µg/L	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
Total DDD	10	< 0.0057	µg/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057
o,p-DDE	NV	< 0.004	µg/L	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
pp-DDE	NV	< 0.004	µg/L	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
Total DDE	10	< 0.0057	µg/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057
op-DDT	NV	< 0.004	µg/L	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
pp-DDT	NV	< 0.005	µg/L	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040	< 0.0040
Total DDT	2.8	< 0.0064	µg/L	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057	< 0.0057
Dieldrin	0.35	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
Endosulfan I	NV	< 0.007	µg/L	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070
Endosulfan II	NV	< 0.007	µg/L	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070	< 0.0070
Endosulfan (Total)	1.5	< 0.0099	µg/L	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099	< 0.0099
Endrin	0.48	< 0.01	µg/L	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010	< 0.010
Heptachlor	1.5	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
Heptachlor Epoxide	0.048	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
Hexachlorobenzene	1	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
Hexachlorobutadiene	0.44	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
Hexachloroethane	2.1	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080
Methoxychlor	6.5	< 0.008	µg/L	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080	< 0.0080

Notes

Value highlighted in red indicate exceedances above the applicable criteria

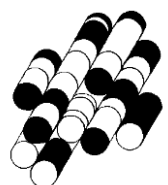
Values highlighted in yellow indicate the parameter was not detected, but the Reporting Limit exceeded the applicable standard

NV = No value

APPENDIX A

Phase One Conceptual Site Model

TERRAPROBE INC.



PHASE ONE CONCEPTUAL SITE MODEL

Trails of Collingwood i High Street and Telfer Road, Collingwood

Phase One CSM		Information Pertaining to Property
Figures of the Phase One Study Area are provided that:		
i.	Show any existing buildings and structures,	There are no existing buildings and structures on the Property, all Property details are shown on Figure 2.
ii.	Identify and locate water bodies located in whole or in part on the Phase One Study Area	Black Ash Creek appears to be approximately 175m west of the Property. Additionally, a manmade storm water management pond is located 20 m east/ southeast of the Property. All water bodies on the Phase One Property and in the Phase One Study Area are shown on Figure 1.
iii.	Identify and locate any Areas of Natural Significance located in whole or in part on the Phase One Study Area	Terraprobe reviewed the Ontario Ministry of Natural Resources and Forestry NHIC database for natural area listings. No Areas of Natural Significance were located in the Phase One Study Area.
iv.	Locate any drinking water wells at the Phase One Property	No drinking water wells were identified on the Property during the site inspection or from well records.
v.	Show roads, including names, within the Phase One Study Area	The Property is bounded to the north, east and south by residential land use, and west by High Street and agricultural or other land use. Other roads and properties within the Study Area are presented on Figure 3.
vi.	Show use of properties adjacent to the Phase One Property	The Land Uses of the adjacent properties are shown on Figure 4.
vii.	Identify and locate area where any potentially contaminating activity has occurred, and show tanks in such areas	Potentially Contaminating Activities (PCAs) located on the Property and within the Study Area are shown on Figure 5.
viii.	Identify and locate any areas of potential environmental concern	One (1) Areas of Potential Environmental Concern (APECs) covers the entire Property and is described on the Table of Areas of Potential Environmental Concern. The location of the APECs on the Phase One Property are shown on Figure 6.
The following is a description and assessment of:		
i.	Any areas where potentially contaminating activity on or potentially affecting the Phase One Property has occurred,	Phase One Property #40 i Pesticides (including Herbicides, Fungicides, and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage and Large-Scale Applications



Phase One CSM	Information Pertaining to Property
ii. Any contaminants of potential concern	Contaminants of Potential Concern (CoPCs) identified the Property include: • Metals in soil and ground water • Hydride Metals in soil and ground water • B-HWS in soil and groundwater • CN in soil and groundwater • Cr(VI) in soil and groundwater • Hg in soil and groundwater • Cl in groundwater • Na in groundwater • EC in soil • SAR in soil • OC Pesticides in soil and groundwater
iii. The potential for underground utilities, if any present, to affect contaminant distribution and transport	There are no known underground utilities that could affect the contaminant distribution and transport if contaminants are present and mobile on the Property.
iv. Available regional or site specific geological and hydrogeological information,	Topography • The approximate elevation of the Property is 190 masl. Hydrogeology • Black Ash Creek is approximately 175m west of the Property. Additionally, a manmade storm water management pond is located 20 m east/ southeast of the Property. Ground water and surface water is expected to flow to the northeast. Geology (overburden) • The overburden material is generally silt and clay with minor sand and gravel. However, the northeastern corner of the Property is generally stone-poor, sandy silt to silty sand. Geology (bedrock) • The bedrock on the site is of the Lindsay formation, which is comprised of limestone. Geology (depth to bedrock) • Based on published geological information in the area, the depth to bedrock depth is approximately 10 m within the vicinity of the Property. Based on MECP Well records in the area, the depth to bedrock is approximately 6.7 m. Previous investigations on the Property identified bedrock ranging from 1.7 to 5.5 mbgs



Phase One CSM	Information Pertaining to Property
v. How any uncertainty or absence of information obtained in each of the components of the Phase One ESA could affect the validity of the model.	No uncertainty was encountered while conducting the Phase One ESA that could affect the validity of the model.

Figures:

Figure 1 i Phase One Property Location

Figure 2 i Phase One Property

Figure 3 i Phase One Study Area

Figure 4 i Adjacent Property Land Uses

Figure 5 i PCA Locations

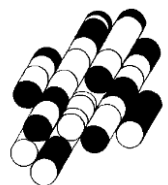
Figure 6 i APEC Locations



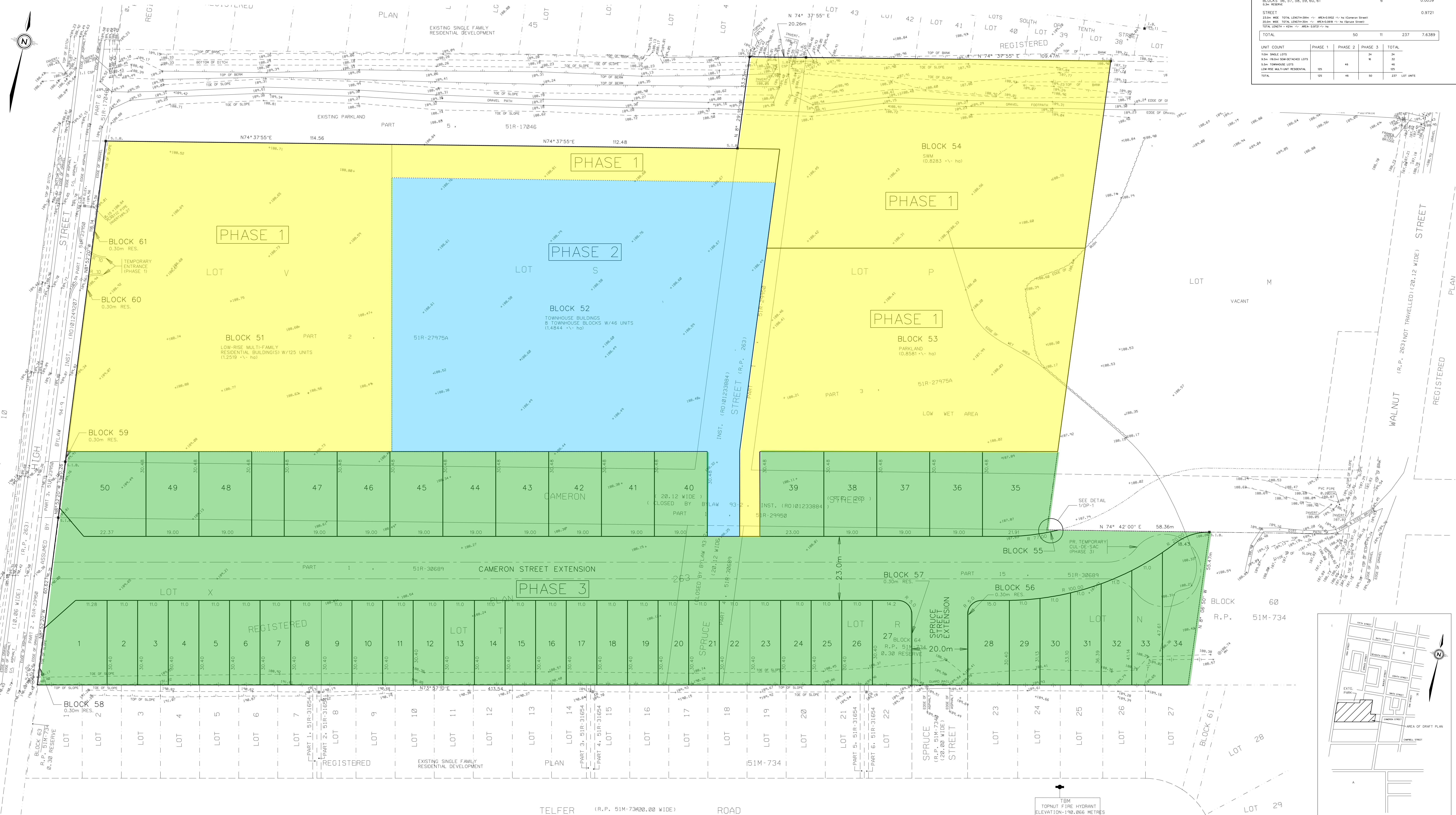
APPENDIX B

Site Survey

TERRAPROBE INC.



DRAFT PLAN OF SUBDIVISION
OF LOT P, AND PART OF LOTS N, R, S, T, V, AND X
AND PART OF CAMERON STREET (CLOSED BY BY-LAW 93-2)
AND PART OF SPRUCE STREET (CLOSED BY BY-LAW 93-2)
REGISTERED PLAN 263
TOWN OF COLLINGWOOD, COUNTY OF SIMCOE



LAND USE SCHEDULE				
TOTAL AREA OF LAND TO BE SUBSIDIZED = 7,638.99 - ha				
LOT TYPES	FULL LOTS	BLUCKS	UNITS	% ha
SINGLE FAMILY SEMI-DETACHED				
SINGLE LOTS 1/4	34	34	12526	
MIN LOT SIZE 10.0m X 30.40m				
SINGLE FAMILY SEMI-DETACHED				
SINGLE 35-50	6	32	0.9854	
MIN LOT SIZE 8.0m X 30.40m				
TOWNHOUSES				
BLOCK 32		1	4.66	1.4844
MIN LOT SIZE 20.5m X 28.80m				
SUBTOTAL	50	1	112	3.7224
BLOCK 51				
CONV. RES. 1/2 ACRE		1	125	1.2519
RESIDENTIAL, BUSINESS				
BLOCK 51	1			0.8581
PARKING				
BLOCK 54		1		0.8283
TENN				
BLOCK 55		1		0.0002
VACANT				
BLOCKS 56, 57, 58, 59, 60, 61		6		0.0059
3-20 RESIDENTIAL				
STREET				
22.0m WIDE TOTAL LENGTH=380.0m -	AREA=3902 - m ² (Conversion STREET)			
22.0m WIDE TOTAL LENGTH=380.0m -	AREA=3902 - m ² (Conversion STREET)			
TOTAL = 4250 - AREA = 8,070.97 - ha (Grand Total)				
TOTAL	50	11	23.7	7.6389
UNIT COUNT	PHASE 1	PHASE 2	PHASE 3	TOTAL
10m- 15m- 20m- 30m- 40m- 50m- 60m- 70m- 80m- 90m- 100m- 110m- 120m- 130m- 140m- 150m- 160m- 170m- 180m- 190m- 200m- 210m- 220m- 230m- 240m- 250m- 260m- 270m- 280m- 290m- 300m- 310m- 320m- 330m- 340m- 350m- 360m- 370m- 380m- 390m- 400m- 410m- 420m- 430m- 440m- 450m- 460m- 470m- 480m- 490m- 500m- 510m- 520m- 530m- 540m- 550m- 560m- 570m- 580m- 590m- 600m- 610m- 620m- 630m- 640m- 650m- 660m- 670m- 680m- 690m- 700m- 710m- 720m- 730m- 740m- 750m- 760m- 770m- 780m- 790m- 800m- 810m- 820m- 830m- 840m- 850m- 860m- 870m- 880m- 890m- 900m- 910m- 920m- 930m- 940m- 950m- 960m- 970m- 980m- 990m- 1000m- 1010m- 1020m- 1030m- 1040m- 1050m- 1060m- 1070m- 1080m- 1090m- 1100m- 1110m- 1120m- 1130m- 1140m- 1150m- 1160m- 1170m- 1180m- 1190m- 1200m- 1210m- 1220m- 1230m- 1240m- 1250m- 1260m- 1270m- 1280m- 1290m- 1300m- 1310m- 1320m- 1330m- 1340m- 1350m- 1360m- 1370m- 1380m- 1390m- 1400m- 1410m- 1420m- 1430m- 1440m- 1450m- 1460m- 1470m- 1480m- 1490m- 1500m- 1510m- 1520m- 1530m- 1540m- 1550m- 1560m- 1570m- 1580m- 1590m- 1600m- 1610m- 1620m- 1630m- 1640m- 1650m- 1660m- 1670m- 1680m- 1690m- 1700m- 1710m- 1720m- 1730m- 1740m- 1750m- 1760m- 1770m- 1780m- 1790m- 1800m- 1810m- 1820m- 1830m- 1840m- 1850m- 1860m- 1870m- 1880m- 1890m- 1900m- 1910m- 1920m- 1930m- 1940m- 1950m- 1960m- 1970m- 1980m- 1990m- 2000m- 2010m- 2020m- 2030m- 2040m- 2050m- 2060m- 2070m- 2080m- 2090m- 2100m- 2110m- 2120m- 2130m- 2140m- 2150m- 2160m- 2170m- 2180m- 2190m- 2200m- 2210m- 2220m- 2230m- 2240m- 2250m- 2260m- 2270m- 2280m- 2290m- 2300m- 2310m- 2320m- 2330m- 2340m- 2350m- 2360m- 2370m- 2380m- 2390m- 2400m- 2410m- 2420m- 2430m- 2440m- 2450m- 2460m- 2470m- 2480m- 2490m- 2500m- 2510m- 2520m- 2530m- 2540m- 2550m- 2560m- 2570m- 2580m- 2590m- 2600m- 2610m- 2620m- 2630m- 2640m- 2650m- 2660m- 2670m- 2680m- 2690m- 2700m- 2710m- 2720m- 2730m- 2740m- 2750m- 2760m- 2770m- 2780m- 2790m- 2800m- 2810m- 2820m- 2830m- 2840m- 2850m- 2860m- 2870m- 2880m- 2890m- 2900m- 2910m- 2920m- 2930m- 2940m- 2950m- 2960m- 2970m- 2980m- 2990m- 3000m- 3010m- 3020m- 3030m- 3040m- 3050m- 3060m- 3070m- 3080m- 3090m- 3100m- 3110m- 3120m- 3130m- 3140m- 3150m- 3160m- 3170m- 3180m- 3190m- 3200m- 3210m- 3220m- 3230m- 3240m- 3250m- 3260m- 3270m- 3280m- 3290m- 3300m- 3310m- 3320m- 3330m- 3340m- 3350m- 3360m- 3370m- 3380m- 3390m- 3400m- 3410m- 3420m- 3430m- 3440m- 3450m- 3460m- 3470m- 3480m- 3490m- 3500m- 3510m- 3520m- 3530m- 3540m- 3550m- 3560m- 3570m- 3580m- 3590m- 3600m- 3610m- 3620m- 3630m- 3640m- 3650m- 3660m- 3670m- 3680m- 3690m- 3700m- 3710m- 3720m- 3730m- 3740m- 3750m- 3760m- 3770m- 3780m- 3790m- 3800m- 3810m- 3820m- 3830m- 3840m- 3850m- 3860m- 3870m- 3880m- 3890m- 3900m- 3910m- 3920m- 3930m- 3940m- 3950m- 3960m- 3970m- 3980m- 3990m- 4000m- 4010m- 4020m- 4030m- 4040m- 4050m- 4060m- 4070m- 4080m- 4090m- 4100m- 4110m- 4120m- 4130m- 4140m- 4150m- 4160m- 4170m- 4180m- 4190m- 4200m- 4210m- 4220m- 4230m- 4240m- 4250m- 4260m- 4270m- 4280m- 4290m- 43				

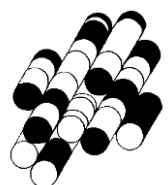
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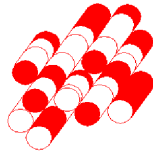
PATH NO.

APPENDIX C

Sampling and Analysis Plan

TERRAPROBE INC.





Terraprobe

Consulting Geotechnical & Environmental Engineering
Construction Materials Inspection & Testing

File No. 1-17-0918-42.1

Brampton Office

**RE: SAMPLING AND ANALYSIS PLAN (SAP)
TRAILS OF COLLINGWOOD – HIGHT STREET AND TELFER ROAD
TORONTO, ONTARIO**

1. INTRODUCTION

This appendix presents the Sampling and Analysis Plan (SAP) that was developed in support of the additional Phase Two Environmental Site Assessment (ESA) for the property located at the northeast corner of High Street and Telfer Road, in Collingwood, Ontario. (hereinafter referred to as the 'Property'). The additional Phase Two ESA is conducted to provide characterization of the Property subsurface conditions, identify the extent of soil and ground water impacts, if any, and to assess remedial options such that, upon completion of remedial actions, if required, a Record of Site Condition (RSC) can be filed on the Ontario Ministry of the Environment, Conservation and Parks (MECP). The SAP presents the procedures and approach to the field investigative activities to characterize the Property site conditions and meet the data quality objectives of the Phase Two ESA.

The SAP presents the sampling program for the Property, the recommended procedures and protocols for sampling and related field activities, the data quality objectives, and the quality assurance/ quality control (QA/QC) measures for the collection of accurate, reproducible and representative data. These components are described in further detail below.

2. QUALITY ASSURANCE AND QUALITY CONTROL PROGRAM

The data quality objectives of the quality assurance/quality control (QA/QC) program is to obtain soil and ground water samples and other field measurements that provide data of acceptable quality that meets the objectives of the Phase Two ESA. The objectives of the QA/QC program are achieved through the implementation of procedures for the collection of unbiased (i.e. non-contaminated) samples, sample documentation and the collection of appropriate QC samples to provide a measure of sample reproducibility and accuracy.

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The field QA/QC program includes the following components:

- Decontamination Protocols;
- Equipment Calibration;
- Sample Preservation;
- Sample Documentation; and,
- Field Quality Control Samples.

Details on the field QA/QC components are provided below.

2.1 Decontamination Protocols

Decontamination protocols are followed during field sampling where non-dedicated sampling equipment is used to prevent sample cross contamination. For the borehole drilling and soil sampling, split soil sampling devices are cleaned and decontaminated between sampling intervals and auger flights between borehole locations in accordance with Standard Operating Procedure (SOP) requirements as indicated in Appendix E. For the monitoring well installation, well components are not to come into contact with the ground surface prior to insertion into boreholes. Electronic water level meters are decontaminated between monitoring well locations during well development and purging activities. All decontamination fluids are collected and stored in sealed, labelled containers.

2.2 Equipment Calibration

All equipment requiring calibration are calibrated in the field according to manufacturer's requirements using analytical grade reagents, or by the supplier prior to conducting field activities, and subsequently checked in the field. The calibration of all pre-calibrated instruments are checked in the field using analytical grade reagents and re-calibrated as required. For multiple day sampling events, equipment calibration is checked prior to the beginning of sampling activities. All calibration data are documented in a bound hard cover notebook.

2.3 Sample Preservation

Laboratory supplied sample containers are used for all sampling conducted on the Property. All samples are preserved using appropriate analytical test group specific reagents, as required and as provided by the laboratory, and upon collection placed in ice-filled insulated coolers for storage and transport.

2.4 Sample Documentation

All samples are assigned a unique identification number, which is recorded along with the date, time, project number, company name, location and requested analysis in a bound field notebook. All samples are handled and transported following Chain of Custody protocols.



2.5 Field Quality Control Samples

Field quality controls samples are collected to evaluate the accuracy and reproducibility of the field sampling procedures. For soil sampling, one (1) field duplicate sample is collected for every ten (10) samples of a specific geologic unit submitted for analysis. For ground water sampling, one (1) field duplicate is collected for every ten (10) samples submitted for chemical analysis. The field duplicate samples are assessed by calculating the relative percent difference (RPD) and comparing to the analytical test group specific acceptance criteria.

3. DATA QUALITY OBJECTIVES

The data quality objectives of the quality assurance/quality control (QA/QC) program are as follows:

- To obtain soil and ground water samples and other field measurements that provide data of acceptable quality that meets the objectives of the Phase Two ESA.
- To collect samples of unbiased (i.e. non-contaminated) samples, document sampling procedures, and to collect appropriate QC samples to provide a measure of sample reproducibility and accuracy.
- To collect field quality control samples at a rate that meets or exceeds those specified in Section 2.5, and to ensure that the results of those QC samples are satisfactory.

The data quality objectives for all types of field data collected during the Phase Two ESA field investigation that set the level of uncertainty in environmental data were set such that:

- Decision-making is not affected; and,
- The general objectives of the investigation are met.

The data quality objectives are met through implementation of the QA/QC program and in the use of the Standard Operating Procedures identified below.

4. STANDARD OPERATION PROCEDURES FOR FIELD INVESTIGATION METHODS

To meet the requirements of the field sampling program, the following field investigative methods are undertaken:

- Borehole Drilling;
- Field Screening Measurements, including Calibration Procedures;
- Monitoring Well Installation;
- Monitoring Well Development;
- Field Measurement of Water Quality Indicators, including Calibration Procedures;
- Residue Management Procedures;



- Ground water Level Measurements;
- Elevation Survey; and,
- Ground water Sampling.

The following procedures are not required for this investigation:

- Excavating; and,
- Sediment Sampling.

The field investigative methods required for this investigation are described in the following sections.

4.1 Borehole Drilling

Boreholes are advanced at the Property to facilitate the collection of soil samples for chemical analysis and geologic characterization; and, for the installation of ground water monitoring wells. Multiple boreholes are required at the Property and would require depths to investigate the surficial fill and native till overburden materials to provide for the collection of samples of the surficial and subsurface materials beneath the Property. Additional boreholes may be drilled for delineation of any soil and ground water impacts identified during the investigation. The borehole locations are selected to assess the soil and ground water quality in the areas of potential environmental concern (APECs) identified at the Property as below:

1. APEC 1 is the result of previous agricultural land use of a historical orchard operating on the Property. The APEC includes the entire Property. Contaminants of Potential Concern (COPCs) are Metals, Hydride-Forming Metals, Other Regulated Parameters (including boron-hot water soluble, mercury, hexavalent chromium, pH, sodium) (ORPs) and Organochloride Pesticides (OCPs).

Prior to borehole drilling, utility clearances are obtained from public and private locators, as required. If any uncertainty regarding the location of a buried utility at a borehole location is encountered or if a borehole location is within 1 m of a buried utility, the borehole is initiated by daylighting or hand augering to a sufficient depth to be clear of any utilities. Boreholes are required to be advanced into the surficial fill and overburden soils by a drilling company under the full-time supervision of Terraprobe staff. An appropriate drill rig equipped with sampling arrangement is utilized to advance the boreholes through the overburden materials.

4.2 Soil Sampling

Soil samples for geologic characterization and chemical analysis are required to be collected on a continuous basis in the overburden materials using 5 cm diameter and 60 cm long tube samplers advanced into the subsurface using a portable direct push drill rig or a truck mounted drill rig equipped with hollow or solid stem augers and split spoon sampler. The soil cores are extruded from the plastic lined inner



tubes/split spoon samplers. Geologic and sampling details of the recovered cores are logged and the samples are assessed for the potential presence of non-aqueous phase liquids.

Samples for chemical analysis are selected on the basis of information from previous investigations, visual, and olfactory evidence of impacts and at specific intervals to define the lateral and vertical extent of known impacts.

Recommended volumes of soil samples selected for chemical analysis are collected into pre-cleaned, laboratory supplied, analytical test group specific containers. The samples are placed into clean insulated coolers chilled with ice for storage and transport. The samples are assigned unique identification numbers, and the date, time, location, and requested analyses for each sample are documented in a bound field note book. The samples are submitted to the contractual laboratory within analytical test group holding times under Chain of Custody (COC) protocols. New disposable chemical resistant gloves are used during the handling and sample collection for each soil core to prevent sample cross-contamination.

4.3 Field Screening Measurements, including Calibration Procedures

A portion of each soil core is placed in a re-sealable plastic bag and allowed to reach ambient temperature prior to field screening with a combustible gas detector or photo-ionization detector (PID) that is calibrated with an appropriate reference gas prior to use. The vapour measurements are made by inserting the instrument's probe into the plastic bag while manipulating the sample to ensure volatilization of the soil gases. These readings provide a real-time indication of the relative concentration of volatile organic vapours encountered in the subsurface during drilling.

4.4 Monitoring Well Installation

Select boreholes are required to be instrumented as ground water monitoring wells installed with 3 m long screens intercepting the ground water table in the overburden within the aquifers of interest. Additional monitoring wells may be installed for delineation of any ground water impacts identified during investigation, or to confirm ground water quality after remediation, if conducted. The monitoring wells are installed in general accordance with the Ontario Water Resources Act- R.R.O. 1990, Regulation 903 – Amended to O. Reg. 128/03 and are installed by a licensed well contractor.

The monitoring wells are constructed using 50 mm diameter, Schedule 40, PVC riser pipe and number 10 slot size (0.25 mm) well screens. The bases of the well screens are sealed with PVC end caps. All well pipe connections are factory machined threaded flush couplings. The pipe components are pre-wrapped in plastic, which are removed prior to insertion in the borehole to minimize the potential for contamination. No lubricants or adhesives are used in the construction of the monitoring well. The annular space around the well screens is backfilled with silica sand to an average height of 0.3 m above the top of the screen. Granular bentonite is placed in the borehole annulus from the top of the sand pack to approximately 0.3 m



below grade. The monitoring wells are completed with a flush mount or stick-up protective steel casing cemented into place.

4.5 Monitoring Well Development

The monitoring wells are developed to remove fine sediment particles potentially lodged in the sand pack and well screen to enhance hydraulic communication with the surrounding formation waters. The monitoring wells will be developed using a Waterra™ sample tubing and surge block SBD-25. Monitoring well development is monitored by visual observations of turbidity, and by taking field measurements of pH, specific conductance and temperature for every standing well (i.e. wetted casing) volume removed. Standing water volumes are determined by means of an electronic water level meter. Approximately three to five (3 to 5) wetted well volumes are removed; and, well development continues until the purged water has chemically stabilized as indicated by visual observations and field parameters measurements.

Well development details are documented on a well development log sheet or in a bound hard cover notebook. All development waters are collected and stored in labelled, sealed containers.

4.6 Field Measurement of Water Quality Indicators, including Calibration Procedures

Water quality parameter measurements are recorded using a multi meter instrument. The instrument probes are calibrated prior to use, following manufacturer's procedures using analytical grade reagents, or if obtained from a field equipment supplier, the calibration checked. Approximately three to five (3 to 5) wetted well volumes are removed; and, well development continues until the purged water has chemically stabilized as indicated by visual observations and field parameters measurements.

Details of field measurement of water quality indicators are documented on a log sheet or in a bound hard cover notebook, indicating the values of the parameters, the volumes of water purged, the date of purging, and additional information. A YSI 63 Hand-held System was used.

4.7 Residue Management Procedures

The residue materials produced during the borehole drilling, soil sampling programs and monitoring well sampling programs comprised of soil cuttings from drilling activities, decontamination fluids from equipment cleaning, and waters from well development and purging are placed in labeled, sealed drums for off-Site disposal, or are disposed of by the licensed well contractor.



4.8 Ground Water Level Measurements

Ground water level measurements are recorded for monitoring wells to determine ground water flow and direction in the overburden aquifers beneath the Property. Water levels are measured with respect to the top of the casing by means of a Solinst interface probe, an electronic water level meter. The water levels are recorded on water level log sheets or in a bound field notebook. The water level meter probe is decontaminated between each monitoring well location.

4.9 Elevation Survey

An elevation survey is conducted to obtain vertical control of the monitoring well locations at the Property. The elevations of the boreholes on the Property will be surveyed using a Trimble R10 survey system. The Trimble R10 is a differential global positioning system (GPS) which involves the cooperation of two receivers, one that's stationary and another that's roving around making position measurements. Elevations measured against a geodetic benchmark are recorded as meters above mean sea level (m asl). The elevation survey is accurate to within ± 1.0 cm in vertical elevation.

4.10 Ground Water Sampling

Ground water samples are collected from monitoring wells for chemical analysis. The monitoring wells are purged first of three to five wetted well volumes of water to remove standing water and draw in fresh formation water. Wells, which are purged dry, are to recover to 75% of static levels before sampling.

Recommended ground water sample volumes are collected into pre-cleaned, laboratory-supplied vials or bottles provided with analytical test group specific preservatives, as required. The samples are placed in an insulated cooler chilled with ice for storage and transport.

All ground water samples are assigned unique identification numbers, and the date, time, project number, company name, location and requested analyses for each sample are documented in a bound hard cover notebook. The samples are submitted to the contractual laboratory within analytical test group holding times under COC protocols. New disposable chemical resistant gloves are used for each sampling location to prevent sample cross-contamination.

5. PHYSICAL IMPEDIMENTS

No physical impediments are expected to be encountered that interfere with or limit the ability to conduct sampling and analysis of the required parameters and media at the Phase Two Property.

6. SAMPLING AND ANALYSIS PLAN RATIONALE AND PROCEDURES

The SAP has identified rationale and procedures for the following items:



- Choice of Sampling System;
- Sampling Media;
- Number of Samples;
- Sampling Frequency;
- Sampling Points;
- Sampling Depth Intervals;
- Other Field Information; and,
- Samples to be Submitted for Laboratory Analysis.

These sampling and analysis plan rationale and procedures are listed in further details in the following sections.

6.1 Choice of Sampling System

A judgemental sampling system has been selected for the purposes of this investigation. Random sampling and grid sampling systems have not been chosen as the primary sampling system in this investigation as APECs have been identified and there is an understanding as to where potential contaminants may be found. Investigation of the APECs is considered sufficient and more effective in locating contaminants within the Property.

6.2 Sampling Media

The soil sampling media consists of the reworked native underneath the surficial materials, and the underlying native silty sand to sandy silt. There are no APECs identified for the sediment at the Property and thus sediment is not included in the soil sampling media.

The ground water samples are collected from the aquifers of interest contained within the native soil. The ground water sampling is location-specific to assess for the potential presence of chemical constituents based on previous observations, or the identification of potential areas of concern.

6.3 Number of Samples

At least one sample is required to be taken for each contaminant of concern in each medium for which that contaminant was identified for each APEC. Where exceedances are found, additional samples may be required to delineate the impact.

6.4 Sampling Frequency

Soil sampling is completed at the Property at 0.6 m (2 ft.) for every 0.76 m (2.5 ft.) drilled for the first 3.0 m (10 ft.), then at 0.6 m (2 ft.) for every 1.52 m (5 ft.) drilled. However, if fill material is present then



soil sampling proceeds at 0.6 m (2 ft.) for every 0.76 m (2.5 ft.) drilled until the samples no longer indicate the presence of fill material or until the depth of the investigation.

Ground water sampling and analysis is completed at the Property for each monitoring well at least once after the development of the well is complete and water quality parameters indicate the formation water is stable.

6.5 Sampling Points

Sampling points do not apply to Metals, Hydride-forming metals, Other Regulated Parameters and OC Pesticides soil sampling as a composite sample is taken over a sampling depth interval. However, for reference, the mid-depth of the interval is used as the sampling point. Further details are indicated in Section 6.6. These details identify the specific locations of potential exceedances and assist in the analysis of migration and source of the contaminant of concern.

Sampling points for ground water samples are identified at the mid-point of the well screen elevation when the low flow sampling rate is equal to or lower than the recharge rate at the monitoring well of interest. However, if the sampling rate exceeds the recharge rate or if the water table is present below the mid-point of the well screen, the sampling point does not apply to ground water sampling. Instead a sampling depth interval is recorded using the top of the water table to the bottom of the well screen in the aquifer of interest. Further details are indicated in Section 6.6.

6.6 Sampling Depth Intervals

Sampling depth intervals for soil sampling are identified as the full split spoon sampler (or equivalent) depth with respect to the geodetic elevation. The sampling depth intervals typically correspond with the sampling frequency as mentioned in Section 6.4.

Sampling depth intervals for ground water sampling when non-low flow sampling is utilized is identified as the top of the well screen to the bottom of the well screen when the water table is above the top of the well screen. In the event the water table is below the top of the well screen, the top of the water table to the bottom of the well screen will be used as the sampling depth interval for ground water sampling.

6.7 Other Field Information

Vertical control of the boreholes and monitoring wells will ultimately be obtained through the completion of an elevation survey with reference to a geodetic benchmark. Ground water flow and direction in the water table aquifer are determined through ground water level measurements and the relative ground water elevations established in the Property elevation survey.



Wells are required with screens within the native soil and glacial till, which are the aquifers of interest. This provides data regarding ground water quality in the aquifers of interest. The water table aquifers are the zones that are expected to be impacted in the APECs identified in the Phase One studies.

6.8 Samples to be Submitted for Laboratory Analysis

The field sampling program was developed to provide for the collection of samples of the surficial and subsurface soil materials and ground water for chemical analysis of one or more of the following parameters: Metals, Hydride Forming Metals, ORPs and OC Pesticides

7. SAMPLING AND ANALYSIS PLAN CRITERIA

The QP considered the PCAs, all COPCs, and appropriate subsets of such contaminants and any other information and matters relating to the environmental condition of the property which are relevant to an informed professional judgment.

Based on the consideration of all matters and items above, the QP determined the sampling and analysis of COPCs and appropriate sampling and analysis for any other relevant contaminants that may be of concern at the Property.

The Phase Two ESA investigations, rationale for sampling locations with respect to APECs is summarised in the following table:

Area of Potential Environmental Concern	Potentially Contaminating Activity	Contaminants of Potential Concern	Media Potentially Impacted (Ground water, soil and/or sediment)	Borehole/ Monitoring Well for Sampling
APEC 1: (On-Site) Entire Phase One Property	#40 – Pesticides (including Herbicides, Fungicides and Anti-Fouling Agents) Manufacturing, Processing, Bulk Storage, and Large-Scale Applications	Metals Hydride Metals B-HWS CN Cr(VI) Hg Cl Na EC SAR OC Pesticides	Soil and ground water Soil and ground water Soil and ground water Soil and ground water Soil and ground water Ground water Ground water Ground Water Soil Soil Soil and ground water	BH1 to BH12

7.1 Plan of Implementation

Borehole	Rationale	APEC	Chemical Analyses	
			Soil	GW
BH1	Monitoring well to determine possible contaminants and ground water flow direction.	<i>APEC 1</i>		2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH2	Monitoring well to determine possible contaminants and ground water flow direction.	<i>APEC 1</i>		2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH3	Monitoring well to determine possible contaminants and ground water flow direction.	<i>APEC 1</i>		2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH4	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction.	<i>APEC 1</i>	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH5	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction.	<i>APEC 1</i>	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH6	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction and elevation.	<i>APEC 1</i>	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH7	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction and elevation.	<i>APEC 1</i>	1 Metals 1 Hydride Forming Metals 1 ORPs 1 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH8	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction and elevation.	<i>APEC 1</i>	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides



Borehole	Rationale	APEC	Chemical Analyses	
			Soil	GW
BH9	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction and elevation.	<i>APEC 1</i>	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH10	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction and elevation.	<i>APEC 1</i>	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH11	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction and elevation.	<i>APEC 1</i>	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides
BH12	Borehole to determine soil stratigraphy. Sample fill and native soil to determine soil quality. Monitoring well to determine possible contaminants and ground water flow direction and elevation.	<i>APEC 1</i>	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides	2 Metals 2 Hydride Forming Metals 2 ORPs 2 OC Pesticides

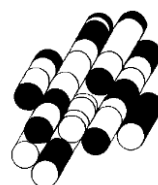
Note that due to the current COVID-19 work restrictions that have been imposed by the provincial government, the continued environmental work (i.e. groundwater sampling and water levels) was temporarily placed on-hold. Terraprobe will now continue conducting the environmental work as the provincial emergency orders have been lifted.



APPENDIX D

Standard Field Investigation Protocol

TERRAPROBE INC.





STANDARD OPERATING PROCEDURE – SOIL SAMPLING

General Procedures

Introduction

Subsurface investigations typically involve sampling of subsurface soils at various depths at locations of interest. Several soil sampling methods can be implemented depending on the nature of the investigations. Field screening of soil samples may be performed when potential contaminants of concern include VOC and PHC F1.

Equipment Required

- Nitrile Gloves
- Field Parameter Measurement Device (Gastech, PID)
- Laboratory Sample Bottles
- Terracores or sampling syringes (sampler)
- Field Notebook and/or Field Sheets
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice and cooler

Procedure

1. Review sampling plan and sampling locations with project manager
2. Determine what equipment and supplies are required.
3. Obtain necessary sampling and monitoring equipment.
4. Coordinate with project manager and clients, as required, for site access.
5. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
6. Identify and mark all sampling locations.
7. Assemble the appropriate laboratory supplied jars/vials.
8. Collect the samples to be analyzed
 - a. Borehole - split spoon, sample from spoon
 - i. Split spoon sampling methods are primarily used to collect shallow and deep subsurface soils.
 - ii. Gravel, concrete, asphalt and etc. present at or near the surface of the sampling location should be removed prior to split spoon sampling.

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- iii. Split spoons used for soil sampling must be constructed with stainless steel and are 2 inches in diameter and 18 to 24 inches in length.
 - iv. The top several inches of the material in the spoon must be discarded before remove any portion of the spoon for sampling.
 - b. Test pit (backhoe), bag from excavator bucket, then sample.
 - i. Usually used in the collection of surface and shallow soil samples. Allow soil samples to be collected from very specific intervals.
 - ii. The bucket must be decontaminated prior to sample collection.
 - iii. Ensure to scrap off any smeared material on the surface of the bucket that may cross-contaminate the sample prior to jarring the soil sample.
 - iv. Make sure to not physically enter backhoe excavations to collect a sample for safety issue.
 - c. Hand-dig (hand augers), sample.
 - i. Hand augers are typically used to advanced boreholes and collect surficial soils and shallow subsurface soils. A 4 inch stainless steel auger buckets with cutting heads are usually used. The bucket is advanced by simultaneously pushing and turning using an attached handle with extension.
 - ii. The top several inches of the soil collected by the auger bucket should be discarded and not be placed in the laboratory supplied container for sample submission.
 - iii. VOC samples need to be collected directly from the auger bucket, if possible.
 - iv. The entire hand auger assembly must be decontaminated before sampling at a new location. This is to minimize cross-contamination of soil samples.
9. Fill the appropriate jars, making sure to label properly; include the date, company name, parameter to be analyzed, and project number.
10. Change Nitrile gloves between samples.
11. Clean off loose soil that may be on the outside of the jar.
12. Place in a cooler with ice.
13. Log samples in field book.
14. Complete a Chain of Custody for all samples.
15. Package samples and complete necessary paperwork.
16. Transport samples (that have been kept cool) to laboratory or transport to office and call for pick up.

References

- *SESD Operating Procedure – Soil Sampling* U.S EPA, December 2011
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011



STANDARD OPERATING PROCEDURE – BOREHOLE DRILLING

Solid and Hollow Stem Augers

Introduction

Soil drilling, using a drill rig or other equipment based on site accessibility is a common way to obtain soil samples on a site. Soil drilling is typically completed with a truck or bombardier-mounted drill rig, or Pionjar (or other portable drilling equipment) depending on the site accessibility. The driller operator will handle all equipment, including opening the split spoon.

Hollow stem augers are typically used when wet or loose cohesionless materials are encountered to permit sampling without removing the augers. Alternatively, solid stem augers are advanced and removed at each sampling depth. Samples and in-situ Standard Penetration Testing (STP) are conducted by driving a standard 2" diameter split spoon (hollow sampling tube) through a process of continuous or intermittent sampling. If monitoring wells are to be installed in the boreholes, hollow stem augers are to be used.

Equipment Required

- Personal Protective Equipment (PPE)
 - Hard hat, safety vest, protective eyewear, steel toed boots
- Nitrile Gloves
- Slider Bags
- Borehole logs & Clipboard
- Portable Soil Vapour Measurement Device (Gastech/PID)
- Laboratory Sample Bottles
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice
- Drums for Soil Storage

Procedure

1. Prior to drilling, boreholes will be numbered and marked and the site cleared for utilities.
2. Downhole equipment is cleaned/decontaminated by the contractor.

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3. All drill cuttings are to be placed in labeled drums or other container and moved to a designated location.
4. Review sampling plan and borehole locations with project manager
5. Determine what equipment and supplies are required.
6. Obtain necessary sampling and monitoring equipment.
7. Coordinate with project manager and clients and drilling crew, as required, for site access.
8. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
9. Perform health and safety meeting, discuss safety around rig and muster points should there be an emergency.
10. The technician will direct the drill crew where to set up the rig to begin drilling.
11. A borehole log must be prepared for every borehole drilled. Include: elevation, GPS coordinates, depth, soil classification, drilling details, sampling, water levels, free product (if any).
12. Record the type of equipment used (solid stem or hollow, type of rig) and the start time when drilling begins.
13. Sampling will be at pre-specified intervals; typically every 2 ½" to 10-15 feet then once every 5 feet from then on. Between samples, split spoons will be cleaned (if an environmental sampling is being conducted).
14. At each sampling interval record; interval number (or sample ID), blow counts, soil description, PPM reading
15. Record depth of borehole, caving (if any) and water level when borehole is complete.
16. Upon completion of drilling in an open borehole that will not be converted to a well the borehole is to be properly filled and abandoned. There are two methods depending on whether the static water level is above or below the bottom of the borehole.
 - a. Above and less than 20 feet deep: Abandon borehole by mixing cement or cement/bentonite grout and pouring the mixture into the borehole until it is filled to ground surface.
 - b. Below and more than 20 feet deep: Mix and pump cement/bentonite mixture to the bottom of the hole until filled to ground surface.

References

- *Standard Operating Procedure No. 6. Drilling, Logging, and Sampling of Subsurface Materials.*
- *Geotechnical Field Investigations, Terraprobe Limited, July 1990.*



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STANDARD OPERATING PROCEDURE – GROUND WATER SAMPLING

Non-Gas Contact Positive Displacement Pump (Bladder Pump)

Introduction

Low flow purging and sampling involves extracting groundwater at rates comparable to ambient groundwater flow (typically less than 500 ml/min), so that the drawdown of the water level is minimized, and the mixing of stagnant water with water from the screened intake area in a well is reduced.

Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken, thus low flow methods facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

Non-gas contact positive displacement pumps cause the least amount of alteration in sample integrity as compared to other sample retrieval methods. Water comes into contact with the inside of the bladder (Teflon) and the sample tubing, also Teflon which may be dedicated to each well.

Equipment Required

- Interface or Water Level Meter
- Bladder Pump (appropriate size for monitoring wells)
- Controller Unit and Batteries
- Required Replacement Bladders
- Required Teflon Tubing
- Required String/Rope
- Nitrile Gloves
- Bucket
- Graduated Cylinder
- Stop Watch
- Field Parameter Measurement Device (Horiba Flow Cell, YSI Meter, Hanna Meter, etc.)
- Laboratory Sample Bottles
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice

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Procedure

1. Review sampling plan and monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Determine what equipment and supplies are required.
4. Obtain necessary sampling and monitoring equipment.
5. Decontaminate or pre-clean equipment, and ensure that it is in working order.
6. Coordinate with project manager and clients, as required, for site access.
7. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
8. Identify and mark all sampling locations.
9. Start sampling at the least contaminated monitoring well.
10. Remove locking well cap, note location time of day, and date in your notebook
11. Remove well casing cap.
12. Lower water level measuring device or equivalent into well until water surface is encountered.
13. Measure distance from water surface to reference measuring point on well casing and in field notebook. Alternatively, if there is no reference point, note that water level measurement is from top of steel casing, top of PVC riser pipe, from ground surface.
14. Measure total depth of well. Repeat at least twice to confirm measurement and record in field notebook
15. Calculate the volume of water in the well and record in field notebook.
16. Select the appropriate purging and sampling equipment.
17. Assemble Teflon tubing, pump and charged control box.
18. Assemble pump, hoses and safety cable, and lower the pump into the well to the. Make sure the pump is deep enough so that purging does not evacuate all the water and that the pump is located at the depth of the well screen NOTE: Running the pump without water may cause damage to the bladder.
19. Attach power supply, and purge well until field parameters (such as temperature, pH, conductivity, etc.) have stabilized. Field parameters are measured either by a flow through cell (HORIBA) or hand held device (YSI). When field parameters are measured record the measurements, the elapsed time, the flow rate and the water level in the monitoring well. Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, lower the pump further into the well, and continue pumping.
 - a. If the calculated purge volume is small, the measurements should be taken frequently to provide a sufficient number of measurements to evaluate stability (every 15 to 30 seconds). If the purge volume is large, measurements taken every 5 to 10 minutes may be sufficient.
 - b. Stabilization occurs when:
 - i. Turbidity (10% for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
 - ii. Dissolved Oxygen (10% for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),
 - iii. Conductivity (3%),

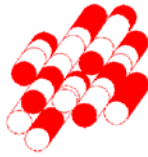


- iv. Temperature (3%),
 - v. pH (± 0.1 unit),
 - vi. Oxidation/Reduction Potential (± 10 millivolts).
- c. If after three well volumes have been removed, the chemical parameters have not stabilized according to the above criteria, additional well volumes should be removed.
 - d. If the field parameters have not stabilized within five volumes, contact the project manager to determine whether or not to collect a sample or to continue purging.
20. Collect and dispose of purge waters as specified in the site-specific sampling plan.
21. Assemble the appropriate laboratory supplied bottles.
22. Turn pump on, increase the cycle time and reduce the pressure to the minimum that will allow the sample to come to the surface and not induce significant drawdown.
23. Collect samples in the laboratory supplied bottle
- a. For non-filtered samples collect directly from the outlet tubing into the sample bottle.
 - b. For filtered samples, connect the pump outlet tubing directly to the filter unit. The pump pressure should remain decreased so that the pressure build-up on the filter does not blow out the pump bladder or displace the filter.
24. Cap the sample bottle tightly and place relabeled sample container in a carrier
25. Replace the well cap.
26. Log all samples in the site logbook and label all samples.
27. Package samples and complete necessary paperwork.
28. Transport sample to staging area for preparation for transport to analytical laboratory.
29. On completion, remove the tubing from the well and either replace the Teflon tubing and bladder with new dedicated tubing and bladder or rigorously decontaminate the existing materials.

NOTE: Purging should be completed immediately prior to sample collection although it is acceptable to purge and then collect samples within 24 hours. During purging, water level measurements may be taken regularly at 15- to 30-second intervals. This data may be used to compute aquifer transmissivity and other hydraulic characteristics.

References

- *Low Stress (low flow) purging and Sampling Procedure for the Collecting of Groundwater Samples From Monitoring Wells*, U.S.EPA, September 2010
- *Field Sampling guidance Document # 1220 – Groundwater Well Sampling*, U.S.EPA, September 2004
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011



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STANDARD OPERATING PROCEDURE – FIELD SCREENING AND CALIBRATION

RKI Eagle Gastech and Mini Rae Photo-Ionization Detector

Introduction

Field screening is an important tool in that it provides data for onsite, real time total vapor measurements, evaluation of existing conditions, sample location optimization, extent of contamination, and health and safety evaluations.

RKI Eagle

Portable Multi-Gas Detector

The gastech can be used for reading headspace values in soil and water (wells). There are two types of ‘Gastechs’ in the Terraprobe office, the RKI Eagle 1 and Eagle 2. These portable gas detectors assist in screening field samples on many projects.

Portable VOC Monitor (Mini Rae 2000)

Portable VOC Monitors or PIDs (photo-ionization detector) monitors VOCs using the photo-ionization detector. If screening is required for VOCs, then this machine can be used. The PIDs are also used for health and safety for workers in enclosed spaces (such as trenches) in a known contaminated area.

Equipment Required

For Calibration

- Canister of gas (Hexane at 400ppm for Eagle 1, Hexane at 1650ppm for Eagle 2, Isobutylene at 100ppm for PID)
- Regulator.
- Tubing to attach probe to canister.

Field Screening

- Eagle or Mini Rae
- Nitrile Gloves
- Slider Bags
- Sampling Plan (from project manager)

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- Access Agreements (if required)
- Field Notebook and/or Field Sheets
- Appropriate Sampling Jars

Procedure (Calibration)

In order to ensure accuracy in the field, Terraprobe calibrates its Gastechs and PIDs each time they will be in the field.

There are three different gas canisters – one for the Eagle 1, the other for the Eagle 2 and a third for the MiniRae. The Eagle 1 is calibrated using the concentration of 400ppm while the Eagle 2 is calibrated with the concentration of 1650ppm. The PID is calibrated with Isobutylene at a concentration of 100ppm. Calibrating each machine is similar in principle but there are differences due to the different models we are using.

Eagle 1:

1. Take the Eagle to a fresh-air location
2. Turn the Eagle on and allow one minute for warm up
3. Hold the AIR button until a tone sounds
4. Press and hold SHIFT/▼ and then press the DISP/ADJ button. This will display the Calibration menu.
5. Select Single Calibration, press Enter
6. Press Enter to select HEX
7. The screen displays the channel selected, and the gas reading will flash
8. Connect the tubing from the regulator to the Eagle's probe.
9. If needed, use the AIR /▲ and SHIFT/▼ buttons to adjust the reading to match the concentration on the cylinder.
10. Press the ENTER button to set the value. Single Calibration will end and the menu will display.
11. Disconnect the tubing from the probe.
12. With the single calibration menu still displayed, use the SHIFT/▼ button until the ESC message displays, then press the ENTER button to return to the Calibration menu.
13. Press the SHIFT/▼ button to place the arrow next to Normal Operation and then press ENTER to return to the normal screen.

Eagle 2:

1. Take the Eagle to a fresh-air environment.
2. Turn the Eagle on and allow one minute for warm up.
3. Press and hold the RANGE/SHIFT button, when press the DISPLAY/ADJUST/NO button and release both buttons.
4. The Calibration Mode Screen displays with the cursor beside Auto Calibration.
5. Set the fresh air reading by: Moving the cursor to the Perform Air Adjust menu item by using the RANGE/SHIFT button. Press and release the POWER/ENTER/RESET button. The screen will say "Perform Air Adjust?" Press the AIR/YES button to continue. The Eagle 2 will indicate it is adjusting the zero reading before it returns to the Calibration Mode Screen.
6. Move the cursor to Single Calibration menu item by using the AIR/YES button.
7. Press and release the POWER/ENTER/RESET button. The "Select Sensor Screen" appears with the cursor flashing.
8. Move the cursor next to the sensor you want to calibrate with the AIR/YES and RANGE/SHIFT buttons.
9. Press and release the power enter reset button to proceed to the Single Calibration Gas Value screen. The calibration gas value is flashing
10. If necessary, adjust the calibration gas value to match the cylinder concentration with the air/yes and range/shift buttons.
11. Press and release the power/enter/reset button to proceed to the single calibration apply gas screen. Cal in Process is flashing.
12. Connect the tubing from the demand flow regulator to the probe. Allow the Eagle 2 to draw gas for one minute.

Mini Rae PID Calibration

1. Bring the Mini Rae to a fresh air environment.
2. Push the MODE and N/- buttons together to access a sub menu.
3. "Fresh Air Cal?" will appear.
4. Press the Y/+ key, the display shows "zero in progress" followed by "wait" and a countdown timer.
5. After about 15 seconds, the display shows the message "zeroed... reading = X.Xppm..." Press any key or wait, the monitor will return to "Fresh Air Calibration?" menu.
6. Connect the tubing to the regulator on the gas cylinder.
7. Press the Y/+ key at the "Span Cal?" to start calibration. The display shows the gas name and the span value of the corresponding gas.
8. The display shows "Apply gas now!" Turn on the valve of the span gas supply.



9. Display shows “wait... 30” with a countdown timer showing the number of remaining seconds while the monitor performs the calibration.
10. When the countdown timer reaches 0, the display gas shows the calibrated value.
11. After a span calibration is completed, the display will show the message “Span Cal Done! Turn Off Gas!”
12. Turn off the flow of gas and disconnect the calibration tubing from the Mini Rae.
13. Press any key to return to the sub menu. Press MENU to return to main menu and being operations.

Procedure (Field Screening)

1. Place soil sample in a slider bag and gently break up the pieces.
2. Using the Eagle, insert the probe into the bag and hold it above the soil. Do NOT put the probe in the soil. Wait 30 seconds for the probe to read the soil vapour.
3. Record the value and remove the probe from the slider bag.
4. PIDs can be used the same way HOWEVER, it must be noted that if sampling for VOCs, the sample must be preserved within 10-12 seconds of sampling. This means that any sample that is potentially going to be jarred must have a methanol vial stored immediately.
5. Using the probes to measure headspace readings in a well follows the same basic principles. Open the j-plug or slip cap and quickly insert the probe into the top of the well taking extreme caution not to allow the probe to touch any water, and cover the top of the well with your hand.
6. Wait 30 seconds for the probe to establish a reading.
7. Remove the probe and record the value.

References

- *US EPA Field Sampling Guidance Document #1210 “Soil Sampling for Volatile Compounds”*
- *MiniRae 2000 Portable VOC Monitor Operation and Maintenance Manual, Rev. C*
- *US EPA Field Screening Methods Catalog User’s Guide*
- *Instruction Manual Eagle Series Portable Multi Gas Detector. Rev.H.*
- *RKI Eagle 2 Operator’s Manual. Rev. Q.*



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STANDARD OPERATING PROCEDURE – FIELD MEASUREMENT OF WATER QUALITY INDICATORS

YSI 63 Hand-held System

Introduction

Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken. The YSI 63 Hand-held system can be used with all ground water sampling methods (manual or low-flow).

YSI 63's micro-processor allows the system to be easily calibrated with the press of a few keys. Additionally, the micro-processor performs a self-diagnostic routine each time the instrument is turned on. The self-diagnostic routine provides useful information about the function of the instrument and probe.

Equipment Required

- Interface or Water Level Meter
- Water pump or bailer
- Nitrile Gloves
- Bucket and/or Graduated Cylinder
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)

Procedure

1. Review sampling plan and monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Determine what equipment and supplies are required.
4. Obtain necessary sampling and monitoring equipment.
5. Decontaminate or pre-clean equipment, and ensure that it is in working order.
6. Calibrate pH and Conductivity on the YSI 63 Hand-held System as follow:
 - a. Prior to Calibration
 - i. Ensure all sensors are immersed in calibration solutions. The top vent hole of the conductivity sensor must be immersed.

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- ii. Fill a bucket with ambient temperature water to rinse the probe module between calibration solutions. Prepare clean, absorbent paper towels or cotton cloth available to dry probe module between rinses. This reduces carry-over contamination and increase accuracy of the calibration.
 - b. pH Calibration (pH calibration on YSI 63 MUST be performed before taking pH measurements)
 - i. Accessing the calibration screen from the main menu by pressing up arrow and down arrow at the same time.
 - ii. Calibration may be performed at 1, 2 or 3-points (at pH 7, 4 and 10, or at pH 6.86, 4.01 and 9.18). Perform a 1-point calibration (at pH 7 or at pH 6.86) **ONLY** if a previous 2 or 3-point calibration has been performed recently. In most cases, a 2-point pH calibration will be sufficient for accurate pH measurements, but if the general range of pH in the sample is not known, a 3-point calibration may be necessary. Enter the calibration standard of choice.
 - iii. First calibration must be either pH 7 or pH 6.86.
 - iv. Place 30 to 35 mL of the pH buffer you have chosen to calibrate the system with (pH 7 or 6.86) in the 100 mL graduated cylinder. The graduated cylinder minimizes the amount of solution needed.
 - v. Exit the calibrate menu and rinse the probe module and sensors in tap or purified water and dry. Repeat step ii to iv for 2- and 3-point buffers using the corresponding pH buffer solutions.
 - c. Conductivity Calibration (system calibration is rarely required because of the factory calibration of YSI 63)
 - i. Accessing the calibration screen from the main menu.
 - ii. It is recommended that the conductivity standard chosen should be within the same conductivity range as the samples to be measured (fresh water = 1 mS/cm; brackish water = 10 mS/cm; seawater = 50 mS/cm).
 - iii. Carefully immerse the sensor end of probe module into the solution. Do not use 100 mL graduated cylinder because the diameter of the cylinder is too small for accurate conductivity measurements.
 - iv. Move the probe vigorously from side to side to dislodge any air bubbles from the electrodes.
 - v. Be sure to enter the value in mS/cm at 25°C and allow at least one minute for temperature equilibration before proceeding.
 - vi. It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.
 - vii. Press the up arrow and down arrow and the same time to record calibration and rinse the probe module and sensors in tap or purified water and dry.
7. Coordinate with project manager and clients, as required, for site access.
8. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
9. Identify and mark all sampling locations.
10. Start sampling at the least contaminated monitoring well.
11. Remove locking well cap, note location time of day, and date in your notebook



12. Remove well casing cap.
13. Lower water level measuring device or equivalent into well until water surface is encountered.
14. Measure distance from water surface to reference measuring point on well casing and in field notebook. Alternatively, if there is no reference point, note that water level measurement is from top of steel casing, top of PVC riser pipe, from ground surface.
15. Measure total depth of well. Repeat at least twice to confirm measurement and record in field notebook.
16. Calculate the volume of water in the well and record in field notebook.
17. Select the appropriate purging and sampling equipment.
18. Lower the pump into the well. Make sure the pump is deep enough so that purging does not evacuate all the water and that the pump is located at the depth of the well screen
19. Attach power supply, and purge well until field parameters (such as temperature, pH, conductivity, etc.) have stabilized. Field parameters are measured by placing the YSI 63 Hand-held system in a measuring container (bucket or 100 ml cylinder). When field parameters are measured record the measurements, the elapsed time, the flow rate and the water level in the monitoring well. Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, lower the pump further into the well, and continue pumping.
 - a. If the calculated purge volume is small, the measurements should be taken frequently to provide a sufficient number of measurements to evaluate stability (every $\frac{1}{4}$ casing volume). If the purge volume is large, measurements taken every $\frac{1}{2}$ to 1 casing volume may be sufficient.
 - b. Stabilization occurs when:
 - i. Conductivity ($\pm 3\%$),
 - ii. Temperature ($\pm 3\%$),
 - iii. pH (± 0.1 unit),
 - iv. Salinity (determined automatically from conductivity and temperature readings).
 - c. If after three well volumes have been removed, the chemical parameters have not stabilized according to the above criteria, additional well volumes should be removed.
 - d. If the field parameters have not stabilized within five volumes, contact the project manager to determine whether or not to collect a sample or to continue purging.
20. Collect and dispose of purge waters as specified in the site-specific sampling plan.

References

- *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*, U.S.EPA, April 1996
- *Field Sampling guidance Document # 1220 – Groundwater Well Sampling*, U.S.EPA, September 2004
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011
- *YSI 63 MPS Operations Manual*, YSI Environmental, January 2007



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STANDARD OPERATING PROCEDURE – FIELD MEASUREMENT OF WATER QUALITY INDICATORS

YSI 556 Flow-through System

Introduction

Stabilization of parameters (pH, D.O., conductivity, temperature, etc.) and turbidity of the purged water are monitored before a sample is taken. It is recommended to use the YSI 556 Flow-through system with low flow sampling methods in order to facilitate equilibrium with the surrounding formation water and produces samples that are representative of the formation water.

YSI 556 Flow-through system can simultaneously measure water quality parameters while utilizing a flow cell to give continuous data.

Equipment Required

- Interface or Water Level Meter
- Water pump (Bladder Pump or Peristaltic Pump)
- Controller Unit and Batteries
- Required Replacement Bladders (if Bladder Pump is used)
- Required Teflon Tubing
- Required String/Rope (if Bladder Pump is used)
- Nitrile Gloves
- Bucket
- Graduated Cylinder
- Stop Watch
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Sampling Plan (from project manager)
- Access Agreements (if required)

Procedure

1. Review sampling plan and monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Determine what equipment and supplies are required.
4. Obtain necessary sampling and monitoring equipment.

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5. Decontaminate or pre-clean equipment, and ensure that it is in working order.
6. Calibrate all the sensors (with the exception of temperature) on the YSI 556 Flow-through System as follow:
 - a. Prior to Calibration
 - i. The transport/calibration cup comes with the probe module serves as a calibration chamber; however, laboratory glassware may be used.
 - ii. Ensure all sensors are immersed in calibration solutions. The top vent hole of the conductivity sensor must be immersed.
 - iii. Fill a bucket with ambient temperature water to rinse the probe module between calibration solutions. Prepare clean, absorbent paper towels or cotton cloth available to dry probe module between rinse and calibration solutions. This reduces carry-over contamination and increase accuracy of the calibration.
 - b. Conductivity Calibration
 - i. Accessing the calibration screen from the main menu.
 - ii. Choose conductivity calibration, then *specific conductance*. The recommended calibration solution volume is 55 ml for both upright and upside down orientation.
 - iii. It is recommended that the conductivity standard chosen should be within the same conductivity range as the samples to be measured (fresh water = 1 mS/cm; brackish water = 10 mS/cm; seawater = 50 mS/cm).
 - iv. Carefully immerse the sensor end of probe module into the solution and rotate or move up and down to remove any bubbles from the conductivity cell.
 - v. Secured transport/calibration cup on the threaded end of the probe module and prevent over tighten.
 - vi. Enter the calibration standard of choice. Be sure to enter the value in mS/cm at 25°C and allow at least one minute for temperature equilibration before proceeding.
 - vii. Observe reading under *specific conductance*. It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.
 - viii. Escape the calibrate menu and rinse the probe module and sensors in tap or purified water and dry.
 - c. Dissolved Oxygen Calibration
 - i. Accessing the calibration screen from the main menu and choose DO calibration.
 - ii. Calibrate either % or mg/L automatically calibrates the other.
 - iii. **For %:** Place 3mm (1/8 inch) of water in the bottom of the transport/calibration cup and place the probe module in the transport/calibration cup (ensure DO and temperature sensors are not immersed in the water).
 - iv. Engaged only 1 or 2 threads of the transport/calibration cup to ensure the DO sensor is vented to the atmosphere. Enter the current local barometric pressure (no entry is required if *optional barometer* unit is present).
 - v. Allow approximately ten minutes for the air in the calibration cup to become water saturated and for the temperature to equilibrate before proceeding. Start calibrating.

- vi. **For mg/L:** Place the probe module in water with a known DO concentration (immerse all the sensors). Proceed to enter the known DO concentration of the water.
- vii. Stir the water with a stir bar or rapidly move the probe module to provide fresh sample to the DO sensor. Allow at least one minute for temperature equilibration before proceeding.
- viii. **For % and mg/L:** It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.
- ix. Escape the calibrate menu and rinse the probe module and sensors in tap or purified water and dry.

d. pH Calibration

- i. Accessing the calibration screen from the main menu
- ii. Choose **1-point** if you are adjusting previous calibration; **2-point** if the media being monitor is known to be either basic or acidic (use two calibration standards); **3-point** assures maximum accuracy when the pH of the media cannot be anticipated. Always calibrate with buffer 7 first regardless of calibration options.
- iii. Recommended calibration solution volume is 30 ml for upright orientation and 60 ml for upside down orientation.
- iv. Immerse the sensor end of the probe module into the solution and gently rotate the probe to remove any bubbles from the pH sensor. Secure the calibration cup to the probe module.
- v. Enter the calibration value of the buffer for current temperature. Allow at least one minute for temperature equilibration before proceeding.
- vi. It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.
- vii. Escape the calibrate menu and rinse the probe module and sensors in tap or purified water and dry.
- viii. Repeat step d-iii to d-vii using a second pH buffer (for 2-point/3-point options)

e. ORP Calibration

- i. Accessing the calibration screen from the main menu and choose ORP calibration.
- ii. Placed either 30 ml (upright) or 60 ml (upside down) of known ORP solution into a calibration cup.
- iii. Rotate probe module up and down to remove any bubbles from the OPR sensor.
- iv. Secured transport/calibration cup on the threaded end of the probe module and prevent over tighten.
- v. Enter correct calibration solution value at the current temperature as shown below:

Temperature °C	Zobell Solution Value, mV
-5	270.0
0	263.5
5	257.0



Temperature °C	Zobell Solution Value, mV
10	250.5
15	244.0
20	237.5
25	231.0
30	224.5
35	218.0
40	211.5
45	205.0

- vi. Allow at least one minute for temperature equilibration before proceeding. It is stabilized when it shows no significant change for approximately 30 seconds. You can then press enter to record the calibration.
 - vii. Escape the calibrate menu and rinse the probe module and sensors in tap or purified water and dry.
- 7. Coordinate with project manager and clients, as required, for site access.
 - 8. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
 - 9. Identify and mark all sampling locations.
 - 10. Start sampling at the least contaminated monitoring well.
 - 11. Remove locking well cap, note location time of day, and date in your notebook
 - 12. Remove well casing cap.
 - 13. Lower water level measuring device or equivalent into well until water surface is encountered.
 - 14. Measure distance from water surface to reference measuring point on well casing and in field notebook. Alternatively, if there is no reference point, note that water level measurement is from top of steel casing, top of PVC riser pipe, from ground surface.
 - 15. Measure total depth of well. Repeat at least twice to confirm measurement and record in field notebook
 - 16. Calculate the volume of water in the well and record in field notebook.
 - 17. Select the appropriate purging and sampling equipment.
 - 18. Lower the pump into the well to the. Make sure the pump is deep enough so that purging does not evacuate all the water and that the pump is located at the depth of the well screen
 - 19. Purge well until field parameters (such as temperature, pH, conductivity, etc.) have stabilized. Field parameters are measured by attaching the YSI 556 multi probe system to a flow through cell. When field parameters are measured record the measurements, the elapsed time, the flow rate and the water level in the monitoring well. Do not allow the pump to run dry. If the pumping rate exceeds the well recharge rate, lower the pump further into the well, and continue pumping.
 - a. If the calculated purge volume is small, the measurements should be taken frequently to provide a sufficient number of measurements to evaluate stability (every 15 to 30 seconds). If the purge volume is large, measurements taken every 5 to 10 minutes may be sufficient.
 - b. Stabilization occurs when:



- i. Turbidity ($\pm 10\%$ for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
 - ii. Dissolved Oxygen ($\pm 10\%$ for values greater than 0.5 mg/L, if three Dissolved Oxygen values are less than 0.5 mg/L, consider the values as stabilized),
 - iii. Conductivity ($\pm 3\%$),
 - iv. Temperature ($\pm 3\%$),
 - v. pH (± 0.1 unit),
 - vi. Oxidation/Reduction Potential (± 10 millivolts).
- c. If after three well volumes have been removed, the chemical parameters have not stabilized according to the above criteria, additional well volumes should be removed.
 - d. If the field parameters have not stabilized within five volumes, contact the project manager to determine whether or not to collect a sample or to continue purging.
20. Collect and dispose of purge waters as specified in the site-specific sampling plan.

References

- *Low-Flow (Minimal Drawdown) Ground-Water Sampling Procedures*, U.S.EPA, April 1996
- *Low-Flow Sampling of Water Quality Parameters Used in Determining Groundwater Stability*, YSI Environmental, 2005
- *Field Sampling guidance Document # 1220 – Groundwater Well Sampling*, U.S.EPA, September 2004
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011
- *YSI 556 MPS Operations Manual*, YSI Environmental, August 2009



STANDARD OPERATING PROCEDURE – WELL INSTALLATION

Introduction

All wells are to be constructed with flush-thread joints and factory-slotted screen. Terraprobe monitoring wells are 2-inch (50 mm) inside diameter PVC unless otherwise stipulated or required by site specific standards or sampling requirements. Other possible well diameters and materials include:

- 1-inch (25 mm) PVC,
- 1.5 –inch (37 mm) PVC,
- 4-inch (100mm) steel,
- 6 inch (150 mm) steel,
- 10 inch (255 mm) steel and;
- 3 foot (915 mm) concrete.

Water washed silica sand is used for the filter pack, bentonite is used to create a seal above the screen to just below the surface and sand is added to ground level. Well casings are installed using cement to secure them.

Notes:

- Monitoring wells are to be installed by a licenced well driller only.
- The installation procedures outlined in this document are for reference only to insure familiarization with the process.
- The installation procedures outlined in this document are for the installation of a typical 2-inch PVC monitoring well.
- Maximum length of well screen allowed under O.Reg. 153/04 is 3 m (10 feet)
- A MOE Well Record is required under O.Reg. 903 if:
 - o The monitoring well is greater than 3 m (10 feet) and/or
 - o The monitoring well will be in place longer than 30 days
- Well Records can be either for a single well or a group of wells (cluster).
- A well cluster record can be written only if all the wells are within the same property, or adjacent properties owned by the same owner.

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Equipment Required

- Interface or Water Level Meter
- Field Notebook and/or Field Sheets
- Well Keys/Locks or Tools Required
- PVC Pipe (risers/casing)
- PVC Screen
- J-Plugs
- Flush Mount Casing or Above Grade Casing
- Bentonite
- Silica Sand
- Sampling Plan (from project manager)
- Access Agreements (if required)

Procedure

1. After borehole completion, measure total depth before riser casing and screen are installed and before the augers are removed. This confirms drilling depths are accurate.
2. Decontaminate screen and casing (typically done off-site by water well driller), check that casing sections are straight and not cracked or damaged.
3. Verify and record diameter and lengths of casings and screen.
4. The casing/screen will be installed by:
 - a. Placing an end cap on the screen section
 - b. Attaching a section of riser to the screen and lowering into the borehole
 - c. Additional sections of riser will be added and lowered into the borehole until the desired screened interval is reached
5. Record the length of screen and riser pipe used for the monitoring well.
6. Verify and record that the proper filter (sand) pack has been selected.
7. The sand is poured into the space around the screen. Ensure it fills the hole to at least two feet above the screen.
 - a. In hollow stem auger wells, the sand pack must be poured down the hollow stem of the augers. Augers are then pulled out of the borehole in 2-1/2 to 5 feet increments, sand is poured and level measured with a weighted tape.
8. Use a weighted tape and take continuous measurements while the sand is being poured to ensure proper installation. Pack the sand down to verify.
9. Record how much sand is used.
10. A bentonite seal is placed directly above the sand pack, minimum two feet thick, and should extend into the next soil strata.
11. Record how much bentonite is used.
12. A grout seal is then placed above the bentonite and can be a mixture of cement, bentonite, sand and water.

13. Surface completion is to be completed one of two ways.
 - a. Above grade: Locking well cover sticking above grade, secured by lock and key.
 - b. At grade: Flush mount casing, lock with ratchet bolts or allen key.
14. Each casing is installed over the PVC pipe and cemented into place.
15. Record GPS coordinates and measure stick up (if above grade).
16. Confirm that a well record will be completed for the monitoring well. Confirm the information to be submitted on the well record or the cluster of wells.
17. Survey the completed monitoring well to a geodetic or recoverable benchmark

References

- *Geotechnical Field Investigations, Terraprobe Ltd, July 26, 1990*
- *Ontario Water Resources Act R.R.O. 1990 Regulation 903 Wells*
- *Environmental Protection Act Ontario Regulation 153/04*



STANDARD OPERATING PROCEDURE – SOIL SAMPLING

VOC

Introduction

To properly screen for VOC and PHC F1 that may be present in the soil, it is necessary to preserve ALL samples. Upon retrieval of soil samples from borehole and test pit investigations, soil should be placed in methanol vials as quickly as possible (within 10 to 15 seconds after retrieval). Temporary storage of soil in split spoons, jars or ziplock bags is not permitted.

Field screening may still be used to decide which samples will be submitted for analysis but all potential samples must be immediately chemically preserved. Once the VOC or PHC F1 sample has been collected the remaining portion of the sample can be placed into plastic bags and sealed tightly with a nominal head space. Upon completion of each borehole, gas tech or PID readings can be taken of each sample collected to determine which sample(s) will be submitted for chemical analysis.

In addition to samples collected in methanol vials, a separate container must be collected to determine moisture content. The same jars that are used to collect other soil samples are appropriate containers (60ml or 120ml).

Equipment Required

- Nitrile Gloves
- Field Parameter Measurement Device (Gastech, PID)
- Laboratory Sample Bottles
- Terracores or sampling syringes (sampler)
- Field Notebook and/or Field Sheets
- Sampling Plan (from project manager)
- Access Agreements (if required)
- Ice

Procedure

1. Review sampling plan and sampling locations with project manager
2. Determine what equipment and supplies are required.

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3. Obtain necessary sampling and monitoring equipment.
4. Coordinate with project manager and clients, as required, for site access.
5. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
6. Identify and mark all sampling locations.
7. Assemble the appropriate laboratory supplied bottles.
8. Collect the sample to be analyzed
 - a. Borehole - split spoon, sample from spoon
 - b. Test pit, collect sample in bag from excavator bucket, then sample immediately
9. Push the sampler into the soil to retrieve the sample.
10. Remove the sampler from the soil.
11. Clean off loose soil that may be on the outside of the sampler and remove extra soil if applicable.
12. Place the mouth of the sampler into the 40ml methanol vial.
13. Ensure vial is at an angle to reduce the chance of splashing chemical.
14. Collect samples in the laboratory supplied bottle
15. Log all samples in the site logbook and label all samples.
16. Package samples and complete necessary paperwork.
17. Transport sample to staging area for preparation for transport to analytical laboratory.

References

- *Field Sampling guidance Document # 1210 – Soil Sampling for Volatile Compounds*, U.S.EPA,
- *Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act*, Ontario Ministry of the Environment, July 2011



STANDARD OPERATING PROCEDURE – WELL DEVELOPMENT

Introduction

Monitoring well development is necessary to ensure that complete hydraulic connection is made and maintained between the well and the aquifer material surrounding the well screen and filter pack. It also serves to restore the groundwater properties disturbed during drilling.

Most common techniques at Terraprobe include ‘surging’, and bailing, often used together. Other development methods that may be used include jetting, airlift, and submersible pump methods. Jetting is typically not used as a development method for environmental investigations, but is commonly used for water resource monitoring wells or drinking water wells. Generally a phased process is used to develop wells, starting with a gentle bailing phase to remove sand, followed by a surging phase, and finally a pumping phase after the well begins to clear up.

After a well is first installed, and in fact, often before the bentonite pellet seal is set, gentle bailing is used to remove water and sand from the well. Bailing can be accomplished through the use of dedicated bailers or Waterra inertia pumps. The purpose of this technique is used to settle the sand pack. After further well sealant materials have been added and allowed to set for approximately 48 hours, bailing is resumed as part of well development. The purpose of bailing is to remove any fine material that may have accumulated in the well, and start pulling in natural material into the sand pack. Bailing is often conducted until the sand content in the removed water begins to decrease.

After the sand content begins to decrease, surging is conducted. A surge block is used to move sediments from the filter pack into the well casing. All surge blocks will be constructed of materials that will not introduce contamination into the well. Surge blocks should have some manner of allowing pressure release to prevent casing collapse. Terraprobe uses Waterra surge blocks which fit onto Waterra inertia pumps. The surge block is moved up and down the well screen interval and then removed, followed by a return to bailing to remove any sand brought into the well by the surging action. Care should be taken to not surge too strongly with subsequent casing deformation or collapse; the well screen interval is often the weakest part of a well. Surging should be followed by additional bailing to remove fine materials that may have entered the well during the surging effort.

After surging has been completed and the sand content of the bailed water has decreased, a submersible pump or inertia pump is used to continue well development. The pump should be moved up and

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down the well screen interval until the obtained water is relatively clear. Well development will continue until the water in the well clarifies and monitoring parameters such as pH, specific conductivity, and temperature stabilize as defined in the project-specific planning documents. It should be noted that where very fine-grained formations are present at the screened interval, continued well development until clear water is obtained might be impossible. Decisions regarding when to cease development where very fine-grained conditions exist should be made between the field supervisor and project manager.

During well development pH, specific conductivity, temperature, and turbidity should be monitored frequently to establish natural conditions and evaluate whether the well has been completely developed. The main criterion for well development is clear water (Nephelometric turbidity units or NTU of less than 5). As mentioned above, clear water can often be impossible to obtain with environmental monitoring wells. A further criterion for completed well development is that the other water quality parameters mentioned above stabilize to within 10 percent between readings over one well volume. The minimum volume of water purged from the well during development will be approximately a minimum of 3 borehole volumes (wells will typically not reach stabilization of water quality parameters before this condition is achieved and may not have reached stability even after this threshold has been achieved).

Equipment Required

- Interface or Water Level Meter
- Nitrile Gloves
- Water Quality Meter (EC, pH, Temperature)
- Bucket
- Field Notebook and/or Field Sheets
- Well Keys or Tools Required
- Waterra
- Waterra cutters (avoid using knives)
- Surge Blocks (if required)
- Foot valves
- Storage for contaminated (or suspected contaminated) water.
- Access Agreements (if required)

Procedure

1. Review monitoring well locations with project manager
2. Review borehole logs and determine monitoring well depths and well screen locations.
3. Obtain Waterra tubing, foot valves and surge blocks.
4. Coordinate with project manager and clients, as required, for site access.
5. Perform a general site survey in accordance with any applicable site-specific health and safety plans.
6. Identify and mark all monitoring wells.

7. Open the monitoring well and take initial readings (ie; head space air monitor readings, water level, well depth) and record in the field notebook.
8. Organize equipment.
9. Bailing the monitoring well:
 - a. Calculate casing volume to determine the ideal amount to be purged (three casing volumes).
 - b. Attach foot valve to that end of Waterra
 - c. Slowly lower Waterra down the well. Once it hits the bottom, leave some extra Waterra above the top of the well to easily handle pumping and cut the Waterra.
 - d. Slowly remove three casing volumes from the monitoring well.
 - e. Dispose of purged water in barrels if known or suspected contaminants are of concern, or however the project manager instructs.
10. Surging the monitoring well
 - a. Slip surge block onto the end of the Waterra and reattach the foot valve, securing the surge block
 - b. Place surge block and Waterra back into the monitoring well
 - c. Raise and lower the surge block along the screen. (Should be able to feel location of the well screen)
 - d. Continue surging for 5-10 minutes.
11. Final purge of the monitoring well
 - a. Remove surge block from Waterra
 - b. Lower the Waterra back down the well. Begin pumping water out of the well, taking care to note water quality and appearance (smell, clarity, etc.).
 - c. Continue to purge the monitoring well until the following water quality parameters have stabilized:
 - i. Turbidity ($\pm 10\%$ for values greater than 5 NTU; if three Turbidity values are less than 5 NTU, consider the values as stabilized),
 - ii. Conductivity ($\pm 3\%$),
 - iii. Temperature ($\pm 3\%$),
 - iv. pH (± 0.1 unit),
 - d. Dispose of purged water in barrels if known or suspected contaminants are of concern, or however the project manager instructs.
12. Record final measurements in field book, record date, water level before and after development, quantity of water removed, equipment used and techniques (surge and purge, or purge only).

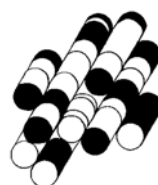
References

- *ASTM Standard Practice and Installation of Ground Water Monitoring Wells in Aquifers*
- *EPA SOP#2044 Well Development March 10, 199*

APPENDIX E

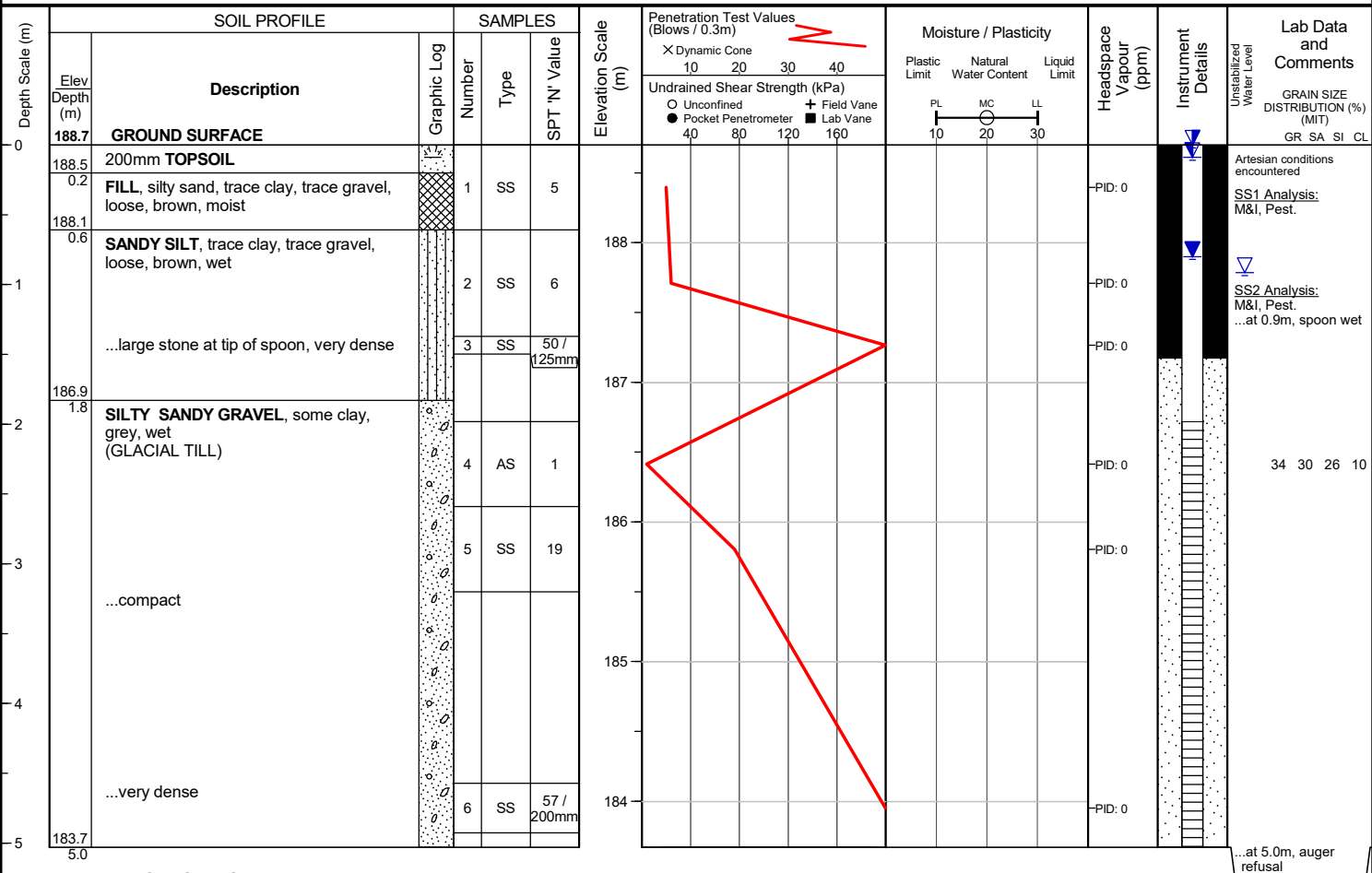
Borehole Logs

TERRAPROBE INC.



Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : MC
 Date started : January 29, 2018 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561310, N: 4926133 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method :

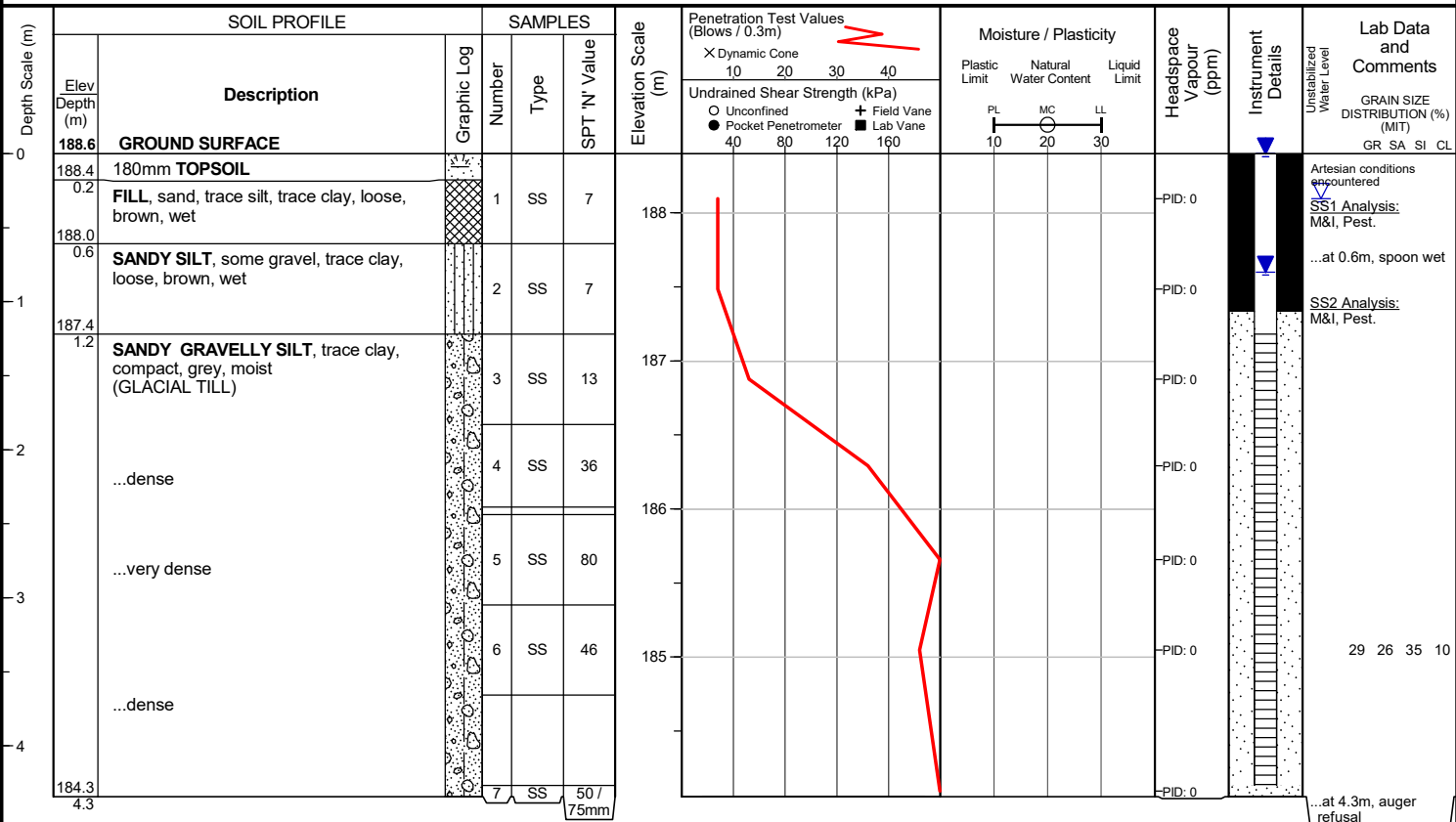


Unstabilized water level measured at 0.9 m below ground surface; borehole was open upon completion of drilling.
 50 mm dia. monitoring well installed.

WATER LEVEL READINGS		
Date	Water Depth (m)	Elevation (m)
Feb 13, 2018	0.1	188.6
Feb 28, 2018	-0.1 (ag)*	n/a
Mar 24, 2020	0.8	187.9

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : MC
 Date started : January 29, 2018 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561356, N: 4926123 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method :



END OF BOREHOLE
Auger refusal

Unstabilized water level measured at 0.3 m below ground surface; borehole was open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Feb 13, 2018	0.0 (ag)*	n/a
Feb 28, 2018	-0.1 (ag)*	n/a
Mar 24, 2020	0.8	187.8

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : MC
 Date started : January 29, 2018 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AS
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561382, N: 4926186 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Track-mounted Drilling Method :

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value			Plastic Limit	Natural Water Content	Liquid Limit			
0	188.6	GROUND SURFACE												
0.2	188.4	200mm TOPSOIL												
0.6	188.0	FILL, silty sand, trace gravel, trace organics, trace clay, loose, brown, moist		1	SS	5	188					PID: 0		Artesian conditions encountered
1	188.0	SANDY SILT, some gravel, trace clay, loose, grey, wet		2	SS	9						PID: 0		SS1 Analysis: M&I, Pest.
				3	SS	3	187					PID: 0		...at 0.6m, spoon wet
2	186.8	SANDY GRAVELLY SILT, trace clay, compact, grey, wet		4	SS	1						PID: 0		SS2 Analysis: M&I, Pest.
2.4	186.2	SILTY SANDY GRAVEL, trace clay, grey, wet (GLACIAL TILL) ...compact		5	SS	18	186					PID: 0		10 22 56 12
3				6	SS	32						PID: 0		
		...dense					185							
3.7	184.9	END OF BOREHOLE Auger refusal												...at 3.7m, auger refusal

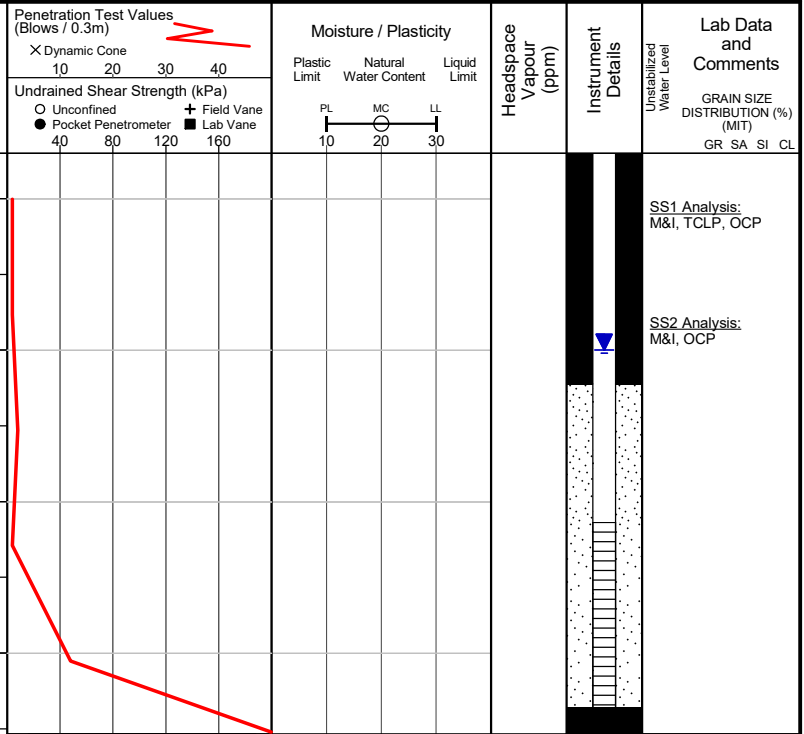
Unstabilized water level measured at 0.3 m below ground surface; borehole was open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS		
Date	Water Depth (m)	Elevation (m)
Feb 13, 2018	0.0 (ag)*	n/a
Feb 28, 2018	-0.1 (ag)*	n/a
Mar 24, 2020	0.9	187.7

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : JSB
 Date started : March 10, 2020 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AM
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561222, N: 4926049 (UTM 17T)			Elevation Datum : Geodetic		
Rig type : Geoprobe			Drilling Method : Hollow stem augers		
Depth Scale (m)	SOIL PROFILE		SAMPLES		Elevation Scale (m)
	Elev Depth (m)	Description	Graphic Log	Number Type SPT 'N' Value	
0	189.3	GROUND SURFACE			
0.2	189.1	200mm TOPSOIL			
0.6	188.7	SANDY SILT, trace clay, rootlets, organics, brown, wet (REWORKED)		1 SS 1	189
1	0.6	SILTY SAND, some organics, trace clay, brown, wet		2 SS 1	188
2				3 SS 2	
2.3	187.0	GRAVELLY SAND, some silt, trace clay, brown, wet		4 SS 1	187
3				5 SS 12	186
3.8	185.5	END OF BOREHOLE Auger refusal		6 SS 50 / 25mm	185



WATER LEVEL READINGS

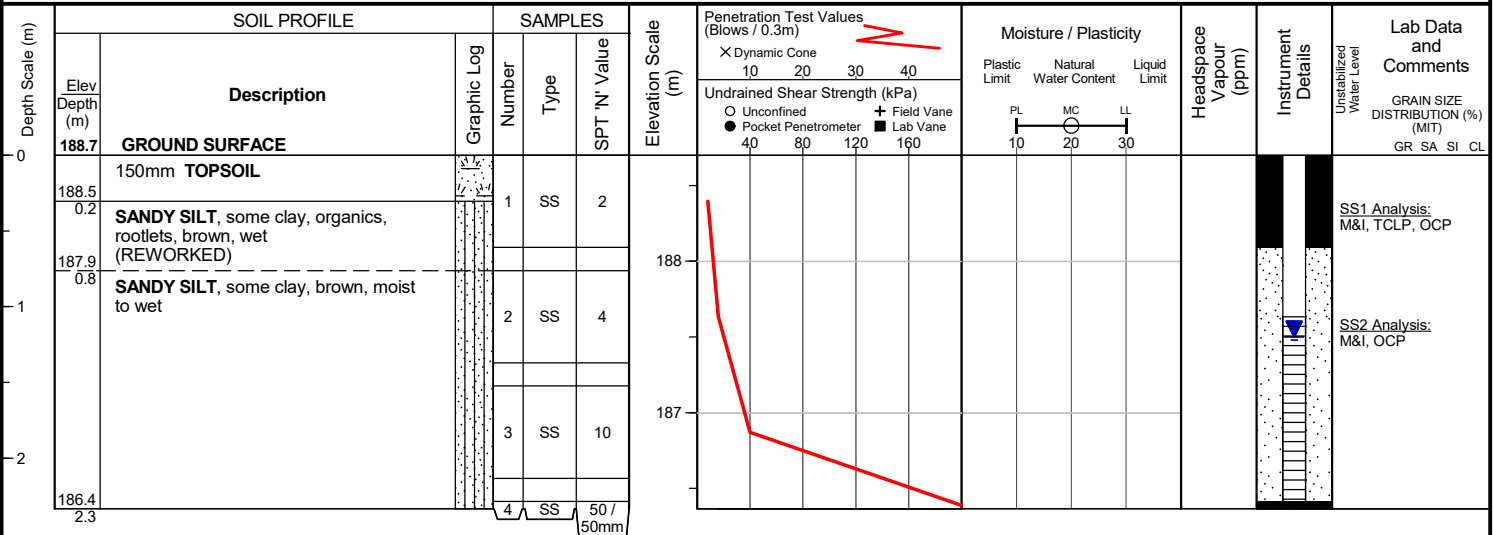
Date	Water Depth (m)	Elevation (m)
Mar 24, 2020	1.3	188.0

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : JSB
 Date started : March 9, 2020 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AM
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561190, N: 4926172 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Geoprobe Drilling Method : Hollow stem augers



WATER LEVEL READINGS
 Date: Mar 24, 2020 Water Depth (m): 1.02 Elevation (m): 187.7

Borehole was dry and open upon completion of drilling.
 50 mm dia. monitoring well installed.

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : JSB
 Date started : March 9, 2020 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AM
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561219, N: 4926139 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Geoprobe Drilling Method : Hollow stem augers

Depth Scale (m)	SOIL PROFILE			SAMPLES			Elevation Scale (m)	Penetration Test Values (Blows / 0.3m)	Moisture / Plasticity			Headspace Vapour (ppm)	Instrument Details	Lab Data and Comments
	Elev Depth (m)	Description	Graphic Log	Number	Type	SPT 'N' Value			Plastic Limit	Natural Water Content	Liquid Limit			
0	188.6	GROUND SURFACE												
0.1	188.5	100mm TOPSOIL		1	SS	0								
0.3	188.3	SANDY SILT, trace clay, gravel (REWORKED)												
		SANDY SILT, trace clay, brown, moist to wet		2	SS	5								
1														
				3	SS	50 / 100mm								
1.8	186.8													

END OF BOREHOLE

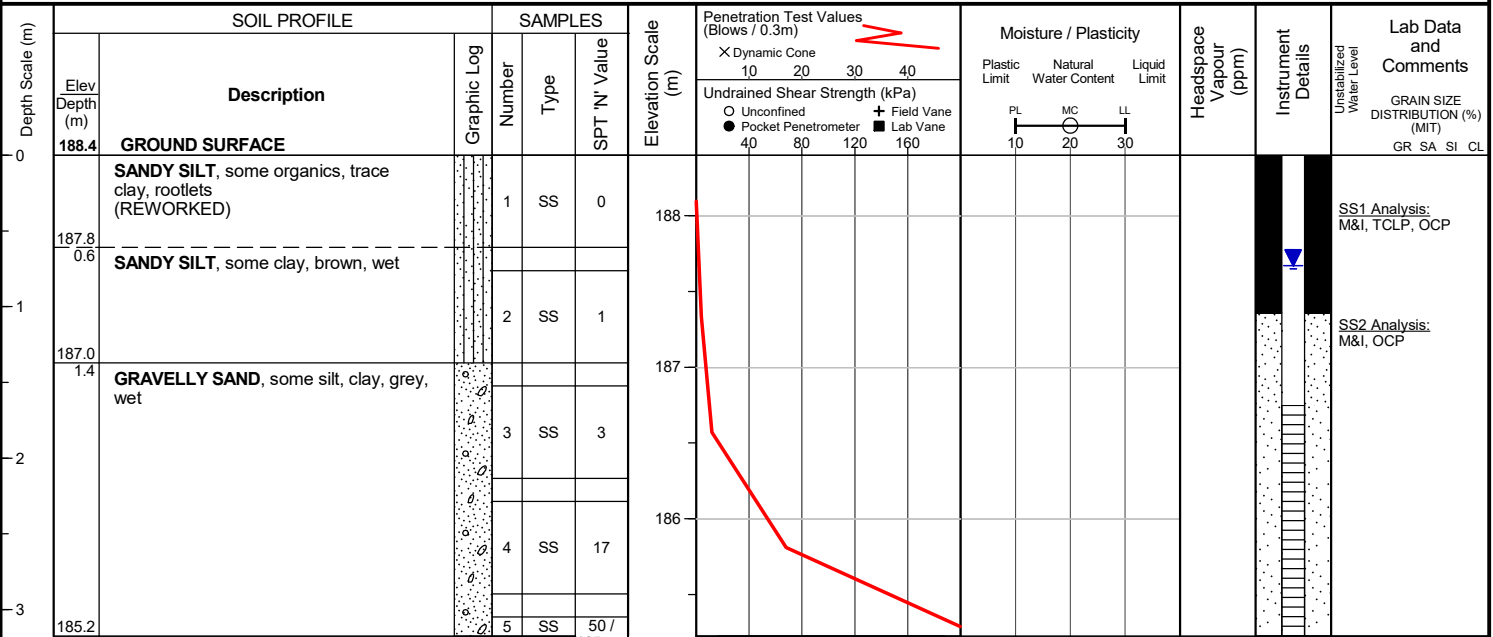
Auger refusal

Borehole was dry and open upon completion of drilling.

WATER LEVEL READINGS
 Date Water Depth (m) Elevation (m)
 Mar 24, 2020 1.5 187.1

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : JSB
 Date started : March 10, 2020 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AM
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561315, N: 4926069 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Geoprobe Drilling Method : Hollow stem augers



END OF BOREHOLE
Auger refusal

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

WATER LEVEL READINGS
 Date: Mar 24, 2020 Water Depth (m): 0.7 Elevation (m): 187.7

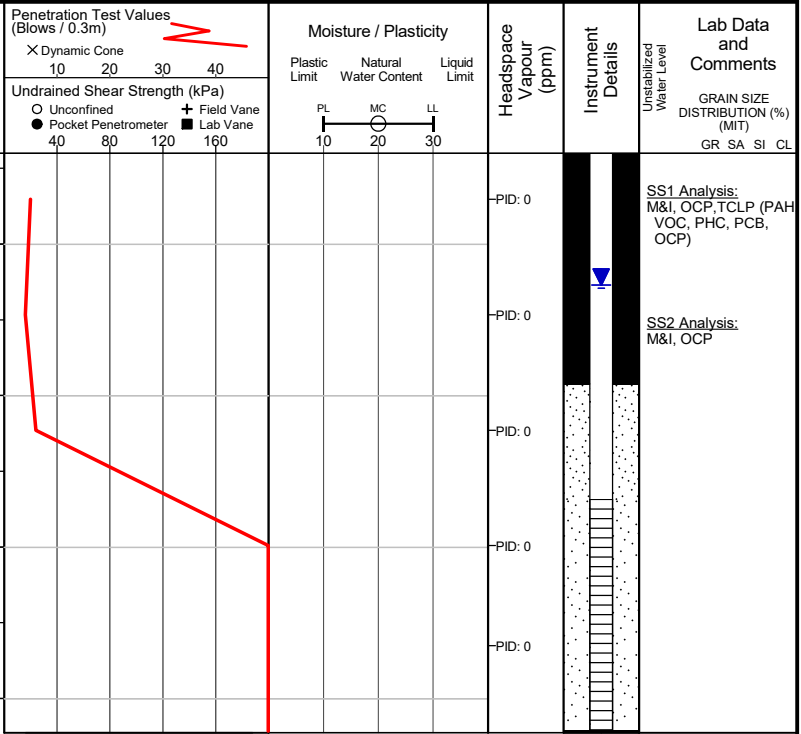
Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : JSB
 Date started : March 12, 2020 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AM
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561307, N: 4926188 (UTM 17T)			Elevation Datum : Geodetic		
Rig type : Geoprobe			Drilling Method : Hollow stem augers		
Depth Scale (m)	SOIL PROFILE		SAMPLES		Elevation Scale (m)
	Elev Depth (m)	Description	Graphic Log	Number Type SPT 'N' Value	
0	188.6	GROUND SURFACE			
		SILTY SAND, some rootlets, trace clay, organics, brown, wet (REWORKED)		1 SS 5	
	188.0				
	0.6	SANDY SILT, some silt, brown, wet		2 SS 4	
-1					
				3 SS 6	
-2	186.5				
	2.1	SILTY SAND, some gravel, trace clay		4 SS 55	
-3					
				5 SS 72 / 250mm	
	184.8				
	3.8			6 SS 50 / 15mm	

END OF BOREHOLE
Auger refusal

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

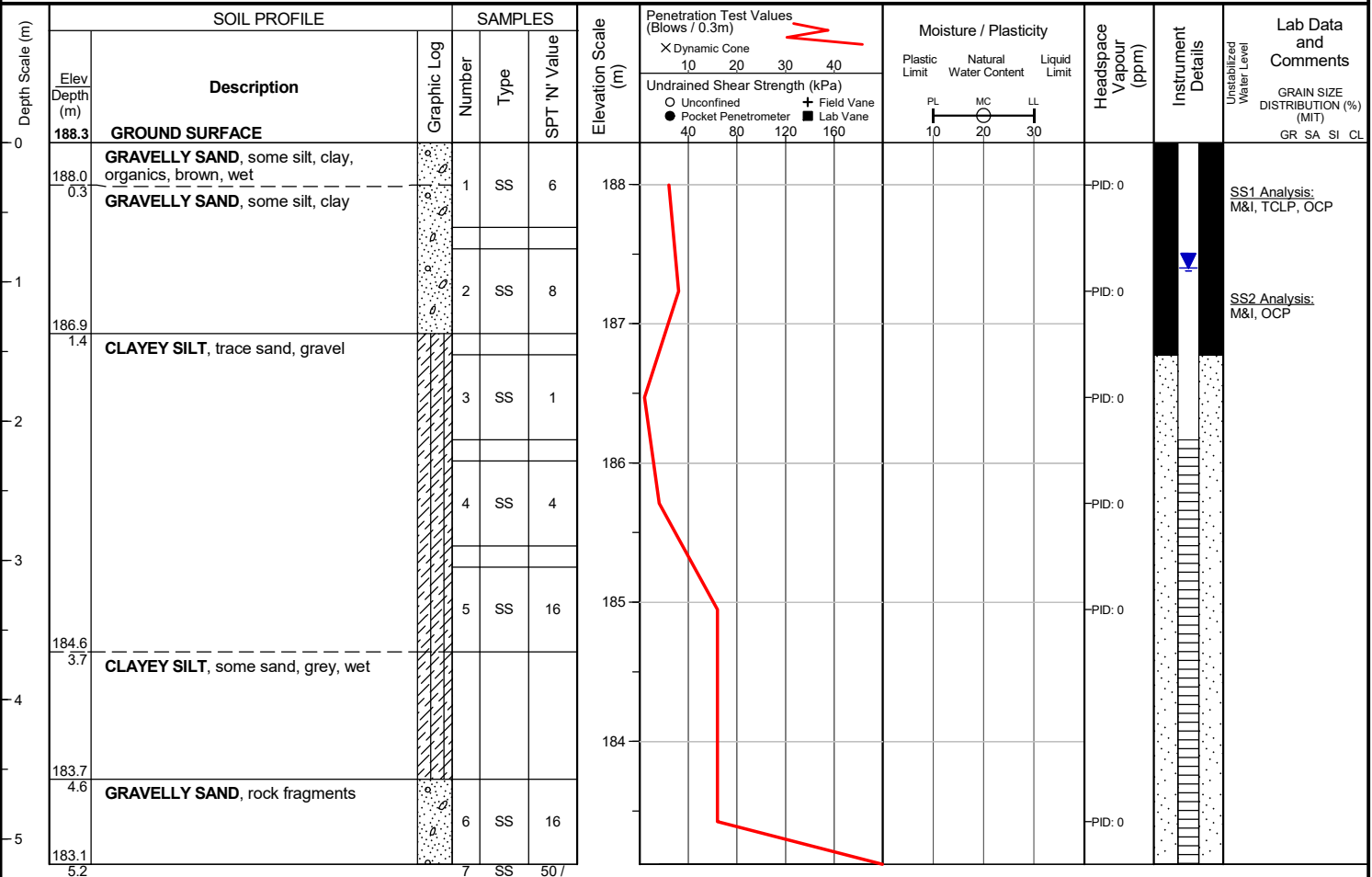


WATER LEVEL READINGS

Date	Water Depth (m)	Elevation (m)
Mar 24, 2020	0.9	187.7

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : JSB
 Date started : March 13, 2020 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AM
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561512, N: 4926197 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Geoprobe Drilling Method : Hollow stem augers



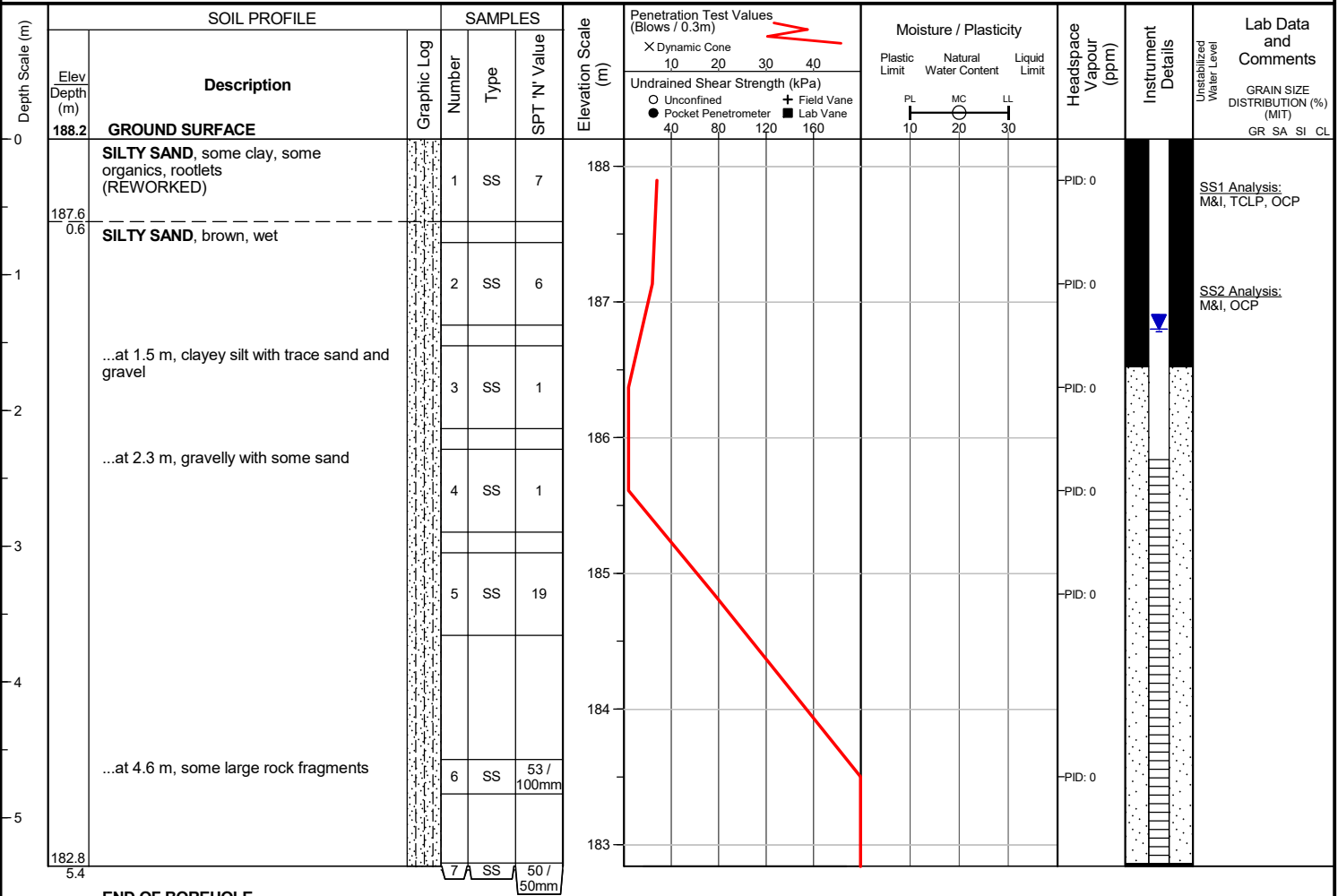
WATER LEVEL READINGS
 Date: Mar 24, 2020 Water Depth (m): 0.9 Elevation (m): 187.4

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : JSB
 Date started : March 12, 2020 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AM
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561448, N: 4926189 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Geoprobe Drilling Method : Hollow stem augers



WATER LEVEL READINGS
 Date Water Depth (m) Elevation (m)
 Mar 24, 2020 1.4 186.8

Borehole was dry and open upon completion of drilling.

50 mm dia. monitoring well installed.



Project No. : 1-17-0918

Client : Trails of Collingwood

Originated by : JSB

Date started : March 12, 2020

Project : Trails of Collingwood-High Street & Telfer Road

Compiled by : AM

Sheet No. : 1 of 1

Location : Collingwood, Ontario

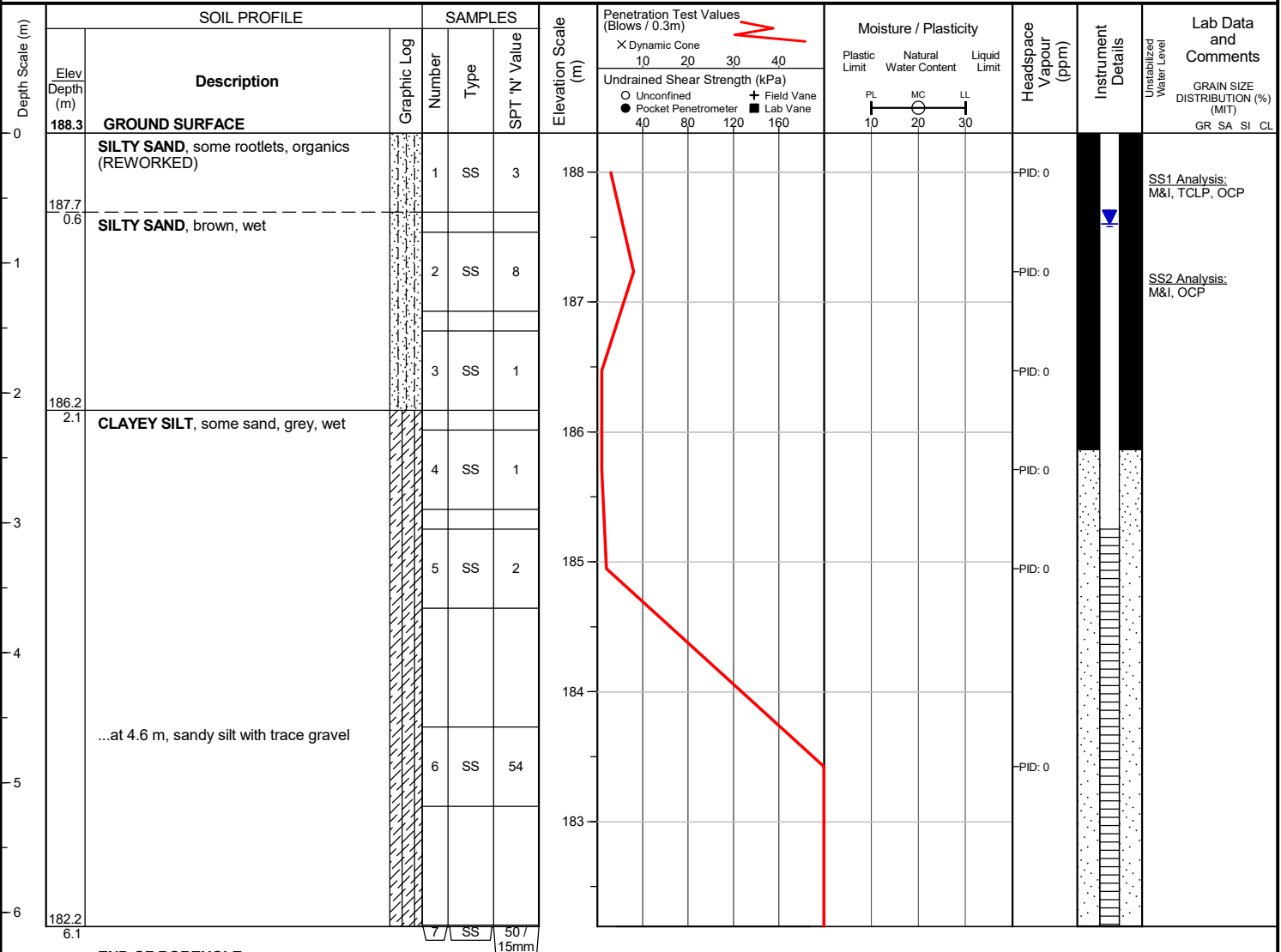
Checked by : BW

Position : E: 561421, N: 4926223 (UTM 17T)

Elevation Datum : Geodetic

Rig type : Geoprobe

Drilling Method : Hollow stem augers

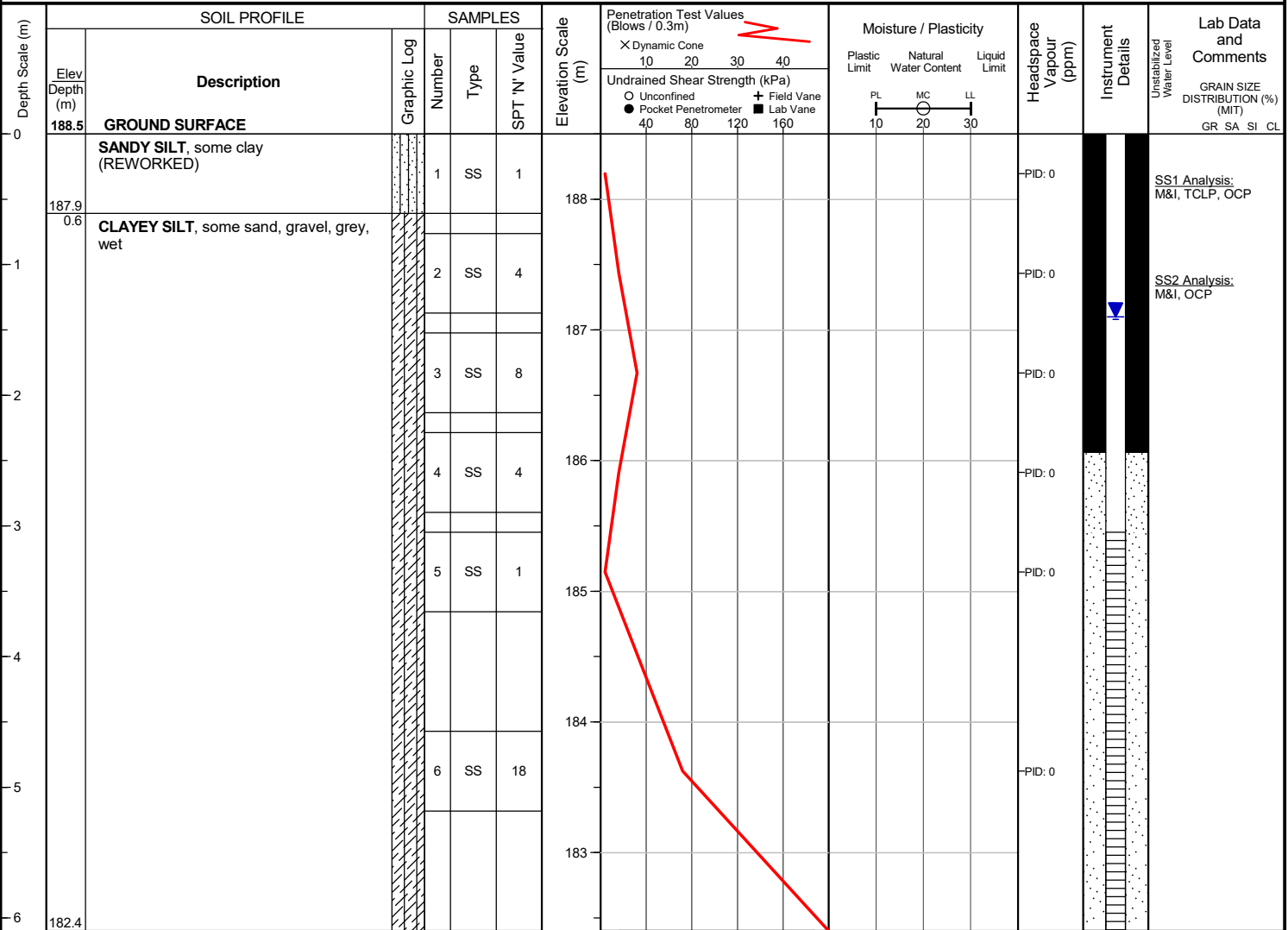


WATER LEVEL READINGS
Date Water Depth (m) Elevation (m)
 Mar 24, 2020 0.7 187.6

Borehole was dry and open upon completion of drilling.
 50 mm dia. monitoring well installed.

Project No. : 1-17-0918 Client : Trails of Collingwood Originated by : JSB
 Date started : March 13, 2020 Project : Trails of Collingwood-High Street & Telfer Road Compiled by : AM
 Sheet No. : 1 of 1 Location : Collingwood, Ontario Checked by : BW

Position : E: 561428, N: 4926264 (UTM 17T) Elevation Datum : Geodetic
 Rig type : Geoprobe Drilling Method : Hollow stem augers



END OF BOREHOLE
Auger refusal

Borehole was dry and open upon completion of drilling.

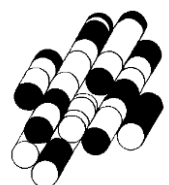
50 mm dia. monitoring well installed.

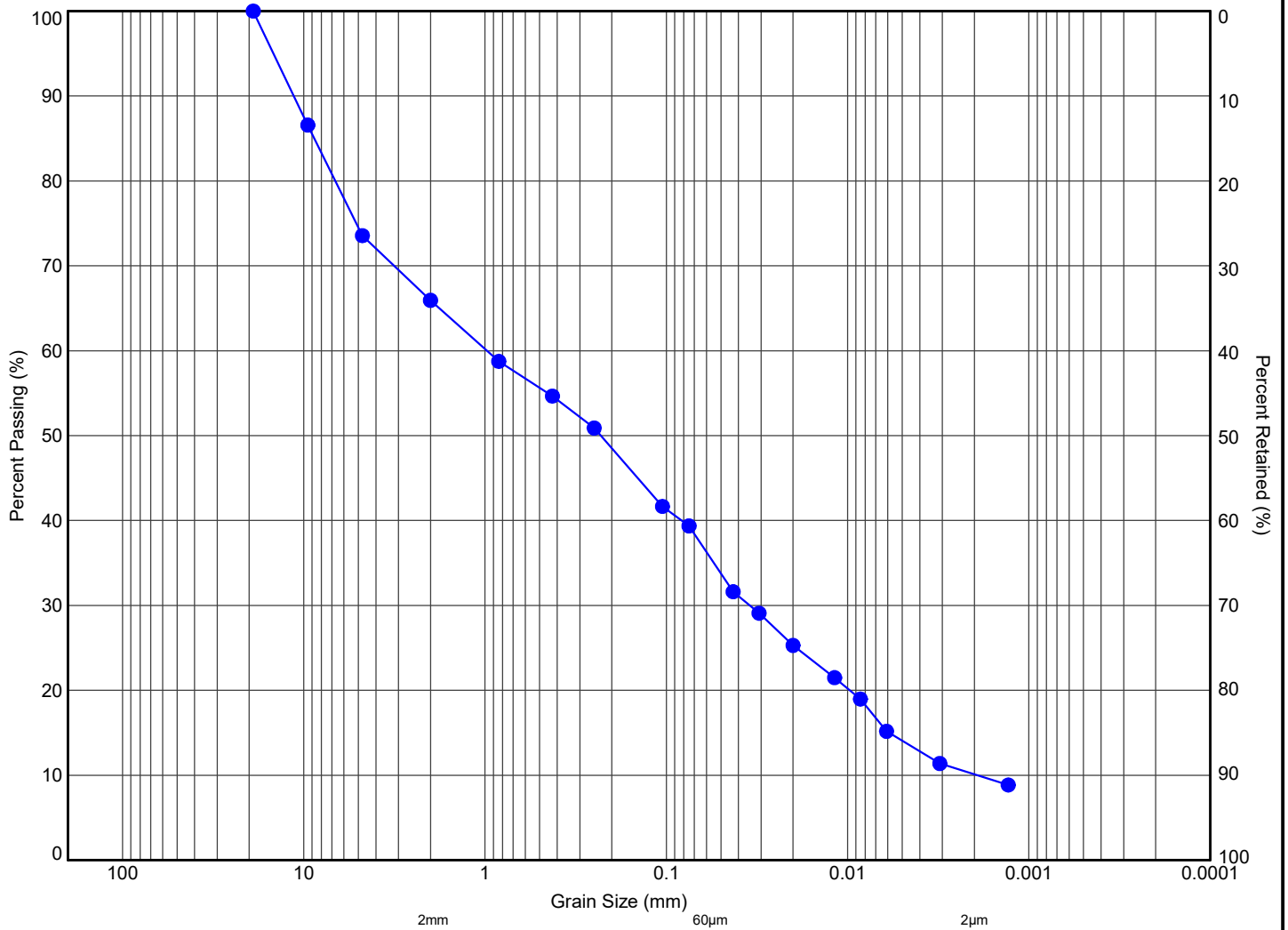
WATER LEVEL READINGS
 Date Water Depth (m) Elevation (m)
 Mar 24, 2020 1.4 187.1

APPENDIX F

Grain Size Analysis

TERRAPROBE INC.





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

MIT SYSTEM

Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)
1	AS4	2.3	186.4	34	30	26	10	



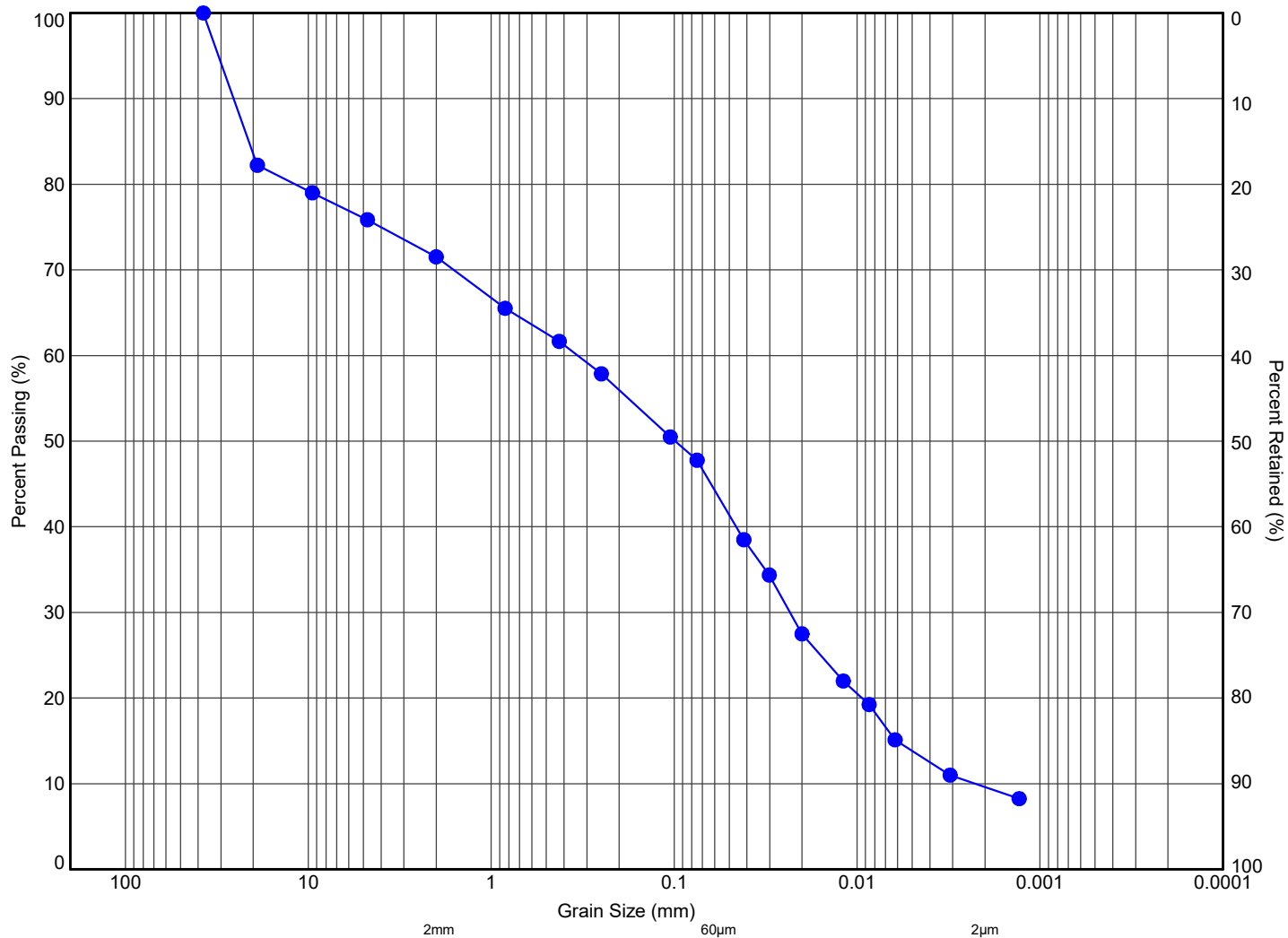
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

**GRAIN SIZE DISTRIBUTION
SILTY SANDY GRAVEL, SOME CLAY**

File No.:

1-17-0918-42



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

MIT SYSTEM									
Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)	
● 2	SS6	3.4	185.2	29	26	35	10		



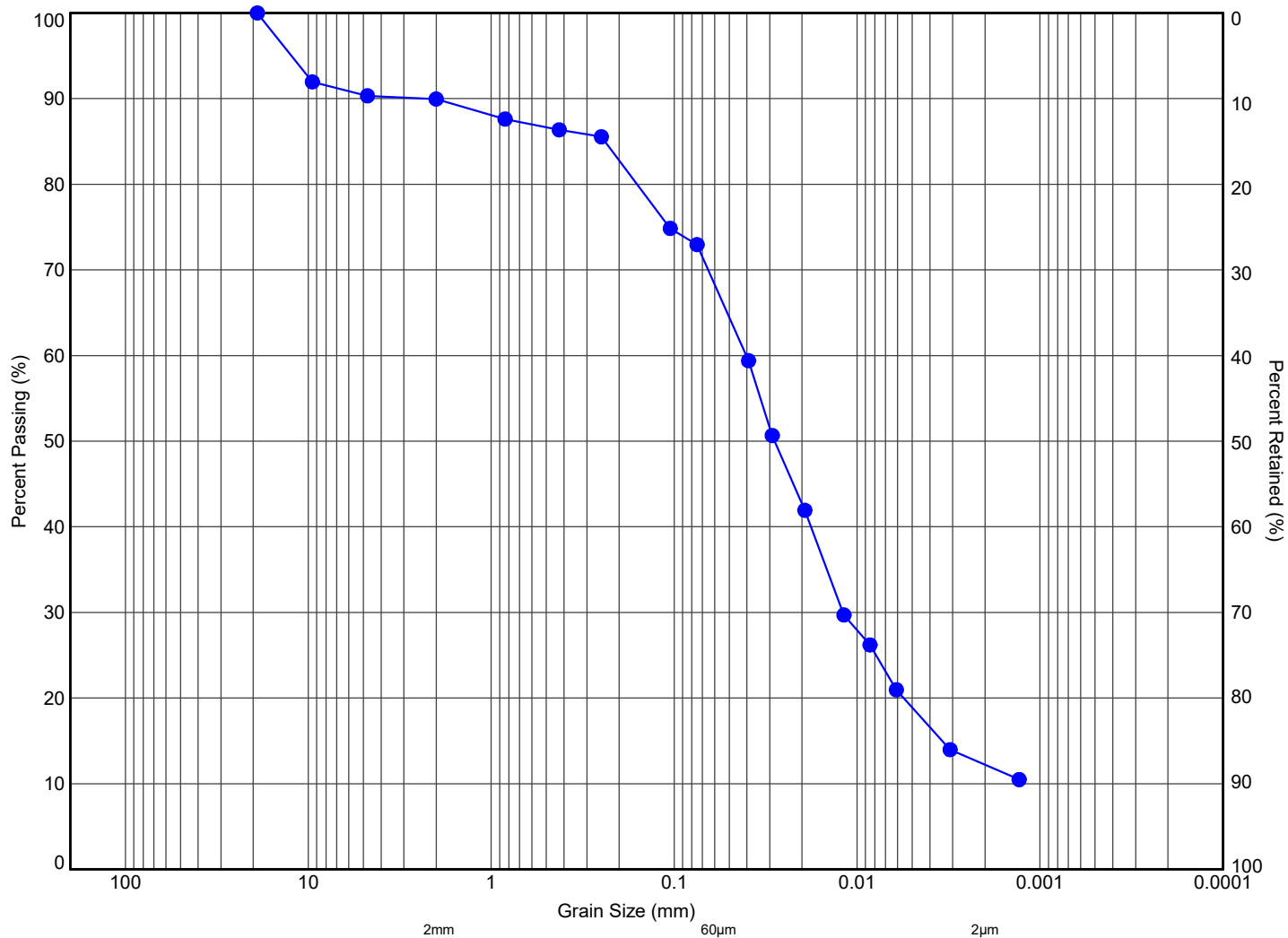
11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

**GRAIN SIZE DISTRIBUTION
SANDY GRAVELLY SILT, TRACE CLAY**

File No.:

1-17-0918-42



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

MIT SYSTEM									
Hole ID	Sample	Depth (m)	Elev. (m)	Gravel (%)	Sand (%)	Silt (%)	Clay (%)	(Fines, %)	
● 3	SS3	1.5	187.1	10	22	56	12		



11 Indell Lane, Brampton Ontario L6T 3Y3
(905) 796-2650

Title:

**GRAIN SIZE DISTRIBUTION
SANDY SILT, SOME GRAVEL, TRACE CLAY**

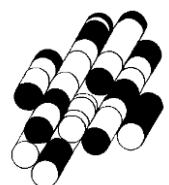
File No.:

1-17-0918-42

APPENDIX G

Ground Water Levels

TERRAPROBE INC.



Ground Water Depths (m below ground surface)

Well	Ground Elevation (m asl)	Stick up (m)	Drilled Well Depth (m)	Well Screen Bottom Elevation (m asl)	Well Screen Top Elevation (m asl)	Water Depth Mar 24, 2020 (m bgs)
BH1	188.70	0.82	5.00	183.70	186.70	0.80
BH2	188.60	0.89	4.30	184.30	187.30	0.80
BH3	188.60	0.91	3.70	184.90	187.34	0.87
BH4	189.30	0.84	3.80	185.60	186.80	1.30
BH5	188.70	0.75	2.30	186.40	187.60	1.02
BH6	188.60	-	1.80	186.80	187.50	1.51
BH7	188.40	0.83	3.20	185.20	186.75	0.73
BH8	188.60	0.87	3.80	184.80	186.30	0.87
BH9	188.30	0.86	5.20	183.10	186.20	0.90
BH10	188.20	0.89	5.40	182.80	185.80	1.40
BH11	188.30	0.92	6.10	182.20	185.25	0.70
BH12	188.50	0.95	6.10	182.40	185.45	1.41

Ground Water Elevations (m above sea level)

Well	Ground Elevation (m asl)	Stick up (m)	Borehole Depth (m)	Well Screen Bottom Elevation (m asl)	Well Screen Top Elevation (m asl)	Ground Water Elevation Mar 24, 2020 (m asl)
BH1	188.70	0.82	5.00	183.70	186.70	187.90
BH2	188.60	0.89	4.30	184.30	187.30	187.80
BH3	188.60	0.91	3.70	184.90	187.34	187.73
BH4	189.30	0.84	3.80	185.60	186.80	188.00
BH5	188.70	0.75	2.30	186.40	187.60	187.68
BH6	188.60	-	1.80	186.80	187.50	187.09
BH7	188.40	0.83	3.20	185.20	186.75	187.67
BH8	188.60	0.87	3.80	184.80	186.30	187.73
BH9	188.30	0.86	5.20	183.10	186.20	187.40
BH10	188.20	0.89	5.40	182.80	185.80	186.80
BH11	188.30	0.92	6.10	182.20	185.25	187.60
BH12	188.50	0.95	6.10	182.40	185.45	187.09

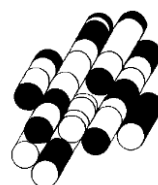
WNI - Well Not Installed

NM - Not Measured

APPENDIX H

Geological Units

TERRAPROBE INC.



GEOLOGICAL UNITS
TRAILS OF COLLINGWOOD, HIGH STREET AND TELFER ROAD
COLLINGWOOD, ONTARIO
PROJECT #1-17-0918-42.1

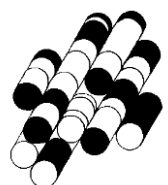
Borehole	BH1			BH2			BH3			BH4			BH5			BH6		
	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)
Topsoil	188.7	188.5	0.2	188.6	188.4	0.2	188.6	188.4	0.2	189.3	189.1	0.2	188.7	188.5	0.2	188.6	188.5	0.1
Earth Fill or Reworked Native	188.5	188.1	0.4	188.4	188.0	0.4	188.4	188.0	0.4	189.1	188.7	0.4	188.5	187.9	0.6	188.5	188.3	0.2
Native Soil	188.1	183.7	4.4	188.0	184.3	3.7	188.0	184.9	3.1	188.7	185.5	3.2	187.9	186.4	1.5	188.3	186.8	1.5
Bedrock	183.7	-	-	184.3	-	-	184.9	-	-	185.5	-	-	186.4	-	-	186.8	-	-

Borehole	BH7			BH8			BH9			BH10			BH11			BH12		
	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)	Elev. Top (masl)	Elev. Bottom (masl)	Thickness (m)
Topsoil	<i>Not Encountered</i>			<i>Not Encountered</i>			<i>Not Encountered</i>			<i>Not Encountered</i>			<i>Not Encountered</i>			<i>Not Encountered</i>		
Earth Fill or Reworked Native	188.4	187.8	0.6	188.6	188.0	0.6	<i>Not Encountered</i>			188.2	187.6	0.6	188.3	187.7	0.6	188.5	187.9	0.6
Native Soil	187.8	185.2	2.6	188.0	184.8	3.2	188.3	183.1	5.2	187.6	182.8	4.8	187.7	182.2	5.5	187.9	182.4	5.5
Bedrock	185.2	-	-	184.8	-	-	183.1	-	-	182.8	-	-	182.2	-	-	182.4	-	-

APPENDIX I

Monitoring Well Construction Details

TERRAPROBE INC.



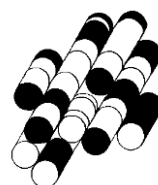
MONITORING WELL CONSTRUCTION
TRAILS OF COLLINGWOOD, HIGH STREET AND TELFER ROAD
COLLINGWOOD, ONTARIO
PROJECT #1-17-0918-42.1

Well ID	BH1		BH2		BH3		BH4		BH5		BH6		BH7		BH8		BH9		BH10		BH11		BH12	
Stick Up (m)	0.82		0.89		0.91		0.84		0.75		-		0.83		0.87		0.86		0.89		0.92		0.95	
Ground Elev. (masl)	188.72		188.57		188.61		189.30		188.70		188.60		188.40		188.60		188.30		188.20		188.30		188.50	
Well Component	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)	Depth (m)	Elev. (masl)
Bentonite - Top	0.00	188.72	0.00	188.57	0.00	188.61	0.00	189.30	0.00	188.70	0.00	188.60	0.00	188.40	0.00	188.60	0.00	188.30	0.00	188.20	0.00	188.30	0.00	188.50
Bentonite - Bottom	1.52	187.20	1.07	187.50	1.07	187.54	1.50	187.80	0.60	188.10	0.85	187.75	1.00	187.40	1.50	187.10	1.50	186.80	1.65	186.55	2.45	185.85	2.45	186.05
Sand - Top	1.52	187.20	1.07	187.50	1.07	187.54	1.50	187.80	0.60	188.10	0.85	187.75	1.00	187.40	1.50	187.10	1.50	186.80	1.65	186.55	2.45	185.85	2.45	186.05
Screen - Top	1.98	186.74	1.22	187.35	1.22	187.39	2.40	186.90	1.10	187.60	1.20	187.40	1.60	186.80	2.25	186.35	2.10	186.20	2.40	185.80	3.05	185.25	3.05	185.45
Screen - Bottom	5.03	183.69	4.27	184.30	3.66	184.95	3.80	185.50	2.30	186.40	1.80	186.80	3.20	185.20	3.80	184.80	5.20	183.10	5.40	182.80	6.10	182.20	6.10	182.40
Sand - Bottom	5.03	183.69	4.27	184.30	3.66	184.95	3.80	185.50	2.30	186.40	1.80	186.80	3.20	185.20	3.80	184.80	5.20	183.10	5.40	182.80	6.10	182.20	6.10	182.40

APPENDIX J

Laboratory Certificate of Analysis

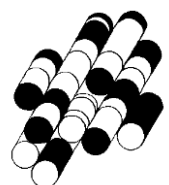
TERRAPROBE INC.



CERTIFICATES OF ANALYSIS

(SOIL)

TERRAPROBE INC.





TERRAPROBE - BRAMPTON
ATTN: ALIREZA MALEK
11 Indell Lane
Brampton ON L6T 3Y3

Date Received: 17-MAR-20
Report Date: 01-APR-20 07:44 (MT)
Version: FINAL REV. 4

Client Phone: 905-796-2650

Certificate of Analysis

Lab Work Order #: L2428783
Project P.O. #: NOT SUBMITTED
Job Reference: 1-17-918
C of C Numbers: 17-615451, 17-615452
Legal Site Desc:

Comments: ES/WT - pH analysis added to all samples
Dilution factor added to OC Pesticide analysis per analyst

Emily Smith
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
ALS CANADA LTD Part of the ALS Group An ALS Limited Company



ANALYTICAL REPORT

Summary of Guideline Exceedances

Guideline		Client ID	Grouping	Analyte	Result	Guideline Limit	Unit
ALS ID							
Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Coarse)							
L2428783-1	BH4-SS1	Metals	Arsenic (As)	79.7	18	ug/g	
			Lead (Pb)	133	120	ug/g	
			Organochlorine Pesticides	Total DDE	4.29	0.26	ug/g
				Total DDT	1.78	1.4	ug/g
L2428783-3	BH5-SS1	Organochlorine Pesticides	Total DDE	3.48	0.26	ug/g	
L2428783-5	BH6-SS1	Metals	Arsenic (As)	18.9	18	ug/g	
			Organochlorine Pesticides	Total DDE	4.05	0.26	ug/g
L2428783-7	BH7-SS1	Organochlorine Pesticides	Total DDE	0.699	0.26	ug/g	
L2428783-9	BH8-SS1	Organochlorine Pesticides	Total DDE	0.478	0.26	ug/g	
L2428783-16	BH11-SS1	Organochlorine Pesticides	Total DDE	0.283	0.26	ug/g	
L2428783-18	BH12-SS1	Organochlorine Pesticides	Total DDE	0.752	0.26	ug/g	
Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Soil-Res/Park/Inst. Property Use (Fine)							
L2428783-1	BH4-SS1	Metals	Arsenic (As)	79.7	18	ug/g	
			Lead (Pb)	133	120	ug/g	
			Organochlorine Pesticides	Total DDE	4.29	0.33	ug/g
				Total DDT	1.78	1.4	ug/g
L2428783-3	BH5-SS1	Organochlorine Pesticides	Total DDE	3.48	0.33	ug/g	
L2428783-5	BH6-SS1	Metals	Arsenic (As)	18.9	18	ug/g	
			Organochlorine Pesticides	Total DDE	4.05	0.33	ug/g
L2428783-7	BH7-SS1	Organochlorine Pesticides	Total DDE	0.699	0.33	ug/g	
L2428783-9	BH8-SS1	Organochlorine Pesticides	Total DDE	0.478	0.33	ug/g	
L2428783-18	BH12-SS1	Organochlorine Pesticides	Total DDE	0.752	0.33	ug/g	



ANALYTICAL REPORT

Physical Tests - SOIL

Analyte	Unit	Guide Limits		Lab ID		Sample Date		Sample ID					
		#1	#2										
% Moisture	%	-	-	28.2	22.7	26.1	18.4	29.9	18.6	29.7	26.5	24.2	
pH	pH units	-	-	6.93	7.45	7.23	7.73	7.31	7.63	7.46	7.36	7.70	

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Physical Tests - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2428783-11	L2428783-12	L2428783-13	L2428783-14	L2428783-15	L2428783-16	L2428783-17	L2428783-18	L2428783-19
		#1	#2	Sample Date	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	13-MAR-20	13-MAR-20
				Sample ID	BH8-SS3	BH9-SS1	BH9-SS2	BH10-SS1	BH10-SS2	BH11-SS1	BH11-SS2	BH12-SS1	BH12-SS2
% Moisture	%	-	-		10.5	44.9	19.0	29.5	23.8	26.7	23.9	24.4	12.3
pH	pH units	-	-		7.74	7.18	7.75	7.50	7.82	7.39	7.81	7.38	7.65

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Physical Tests - SOIL

Analyte	Unit	Guide Limits		Lab ID	
		#1	#2	Sample Date	
				Sample ID	
% Moisture	%	-	-	L2428783-20	L2428783-21
				09-MAR-20	13-MAR-20
				DUP1	DUP2
pH	pH units	-	-		
				17.0	15.0
				7.78	7.76

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Metals - SOIL

Analyte	Unit	Guide Limits		Lab ID	Sample Date	Sample ID	L2428783-1	L2428783-2	L2428783-3	L2428783-4	L2428783-5	L2428783-6	L2428783-7	L2428783-9	L2428783-10
		#1	#2	BH4-SS1	BH4-SS2	BH5-SS1	BH5-SS2	BH6-SS1	BH6-SS2	BH7-SS1	BH8-SS1	BH8-SS2			
Antimony (Sb)	ug/g	7.5	7.5	1.3	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	18	79.7	2.9	14.0	4.2	18.9	3.8	5.8	7.6	2.1			
Barium (Ba)	ug/g	390	390	56.5	27.8	60.5	34.9	55.4	26.4	44.0	26.3	6.0			
Beryllium (Be)	ug/g	4	5	<0.50	<0.50	0.63	<0.50	0.54	<0.50	0.52	<0.50	<0.50			
Boron (B)	ug/g	120	120	8.2	5.3	13.3	14.9	15.1	13.2	11.0	7.1	<5.0			
Boron (B), Hot Water Ext.	ug/g	1.5	1.5	1.20	0.33	0.77	0.17	0.57	0.12	0.67	0.48	<0.10			
Cadmium (Cd)	ug/g	1.2	1.2	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			
Chromium (Cr)	ug/g	160	160	15.4	10.9	20.6	16.6	19.4	13.5	18.0	12.1	8.8			
Cobalt (Co)	ug/g	22	22	5.5	4.7	7.0	7.4	6.1	6.5	6.6	4.6	2.7			
Copper (Cu)	ug/g	140	180	73.1	7.3	31.2	17.8	33.8	18.4	20.2	16.8	11.6			
Lead (Pb)	ug/g	120	120	133	8.3	33.8	7.0	52.0	5.7	9.4	8.7	3.9			
Mercury (Hg)	ug/g	0.27	1.8	0.125	0.0319	0.0943	0.0114	0.114	0.0121	0.0778	0.0319	<0.0050			
Molybdenum (Mo)	ug/g	6.9	6.9	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
Nickel (Ni)	ug/g	100	130	12.8	9.1	16.0	17.7	14.7	15.3	14.1	9.2	4.3			
Selenium (Se)	ug/g	2.4	2.4	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
Silver (Ag)	ug/g	20	25	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20			
Thallium (Tl)	ug/g	1	1	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50			
Uranium (U)	ug/g	23	23	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0			
Vanadium (V)	ug/g	86	86	22.9	15.1	29.3	21.6	25.3	19.0	22.5	19.4	20.4			
Zinc (Zn)	ug/g	340	340	56.2	32.3	63.0	29.9	65.1	25.5	58.3	29.4	17.6			

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Metals - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2428783-12	L2428783-13	L2428783-14	L2428783-15	L2428783-16	L2428783-17	L2428783-18	L2428783-19	L2428783-20
				Sample Date	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	13-MAR-20	13-MAR-20	09-MAR-20
				Sample ID	BH9-SS1	BH9-SS2	BH10-SS1	BH10-SS2	BH11-SS1	BH11-SS2	BH12-SS1	BH12-SS2	DUP1
		#1	#2										
Antimony (Sb)	ug/g	7.5	7.5		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Arsenic (As)	ug/g	18	18		6.5	4.9	11.5	2.3	6.2	2.1	9.5	3.3	4.8
Barium (Ba)	ug/g	390	390		23.1	21.7	27.5	7.8	23.6	7.6	25.1	23.9	30.5
Beryllium (Be)	ug/g	4	5		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Boron (B)	ug/g	120	120		8.7	8.4	9.4	<5.0	8.7	<5.0	7.2	10.6	12.5
Boron (B), Hot Water Ext.	ug/g	1.5	1.5		0.46	0.20	1.00	0.14	0.67	0.12	0.31	0.14	0.22
Cadmium (Cd)	ug/g	1.2	1.2		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Chromium (Cr)	ug/g	160	160		11.5	11.2	11.6	8.6	10.8	9.0	11.5	11.7	15.8
Cobalt (Co)	ug/g	22	22		3.8	4.2	4.8	3.1	4.7	3.0	4.3	4.8	8.4
Copper (Cu)	ug/g	140	180		16.2	14.2	20.5	9.6	19.5	10.9	17.4	13.2	20.1
Lead (Pb)	ug/g	120	120		8.0	6.4	10.2	4.0	8.9	4.3	10.9	4.9	8.2
Mercury (Hg)	ug/g	0.27	1.8		0.0204	0.0131	0.0327	<0.0050	0.0282	<0.0050	0.0208	0.0083	0.0175
Molybdenum (Mo)	ug/g	6.9	6.9		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Nickel (Ni)	ug/g	100	130		8.7	9.6	10.4	4.6	10.1	4.8	9.5	10.9	19.4
Selenium (Se)	ug/g	2.4	2.4		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Silver (Ag)	ug/g	20	25		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Thallium (Tl)	ug/g	1	1		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50
Uranium (U)	ug/g	23	23		<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium (V)	ug/g	86	86		15.6	16.5	17.8	18.4	16.1	19.3	18.8	16.0	20.7
Zinc (Zn)	ug/g	340	340		25.1	25.5	28.4	16.0	25.0	19.2	27.3	20.3	32.8

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Speciated Metals - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2428783-1	L2428783-2	L2428783-3	L2428783-4	L2428783-5	L2428783-6	L2428783-7	L2428783-9	L2428783-10
		#1	#2	Sample Date	10-MAR-20	10-MAR-20	09-MAR-20	09-MAR-20	09-MAR-20	09-MAR-20	10-MAR-20	12-MAR-20	12-MAR-20
				Sample ID	BH4-SS1	BH4-SS2	BH5-SS1	BH5-SS2	BH6-SS1	BH6-SS2	BH7-SS1	BH8-SS1	BH8-SS2
Chromium, Hexavalent	ug/g	8	10		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Speciated Metals - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2428783-12	L2428783-13	L2428783-14	L2428783-15	L2428783-16	L2428783-17	L2428783-18	L2428783-19	L2428783-20
		#1	#2	Sample Date	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	13-MAR-20	13-MAR-20	09-MAR-20
				Sample ID	BH9-SS1	BH9-SS2	BH10-SS1	BH10-SS2	BH11-SS1	BH11-SS2	BH12-SS1	BH12-SS2	DUP1
Chromium, Hexavalent	ug/g	8	10		<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)
Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Organochlorine Pesticides - SOIL

Analyte	Unit	Guide Limits		L2428783-1	L2428783-2	L2428783-3	L2428783-4	L2428783-5	L2428783-6	L2428783-7	L2428783-9	L2428783-10
		#1	#2									
Aldrin	ug/g	0.05	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
gamma-hexachlorocyclohexane	ug/g	0.056	0.063	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
a-chlordane	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Chlordane (Total)	ug/g	0.05	0.05	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
g-chlordane	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
op-DDD	ug/g	-	-	<0.020	<0.020	0.157	<0.020	0.166	<0.020	0.042	0.029	<0.020
pp-DDD	ug/g	-	-	0.133	<0.020	0.421	<0.020	0.580	<0.020	0.126	0.108	<0.020
Total DDD	ug/g	3.3	3.3	0.133	<0.028	0.578	<0.028	0.746	<0.028	0.168	0.138	<0.028
o,p-DDE	ug/g	-	-	<0.020	<0.020	0.038	<0.020	0.058	<0.020	<0.020	<0.020	<0.020
pp-DDE	ug/g	-	-	4.29	0.099	3.44	0.023	3.99	<0.020	0.699	0.478	<0.020
Total DDE	ug/g	0.26	0.33	4.29	0.099	3.48	<0.028	4.05	<0.028	0.699	0.478	<0.028
op-DDT	ug/g	-	-	0.171	<0.020	0.139	<0.020	0.134	<0.020	0.073	0.053	<0.020
pp-DDT	ug/g	-	-	1.61	0.023	0.963	<0.020	0.790	<0.020	0.332	0.231	<0.020
Total DDT	ug/g	1.4	1.4	1.78	<0.028	1.10	<0.028	0.924	<0.028	0.405	0.285	<0.028
Dieldrin	ug/g	0.05	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan I	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan II	ug/g	-	-	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan (Total)	ug/g	0.04	0.04	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Endrin	ug/g	0.04	0.04	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Heptachlor	ug/g	0.15	0.15	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Heptachlor Epoxide	ug/g	0.05	0.05	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Hexachlorobenzene	ug/g	0.52	0.52	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobutadiene	ug/g	0.012	0.014	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachloroethane	ug/g	0.089	0.07	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	ug/g	0.13	0.13	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Surrogate: 2-Fluorobiphenyl	%	-	-	89.1	86.5	83.6	79.3	88.8	88.5	90.0	83.5	91.2
Surrogate: d14-Terphenyl	%	-	-	86.5	82.3	81.9	81.0	91.9	97.9	86.5	87.8	83.3

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Organochlorine Pesticides - SOIL

Analyte	Unit	Guide Limits		Lab ID	L2428783-11	L2428783-12	L2428783-13	L2428783-14	L2428783-15	L2428783-16	L2428783-17	L2428783-18	L2428783-19
		#1	#2	Sample Date	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	12-MAR-20	13-MAR-20	13-MAR-20
				Sample ID	BH8-SS3	BH9-SS1	BH9-SS2	BH10-SS1	BH10-SS2	BH11-SS1	BH11-SS2	BH12-SS1	BH12-SS2
Aldrin	ug/g	0.05	0.05		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
gamma-hexachlorocyclohexane	ug/g	0.056	0.063		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
a-chlordane	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Chlordane (Total)	ug/g	0.05	0.05		<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
g-chlordane	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
op-DDD	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.091	<0.020
pp-DDD	ug/g	-	-		<0.020	<0.020	<0.020	0.027	<0.020	0.062	<0.020	0.335	<0.020
Total DDD	ug/g	3.3	3.3		<0.028	<0.028	<0.028	<0.028	<0.028	0.062	<0.028	0.426	<0.028
o,p-DDE	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
pp-DDE	ug/g	-	-		<0.020	0.085	0.029	0.181	<0.020	0.283	<0.020	0.752	<0.020
Total DDE	ug/g	0.26	0.33		<0.028	0.085	0.029	0.181	<0.028	0.283	<0.028	0.752	<0.028
op-DDT	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020	0.023	<0.020	0.092	<0.020
pp-DDT	ug/g	-	-		<0.020	<0.020	<0.020	0.036	<0.020	0.088	<0.020	0.277	<0.020
Total DDT	ug/g	1.4	1.4		<0.028	<0.028	<0.028	0.036	<0.028	0.110	<0.028	0.369	<0.028
Dieldrin	ug/g	0.05	0.05		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan I	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan II	ug/g	-	-		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Endosulfan (Total)	ug/g	0.04	0.04		<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028	<0.028
Endrin	ug/g	0.04	0.04		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Heptachlor	ug/g	0.15	0.15		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Heptachlor Epoxide	ug/g	0.05	0.05		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Hexachlorobenzene	ug/g	0.52	0.52		<0.010	<0.010	<0.010	0.025	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachlorobutadiene	ug/g	0.012	0.014		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Hexachloroethane	ug/g	0.089	0.07		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Methoxychlor	ug/g	0.13	0.13		<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020
Surrogate: 2-Fluorobiphenyl	%	-	-		81.7	67.2	84.4	75.9	87.5	85.6	83.3	84.7	91.9
Surrogate: d14-Terphenyl	%	-	-		69.8	53.9	73.9	77.7	85.8	67.1	70.8	82.7	90.4

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Organochlorine Pesticides - SOIL

		Lab ID	L2428783-21	
		Sample Date	13-MAR-20	
		Sample ID	DUP2	
		Guide Limits		
Analyte	Unit	#1	#2	
Aldrin	ug/g	0.05	0.05	<0.020
gamma-hexachlorocyclohexane	ug/g	0.056	0.063	<0.010
a-chlordane	ug/g	-	-	<0.020
Chlordane (Total)	ug/g	0.05	0.05	<0.028
g-chlordane	ug/g	-	-	<0.020
op-DDD	ug/g	-	-	<0.020
pp-DDD	ug/g	-	-	<0.020
Total DDD	ug/g	3.3	3.3	<0.028
o,p-DDE	ug/g	-	-	<0.020
pp-DDE	ug/g	-	-	0.043
Total DDE	ug/g	0.26	0.33	0.043
op-DDT	ug/g	-	-	<0.020
pp-DDT	ug/g	-	-	<0.020
Total DDT	ug/g	1.4	1.4	<0.028
Dieldrin	ug/g	0.05	0.05	<0.020
Endosulfan I	ug/g	-	-	<0.020
Endosulfan II	ug/g	-	-	<0.020
Endosulfan (Total)	ug/g	0.04	0.04	<0.028
Endrin	ug/g	0.04	0.04	<0.020
Heptachlor	ug/g	0.15	0.15	<0.020
Heptachlor Epoxide	ug/g	0.05	0.05	<0.020
Hexachlorobenzene	ug/g	0.52	0.52	<0.010
Hexachlorobutadiene	ug/g	0.012	0.014	<0.010
Hexachloroethane	ug/g	0.089	0.07	<0.010
Methoxychlor	ug/g	0.13	0.13	<0.020
Surrogate: 2-Fluorobiphenyl	%	-	-	90.4
Surrogate: d14-Terphenyl	%	-	-	84.4

Guide Limit #1: T2-Soil-Res/Park/Inst. Property Use (Coarse)

Guide Limit #2: T2-Soil-Res/Park/Inst. Property Use (Fine)

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

Reference Information

L2428783 CONT'D....
Job Reference: 1-17-918
PAGE 13 of 14
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Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
B-HWS-R511-WT	Soil	Boron-HWE-O.Reg 153/04 (July 2011)	HW EXTR, EPA 6010B
A dried solid sample is extracted with calcium chloride, the sample undergoes a heating process. After cooling the sample is filtered and analyzed by ICP/OES.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
CHLORDANE-T-CALC-WT	Soil	Chlordane Total sums	CALCULATION
Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.			
CR-CR6-IC-WT	Soil	Hexavalent Chromium in Soil	SW846 3060A/7199
This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
DDD-DDE-DDT-CALC-WT	Soil	DDD, DDE, DDT sums	CALCULATION
Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.			
ENDOSULFAN-T-CALC-WT	Soil	Endosulfan Total sums	CALCULATION
Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.			
HG-200.2-CVAA-WT	Soil	Mercury in Soil by CVAAS	EPA 200.2/1631E (mod)
Soil samples are digested with nitric and hydrochloric acids, followed by analysis by CVAAS.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			
MET-200.2-CCMS-WT	Soil	Metals in Soil by CRC ICPMS	EPA 200.2/6020A (mod)
Soil/sediment is dried, disaggregated, and sieved (2 mm). For tests intended to support Ontario regulations, the <2mm fraction is ground to pass through a 0.355 mm sieve. Strong Acid Leachable Metals in the <2mm fraction are solubilized by heated digestion with nitric and hydrochloric acids. Instrumental analysis is by Collision / Reaction Cell ICPMS.			
Limitations: This method is intended to liberate environmentally available metals. Silicate minerals are not solubilized. Some metals may be only partially recovered (matrix dependent), including Al, Ba, Be, Cr, S, Sr, Ti, Tl, V, W, and Zr. Elemental Sulfur may be poorly recovered by this method. Volatile forms of sulfur (e.g. sulfide, H ₂ S) may be excluded if lost during sampling, storage, or digestion.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).			
MOISTURE-WT	Soil	% Moisture	CCME PHC in Soil - Tier 1 (mod)
PEST-OC-511-WT	Soil	OC Pesticides-O.Reg 153/04 (July 2011)	SW846 8270 (511)
Soil sample is extracted in a solvent, after extraction a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).			

Reference Information

L2428783 CONT'D....
Job Reference: 1-17-918
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Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
PH-WT	Soil	pH	MOEE E3137A
A minimum 10g portion of the sample is extracted with 20mL of 0.01M calcium chloride solution by shaking for at least 30 minutes. The aqueous layer is separated from the soil and then analyzed using a pH meter and electrode.			
Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).			

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

17-615451 17-615452

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg wwt - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



Quality Control Report

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
B-HWS-R511-WT		Soil						
Batch	R5034094							
WG3296878-4	DUP	L2428783-19						
Boron (B), Hot Water Ext.		0.14	0.15		ug/g	6.9	30	23-MAR-20
WG3296878-2	IRM	WT SAR3						
Boron (B), Hot Water Ext.			85.3		%		70-130	23-MAR-20
WG3296878-3	LCS							
Boron (B), Hot Water Ext.			100.0		%		70-130	23-MAR-20
WG3296878-1	MB							
Boron (B), Hot Water Ext.			<0.10		ug/g		0.1	23-MAR-20
CR-CR6-IC-WT		Soil						
Batch	R5035828							
WG3295851-4	CRM	WT-SQC012						
Chromium, Hexavalent			92.1		%		70-130	24-MAR-20
WG3295851-3	DUP	L2430024-1						
Chromium, Hexavalent		<0.20	<0.20	RPD-NA	ug/g	N/A	35	24-MAR-20
WG3295851-2	LCS							
Chromium, Hexavalent			97.8		%		80-120	24-MAR-20
WG3295851-1	MB							
Chromium, Hexavalent			<0.20		ug/g		0.2	24-MAR-20
HG-200.2-CVAA-WT		Soil						
Batch	R5034161							
WG3296873-2	CRM	WT-CANMET-TILL2						
Mercury (Hg)			111.4		%		70-130	23-MAR-20
WG3296873-6	DUP	WG3296873-5						
Mercury (Hg)		0.0175	0.0178		ug/g	1.8	40	23-MAR-20
WG3296873-3	LCS							
Mercury (Hg)			108.0		%		80-120	23-MAR-20
WG3296873-1	MB							
Mercury (Hg)			<0.0050		mg/kg		0.005	23-MAR-20
MET-200.2-CCMS-WT		Soil						
Batch	R5033306							
WG3295774-2	CRM	WT-CANMET-TILL2						
Antimony (Sb)			92.2		%		70-130	20-MAR-20
Arsenic (As)			102.6		%		70-130	20-MAR-20
Barium (Ba)			101.6		%		70-130	20-MAR-20
Beryllium (Be)			87.3		%		70-130	20-MAR-20
Boron (B)			3.3		mg/kg		0-8.6	20-MAR-20
Cadmium (Cd)			95.7		%		70-130	20-MAR-20



Quality Control Report

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R5033306							
WG3295774-2	CRM	WT-CANMET-TILL2						
Chromium (Cr)			98.5		%		70-130	20-MAR-20
Cobalt (Co)			97.7		%		70-130	20-MAR-20
Copper (Cu)			98.9		%		70-130	20-MAR-20
Lead (Pb)			95.1		%		70-130	20-MAR-20
Molybdenum (Mo)			100.8		%		70-130	20-MAR-20
Nickel (Ni)			98.6		%		70-130	20-MAR-20
Selenium (Se)			0.37		mg/kg		0.15-0.55	20-MAR-20
Silver (Ag)			0.25		mg/kg		0.16-0.36	20-MAR-20
Thallium (Tl)			96.7		%		70-130	20-MAR-20
Uranium (U)			91.2		%		70-130	20-MAR-20
Vanadium (V)			99.5		%		70-130	20-MAR-20
Zinc (Zn)			94.0		%		70-130	20-MAR-20
WG3295774-6	DUP	WG3295774-5						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	20-MAR-20
Arsenic (As)		0.67	0.67		ug/g	1.2	30	20-MAR-20
Barium (Ba)		43.6	42.4		ug/g	2.9	40	20-MAR-20
Beryllium (Be)		0.26	0.26		ug/g	3.0	30	20-MAR-20
Boron (B)		<5.0	<5.0	RPD-NA	ug/g	N/A	30	20-MAR-20
Cadmium (Cd)		0.128	0.135		ug/g	5.0	30	20-MAR-20
Chromium (Cr)		16.9	16.8		ug/g	0.5	30	20-MAR-20
Cobalt (Co)		4.36	4.24		ug/g	2.8	30	20-MAR-20
Copper (Cu)		4.24	4.25		ug/g	0.2	30	20-MAR-20
Lead (Pb)		3.60	3.60		ug/g	0.0	40	20-MAR-20
Molybdenum (Mo)		0.27	0.25		ug/g	6.5	40	20-MAR-20
Nickel (Ni)		8.69	8.47		ug/g	2.7	30	20-MAR-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	20-MAR-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	20-MAR-20
Thallium (Tl)		<0.050	<0.050	RPD-NA	ug/g	N/A	30	20-MAR-20
Uranium (U)		0.308	0.295		ug/g	4.4	30	20-MAR-20
Vanadium (V)		25.2	25.3		ug/g	0.5	30	20-MAR-20
Zinc (Zn)		45.9	44.9		ug/g	2.3	30	20-MAR-20
WG3295774-4	LCS							
Antimony (Sb)			103.8		%		80-120	20-MAR-20



Quality Control Report

Workorder: L2428783

Report Date: 01-APR-20

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R5033306							
WG3295774-4	LCS							
Arsenic (As)			102.7		%		80-120	20-MAR-20
Barium (Ba)			105.3		%		80-120	20-MAR-20
Beryllium (Be)			88.7		%		80-120	20-MAR-20
Boron (B)			87.5		%		80-120	20-MAR-20
Cadmium (Cd)			100.6		%		80-120	20-MAR-20
Chromium (Cr)			101.0		%		80-120	20-MAR-20
Cobalt (Co)			99.1		%		80-120	20-MAR-20
Copper (Cu)			98.5		%		80-120	20-MAR-20
Lead (Pb)			96.2		%		80-120	20-MAR-20
Molybdenum (Mo)			99.1		%		80-120	20-MAR-20
Nickel (Ni)			99.0		%		80-120	20-MAR-20
Selenium (Se)			101.6		%		80-120	20-MAR-20
Silver (Ag)			96.8		%		80-120	20-MAR-20
Thallium (Tl)			99.1		%		80-120	20-MAR-20
Uranium (U)			91.6		%		80-120	20-MAR-20
Vanadium (V)			101.9		%		80-120	20-MAR-20
Zinc (Zn)			93.1		%		80-120	20-MAR-20
WG3295774-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	20-MAR-20
Arsenic (As)			<0.10		mg/kg		0.1	20-MAR-20
Barium (Ba)			<0.50		mg/kg		0.5	20-MAR-20
Beryllium (Be)			<0.10		mg/kg		0.1	20-MAR-20
Boron (B)			<5.0		mg/kg		5	20-MAR-20
Cadmium (Cd)			<0.020		mg/kg		0.02	20-MAR-20
Chromium (Cr)			<0.50		mg/kg		0.5	20-MAR-20
Cobalt (Co)			<0.10		mg/kg		0.1	20-MAR-20
Copper (Cu)			<0.50		mg/kg		0.5	20-MAR-20
Lead (Pb)			<0.50		mg/kg		0.5	20-MAR-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	20-MAR-20
Nickel (Ni)			<0.50		mg/kg		0.5	20-MAR-20
Selenium (Se)			<0.20		mg/kg		0.2	20-MAR-20
Silver (Ag)			<0.10		mg/kg		0.1	20-MAR-20
Thallium (Tl)			<0.050		mg/kg		0.05	20-MAR-20
Uranium (U)			<0.050		mg/kg		0.05	20-MAR-20



Quality Control Report

Workorder: L2428783

Report Date: 01-APR-20

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R5033306							
WG3295774-1	MB							
Vanadium (V)			<0.20		mg/kg		0.2	20-MAR-20
Zinc (Zn)			<2.0		mg/kg		2	20-MAR-20
Batch	R5034449							
WG3296873-2	CRM	WT-CANMET-TILL2						
Antimony (Sb)			92.4		%		70-130	23-MAR-20
Arsenic (As)			101.7		%		70-130	23-MAR-20
Barium (Ba)			101.9		%		70-130	23-MAR-20
Beryllium (Be)			91.3		%		70-130	23-MAR-20
Boron (B)			3.3		mg/kg		0-8.6	23-MAR-20
Cadmium (Cd)			97.5		%		70-130	23-MAR-20
Chromium (Cr)			101.8		%		70-130	23-MAR-20
Cobalt (Co)			100.6		%		70-130	23-MAR-20
Copper (Cu)			100.9		%		70-130	23-MAR-20
Lead (Pb)			101.0		%		70-130	23-MAR-20
Molybdenum (Mo)			94.5		%		70-130	23-MAR-20
Nickel (Ni)			99.2		%		70-130	23-MAR-20
Selenium (Se)			0.34		mg/kg		0.15-0.55	23-MAR-20
Silver (Ag)			0.24		mg/kg		0.16-0.36	23-MAR-20
Thallium (Tl)			99.5		%		70-130	23-MAR-20
Uranium (U)			97.8		%		70-130	23-MAR-20
Vanadium (V)			101.5		%		70-130	23-MAR-20
Zinc (Zn)			97.3		%		70-130	23-MAR-20
WG3296873-6	DUP	WG3296873-5						
Antimony (Sb)		<0.10	<0.10	RPD-NA	ug/g	N/A	30	23-MAR-20
Arsenic (As)		4.79	4.84		ug/g	1.1	30	23-MAR-20
Barium (Ba)		30.5	31.0		ug/g	1.5	40	23-MAR-20
Beryllium (Be)		0.46	0.44		ug/g	4.1	30	23-MAR-20
Boron (B)		12.5	12.1		ug/g	3.3	30	23-MAR-20
Cadmium (Cd)		0.037	0.038		ug/g	2.4	30	23-MAR-20
Chromium (Cr)		15.8	15.9		ug/g	0.9	30	23-MAR-20
Cobalt (Co)		8.41	8.46		ug/g	0.6	30	23-MAR-20
Copper (Cu)		20.1	20.0		ug/g	0.2	30	23-MAR-20
Lead (Pb)		8.24	7.97		ug/g	3.3	40	23-MAR-20
Molybdenum (Mo)		0.40	0.40		ug/g			23-MAR-20



Quality Control Report

Workorder: L2428783

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R5034449							
WG3296873-6	DUP	WG3296873-5						
Molybdenum (Mo)		0.40	0.40		ug/g	2.1	40	23-MAR-20
Nickel (Ni)		19.4	19.4		ug/g	0.1	30	23-MAR-20
Selenium (Se)		<0.20	<0.20	RPD-NA	ug/g	N/A	30	23-MAR-20
Silver (Ag)		<0.10	<0.10	RPD-NA	ug/g	N/A	40	23-MAR-20
Thallium (Tl)		0.093	0.090		ug/g	3.4	30	23-MAR-20
Uranium (U)		0.687	0.652		ug/g	5.2	30	23-MAR-20
Vanadium (V)		20.7	20.6		ug/g	0.6	30	23-MAR-20
Zinc (Zn)		32.8	33.0		ug/g	0.7	30	23-MAR-20
WG3296873-4	LCS							
Antimony (Sb)			103.4		%		80-120	23-MAR-20
Arsenic (As)			101.6		%		80-120	23-MAR-20
Barium (Ba)			102.3		%		80-120	23-MAR-20
Beryllium (Be)			93.4		%		80-120	23-MAR-20
Boron (B)			92.1		%		80-120	23-MAR-20
Cadmium (Cd)			96.3		%		80-120	23-MAR-20
Chromium (Cr)			100.1		%		80-120	23-MAR-20
Cobalt (Co)			97.7		%		80-120	23-MAR-20
Copper (Cu)			97.2		%		80-120	23-MAR-20
Lead (Pb)			101.3		%		80-120	23-MAR-20
Molybdenum (Mo)			100.9		%		80-120	23-MAR-20
Nickel (Ni)			97.7		%		80-120	23-MAR-20
Selenium (Se)			98.6		%		80-120	23-MAR-20
Silver (Ag)			95.1		%		80-120	23-MAR-20
Thallium (Tl)			101.0		%		80-120	23-MAR-20
Uranium (U)			97.1		%		80-120	23-MAR-20
Vanadium (V)			102.1		%		80-120	23-MAR-20
Zinc (Zn)			97.1		%		80-120	23-MAR-20
WG3296873-1	MB							
Antimony (Sb)			<0.10		mg/kg		0.1	23-MAR-20
Arsenic (As)			<0.10		mg/kg		0.1	23-MAR-20
Barium (Ba)			<0.50		mg/kg		0.5	23-MAR-20
Beryllium (Be)			<0.10		mg/kg		0.1	23-MAR-20
Boron (B)			<5.0		mg/kg		5	23-MAR-20
Cadmium (Cd)			<0.020		mg/kg		0.02	23-MAR-20



Quality Control Report

Workorder: L2428783

Report Date: 01-APR-20

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-200.2-CCMS-WT		Soil						
Batch	R5034449							
WG3296873-1	MB							
Chromium (Cr)			<0.50		mg/kg		0.5	23-MAR-20
Cobalt (Co)			<0.10		mg/kg		0.1	23-MAR-20
Copper (Cu)			<0.50		mg/kg		0.5	23-MAR-20
Lead (Pb)			<0.50		mg/kg		0.5	23-MAR-20
Molybdenum (Mo)			<0.10		mg/kg		0.1	23-MAR-20
Nickel (Ni)			<0.50		mg/kg		0.5	23-MAR-20
Selenium (Se)			<0.20		mg/kg		0.2	23-MAR-20
Silver (Ag)			<0.10		mg/kg		0.1	23-MAR-20
Thallium (Tl)			<0.050		mg/kg		0.05	23-MAR-20
Uranium (U)			<0.050		mg/kg		0.05	23-MAR-20
Vanadium (V)			<0.20		mg/kg		0.2	23-MAR-20
Zinc (Zn)			<2.0		mg/kg		2	23-MAR-20
MOISTURE-WT		Soil						
Batch	R5028626							
WG3294102-3	DUP	L2428783-17						
% Moisture		23.9	25.2		%	5.0	20	18-MAR-20
WG3294102-2	LCS							
% Moisture			100.3		%		90-110	18-MAR-20
WG3294102-1	MB							
% Moisture			<0.25		%		0.25	18-MAR-20
Batch	R5033679							
WG3295824-3	DUP	L2430024-1						
% Moisture		18.1	17.8		%	1.8	20	20-MAR-20
WG3295824-2	LCS							
% Moisture			101.1		%		90-110	20-MAR-20
WG3295824-1	MB							
% Moisture			<0.25		%		0.25	20-MAR-20
PEST-OC-511-WT		Soil						
Batch	R5032957							
WG3294279-3	DUP	WG3294279-5						
Aldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
a-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
g-chlordane		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
op-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
pp-DDD		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20



Quality Control Report

Workorder: L2428783

Report Date: 01-APR-20

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT		Soil						
Batch	R5032957							
WG3294279-3	DUP	WG3294279-5						
o,p-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
pp-DDE		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
op-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
pp-DDT		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
Dieldrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
Endosulfan I		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
Endosulfan II		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
Endrin		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
gamma-hexachlorocyclohexane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-20
Heptachlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
Heptachlor Epoxide		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
Hexachlorobenzene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-20
Hexachlorobutadiene		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-20
Hexachloroethane		<0.010	<0.010	RPD-NA	ug/g	N/A	40	20-MAR-20
Methoxychlor		<0.020	<0.020	RPD-NA	ug/g	N/A	40	20-MAR-20
WG3294279-2	LCS							
Aldrin			116.2		%		50-140	19-MAR-20
a-chlordane			90.6		%		50-140	19-MAR-20
g-chlordane			90.6		%		50-140	19-MAR-20
op-DDD			88.7		%		50-140	19-MAR-20
pp-DDD			85.6		%		50-140	19-MAR-20
o,p-DDE			87.7		%		50-140	19-MAR-20
pp-DDE			86.1		%		50-140	19-MAR-20
op-DDT			83.4		%		50-140	19-MAR-20
pp-DDT			86.2		%		50-140	19-MAR-20
Dieldrin			90.0		%		50-140	19-MAR-20
Endosulfan I			87.0		%		50-140	19-MAR-20
Endosulfan II			84.4		%		50-140	19-MAR-20
Endrin			92.0		%		50-140	19-MAR-20
gamma-hexachlorocyclohexane			100.2		%		50-140	19-MAR-20
Heptachlor			97.6		%		50-140	19-MAR-20
Heptachlor Epoxide			94.2		%		50-140	19-MAR-20
Hexachlorobenzene			102.1		%		50-140	19-MAR-20



Quality Control Report

Workorder: L2428783

Report Date: 01-APR-20

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT		Soil						
Batch	R5032957							
WG3294279-2	LCS							
Hexachlorobutadiene			102.1		%		50-140	19-MAR-20
Hexachloroethane			112.7		%		50-140	19-MAR-20
Methoxychlor			91.1		%		50-140	19-MAR-20
WG3294279-1	MB							
Aldrin			<0.020		ug/g		0.02	20-MAR-20
a-chlordane			<0.020		ug/g		0.02	20-MAR-20
g-chlordane			<0.020		ug/g		0.02	20-MAR-20
op-DDD			<0.020		ug/g		0.02	20-MAR-20
pp-DDD			<0.020		ug/g		0.02	20-MAR-20
o,p-DDE			<0.020		ug/g		0.02	20-MAR-20
pp-DDE			<0.020		ug/g		0.02	20-MAR-20
op-DDT			<0.020		ug/g		0.02	20-MAR-20
pp-DDT			<0.020		ug/g		0.02	20-MAR-20
Dieldrin			<0.020		ug/g		0.02	20-MAR-20
Endosulfan I			<0.020		ug/g		0.02	20-MAR-20
Endosulfan II			<0.020		ug/g		0.02	20-MAR-20
Endrin			<0.020		ug/g		0.02	20-MAR-20
gamma-hexachlorocyclohexane			<0.010		ug/g		0.01	20-MAR-20
Heptachlor			<0.020		ug/g		0.02	20-MAR-20
Heptachlor Epoxide			<0.020		ug/g		0.02	20-MAR-20
Hexachlorobenzene			<0.010		ug/g		0.01	20-MAR-20
Hexachlorobutadiene			<0.010		ug/g		0.01	20-MAR-20
Hexachloroethane			<0.010		ug/g		0.01	20-MAR-20
Methoxychlor			<0.020		ug/g		0.02	20-MAR-20
Surrogate: 2-Fluorobiphenyl			89.3		%		50-140	20-MAR-20
Surrogate: d14-Terphenyl			98.1		%		50-140	20-MAR-20
WG3294279-4	MS	WG3294279-5						
Aldrin			129.0		%		50-140	19-MAR-20
a-chlordane			94.3		%		50-140	19-MAR-20
g-chlordane			95.8		%		50-140	19-MAR-20
op-DDD			92.0		%		50-140	19-MAR-20
pp-DDD			91.2		%		50-140	19-MAR-20
o,p-DDE			94.3		%		50-140	19-MAR-20
pp-DDE			91.3		%		50-140	19-MAR-20



Quality Control Report

Workorder: L2428783

Report Date: 01-APR-20

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3
Contact: ALIREZA MALEK

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
PEST-OC-511-WT		Soil						
Batch	R5032957							
WG3294279-4	MS	WG3294279-5						
op-DDT			94.8		%		50-140	19-MAR-20
pp-DDT			99.1		%		50-140	19-MAR-20
Dieldrin			92.0		%		50-140	19-MAR-20
Endosulfan I			90.4		%		50-140	19-MAR-20
Endosulfan II			91.2		%		50-140	19-MAR-20
Endrin			113.9		%		50-140	19-MAR-20
gamma-hexachlorocyclohexane			114.5		%		50-140	19-MAR-20
Heptachlor			109.5		%		50-140	19-MAR-20
Heptachlor Epoxide			96.0		%		50-140	19-MAR-20
Hexachlorobenzene			110.3		%		50-140	19-MAR-20
Hexachlorobutadiene			106.0		%		50-140	19-MAR-20
Hexachloroethane			119.0		%		50-140	19-MAR-20
Methoxychlor			109.5		%		50-140	19-MAR-20
PH-WT		Soil						
Batch	R5043273							
WG3299939-1	DUP	L2428783-1						
pH		6.93	6.90	J	pH units	0.03	0.3	27-MAR-20
WG3300226-1	LCS							
pH			6.99		pH units		6.9-7.1	27-MAR-20

Quality Control Report

Workorder: L2428783

Report Date: 01-APR-20

Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3
Contact: ALIREZA MALEK

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Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878



L2428783-COFC

COC Number: 17 - 615451

Page 1 of 2

www.alsglobal.com

Report To		Report Format / Distribution		Priority	
Contact and company name below will appear on the final report		Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)		Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply	
Company:	TerraProbe	Quality Control (QC) Report with Report ☐ YES ☒ NO		4 day [P4-20%] ☐	
Contact:	Alireza Malek	☐ Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] ☐	
Phone:	905-746-2050 x168	Select Distribution: ☐ EMAIL ☐ MAIL ☐ FAX		2 day [P2-50%] ☐	
Company address below will appear on the final report		Email 1 or Fax: amalek@terraprobe.ca		EMERGENCY: 1 Business day [E-100%] ☐	
Street:	11 Endell Lane	Email 2:		Same Day, Weekend or Statutory holiday [E2-200%] (Laboratory opening fees may apply) ☐	
City/Province:	Brampton	Email 3:		Date and Time received for all E&P TATs: 17/3/2020 14:15	
Postal Code:				For tests that can not be performed according to the service level selected, you will be contacted.	
Invoice To	Same as Report To ☒ YES ☐ NO	Invoice Distribution		Analysis Request	
	Copy of Invoice with Report ☐ YES ☒ NO	Select Invoice Distribution: ☒ EMAIL ☐ MAIL ☐ FAX		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Company:		Email 1 or Fax:			
Contact:		Email 2:			
Project Information					
ALS Account # / Quote #:		AFE/Cost Center:			
Job #:	1-17-918	Major/Minor Code:			
PO / AFE:		Routing Code:			
LSD:		Requisitioner:			
		Location:			
ALS Lab Work Order # (lab use only): L2428783R4		ALS Contact:		Sampler: A. Malek	
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	
BH4-SS1		10/3/20	am	Soil 13J	metals
BH4-SS2		"	"	Soil	metals and hydrocarbons
BH5-SS1		9/3/20	"	Soil 14J	OC Pesticides
BH5-SS2		9/3/20	"	Soil 15J	Telp (M HFM)
BH6-SS1		9/3/20	"	Soil 16J	Telp (COCs)
BH6-SS2		9/3/20	"	Soil 17J	Telp PCB
BH7-SS1		10/3/20	"	Soil 18J	Telp PHRs/VOCs
BH7-SS2		10/3/20	"	Soil 19J	Telp PAHs
BH8-SS1		12/3/20	"	Soil 20J	
BH8-SS2		12/3/20	"	Soil 21J	
BH8-SS3		12/3/20	"	Soil 1J	
Drinking Water (DW) Samples ¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)	
Are samples taken from a Regulated DW System? ☐ YES ☒ NO		Table 2 RPI		Frozen ☐ SIF Observations Yes ☐ No ☐	
Are samples for human consumption/ use? ☐ YES ☒ NO				Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐	
				Cooling Initiated ☐	
				INITIAL COOLER TEMPERATURES °C: 4.4	
				FINAL COOLER TEMPERATURES °C:	
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)	
Released by: A. Malek	Date: 17/3/2020	Time:	Received by:	Date: 17/3/2020	Time: 14:15



Chain of Custody (COC) / Analytical Request Form

Canada Toll Free: 1 800 668 9878

www.alsglobal.com



L2428783-COFC

COC Number: 17 - 615452

Page 2 of 2

Report To Contact and company name below will appear on the final report		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all E&P TATs (surcharges may apply)	
Company: <u>TerraProbe</u>		Select Report Format: ☒ PDF ☒ EXCEL ☐ EDD (DIGITAL)		Regular [R] ☒ Standard TAT if received by 3 pm - business days - no surcharges apply	
Contact: <u>Alireza Malek</u>		Quality Control (QC) Report with Report ☐ YES ☒ NO		4 day [P4-20%] ☐ 1 Business day [E-100%] ☐	
Phone: <u>905.796.2650 x168</u>		☐ Compare Results to Criteria on Report - provide details below if box checked		3 day [P3-25%] ☐ Same Day, Weekend or Statutory holiday [E2-200%] ☐	
Company address below will appear on the final report		Select Distribution: ☐ EMAIL ☒ MAIL ☐ FAX		2 day [P2-50%] ☐ (Laboratory opening fees may apply) ☐	
Street: <u>11 Indall Lane</u>		Email 1 or Fax: <u>amalek@terraprobe.ca</u>		Time and Time Required for all E&P TATs: <u> </u>	
City/Province: <u>Brampton</u>		Email 2: <u> </u>		For tests that can not be performed according to the service level selected, you will be contacted.	
Postal Code: <u> </u>		Email 3: <u> </u>		Analysis Request	
Invoice To: Same as Report To ☒ YES ☐ NO		Invoice Distribution		Indicate Filtered (F), Preserved (P) or Filtered and Preserved (F/P) below	
Copy of Invoice with Report ☐ YES ☐ NO		Select Invoice Distribution: ☐ EMAIL ☐ MAIL ☐ FAX			
Company: <u> </u>		Email 1 or Fax: <u> </u>			
Contact: <u> </u>		Email 2: <u> </u>			
Project Information					
ALS Account # / Quote #: <u>1-17-0918</u>		AFE/Cost Center: <u> </u> PO#: <u> </u>			
Job #: <u> </u>		Major/Minor Code: <u> </u> Routing Code: <u> </u>			
PO / AFE: <u> </u>		Requisitioner: <u> </u>			
LSD: <u> </u>		Location: <u> </u>			
ALS Lab Work Order # (lab use only): <u>L2428783/04</u>		ALS Contact: <u> </u>		Sampler: <u>A. Malek</u>	
ALS Sample # (lab use only)	Sample Identification and/or Coordinates (This description will appear on the report)	Date (dd-mm-yy)	Time (hh:mm)	Sample Type	
	BH4-SS1	13/3/20	am	Soil 1J	✓
	BH4-SS2	N	am	Soil 1J	✓
	BH10-SS1	12/3/20	am	Soil 2J	✓
	BH10-SS2	12/3/20	am	Soil 2J	✓
	BH11-SS1	12/3/20	am	Soil 1J	✓
	BH11-SS2	12/3/20	am	Soil 2J	✓
	BH12-SS1	13/3/20	N	Soil 2J	✓
	BH12-SS2	13/3/20	N	Soil 2J	✓
	Dup 1	9/3/20	am	Soil 1J	✓
	Dup 2	13/3/20	N	Soil 1J	✓
Drinking Water (DW) Samples¹ (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)		SAMPLE CONDITION AS RECEIVED (lab use only)	
Are samples taken from a Regulated DW System? ☐ YES ☐ NO		Table 2 RPI		Frozen ☐ SIF Observations Yes ☐ No ☐	
Are samples for human consumption/ use? ☐ YES ☐ NO				Ice Packs ☐ Ice Cubes ☐ Custody seal intact Yes ☐ No ☐	
				Cooling Initiated ☐	
				INITIAL COOLER TEMPERATURES °C: <u> </u> FINAL COOLER TEMPERATURES °C: <u>11.4</u>	
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)	
Released by: <u>A. Malek</u>	Date: <u>17/3/2020</u>	Time: <u> </u>	Received by: <u> </u>	Date: <u> </u>	Time: <u> </u>
				Date: <u>Mar 17/20</u>	Time: <u>19:15</u>

REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION

WHITE - LABORATORY COPY YELLOW - CLIENT COPY

Failure to complete all portions of this form may delay analysis. Please fill in this form LEGIBLY. By the use of this form the user acknowledges and agrees with the Terms and Conditions as specified on the back page of the white - report copy.

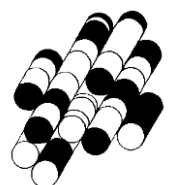
1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

JULY 2017 FRONT

CERTIFICATES OF ANALYSIS

(GROUNDWATER)

TERRAPROBE INC.





TERRAPROBE - BRAMPTON
ATTN: Alireza Malek
11 Indell Lane
Brampton ON L6T 3Y3

Date Received: 27-MAR-20
Report Date: 03-APR-20 12:45 (MT)
Version: FINAL

Client Phone: 416-939-5804

Certificate of Analysis

Lab Work Order #: L2432026
Project P.O. #: NOT SUBMITTED
Job Reference: 1-17-918-4201
C of C Numbers: 17-796045, 17-796046
Legal Site Desc:

Emily Smith
Account Manager

[This report shall not be reproduced except in full without the written authority of the Laboratory.]

ADDRESS: 5730 Coopers Avenue, Unit #26, Mississauga, ON L4Z 2E9 Canada | Phone: +1 905 507 6910 | Fax: +1 905 507 6927
ALS CANADA LTD Part of the ALS Group An ALS Limited Company



ANALYTICAL REPORT

L2432026 CONT'D....

Job Reference: 1-17-918-4201

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03-APR-20 12:45 (MT)

Summary of Guideline Exceedances

Guideline							
ALS ID	Client ID	Grouping	Analyte	Result	Guideline Limit	Unit	
Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Ground Water (Coarse Soil)-All Types of Property Use							
(No parameter exceedances)							
Ontario Regulation 153/04 - April 15, 2011 Standards - T2-Ground Water (Fine Soil)-All Types of Property Use							
(No parameter exceedances)							

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



ANALYTICAL REPORT

Dissolved Metals - WATER

Analyte	Unit	Guide Limits		Lab ID	L2432026-1	L2432026-2	L2432026-3	L2432026-4	L2432026-5	L2432026-6	L2432026-7	L2432026-8	L2432026-9
		#1	#2	Sample Date	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20
				Sample ID	BH 12	BH 9	BH 11	BH 10	BH 8	BH 3	BH 4	BH 7	BH 2
Dissolved Mercury Filtration Location	-	-		FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
Dissolved Metals Filtration Location	-	-		FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
Antimony (Sb)-Dissolved	ug/L	6	6	0.21	<0.10	0.20	0.22	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Arsenic (As)-Dissolved	ug/L	25	25	0.41	0.36	1.00	0.59	0.79	0.58	0.76	1.44	0.16	
Barium (Ba)-Dissolved	ug/L	1000	1000	77.4	46.8	66.5	85.2	92.7	62.7	131	60.8	50.9	
Beryllium (Be)-Dissolved	ug/L	4	4	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10	<0.10
Boron (B)-Dissolved	ug/L	5000	5000	137	336	375	350	196	351	96	237	377	
Cadmium (Cd)-Dissolved	ug/L	2.7	2.7	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Chromium (Cr)-Dissolved	ug/L	50	50	<0.50	<0.50	<0.50	<0.50	0.83	<0.50	<0.50	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	ug/L	3.8	3.8	0.25	<0.10	0.13	0.27	0.89	<0.10	0.13	1.45	<0.10	
Copper (Cu)-Dissolved	ug/L	87	87	2.43	0.69	1.62	1.12	1.70	0.48	2.66	2.41	1.32	
Lead (Pb)-Dissolved	ug/L	10	10	<0.050	<0.050	<0.050	<0.050	0.607	<0.050	<0.050	<0.050	<0.050	<0.050
Mercury (Hg)-Dissolved	ug/L	0.29	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	ug/L	70	70	5.81	1.13	3.52	5.11	0.600	0.162	0.444	1.66	0.169	
Nickel (Ni)-Dissolved	ug/L	100	100	0.71	<0.50	0.98	0.99	1.66	<0.50	0.55	2.16	0.55	
Selenium (Se)-Dissolved	ug/L	10	10	0.139	<0.050	0.054	0.121	0.051	<0.050	<0.050	0.076	<0.050	
Silver (Ag)-Dissolved	ug/L	1.5	1.5	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050	<0.050
Sodium (Na)-Dissolved	ug/L	490000	490000	13200	17400	26800	21300	52900	42000	175000 ^{DLHC}	60400	47800	
Thallium (Tl)-Dissolved	ug/L	2	2	0.021	<0.010	<0.010	0.022	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Uranium (U)-Dissolved	ug/L	20	20	1.18	0.102	0.650	0.931	0.333	0.049	0.310	1.42	0.042	
Vanadium (V)-Dissolved	ug/L	6.2	6.2	<0.50	<0.50	<0.50	<0.50	1.13	<0.50	<0.50	<0.50	<0.50	<0.50
Zinc (Zn)-Dissolved	ug/L	1100	1100	3.0	1.8	2.2	1.1	5.5	<1.0	4.2	3.2	2.7	

Guide Limit #1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Guide Limit #2: T2-Ground Water (Fine Soil)-All Types of Property Use

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Dissolved Metals - WATER

Analyte	Unit	Guide Limits		Lab ID	L2432026-10	L2432026-11	L2432026-12	L2432026-13	L2432026-14
		#1	#2	Sample Date Sample ID	26-MAR-20 BH 1	26-MAR-20 BH 5	26-MAR-20 BH 6	26-MAR-20 DUP 1	26-MAR-20 DUP 2
Dissolved Mercury Filtration Location	-	-		FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
Dissolved Metals Filtration Location	-	-		FIELD	FIELD	FIELD	FIELD	FIELD	FIELD
Antimony (Sb)-Dissolved	ug/L	6	6	<0.10	<1.0 ^{DLHC}	<1.0 ^{DLHC}	0.22	<0.10	<0.10
Arsenic (As)-Dissolved	ug/L	25	25	0.34	1.0 ^{DLHC}	<1.0 ^{DLHC}	0.39	0.43	0.43
Barium (Ba)-Dissolved	ug/L	1000	1000	87.9	59.5 ^{DLHC}	49.5 ^{DLHC}	81.1	50.3	50.3
Beryllium (Be)-Dissolved	ug/L	4	4	<0.10	<1.0 ^{DLHC}	<1.0 ^{DLHC}	<0.10	<0.10	<0.10
Boron (B)-Dissolved	ug/L	5000	5000	199	<100 ^{DLHC}	<100 ^{DLHC}	151	372	372
Cadmium (Cd)-Dissolved	ug/L	2.7	2.7	<0.010	<0.050 ^{DLHC}	<0.050 ^{DLHC}	<0.010	<0.010	<0.010
Chromium (Cr)-Dissolved	ug/L	50	50	<0.50	<5.0 ^{DLHC}	<5.0 ^{DLHC}	<0.50	<0.50	<0.50
Cobalt (Co)-Dissolved	ug/L	3.8	3.8	0.13	<1.0 ^{DLHC}	<1.0 ^{DLHC}	0.25	<0.10	<0.10
Copper (Cu)-Dissolved	ug/L	87	87	1.31	5.5 ^{DLHC}	5.5 ^{DLHC}	1.89	1.62	1.62
Lead (Pb)-Dissolved	ug/L	10	10	<0.050	<0.50 ^{DLHC}	<0.50 ^{DLHC}	<0.050	0.061	0.061
Mercury (Hg)-Dissolved	ug/L	0.29	1	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050
Molybdenum (Mo)-Dissolved	ug/L	70	70	0.181	0.50 ^{DLHC}	1.58 ^{DLHC}	6.16	1.18	1.18
Nickel (Ni)-Dissolved	ug/L	100	100	0.84	<5.0 ^{DLHC}	<5.0 ^{DLHC}	0.77	<0.50	<0.50
Selenium (Se)-Dissolved	ug/L	10	10	0.055	<0.50 ^{DLHC}	<0.50 ^{DLHC}	0.107	<0.050	<0.050
Silver (Ag)-Dissolved	ug/L	1.5	1.5	<0.050	<0.50 ^{DLHC}	<0.50 ^{DLHC}	<0.050	<0.050	<0.050
Sodium (Na)-Dissolved	ug/L	490000	490000	59700	418000 ^{DLHC}	457000 ^{DLHC}	14700	19400	19400
Thallium (Tl)-Dissolved	ug/L	2	2	<0.010	<0.10 ^{DLHC}	<0.10 ^{DLHC}	0.022	<0.010	<0.010
Uranium (U)-Dissolved	ug/L	20	20	0.048	2.97 ^{DLHC}	5.18 ^{DLHC}	1.24	0.103	0.103
Vanadium (V)-Dissolved	ug/L	6.2	6.2	<0.50	<5.0 ^{DLHC}	<5.0 ^{DLHC}	<0.50	<0.50	<0.50
Zinc (Zn)-Dissolved	ug/L	1100	1100	2.8	<10 ^{DLHC}	<10 ^{DLHC}	2.5	3.4	3.4

Guide Limit #1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Guide Limit #2: T2-Ground Water (Fine Soil)-All Types of Property Use

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Speciated Metals - WATER

Analyte	Unit	Guide Limits		Lab ID	L2432026-1	L2432026-2	L2432026-3	L2432026-4	L2432026-5	L2432026-6	L2432026-7	L2432026-8	L2432026-9
		#1	#2	Sample Date	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20
				Sample ID	BH 12	BH 9	BH 11	BH 10	BH 8	BH 3	BH 4	BH 7	BH 2
Chromium, Hexavalent	ug/L	25	25		<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50	<0.50

Guide Limit #1: T2-Ground Water (Coarse Soil)-All Types of Property Use
Guide Limit #2: T2-Ground Water (Fine Soil)-All Types of Property Use
Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.
Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



ANALYTICAL REPORT

Speciated Metals - WATER

Speciated Metals - Hexavalent Chromium								
Analyte	Unit	Lab ID	L2432026-10	L2432026-11	L2432026-12	L2432026-13	L2432026-14	
		Sample Date	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	
		Sample ID	BH 1	BH 5	BH 6	DUP 1	DUP 2	
		Guide Limits						
		#1	#2					
Chromium, Hexavalent	ug/L	25	25	<0.50	<0.50	<0.50	<0.50	<0.50

Guide Limit #1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Guide Limit #2: T2-Ground Water (Fine Soil)-All Types of Property Use

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.



ANALYTICAL REPORT

Volatile Organic Compounds - WATER

Lab ID L2432026-15
Sample Date 26-MAR-20
Sample ID VOC/BTEX/F1
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Analyte	Unit	Guide Limits		
		#1	#2	
Acetone	ug/L	2700	2700	<30
Benzene	ug/L	5	5	<0.50
Bromodichloromethane	ug/L	16	16	<2.0
Bromoform	ug/L	25	25	<5.0
Bromomethane	ug/L	0.89	0.89	<0.50
Carbon tetrachloride	ug/L	0.79	5	<0.20
Chlorobenzene	ug/L	30	30	<0.50
Dibromochloromethane	ug/L	25	25	<2.0
Chloroform	ug/L	2.4	22	<1.0
1,2-Dibromoethane	ug/L	0.2	0.2	<0.20
1,2-Dichlorobenzene	ug/L	3	3	<0.50
1,3-Dichlorobenzene	ug/L	59	59	<0.50
1,4-Dichlorobenzene	ug/L	1	1	<0.50
Dichlorodifluoromethane	ug/L	590	590	<2.0
1,1-Dichloroethane	ug/L	5	5	<0.50
1,2-Dichloroethane	ug/L	1.6	5	<0.50
1,1-Dichloroethylene	ug/L	1.6	14	<0.50
cis-1,2-Dichloroethylene	ug/L	1.6	17	<0.50
trans-1,2-Dichloroethylene	ug/L	1.6	17	<0.50
Methylene Chloride	ug/L	50	50	<5.0
1,2-Dichloropropane	ug/L	5	5	<0.50
cis-1,3-Dichloropropene	ug/L	-	-	<0.30
trans-1,3-Dichloropropene	ug/L	-	-	<0.30
1,3-Dichloropropene (cis & trans)	ug/L	0.5	0.5	<0.50
Ethylbenzene	ug/L	2.4	2.4	<0.50
n-Hexane	ug/L	51	520	<0.50
Methyl Ethyl Ketone	ug/L	1800	1800	<20
Methyl Isobutyl Ketone	ug/L	640	640	<20
MTBE	ug/L	15	15	<2.0
Styrene	ug/L	5.4	5.4	<0.50

Guide Limit #1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Guide Limit #2: T2-Ground Water (Fine Soil)-All Types of Property Use

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



ANALYTICAL REPORT

Volatile Organic Compounds - WATER

Lab ID L2432026-15
Sample Date 26-MAR-20
Sample ID VOC/BTEX/F1
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Analyte	Unit	Guide Limits		
		#1	#2	
1,1,1,2-Tetrachloroethane	ug/L	1.1	1.1	<0.50
1,1,2,2-Tetrachloroethane	ug/L	1	1	<0.50
Tetrachloroethylene	ug/L	1.6	17	<0.50
Toluene	ug/L	24	24	<0.50
1,1,1-Trichloroethane	ug/L	200	200	<0.50
1,1,2-Trichloroethane	ug/L	4.7	5	<0.50
Trichloroethylene	ug/L	1.6	5	<0.50
Trichlorofluoromethane	ug/L	150	150	<5.0
Vinyl chloride	ug/L	0.5	1.7	<0.50
o-Xylene	ug/L	-	-	<0.30
m+p-Xylenes	ug/L	-	-	<0.40
Xylenes (Total)	ug/L	300	300	<0.50
Surrogate: 4-Bromofluorobenzene	%	-	-	97.7
Surrogate: 1,4-Difluorobenzene	%	-	-	99.9

Guide Limit #1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Guide Limit #2: T2-Ground Water (Fine Soil)-All Types of Property Use

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

ANALYTICAL REPORT

Organochlorine Pesticides - WATER

Analyte	Unit	Guide Limits		Lab ID	L2432026-1	L2432026-2	L2432026-3	L2432026-4	L2432026-5	L2432026-6	L2432026-7	L2432026-8	L2432026-9
		#1	#2	Sample Date Sample ID	26-MAR-20 BH 12	26-MAR-20 BH 9	26-MAR-20 BH 11	26-MAR-20 BH 10	26-MAR-20 BH 8	26-MAR-20 BH 3	26-MAR-20 BH 4	26-MAR-20 BH 7	26-MAR-20 BH 2
Aldrin	ug/L	0.35	0.35		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
gamma-hexachlorocyclohexane	ug/L	1.2	1.2		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
a-chlordane	ug/L	-	-		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Chlordane (Total)	ug/L	7	7		<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011	<0.011
g-chlordane	ug/L	-	-		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
o,p-DDD	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
pp-DDD	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Total DDD	ug/L	10	10		<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
o,p-DDE	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
pp-DDE	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Total DDE	ug/L	10	10		<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
op-DDT	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
pp-DDT	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Total DDT	ug/L	2.8	2.8		<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
Dieldrin	ug/L	0.35	0.35		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Endosulfan I	ug/L	-	-		<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070
Endosulfan II	ug/L	-	-		<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070	<0.0070
Endosulfan (Total)	ug/L	1.5	1.5		<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099	<0.0099
Endrin	ug/L	0.48	0.48		<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	ug/L	1.5	1.5		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Heptachlor Epoxide	ug/L	0.048	0.048		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Hexachlorobenzene	ug/L	1	1		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Hexachlorobutadiene	ug/L	0.44	0.6		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Hexachloroethane	ug/L	2.1	2.1		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Methoxychlor	ug/L	6.5	6.5		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Surrogate: Decachlorobiphenyl	%	-	-		86.3	66.9	89.3	88.5	68.9	84.8	85.4	93.5	88.3
Surrogate: Tetrachloro-m-xylene	%	-	-		95.3	89.2	89.8	86.2	80.1	85.9	88.9	88.8	89.5

Guide Limit #1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Guide Limit #2: T2-Ground Water (Fine Soil)-All Types of Property Use

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.



ANALYTICAL REPORT

Organochlorine Pesticides - WATER

Analyte	Unit	Guide Limits		Lab ID	L2432026-10	L2432026-11	L2432026-12	L2432026-13	L2432026-14
		#1	#2	Sample Date	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20	26-MAR-20
				Sample ID	BH 1	BH 5	BH 6	DUP 1	DUP 2
Aldrin	ug/L	0.35	0.35		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
gamma-hexachlorocyclohexane	ug/L	1.2	1.2		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
a-chlordane	ug/L	-	-		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Chlordane (Total)	ug/L	7	7		<0.011	<0.011	<0.011	<0.011	<0.011
g-chlordane	ug/L	-	-		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
o,p-DDD	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
pp-DDD	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Total DDD	ug/L	10	10		<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
o,p-DDE	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
pp-DDE	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
Total DDE	ug/L	10	10		<0.0057	<0.0057	<0.0057	<0.0057	<0.0057
op-DDT	ug/L	-	-		<0.0040	<0.0040	<0.0040	<0.0040	<0.0040
pp-DDT	ug/L	-	-		<0.0040	<0.0050 ^{PLQ}	<0.0040	<0.0040	<0.0040
Total DDT	ug/L	2.8	2.8		<0.0057	<0.0064	<0.0057	<0.0057	<0.0057
Dieldrin	ug/L	0.35	0.35		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Endosulfan I	ug/L	-	-		<0.0070	<0.0070	<0.0070	<0.0070	<0.0070
Endosulfan II	ug/L	-	-		<0.0070	<0.0070	<0.0070	<0.0070	<0.0070
Endosulfan (Total)	ug/L	1.5	1.5		<0.0099	<0.0099	<0.0099	<0.0099	<0.0099
Endrin	ug/L	0.48	0.48		<0.010	<0.010	<0.010	<0.010	<0.010
Heptachlor	ug/L	1.5	1.5		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Heptachlor Epoxide	ug/L	0.048	0.048		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Hexachlorobenzene	ug/L	1	1		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Hexachlorobutadiene	ug/L	0.44	0.6		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Hexachloroethane	ug/L	2.1	2.1		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Methoxychlor	ug/L	6.5	6.5		<0.0080	<0.0080	<0.0080	<0.0080	<0.0080
Surrogate: Decachlorobiphenyl	%	-	-		74.0	82.6	77.0	83.1	80.1
Surrogate: Tetrachloro-m-xylene	%	-	-		94.8	89.1	97.5	90.9	89.2

Guide Limit #1: T2-Ground Water (Coarse Soil)-All Types of Property Use

Guide Limit #2: T2-Ground Water (Fine Soil)-All Types of Property Use

 Detection Limit for result exceeds Guideline Limit. Assessment against Guideline Limit cannot be made.

 Analytical result for this parameter exceeds Guide Limits listed. See Summary of Guideline Exceedances.

* Please refer to the Reference Information section for an explanation of any qualifiers noted.

Reference Information

Qualifiers for Individual Parameters Listed:

Qualifier	Description
DLQ	Detection Limit raised due to co-eluting interference. GCMS qualifier ion ratio did not meet acceptance criteria.
DLHC	Detection Limit Raised: Dilution required due to high concentration of test analyte(s).

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
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CHLORDANE-T-CALC-WT Water Chlordane Total sums CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

CR-CR6-IC-R511-WT Water Hex Chrom-O.Reg 153/04 (July 2011) EPA 7199

This analysis is carried out using procedures adapted from "Test Methods for Evaluating Solid Waste" SW-846, Method 7199, published by the United States Environmental Protection Agency (EPA). The procedure involves analysis for chromium (VI) by ion chromatography using diphenylcarbazide in a sulphuric acid solution. Chromium (III) is calculated as the difference between the total chromium and the chromium (VI) results.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

DDD-DDE-DDT-CALC-WT Water DDD, DDE, DDT sums CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

ENDOSULFAN-T-CALC-WT Water Endosulfan Total sums CALCULATION

Aqueous sample is extracted by liquid/liquid extraction with a solvent mix. After extraction, a number of clean up techniques may be applied, depending on the sample matrix and analyzed by GC/MS.

HG-D-UG/L-CVAA-WT Water Diss. Mercury in Water by CVAAS EPA 1631E (mod)
(ug/L)

Water samples are filtered (0.45 um), preserved with hydrochloric acid, then undergo a cold-oxidation using bromine monochloride prior to reduction with stannous chloride, and analyzed by CVAAS.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011).

MET-D-UG/L-MS-WT Water Diss. Metals in Water by ICPMS (ug/L) EPA 200.8

The metal constituents of a non-acidified sample that pass through a membrane filter prior to ICP/MS analysis.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

OCP-ROUTINE-WT Water Pesticides, Organochlorine in Water SW846 8270

Samples are extracted using a solvent mixture and the resulting extracts are analyzed on GC/MSD

VOC-1,3-DCP-CALC-WT Water Regulation 153 VOCs SW8260B/SW8270C

VOC-511-HS-WT Water VOC by GCMS HS O.Reg 153/04 (July 2011) SW846 8260

Liquid samples are analyzed by headspace GC/MSD.

Analysis conducted in accordance with the Protocol for Analytical Methods Used in the Assessment of Properties under Part XV.1 of the Environmental Protection Act (July 1, 2011), unless a subset of the Analytical Test Group (ATG) has been requested (the Protocol states that all analytes in an ATG must be reported).

Reference Information

L2432026 CONT'D....
Job Reference: 1-17-918-4201
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03-APR-20 12:45 (MT)

Methods Listed (if applicable):

ALS Test Code	Matrix	Test Description	Method Reference**
XYLENES-SUM-CALC-WT	Water	Sum of Xylene Isomer Concentrations	CALCULATION
Total xylenes represents the sum of o-xylene and m&p-xylene.			

**ALS test methods may incorporate modifications from specified reference methods to improve performance.

Chain of Custody Numbers:

17-796045 17-796046

The last two letters of the above test code(s) indicate the laboratory that performed analytical analysis for that test. Refer to the list below:

Laboratory Definition Code	Laboratory Location
WT	ALS ENVIRONMENTAL - WATERLOO, ONTARIO, CANADA

GLOSSARY OF REPORT TERMS

Surrogates are compounds that are similar in behaviour to target analyte(s), but that do not normally occur in environmental samples. For applicable tests, surrogates are added to samples prior to analysis as a check on recovery. In reports that display the D.L. column, laboratory objectives for surrogates are listed there.

mg/kg - milligrams per kilogram based on dry weight of sample

mg/kg ww - milligrams per kilogram based on wet weight of sample

mg/kg lwt - milligrams per kilogram based on lipid-adjusted weight

mg/L - unit of concentration based on volume, parts per million.

< - Less than.

D.L. - The reporting limit.

N/A - Result not available. Refer to qualifier code and definition for explanation.

Test results reported relate only to the samples as received by the laboratory.

UNLESS OTHERWISE STATED, ALL SAMPLES WERE RECEIVED IN ACCEPTABLE CONDITION.

Analytical results in unsigned test reports with the DRAFT watermark are subject to change, pending final QC review.

Application of guidelines is provided "as is" without warranty of any kind, either expressed or implied, including, but not limited to, fitness for a particular purpose, or non-infringement. ALS assumes no responsibility for errors or omissions in the information. Guideline limits are not adjusted for the hardness, pH or temperature of the sample (the most conservative values are used). Measurement uncertainty is not applied to test results prior to comparison with specified criteria values.



Quality Control Report

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
CR-CR6-IC-R511-WT		Water						
Batch	R5046547							
WG3300952-4 DUP		WG3300952-3						
Chromium, Hexavalent		<0.50	<0.50	RPD-NA	ug/L	N/A	20	30-MAR-20
WG3300952-2 LCS			100.7		%		80-120	30-MAR-20
Chromium, Hexavalent								
WG3300952-1 MB			<0.50		ug/L		0.5	30-MAR-20
Chromium, Hexavalent								
WG3300952-5 MS		WG3300952-3	99.5		%		70-130	30-MAR-20
Chromium, Hexavalent								
HG-D-UG/L-CVAA-WT		Water						
Batch	R5044988							
WG3300794-4 DUP		WG3300794-3						
Mercury (Hg)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	30-MAR-20
WG3300794-2 LCS			111.0		%		80-120	30-MAR-20
Mercury (Hg)-Dissolved								
WG3300794-1 MB			<0.0050		ug/L		0.005	30-MAR-20
Mercury (Hg)-Dissolved								
WG3300794-6 MS		WG3300794-5	106.1		%		70-130	30-MAR-20
Mercury (Hg)-Dissolved								
MET-D-UG/L-MS-WT		Water						
Batch	R5044308							
WG3300310-4 DUP		WG3300310-3						
Antimony (Sb)-Dissolved		0.21	0.21		ug/L	3.4	20	30-MAR-20
Arsenic (As)-Dissolved		0.41	0.40		ug/L	2.8	20	30-MAR-20
Barium (Ba)-Dissolved		77.4	76.8		ug/L	0.7	20	30-MAR-20
Beryllium (Be)-Dissolved		<0.10	<0.10	RPD-NA	ug/L	N/A	20	30-MAR-20
Boron (B)-Dissolved		137	138		ug/L	0.7	20	30-MAR-20
Cadmium (Cd)-Dissolved		<0.0050	<0.0050	RPD-NA	ug/L	N/A	20	30-MAR-20
Chromium (Cr)-Dissolved		<0.50	<0.50	RPD-NA	ug/L	N/A	20	30-MAR-20
Cobalt (Co)-Dissolved		0.25	0.25		ug/L	0.5	20	30-MAR-20
Copper (Cu)-Dissolved		2.43	2.41		ug/L	0.9	20	30-MAR-20
Lead (Pb)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	30-MAR-20
Molybdenum (Mo)-Dissolved		5.81	5.88		ug/L	1.2	20	30-MAR-20
Nickel (Ni)-Dissolved		0.71	0.71		ug/L	0.2	20	30-MAR-20
Selenium (Se)-Dissolved		0.139	0.111	J	ug/L	0.029	0.1	30-MAR-20
Silver (Ag)-Dissolved		<0.050	<0.050	RPD-NA	ug/L	N/A	20	30-MAR-20
Sodium (Na)-Dissolved		13200	13200		ug/L	0.1	20	30-MAR-20



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Client:

TERRAPROBE-BRAMPTON

11 Indell Lane

Brampton ON L6T 3Y3

Contact:

Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
MET-D-UG/L-MS-WT		Water						
Batch	R5044308							
WG3300310-4	DUP	WG3300310-3						
Thallium (Tl)-Dissolved		0.021	0.022	RPD-NA	ug/L	7.4	20	30-MAR-20
Uranium (U)-Dissolved		1.18	1.20		ug/L	1.7	20	30-MAR-20
Vanadium (V)-Dissolved		<0.50	<0.50		ug/L	N/A	20	30-MAR-20
Zinc (Zn)-Dissolved		3.0	3.0		ug/L	0.6	20	30-MAR-20
WG3300310-2		LCS						
Antimony (Sb)-Dissolved			97.4		%		80-120	27-MAR-20
Arsenic (As)-Dissolved			101.4		%		80-120	27-MAR-20
Barium (Ba)-Dissolved			101.2		%		80-120	27-MAR-20
Beryllium (Be)-Dissolved			105.7		%		80-120	27-MAR-20
Boron (B)-Dissolved			103.7		%		80-120	27-MAR-20
Cadmium (Cd)-Dissolved			97.1		%		80-120	27-MAR-20
Chromium (Cr)-Dissolved			100.9		%		80-120	27-MAR-20
Cobalt (Co)-Dissolved			99.8		%		80-120	27-MAR-20
Copper (Cu)-Dissolved			98.6		%		80-120	27-MAR-20
Lead (Pb)-Dissolved			103.4		%		80-120	27-MAR-20
Molybdenum (Mo)-Dissolved			97.8		%		80-120	27-MAR-20
Nickel (Ni)-Dissolved			100.3		%		80-120	27-MAR-20
Selenium (Se)-Dissolved			99.6		%		80-120	27-MAR-20
Silver (Ag)-Dissolved			102.0		%		80-120	27-MAR-20
Sodium (Na)-Dissolved			104.3		%		80-120	27-MAR-20
Thallium (Tl)-Dissolved			103.8		%		80-120	27-MAR-20
Uranium (U)-Dissolved			99.1		%		80-120	27-MAR-20
Vanadium (V)-Dissolved			103.1		%		80-120	27-MAR-20
Zinc (Zn)-Dissolved			100.6		%		80-120	27-MAR-20
WG3300310-1		MB						
Antimony (Sb)-Dissolved			<0.10		ug/L		0.1	27-MAR-20
Arsenic (As)-Dissolved			<0.10		ug/L		0.1	27-MAR-20
Barium (Ba)-Dissolved			<0.10		ug/L		0.1	27-MAR-20
Beryllium (Be)-Dissolved			<0.10		ug/L		0.1	27-MAR-20
Boron (B)-Dissolved			<10		ug/L		10	27-MAR-20
Cadmium (Cd)-Dissolved			<0.0050		ug/L		0.005	27-MAR-20
Chromium (Cr)-Dissolved			<0.50		ug/L		0.5	27-MAR-20
Cobalt (Co)-Dissolved			<0.10		ug/L		0.1	27-MAR-20
Copper (Cu)-Dissolved			<0.20		ug/L		0.2	27-MAR-20



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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
OCP-ROUTINE-WT		Water						
Batch	R5050354							
WG3300758-2	LCS							
Aldrin			110.1		%		50-150	02-APR-20
gamma-hexachlorocyclohexane			89.1		%		50-150	02-APR-20
a-chlordane			102.6		%		50-150	02-APR-20
g-chlordane			103.8		%		50-150	02-APR-20
o,p-DDD			121.2		%		50-150	02-APR-20
pp-DDD			120.8		%		50-150	02-APR-20
o,p-DDE			100.1		%		50-150	02-APR-20
pp-DDE			99.6		%		50-150	02-APR-20
op-DDT			62.6		%		50-150	02-APR-20
pp-DDT			53.0		%		50-150	02-APR-20
Dieldrin			96.5		%		50-150	02-APR-20
Endosulfan I			98.1		%		50-150	02-APR-20
Endosulfan II			118.1		%		50-150	02-APR-20
Endrin			100.9		%		50-150	02-APR-20
Heptachlor			76.0		%		50-150	02-APR-20
Heptachlor Epoxide			90.5		%		50-150	02-APR-20
Hexachlorobenzene			100.7		%		50-150	02-APR-20
Hexachlorobutadiene			88.5		%		50-150	02-APR-20
Hexachloroethane			91.8		%		50-150	02-APR-20
Methoxychlor			54.5		%		50-150	02-APR-20
WG3300758-1	MB							
Aldrin			<0.0080		ug/L		0.008	02-APR-20
gamma-hexachlorocyclohexane			<0.0080		ug/L		0.008	02-APR-20
a-chlordane			<0.0080		ug/L		0.008	02-APR-20
g-chlordane			<0.0080		ug/L		0.008	02-APR-20
o,p-DDD			<0.0040		ug/L		0.004	02-APR-20
pp-DDD			<0.0040		ug/L		0.004	02-APR-20
o,p-DDE			<0.0040		ug/L		0.004	02-APR-20
pp-DDE			<0.0040		ug/L		0.004	02-APR-20
op-DDT			<0.0040		ug/L		0.004	02-APR-20
pp-DDT			<0.0040		ug/L		0.004	02-APR-20
Dieldrin			<0.0080		ug/L		0.008	02-APR-20
Endosulfan I			<0.0070		ug/L		0.007	02-APR-20
Endosulfan II			<0.0070		ug/L		0.007	02-APR-20



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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
OCP-ROUTINE-WT		Water						
Batch	R5050354							
WG3300758-1 MB								
Endrin			<0.010		ug/L		0.01	02-APR-20
Heptachlor			<0.0080		ug/L		0.008	02-APR-20
Heptachlor Epoxide			<0.0080		ug/L		0.008	02-APR-20
Hexachlorobenzene			<0.0080		ug/L		0.008	02-APR-20
Hexachlorobutadiene			<0.0080		ug/L		0.008	02-APR-20
Hexachloroethane			<0.0080		ug/L		0.008	02-APR-20
Methoxychlor			<0.0080		ug/L		0.008	02-APR-20
Surrogate: Decachlorobiphenyl			71.2		%		40-130	02-APR-20
Surrogate: Tetrachloro-m-xylene			77.0		%		40-130	02-APR-20
VOC-511-HS-WT		Water						
Batch	R5044228							
WG3300206-4 DUP		WG3300206-3						
1,1,1,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,1,2,2-Tetrachloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,1,1-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,1,2-Trichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,1-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,1-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,2-Dibromoethane		<0.20	<0.20	RPD-NA	ug/L	N/A	30	30-MAR-20
1,2-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,2-Dichloroethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,2-Dichloropropane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,3-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
1,4-Dichlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
Acetone		<30	<30	RPD-NA	ug/L	N/A	30	30-MAR-20
Benzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
Bromodichloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	30-MAR-20
Bromoform		<5.0	<5.0	RPD-NA	ug/L	N/A	30	30-MAR-20
Bromomethane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
Carbon tetrachloride		<0.20	<0.20	RPD-NA	ug/L	N/A	30	30-MAR-20
Chlorobenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
Chloroform		<1.0	<1.0	RPD-NA	ug/L	N/A	30	30-MAR-20
cis-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20



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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Water						
Batch	R5044228							
WG3300206-4	DUP	WG3300206-3						
cis-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	30-MAR-20
Dibromochloromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	30-MAR-20
Dichlorodifluoromethane		<2.0	<2.0	RPD-NA	ug/L	N/A	30	30-MAR-20
Ethylbenzene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
n-Hexane		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
m+p-Xylenes		<0.40	<0.40	RPD-NA	ug/L	N/A	30	30-MAR-20
Methyl Ethyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	30-MAR-20
Methyl Isobutyl Ketone		<20	<20	RPD-NA	ug/L	N/A	30	30-MAR-20
Methylene Chloride		<5.0	<5.0	RPD-NA	ug/L	N/A	30	30-MAR-20
MTBE		<2.0	<2.0	RPD-NA	ug/L	N/A	30	30-MAR-20
o-Xylene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	30-MAR-20
Styrene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
Tetrachloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
Toluene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
trans-1,2-Dichloroethylene		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
trans-1,3-Dichloropropene		<0.30	<0.30	RPD-NA	ug/L	N/A	30	30-MAR-20
Trichloroethylene		0.94	0.93		ug/L	1.1	30	30-MAR-20
Trichlorofluoromethane		<5.0	<5.0	RPD-NA	ug/L	N/A	30	30-MAR-20
Vinyl chloride		<0.50	<0.50	RPD-NA	ug/L	N/A	30	30-MAR-20
WG3300206-1	LCS							
1,1,1,2-Tetrachloroethane			97.3		%		70-130	27-MAR-20
1,1,2,2-Tetrachloroethane			84.3		%		70-130	27-MAR-20
1,1,1-Trichloroethane			98.4		%		70-130	27-MAR-20
1,1,2-Trichloroethane			92.1		%		70-130	27-MAR-20
1,1-Dichloroethane			92.3		%		70-130	27-MAR-20
1,1-Dichloroethylene			87.7		%		70-130	27-MAR-20
1,2-Dibromoethane			90.3		%		70-130	27-MAR-20
1,2-Dichlorobenzene			97.8		%		70-130	27-MAR-20
1,2-Dichloroethane			89.0		%		70-130	27-MAR-20
1,2-Dichloropropane			92.7		%		70-130	27-MAR-20
1,3-Dichlorobenzene			102.2		%		70-130	27-MAR-20
1,4-Dichlorobenzene			100.1		%		70-130	27-MAR-20
Acetone			89.5		%		60-140	27-MAR-20



Quality Control Report

Workorder: L2432026

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Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Water						
Batch	R5044228							
WG3300206-1	LCS							
Benzene			95.7		%		70-130	27-MAR-20
Bromodichloromethane			93.4		%		70-130	27-MAR-20
Bromoform			88.5		%		70-130	27-MAR-20
Bromomethane			78.8		%		60-140	27-MAR-20
Carbon tetrachloride			99.96		%		70-130	27-MAR-20
Chlorobenzene			97.4		%		70-130	27-MAR-20
Chloroform			96.1		%		70-130	27-MAR-20
cis-1,2-Dichloroethylene			94.8		%		70-130	27-MAR-20
cis-1,3-Dichloropropene			83.6		%		70-130	27-MAR-20
Dibromochloromethane			91.2		%		70-130	27-MAR-20
Dichlorodifluoromethane			80.2		%		50-140	27-MAR-20
Ethylbenzene			99.6		%		70-130	27-MAR-20
n-Hexane			87.4		%		70-130	27-MAR-20
m+p-Xylenes			99.6		%		70-130	27-MAR-20
Methyl Ethyl Ketone			85.3		%		60-140	27-MAR-20
Methyl Isobutyl Ketone			75.9		%		60-140	27-MAR-20
Methylene Chloride			92.8		%		70-130	27-MAR-20
MTBE			95.2		%		70-130	27-MAR-20
o-Xylene			106.9		%		70-130	27-MAR-20
Styrene			92.5		%		70-130	27-MAR-20
Tetrachloroethylene			99.7		%		70-130	27-MAR-20
Toluene			100.5		%		70-130	27-MAR-20
trans-1,2-Dichloroethylene			88.5		%		70-130	27-MAR-20
trans-1,3-Dichloropropene			91.5		%		70-130	27-MAR-20
Trichloroethylene			97.9		%		70-130	27-MAR-20
Trichlorofluoromethane			86.2		%		60-140	27-MAR-20
Vinyl chloride			100.2		%		60-140	27-MAR-20
WG3300206-2	MB							
1,1,1,2-Tetrachloroethane			<0.50		ug/L		0.5	30-MAR-20
1,1,2,2-Tetrachloroethane			<0.50		ug/L		0.5	30-MAR-20
1,1,1-Trichloroethane			<0.50		ug/L		0.5	30-MAR-20
1,1,2-Trichloroethane			<0.50		ug/L		0.5	30-MAR-20
1,1-Dichloroethane			<0.50		ug/L		0.5	30-MAR-20
1,1-Dichloroethylene			<0.50		ug/L		0.5	30-MAR-20



Quality Control Report

Workorder: L2432026

Report Date: 03-APR-20

Page 8 of 11

Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Water						
Batch	R5044228							
WG3300206-2	MB							
1,2-Dibromoethane			<0.20		ug/L		0.2	30-MAR-20
1,2-Dichlorobenzene			<0.50		ug/L		0.5	30-MAR-20
1,2-Dichloroethane			<0.50		ug/L		0.5	30-MAR-20
1,2-Dichloropropane			<0.50		ug/L		0.5	30-MAR-20
1,3-Dichlorobenzene			<0.50		ug/L		0.5	30-MAR-20
1,4-Dichlorobenzene			<0.50		ug/L		0.5	30-MAR-20
Acetone			<30		ug/L		30	30-MAR-20
Benzene			<0.50		ug/L		0.5	30-MAR-20
Bromodichloromethane			<2.0		ug/L		2	30-MAR-20
Bromoform			<5.0		ug/L		5	30-MAR-20
Bromomethane			<0.50		ug/L		0.5	30-MAR-20
Carbon tetrachloride			<0.20		ug/L		0.2	30-MAR-20
Chlorobenzene			<0.50		ug/L		0.5	30-MAR-20
Chloroform			<1.0		ug/L		1	30-MAR-20
cis-1,2-Dichloroethylene			<0.50		ug/L		0.5	30-MAR-20
cis-1,3-Dichloropropene			<0.30		ug/L		0.3	30-MAR-20
Dibromochloromethane			<2.0		ug/L		2	30-MAR-20
Dichlorodifluoromethane			<2.0		ug/L		2	30-MAR-20
Ethylbenzene			<0.50		ug/L		0.5	30-MAR-20
n-Hexane			<0.50		ug/L		0.5	30-MAR-20
m+p-Xylenes			<0.40		ug/L		0.4	30-MAR-20
Methyl Ethyl Ketone			<20		ug/L		20	30-MAR-20
Methyl Isobutyl Ketone			<20		ug/L		20	30-MAR-20
Methylene Chloride			<5.0		ug/L		5	30-MAR-20
MTBE			<2.0		ug/L		2	30-MAR-20
o-Xylene			<0.30		ug/L		0.3	30-MAR-20
Styrene			<0.50		ug/L		0.5	30-MAR-20
Tetrachloroethylene			<0.50		ug/L		0.5	30-MAR-20
Toluene			<0.50		ug/L		0.5	30-MAR-20
trans-1,2-Dichloroethylene			<0.50		ug/L		0.5	30-MAR-20
trans-1,3-Dichloropropene			<0.30		ug/L		0.3	30-MAR-20
Trichloroethylene			<0.50		ug/L		0.5	30-MAR-20
Trichlorofluoromethane			<5.0		ug/L		5	30-MAR-20



Quality Control Report

Workorder: L2432026

Report Date: 03-APR-20

Page 9 of 11

Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3

Contact: Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT		Water						
Batch	R5044228							
WG3300206-2 MB								
Vinyl chloride			<0.50		ug/L		0.5	30-MAR-20
Surrogate: 1,4-Difluorobenzene			99.9		%		70-130	30-MAR-20
Surrogate: 4-Bromofluorobenzene			98.1		%		70-130	30-MAR-20
WG3300206-5 MS		WG3300206-3						
1,1,1,2-Tetrachloroethane			98.4		%		50-140	30-MAR-20
1,1,2,2-Tetrachloroethane			86.3		%		50-140	30-MAR-20
1,1,1-Trichloroethane			98.1		%		50-140	30-MAR-20
1,1,2-Trichloroethane			93.5		%		50-140	30-MAR-20
1,1-Dichloroethane			91.9		%		50-140	30-MAR-20
1,1-Dichloroethylene			86.1		%		50-140	30-MAR-20
1,2-Dibromoethane			91.6		%		50-140	30-MAR-20
1,2-Dichlorobenzene			97.5		%		50-140	30-MAR-20
1,2-Dichloroethane			88.8		%		50-140	30-MAR-20
1,2-Dichloropropane			93.0		%		50-140	30-MAR-20
1,3-Dichlorobenzene			100.2		%		50-140	30-MAR-20
1,4-Dichlorobenzene			98.5		%		50-140	30-MAR-20
Acetone			92.5		%		50-140	30-MAR-20
Benzene			95.4		%		50-140	30-MAR-20
Bromodichloromethane			94.3		%		50-140	30-MAR-20
Bromoform			90.5		%		50-140	30-MAR-20
Bromomethane			75.6		%		50-140	30-MAR-20
Carbon tetrachloride			99.96		%		50-140	30-MAR-20
Chlorobenzene			97.4		%		50-140	30-MAR-20
Chloroform			96.1		%		50-140	30-MAR-20
cis-1,2-Dichloroethylene			95.1		%		50-140	30-MAR-20
cis-1,3-Dichloropropene			80.1		%		50-140	30-MAR-20
Dibromochloromethane			92.6		%		50-140	30-MAR-20
Dichlorodifluoromethane			76.6		%		50-140	30-MAR-20
Ethylbenzene			98.6		%		50-140	30-MAR-20
n-Hexane			84.7		%		50-140	30-MAR-20
m+p-Xylenes			98.5		%		50-140	30-MAR-20
Methyl Ethyl Ketone			86.8		%		50-140	30-MAR-20
Methyl Isobutyl Ketone			77.1		%		50-140	30-MAR-20
Methylene Chloride			92.4		%		50-140	30-MAR-20



Quality Control Report

Workorder: L2432026

Report Date: 03-APR-20

Page 10 of 11

Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3
Contact: Alireza Malek

Test	Matrix	Reference	Result	Qualifier	Units	RPD	Limit	Analyzed
VOC-511-HS-WT	Water							
Batch	R5044228							
WG3300206-5	MS	WG3300206-3						
MTBE			95.0		%		50-140	30-MAR-20
o-Xylene			106.4		%		50-140	30-MAR-20
Styrene			92.1		%		50-140	30-MAR-20
Tetrachloroethylene			97.9		%		50-140	30-MAR-20
Toluene			99.6		%		50-140	30-MAR-20
trans-1,2-Dichloroethylene			86.2		%		50-140	30-MAR-20
trans-1,3-Dichloropropene			86.1		%		50-140	30-MAR-20
Trichloroethylene			97.4		%		50-140	30-MAR-20
Trichlorofluoromethane			84.4		%		50-140	30-MAR-20
Vinyl chloride			96.6		%		50-140	30-MAR-20

Quality Control Report

Workorder: L2432026

Report Date: 03-APR-20

Client: TERRAPROBE-BRAMPTON
11 Indell Lane
Brampton ON L6T 3Y3
Contact: Alireza Malek

Page 11 of 11

Legend:

Limit	ALS Control Limit (Data Quality Objectives)
DUP	Duplicate
RPD	Relative Percent Difference
N/A	Not Available
LCS	Laboratory Control Sample
SRM	Standard Reference Material
MS	Matrix Spike
MSD	Matrix Spike Duplicate
ADE	Average Desorption Efficiency
MB	Method Blank
IRM	Internal Reference Material
CRM	Certified Reference Material
CCV	Continuing Calibration Verification
CVS	Calibration Verification Standard
LCSD	Laboratory Control Sample Duplicate

Sample Parameter Qualifier Definitions:

Qualifier	Description
J	Duplicate results and limits are expressed in terms of absolute difference.
MS-B	Matrix Spike recovery could not be accurately calculated due to high analyte background in sample.
RPD-NA	Relative Percent Difference Not Available due to result(s) being less than detection limit.

Hold Time Exceedances:

All test results reported with this submission were conducted within ALS recommended hold times.

ALS recommended hold times may vary by province. They are assigned to meet known provincial and/or federal government requirements. In the absence of regulatory hold times, ALS establishes recommendations based on guidelines published by the US EPA, APHA Standard Methods, or Environment Canada (where available). For more information, please contact ALS.

The ALS Quality Control Report is provided to ALS clients upon request. ALS includes comprehensive QC checks with every analysis to ensure our high standards of quality are met. Each QC result has a known or expected target value, which is compared against pre-determined data quality objectives to provide confidence in the accuracy of associated test results.

Please note that this report may contain QC results from anonymous Sample Duplicates and Matrix Spikes that do not originate from this Work Order.



www.aajglobal.com

Request Form

Affix ALS barcode label here
(lab use only)

COC Number: 17-796046

Page 1 of 1

Report To		Report Format / Distribution		Select Service Level Below - Contact your AM to confirm all EAP TATs (surcharges may apply)	
Company:	Terracore	Select Report Format:	☒ PDF ☐ EXCEL ☐ EDD (DIGITAL)	Regular (R) ☒ Standard TAT if received by 3 pm - business days - no surcharges apply	
Contact:	Alice Ba Malek	Quality Control (QC) Report with Report	☒ YES ☐ NO	4 day (P2-20%) ☐ 3 day (P3-25%) ☐ 2 day (P2-50%) ☐	
Phone:	(616) 432 5804	Select Distribution:	☒ EMAIL ☐ MAIL ☐ FAX	1 Business day (E - 100%) ☐ Same Day, Weekend or Statutory holiday (E2 - 200% (Laboratory opening fees may apply)) ☐	
Company address below will appear on the final report		Email 1 or Fax	Amyalek E. Terracore, Inc.	dd-mm-yy hh:mm	
Street:	11 Indell Ln	Email 2	J. Siskel, E. Terracore, Inc.		
City/Province:	Brampton ON	Email 3			
Postal Code:	L6T 3Y3	Invoice Distribution		Analysis Request	
Invoice To	Same as Report To	Select Invoice Distribution:	☒ EMAIL ☐ MAIL ☐ FAX		
Copy of Invoice with Report	☒ YES ☐ NO	Email 1 or Fax	L. Ross, E. Terracore, Inc.		
Company:	Terracore	Email 2			
Contact:	Lorena Ross	Oil and Gas Required Fields (client use)			
Project Information		AFECost Center:		PO#	
ALS Account # / Quote #:		16918		Routing Code:	
Job #:		1-17-418-422		Requestioner:	
PO / AFE:		Location:			
LSD:		ALS Lab Work Order # (lab use only):		ALS Contact:	
10432020000		Sample Identification and/or Coordinates (lab use only)		Date	
Sample description will appear on the report		(dd-mm-yy)		(hh:mm)	
Sample Type		Time		Sample Type	
BH 12		26-03-20		4:10	
BH 9		1		9:50	
BH 11		1		10:30	
BH 10		1		11:00	
BH 8		1		11:30	
BH 3		1		11:45	
BH 4		1		12:00	
BH 7		1		12:30	
BH 2		1		13:00	
BH 1		1		14:00	
BH 5		1		14:30	
BH 6		1		15:00	
Drinking Water (DW) Samples (client use)		Special Instructions / Specify Criteria to add on report by clicking on the drop-down list below (electronic COC only)			
Are samples taken from a Regulated DW System?		☐ YES ☒ NO		Table 2	
Are samples for human consumption use?		☐ YES ☒ NO			
SHIPMENT RELEASE (client use)		INITIAL SHIPMENT RECEPTION (lab use only)		FINAL SHIPMENT RECEPTION (lab use only)	
Released by:		Date:		Time:	
John S. Biesiada		03/26/2020		2:05	
REFER TO BACK PAGE FOR ALS LOCATIONS AND SAMPLING INFORMATION		WHITE - LABORATORY COPY		YELLOW - CLIENT COPY	



Page 2 of 2

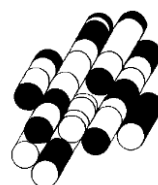
www.alsglobal.com

1. If any water samples are taken from a Regulated Drinking Water (DW) System, please submit using an Authorized DW COC form.

APPENDIX K

Cost Estimate of Site Remediation Update,
Trails of Collingwood, Collingwood, Ontario

TERRAPROBE INC.





Terraprobe

*Consulting Geotechnical & Environmental Engineering
Construction Materials Engineering, Inspection & Testing*

June 19, 2015

File No. 13-11-6138
Brampton Office

Municipal Property Assessment Corporation
P.O. Box 9808
Toronto, ON M1S 5T9

Attention:

**RE: COST ESTIMATE OF SITE REMEDIATION UPDATE
TRAILS OF COLLINGWOOD
COLLINGWOOD, ONTARIO**

Dear Sir/Madam:

Following an initial investigation, Terraprobe Inc. (Terraprobe) provided a letter to the Municipal Property Assessment Corporation (MPAC) on March 17, 2014, as well as supporting information on April 11, 2014, indicating that a significant portion of the Trails of Collingwood property had shallow soil contamination and provided a cost estimate to conduct remediation of the property. Additional investigation was conducted in December 2014. This letter provides an update of the results and a revised cost estimate to remediate the site, along with supporting details.

The site is comprised of approximately 7.6 hectares of undeveloped land, and is located east of High Street and north of Telfer Road in the Town of Collingwood as indicated on that attached Figure 1. Property Identification Numbers are also shown on Attachment 1. Terraprobe has conducted two drilling programs and has submitted soil samples based on a sampling grid from virtually the entire property for analysis of organochlorine pesticides and metals to investigate the effects of historical pesticide application at the former orchard that was on-site. Attachment 2 provides a figure that indicates the grid sampling locations.

The analytical results from Terraprobe's sampling are presented in Attachment 5. It should be noted that some sampling was conducted by others prior to Terraprobe's work on site, and those

Terraprobe Inc.

Greater Toronto:
11 Indell Lane
Brampton, ON L6T 3Y3
Tel: (905) 796-2650
Fax: (905) 796-2250
brampton@terraprobe.ca

Hamilton-Niagara:
903 Barton Street, #22
Stoney Creek, ON L8E 5P5
Tel: (905) 643-7560
Fax: (905) 643-7559
stoneycreek@terraprobe.ca

Central Ontario:
220 Bayview Drive, #25
Barrie, ON L4N 4Y8
Tel: (705) 739-8355
Fax: (705) 739-8369
barrie@terraprobe.ca

Northern Ontario:
1012 Kelly Lake Rd., #1
Sudbury, ON P3E 5P4
Tel: (705) 670-0460
Fax: (705) 670-0558
sudbury@terraprobe.ca

www.terraprobe.ca

analytical results are not attached. However, the results of the prior sampling have been taken into account, and are generally consistent with Terraprobe's findings.

At least one sample from every sampling location was contaminated by arsenic, DDT, or DDE in excess of the Ontario Ministry of the Environment Standards that are applicable to the site with the exception of grid location IJ12. A sample was not analyzed from grid location GH89 due to wet site conditions. The status of each sample result is presented visually in Attachment 3. Each sampling location (e.g. AB23) has a column for organochlorine pesticides (OCPs) and one for metals. Each sampling location is further organized vertically by depth below ground surface in metres. Red cells indicate exceedances while green indicate the sample passed. These pesticide contaminants are typically found in shallow soil, which is in agreement with the results. The soil was generally impacted to depths of 0.3 m or 0.6 m.

Attachment 4 presents the area that was confirmed to be impacted based on the soil results (orange area) and the area that is assumed to be impacted based on adjacent sampling results (white area). The grid location IJ12 is shown in green to indicate that the sample from this location met the Standard. Including location GH89, the area impacted is approximately 98% of the total site, or approximately 7.4 hectares. A remediation cost estimate of approximately \$2.8 million was provided in the prior letter on the basis of 5.9 hectares being confirmed or assumed to be impacted. The revised cost estimate to strip, stockpile, and dispose of the soil, including environmental sampling, is approximately \$3.5 million based on the revised area of 7.4 hectares.

We trust this letter meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

Terraprobe Inc.



David Hill, M.A.Sc., MBA, P.Eng., QP_{ESA}
Associate



Paul W. Bowen, P.Eng., P.Geo., QP_{RA}
Principal

Brampton Office

Attachments

Attachment 1 – Site location plan and Property Identification Numbers

Attachment 2 – Figure illustrating sampling grid

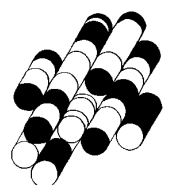
Attachment 3 – Table illustrating summary of sampling results

Attachment 4 – Figure illustrating confirmed and assumed areas of impact

Attachment 5 –Certificates of Analysis for Terraprobe soil sample analyses

ATTACHMENT 1

TERRAPROBE INC.

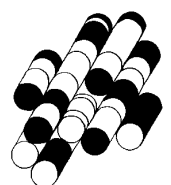




KEY MAP	
	
REFERENCE:	
County of Simcoe Maps, 2014	
NOTES:	
LEGEND:	
PROJECT TITLE:	
Subsurface Environmental Investigation	
SITE LOCATION:	
High Street and Telfer Road Collingwood, Ontario	
FIGURE TITLE:	
SITE LOCATION PLAN AND PROPERTY IDENTIFICATION NUMBERS	
REV NO:	FILE NO:
0	13-11-6138-1
SCALE:	FIGURE NO:
As Shown	1
DATE:	
March 2014	

ATTACHMENT 2

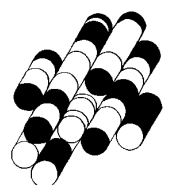
TERRAPROBE INC.





ATTACHMENT 3

TERRAPROBE INC.

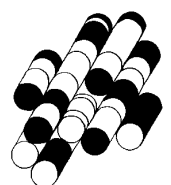


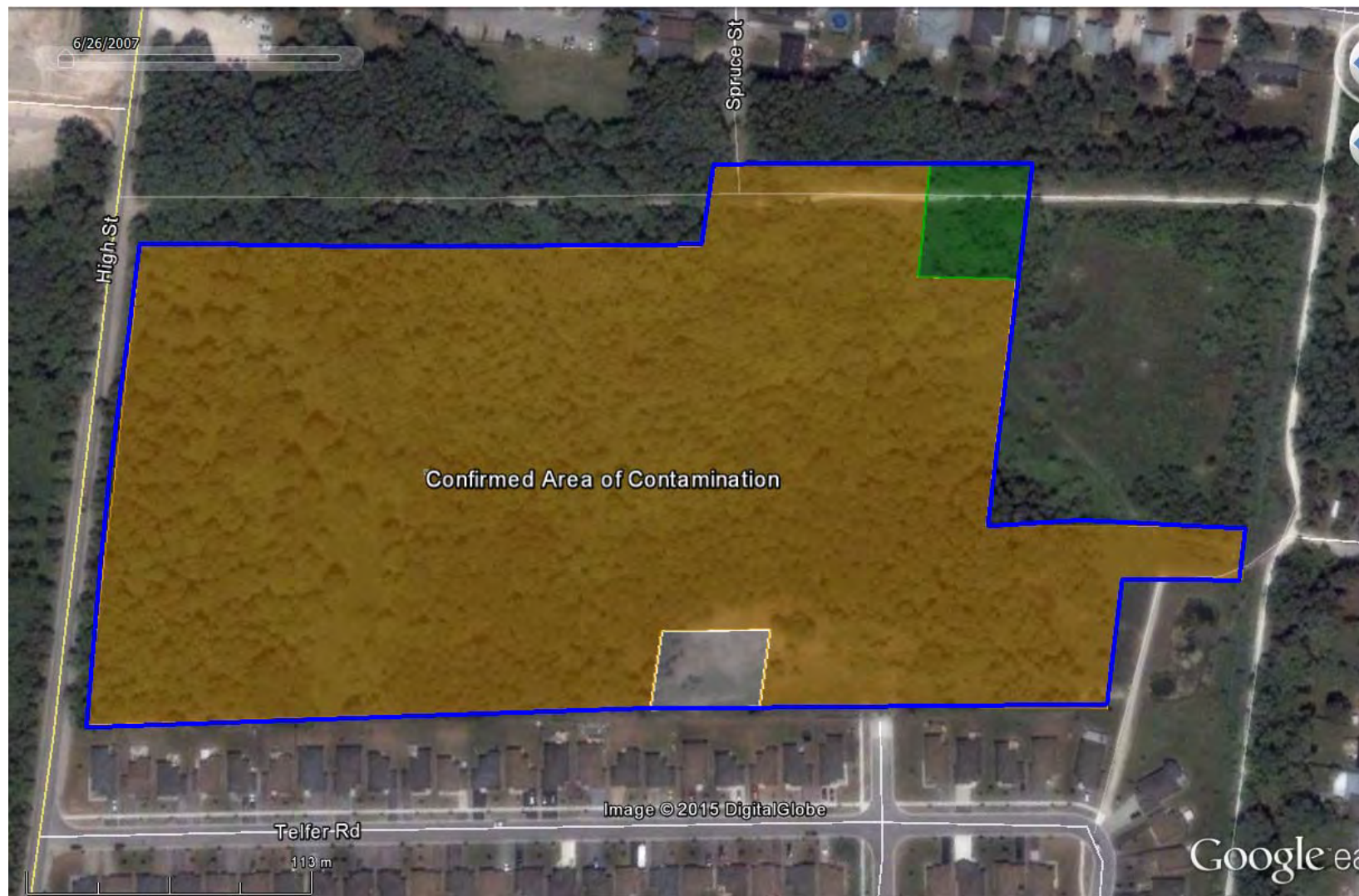
February 2015

[illegible]

ATTACHMENT 4

TERRAPROBE INC.

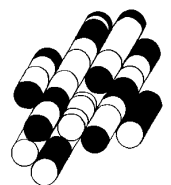




- Orange – confirmed impacted
- White – assumed impacted (could not be analyzed)
- Green – clean based on sample analyzed

ATTACHMENT 5

TERRAPROBE INC.



CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: David Hill

PROJECT NO: 13-11-6138

AGAT WORK ORDER: 13T680579

SOIL ANALYSIS REVIEWED BY: Mike Muneswar, BSc (Chem), Senior Inorganic Analyst

DATE REPORTED: Jan 23, 2013

PAGES (INCLUDING COVER): 24

VERSION*: 2

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

***NOTES**

VERSION 2: Work order updated with additional samples on Feb 4, 2013.

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



Certificate of Analysis

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		AB-23-A	BC-23-A	BC-23-B	CD-23-A	DE-23-A	DE-23-B	EF-23-A	BC-34-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4075649	4075658	4075660	4075666	4075674	4075676	4075682	4075698
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	23	26	7	23	22	14	12	27
Boron	µg/g	120	5	11	14	14	14	13	11	8	14
Barium	µg/g	390	2	48	49	70	54	53	53	30	52
Beryllium	µg/g	4	0.5	<0.5	0.5	0.7	0.6	0.6	0.6	<0.5	0.6
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	16	18	24	18	19	20	12	19
Cobalt	µg/g	22	0.5	5.6	6.4	8.8	7.2	7.2	8.4	5.0	6.5
Copper	µg/g	140	1	36	39	32	39	27	27	18	46
Lead	µg/g	120	1	56	64	14	70	21	16	12	65
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	12	15	20	15	15	18	10	15
Selenium	µg/g	2.4	0.4	<0.4	1.2	1.8	1.0	1.0	1.3	<0.4	1.4
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.5	0.6	0.8	0.6	0.7	0.7	0.5	0.6
Vanadium	µg/g	86	1	21	24	32	25	25	28	18	24
Zinc	µg/g	340	5	54	62	78	61	54	59	37	65

Certified By:

Certificate of Analysis

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

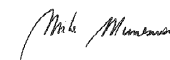
O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		BC-34-B	DE-34-A	DE-34-B	EF-34-A	AB-45-A	AB-45-B	BC-45-A	BC-45-B
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4075700	4075714	4075716	4075722	4075730	4075732	4075738	4075740
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	7	19	2	20	35	14	33	11
Boron	µg/g	120	5	14	15	6	15	11	11	14	10
Barium	µg/g	390	2	60	62	13	58	59	66	53	52
Beryllium	µg/g	4	0.5	0.6	0.7	<0.5	0.6	<0.5	0.6	0.6	0.5
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	21	23	9	21	16	21	19	20
Cobalt	µg/g	22	0.5	7.0	8.6	4.2	8.3	5.6	7.5	6.4	7.3
Copper	µg/g	140	1	33	29	12	31	48	29	44	25
Lead	µg/g	120	1	15	20	5	18	87	31	77	26
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	18	17	8	18	13	16	14	16
Selenium	µg/g	2.4	0.4	0.7	1.2	<0.4	1.5	1.4	0.8	<0.4	0.9
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.7	0.8	<0.5	0.9	0.6	0.8	0.6	0.7
Vanadium	µg/g	86	1	25	30	17	31	24	32	25	25
Zinc	µg/g	340	5	81	62	23	64	66	85	71	83

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

5835 COOPERS AVENUE
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

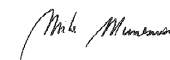
O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		DE-45-A	DE-45-B	EF-45-A	BC-56-A	CD-56-A	DE-56-A	DE-56-B	EF-56-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4075999	4076000	4076003	4076012	4076016	4076020	4076021	4076024
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	24	4	19	31	29	36	9	18
Boron	µg/g	120	5	15	8	15	11	13	16	13	11
Barium	µg/g	390	2	56	20	64	72	56	59	45	41
Beryllium	µg/g	4	0.5	0.7	<0.5	0.7	0.6	0.6	0.6	0.5	<0.5
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	21	11	23	19	19	20	20	17
Cobalt	µg/g	22	0.5	7.6	5.7	8.8	6.6	6.5	7.2	8.4	6.5
Copper	µg/g	140	1	30	17	36	42	43	30	24	25
Lead	µg/g	120	1	22	8	18	72	78	30	11	12
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	17	11	20	14	14	16	18	13
Selenium	µg/g	2.4	0.4	<0.4	0.5	1.7	1.5	1.4	1.1	1.2	1.1
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.8	<0.5	1.0	0.7	0.6	1.0	0.7	0.7
Vanadium	µg/g	86	1	27	18	33	31	24	25	25	26
Zinc	µg/g	340	5	60	30	71	72	71	68	73	51

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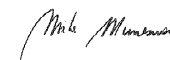
O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		AB-67-A	BC-67-B	DE-67-A	DE-67-B	EF-67-A	AB-78-A	BC-78-A	CD-78-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4076028	4076033	4076040	4076041	4076044	4076048	4076052	4076056
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	61	14	19	3	22	44	68	41
Boron	µg/g	120	5	10	10	18	11	18	9	9	7
Barium	µg/g	390	2	66	59	65	25	67	46	40	39
Beryllium	µg/g	4	0.5	<0.5	0.6	0.7	<0.5	0.7	0.5	<0.5	<0.5
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	15	19	21	13	23	14	13	12
Cobalt	µg/g	22	0.5	5.8	7.3	8.0	6.9	8.7	5.8	4.7	4.4
Copper	µg/g	140	1	60	25	30	20	32	49	57	43
Lead	µg/g	120	1	143	31	20	8	18	103	145	98
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	13	14	18	14	20	12	10	10
Selenium	µg/g	2.4	0.4	1.0	0.7	<0.4	0.8	<0.4	0.7	0.6	0.8
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	<0.5	0.6	0.8	<0.5	0.8	<0.5	<0.5	<0.5
Vanadium	µg/g	86	1	22	29	27	22	31	22	19	18
Zinc	µg/g	340	5	62	69	69	36	79	59	47	44

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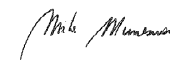
O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		DE-78-A	DE-78-B	EF-78-A	AB-89-A	AB-89-B	BC-89-A	CD-89-A	CD-89-B
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4076060	4076061	4076064	4076068	4076069	4076072	4076076	4076077
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	25	6	17	19	5	42	36	11
Boron	µg/g	120	5	13	11	17	5	7	6	6	7
Barium	µg/g	390	2	63	28	72	31	106	27	27	40
Beryllium	µg/g	4	0.5	0.7	<0.5	0.8	<0.5	0.6	<0.5	<0.5	<0.5
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	0.5	<0.5	0.7	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	20	14	25	9	20	10	10	14
Cobalt	µg/g	22	0.5	7.2	6.6	9.1	3.2	11.6	3.5	3.5	4.7
Copper	µg/g	140	1	30	18	34	27	16	38	31	21
Lead	µg/g	120	1	31	10	18	50	10	95	73	22
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	23	14	22	7	23	7	8	11
Selenium	µg/g	2.4	0.4	1.3	0.6	2.1	<0.4	<0.4	0.6	0.8	<0.4
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.6	<0.5	0.7	<0.5	0.5	<0.5	<0.5	0.5
Vanadium	µg/g	86	1	24	21	32	14	34	15	15	19
Zinc	µg/g	340	5	70	41	85	33	75	34	35	56

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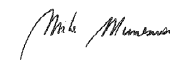
O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		DE-89-A	DE-89-B	EF-89-A	Dup#4	Dup#5	Dup#6	Dup#7	Dup#9
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4076080	4076081	4076085	4076093	4076094	4076095	4076096	4076098
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	21	5	21	23	7	30	48	21
Boron	µg/g	120	5	11	13	16	12	9	10	12	12
Barium	µg/g	390	2	51	48	69	53	31	53	48	48
Beryllium	µg/g	4	0.5	<0.5	0.7	0.7	0.5	<0.5	<0.5	0.5	0.6
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	17	21	23	20	14	15	17	19
Cobalt	µg/g	22	0.5	5.7	7.4	8.4	7.1	6.0	5.2	5.7	7.0
Copper	µg/g	140	1	28	39	37	30	19	47	55	27
Lead	µg/g	120	1	31	11	21	21	10	78	119	14
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	13	20	21	15	12	13	13	15
Selenium	µg/g	2.4	0.4	1.2	2.0	2.0	0.6	0.7	<0.4	1.1	0.9
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.6	0.7	0.8	0.6	0.5	0.5	0.6	0.8
Vanadium	µg/g	86	1	21	27	31	26	22	22	24	27
Zinc	µg/g	340	5	59	66	75	56	39	64	66	57

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PROJECT NO: 13-11-6138

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O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

Parameter	Unit	SAMPLE DESCRIPTION:		Dup#10	Dup#14
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013
		G / S	RDL	4076099	4076103
Antimony	µg/g	7.5	0.8	<0.8	<0.8
Arsenic	µg/g	18	1	6	9
Boron	µg/g	120	5	12	7
Barium	µg/g	390	2	42	58
Beryllium	µg/g	4	0.5	0.5	0.6
Cadmium	µg/g	1.2	0.5	<0.5	<0.5
Chromium	µg/g	160	2	20	19
Cobalt	µg/g	22	0.5	7.7	7.5
Copper	µg/g	140	1	23	15
Lead	µg/g	120	1	9	15
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5
Nickel	µg/g	100	1	17	14
Selenium	µg/g	2.4	0.4	1.2	0.6
Silver	µg/g	20	0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.6	<0.5
Vanadium	µg/g	86	1	23	31
Zinc	µg/g	340	5	65	70

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(RPI) - Current

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PROJECT NO: 13-11-6138

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ATTENTION TO: David Hill

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

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		AB-23-C	BC-23-A	BC-23-B	CD-23-C	DE-23-A	DE-23-B	EF-23-A	AB-34-C
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4075654	4075658	4075660	4075670	4075674	4075676	4075682	4075694
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	0.010	1.7	1.9	0.012	3.3	1.3	0.80	<0.007
DDD	µg/g	3.3	0.007	<0.007	0.44	0.37	<0.007	0.10	0.26	0.049	<0.007
DDT	µg/g	1.4	0.007	<0.007	0.94	0.92	<0.007	1.5	1.0	0.53	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	0.021	0.007	<0.005	0.010	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	22.8	34.3	27.6	5.8	33.9	23.4	29.5	18.3
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		50	58	103	85	54	91	72	69
Decachlorobiphenyl	%	60-130		89	67	90	85	60	91	107	76

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

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		BC-34-A	BC-34-B	CD-34-A	CD-34-B	DE-34-A	DE-34-B	EF-34-A	AB-45-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4075698	4075700	4075706	4075708	4075714	4075716	4075722	4075730
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	5.6	0.80	8.0	1.2	1.6	0.015	1.4	6.0
DDD	µg/g	3.3	0.007	0.77	0.036	1.5	0.099	0.047	<0.007	0.17	0.16
DDT	µg/g	1.4	0.007	3.8	0.31	2.5	0.29	0.71	<0.007	0.88	1.7
Dieldrin	µg/g	0.05	0.005	0.017	<0.005	0.033	<0.005	<0.005	<0.005	<0.005	0.014
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.011	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	33.0	31.1	35.6	28.6	29.9	15.1	30.7	28.3
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		76	91	72	96	50	72	86	76
Decachlorobiphenyl	%	60-130		60	100	80	91	60	97	100	60

Certified By: _____

Certificate of Analysis

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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<http://www.agatlabs.com>

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

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

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		AB-45-B	BC-45-A	BC-45-B	DE-45-A	DE-45-B	EF-45-A	AB-56-C	BC-56-C
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4075732	4075738	4075740	4075999	4076000	4076003	4076010	4076014
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	0.73	1.7	4.4	2.3	0.059	1.0	0.016	0.049
DDD	µg/g	3.3	0.007	0.020	0.13	0.73	0.17	<0.007	0.062	<0.007	<0.007
DDT	µg/g	1.4	0.007	0.35	0.56	3.3	0.63	0.026	0.29	<0.007	0.025
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.031	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	26.9	25.6	26.2	30.3	19.3	36.1	20.7	23.8
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		72	52	87	62	80	69	62	50
Decachlorobiphenyl	%	60-130		104	60	90	60	106	84	70	60

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Certificate of Analysis

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

5835 COOPERS AVENUE
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

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

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		CD-56-A	DE-56-A	DE-56-B	EF-56-A	AB-67-C	BC-67-B	BC-67-C	CD-67-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4076016	4076020	4076021	4076024	4076030	4076033	4076034	4076036
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	2.8	3.4	0.60	0.87	0.13	2.7	0.16	9.2
DDD	µg/g	3.3	0.007	0.41	0.29	0.063	0.14	<0.007	0.055	0.009	0.29
DDT	µg/g	1.4	0.007	0.59	1.6	0.40	0.31	0.074	0.88	0.054	2.6
Dieldrin	µg/g	0.05	0.005	0.012	0.011	<0.005	<0.005	<0.005	0.012	<0.005	0.019
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	0.018	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	34.2	33.8	31.5	29.5	17.9	16.9	24.6	38.4
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		53	56	96	72	56	56	70	60
Decachlorobiphenyl	%	60-130		60	70	101	94	99	68	103	62

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Certificate of Analysis

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

5835 COOPERS AVENUE
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

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

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		DE-67-A	DE-67-B	EF-67-A	AB-78-A	CD-78-C	DE-78-A	DE-78-B	EF-78-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4076040	4076041	4076044	4076048	4076058	4076060	4076061	4076064
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	2.0	0.031	0.30	18	0.036	2.6	0.58	1.2
DDD	µg/g	3.3	0.007	0.16	<0.007	0.034	0.31	<0.007	0.10	0.17	0.27
DDT	µg/g	1.4	0.007	1.1	0.011	0.094	6.4	0.017	1.1	0.27	0.79
Dieldrin	µg/g	0.05	0.005	0.015	<0.005	<0.005	0.022	<0.005	0.024	0.010	0.022
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.019
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	36.4	22.2	32.3	26.4	25.4	32.7	31.1	33.8
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		54	73	85	59	54	61	72	99
Decachlorobiphenyl	%	60-130		83	111	94	66	94	74	89	114

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AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

5835 COOPERS AVENUE
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

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

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		AB-89-A	AB-89-D	CD-89-A	CD-89-B	DE-89-A	DE-89-B	EF-89-A	Dup#4
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4076068	4076071	4076076	4076077	4076080	4076081	4076085	4076093
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	4.0	<0.007	5.1	0.43	1.2	0.034	1.9	2.7
DDD	µg/g	3.3	0.007	0.061	<0.007	0.15	0.015	0.13	<0.007	0.54	0.12
DDT	µg/g	1.4	0.007	0.81	<0.007	0.29	0.083	0.54	0.026	0.62	1.6
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	0.031	<0.005	0.073	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.009	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	19.4	11.9	37.2	26.4	32.9	22.6	37.2	39.2
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		50	60	54	95	60	70	103	56
Decachlorobiphenyl	%	60-130		60	79	60	113	61	78	100	68

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AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

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ATTENTION TO: David Hill

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

DATE RECEIVED: 2013-01-17

DATE REPORTED: 2013-01-23

		SAMPLE DESCRIPTION:		Dup#5	Dup#6	Dup#7	Dup#9	Dup#10	Dup#14
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013	1/15/2013
Parameter	Unit	G / S	RDL	4076094	4076095	4076096	4076098	4076099	4076103
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	1.4	3.1	11	0.55	1.4	3.3
DDD	µg/g	3.3	0.007	0.37	0.12	1.4	0.056	0.27	0.051
DDT	µg/g	1.4	0.007	1.2	2.2	5.7	0.22	0.48	2.6
Dieldrin	µg/g	0.05	0.005	0.015	<0.005	0.022	<0.005	0.015	0.015
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	0.014	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	27.4	24.1	31.2	30.3	27.6	28.0
Surrogate	Unit	Acceptable Limits							
TCMX	%	50-140		78	50	52	100	85	52
Decachlorobiphenyl	%	60-130		94	64	60	97	107	62

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T3(RPI) - Current

4075654-4076103 Results are based on the dry weight of the soil.

Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE and pp'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.

Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By: _____

Guideline Violation

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

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ATTENTION TO: David Hill

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
4075649	AB-23-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	23
4075658	BC-23-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	26
4075658	BC-23-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.7
4075660	BC-23-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.9
4075666	CD-23-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	23
4075674	DE-23-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	22
4075674	DE-23-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	3.3
4075674	DE-23-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	1.5
4075676	DE-23-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.3
4075682	EF-23-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.80
4075698	BC-34-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	27
4075698	BC-34-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	5.6
4075698	BC-34-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	3.8
4075700	BC-34-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.80
4075706	CD-34-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	8.0
4075706	CD-34-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	2.5
4075708	CD-34-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.2
4075714	DE-34-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	19
4075714	DE-34-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.6
4075722	EF-34-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	20
4075722	EF-34-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.4
4075730	AB-45-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	35
4075730	AB-45-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	6.0
4075730	AB-45-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	1.7
4075732	AB-45-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.73
4075738	BC-45-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	33
4075738	BC-45-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.7
4075740	BC-45-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	4.4
4075740	BC-45-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	3.3
4075999	DE-45-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	24
4075999	DE-45-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	2.3
4076003	EF-45-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	19
4076003	EF-45-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.0
4076012	BC-56-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	31
4076016	CD-56-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	29
4076016	CD-56-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	2.8
4076020	DE-56-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	36
4076020	DE-56-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	3.4
4076020	DE-56-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	1.6
4076021	DE-56-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.60
4076024	EF-56-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.87
4076028	AB-67-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	61
4076028	AB-67-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Lead	120	143

Guideline Violation

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
4076033	BC-67-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	2.7
4076036	CD-67-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	9.2
4076036	CD-67-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	2.6
4076040	DE-67-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	19
4076040	DE-67-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	2.0
4076044	EF-67-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	22
4076044	EF-67-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.30
4076048	AB-78-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	44
4076048	AB-78-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	18
4076048	AB-78-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	6.4
4076052	BC-78-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	68
4076052	BC-78-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Lead	120	145
4076056	CD-78-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	41
4076060	DE-78-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	25
4076060	DE-78-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	2.6
4076061	DE-78-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.58
4076064	EF-78-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.2
4076068	AB-89-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	19
4076068	AB-89-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	4.0
4076072	BC-89-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	42
4076076	CD-89-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	36
4076076	CD-89-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	5.1
4076077	CD-89-B	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.43
4076080	DE-89-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	21
4076080	DE-89-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.2
4076085	EF-89-A	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	21
4076085	EF-89-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.9
4076085	EF-89-A	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	Dieldrin	0.05	0.073
4076093	Dup#4	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	23
4076093	Dup#4	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	2.7
4076093	Dup#4	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	1.6
4076094	Dup#5	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.4
4076095	Dup#6	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	30
4076095	Dup#6	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	3.1
4076095	Dup#6	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	2.2
4076096	Dup#7	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	48
4076096	Dup#7	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	11
4076096	Dup#7	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	5.7
4076098	Dup#9	T3(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	21
4076098	Dup#9	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.55
4076099	Dup#10	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.4
4076103	Dup#14	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	3.3
4076103	Dup#14	T3(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDT	1.4	2.6

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

ATTENTION TO: David Hill

Soil Analysis															
RPT Date: Jan 23, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

Antimony	1	4075649	< 0.8	< 0.8	0.0%	< 0.8	101%	70%	130%	95%	80%	120%	80%	70%	130%
Arsenic	1	4075649	23	23	0.0%	< 1	112%	70%	130%	110%	80%	120%	92%	70%	130%
Boron	1	4075649	11	12	8.7%	< 5	76%	70%	130%	109%	80%	120%	103%	70%	130%
Barium	1	4075649	48	49	2.1%	< 2	99%	70%	130%	98%	80%	120%	94%	70%	130%
Beryllium	1	4075649	< 0.5	< 0.5	0.0%	< 0.5	90%	70%	130%	99%	80%	120%	101%	70%	130%
Cadmium	1	4075649	< 0.5	< 0.5	0.0%	< 0.5	103%	70%	130%	99%	80%	120%	97%	70%	130%
Chromium	1	4075649	16	17	6.1%	< 2	99%	70%	130%	110%	80%	120%	106%	70%	130%
Cobalt	1	4075649	5.6	5.9	5.2%	< 0.5	98%	70%	130%	106%	80%	120%	104%	70%	130%
Copper	1	4075649	36	37	2.7%	< 1	100%	70%	130%	109%	80%	120%	92%	70%	130%
Lead	1	4075649	56	56	0.0%	< 1	100%	70%	130%	97%	80%	120%	93%	70%	130%
Molybdenum	1	4075649	< 0.5	< 0.5	0.0%	< 0.5	100%	70%	130%	100%	80%	120%	99%	70%	130%
Nickel	1	4075649	12	13	8.0%	< 1	106%	70%	130%	105%	80%	120%	99%	70%	130%
Selenium	1	4075649	< 0.4	< 0.4	0.0%	< 0.4	89%	70%	130%	99%	80%	120%	96%	70%	130%
Silver	1	4075649	< 0.2	< 0.2	0.0%	< 0.2	83%	70%	130%	108%	80%	120%	100%	70%	130%
Thallium	1	4075649	< 0.4	< 0.4	0.0%	< 0.4	104%	70%	130%	102%	80%	120%	101%	70%	130%
Uranium	1	4075649	0.5	0.5	0.0%	< 0.5	87%	70%	130%	85%	80%	120%	85%	70%	130%
Vanadium	1	4075649	21	22	4.7%	< 1	99%	70%	130%	108%	80%	120%	106%	70%	130%
Zinc	1	4075649	54	56	3.6%	< 5	97%	70%	130%	106%	80%	120%	95%	70%	130%

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

Antimony	1	4076012	< 0.8	< 0.8	0.0%	< 0.8	102%	70%	130%	93%	80%	120%	81%	70%	130%
Arsenic	1	4076012	31	29	6.7%	< 1	117%	70%	130%	107%	80%	120%	91%	70%	130%
Boron	1	4076012	11	11	0.0%	< 5	80%	70%	130%	111%	80%	120%	102%	70%	130%
Barium	1	4076012	72	72	0.0%	< 2	100%	70%	130%	100%	80%	120%	109%	70%	130%
Beryllium	1	4076012	0.6	0.6	0.0%	< 0.5	91%	70%	130%	101%	80%	120%	94%	70%	130%
Cadmium	1	4076012	< 0.5	< 0.5	0.0%	< 0.5	102%	70%	130%	100%	80%	120%	98%	70%	130%
Chromium	1	4076012	19	18	5.4%	< 2	98%	70%	130%	114%	80%	120%	109%	70%	130%
Cobalt	1	4076012	6.6	6.4	3.1%	< 0.5	105%	70%	130%	109%	80%	120%	99%	70%	130%
Copper	1	4076012	42	40	4.9%	< 1	106%	70%	130%	111%	80%	120%	97%	70%	130%
Lead	1	4076012	72	70	2.8%	< 1	105%	70%	130%	99%	80%	120%	95%	70%	130%
Molybdenum	1	4076012	< 0.5	< 0.5	0.0%	< 0.5	106%	70%	130%	99%	80%	120%	103%	70%	130%
Nickel	1	4076012	14	14	0.0%	< 1	94%	70%	130%	108%	80%	120%	95%	70%	130%
Selenium	1	4076012	1.5	1.5	0.0%	< 0.4	117%	70%	130%	97%	80%	120%	94%	70%	130%
Silver	1	4076012	< 0.2	< 0.2	0.0%	< 0.2	87%	70%	130%	106%	80%	120%	103%	70%	130%
Thallium	1	4076012	< 0.4	< 0.4	0.0%	< 0.4	94%	70%	130%	103%	80%	120%	101%	70%	130%
Uranium	1	4076012	0.7	0.7	0.0%	< 0.5	90%	70%	130%	86%	80%	120%	86%	70%	130%
Vanadium	1	4076012	31	29	6.7%	< 1	100%	70%	130%	111%	80%	120%	107%	70%	130%
Zinc	1	4076012	72	69	4.3%	< 5	97%	70%	130%	106%	80%	120%	98%	70%	130%

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

AGAT QUALITY ASSURANCE REPORT (V2)

Page 18 of 24

AGAT Laboratories is accredited to ISO/IEC 17025 by the Canadian Association for Laboratory Accreditation Inc. (CALA) and/or Standards Council of Canada (SCC) for specific tests listed on the scope of accreditation. AGAT Laboratories (Mississauga) is also accredited by the Canadian Association for Laboratory Accreditation Inc. (CALA) for specific drinking water tests. Accreditations are location and parameter specific. A complete listing of parameters for each location is available from www.cala.ca and/or www.scc.ca. The tests in this report may not necessarily be included in the scope of accreditation.

Results relate only to the items tested and to all the items tested

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

ATTENTION TO: David Hill

Soil Analysis (Continued)

RPT Date: Jan 23, 2013			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
Antimony	1	4075660	< 0.8	< 0.8	0.0%	< 0.8	115%	70%	130%	104%	80%	120%	103%	70%	130%
Arsenic	1	4075660	7	7	0.0%	< 1	118%	70%	130%	108%	80%	120%	112%	70%	130%
Boron	1	4075660	14	14	0.0%	< 5	84%	70%	130%	115%	80%	120%	107%	70%	130%
Barium	1	4075660	70	71	1.4%	< 2	100%	70%	130%	112%	80%	120%	117%	70%	130%
Beryllium	1	4075660	0.7	0.8	13.3%	< 0.5	102%	70%	130%	97%	80%	120%	104%	70%	130%
Cadmium	1	4075660	< 0.5	< 0.5	0.0%	< 0.5	95%	70%	130%	110%	80%	120%	111%	70%	130%
Chromium	1	4075660	24	24	0.0%	< 2	101%	70%	130%	111%	80%	120%	112%	70%	130%
Cobalt	1	4075660	8.8	8.7	1.1%	< 0.5	109%	70%	130%	111%	80%	120%	111%	70%	130%
Copper	1	4075660	32	32	0.0%	< 1	98%	70%	130%	101%	80%	120%	102%	70%	130%
Lead	1	4075660	14	14	0.0%	< 1	103%	70%	130%	100%	80%	120%	95%	70%	130%
Molybdenum	1	4075660	< 0.5	< 0.5	0.0%	< 0.5	114%	70%	130%	110%	80%	120%	115%	70%	130%
Nickel	1	4075660	20	21	4.9%	< 1	112%	70%	130%	113%	80%	120%	113%	70%	130%
Selenium	1	4075660	1.8	1.5	18.2%	< 0.4	123%	70%	130%	106%	80%	120%	106%	70%	130%
Silver	1	4075660	< 0.2	< 0.2	0.0%	< 0.2	78%	70%	130%	110%	80%	120%	109%	70%	130%
Thallium	1	4075660	< 0.4	< 0.4	0.0%	< 0.4	96%	70%	130%	114%	80%	120%	115%	70%	130%
Uranium	1	4075660	0.8	0.9	11.8%	< 0.5	101%	70%	130%	102%	80%	120%	99%	70%	130%
Vanadium	1	4075660	32	33	3.1%	< 1	112%	70%	130%	115%	80%	120%	117%	70%	130%
Zinc	1	4075660	78	78	0.0%	< 5	109%	70%	130%	111%	80%	120%	122%	70%	130%
O. Reg. 153(511) - Metals (Comprehensive) (Soil)															
Antimony	1	4076003	< 0.8	< 0.8	0.0%	< 0.8	115%	70%	130%	104%	80%	120%	101%	70%	130%
Arsenic	1	4076003	19	19	0.0%	< 1	121%	70%	130%	106%	80%	120%	102%	70%	130%
Boron	1	4076003	15	15	0.0%	< 5	91%	70%	130%	113%	80%	120%	102%	70%	130%
Barium	1	4076003	64	61	4.8%	< 2	101%	70%	130%	95%	80%	120%	112%	70%	130%
Beryllium	1	4076003	0.7	0.6	15.4%	< 0.5	108%	70%	130%	105%	80%	120%	97%	70%	130%
Cadmium	1	4076003	< 0.5	< 0.5	0.0%	< 0.5	104%	70%	130%	108%	80%	120%	105%	70%	130%
Chromium	1	4076003	23	22	4.4%	< 2	101%	70%	130%	105%	80%	120%	98%	70%	130%
Cobalt	1	4076003	8.8	8.5	3.5%	< 0.5	108%	70%	130%	106%	80%	120%	103%	70%	130%
Copper	1	4076003	36	35	2.8%	< 1	102%	70%	130%	99%	80%	120%	88%	70%	130%
Lead	1	4076003	18	19	5.4%	< 1	105%	70%	130%	98%	80%	120%	90%	70%	130%
Molybdenum	1	4076003	< 0.5	< 0.5	0.0%	< 0.5	113%	70%	130%	108%	80%	120%	111%	70%	130%
Nickel	1	4076003	20	20	0.0%	< 1	108%	70%	130%	109%	80%	120%	98%	70%	130%
Selenium	1	4076003	1.7	1.7	0.0%	< 0.4	110%	70%	130%	102%	80%	120%	100%	70%	130%
Silver	1	4076003	< 0.2	< 0.2	0.0%	< 0.2	75%	70%	130%	104%	80%	120%	103%	70%	130%
Thallium	1	4076003	< 0.4	< 0.4	0.0%	< 0.4	100%	70%	130%	114%	80%	120%	107%	70%	130%
Uranium	1	4076003	1.0	1.0	0.0%	< 0.5	107%	70%	130%	99%	80%	120%	96%	70%	130%
Vanadium	1	4076003	33	32	3.1%	< 1	113%	70%	130%	109%	80%	120%	108%	70%	130%
Zinc	1	4076003	71	69	2.9%	< 5	107%	70%	130%	119%	80%	120%	104%	70%	130%

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

ATTENTION TO: David Hill

Soil Analysis (Continued)

RPT Date: Jan 23, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

Certified By:



Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

ATTENTION TO: David Hill

Trace Organics Analysis															
RPT Date: Jan 23, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

Gamma-Hexachlorocyclohexane	1	4076016	< 0.005	< 0.005	0.0%	< 0.005	86%	50%	140%	60%	50%	140%	69%	50%	140%
Heptachlor	1	4076016	< 0.005	< 0.005	0.0%	< 0.005	83%	50%	140%	58%	50%	140%	76%	50%	140%
Aldrin	1	4076016	< 0.005	< 0.005	0.0%	< 0.005	78%	50%	140%	54%	50%	140%	73%	50%	140%
Heptachlor Epoxide	1	4076016	< 0.005	< 0.005	0.0%	< 0.005	78%	50%	140%	60%	50%	140%	70%	50%	140%
Endosulfan	1	4076016	< 0.005	< 0.005	0.0%	< 0.005	75%	50%	140%	58%	50%	140%	69%	50%	140%
Chlordane	1	4076016	< 0.007	< 0.007	0.0%	< 0.007	76%	50%	140%	58%	50%	140%	74%	50%	140%
DDE	1	4076016	2.8	2.8	0.0%	< 0.007	71%	50%	140%	60%	50%	140%	75%	50%	140%
DDD	1	4076016	0.41	0.55	29.2%	< 0.007	71%	50%	140%	58%	50%	140%	67%	50%	140%
DDT	1	4076016	0.59	0.86	37.2%	< 0.007	68%	50%	140%	58%	50%	140%	78%	50%	140%
Dieldrin	1	4076016	0.012	0.017	34.5%	< 0.005	75%	50%	140%	55%	50%	140%	68%	50%	140%
Endrin	1	4076016	< 0.005	< 0.005	0.0%	< 0.005	74%	50%	140%	64%	50%	140%	68%	50%	140%
Methoxychlor	1	4076016	< 0.005	< 0.005	0.0%	< 0.005	73%	50%	140%	72%	50%	140%	81%	50%	140%
Hexachlorobenzene	1	4076016	< 0.005	< 0.005	0.0%	< 0.005	80%	50%	140%	58%	50%	140%	77%	50%	140%
Hexachlorobutadiene	1	4076016	< 0.01	< 0.01	0.0%	< 0.01	71%	50%	140%	68%	50%	140%	74%	50%	140%
Hexachloroethane	1	4076016	< 0.01	< 0.01	0.0%	< 0.01	71%	50%	140%	85%	50%	140%	82%	50%	140%

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

Gamma-Hexachlorocyclohexane	1		< 0.005	< 0.005	0.0%	< 0.005	93%	50%	140%	54%	50%	140%	60%	50%	140%
Heptachlor	1		< 0.005	< 0.005	0.0%	< 0.005	93%	50%	140%	62%	50%	140%	58%	50%	140%
Aldrin	1		< 0.005	< 0.005	0.0%	< 0.005	102%	50%	140%	66%	50%	140%	70%	50%	140%
Heptachlor Epoxide	1		< 0.005	< 0.005	0.0%	< 0.005	94%	50%	140%	66%	50%	140%	72%	50%	140%
Endosulfan	1		< 0.005	< 0.005	0.0%	< 0.005	97%	50%	140%	64%	50%	140%	80%	50%	140%
Chlordane	1		0.020	0.014	35.3%	< 0.007	98%	50%	140%	64%	50%	140%	79%	50%	140%
DDE	1		< 0.007	< 0.007	0.0%	< 0.007	99%	50%	140%	69%	50%	140%	76%	50%	140%
DDD	1		< 0.007	< 0.007	0.0%	< 0.007	88%	50%	140%	67%	50%	140%	62%	50%	140%
DDT	1		< 0.007	< 0.007	0.0%	< 0.007	87%	50%	140%	64%	50%	140%	62%	50%	140%
Dieldrin	1		< 0.005	< 0.005	0.0%	< 0.005	128%	50%	140%	64%	50%	140%	57%	50%	140%
Endrin	1		< 0.005	< 0.005	0.0%	< 0.005	92%	50%	140%	58%	50%	140%	62%	50%	140%
Methoxychlor	1		< 0.005	< 0.005	0.0%	< 0.005	74%	50%	140%	86%	50%	140%	76%	50%	140%
Hexachlorobenzene	1		< 0.005	< 0.005	0.0%	< 0.005	101%	50%	140%	64%	50%	140%	68%	50%	140%
Hexachlorobutadiene	1		< 0.01	< 0.01	0.0%	< 0.01	85%	50%	140%	56%	50%	140%	68%	50%	140%
Hexachloroethane	1		< 0.01	< 0.01	0.0%	< 0.01	89%	50%	140%	50%	50%	140%	96%	50%	140%

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

Gamma-Hexachlorocyclohexane	1	4075654	< 0.005	< 0.005	0.0%	< 0.005		50%	140%		50%	140%		50%	140%
Heptachlor	1	4075654	< 0.005	< 0.005	0.0%	< 0.005		50%	140%		50%	140%		50%	140%
Aldrin	1	4075654	< 0.005	< 0.005	0.0%	< 0.005		50%	140%		50%	140%		50%	140%
Heptachlor Epoxide	1	4075654	< 0.005	< 0.005	0.0%	< 0.005		50%	140%		50%	140%		50%	140%
Endosulfan	1	4075654	< 0.005	< 0.005	0.0%	< 0.005		50%	140%		50%	140%		50%	140%
Chlordane	1	4075654	< 0.007	< 0.007	0.0%	< 0.007		50%	140%		50%	140%		50%	140%
DDE	1	4075654	0.010	0.014	33.3%	< 0.007		50%	140%		50%	140%		50%	140%

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

ATTENTION TO: David Hill

Trace Organics Analysis (Continued)															
RPT Date: Jan 23, 2013			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
DDD	1	4075654	< 0.007	< 0.007	0.0%	< 0.007	50%	140%		50%	140%		50%	140%	
DDT	1	4075654	< 0.007	< 0.007	0.0%	< 0.007	50%	140%		50%	140%		50%	140%	
Dieldrin	1	4075654	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Endrin	1	4075654	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Methoxychlor	1	4075654	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Hexachlorobenzene	1	4075654	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Hexachlorobutadiene	1	4075654	< 0.01	< 0.01	0.0%	< 0.01	50%	140%		50%	140%		50%	140%	
Hexachloroethane	1	4075654	< 0.01	< 0.01	0.0%	< 0.01	50%	140%		50%	140%		50%	140%	
O. Reg. 153(511) - OC Pesticides (Soil)															
Gamma-Hexachlorocyclohexane	1	4076096	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Heptachlor	1	4076096	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Aldrin	1	4076096	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Heptachlor Epoxide	1	4076096	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Endosulfan	1	4076096	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Chlordane	1	4076096	< 0.007	< 0.007	0.0%	< 0.007	50%	140%		50%	140%		50%	140%	
DDE	1	4076096	11	12	8.7%	< 0.007	50%	140%		50%	140%		50%	140%	
DDD	1	4076096	1.4	1.2	15.4%	< 0.007	50%	140%		50%	140%		50%	140%	
DDT	1	4076096	5.7	6.2	8.4%	< 0.007	50%	140%		50%	140%		50%	140%	
Dieldrin	1	4076096	0.022	0.027	20.4%	< 0.005	50%	140%		50%	140%		50%	140%	
Endrin	1	4076096	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Methoxychlor	1	4076096	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Hexachlorobenzene	1	4076096	< 0.005	< 0.005	0.0%	< 0.005	50%	140%		50%	140%		50%	140%	
Hexachlorobutadiene	1	4076096	< 0.01	< 0.01	0.0%	< 0.01	50%	140%		50%	140%		50%	140%	
Hexachloroethane	1	4076096	< 0.01	< 0.01	0.0%	< 0.01	50%	140%		50%	140%		50%	140%	
O. Reg. 153(511) - OC Pesticides (Soil)															
Gamma-Hexachlorocyclohexane	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	96%	50%	140%	90%	50%	140%	NA	50%	140%
Heptachlor	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	97%	50%	140%	85%	50%	140%	NA	50%	140%
Aldrin	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	95%	50%	140%	81%	50%	140%	NA	50%	140%
Heptachlor Epoxide	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	102%	50%	140%	82%	50%	140%	NA	50%	140%
Endosulfan	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	102%	50%	140%	80%	50%	140%	NA	50%	140%
Chlordane	1	4076071	< 0.007	< 0.007	0.0%	< 0.007	104%	50%	140%	81%	50%	140%	NA	50%	140%
DDE	1	4076071	< 0.007	< 0.007	0.0%	< 0.007	98%	50%	140%	81%	50%	140%	NA	50%	140%
DDD	1	4076071	< 0.007	< 0.007	0.0%	< 0.007	92%	50%	140%	79%	50%	140%	NA	50%	140%
DDT	1	4076071	< 0.007	< 0.007	0.0%	< 0.007	92%	50%	140%	80%	50%	140%	NA	50%	140%
Dieldrin	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	102%	50%	140%	90%	50%	140%	NA	50%	140%
Endrin	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	97%	50%	140%	78%	50%	140%	NA	50%	140%
Methoxychlor	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	106%	50%	140%	82%	50%	140%	NA	50%	140%
Hexachlorobenzene	1	4076071	< 0.005	< 0.005	0.0%	< 0.005	106%	50%	140%	84%	50%	140%	NA	50%	140%
Hexachlorobutadiene	1	4076071	< 0.01	< 0.01	0.0%	< 0.01	98%	50%	140%	85%	50%	140%	NA	50%	140%

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

ATTENTION TO: David Hill

Trace Organics Analysis (Continued)

RPT Date: Jan 23, 2013			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
Hexachloroethane	1	4076071	< 0.01	< 0.01	0.0%	< 0.01	96%	50%	140%	91%	50%	140%	NA	50%	140%
O. Reg. 153(511) - OC Pesticides (Soil)															
Gamma-Hexachlorocyclohexane	1	4075716				< 0.005	50%	140%		50%	140%		66%	50%	140%
Heptachlor	1	4075716				< 0.005	50%	140%		50%	140%		60%	50%	140%
Aldrin	1	4075716				< 0.005	50%	140%		50%	140%		68%	50%	140%
Heptachlor Epoxide	1	4075716				< 0.005	50%	140%		50%	140%		73%	50%	140%
Endosulfan	1	4075716				< 0.005	50%	140%		50%	140%		73%	50%	140%
Chlordane	1	4075716				< 0.007	50%	140%		50%	140%		74%	50%	140%
DDE	1	4075716				< 0.007	50%	140%		50%	140%		74%	50%	140%
DDD	1	4075716				< 0.007	50%	140%		50%	140%		85%	50%	140%
DDT	1	4075716				< 0.007	50%	140%		50%	140%		76%	50%	140%
Dieldrin	1	4075716				< 0.005	50%	140%		50%	140%		73%	50%	140%
Endrin	1	4075716				< 0.005	50%	140%		50%	140%		72%	50%	140%
Methoxychlor	1	4075716				< 0.005	50%	140%		50%	140%		83%	50%	140%
Hexachlorobenzene	1	4075716				< 0.005	50%	140%		50%	140%		76%	50%	140%
Hexachlorobutadiene	1	4075716				< 0.01	50%	140%		50%	140%		60%	50%	140%
Hexachloroethane	1	4075716				< 0.01	50%	140%		50%	140%		60%	50%	140%

Certified By: _____

Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 13T680579

PROJECT NO: 13-11-6138

ATTENTION TO: David Hill

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Trace Organics Analysis			
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Moisture Content		MOE E3139	BALANCE

CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: David Hill

PROJECT: 13-11-6138-1

AGAT WORK ORDER: 14T928118

SOIL ANALYSIS REVIEWED BY: Anthony Dapaah, PhD (Chem), Inorganic Lab Manager

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Dec 22, 2014

PAGES (INCLUDING COVER): 17

VERSION*: 1

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

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



Certificate of Analysis

AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-18

		SAMPLE DESCRIPTION:		FG-23-A	FG-34-A	FG-45-A	FG-56-A	FG-67-A	FG-78-A	FG-89-A	GH-12-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:									
Parameter	Unit	G / S	RDL	6182367	6182376	6182378	6182380	6182383	6182385	6182387	6182390
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	11	13	17	21	13	15	18	11
Boron	µg/g	120	5	10	9	12	15	14	21	25	14
Barium	µg/g	390	2	29	26	56	60	43	69	82	47
Beryllium	µg/g	4	0.5	<0.5	<0.5	0.7	0.9	0.6	0.9	0.9	0.6
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	0.6	<0.5
Chromium	µg/g	160	2	10	10	17	20	15	20	21	14
Cobalt	µg/g	22	0.5	4.3	3.8	6.9	8.4	5.6	7.4	7.9	5.9
Copper	µg/g	140	1	17	16	35	33	24	33	39	28
Lead	µg/g	120	1	12	12	18	17	12	16	20	14
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	7	7	15	17	11	17	19	13
Selenium	µg/g	2.4	0.4	0.5	0.6	1.2	1.1	1.0	1.5	2.3	1.0
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	<0.5	0.5	0.8	0.9	0.7	1.0	1.5	0.6
Vanadium	µg/g	86	1	14	13	21	30	20	25	27	20
Zinc	µg/g	340	5	31	32	54	61	44	67	71	41

Certified By:





Certificate of Analysis

AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-18

		SAMPLE DESCRIPTION:		GH-34-A	GH-45-A	GH-56-A	GH-67-A	GH-78-A	HI-12-A	HI-23-A	HI-34-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:									
Parameter	Unit	G / S	RDL	6182418	6182454	6182467	6182470	6182473	6182476	6182478	6182480
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	15	26	27	26	21	13	17	17
Boron	µg/g	120	5	15	18	20	23	24	11	17	15
Barium	µg/g	390	2	45	71	62	84	81	33	54	49
Beryllium	µg/g	4	0.5	0.6	0.9	0.8	1.2	1.1	<0.5	0.7	0.6
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	0.6	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	14	21	19	24	22	11	16	15
Cobalt	µg/g	22	0.5	5.2	7.8	7.6	8.8	8.2	4.2	6.7	5.7
Copper	µg/g	140	1	32	44	33	48	46	19	35	31
Lead	µg/g	120	1	15	21	16	19	17	13	17	17
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	11	19	17	22	20	8	16	13
Selenium	µg/g	2.4	0.4	1.5	1.7	1.8	2.2	2.2	<0.4	1.4	1.4
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.9	1.0	0.9	1.3	1.1	0.5	0.7	0.9
Vanadium	µg/g	86	1	18	26	24	32	29	16	24	21
Zinc	µg/g	340	5	38	56	57	75	67	29	44	45

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Certificate of Analysis

AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-18

		SAMPLE DESCRIPTION:		HI-45-A	HI-56-A	HI-67-A	HI-78-A	HI-89-A	IJ-12-A	IJ-23-A	IJ-34-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6182482	6182484	6182486	6182489	6182492	6182494	6182496	6182498
Parameter	Unit	G / S	RDL								
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	21	34	22	22	24	3	10	13
Boron	µg/g	120	5	16	19	18	20	21	10	11	11
Barium	µg/g	390	2	59	87	82	61	69	25	36	31
Beryllium	µg/g	4	0.5	0.8	1.1	0.9	0.8	0.9	<0.5	<0.5	<0.5
Cadmium	µg/g	1.2	0.5	<0.5	0.5	<0.5	<0.5	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	17	24	22	19	20	10	12	11
Cobalt	µg/g	22	0.5	6.8	8.9	8.1	7.1	7.5	4.7	4.2	4.2
Copper	µg/g	140	1	39	49	44	38	43	12	19	20
Lead	µg/g	120	1	17	20	17	16	18	5	12	14
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	16	21	18	16	17	6	7	8
Selenium	µg/g	2.4	0.4	1.7	2.8	2.4	2.0	2.0	<0.4	0.5	0.5
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.9	1.2	1.3	0.8	0.9	<0.5	0.5	0.6
Vanadium	µg/g	86	1	25	33	29	24	28	14	17	17
Zinc	µg/g	340	5	47	67	59	57	57	19	29	29

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AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-18

		SAMPLE DESCRIPTION:		IJ-45-A	IJ-56-A	IJ-67-A	IJ-78-A	IJ-89-A	JK-67-A	JK-78-A	JK-89-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:									
Parameter	Unit	G / S	RDL	6182500	6182502	6182504	6182506	6182509	6182511	6182514	6182517
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	15	29	25	20	19	31	21	25
Boron	µg/g	120	5	12	23	27	21	17	24	19	20
Barium	µg/g	390	2	31	77	85	65	46	81	56	66
Beryllium	µg/g	4	0.5	<0.5	1.0	1.1	0.9	<0.5	<0.5	0.7	1.0
Cadmium	µg/g	1.2	0.5	<0.5	0.5	0.5	<0.5	<0.5	0.6	<0.5	<0.5
Chromium	µg/g	160	2	10	22	24	20	15	23	18	20
Cobalt	µg/g	22	0.5	4.1	8.1	9.4	7.8	6.1	9.2	7.6	8.2
Copper	µg/g	140	1	20	49	53	44	33	51	38	54
Lead	µg/g	120	1	13	22	18	16	15	21	17	21
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	8	20	23	19	13	23	17	20
Selenium	µg/g	2.4	0.4	0.8	2.5	2.7	2.3	1.6	3.0	1.8	2.0
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.6	1.4	1.0	1.2	0.7	1.2	0.9	1.0
Vanadium	µg/g	86	1	16	30	34	28	23	31	25	29
Zinc	µg/g	340	5	27	63	74	59	42	68	53	58

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AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-18

		SAMPLE DESCRIPTION:		KL-67-A	LM-67-A	GH-23-A
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:				
Parameter	Unit	G / S	RDL	6182521	6182524	6182536
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	10	7	11
Boron	µg/g	120	5	14	13	12
Barium	µg/g	390	2	44	43	37
Beryllium	µg/g	4	0.5	0.6	<0.5	<0.5
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	15	14	12
Cobalt	µg/g	22	0.5	7.4	6.2	5.1
Copper	µg/g	140	1	23	22	24
Lead	µg/g	120	1	10	10	13
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	13	12	10
Selenium	µg/g	2.4	0.4	0.5	0.5	0.9
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	0.6	0.5	0.5
Vanadium	µg/g	86	1	21	19	17
Zinc	µg/g	340	5	39	39	35

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(RPI) - Current

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PROJECT: 13-11-6138-1

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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-19

		SAMPLE DESCRIPTION:		FG-23-A	FG-34-A	FG-45-A	FG-56-A	FG-67-A	FG-78-A	FG-89-A	GH-12-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:									
Parameter	Unit	G / S	RDL	6182367	6182376	6182378	6182380	6182383	6182385	6182387	6182390
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.013	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	0.73	0.79	0.72	1.3	0.87	1.2	1.4	0.74
DDD	µg/g	3.3	0.007	0.23	0.21	0.11	0.26	0.25	0.17	0.43	0.24
DDT	µg/g	1.4	0.007	0.23	0.2	0.20	0.27	0.24	0.17	0.26	0.28
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	0.017	0.037	0.015	0.013	0.019	0.035	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	31.2	31.8	35.4	34.5	34.4	34.8	34.5	29.5
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		94	116	120	116	106	120	86	68
Decachlorobiphenyl	%	60-130		110	84	116	92	90	106	110	92

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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-19

		SAMPLE DESCRIPTION:		GH-34-A	GH-45-A	GH-56-A	GH-67-A	GH-78-A	HI-12-A	HI-23-A	HI-34-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:									
Parameter	Unit	G / S	RDL	6182418	6182454	6182467	6182470	6182473	6182476	6182478	6182480
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	0.79	0.89	0.95	1.1	1.3	0.69	0.86	0.67
DDD	µg/g	3.3	0.007	0.26	0.32	0.31	0.25	0.58	0.11	0.35	0.28
DDT	µg/g	1.4	0.007	0.19	0.31	0.20	0.24	0.20	0.13	0.23	0.19
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	0.019	0.053	0.009	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	27.6	30.1	33.8	35.1	33.6	24.5	33.0	24.8
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		78	120	100	86	110	92	84	120
Decachlorobiphenyl	%	60-130		88	84	96	114	100	82	92	104

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SAMPLING SITE:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-19

		SAMPLE DESCRIPTION:		HI-45-A	HI-56-A	HI-67-A	HI-78-A	HI-89-A	IJ-12-A	IJ-23-A	IJ-34-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		6182482	6182484	6182486	6182489	6182492	6182494	6182496	6182498
Parameter	Unit	G / S	RDL								
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	0.022	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	0.51	1.3	0.86	1.1	1.7	<0.007	0.51	0.72
DDD	µg/g	3.3	0.007	0.12	0.63	0.35	0.47	1.1	<0.007	0.084	0.27
DDT	µg/g	1.4	0.007	0.13	0.46	0.28	0.28	0.23	<0.007	0.2	0.34
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	0.014	<0.005	<0.005	0.037	0.009	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	33.1	36.5	38.3	37.6	35.9	13.1	19.1	28.4
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		120	110	94	75	88	78	68	52
Decachlorobiphenyl	%	60-130		84	96	96	95	106	74	76	88

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AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
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SAMPLING SITE:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-19

		SAMPLE DESCRIPTION:		IJ-45-A	IJ-56-A	IJ-67-A	IJ-78-A	IJ-89-A	JK-67-A	JK-78-A	JK-89-A
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:									
Parameter	Unit	G / S	RDL	6182500	6182502	6182504	6182506	6182509	6182511	6182514	6182517
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	0.011	<0.007	0.036	0.033	0.046	0.008	0.062
DDE	µg/g	0.26	0.007	0.75	0.29	0.44	1.2	1.1	0.87	0.45	2.0
DDD	µg/g	3.3	0.007	0.26	0.12	0.35	0.94	0.77	0.9	0.42	2.3
DDT	µg/g	1.4	0.007	0.74	0.18	0.2	0.68	0.31	1.3	0.18	1.0
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	0.022	0.030	<0.005	<0.005	0.056
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	0.036	0.01	<0.005	0.043	0.014	0.008	0.006	0.009
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	28.6	39.0	32.8	35.0	28.6	38.5	32.9	34.2
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		96	106	70	60	100	76	84	86
Decachlorobiphenyl	%	60-130		110	82	120	78	72	76	64	74

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2014-12-19

		SAMPLE DESCRIPTION:		KL-67-A	LM-67-A	GH-23-A
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:				
Parameter	Unit	G / S	RDL	6182521	6182524	6182536
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	0.012	<0.007	0.009
DDE	µg/g	0.26	0.007	0.47	0.35	0.47
DDD	µg/g	3.3	0.007	0.12	0.052	0.13
DDT	µg/g	1.4	0.007	0.22	0.27	0.27
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	27.2	25.9	22.1
Surrogate	Unit	Acceptable Limits				
TCMX	%	50-140		88	120	70
Decachlorobiphenyl	%	60-130		68	78	68

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(RPI) - Current

6182367-6182536 Results are based on the dry weight of the soil.

Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE and pp'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.

Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By:

Guideline Violation

AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
6182367	FG-23-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.73
6182376	FG-34-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.79
6182378	FG-45-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.72
6182380	FG-56-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	21
6182380	FG-56-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.3
6182383	FG-67-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.87
6182385	FG-78-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.2
6182387	FG-89-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.4
6182390	GH-12-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.74
6182418	GH-34-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.79
6182454	GH-45-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	26
6182454	GH-45-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.89
6182467	GH-56-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	27
6182467	GH-56-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.95
6182470	GH-67-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	26
6182470	GH-67-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.1
6182473	GH-78-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	21
6182473	GH-78-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.3
6182476	HI-12-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.69
6182478	HI-23-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.86
6182480	HI-34-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.67
6182482	HI-45-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	21
6182482	HI-45-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.51
6182484	HI-56-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	34
6182484	HI-56-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Selenium	2.4	2.8
6182484	HI-56-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.3
6182486	HI-67-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	22
6182486	HI-67-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.86
6182489	HI-78-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	22
6182489	HI-78-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.1
6182492	HI-89-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	24
6182492	HI-89-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.7
6182496	IJ-23-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.51
6182498	IJ-34-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.72
6182500	IJ-45-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.75
6182502	IJ-56-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	29
6182502	IJ-56-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Selenium	2.4	2.5
6182502	IJ-56-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.29
6182504	IJ-67-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	25
6182504	IJ-67-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Selenium	2.4	2.7
6182504	IJ-67-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.44
6182506	IJ-78-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	20
6182506	IJ-78-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.2

Guideline Violation

AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
MISSISSAUGA, ONTARIO
CANADA L4Z 1Y2
TEL (905)712-5100
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
6182509	IJ-89-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	19
6182509	IJ-89-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	1.1
6182511	JK-67-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	31
6182511	JK-67-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Selenium	2.4	3.0
6182511	JK-67-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.87
6182514	JK-78-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	21
6182514	JK-78-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.45
6182517	JK-89-A	T2(RPI) - Current	O. Reg. 153(511) - Metals (Comprehensive) (Soil)	Arsenic	18	25
6182517	JK-89-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	Chlordane	0.05	0.062
6182517	JK-89-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	2.0
6182517	JK-89-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	Dieldrin	0.05	0.056
6182521	KL-67-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.47
6182524	LM-67-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.35
6182536	GH-23-A	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.47

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 13-11-6138-1

SAMPLING SITE:

AGAT WORK ORDER: 14T928118

ATTENTION TO: David Hill

SAMPLED BY:

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

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

Antimony	6182367	6182367	<0.8	<0.8	0.0%	< 0.8	92%	70%	130%	100%	80%	120%	103%	70%	130%
Arsenic	6182367	6182367	11	11	0.0%	< 1	104%	70%	130%	99%	80%	120%	101%	70%	130%
Boron	6182367	6182367	10	10	0.0%	< 5	81%	70%	130%	105%	80%	120%	106%	70%	130%
Barium	6182367	6182367	29	29	0.0%	< 2	100%	70%	130%	99%	80%	120%	100%	70%	130%
Beryllium	6182367	6182367	<0.5	<0.5	0.0%	< 0.5	112%	70%	130%	111%	80%	120%	116%	70%	130%
Cadmium	6182367	6182367	<0.5	<0.5	0.0%	< 0.5	102%	70%	130%	102%	80%	120%	97%	70%	130%
Chromium	6182367	6182367	10	10	0.0%	< 2	88%	70%	130%	98%	80%	120%	99%	70%	130%
Cobalt	6182367	6182367	4.3	4.3	0.0%	< 0.5	95%	70%	130%	103%	80%	120%	100%	70%	130%
Copper	6182367	6182367	17	17	0.0%	< 1	93%	70%	130%	103%	80%	120%	95%	70%	130%
Lead	6182367	6182367	12	12	0.0%	< 1	101%	70%	130%	102%	80%	120%	97%	70%	130%
Molybdenum	6182367	6182367	<0.5	<0.5	0.0%	< 0.5	98%	70%	130%	101%	80%	120%	106%	70%	130%
Nickel	6182367	6182367	7	7	0.0%	< 1	96%	70%	130%	105%	80%	120%	100%	70%	130%
Selenium	6182367	6182367	0.5	0.5	0.0%	< 0.4	75%	70%	130%	104%	80%	120%	104%	70%	130%
Silver	6182367	6182367	<0.2	<0.2	0.0%	< 0.2	80%	70%	130%	104%	80%	120%	94%	70%	130%
Thallium	6182367	6182367	<0.4	<0.4	0.0%	< 0.4	94%	70%	130%	99%	80%	120%	96%	70%	130%
Uranium	6182367	6182367	<0.5	<0.5	0.0%	< 0.5	92%	70%	130%	101%	80%	120%	99%	70%	130%
Vanadium	6182367	6182367	14	13	7.4%	< 1	90%	70%	130%	98%	80%	120%	100%	70%	130%
Zinc	6182367	6182367	31	32	3.2%	< 5	102%	70%	130%	103%	80%	120%	101%	70%	130%

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

Antimony	6182484	6182484	<0.8	<0.8	0.0%	< 0.8	89%	70%	130%	103%	80%	120%	102%	70%	130%
Arsenic	6182484	6182484	34	34	0.0%	< 1	103%	70%	130%	98%	80%	120%	99%	70%	130%
Boron	6182484	6182484	19	22	14.6%	< 5	85%	70%	130%	116%	80%	120%	114%	70%	130%
Barium	6182484	6182484	87	88	1.1%	< 2	100%	70%	130%	100%	80%	120%	106%	70%	130%
Beryllium	6182484	6182484	1.1	1.0	9.5%	< 0.5	113%	70%	130%	118%	80%	120%	122%	70%	130%
Cadmium	6182484	6182484	0.5	0.5	0.0%	< 0.5	105%	70%	130%	101%	80%	120%	98%	70%	130%
Chromium	6182484	6182484	24	25	4.1%	< 2	89%	70%	130%	98%	80%	120%	112%	70%	130%
Cobalt	6182484	6182484	8.9	9.3	4.4%	< 0.5	95%	70%	130%	101%	80%	120%	101%	70%	130%
Copper	6182484	6182484	49	49	0.0%	< 1	92%	70%	130%	103%	80%	120%	116%	70%	130%
Lead	6182484	6182484	20	21	4.9%	< 1	100%	70%	130%	101%	80%	120%	99%	70%	130%
Molybdenum	6182484	6182484	<0.5	<0.5	0.0%	< 0.5	100%	70%	130%	101%	80%	120%	103%	70%	130%
Nickel	6182484	6182484	21	22	4.7%	< 1	98%	70%	130%	104%	80%	120%	102%	70%	130%
Selenium	6182484	6182484	2.8	2.7	3.6%	< 0.4	77%	70%	130%	104%	80%	120%	100%	70%	130%
Silver	6182484	6182484	<0.2	<0.2	0.0%	< 0.2	85%	70%	130%	105%	80%	120%	93%	70%	130%
Thallium	6182484	6182484	<0.4	<0.4	0.0%	< 0.4	94%	70%	130%	100%	80%	120%	92%	70%	130%
Uranium	6182484	6182484	1.2	1.2	0.0%	< 0.5	94%	70%	130%	101%	80%	120%	97%	70%	130%
Vanadium	6182484	6182484	33	34	3.0%	< 1	90%	70%	130%	99%	80%	120%	105%	70%	130%
Zinc	6182484	6182484	67	68	1.5%	< 5	102%	70%	130%	103%	80%	120%	NA	70%	130%

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

Soil Analysis (Continued)

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

Certified By:



Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 13-11-6138-1

SAMPLING SITE:

AGAT WORK ORDER: 14T928118

ATTENTION TO: David Hill

SAMPLED BY:

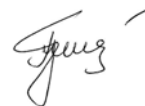
Trace Organics Analysis

RPT Date:			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) - OC Pesticides (Soil)

Gamma-Hexachlorocyclohexane	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	96%	50%	140%	85%	50%	140%	62%	50%	140%
Heptachlor	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	130%	50%	140%	109%	50%	140%	135%	50%	140%
Aldrin	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	108%	50%	140%	88%	50%	140%	108%	50%	140%
Heptachlor Epoxide	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	101%	50%	140%	87%	50%	140%	100%	50%	140%
Endosulfan	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	99%	50%	140%	72%	50%	140%	94%	50%	140%
Chlordane	6182494	6182494	< 0.007	< 0.007	0.0%	< 0.007	107%	50%	140%	87%	50%	140%	109%	50%	140%
DDE	6182494	6182494	< 0.007	< 0.007	0.0%	< 0.007	106%	50%	140%	96%	50%	140%	107%	50%	140%
DDD	6182494	6182494	< 0.007	< 0.007	0.0%	< 0.007	106%	50%	140%	82%	50%	140%	92%	50%	140%
DDT	6182494	6182494	< 0.007	< 0.007	0.0%	< 0.007	102%	50%	140%	98%	50%	140%	113%	50%	140%
Dieldrin	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	93%	50%	140%	85%	50%	140%	95%	50%	140%
Endrin	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	89%	50%	140%	82%	50%	140%	96%	50%	140%
Methoxychlor	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	115%	50%	140%	125%	50%	140%	130%	50%	140%
Hexachlorobenzene	6182494	6182494	< 0.005	< 0.005	0.0%	< 0.005	103%	50%	140%	99%	50%	140%	77%	50%	140%
Hexachlorobutadiene	6182494	6182494	< 0.01	< 0.01	0.0%	< 0.01	123%	50%	140%	118%	50%	140%	84%	50%	140%
Hexachloroethane	6182494	6182494	< 0.01	< 0.01	0.0%	< 0.01	120%	50%	140%	130%	50%	140%	109%	50%	140%

Certified By:



Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 14T928118

PROJECT: 13-11-6138-1

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Trace Organics Analysis			
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Moisture Content		MOE E3139	BALANCE



Laboratories

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5835 Coopers Avenue

Mississauga, ON

L4Z 1Y2

Laboratory Use Only

Arrival Temperature: 147.928118

AGAT WO #:

Lab Temperature: 49.5/5.5/3.1

Notes:

Chain of Custody Record

P: 905.712.5100 · F: 905.712.5122 · TF: 800.856.6261

Client Information

Company: Terraprobe Inc
Contact: Dave Hill
Address: Brampton ON
Phone: 13-11-6138-1
Project: PO:
AGAT Quotation #: Please note, if quotation number is not provided, client will be billed full price for analysis.

Regulatory Requirements

☒ Regulation 153/04 (reg. S11 Amend)
Table 2
☒ Ind/Com
☒ Res/Park
☐ Agriculture
☒ Soil Texture (check one)
☒ Coarse
☐ Fine
☐ Sewer Use
☐ Regulation 558
☐ CCME
☐ Other (specify)
☐ Sanitary
☐ Storm
☐ Prov. Water Quality Objectives (PWQO)
☐ None

Invoice To

Company: Same: Yes ☒ No ☐
Contact:
Address:
Drinking Water Chain of Custody Form

Report Information - reports to be sent to:

Legend Matrix
GW Ground Water O Oil
SW Surface Water P Paint
SD Sediment S Soil
1. Name: Dave Hill
Email: dhill@terraprobe.ca
2. Name:
Email:
Is this a drinking water sample? (potable water intended for human consumption)
☐ Yes ☒ No
Is this submission for Record of Site Condition?
☒ Yes ☐ No

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl- ☐ CN- ☐ EC ☐ FOC ☐ Cr+6- ☐ SAR ☐ NO ₃ /NO ₂ ☐ N-Total ☐ Hg ☐ pH	Nutrients: ☐ TP ☐ NH ₃ ☐ TKN ☐ NO ₃ ☐ NO ₂ ☐ NO ₃ /NO ₂	VOC: ☐ VOC ☐ THM ☐ BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use
FG-23-A	Dec 14		soil	2		X														
FG-34-A																				
FG-45-A																				
FG-56-A																				
FG-67-A																				
FG-89-A																				
GH-12-A																				
GH-23-A																				
GH-34-A																				
GH-45-A																				
GH-56-A																				

Samples Received By (Print Name and Sign): SNCMI
Date/Time: Dec 13/14 11:00am
Samples Relinquished By (Print Name and Sign):
Date/Time: Dec 12/14
Pink Copy - Client
Yellow Copy - AGAT
White Copy - AGAT
Page 1 of 3
No: 192107



Laboratories

5835 Coopers Avenue
Mississauga, ON
L4Z 1Y2
www.agatlabs.com • webeearth.agatlabs.com

Laboratory Use Only

Arrival Temperature: _____
AGAT WO #: _____
Lab Temperature: _____
Notes: _____

Chain of Custody Record

P: 905.712.5100 • F: 905.712.5122 • TF: 800.856.6261

Client Information

Company: Terraprobe Inc.
Contact: Dave Hill
Address: Brampton ON.
Phone: _____
Project: 13-11-6138-1 PO: _____
AGAT Quotation #: _____
Please note, if quotation number is not provided,
client will be billed full price for analysis.

Regulatory Requirements

☒ Regulation 153/04
(reg. 511 Amend.)
Table 2
Indicate one
☐ Inp/Com
☒ Res/Park
☐ Agriculture
Soil Texture (check one)
☒ Coarse ☐ Fine
☐ Sewer Use
Region _____
Indicate one
☐ CCME
☐ Other (specify) _____
☐ Sanitary
☐ Storm
☐ Prov. Water Quality
Objectives (PWQO)
☐ None

Invoice To

Same: Yes ☒ No ☐
Company: _____
Contact: _____
Address: _____

Is this a drinking water sampler?
(potable water intended for human consumption)
☐ Yes ☒ No
If "Yes", please use the
Drinking Water Chain of Custody Form

Is this submission for a record of site condition?
☒ Yes ☐ No

*TAT is exclusive of weekends and statutory holidays

Legend Matrix

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

Report Information - reports to be sent to:

1. Name: Dave Hill
Email: dhill@terraprobe.ca
2. Name: _____
Email: _____

Sample Identification

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments Site/Sample Information	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl- ☐ CN- ☐ EC ☐ FOC ☐ Cr+6 ☐ SAR ☐ NO ₃ /NO ₂ ☐ N-Total ☐ Hg ☐ pH	Nutrients: ☐ TP ☐ NH ₃ ☐ TKN ☐ NO ₃ ☐ NO ₂ ☐ NO ₃ /NO ₂	VOC: ☐ VOC ☐ THM ☐ BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use
GAH-67-A	Dec. 2014		Soil	2		☒														
GAH-78-A																				
GAH-89-A																				
HI-12-A																				
HI-23-A																				
HI-34-A																				
HI-45-A																				
HI-56-A																				
HI-67-A																				
HI-78-A																				
HI-89-A																				
IT-12-A																				

Turnaround Time Required (TAT) Required*

Regular TAT
☒ 5 to 7 Working Days
Rush TAT (please provide prior notification)
Rush Surcharges Apply
☐ 3 Working Days
☐ 2 Working Days
☐ 1 Working Day
OR
Date Required (Rush surcharges may apply): _____

Samples Requiring Signatures (Print Name and Sign):

Samples Relinquished by (Print Name and Sign):

Date/Time
Dec 12/14

Samples Received By (Print Name and Sign):

Samples Received by (Print Name and Sign):

Date/Time

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

Page 2 of 3
No. 192108

CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: David Hill

PROJECT: 13-11-6138-1

AGAT WORK ORDER: 14T928120

SOIL ANALYSIS REVIEWED BY: Mike Muneswar, BSc (Chem), Senior Inorganic Analyst

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Jan 06, 2015

PAGES (INCLUDING COVER): 13

VERSION*: 2

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

***NOTES**

VERSION 2: Report revised and re-issued on Jan 9, 2015.

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



Certificate of Analysis

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2015-01-06

		SAMPLE DESCRIPTION:		FG-56-B	GH-45-B	GH-56-B	GH-67-B	GH-78-B	HI-45-B	HI-56-B	HI-67-B
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014
Parameter	Unit	G / S	RDL	6182397	6182411	6182413	6182415	6182417	6182427	6182429	6182431
Antimony	µg/g	7.5	0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8	<0.8
Arsenic	µg/g	18	1	2	3	3	2	2	3	3	3
Barium	µg/g	390	2	8	9	13	8	8	10	14	10
Beryllium	µg/g	4	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Boron	µg/g	120	5	<5	<5	<5	<5	<5	<5	6	<5
Cadmium	µg/g	1.2	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Chromium	µg/g	160	2	5	5	6	5	5	6	8	5
Cobalt	µg/g	22	0.5	2.3	2.6	3.0	2.5	2.8	2.7	3.5	2.6
Copper	µg/g	140	1	12	9	12	11	12	8	11	10
Lead	µg/g	120	1	5	5	6	5	5	5	6	5
Molybdenum	µg/g	6.9	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Nickel	µg/g	100	1	4	4	5	4	5	5	7	4
Selenium	µg/g	2.4	0.4	0.5	<0.4	<0.4	<0.4	<0.4	0.6	0.4	<0.4
Silver	µg/g	20	0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2	<0.2
Thallium	µg/g	1	0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4	<0.4
Uranium	µg/g	23	0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5	<0.5
Vanadium	µg/g	86	1	11	9	10	8	8	10	13	10
Zinc	µg/g	340	5	16	15	18	15	16	14	19	16

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

O. Reg. 153(511) - Metals (Comprehensive) (Soil)

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2015-01-06

		SAMPLE DESCRIPTION:		JK-89-B	
		SAMPLE TYPE:		Soil	
		DATE SAMPLED:		12/12/2014	
Parameter	Unit	G / S	RDL	6182531	
Antimony	µg/g	7.5	0.8	<0.8	
Arsenic	µg/g	18	1	3	
Barium	µg/g	390	2	14	
Beryllium	µg/g	4	0.5	<0.5	
Boron	µg/g	120	5	5	
Cadmium	µg/g	1.2	0.5	<0.5	
Chromium	µg/g	160	2	6	
Cobalt	µg/g	22	0.5	3.8	
Copper	µg/g	140	1	12	
Lead	µg/g	120	1	7	
Molybdenum	µg/g	6.9	0.5	<0.5	
Nickel	µg/g	100	1	6	
Selenium	µg/g	2.4	0.4	<0.4	
Silver	µg/g	20	0.2	<0.2	
Thallium	µg/g	1	0.4	<0.4	
Uranium	µg/g	23	0.5	<0.5	
Vanadium	µg/g	86	1	11	
Zinc	µg/g	340	5	20	

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(RPI) - Current

6182397-6182531 EC & SAR were 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.

Revised Jan 08,2015.

Revision: This report replaces the Certificate of Analysis issued on Jan 06, 2015 - Package was changed from "O. Reg. 153(511) - Metals & Inorganics (Soil)" to "O. Reg. 153(511) - Metals (Comprehensive) (Soil)" and the list of parameters adjusted accordingly.

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2015-01-06

		SAMPLE DESCRIPTION:		FG-23-B	FG-34-B	FG-45-B	FG-56-B	FG-67-B	FG-78-B	FG-89-B	GH-12-B
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014
Parameter	Unit	G / S	RDL	6182382	6182394	6182395	6182397	6182399	6182401	6182403	6182405
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	0.011	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	0.29	0.61	<0.007	0.050	<0.007	<0.007	<0.007	0.017
DDD	µg/g	3.3	0.007	0.097	0.21	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDT	µg/g	1.4	0.007	0.11	0.29	<0.007	0.012	0.007	<0.007	<0.007	0.033
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	19.1	18.8	20.6	21.5	20.2	17.9	19.8	18.6
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		50	84	72	72	64	58	62	50
Decachlorobiphenyl	%	60-130		60	78	86	100	74	80	108	60

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2015-01-06

		SAMPLE DESCRIPTION:		GH-23-B	GH-34-B	GH-45-B	GH-56-B	GH-67-B	GH-78-B	HI-12-B	HI-23-B
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014
Parameter	Unit	G / S	RDL	6182407	6182409	6182411	6182413	6182415	6182417	6182420	6182423
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	<0.007	<0.007	0.10	0.007	0.024	<0.007	<0.007	<0.007
DDD	µg/g	3.3	0.007	<0.007	<0.007	0.23	<0.007	<0.007	<0.007	<0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007	<0.007	0.068	<0.007	0.009	<0.007	<0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	19.6	19.1	21.7	20.1	19.4	20.2	14.6	14.3
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		72	60	80	50	50	50	51	62
Decachlorobiphenyl	%	60-130		82	68	66	66	94	60	76	70

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2015-01-06

		SAMPLE DESCRIPTION:		HI-34-B	HI-45-B	HI-56-B	HI-67-B	HI-78-B	HI-89-B	IJ-23-B	IJ-34-B
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014
Parameter	Unit	G / S	RDL	6182425	6182427	6182429	6182431	6182434	6182436	6182440	6182442
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	0.012	<0.007	<0.007
DDE	µg/g	0.26	0.007	0.007	0.019	0.029	0.082	0.034	0.56	<0.007	<0.007
DDD	µg/g	3.3	0.007	<0.007	<0.007	<0.007	0.023	0.018	0.26	<0.007	<0.007
DDT	µg/g	1.4	0.007	0.012	0.009	0.026	0.04	0.020	0.12	<0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	0.008	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	22.5	19.7	19.8	21.9	17.9	23.9	7.4	10.7
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		60	68	86	86	84	68	62	74
Decachlorobiphenyl	%	60-130		62	110	88	62	104	66	104	74

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
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CANADA L4Z 1Y2
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<http://www.agatlabs.com>

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2015-01-06

		SAMPLE DESCRIPTION:		IJ-45-B	IJ-56-B	IJ-67-B	IJ-78-B	IJ-89-B	JK-67-B	JK-78-B	JK-89-B
		SAMPLE TYPE:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
		DATE SAMPLED:		12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014	12/12/2014
Parameter	Unit	G / S	RDL	6182444	6182446	6182526	6182527	6182528	6182529	6182530	6182531
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	<0.007	0.007	<0.007	0.048	0.038	0.015	<0.007	<0.007
DDD	µg/g	3.3	0.007	<0.007	<0.007	<0.007	0.032	0.017	0.017	<0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007	<0.007	<0.007	0.024	0.012	0.016	<0.007	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	19.1	19.1	19.4	21.7	20.8	19.4	18.6	18.9
Surrogate	Unit	Acceptable Limits									
TCMX	%	50-140		50	64	61	50	96	102	92	92
Decachlorobiphenyl	%	60-130		86	86	94	62	102	78	92	74

Certified By:



Certificate of Analysis

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
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<http://www.agatlabs.com>

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

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

DATE RECEIVED: 2014-12-15

DATE REPORTED: 2015-01-06

		SAMPLE DESCRIPTION:		KL-67-B	LM-67-B
		SAMPLE TYPE:		Soil	Soil
		DATE SAMPLED:		12/12/2014	12/12/2014
Parameter	Unit	G / S	RDL	6182532	6182533
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	µg/g	0.04	0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	<0.007
DDE	µg/g	0.26	0.007	<0.007	<0.007
DDD	µg/g	3.3	0.007	<0.007	<0.007
DDT	µg/g	1.4	0.007	<0.007	<0.007
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
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01
Moisture Content	%		0.1	14.4	3.8
Surrogate	Unit	Acceptable Limits			
TCMX	%	50-140		60	78
Decachlorobiphenyl	%	60-130		84	106

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(RPI) - Current

6182382-6182533 Results are based on the dry weight of the soil.

Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE and pp'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.

Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By:



AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

5835 COOPERS AVENUE
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CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
6182382	FG-23-B	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.29
6182394	FG-34-B	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.61
6182436	HI-89-B	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.56

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 13-11-6138-1

SAMPLING SITE:

AGAT WORK ORDER: 14T928120

ATTENTION TO: David Hill

SAMPLED BY:

Soil Analysis															
RPT Date: Jan 06, 2015			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - Metals (Comprehensive) (Soil)															
Antimony	6182397	6182397	< 0.8	<0.8	0.0%	< 0.8	106%	70%	130%	92%	80%	120%	91%	70%	130%
Arsenic	6182397	6182397	2	2	0.0%	< 1	106%	70%	130%	101%	80%	120%	94%	70%	130%
Barium	6182397	6182397	8	8	0.0%	< 2	121%	70%	130%	111%	80%	120%	110%	70%	130%
Beryllium	6182397	6182397	< 0.5	<0.5	0.0%	< 0.5	91%	70%	130%	104%	80%	120%	94%	70%	130%
Boron	6182397	6182397	< 5	<5	0.0%	< 5	83%	70%	130%	105%	80%	120%	95%	70%	130%
Cadmium	6182397	6182397	< 0.5	<0.5	0.0%	< 0.5	109%	70%	130%	105%	80%	120%	102%	70%	130%
Chromium	6182397	6182397	5	5	0.0%	< 2	90%	70%	130%	104%	80%	120%	95%	70%	130%
Cobalt	6182397	6182397	2.3	2.3	0.0%	< 0.5	93%	70%	130%	99%	80%	120%	88%	70%	130%
Copper	6182397	6182397	12	12	0.0%	< 1	98%	70%	130%	112%	80%	120%	90%	70%	130%
Lead	6182397	6182397	5	5	0.0%	< 1	116%	70%	130%	109%	80%	120%	104%	70%	130%
Molybdenum	6182397	6182397	< 0.5	<0.5	0.0%	< 0.5	97%	70%	130%	99%	80%	120%	96%	70%	130%
Nickel	6182397	6182397	4	4	0.0%	< 1	98%	70%	130%	105%	80%	120%	87%	70%	130%
Selenium	6182397	6182397	0.5	0.5	0.0%	< 0.4	81%	70%	130%	103%	80%	120%	92%	70%	130%
Silver	6182397	6182397	< 0.2	<0.2	0.0%	< 0.2	99%	70%	130%	106%	80%	120%	99%	70%	130%
Thallium	6182397	6182397	< 0.4	<0.4	0.0%	< 0.4	109%	70%	130%	105%	80%	120%	103%	70%	130%
Uranium	6182397	6182397	< 0.5	<0.5	0.0%	< 0.5	130%	70%	130%	106%	80%	120%	112%	70%	130%
Vanadium	6182397	6182397	11	11	0.0%	< 1	93%	70%	130%	100%	80%	120%	94%	70%	130%
Zinc	6182397	6182397	16	17	6.1%	< 5	100%	70%	130%	111%	80%	120%	90%	70%	130%

Comments: NA signifies Not Applicable.

Certified By:



Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 13-11-6138-1

SAMPLING SITE:

AGAT WORK ORDER: 14T928120

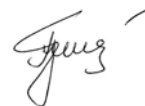
ATTENTION TO: David Hill

SAMPLED BY:

Trace Organics Analysis

RPT Date: Jan 06, 2015			DUPLICATE			Method Blank	REFERENCE MATERIAL			METHOD BLANK SPIKE			MATRIX SPIKE		
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper
O. Reg. 153(511) - OC Pesticides (Soil)															
Gamma-Hexachlorocyclohexane	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	97%	50%	140%	63%	50%	140%	50%	50%	140%
Heptachlor	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	123%	50%	140%	125%	50%	140%	118%	50%	140%
Aldrin	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	97%	50%	140%	112%	50%	140%	79%	50%	140%
Heptachlor Epoxide	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	89%	50%	140%	99%	50%	140%	89%	50%	140%
Endosulfan	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	92%	50%	140%	99%	50%	140%	85%	50%	140%
Chlordane	6182431	6182431	< 0.007	< 0.007	0.0%	< 0.007	90%	50%	140%	98%	50%	140%	109%	50%	140%
DDE	6182431	6182431	0.099	0.082	18.8%	< 0.007	109%	50%	140%	108%	50%	140%	100%	50%	140%
DDD	6182431	6182431	0.026	0.023	12.2%	< 0.007	112%	50%	140%	95%	50%	140%	85%	50%	140%
DDT	6182431	6182431	0.048	0.040	18.2%	< 0.007	112%	50%	140%	121%	50%	140%	102%	50%	140%
Dieldrin	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	99%	50%	140%	99%	50%	140%	89%	50%	140%
Endrin	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	100%	50%	140%	102%	50%	140%	93%	50%	140%
Methoxychlor	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	114%	50%	140%	125%	50%	140%	132%	50%	140%
Hexachlorobenzene	6182431	6182431	< 0.005	< 0.005	0.0%	< 0.005	93%	50%	140%	83%	50%	140%	66%	50%	140%
Hexachlorobutadiene	6182431	6182431	< 0.01	< 0.01	0.0%	< 0.01	134%	50%	140%	79%	50%	140%	61%	50%	140%
Hexachloroethane	6182431	6182431	< 0.01	< 0.01	0.0%	< 0.01	130%	50%	140%	119%	50%	140%	55%	50%	140%

Certified By:



Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 14T928120

PROJECT: 13-11-6138-1

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY:

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Soil Analysis			
Antimony	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Arsenic	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Barium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Beryllium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Boron	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cadmium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Chromium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Cobalt	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Copper	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Lead	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Molybdenum	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Nickel	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Selenium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Silver	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Thallium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Uranium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Vanadium	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Zinc	MET-93-6103	EPA SW-846 3050B & 6020A	ICP-MS
Trace Organics Analysis			
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Moisture Content		MOE E3139	BALANCE



AGAT

Laboratories

5835 Coopers Avenue
Mississauga, ON
L4Z 1Y2
www.agatlabs.com • webearth.agatlabs.com

Laboratory Use Only

Arrival Temperature: _____
AGAT WO #: _____
Lab Temperature: _____
Notes: _____

Chain of Custody Record

Client Information

Company: Terraprobe Inc.
Contact: Dave Hill
Address: Brampton, ON
Phone: 13-11-6138-1 Fax: _____
Project: _____ PO: _____
AGAT Quotation #: _____
Please note, if quotation number is not provided,
client will be billed full price for analysis.

Regulatory Requirements

☒ Regulation 153/04
(reg. 511 Amend.)
Table 2 Indicate one
☐ Ind/Com
☒ Res/Park
☐ Agriculture
Soil Texture (check one)
☒ Coarse ☐ Fine

Sewer Use

☐ Regulation 558
☐ CCME
☐ Other (specify) _____
☐ Sanitary
☐ Storm
☐ Prev. Water Quality
Objectives (PWQO)
☐ None

Turnaround Time Required (TAT) Required*

Regular TAT
☒ 5 to 7 Working Days

Rush TAT (please provide prior notification)
Rush Surcharges Apply

☐ 3 Working Days
☐ 2 Working Days
☐ 1 Working Day

OR

Date Required (Rush surcharges may apply):

*TAT is exclusive of weekends and statutory holidays

Invoice To

Same: Yes ☒ No ☐
Company: _____
Contact: _____
Address: _____

Legend Matrix

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

Report Information - reports to be sent to:

1. Name: Dave Hill
Email: dhill@terraprobe.ca
2. Name: _____
Email: _____

Is this a drinking water sample?
(potable water intended for human consumption)
☐ Yes ☒ No
If "yes", please use the
Drinking Water Chain of Custody Form

Is this submission for a Record of Site Condition?

☒ Yes ☐ No

Sample Identification

Date Sampled

Time Sampled

Sample Matrix

of Containers

Comments

Metals and Inorganics

Metal Scan

Hydride Forming Metals

Client Custom Metals

ORPs: ☐ B-HWS ☐ Cl- ☐ CN- ☐ EC
☐ FOC ☐ Cr+6- ☐ SAR
☐ NO₃/NO₂ ☐ N- Total ☐ Hg ☐ pH

Nutrients: ☐ TP ☐ NH₃ ☐ TKN
☐ NO₃ ☐ NO₂ ☐ NO₃/NO₂

VOC: ☐ VOC ☐ THM ☐ BTEX

CCME Fractions 1 to 4

ABNs

PAHs

Chlorophenols

PCBs

Organochlorine Pesticides

TCLP Metals/Inorganics

Sewer Use

Samples Reinstated By (Print Name and Sign):

Date/Time

Date/Time

Date/Time

Date/Time

Samples Reinstated By (Print Name and Sign):

Samples Reinstated By (Print Name and Sign):

Samples Reinstated By (Print Name and Sign):

Samples Reinstated By (Print Name and Sign):

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Samples Reinstated By (Print Name and Sign):

Samples Reinstated By (Print Name and Sign):

Samples Reinstated By (Print Name and Sign):



AGAT

Laboratories

5835 Coopers Avenue
Mississauga, ON
L4Z 1Y2
www.agatlabs.com • webeath.agatlabs.com

Laboratory Use Only

Arrival Temperature: _____
AGAT WO #: _____
Lab Temperature: _____
Notes: _____

Chain of Custody Record

P: 905.712.5100 • F: 905.712.5122

Client Information

Company: Terraprobe Inc.
Contact: Dave Hill
Address: Brampton ON.
Phone: _____ Fax: _____
Project: 13-11-6138-1 PO: _____
AGAT Quotation #: _____
Please note, if quotation number is not provided,
client will be billed full price for analysis.

Regulatory Requirements

☒ Regulation 153/04
(reg. 511 Amended)
Table 2 Indicate one
☐ Ind./Dom
☒ Res./Park
☐ Agriculture
☐ Sewer Use
☐ Regulation 558
☐ CCME
☐ Other (specify) _____
Region _____
Indicate one
☐ Sanitary
☐ Storm
☐ Prov. Water Quality
Objectives (PWQO)
☐ None
☐ Coarse
☐ Fine

Turnaround Time Required (TAT) Required*

Regular TAT
☒ 5 to 7 Working Days
Rush TAT (please provide prior notification)
Rush Surcharges Apply
☐ 3 Working Days
☐ 2 Working Days
☐ 1 Working Day
OR
Date Required (Rush surcharges may apply): _____

Invoice To

Company: _____ Same: Yes ☐ No ☐
Contact: _____
Address: _____

Is this a drinking water sample?
(potable water intended for human consumption)
☐ Yes ☒ No
If "Yes", please use the
Drinking Water Chain of Custody Form

Is this submission for a Record of Site Condition?

☒ Yes ☐ No

*TAT is exclusive of weekends and statutory holidays

Legend Matrix

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

Report Information - reports to be sent to:

1. Name: Dave Hill
Email: dhill@terraprobe.ca
2. Name: _____
Email: _____

Sample Identification

Sample Identification	Date Sampled	Time Sampled	Sample Matrix	# of Containers	Comments	Metals and Inorganics	Metal Scan	Hydride Forming Metals	Client Custom Metals	ORPs: ☐ B-HWS ☐ Cl- ☐ CN- ☐ EC ☐ FOC ☐ Cr+6- ☐ SAR ☐ NO ₃ /NO ₂ ☐ N- Total ☐ Hg ☐ pH	Nutrients: ☐ TP ☐ NH ₃ ☐ TKN ☐ NO ₃ ☐ NO ₂ ☐ NO ₃ /NO ₂	VOC: ☐ VOC ☐ THM ☐ BTEX	CCME Fractions 1 to 4	ABNs	PAHs	Chlorophenols	PCBs	Organochlorine Pesticides	TCLP Metals/Inorganics	Sewer Use
II-34-B	Dec 14		Soil	2	Place samples on HOLD until notified															
II-45-B																				
II-56-B																				
II-67-B																				
II-78-B																				
II-89-B																				
JK-67-B																				
JK-78-B																				
JK-89-B																				
KL-67-B																				
LM-67-B																				

Samples Requisitioned By: (Print Name and Sign):

Date/Time

Samples Received By: (Print Name and Sign):

Date/Time

Pink Copy - Client

Page 3 of 3

Samples Requisitioned By: (Print Name and Sign):

Date/Time

Samples Received By: (Print Name and Sign):

Date/Time

Yellow Copy - AGAT

White Copy - AGAT

Nº: 52451

CLIENT NAME: TERRAPROBE INC.
11 INDELL LANE
BRAMPTON, ON L6T3Y3
(905) 796-2650

ATTENTION TO: David Hill

PROJECT: 13-11-6138-1

AGAT WORK ORDER: 15T933789

TRACE ORGANICS REVIEWED BY: Oksana Gushyla, Trace Organics Lab Supervisor

DATE REPORTED: Jan 15, 2015

PAGES (INCLUDING COVER): 6

VERSION*: 1

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

*NOTES

All samples will be disposed of within 30 days following analysis. Please contact the lab if you require additional sample storage time.



Certificate of Analysis

AGAT WORK ORDER: 15T933789

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

SAMPLING SITE:

ATTENTION TO: David Hill

SAMPLED BY: Riley Hallmen

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

DATE RECEIVED: 2015-01-09

DATE REPORTED: 2015-01-15

		SAMPLE DESCRIPTION:		FG23-C	FG34-C	FG34-D
		SAMPLE TYPE:		Soil	Soil	Soil
		DATE SAMPLED:		12/12/2014	12/12/2014	12/12/2014
Parameter	Unit	G / S	RDL	6236615	6236617	6236619
Gamma-Hexachlorocyclohexane	µg/g	0.056	0.005	<0.005	<0.005	<0.005
Heptachlor	µg/g	0.15	0.005	<0.005	<0.005	<0.005
Aldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Heptachlor Epoxide	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Endosulfan	µg/g	0.04	0.005	<0.005	<0.005	<0.005
Chlordane	µg/g	0.05	0.007	<0.007	0.009	<0.007
DDE	µg/g	0.26	0.007	<0.007	0.49	<0.007
DDD	µg/g	3.3	0.007	<0.007	0.18	<0.007
DDT	µg/g	1.4	0.007	<0.007	0.34	<0.007
Dieldrin	µg/g	0.05	0.005	<0.005	<0.005	<0.005
Endrin	µg/g	0.04	0.005	<0.005	<0.005	<0.005
Methoxychlor	µg/g	0.13	0.005	<0.005	<0.005	<0.005
Hexachlorobenzene	µg/g	0.52	0.005	<0.005	<0.005	<0.005
Hexachlorobutadiene	µg/g	0.012	0.01	<0.01	<0.01	<0.01
Hexachloroethane	µg/g	0.089	0.01	<0.01	<0.01	<0.01
Moisture Content	%		0.1	16.2	19.1	20.6
Surrogate	Unit	Acceptable Limits				
TCMX	%	50-140		50	93	58
Decachlorobiphenyl	%	60-130		104	83	98

Comments: RDL - Reported Detection Limit; G / S - Guideline / Standard: Refers to T2(RPI) - Current

6236615-6236619 Results are based on the dry weight of the soil.

Note: DDT applies to the total of op'DDT and pp'DDT, DDD applies to the total of op'DDD and pp'DDD and DDE applies to the total of op'DDE and pp'DDE. Endosulfan applies to the total of Endosulfan I and Endosulfan II.

Chlordane applies to the total of Alpha-Chlordane and Gamma-Chlordane.

Certified By:



AGAT Laboratories

Guideline Violation

AGAT WORK ORDER: 15T933789

PROJECT: 13-11-6138-1

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

CLIENT NAME: TERRAPROBE INC.

ATTENTION TO: David Hill

SAMPLEID	SAMPLE TITLE	GUIDELINE	ANALYSIS PACKAGE	PARAMETER	GUIDEVALUE	RESULT
6236617	FG34-C	T2(RPI) - Current	O. Reg. 153(511) - OC Pesticides (Soil)	DDE	0.26	0.49

Quality Assurance

CLIENT NAME: TERRAPROBE INC.

PROJECT: 13-11-6138-1

SAMPLING SITE:

AGAT WORK ORDER: 15T933789

ATTENTION TO: David Hill

SAMPLED BY: Riley Hallmen

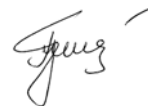
Trace Organics Analysis

RPT Date: Jan 15, 2015			DUPLICATE			Method Blank	REFERENCE MATERIAL		METHOD BLANK SPIKE			MATRIX SPIKE			
PARAMETER	Batch	Sample Id	Dup #1	Dup #2	RPD		Measured Value	Acceptable Limits		Recovery	Acceptable Limits		Recovery	Acceptable Limits	
								Lower	Upper		Lower	Upper		Lower	Upper

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

Gamma-Hexachlorocyclohexane	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	106%	50%	140%	58%	50%	140%	52%	50%	140%
Heptachlor	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	128%	50%	140%	121%	50%	140%	114%	50%	140%
Aldrin	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	121%	50%	140%	100%	50%	140%	95%	50%	140%
Heptachlor Epoxide	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	111%	50%	140%	107%	50%	140%	95%	50%	140%
Endosulfan	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	119%	50%	140%	92%	50%	140%	87%	50%	140%
Chlordane	6236615	6236615	< 0.007	< 0.007	0.0%	< 0.007	115%	50%	140%	93%	50%	140%	108%	50%	140%
DDE	6236615	6236615	< 0.007	< 0.007	0.0%	< 0.007	117%	50%	140%	104%	50%	140%	104%	50%	140%
DDD	6236615	6236615	< 0.007	< 0.007	0.0%	< 0.007	118%	50%	140%	84%	50%	140%	81%	50%	140%
DDT	6236615	6236615	< 0.007	< 0.007	0.0%	< 0.007	118%	50%	140%	106%	50%	140%	102%	50%	140%
Dieldrin	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	108%	50%	140%	87%	50%	140%	87%	50%	140%
Endrin	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	91%	50%	140%	86%	50%	140%	86%	50%	140%
Methoxychlor	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	105%	50%	140%	123%	50%	140%	113%	50%	140%
Hexachlorobenzene	6236615	6236615	< 0.005	< 0.005	0.0%	< 0.005	111%	50%	140%	77%	50%	140%	68%	50%	140%
Hexachlorobutadiene	6236615	6236615	< 0.01	< 0.01	0.0%	< 0.01	110%	50%	140%	130%	50%	140%	73%	50%	140%
Hexachloroethane	6236615	6236615	< 0.01	< 0.01	0.0%	< 0.01	98%	50%	140%	86%	50%	140%	79%	50%	140%

Certified By:



Method Summary

CLIENT NAME: TERRAPROBE INC.

AGAT WORK ORDER: 15T933789

PROJECT: 13-11-6138-1

ATTENTION TO: David Hill

SAMPLING SITE:

SAMPLED BY: Riley Hallmen

PARAMETER	AGAT S.O.P	LITERATURE REFERENCE	ANALYTICAL TECHNIQUE
Trace Organics Analysis			
Gamma-Hexachlorocyclohexane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Aldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Heptachlor Epoxide	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endosulfan	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Chlordane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDE	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDD	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
DDT	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Dieldrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Endrin	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Methoxychlor	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobenzene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachlorobutadiene	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Hexachloroethane	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
TCMX	ORG-91-5112	EPA SW-846 3541,3620 & 8081	GC/ECD
Decachlorobiphenyl	ORG-91-5113	EPA SW-846 3541,3620 & 8081	GC/ECD
Moisture Content		MOE E3139	BALANCE

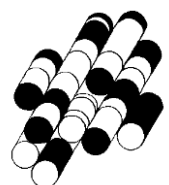
APPENDIX L

Summary of Site Remediation Plan

Trails of Collingwood, High Street & Telfer Road

Collingwood, Ontario

TERRAPROBE INC.





October 10, 2018

Trails of Collingwood
6 Leswyn Road
Toronto, Ontario, M6A 1K2

Attention: Mr. David Ferracuti

**RE: SUMMARY OF SITE REMEDIATION PLAN
TRAILS OF COLLINGWOOD, HIGH STREET & TELFER ROAD
COLLINGWOOD, ONTARIO**

Dear Mr. Ferracuti:

This letter provides a summary of the process for conducting site remediation for the above development.

1.0 INTRODUCTION

Terraprobe has been requested by Mr. David Ferracuti to submit a scope of work for site remediation of the property located at High St & Telfer Road Collingwood, Trails of Collingwood, Ontario hereafter referred to as 'the Property'. The Property consists of approximately 8.1 hectares of vacant land, located east of High Street and north of Telfer Road in Collingwood. The Property is currently vacant with historical light agricultural land use as an orchard on the western portion of the Property. It is proposed to develop the Property for residential purposes. The development will consist of a number of townhouse and condominium blocks and single family residential lots. The development will include internal municipal road ways, a municipal park and a storm water management facility. Previous investigations and current Phase One and Phase Two Environmental Site Assessments (ESA) by Terraprobe indicate that surficial soil over much of the Property has been impacted as a result of pesticide use from the historical orchard operations. The Phase Two ESA identified only an exceedance of DDE (OC Pesticides) in soil. However, the review of previous investigations including Terraprobe's report entitled "*Cost Estimate of Site Remediation Update, Trails of Collingwood, Collingwood, Ontario,*" dated June 19, 2015 (Terraprobe's Site Remediation Update Report) indicated that the surficial soil is contaminated by Selenium and Arsenic (Hydride Forming Metals), Lead (Metals), DDE, DDT, Chlordane and Dieldrin (OC Pesticides) in excess of the applicable Ministry of Environment Conservation and Parks (MECP) Standards (Table 2 residential standards). The approximate impact typically extends to 0.3m to 0.6 m below grade, with a few impacts reaching 0.9 m below grade. The Phase Two ESA identified that the

Terraprobe Inc.

Greater Toronto

11 Indell Lane
Brampton, Ontario L6T 3Y3
(905) 796-2650 Fax: 796-2250

Hamilton – Niagara

903 Barton Street, Unit 22
Stoney Creek, Ontario L8E 5P5
(905) 643-7560 Fax: 643-7559

Central Ontario

220 Bayview Drive, Unit 25
Barrie, Ontario L4N 4Y8
(705) 739-8355 Fax: 739-8369

Northern Ontario

1012 Kelly Lake Rd., Unit 1
Sudbury, Ontario P3E 5P4
(705) 670-0460 Fax: 670-0558

groundwater on the Property is not contaminated and meets the applicable Ministry of Environment Conservation and Parks (MECP) Standards (Table 2 standards).

The results of the investigations indicate that there are approximately 48,000 cubic meters of impacted soil found on the Property. The soil volume is an estimate and may vary depending on confirmatory samples and depth of excavation due to the large area of the Property. Off-site disposal of the impacted soil is prohibitively expensive, particularly since the material can be safely managed on the Property.

Terraprobe understands that the Construction Management Plan is to develop the Property in three phases as Identified in Figure 1. Phase 1 involves the remediation of the soil indicated as the yellow area, Phase 2 involves the remediation of the soil in the blue area and Phase 3 involves the remediation of the soil in the green area. The Parkland Block area identified in Figure 2 will be utilized to stockpile the impacted soil from all three development phases. The Parkland Block will then undergo additional soil and groundwater investigation. A Risk Assessment (RA) will be conducted on the Parkland Block. A certificate of Property Use (CPU) and Record of Site Condition (RSC) can then be filed for the Parkland Block portion of the Property. The CPU will enforce the Risk Management Measures (RMM) proposed in the RA and the RSC can be filed once the CPU has been signed.

The Parkland Block portion of the Property that is proposed to be a park as well as any roads can then be transferred over to the Town of Collingwood once all three phases of the Construction Management Plan are carried out and an RSC is obtained on both the remediated portion of the Property and the Parkland Block portion of the Property.

2.0 SCOPE OF WORK

2.1 PROPOSED APPROACH TO SITE REMEDIATION

The ground water results meet the MECP Table 2 standards and the surficial soil is contaminated by Selenium and Arsenic (Hydride Forming Metals), Lead (Metals), DDE, DDT, Chlordane and Dieldrin (OC Pesticides) in excess of the applicable MECP Table 2 Standards. Thus, the proposed approach to site remediation will consist of removing all impacted soil from the entire Property with the exception of the Parkland Block where the contaminated soil will be used to backfill the area. The impacted soil on the Parkland Block will be managed with proper risk management measures and a Risk Assessment would be conducted. The conceptual approach to remediation and risk management will consist of the following:

- Development of a Verification Plan to confirm that all impacted soils are properly identified and removed. This will include a program of detailed sampling and chemical analysis during excavation to ensure that all impacted soil are properly identified and relocated to the risk management area beneath the park. The confirmatory sampling will verify the remediated portion of the Property.

- Development of a detailed Soil Management Plan including general operations, traffic control, dust and odour control, spills management, waste management, unknown or unexpected operation conditions, on-site soil management and imported soils requirements for the entire Property.
- Conduct a RA and develop RMMs on the Parkland Block. Once the Property is remediated and all the impacted soil is placed on the Parkland Block, the Parkland Block will undergo additional investigation to determine the extent of the contamination. A RA will be conducted and proper RMM will be identified and implemented. The RMMs could include a soft or hard cap to properly isolate the impacted soil. Once the RA is acknowledged a Certificate of Property Use (CPU) will be issued by the MECP. The CPU will summarize the site conditions and outline any potential restrictions to future property use and any requirements for Risk Management Measures (RMMs).

2.1.1 Development of Verification Plan

The Development Verification Plan will include a detailed review of the previous investigations and current Phase One and Phase Two ESAs completed for the Property. The contaminated soil identified will be stripped and moved to the proposed Parkland Block portion of the Property identified in Figure 2. Confirmatory soil samples will be collected for analysis of Metals, Hydride Forming Metals and OC Pesticides after the soil has been stripped, to confirm the remaining soil on the Property is no longer impacted. The samples are to be collected in a 25 m x 25 m grid pattern throughout the Property for each Phase of the development. The samples will be submitted for analysis at a CAEL accredited laboratory. Soil quality would be compared to MECP Table 2 Standards. If the confirmatory samples exceed MECP Table 2 standards, further excavation and additional sampling will be required.

A report summarizing the remediation results including the Certificate of Analysis (COA) and quality control from a CAEL accredited laboratory will be provided to confirm the remediation of the Property.

2.1.2 Development of a Soil Management Plan

The Soil Management Plan for the development of the Property including soil management, preventative and mitigation measures will be required to remove the impacted soil from the Property and placed on the Parkland Block area. The Soil Management Plan will include the following:

- **General Operations:** General Operations include a detailed plan for the property in regards to site security and fencing, hours of operation, health and safety plan, site boundaries, responsibility and reporting and monitoring and contingency measures.
- **Traffic Control:** Traffic Control includes a detailed plan for the Property in regards to security, entrances and exits, on-site parking, site regulations, responsibility and reporting and contingency measures.

- **Dust and Odour Control:** Dust and Odour Control includes a detailed plan for the Property in regards to dust and odour monitoring, minimizing dust generation, dust suppression, odour control measures, responsibility, reporting, and contingency measures.
- **Spills Management:** Spills Management includes a detailed plan for the Property in regards to liquid spills, soil spills, spills control kit, responsibility, reporting, and contingency measures.
- **Waste Management:** Waste Management includes a detailed plan for the Property in regards to soil waste, liquid waste, responsibility, reporting, and contingency measures.
- **Unknown or Unexpected Operating Conditions:** Unknown or Unexpected Operating Conditions includes a detailed plan for the Property in regards to identification of conditions and responsibility and reporting
- **Soil Management:** Soil Management includes a detailed plan for the Property in regards to on-site soil management, imported soils from a licenced pit or quarry or imported soils from non-licenced sources, stockpiling and off-site soil management. These operations will be subject to abide any requirements set out in the RA and CPU.

The general requirements for the field work during the removal and transportation of impacted soil to the Parkland Block portion of the Property includes the following:

- Documentation of excavation depths
- On-Site monitoring will involve the following tasks for the on-Site Field Technician:
 - Monitoring of all soil excavation including but not limited to: soil movement to proposed location for contaminated soils and extent of excavation
 - Monitoring of all soil movement including but not limited to: soil movement from the proposed location for containments to be stockpiled or moved off-Site.
 - Monitoring of daily site activities.
- Collection of soil samples for confirmation sampling based on the area required for remediation.

The Soil Management Plans will be provided to the Town of Collingwood before commencing development.

2.1.3 Parkland Block - Risk Assessment, RSC & Risk Management Measures

The Parkland Block portion of the Property will require a Risk Assessment. A Risk Assessment is a scientific tool that can be used for the assessment and management of environmental contamination caused by historical, current or future activities at a site. Risk assessments also develop property specific standards (PSSs) (which are often less stringent than generic standards) that consider site-specific information (e.g., site characteristics, applicable exposure pathways and receptors) that is more relevant to

the site than the assumptions used to develop generic site condition standards (SCSs). This PSS confers the same level of protection as the MECP generic SCS, but is specific to the RA site.

The RA consists of the following four steps:

- **Problem Formulation:** The problem formulation forms the basis of an RA where an understanding of site characteristics together with land use scenarios and environmental investigations are used to identify contaminants of concern (COCs), human and ecological receptors and potential exposure pathways for receptors located on and in the vicinity of the Site.
- **Exposure Assessment:** The exposure assessment involves the quantification of exposure to human and ecological receptors through complete exposure pathways. Through this assessment, exposure scenarios, exposure durations and receptor characteristics are compiled. This information is used to estimate a dose for all COCs for each receptor through each complete exposure pathway.
- **Toxicity Assessment:** The toxicity information for each COC is reviewed and exposure limits and/or dose-response information for the COCs are compiled. Toxicity reference values (TRVs) will be preferentially adopted from the MECP, unless scientific justification is available to use TRVs from other jurisdictions.
- **Risk Characterization:** The risk characterization stage integrates the exposure and toxicity assessments to identify if potential risks would be predicted at a site, the magnitude of any such risks, and the driving exposure pathways and routes. The risk characterization must also describe uncertainty surrounding the risk estimates, both qualitatively and, to the extent possible, quantitatively.

The Risk Assessment process requires detailed studies which must receive approval from the Ministry of Environment Conservation and Parks (MECP). The detailed studies include the following:

- Phase One Environmental Site Assessment (Phase One ESA)
- Phase Two Environmental Site Assessment (Phase Two ESA)
- Phase Two Conceptual Site Model (CSM)
- Preparation of Risk Assessment (RA), including Pre-Submission Form (PSF) for the Block of Parkland portion of the Property
- Addressing comments from the MECP
- Certificate of Property Use (CPU) on the specified Block of Parkland portion of the Property
- Filing of Record of Site Condition (RSC) for the Block of Parkland portion of the Property

The entire Property will remain the current ownerships responsibility until all Phases of the Construction Management Plan are carried out and a Risk Assessment, CPU and RSC is conducted on the Parkland

Block portion of the Property. The Parkland Block portion of the Property that is proposed to be a park can then be conveyed over to the Town of Collingwood once an RSC is obtained.

3.0 CLOSURE

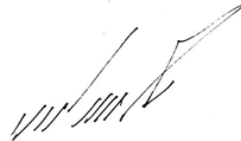
We trust this letter meets with your requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

Terraprobe Inc.

A handwritten signature in black ink, appearing to read 'AS' with a stylized flourish.

Alex Schittenhelm, B.Eng., E.I.T.
Project Manager

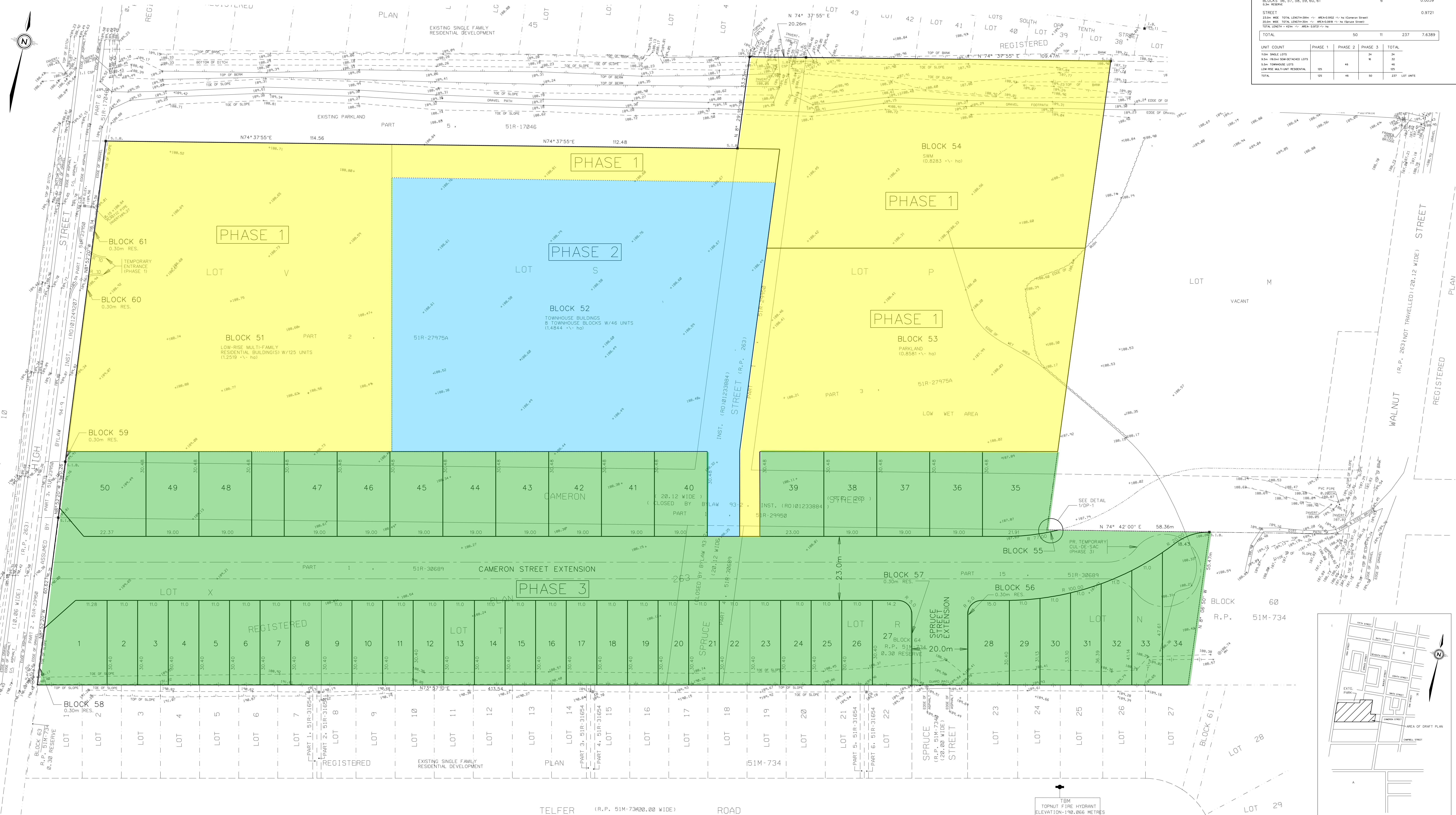
A handwritten signature in black ink, appearing to read 'Baker Wohayeb' with a stylized flourish.

Baker Wohayeb, M.A.Sc., P.Eng., QP_{RA}
Principal

Attachments

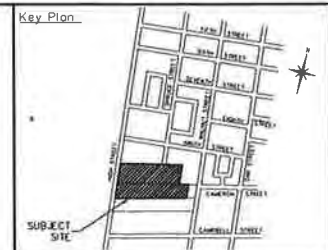
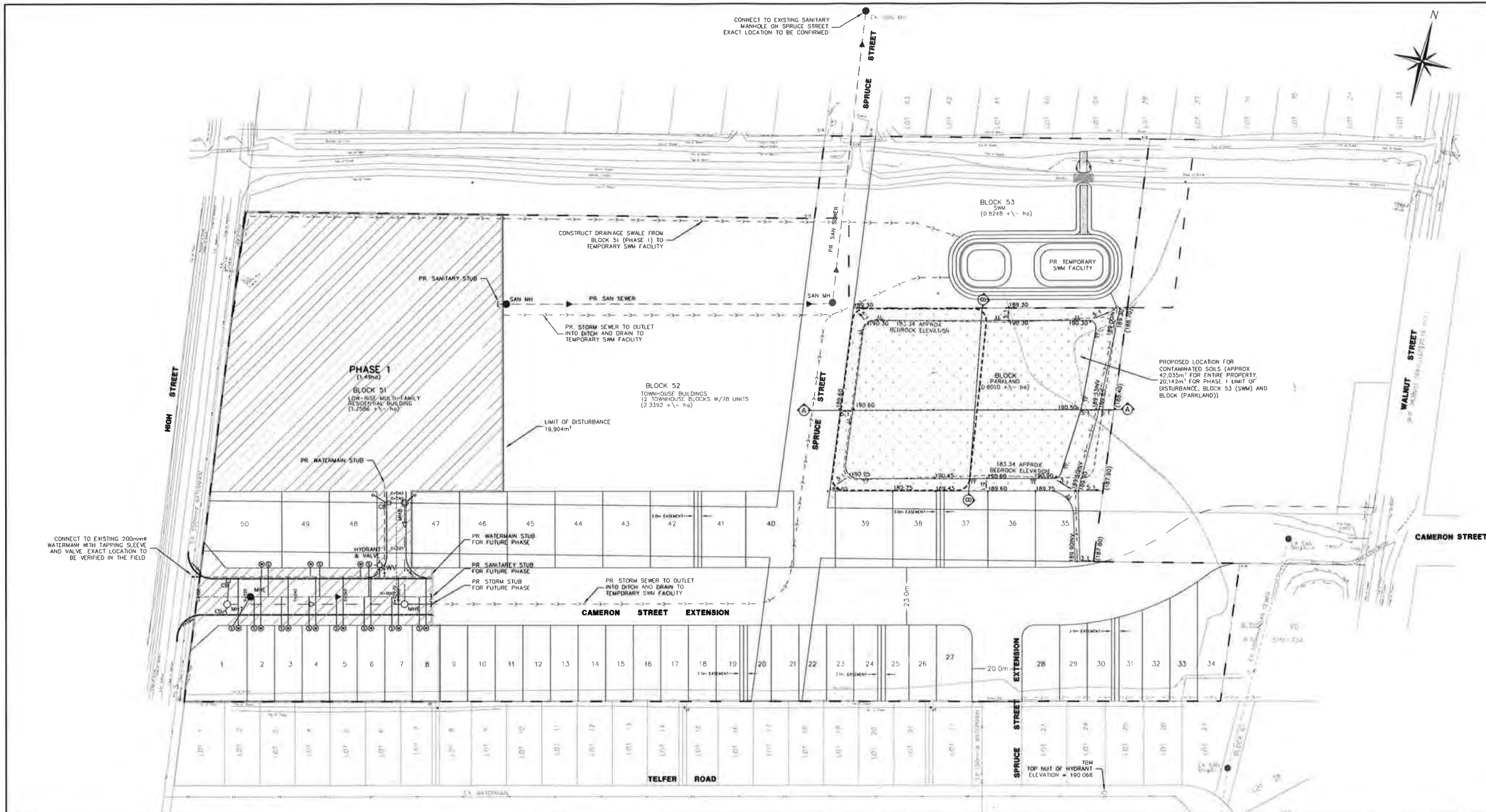
Attachment 1 – Draft Plan of Subdivision
Attachment 2 – Conceptual Servicing Plan

DRAFT PLAN OF SUBDIVISION
OF LOT P, AND PART OF LOTS N, R, S, T, V, AND X
AND PART OF CAMERON STREET (CLOSED BY BY-LAW 93-2)
AND PART OF SPRUCE STREET (CLOSED BY BY-LAW 93-2)
REGISTERED PLAN 263
TOWN OF COLLINGWOOD, COUNTY OF SIMCOE

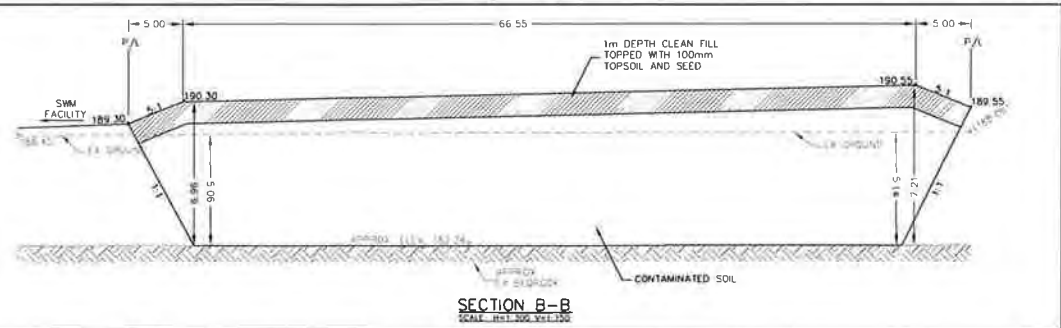
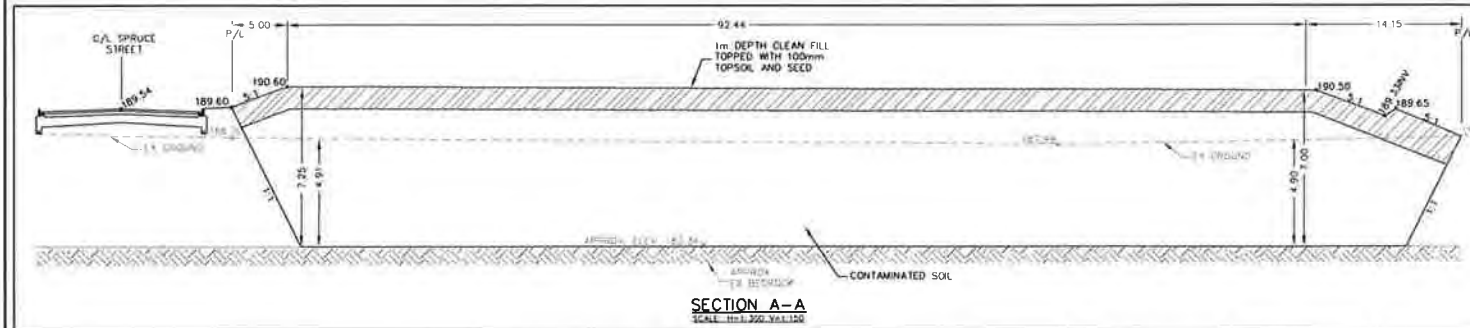


LAND USE SCHEDULE				
TOTAL AREA OF LAND TO BE SUBSIDIZED = 7,839.89 - ha				
LOT TYPES	FULL LOTS	BLUCKS	UNITS	% ha
SINGLE FAMILY SEMI-DETACHED				
SINGLE LOTS 1/4	34	34	12526	
MIN LOT SIZE 10.0m X 30.40m				
SINGLE FAMILY SEMI-DETACHED				
SINGLE 35-50	6	32	0.9854	
MIN LOT SIZE 8.0m X 30.40m				
TOWNHOUSES				
BLOCK 32		1	4.66	1.4844
MIN LOT SIZE 20.5m X 28.80m				
SUBTOTAL	50	1	192	3.7224
BLOCK 51				
CONV. RES. 1/2 ACRE		1	125	1.2519
RESIDENTIAL, BUSINESS				
BLOCK 51	1			0.8581
PARKING				
BLOCK 54		1		0.8283
TENN				
BLOCK 55		1		0.0002
VACANT				
BLOCKS 56, 57, 58, 59, 60, 61		6		0.0059
3-20 RESIDENTIAL				
STREET				
22.0m WIDE TOTAL LENGTH=380' - - - - -	AREA=3902' - - - - -	NO CEMENT DRIVE		
22.0m WIDE TOTAL LENGTH=200' - - - - -	AREA=1000' - - - - -	NO ASPHALT DRIVE		
TOTAL = 4250' - - - - - AREA = 8,070' - - - - -				
TOTAL	50	11	237	7,638.89
UNIT COUNT	PHASE 1	PHASE 2	PHASE 3	TOTAL
10m- 15m- 20m- 25m- 30m- 35m- 40m- 45m- 50m- 55m- 60m- 65m- 70m- 75m- 80m- 85m- 90m- 95m- 100m- 105m- 110m- 115m- 120m- 125m- 130m- 135m- 140m- 145m- 150m- 155m- 160m- 165m- 170m- 175m- 180m- 185m- 190m- 195m- 200m- 205m- 210m- 215m- 220m- 225m- 230m- 235m- 240m- 245m- 250m- 255m- 260m- 265m- 270m- 275m- 280m- 285m- 290m- 295m- 300m- 305m- 310m- 315m- 320m- 325m- 330m- 335m- 340m- 345m- 350m- 355m- 360m- 365m- 370m- 375m- 380m- 385m- 390m- 395m- 400m- 405m- 410m- 415m- 420m- 425m- 430m- 435m- 440m- 445m- 450m- 455m- 460m- 465m- 470m- 475m- 480m- 485m- 490m- 495m- 500m- 505m- 510m- 515m- 520m- 525m- 530m- 535m- 540m- 545m- 550m- 555m- 560m- 565m- 570m- 575m- 580m- 585m- 590m- 595m- 600m- 605m- 610m- 615m- 620m- 625m- 630m- 635m- 640m- 645m- 650m- 655m- 660m- 665m- 670m- 675m- 680m- 685m- 690m- 695m- 700m- 705m- 710m- 715m- 720m- 725m- 730m- 735m- 740m- 745m- 750m- 755m- 760m- 765m- 770m- 775m- 780m- 785m- 790m- 795m- 800m- 805m- 810m- 815m- 820m- 825m- 830m- 835m- 840m- 845m- 850m- 855m- 860m- 865m- 870m- 875m- 880m- 885m- 890m- 895m- 900m- 905m- 910m- 915m- 920m- 925m- 930m- 935m- 940m- 945m- 950m- 955m- 960m- 965m- 970m- 975m- 980m- 985m- 990m- 995m- 1000m- 1005m- 1010m- 1015m- 1020m- 1025m- 1030m- 1035m- 1040m- 1045m- 1050m- 1055m- 1060m- 1065m- 1070m- 1075m- 1080m- 1085m- 1090m- 1095m- 1100m- 1105m- 1110m- 1115m- 1120m- 1125m- 1130m- 1135m- 1140m- 1145m- 1150m- 1155m- 1160m- 1165m- 1170m- 1175m- 1180m- 1185m- 1190m- 1195m- 1200m- 1205m- 1210m- 1215m- 1220m- 1225m- 1230m- 1235m- 1240m- 1245m- 1250m- 1255m- 1260m- 1265m- 1270m- 1275m- 1280m- 1285m- 1290m- 1295m- 1300m- 1305m- 1310m- 1315m- 1320m- 1325m- 1330m- 1335m- 1340m- 1345m- 1350m- 1355m- 1360m- 1365m- 1370m- 1375m- 1380m- 1385m- 1390m- 1395m- 1400m- 1405m- 1410m- 1415m- 1420m- 1425m- 1430m- 1435m- 1440m- 1445m- 1450m- 1455m- 1460m- 1465m- 1470m- 1475m- 1480m- 1485m- 1490m- 1495m- 1500m- 1505m- 1510m- 1515m- 1520m- 1525m- 1530m- 1535m- 1540m- 1545m- 1550m- 1555m- 1560m- 1565m- 1570m- 1575m- 1580m- 1585m- 1590m- 1595m- 1600m- 1605m- 1610m- 1615m- 1620m- 1625m- 1630m- 1635m- 1640m- 1645m- 1650m- 1655m- 1660m- 1665m- 1670m- 1675m- 1680m- 1685m- 1690m- 1695m- 1700m- 1705m- 1710m- 1715m- 1720m- 1725m- 1730m- 1735m- 1740m- 1745m- 1750m- 1755m- 1760m- 1765m- 1770m- 1775m- 1780m- 1785m- 1790m- 1795m- 1800m- 1805m- 1810m- 1815m- 1820m- 1825m- 1830m- 1835m- 1840m- 1845m- 1850m- 1855m- 1860m- 1865m- 1870m- 1875m- 1880m- 1885m- 1890m- 1895m- 1900m- 1905m- 1910m- 1915m- 1920m- 1925m- 1930m- 1935m- 1940m- 1945m- 1950m- 1955m- 1960m- 1965m- 1970m- 1975m- 1980m- 1985m- 1990m- 1995m- 2000m- 2005m- 2010m- 2015m- 2020m- 2025m- 2030m- 2035m- 2040m- 2045m- 2050m- 2055m- 2060m- 2065m- 2070m- 2075m- 2080m- 2085m- 2090m- 2095m- 2100m- 2105m- 2110m- 2115m- 2120m- 2125m- 2130m- 2135m- 2140m- 2145m- 2150m- 2155m- 2160m- 2165m- 2170m- 2175m- 2180m- 2185m- 2190m- 2195m- 2200m- 2205m- 2210m- 2215m- 2220m- 2225m- 2230m- 2235m- 2240m- 2245m- 2250m- 2255m- 2260m- 2265m- 2270m- 2275m- 2280m- 2285m- 2290m- 2295m- 2300m- 2305m- 2310m- 2315m- 2320m- 2325m- 2330m- 2335m- 2340m- 2345m- 2350m- 2355m- 2360m- 2365m- 2370m- 2375m- 2380m- 2385m- 2390m- 2395m- 2400m- 2405m- 2410m- 2415m- 2420m- 2425m- 2430m- 2435m- 2440m- 2445m- 2450m- 2455m- 2460m- 2465m- 2470m- 2475m- 2480m- 2485m- 2490m- 2495m- 2500m- 2505m- 2510m- 2515m- 2520m- 2525m- 2530m- 2535m- 2540m- 2545m- 2550m- 2555m- 2560m- 2565m- 2570m- 2575m- 2580m- 2585m- 2590m- 2595m- 2600m- 2605m- 2610m- 2615m- 2620m- 2625m- 2630m- 2635m- 2640m- 2645m- 2650m- 2655m- 2660m- 2665m- 2670m- 2675m- 2680m- 2685m- 2690m- 2695m- 2700m- 2705m- 2710m- 2715m- 2720m- 2725m- 2730m- 2735m- 2740m- 2745m- 2750m- 2755m- 2760m- 2765m- 2770m- 2775m- 2780m- 2785m- 2790m- 2795m- 2800m- 2805m- 2810m- 2815m- 2820m- 2825m- 2830m- 2835m- 2840m- 2845m- 2850m- 2855m- 2860m- 2865m- 2870m- 2875m- 2880m- 2885m- 2890m- 2895m- 2900m- 2905m- 2910m- 2915m- 2920m- 2925m- 2930m- 2935m- 2940m- 2945m- 2950m- 2955m- 2960m- 2965m- 2970m- 2975m- 2980m- 2985m- 2990m- 2995m- 3000m- 3005m- 3010m- 3015m- 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5880m- 5885m- 5890m- 5895m- 5900m- 5905m- 5910m- 5915m- 5920m- 5925m- 5930m- 5935m- 5940m- 5945m- 5950m- 5955m- 5960m- 5965m- 5970m- 5975m- 5980m- 5985m- 5990m- 5995m- 6000m- 6005m- 6010m- 6015m- 6020m- 6025m- 6030m- 6035m- 6040m- 6045m- 6050m- 6055m- 6060m- 6065m- 6070m- 6075m- 6080m- 6085m- 6090m- 6095m- 6100m- 6105m- 6110m- 6115m- 6120m- 6125m- 6130m- 6135m- 6140m- 6145m- 6150m- 6155m- 6160m- 6165m- 6170m- 6175m- 6180m- 6185m- 6190m- 6195m- 6200m- 6205m- 6210m- 6215m- 6220m- 6225m- 6230m- 6235m- 6240m- 6245m- 6250m- 6255m- 6260m- 6265m- 6270m- 6275m- 6280m- 6285m- 6290m- 6295m- 6300m- 6305m- 6310m- 6315m- 6320m- 6325m- 6330m- 6335m- 6340m- 6345m- 6350m- 6355m- 6360m- 6365m- 6370m- 6375m- 6380m- 6385m- 6390m- 6395m- 6400m- 6405m- 6410m- 6415m- 6420m- 6425m- 6430m- 6435m- 6440m- 6445m- 6450m- 6455m- 6460m- 6465m- 6470m- 6475m- 6480m- 6485m- 6490m- 6495m- 6500m- 6505m- 6510m- 6515m- 6520m- 6525m- 6530m- 6535m- 6540m- 6545m- 6550m- 6555m- 6560m- 6565m- 6570m- 6575m- 6580m- 6585m- 6590m- 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7310m- 7315m- 7320m- 7325m- 7330m- 7335m- 7340m- 7345m- 7350m- 7355m- 7360m- 7365m- 7370m- 7375m- 7380m- 7385m- 7390m- 7395m- 7400m- 7405m- 7410m- 7415m- 7420m- 7425m- 7430m- 7435m- 7440m- 7445m- 7450m- 7455m- 7460m- 7465m- 7470m- 7475m- 7480m- 7485m- 7490m- 7495m- 7500m- 7505m- 7510m- 7515m- 7520m- 7525m- 7530m- 7535m- 7540m- 7545m- 7550m- 7555m- 7560m- 7565m- 7570m- 7575m- 7580m- 7585m- 7590m- 7595m- 7600m- 7605m- 7610m- 7615m- 7620m- 7625m- 7630m- 7635m- 7640m- 7645m- 7650m- 7655m- 7660m- 7665m- 7670m- 7675m- 7680m- 7685m- 7690m- 7695m- 7700m- 7705m- 7710m- 7715m- 7720m- 7725m- 7730m- 7735m- 7740m- 7745m- 7750m- 7755m- 7760m- 7765m- 7770m- 7775m- 7780m- 7785m- 7790m- 7795m- 7800m- 7805m- 7810m- 7815m- 7820m- 7825m- 7830m- 7835m- 7840m- 7845m- 7850m- 7855m- 7860m- 7865m- 7870m- 7875m- 7880m- 7885m- 7890m- 7895m- 7900m- 7905m- 7910m- 7915m- 7920m- 7925m- 7930m- 7935m- 7940m- 7945m- 7950m- 7955m- 7960m- 7965m- 7970m- 7975m- 7980m- 7985m- 7990m- 7995m- 8000m- 8005m- 8010m- 8015m- 8020m- 8025m- 8030m- 8035m- 8040m- 8045m- 8050m- 8055m- 8060m- 8065m- 8070m- 8075m- 8080m- 8085m- 8090m- 8095m- 8100m- 8105m- 8110m- 8115m- 8120m- 8125m- 8130m- 8135m- 8140m- 8145m- 8150m- 8155m- 8160m- 8165m- 8170m- 8175m- 8180m- 8185m- 8190m- 8195m- 8200m- 8205m- 8210m- 8215m- 8220m- 8225m- 8230m- 8235m- 8240m- 8245m- 8250m- 8255m- 8260m- 8265m- 8270m- 8275m- 8280m- 8285m- 8290m- 8295m- 8300m- 83				

[illegible]



- Legend:**
- EXISTING FEATURES (EX)**
- EX SB EX STD IRON BAR
 - EX S EX IRON BAR
 - EX UP EX UTILITY POLE
 - EX BELL PEG
 - EX AS EX WATER SERVICE
 - EX F EX FIRE HYD
 - NS EX ST NAME SIGN
 - SS EX STOP SIGN
 - EX ELEVATION
 - EX FENCE
 - GS EX U/G GASMAIN
 - EX U/G BELL
 - EX EX WATERMAIN & VALVE
 - EX SAN EX SAN SEWER & MH
 - EX STM EX STM SEWER & MH
- PROPOSED FEATURES (PR)**
- NS PR STREET NAME SIGN
 - SS PR STOP SIGN
 - SF PR S/LT FENCE
 - PR PR STREET LIGHT
 - PR PR WATER SERVICE
 - PR PR SAN SERVICE
 - PR PR HYDRO TRANSFORMER
 - 0.00m W/M PR WATERMAIN
 - 0.0m-0.0m SAN 0.0% PR SAN SEWER
 - 0.0m-0.0m STM 0.0% PR STM SEWER
 - MH 4 PR CATCHBASIN MANHOLE
 - MH 4 PR MANHOLE
 - PR CATCHBASIN
 - 0.000 00 PROPOSED ELEVATION
 - x (0.00 00) PR MATCH EXISTING ELEVATION (INTERPOLATED)
 - PR SWALE
 - PR PHASE 1 CONSTRUCTION LIMITS
 - PR LOCATION FOR CONTAMINATED SOILS (TOTAL)
 - PR LOCATION FOR CONTAMINATED SOILS (PHASE 1)
 - PR LIMIT OF DISTURBANCE



CAUTION
CONTRACTOR TO DETERMINE
LOCATION OF EXISTING UTILITIES
PRIOR TO CONSTRUCTION

Notes:

- 1 Unless noted otherwise, the measurements and distances shown on this drawing are shown in meters
- 2 Do not scale drawings
- 3 It is the contractor's responsibility to verify all dimensions, levels and datums on site and report any discrepancies or omissions to WMI & Associates Ltd prior to construction
- 4 This drawing is to be read and understood in conjunction with all other relevant documents applicable to this project
- 5 This drawing is the exclusive property of WMI & Associates Ltd and the reproduction of any part of this document without prior written consent is strictly prohibited

Benchmark: 190 066m
TEMPORARY BENCHMARK, TOP NUT OF HYDRANT LOCATED ON THE NORTH SIDE OF TELFER ROAD BETWEEN LOTS 24 & 25

No.	Issue / Revision	Date
1	1ST SUBMISSION	JULY 12, 2016
2	2ND SUBMISSION	OCT 14, 2016

TRAILS OF COLLINGWOOD
PHASE 1 CONCEPTUAL
SERVICING PLAN

Client:
Ambient Mechanical Limited
191 Calder Road, Unit 2
Concord, Ontario
L4K 4A1

wmi WMI & Associates Limited
119 Collier Street
Barrie, Ontario
L4M 1H5
Ph: 705-797-2027
www.wmiengineering.ca

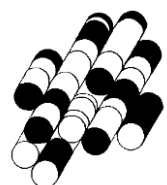
Drawn By: TC
Scale: 1:750
Checked By: JWL
Project No: 07-014
Drawing No: **PH1**

APPENDIX M

Terraprobe Response to Draft Comments by

GHD Limited Dated July 19, 2019

(Reference No. 11176351)



TERRAPROBE INC.



Consulting Geotechnical & Environmental Engineering
Construction Materials Engineering, Inspection & Testing

November 21, 2019

File No. 1-17-0918
Brampton Office

Mr. Mark Bryan, MCIP, RPP
Community Planner
Town of Collingwood
P.O. Box 157
Collingwood, Ontario
L9Y 3Z5

Attention: Mr. Bryan

**RE: TERRAPROBE RESPONSE TO DRAFT COMMENTS BY GHD LIMITED
DATED July 19, 2019 (Reference No. 11176351)**

Dear Mr. Bryan:

Please find Terraprobe's responses to the draft comments made by the GHD Limited (GHD) in their letter entitled: *"Review of Conference Call Meeting Minutes, Trails of Collingwood"* dated July 19, 2019 which was prepared on behalf of Town of Collingwood. Terraprobe's responses are attached.

We trust this information meets with your current requirements. Should you have any questions regarding the information presented, please do not hesitate to contact our office.

Yours truly,

Terraprobe Inc.

Alireza Malek, M.Sc., P. Geo., QP_{ESA}
Project Manager

R. Baker Wohayeb, M.A.Sc., P.Eng., QP_{RA}
Principal

Attachments:

A: Terraprobe Response to GHD Draft Comments dated July 19, 2019
Figure : Borehole Location Plan

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Attachment A
Terraprobe Response to GHD's Comments

General Comments on Meeting Minutes

Item #	Comment by GHD in November 2018	Response by Terraprobe in 2018	Comment by GHD in July 2019	Response by Terraprobe in 2019
1	"GHD Limited (GHD) was retained by the Town of Collingwood to complete a peer review of the proposed remediation plan for the Trails of Collingwood development in Collingwood, Ontario (Property or Site). The Trails of Collingwood property is located along the east side of High Street, just north of Telfer Road in Collingwood, Ontario. The Property is presently vacant and is proposed for residential development. The remediation plan for the Site was prepared by Terraprobe on behalf of the Property owner, and is documented in a letter report dated April 13, 2018 entitled 'Summary of Site Remediation Plan – Trails of Collingwood, High Street & Telfer Road, Collingwood, Ontario' (Remedial Plan). Other environmental reports for the Property that were included in the peer review include a draft Phase One Environmental Site Assessment (dated May 1, 2018), a draft Phase Two Environmental Site Assessment (dated May 23, 2018), and a letter report entitled 'Cost Estimate of Site Remediation Update', dated June 19, 2015. A list of the reports reviewed by GHD is included in Attachment A."	Acknowledged	No further comment by GHD in July 2019	This item is a GHD commentary and no further comment is requested from Terraprobe.
2	"The Property consists of approximately 8.1 hectares of vacant land that was historically used for agricultural purposes with an orchard reportedly located on the western portion of the Property. It is proposed that the Site be developed for residential purposes including townhouse and condominium blocks, as well as some single family residential lots. Some land will also be dedicated for municipal roadways, a park, and stormwater management facilities. A drawing that shows the various development areas for the Site, taken from the Terraprobe letter report dated April 13, 2018, is included in Attachment B."	Acknowledged. The municipal roadways, park and stormwater management (SWM) facilities will be conveyed to the Town of Collingwood.	No further comment by GHD in July 2019	This item is GHD understanding of the development proposal and no further comment is required from Terraprobe.
3	"The Terraprobe environmental reports documented that surficial soils across most of the Site are impacted with arsenic, as well as the pesticides DDT and DDE at concentrations exceeding the Ministry of the Environment, Conservation and Parks (MECP) Standards for residential land use, as provided on Table 2 in the document entitled, 'Soil, Ground Water and Sediment Standards For Use Under Part XV.1 of the Environmental Protection Act, effective July 1, 2001' (MECP Standards). These soil impacts are related to the historic agricultural land use (orchard) at the Site. There are also a few exceedances of other parameters in soil as well, such as selenium, lead, chlordane, and dieldrin. Terraprobe estimates that approximately 48,000 cubic metres of impacted soil is located on the Property."	Acknowledged	No further comment by GHD in July 2019	This item is GHD summary understanding of the soils impact reports from Terraprobe and no further comment is required.
4	"In general terms, the remediation plan for the Site involves the removal of impacted surficial soils from the areas that will be developed for residential land use (including roadways) and placement of the impacted soils onto the lands that will become parkland. A verification soil sampling program would be undertaken on the residential lands to confirm that the MECP Standards for residential land use are met. A Record of Site Condition would then be filed for the residential lands. A Risk Assessment will be prepared for the parkland area after which a Certificate of Property Use and Record of Site Condition will be prepared. The parkland, as well as the roads within the residential area, would ultimately be transferred to the Town of Collingwood. The remediation plan does not specify what activities will be completed on the stormwater management facility lands, or if these lands are being transferred to the Town."	Acknowledged. A Record of Site Condition (RSC) will be filed based on generic standards after remediation for the entire Property including the following: • Residential lands • Municipal roadways • Stormwater management facility lands An RSC will be filed based on the Risk Assessment (RA) for: • The Park The Stormwater Management facility lands will be constructed by the Owner of the Property and conveyed to the Town of Collingwood.	No further comment by GHD in July 2019	This item was addressed to GHD satisfaction and no further comment is required from Terraprobe

Attachment A
Terraprobe Response to GHD's Comments

General Comments on Meeting Minutes

Item #	Comment by GHD in November 2018	Response by Terraprobe in 2018	Comment by GHD in July 2019	Response by Terraprobe in 2019
5	“GHD completed this peer review on behalf of the Town of Collingwood in light of their potential future ownership of the parkland area and municipal roadways. The peer review included an evaluation of the proposed Remedial Plan. GHD did not complete a technical review of the various environmental reports that have been prepared for the Site for completeness or compliance with the requirements of Ontario Regulation 153/04. The MECP will undertake a detailed review of the reports during the process of completing the Risk Assessment and filing of the Record of Site Condition, and the Owner of the Property will have to address those comments. GHD relied on the information presented in the reports as being factual in completing the peer review. GHD did not independently verify any of the information presented in the reports.”	Acknowledged. The Ministry of the Environment, Conservation and Parks (MECP) will undertake a detailed review of the environmental reports prepared by Terraprobe during the process of completing the RA and filing of the RSC. The Town of Colling and their peer reviewer will be updated and copied on reports submissions.	No further comment by GHD in July 2019	This item is addressed and no further comment from Terraprobe is required.
6	“GHD’s comments on the Remedial Plan are presented in the following sections of this letter are organized into the following areas: • Potential leaching from soils in the parkland area • Groundwater characterization • Dewatering and constructability of the parkland area • Future use of the parkland area • Verification sampling plan • Excess Soils Management Regulatory Proposal/Policy and phasing • Town participation in development of Risk Management Measures and Certificate of Property Use	Acknowledged. These comments have been addressed individually in the following sections.	No further comment by GHD in July 2019	This item is addressed and no further comment from Terraprobe is required.
7	“Potential Leaching from Soils to Groundwater” The Remedial Plan assumes that the impacted soil placed into the parkland area will not leach arsenic, DDE, DDT, or other contaminants into groundwater at concentrations that would be of concern. While it is recognized that a Risk Assessment will be completed for the parkland area, the Town should not become the owner of lands where contaminants are migrating off site at concentrations in excess of the MECP Standards. In the documents reviewed by GHD there was no reference to any studies or assessment of leaching potential for the soils being placed onto the parkland area. GHD notes that the Remedial Plan involves the placement of the impacted soils directly on bedrock, at an elevation of approximately 183.34 metres above mean sea level (AMSL). The groundwater table in the parkland area exists at an approximate elevation of 188.7 metres AMSL. A scientific assessment needs to be completed to confirm that contaminants will not leach from the impacted soils at concentrations that would create an unacceptable impact to groundwater, on either the parkland area or downgradient of the parkland area.	A Phase Two Environmental Site Assessment (Phase Two ESA) will be conducted on the parkland area which will consist of advancing boreholes and monitoring wells. Soil and ground water quality will be assessed through the Phase Two ESA. If the chemical analysis results indicate that the ground water is impacted, then the RA will assess the ground water impacts and recommend a Risk Management Measure (RMM) to eliminate the potential of off-site migration.	GHD suggested that a work plan for leachate testing to be prepared and approved by the town and peer reviewer prior to undertaking sampling and chemical testing. In addition, GHD recommended a comprehensive groundwater monitoring and sampling prior to conveying the parkland to the Town.	During the subsurface investigations for the Phase Two ESA, borehole locations will be selected in close proximity to the worse scenario of previous soil sample locations and will be tested for leaching potential study. To address the comment about groundwater monitoring and sampling, it should be noted that a groundwater sampling program will be conducted for the groundwater quality prior to possession of the Parkland by the Town. The above actions will address GHD comments and suggestions. No further commentary from Terraprobe is required.
8	“Groundwater Characterization within the Parkland” The draft Phase Two Environmental Site Assessment identified that only three groundwater monitoring wells have been installed at the Site. These monitoring wells are centrally located within the Site. In GHD’s opinion a more complete characterization of groundwater quality across the Site is needed in order to confirm that the lands (residential development land, roadways, and SWM facility) meet the MECP Standards for residential land use.	Advancing three (3) monitoring wells at the Property as a part of Terraprobe’s previous Phase Two Environmental Site Assessment meets the minimum requirements of the Ontario Regulation 153/04. If the MECP requests that additional monitoring wells are required, Terraprobe will follow as per the MECP’s request.	GHD recommended that a minimum of twelve (12) monitoring wells to be installed across the Site to further characterize soil and groundwater quality across the Property.	In total, nine (9) boreholes will be drilled and instrumented with groundwater monitoring wells (Three from previous investigation; in total 12). A proposed borehole locations plan is attached for review. These actions are per GHD recommendations and address same.

Attachment A
Terraprobe Response to GHD's Comments

General Comments on Meeting Minutes

Item #	Comment by GHD in November 2018	Response by Terraprobe in 2018	Comment by GHD in July 2019	Response by Terraprobe in 2019
9	<i>“Dewatering”</i> As discussed above, impacted soils from the residential lands, roadways, and possible the SWM facility will be placed on lands that will become a park. The proposed Remedial Plan involves removal of existing soils in the parkland area, to the top of bedrock. This excavation will extend approximately 4.5 metres into the groundwater table in the parkland area. The remedial plan does not discuss dewatering of the parkland area or the approach to placement of soils in the parkland area. It is important that dewatering be properly completed including the management of recovered water, and that the soil be properly placed and compacted on the parkland area such that unacceptable settlement of the lands does not occur in the future.	With respect to excavating the parkland area, once the soil is removed, the seepage of groundwater into the excavation and adequate dewatering will be addressed during the remedial activities on the Site. A hydrogeological report will be required to study and assess the potential volume of Ground Water that may enter the excavation. If the volume of water is determined to be greater than 50,000 L/day, a Permit-to-Take-Water (PTTW) will be required. Additionally, a hydrogeological report will address if short-term dewatering is required based on the hydrogeological investigation. The soil will be properly placed and compacted on the parkland area and an engineering fill report will be prepared by a professional Geotechnical Engineer regarding the potential settlement and will include the compaction, density and grain size results.	No further comment by GHD in July 2019	The original GHD comment was addressed and no further comment is required.
10	<i>“Parkland Construction and Future Use”</i> As proposed, the parkland area will contain approximately 7 metres of primarily organic topsoil. While unlikely, it should be confirmed that methane generation will not be an issue once all of the topsoil has been placed in this area.	As part of the proposed RA that will be conducted on the Site, Terraprobe will issue a Methane Management Plan.	No further comment by GHD in July 2019	Original GHD request was addressed and no further comment is required.
11	<i>“Parkland Construction and Future Use”</i> As noted above settlement of the parkland area could be a concern. The soils will need to be placed and compacted in a manner that reduces settlement to the extent practical. Provisions will need to be in place for future repair to the parkland area to address settlement conditions.	The soil will be properly placed and compacted on the parkland area and an engineering fill report will be prepared by a professional Geotechnical Engineer regarding the potential settlement and will include the compaction, density and grain size results.	No further comment by GHD in July 2019	The original GHD concern was addressed and no further comment is required.
12	<i>“Parkland Construction and Future Use”</i> The Remedial Plan includes a 1 metre cap of clean soil over the parkland area. If the Town wished to incorporate any deep rooted trees into the landscaping of the park, the clean cover will need to be 1.5 metres in thickness. GHD believes this will also be a requirement of the MECP.	Acknowledged, the thickness of the clean soil cap over the parkland area will be changed from 1.0 metre to 1.5 metre to accommodate any future deep rooted trees that may be planted in the parkland area.	No further comment by GHD in July 2019	The original GHD request was addressed and no further comment is required.
13	<i>“Parkland Construction and Future Use”</i> Some form of financial assurance should be put in place for future monitoring and maintenance of the parkland as part of the transfer agreement.	Acknowledged, Financial assurance will be included in the proposed RA and future Certificate of Property Use (CPU) for future monitoring and maintenance of the parkland. The Financial assurance will be used as part of the transfer agreement.	No further comment by GHD in July 2019	The original GHD recommendation was addressed and no further comment is required.
14	<i>“Verification of Sampling”</i> The Remedial Plan States that a Verification Plan will be developed. The Town should undertake a review of this plan and the Town’s comments should be incorporated as appropriate.	Acknowledged, the Remedial Plan will be provided to the Town for review.	GHD recommended that a comprehensive verification sampling plan to be submitted to the Town and Peer reviewer in advance for approval.	As discussed in the previous correspondence, a comprehensive verification sampling plan (Remedial Plan) will be submitted to the Town for review. This addresses the GHD recommendation.

Attachment A
Terraprobe Response to GHD's Comments

General Comments on Meeting Minutes

Item #	Comment by GHD in November 2018	Response by Terraprobe in 2018	Comment by GHD in July 2019	Response by Terraprobe in 2019
15	<i>“Excess Soils Management Regulatory Proposal/Policy and Phasing”</i> The MECP has recently been focused on the management of excess soils generated at construction projects in the Province. A draft regulation has recently been prepared and a number of information sessions on this topic have been completed by the MECP. The intent of the draft regulation is to control the movement of excess soils between properties, and ensure that these soils are properly characterized and that the movement of such soils is tracked and monitored. The draft regulation is focused on situations where excess soils are moved from one property to another, and as such are not applicable to the proposed remedial plan. It is GHD’s understanding that the draft regulation does not control the movement of soils within a property. It is recommended that the Developed confirm with the MECP that the proposed movement of soils within the Property, and the placement of impacted soils in the parkland area, are acceptable prior to initiation of the remedial plan. Consideration of the proposed excess soil management regulatory proposal will be very important in the phasing of the proposed development (subdivision of lands) as discussed below.”	Acknowledged, Terraprobe will share the information with the MECP in the PSF and will ensure that the MECP will be informed with the placement of impacted soils in the parkland area as part of the remedial plan. A soil management plan will be included in the Soil and Ground Water Management Plan which will be recommended by the RA and the CPU.	GHD insisted of initiation of a communication with the MECP in regards of the proposed remedial action plan in advance to obtain approval from the Ministry.	As discussed previously, Terraprobe will communicate the following items with the MECP to ensure regulatory requirements are met and the town will be informed. 1-Remedial Plan; 2- Groundwater Sampling Program; 3- leaching potential study; 4- Plan of placement of impacted soils in the parkland area. Terraprobe will confirm to the town the initiation of MECP communication per above.
16	<i>“Excess Soils Management Regulatory Proposal/Policy and Phasing”</i> The remedial plan identifies that the movement of soils from the residential lands, roadways, and SWM facility will be conducted in phases. The phasing of the remediation and severance of the lands will need to be carefully coordinated. Once severed the draft regulations will need to be considered for any movement of soils, along with existing regulatory requirements. It is recommended that no severance of land be undertaken until the Record of Site Condition for the land has been filed and accepted by the MECP. The Town’s requirements for land severance also need to be considered.	Acknowledged, the RSC will be filed for Roadways, Parkland, and the SWM facility prior to severance of these lands. Terraprobe understands as per the comments provided by GHD that severance refers to the subdivision of the land, the creation of registered parcels and the conveying of lands to their respective proposed owners. There is to be no movement of soil between properties after the RSC has been filed.	No further comment by GHD in July 2019	The original GHD comment has been addressed and no further comment is required.
17	<i>“Excess Soils Management Regulatory Proposal/Policy and Phasing”</i> It is GHD’s understanding that the MECP has not been involved at the Site, or consulted about the Remedial Plan. In our opinion, it would be prudent for the property Owner to consult the MECP concerning the remedial actions to be undertaken at the Site.	The MECP will be informed through the Pre-Submission Form (PSF) application. Since the soil and ground water investigation will cover the entire parkland property, and an RSC will be filed for the remaining properties, Terraprobe finds no concern regarding the remedial action that has been proposed.	No further comment by GHD in July 2019	The original GHD comment is required and no further action is required.
18	<i>“Town Participation in Development of Risk Management Measures and Certificate of Property Use”</i> It is intended that the Town ultimately take ownership of the municipal roadways and the parkland area. GHD is not aware of the future ownership plans for the stormwater management facility. The future owner of these lands will be required to comply with any risk management measures specified in the Risk Assessment, as well as the Certificate of Property Use. As such, the Town must be involved in the preparation of these documents prior to submission to the MECP to ensure that any ongoing management requirements are reasonable, and acceptable to the Town. This will also allow for an estimate of future costs for management of lands being transferred to the Town.	Acknowledged. The municipal roadways, park and stormwater management (SWM) facilities will be conveyed to the Town of Collingwood. The proposed RMMs will be sent to the Town for review before the submission to the MECP.	No further comment by GHD in July 2019	The original GHD comment has been acknowledged with no further GHD comment, therefore no further comment is required.
19	<i>“Town Participation in Development of Risk Management Measures and Certificate of Property Use”</i> With regard to the municipal roadways, the Remedial Plan specifies that these lands be remediated to residential land use standards and that a Record of Site Condition be filed. Under this approach, there will be no ongoing management requirements for these lands.	Acknowledged. Ongoing managements are not required for the municipal roadways and SWM facility after filing the RSC of them.	No further comment by GHD in July 2019	Original GHD comment is addressed. No further comment from Terraprobe is required.

Attachment A
Terraprobe Response to GHD's Comments

General Comments on Meeting Minutes

Item #	Comment by GHD in November 2018	Response by Terraprobe in 2018	Comment by GHD in July 2019	Response by Terraprobe in 2019
20	The soil management plan (Section 2.1.2 of the Remedial Plan) should address stormwater management during remedial activities.	Acknowledged. The stormwater management will be addressed during the remedial activities.	No further comment by GHD in July 2019	No comment from Terraprobe
21	The draft Phase One ESA does not include the lands identified as Block 53 and Block 54. It is proposed that these lands be developed with the SWM Facility and the park, respectively. A Phase One ESA will be needed to facilitate completion of a RSC for these lands. Any additional APECS identified in the Phase One ESA on these lands will need to be investigated and addressed.	Our Draft Phase One ESA entitled 'Phase One Environmental Site Assessment, Trails of Collingwood – High Street and Telfer Road, Collingwood, Ontario' dated May 1, 2018 identifies in Figure 2 that the entire subject Property, including Block 53 and Block 54 have been included in Attachment B. Therefore, with regards to the RSC Property, since Block 53 and Block 54 have been included in the Phase One ESA study, the potential of any additional APECS has been clearly identified.	No further comment by GHD in July 2019	Original GHD comment and request has been met. No further comment from Terraprobe is required.
22	Based on the soils data provided to GHD, the extent of soils impact to depth at many locations has not been determined. There is risk that the actual volume of impacted soil is greater than estimated.	Based on Terraprobe's Draft Remediation Plan entitled 'Summary of Site Remediation Plan, Trails of Collingwood, High Street & Telfer Road, Collingwood, Ontario' dated October 10, 2018, the approximate depth of impacted soils was identified to be 0.9 m in some areas as stated in the Remedial Plan in Section 1.0: "...The approximate impact typically extends to 0.3 m to 0.6 m below grade, with a few impacts reaching 0.9 m below grade." Additionally, Terraprobe's document entitled 'Cost Estimate of Site Remediation Update, Trails of Collingwood, Collingwood, Ontario' dated June 19, 2015, Attachment 3 shows the depths of the impacts that have been identified on the Property and confirms that impacts exist at 0.9 m below grade in localized areas. Considering the soil impact depth at 0.9 m will be a conservative approach and as such, the actual depth to impacted soils may vary and will be determined during the Remedial Activities at the Site. An earthworks contractor will be instructed to excavate the surficial layer and a confirmatory soil sampling program will be conducted. The soil samples will be submitted for chemical analysis and if it is identified that the soil samples exceed the Applicable Site Condition Standards, they will be considered interim samples and the earthworks contractor will be instructed to excavate deeper. Once the chemical analysis of the soil samples indicates that the soil meets the Applicable Site Condition Standards, this will conclude the confirmatory sampling program and a soil letter report will be prepared. The Remedial Plan and Attachment 3 as noted above are attached as Attachment C and Attachment D respectively.	No further comment by GHD in July 2019	Original GHD comment and concern was addressed. No further response is required.

Attachment A
Terraprobe Response to GHD's Comments

General Comments on Meeting Minutes

Item #	Comment by GHD in November 2018	Response by Terraprobe in 2018	Comment by GHD in July 2019	Response by Terraprobe in 2019
23	It is estimated in the Summary of Site Remediation Plan that 48,000 cubic metres of soil are impacted. The volume of soil that can be placed in the parkland areas is reported to be 42,035 cubic metres, as shown on drawing PH1.	Based on the Terraprobe's letter entitled 'Summary of Site Remediation and Record of Site Condition Process, Trails of Collingwood Development, Collingwood, Ontario' dated October 24, 2016, the approximate extent of the soil impacts are identified to range between a depth of 0.3 to 0.6 metres below grade and the volume of impacted soils is approximated to 42,000 m3. Based on Terraprobe's Draft Remediation Plan entitled 'Summary of Site Remediation Plan, Trails of Collingwood, High Street & Telfer Road, Collingwood, Ontario' dated October 10, 2018, the approximate depth of impacted soils was identified to be 0.9 m in some areas as stated in the Remedial Plan in Section 1.0: "...The approximate impact typically extends to 0.3 m to 0.6 m below grade, with a few impacts reaching 0.9 m below grade." The 0.9 metres depth changed the average depth to impacted soils for the site, and as such, changed the approximated volume of impacted soils from 42,000 m3 to 48,000 m3. However, these quantities are approximate and the actual quantity will be determined when the Remedial Activities are conducted at the Site. As a provision, the parkland area that will be filled will be designed with a buffer so that it is capable of handling more soil quantity should the quantity turn out to be greater than 48,000 m3. Additionally, impacted soil materials that can no longer fit in the allotted parkland area will be hauled off-site to a licensed disposal facility.	No further comment by GHD in July 2019	Original GHD coment and concern was addressed. No further response from Terraprobe is required.
24	It is recommended that the Town be consulted on a regular basis as the project proceeds, and that documents that are of relevance to the Town (e.g., Verification Plan, Soil Management Plan, etc.) be provide at the Town's request.	Acknowledged. The Town of Collingwood will be consulted and updated on the project progress	No further comment by GHD in July 2019	Original GHD recommendation was acknowledged. No further response from Terraprobe is required.



Reference:
Title: Trails of Collingwood Subdivision
Prepared By: GLOBAL Architect Inc.
Project No: 09-25
DWG No: DP-1
Dated: September, 2017

Notes:

Legend:

- Property Boundary
- Existing Borehole with Monitoring Well Location (Terraprobe 2017)
- Proposed Borehole / Monitoring Well Location Based on the Current Chemical Analysis and Proposed TCLP Testing

Project Title:
Terraprobe's Response to GHD's Comments

Site Location:
Trails of Collingwood, Collingwood, Ontario

Figure Title:
PROPOSED BOREHOLE / MONITORING WELL LOCATION PLAN

Designed By:	AM	File No.:	1-17-0918-42
Drawn By:	MV	Scale:	As Shown
Reviewed By:	BW	Figure No.:	1
Date:	November 2019		

